

Section 2 Project Description

2.a General Description, Including Purpose and Need for the Project

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 2, and the criteria and standards described in LUC Sections 8.15, 8.16, and 12.1.B.

2.a.1 Purpose and Need

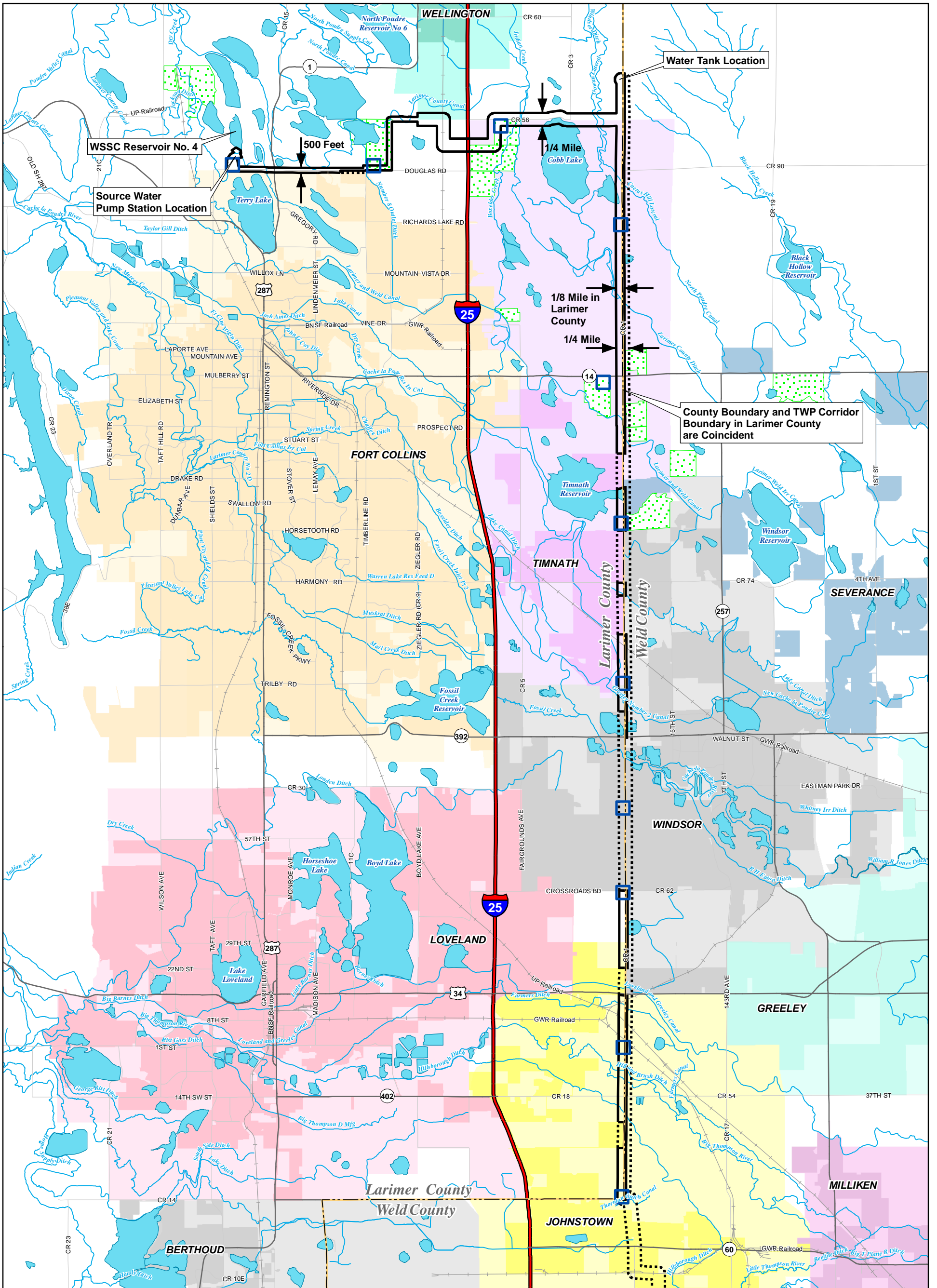
The purpose of the TWP is to convey domestic water from the WSSC system purchased by Thornton in the mid-1980's to enhance Thornton's water supply reliability and drought resiliency, help address source water quality issues, and meet municipal and industrial demands of Thornton's water customers through 2065.


Thornton's population is projected to increase from its current estimated population of 136,574 residents (City of Thornton, Third Quarter 2017, Population Estimate and Housing Inventory Report) to 242,000 residents by 2065. Thornton has proactively planned for the anticipated population increase to ensure that Thornton can provide a reliable, high quality, and economical water supply to meet the needs of its residents and businesses. Thornton's existing water system, including an extensive water conservation program, has served to meet municipal and industrial water needs of Thornton's current water customers in its service area, as well as to meet existing contractual obligations. Thornton water supply projects in development will allow Thornton to provide water service up to a population of 158,000 residents. Beyond 158,000 residents, which Thornton projects to reach by 2025, additional water supplies are needed to ensure reliable water service to Thornton's water customers. Water from the WSSC system in Northern Colorado purchased by Thornton in the mid-1980's from willing sellers has been decreed in Water Court for use in Thornton, but Thornton currently lacks the infrastructure to deliver that water to Thornton. The TWP will provide the necessary infrastructure for delivery of this water to Thornton, and provides the means by which Thornton's customers will receive the benefit of Thornton's decades-long planning for and investment in this additional water supply. The TWP is being configured to deliver an average of 14,000 acre-feet of water annually, which is sufficient to meet the municipal and industrial demands of Thornton's water customers through 2065. In addition to meeting water demand, in adding this high quality source the TWP provides diversity, enhanced water supply reliability, quality and drought resiliency to Thornton's supply.

2.a.2 General Description

Thornton is proposing to construct, operate, and maintain the TWP, which includes up to approximately 26 miles of a buried 48-inch water pipeline and associated appurtenances in unincorporated Larimer County, Colorado. The TWP is a water delivery system that will convey domestic water from the WSSC system purchased by Thornton in the mid-1980's to Thornton. **Figure 2.a-1** shows the TWP corridor from the WSSC system to the southern Larimer County border (County Road 14) at County Road 1 and includes the corridor in both Larimer and Weld Counties.

Thornton Water Project






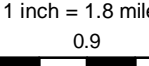
**CITY OF THORNTON
COLORADO**

12450 WASHINGTON ST
THORNTON, CO 80241-2405

12/29/2017



1 inch = 1.8 miles



0 0.9 1.8 Miles

<ul style="list-style-type: none"> TWP Corridor in Unincorporated Larimer County TWP Corridor outside Unincorporated Larimer County Railroad Thornton Farm County Boundary Lake/Reservoir River/Stream/Canal/Ditch Potential Staging Area 	<p>Boundaries Crossed by the Proposed Corridor</p> <table border="0"> <tr> <th>Corporate Boundary</th> <th>GMA Boundary</th> </tr> <tr> <td> Fort Collins</td> <td> Fort Collins</td> </tr> <tr> <td> Johnstown</td> <td> Johnstown</td> </tr> <tr> <td> Loveland</td> <td> Loveland</td> </tr> <tr> <td> Timnath</td> <td> Timnath</td> </tr> <tr> <td> Wellington</td> <td> Wellington</td> </tr> <tr> <td> Windsor</td> <td> Windsor</td> </tr> </table>	Corporate Boundary	GMA Boundary	Fort Collins	Fort Collins	Johnstown	Johnstown	Loveland	Loveland	Timnath	Timnath	Wellington	Wellington	Windsor	Windsor
Corporate Boundary	GMA Boundary														
Fort Collins	Fort Collins														
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**Figure 2.a-1
TWP Corridor Map**

Sources: NHD, USGS, CDWR, Larimer and Weld Counties, CDOT, City of Thornton

TWP Corridor

Thornton is seeking approval for an approximate 500-foot to ¼-mile wide corridor for TWP components in unincorporated Larimer County. The final water pipeline alignment within the Larimer County approved corridor will be developed during final design. 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 TWP will be constructed in road right-of-way (ROW). The TWP corridor width varies to allow for flexibility when developing the final water pipeline alignment and location of appurtenances. TWP corridor limits are shown on **Figure 2.a-1**. Areas bounded by a dashed line show the corridor outside of unincorporated Larimer County. For information on the TWP corridor development process, see **Appendix A**.

The east/west section of the TWP corridor is approximately 10 miles long, extending east in unincorporated Larimer County north of Fort Collins from WSSC Reservoir No. 4, then across Interstate 25 to Larimer County Road 1/Weld County Road 13 (County Road 1). The TWP corridor is 500-foot wide along Douglas Road to Larimer County Road 9. The TWP corridor is ¼-mile wide east of Larimer County Road 9 and generally follows roads and property lines.

The section of the TWP corridor that generally runs north/south in unincorporated Larimer County is ½-mile wide and approximately 16 miles long. The TWP corridor follows County Road 1 from just south of County Road 58 to County Road 14. County Road 1 is the Larimer County/Weld County line and the full ¼-mile wide TWP corridor is centered on the County line, encroaching ½-mile into each county. The TWP corridor continues south of County Road 14 into Weld County and then into Adams County where it terminates at the Thornton water treatment plants.

Portions of the TWP corridor include approximately 10 ½ miles in incorporated areas of Fort Collins, Johnstown, Timnath, or Windsor, including roads that have been annexed by local governments.

As discussed during the Pre-Application Conference for the project, Larimer County's process can accommodate a corridor approach for the Application. Seeking permit approval for the TWP corridor will:

- Allow the continued efficient integration of the TWP into planned future county or municipal developments within the approved corridor through continuing coordination and outreach meetings as the TWP is developed and implemented.
- Provide property owners greater flexibility in working with Thornton to locate the water pipeline within the approved TWP corridor that best meets property owners' preferences.

The process to develop a final water pipeline alignment route is iterative, and deviations may occur as a result of negotiations with individual property owners or if detailed land, utility, or resource surveys reveal engineering or environmental constraints. Outreach to property owners included a series of Open Houses conducted in November and December 2016, an outreach meeting with residents from the areas around WSSC Reservoir No. 4 in February 2017, and a Community Update meeting for area residents near Douglas Road conducted in September 2017. Additional information regarding the property owner outreach is included in Section 2.k and **Appendix B**. If, following approval by the Larimer County Board of County Commissioners, the water pipeline alignment is required to extend outside of the approved corridor, Thornton will consult with the Larimer County Planning Department. After approval of a 1041 permit, alignment refinements within the TWP corridor are not anticipated to result in substantive changes to potential impacts associated with the proposed TWP and are not expected to require additional Larimer County approval under Larimer County's 1041 permit process.

TWP Components

TWP components within the TWP corridor in unincorporated Larimer County include the following:

- Water pipeline. Up to approximately 26 miles of a buried, 48-inch diameter water pipeline capable of conveying 40 mgd of water will be constructed in unincorporated Larimer County. The water pipeline will be buried at a minimum depth of 4 feet below grade. The depth of bury will vary based on existing utility crossings, road crossings, water crossings, other existing or proposed features, and property owner preferences. 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 TWP will be constructed in road ROW. Where the TWP corridor parallels Douglas Road and County Road 56, the water pipeline is proposed to be located in the Larimer County ROW where feasible and as approved by Larimer County. However, if the location of the water pipeline cannot be accommodated in the Douglas Road or County Road 56 ROW, easements will be purchased from property owners to locate the water pipeline on private property.
- Appurtenances
 - Source water connection. Two buried valve vaults will be constructed to connect the TWP to two existing outlet pipelines at WSSC Reservoir No. 4.
 - Water tank. An approximate 1 million gallon water tank will be constructed. The water tank will require an approximate 2-acre site for the approximate 85-foot diameter, 24-foot tall steel water tank. Land will be purchased from property owners for this appurtenance. The water tank is planned to be painted a shade of tan to blend into the surrounding area. Gravel access will be constructed and the remaining disturbed area, including vegetation, will be restored to pre-construction conditions. Lighting will be installed for security and will comply with LUC Section 8.15 and other applicable regulations. Security fencing will be located around the perimeter of the site and will comply with LUC Section 8.16. An example photo of a similar tank is shown in **Figure 2.a-2**.



FIGURE 2.a-2
Example Appurtenance: Water Tank

- Communications. Up to approximately 26 miles of buried fiber optic cable, including buried manholes, test stations, and other fiber optic cable appurtenances will generally parallel the water pipeline in unincorporated Larimer County. The fiber optic cable will be installed in close proximity to the water pipeline. The fiber optic cable will allow Thornton to remotely communicate with and operate the TWP. The cable will be buried at a minimum depth of 3 feet below grade. The depth of bury will vary based on existing utility crossings, road crossings, water crossings, or other existing or proposed features, and property owner preferences.
- Other Appurtenances. Various buried water pipeline appurtenances and structures, including access manways, blow-off assemblies (used to drain the water pipeline), combination air release valve vaults (used to exhaust air when filling the water pipeline and admitting air during draining operations), and isolation valve vaults, will be constructed. Photographs of example appurtenances and structures are shown in **Figure 2.a-3**. The size of structures and interior components of manholes and vaults will be designed specifically for the TWP and could vary from the description. Additional permanent and temporary easements could be obtained for these appurtenances.



Combination Air Release Valve Vault. Photo of combination air release valve vault after construction. Vault is a concrete vault, buried below grade. Vault houses air release valves and an access manway. Visible features include the air vent, access hatch, and valve box markers.

Isolation Valve Vault. Photo of isolation vault after construction. Vault is a concrete vault, buried below grade. Vault houses an isolation valve, air release/vacuum valves, and miscellaneous piping. Visible features include the air vent, access hatches, and valve box markers.

Blow-off Assembly with Discharge Structure. Photo of blow-off manhole, pump well manhole, and dissipation structure after construction. The blow-off manhole is a concrete manhole that houses a blow-off drain valve. The pump well manhole is a concrete manhole that houses a pump out pipeline. The dissipation structure is a concrete structure located at grade. Visible features include the air vent, dissipation structure, manhole covers, and valve box markers.

Blow-off Assembly with Pump Out. Photo of blow-off manhole and pump well manhole after construction. The blow-off manhole is a concrete manhole that houses a blow-off drain valve. The pump well manhole is a concrete manhole that houses a pump out pipeline. Visible features include the air vent, manhole covers, and valve box markers.

FIGURE 2.a-3
 Example Buried Appurtenances

The TWP appurtenances also include an approximate 40-mgd source water pump station located near WSSC Reservoir No. 4. The source water pump station will require an approximate 2-acre site with up to an approximate 10,000 square-foot building to house pumps and associated equipment. An emergency backup diesel generator might be located outside of the source water pump station, if a second independent power source is not included. Thornton contacted Poudre Valley Rural Electrical Association (PVREA) to determine if current infrastructure in the area supports the proposed load, and they confirmed sufficient power is available in the area to supply the source water pump station. In addition, it may be possible for PVREA to extend a second, redundant power feed to the source water pump station for emergency backup power. If a second feed is feasible and cost-effective, an emergency diesel powered backup generator will not be required. Thornton will continue to coordinate with PVREA to determine specific requirements for power service to the source water pump station.

Lighting for the source water pump station will be installed for security and will comply with LUC Section 8.15 and other applicable regulations. A lighting plan will be submitted to Larimer County with the Site Plan Review Permit application. Security fencing will be installed around the perimeter of the site. The access driveway and parking areas are anticipated to be gravel. Land will be purchased from property owner(s) for the source water pump station.

As discussed with Larimer County Planning staff at the Pre-Application Conference, the source water pump station is not part of this Application, but will be separately permitted through the Site Plan Review permit process. Information on the source water pump station provided in this Application is of a general nature and is included to present a more complete scope of the TWP. To date no design has been completed for the source water pump station and Thornton will submit a Site Plan Review permit application to Larimer County in accordance with LUC Section 6.0. At the request of Larimer County staff, examples of existing pump stations are shown in **Figure 2.a-4**. During design, Thornton will consider input and suggestions on the design and architecture for the source water pump station that reduce the visual impacts of the facility.



FIGURE 2.a-4
Example Pump Stations

Final Water Pipeline Alignment Design Criteria

During the Pre-Application Conference with Larimer County, Larimer County staff requested that the Application include design criteria that will be used for the selection and development of the final water pipeline alignment location within a Larimer County approved corridor. The majority of the TWP corridor follows the Larimer/Weld County line along County Road 1. It is anticipated that the water pipeline alignment will cross back and forth over the County line to accommodate property owner preferences where practicable and to meet water pipeline alignment design criteria.

Where practicable, water pipeline design criteria are as follows:

- Be outside the current and future planned road ROW unless otherwise approved by Larimer County. Where the corridor parallels Douglas Road and County Road 56, the water pipeline is proposed to be located in Larimer County ROW where feasible and as approved by Larimer County.
- Be adjacent to roads, current or future ROW, existing utility easements, and property lines.
- Utilize Thornton-owned property within the corridor.
- Minimize impacts to agricultural use.
- Minimize impacts to existing structures.
- Cross waters, irrigation ditches, roads, and railroads perpendicular to the feature.
- Minimize road crossings.

- Minimize impacts to environmental and cultural resources.
- Minimize impacts to open lands/conservation easements.

Land Acquisition

Thornton will typically acquire non-exclusive permanent easements for installation, operation, and maintenance of the water pipeline and appurtenances. The typical permanent easement width is anticipated to be 50-feet wide, and the typical temporary construction easement is anticipated to be an additional 40-feet in width as shown on **Figure 2.a-5**. The final alignment of the water pipeline is subject to negotiation with individual property owners. Thornton’s land services representatives will work with property owners along the TWP corridor to explain water pipeline construction, operations, and maintenance activities and to negotiate the purchase of easements where needed based on fair market value. The easements will grant Thornton an area to construct, operate, and maintain the water pipeline, and property owners will maintain fee title to the land. Property owners who grant a permanent easement to Thornton can continue to use the land within the easement area for purposes such as farming, grazing, or access, so long as such uses do not interfere with or endanger the operation of the TWP. The predominant land use in the TWP area, agricultural use, is compatible with operation of the TWP because the water pipeline and fiber optic cable will be buried below the plow line. The buried water pipeline and fiber optic cable are compatible with other land uses, such as residential use, that the TWP corridor crosses. As discussed with Larimer County Planning staff at the Pre-Application Conference, Thornton will supply final alignment and construction plans to Larimer County prior to construction to meet 1041 permit site map requirements. Construction plans are anticipated to be delivered in multiple packages.

Land for the source water pump station and water tank will be purchased from individual property owner(s). It is anticipated that up to 2 acres will be required for each site. Thornton’s land services representatives will work with property owner(s) to negotiate purchase of land. This could require land division of property. Thornton will follow the appropriate Larimer County Land Division process.

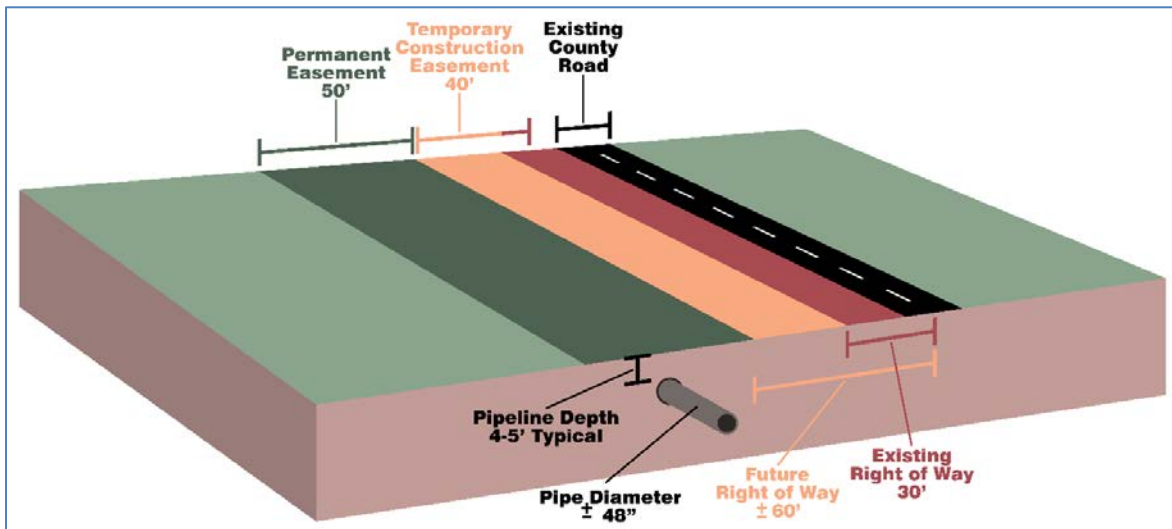


FIGURE 2.a-5
 Typical Easements

Construction Activities

Construction activities in Larimer County are proposed to begin in 2019, and operation of the TWP is scheduled to begin in 2025. Work on multiple construction packages including the water pipeline, trenchless water pipeline, source water pump station, and water tank may occur concurrently with multiple crews of 10 to 55 workers each. At the peak of construction, approximately 80 to 100 workers could be required at multiple sites along the TWP. Construction work hours will typically be from 7 a.m. to 7 p.m. Monday through Saturday unless otherwise approved by Larimer County. Construction may extend beyond these hours on an as-required and case-by-case approved basis. For example, some construction activities, such as hydrostatic testing, require 24/7 operation, and shift work may be required. However, shifts are not anticipated for construction on a day-to-day basis.

The following are major activities involved in construction in typical sequence:

- Traffic control installation
- Survey
- Stormwater best management practice (BMP) and access installation
- Site clearing
- Stage materials/staging area setup
- Excavate the water pipeline trench/bore pit
- Water pipeline installation
- Backfill the trench/bore pit
- Conduct pressure testing
- Clean up
- Restore ground surface
- Road restoration
- Revegetation
- Ongoing stewardship

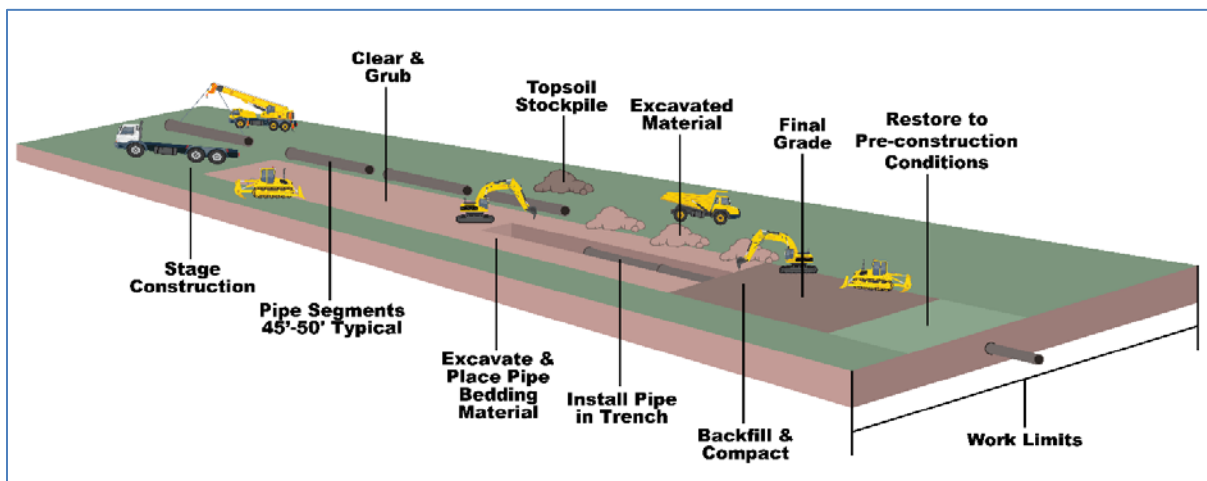


FIGURE 2.a-6
Construction Activities

Traffic Control Installation

Prior to work in the ROW, traffic control measures will be implemented. Thornton places a high priority on safety during construction. TWP contractors will implement traffic management plans based upon local traffic control requirements and general safe operating practices. Thornton and/or the TWP contractors will develop traffic control plans that include adequate levels of service and safety measures for construction. Proper signage, flaggers, lighting, speed limits, work hours, postings, notifications, and other precautionary safety measures will be taken to protect the residents of Larimer County and the TWP contractors' employees. Access will be maintained to local area residents. Emergency vehicle access needs will be maintained and construction activities coordinated with local fire departments, police departments, ambulance services, and other emergency responders as necessary.

Survey

The water pipeline location will be surveyed and staked to ensure that the water pipeline will be installed as indicated on the contract documents. Work limits will also be surveyed to establish the boundaries that the contractor is allowed to work in. Work limits include the permanent and temporary construction easements and the Larimer County approved ROW.

Stormwater BMP and Access Installation

Surface drainage stormwater BMPs will include application of erosion control techniques and the successful revegetation of disturbed areas. The required Colorado Department of Public Health and Environment (CDPHE) construction stormwater permits and stormwater management plans (SWMPs) will include detailed descriptions of BMPs that will be used to protect surface hydrology and water quality.

Thornton will obtain access permits from Larimer County or other agencies for any necessary temporary or permanent access locations as applicable. Stabilized construction entrances/exits will be installed for access from existing roads. Access for the water tank will include a permanent gravel access.

Site Clearing

After stormwater BMPs are in place, ground disturbing activities will commence. This includes clearing and grubbing the site. As applicable, pavement and vegetation will be removed from the site and will be properly disposed of. If top soil exists, it will be removed and stockpiled separately away from other excavated material.

Surface disturbance for the TWP will be limited to the ROW, the permanent and temporary easements, and land purchased from individual property owners for the source water pump station and water tank.

Stage Materials/Staging Area Setup

At this time, Thornton anticipates using up to 11 temporary staging areas within unincorporated Larimer County during construction of the TWP. These staging areas are anticipated to each require approximately 2 acres of land. Staging areas will be used for material storage, parking, equipment storage, field offices, and storage of excavated materials. Parking and vehicle storage during construction will be primarily on property within the permanent or temporary easement or at temporary staging areas. Thornton owns multiple properties in the area that can be utilized for parking and staging, and additional temporary staging areas will be obtained as needed. Thornton

will comply with LUC Section 4.3.11, Temporary Uses and other applicable regulations regarding material storage, transport, and land use.

Thornton plans to off-load and temporarily store the water pipeline along the easement as it is delivered when possible to reduce the number of trips required for material delivery until the water pipeline is placed in its permanent buried location. If needed, stockpiling of pipe could take place within the temporary and permanent easement or at temporary staging areas. Stockpiling in lieu of stringing the water pipeline will only be conducted where additional space is required.

Preliminary anticipated staging locations in and outside of unincorporated Larimer County are shown on **Figure 2.a-1**. Some of these areas could be used for stringing water pipeline or as temporary staging areas. Thornton will negotiate with property owners or agencies for the short-term use of temporary staging areas. TWP contractors could negotiate agreements with property owners for additional staging areas if additional area is required for construction operations as determined by TWP contractors.

Excavate the Water Pipeline Trench/Bore Pit

It is anticipated that excavated material will be temporarily stored within the permanent or temporary easement adjacent to the trench. Topsoil will be stripped and stored separately from excavated trench materials. If additional space is required, excavated materials could be stored in temporary staging areas.

Water Pipeline Installation

It is anticipated that both open-cut and trenchless construction methods will be used for water pipeline installation. Whether employing open-cut or trenchless construction methods, the installation and construction methods employed will follow standard industry practices designed to produce a safe, environmentally sound, and quality operation.

For open-cut construction, the water pipeline trench is anticipated to be a minimum of 8 ½ feet deep with an approximate top width of approximately 19 feet. The water pipeline will sit at least 4 feet below the final grade. A typical trench profile and easement section abutting future road ROW is shown in **Figure 2.a-7**.

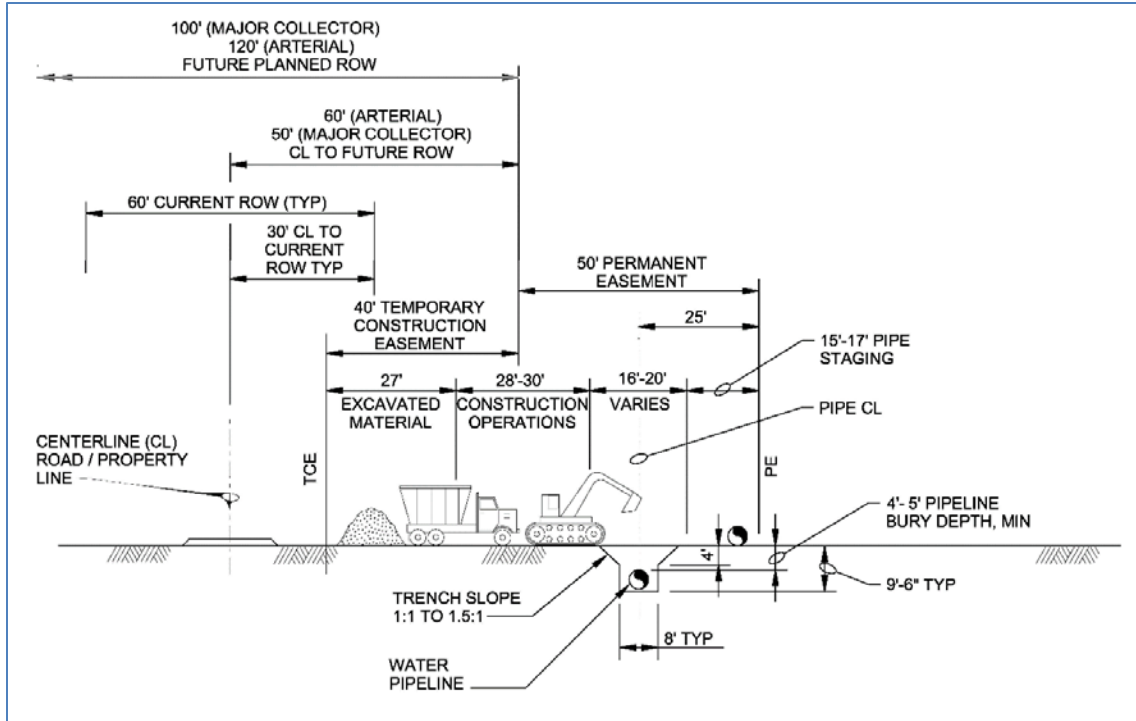


FIGURE 2.a-7

Example Open-Cut Construction Section

Trenchless construction methods could include methods such as tunneling or auger boring techniques to install the water pipeline. This means of construction is used to minimize ground disturbance at locations such as road crossings and environmentally sensitive areas including Waters of the United States (WOTUS) (jurisdictional waters), and irrigation ditches. After BMP installation, clearing and grubbing, and delivery of materials to the tunneled location, a bore pit will be excavated on one side of the area to be tunneled and a receiving pit will be excavated on the opposite side. The water pipeline will be tunneled from the bore pit to the receiving pit. It is anticipated that the water pipeline will typically be installed inside a steel casing pipe that is itself installed using trenchless construction methods. The casing pipe will be approximately 12 to 18 inches larger in diameter than the water pipeline and will normally be buried at a depth approximately 2 times the diameter of the casing, which will be approximately 10 to 11 feet below the lowest final grade elevation. Settlement monitoring will be conducted along the trenchless route to confirm that settlement has not occurred.

Thornton will consult with affected property owners, Larimer County, and applicable agencies such as the U.S. Army Corps of Engineers (USACE) to determine where trenchless construction methods are needed.

Table 2.a-1 presents the probable water pipeline installation construction methods that are expected to be utilized at existing features.

TABLE 2.a-1
Probable Water Pipeline Construction Method at Defined Existing Features

Existing Feature Crossing	Probable Water Pipeline Installation Construction Method	Comment
Jurisdictional Waters	Trenchless Construction	USACE will be consulted prior to construction, and concurrence with USACE will be obtained that no permit is required for crossing.
Federal Interstates and State Highways	Trenchless Construction	A Colorado Department of Transportation Utility/Special Use Permit will be obtained prior to construction.
Railroads	Trenchless Construction	License agreements will be obtained from the railroad owners as required.
Irrigation Ditches	Open-Cut or Trenchless as Directed by the Ditch Company or Other Requirements	Crossing agreements will be obtained from the ditch company. Coordination with the ditch owner will take place to minimize impacts to ditch operations.
Larimer County Roads	Open-Cut or Trenchless as Required by Larimer County	Larimer County approval and permits will be obtained prior to construction. The TWP will adhere to Larimer County standards.
Driveways within Property	Open-Cut or Trenchless as Negotiated with Property Owner	Timing of constructing driveway crossings will be coordinated with property owner.
Existing Utilities	Open-Cut Construction	License agreements/permits will be obtained as required from utility owner. Minimum clearance requirements will be determined during final design.
Floodplains	Open-Cut Outside Jurisdictional Waters and Trenchless within Jurisdictional Waters	Floodplains typically extend outside the jurisdictional water (ordinary high water mark). Areas outside the jurisdictional water could be constructed using open-cut construction methods.

*Where the corridor parallels Douglas Road and County Road 56, the water pipeline is proposed to be located in the Larimer County ROW where feasible and as approved by Larimer County, and the water pipeline is anticipated to be installed utilizing open-cut construction methods.

Construction of the water tank and source water pump station are anticipated to be included with one of the water pipeline construction packages.

Backfill the Trench/Bore Pit

After the water pipeline is installed, the trench/bore pit will be backfilled using appropriate backfill materials and compaction techniques, including use of a backhoe and vibration equipment to obtain proper soil compaction.

Conduct Pressure Testing

Hydrostatic pressure testing will be completed to verify that the water pipeline is capable of withstanding the designed maximum allowable operating pressure. It is anticipated that the water pipeline will be tested in sections. Where feasible, hydrostatic test water will be routed from one section of the water pipeline to another to recycle that water.

Clean Up

Clean up of areas disturbed during construction will be conducted prior to final grading and revegetation. Clean up includes removing:

- BMPs not needed for revegetation activities
- Excess materials
- Temporary fencing, if used
- Temporary facilities
- Large stones and other debris

Restore Ground Surface

Land will be restored to pre-construction grades.

Road Restoration

ROW will be restored to pre-construction conditions and in accordance with Larimer County standards or other standards as applicable.

Revegetation

Disturbed areas will be revegetated at the conclusion of construction. Certified weed-free seed mix consisting of drought-tolerant native grasses will be specified in the SWMP for the revegetation of disturbed areas to meet property owner preferences and regulatory requirements. Disturbed mature vegetation will be replaced, per a property owner's reasonable request, with a like species.

Ongoing Stewardship

Surface areas disturbed by construction will be monitored after construction and Thornton will continue to maintain the site until the area is restored to meet property owner preferences and regulatory requirements.

Timeframe

Construction activities in unincorporated Larimer County are proposed to begin in 2019, and are expected to last approximately 5 to 6 years with operation of the TWP scheduled to begin in 2025. Work on multiple water pipeline construction packages, trenchless water pipeline packages, source water pump station, and water tank may occur concurrently along the TWP corridor. Depending on the size and scope of individual construction packages, the timeframe to complete construction of a package could be multiple years. Section 2.j provides additional schedule information.

Operation and Maintenance Activities

The TWP facilities will be unmanned. Normal operations and maintenance activities could include TWP operators periodically traveling in a pickup truck along the water pipeline route visually inspecting the route. To the extent practicable, visual inspections could be from public roads to minimize impacts to property owners. Up to twice per year, it is anticipated that TWP operators will enter vault and manhole appurtenances to exercise valves and conduct routine maintenance of

equipment. TWP operators are also anticipated to conduct up to one visit per day of the source water pump station and water tank locations to inspect security of each facility. Typically, operation of the pump station, including video monitoring of site security, will be conducted remotely from another Thornton-owned facility.

2.b Location and Total Area of the Project

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 2.b.

In general, within unincorporated Larimer County, the TWP extends from WSSC Reservoir No. 4 east to Larimer County Road 1 and then follows County Road 1 from just south of County Road 58 to County Road 14. **Figure 2.a-1** shows the general location of TWP components. County Road 1 is the Larimer County/Weld County line. It is anticipated that the water pipeline alignment will cross back and forth over the county line as well as crossing multiple properties and municipalities. Outside of unincorporated Larimer County, the TWP continues south in Weld County to Thornton in Adams County.

The TWP begins at WSSC Reservoir No. 4 located approximately $\frac{3}{4}$ miles northwest of the intersection of Highway 1 and Douglas Road. The water pipeline will connect to the existing outlet pipelines at WSSC Reservoir No. 4. Thornton will proceed to obtain 50-foot wide permanent easements and 40-foot wide temporary construction easements for the water pipeline from property owners concurrently with design development. Additional easements could be required at appurtenance locations to be determined at the final design stage. The water pipeline and associated temporary staging areas are anticipated to require up to 135 acres for permanent easements and up to 130 acres for temporary construction easements within unincorporated Larimer County. These are approximate maximum amounts based on the TWP corridor length within unincorporated Larimer County. The total area of the TWP will depend on the final alignment established for the water pipeline.

The site for the water tank appurtenance will be located at or near the highest elevation point of the TWP, which is approximately $\frac{3}{4}$ miles north of the intersection of County Road 1 and County Road 56. The water tank site is anticipated to be approximately 2 acres. Larimer County's land division process for the water tank property will be followed after final siting is determined within the TWP corridor and Thornton has arranged for acquisition of the needed land. The location of other appurtenances will be developed during final design stage.

The source water pump station, which is not a part of this Application, will be located on approximately 2 acres south of WSSC Reservoir No. 4. Larimer County's land division process for the source water pump station property will be followed after final siting is determined within the TWP corridor and Thornton has arranged for acquisition of the needed land. Thornton will submit a Site Plan Review permit application to Larimer County for the source water pump station in accordance with LUC Section 6.0.

2.c Description of the Site Selection Process if Applicable

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 2.c, and the criteria and standards described in LUC Section 14.10.D.2.

Initial Proposed Corridor

Before to conducting public outreach, which is not required by Larimer County's 1041 permit application process, and in an effort to determine the alternative corridor least impactful to local communities in Northern Colorado, Thornton conducted a series of outreach meetings with local governments and agencies that could be impacted by the TWP. Input from local governments and

agencies was utilized in developing alternative corridors and identifying the initial proposed corridor.

An evaluation area was established for developing alternative corridors. The evaluation area consists of a 3- to 5 ½-mile wide path from WSSC Reservoir No. 4 to Adams County.

The evaluation area limits are described as follows:

- The east/west portion of the evaluation area is approximately 3 miles wide, centered near WSSC Reservoir No. 4. The evaluation area extends from Larimer County Road 19 east to Weld County Road 17 ½. The southern extent of the evaluation area is bounded by Douglas Road and the northern extent by Larimer County Road 60/Weld County Road 96.
- The north/south portion of the evaluation area is approximately 4 to 5 ½ miles wide. It extends from Larimer County Road 60/Weld County Road 96 south to 168th Avenue. The evaluation area is bounded by I-25 on the west and Weld County road 17 ½ on the east.

Alternative corridors within the evaluation area were identified using readily and publicly available geographic information system (GIS) data. Guidelines used to identify the alternative corridors include the following:

- Input from potentially affected local governments
- Minimizing impacts to ROW
- Minimizing impacts to water bodies and wetlands
- Bypassing geological hazardous areas
- Minimizing impacts to environmentally sensitive areas such as open space or conservation areas
- Minimize impacts to congested areas, typically in developed, densely populated areas
- Utilizing Thornton-owned property
- Following ROW/easements/property lines

Four ¼-mile wide alternative corridors were initially developed based on input received from local government outreach. These four alternative corridors were analyzed using non-economic data to determine the initial proposed corridor. The non-economic criteria and method of measurement used in the evaluation of alternative corridors included the following:

- Local Government Preference - Rating based on compliance with local government preferences
- Geologic Hazards - Estimated length within areas identified as having mine subsidence
- Community Impact- Number of local governments crossed
- Wetland/Riparian Crossing - Estimated length of wetland/riparian areas crossed
- Floodplain Crossings - Estimated length of floodplain areas crossed
- Parcel Owners - Number of unique parcel owners crossed
- ROW - Estimated possible length of water pipeline in ROW

Information regarding the initial proposed corridor alternative analysis and selection process is included in *Technical Report, Thornton Water Project, Reach 2 Alternative Corridors Analysis*, September 2016 (see **Appendix A**).

The location of the initial proposed corridor was based on the TWP purpose and need, as well as information and guidance received from Larimer County Public Works and Planning staff, the city of Fort Collins, and others. The initial proposed corridor was presented to area residents during public open houses (in the fourth quarter of 2016) and at an outreach meeting with residents requested by

the residents from the areas around WSSC Reservoir No. 4 (in the first quarter of 2017). At these meetings, residents requested that Thornton look at additional alternative water pipeline alignments and pump station locations. Subsequent to these meetings with area residents, Thornton met with Larimer County staff to discuss the concerns and requests of the residents, and Larimer County staff provided guidance for the Application for the TWP.

TWP Corridor

Larimer County staff requested that Thornton propose a preferred alignment with a 500-foot wide corridor for the TWP in the area around the WSSC Reservoirs and east to Larimer County Road 9. The 500-foot wide corridor allows flexibility in locating the water pipeline during final design of the TWP, and future action or approval by Larimer County under the Larimer County's 1041 permit process should not be required so long as the water pipeline is installed within the 500-foot wide corridor. The final water pipeline alignment route will be developed during final design. Typically, a 50-foot permanent easement and an additional 40-foot temporary easement for construction will be purchased from property owners except where the TWP will be constructed in the road ROW.

Larimer County staff requested that an analysis of alternative water pipeline alignments and pump station locations be included in the Application. Larimer County staff indicated that the alternative analysis should be conducted from the connection to the WSSC system to approximately County Road 9. No revisions to the initial proposed corridor east of County Road 9 were required, and Thornton understands that the $\frac{1}{8}$ to $\frac{1}{4}$ -mile corridor continues to be acceptable for the Application.

After receiving input from area residents and adopting the *Larimer County Transportation Master Plan* in the third quarter of 2017, Larimer County staff indicated that locating the water pipeline in Larimer County road ROW may be allowed at some locations. Thornton understands that, if the water pipeline is to be located in Larimer County ROW other than as specifically approved in a 1041 permit, then use of that ROW will require Larimer County approval.

Based on the guidance from Larimer County staff, an analysis of alternative water pipeline alignments and pump station locations was completed and included in *Technical Memorandum, Thornton Water Project, Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9, October 2017 (Appendix A)*. Ten alternative configurations were analyzed using evaluation criteria and comparative cost estimates. The locations of the ten alternative configurations were based on the TWP purpose and need. Common concerns communicated to Thornton during the public open houses, the outreach meetings, and meetings with Larimer County staff were considered in the development of evaluation criteria. The evaluation criteria and method of measuring the criteria used in the analysis included the following:

- Residential - Number of homes within 250 feet of the proposed water pipeline alignment location within an easement (does not include water pipeline in the ROW, WSSC or Thornton-owned property).
- Pump Station Visual/Noise/Vibration –
 - Visual: Number of homes within $\frac{1}{2}$ -mile of pump station with probable line of sight.
 - Noise and Vibration: Number of homes within 250 feet of pump station, within 251-500 feet, within 501-1,000 feet.
- TWP Operations - Length of road in feet within a residential area required to drive to access pump station plus length of easement in feet on private property.
- Traffic - Ratio of length in feet to the estimated relative production factor to install the pipeline within the ROW multiplied by average daily traffic (ADT) volume plus ratio of length in feet to

the estimated relative production factor adjacent to the ROW multiplied by 25 percent of the ADT.

- Environmental - Estimated acres crossed identified as riparian and/or populated with trees.
- Coordinated Projects Opportunity - Shared length in feet of possible coordinated projects to minimize community impacts multiplied by the possible number of projects TWP can coordinate with.

The TWP proposed preferred alignment in the area around the WSSC Reservoirs and east to Larimer County Road 9 presented for approval in this Application is a 500-foot wide corridor that had the best scoring based on the analysis of alternatives.

2.d Description of Other Alternatives Considered, or Explanation of Why No Reasonable Alternatives are Available

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 2.d, and the criteria and standards described in LUC Section, 14.10.D.2.

As described previously, four alternative corridors were evaluated to determine an initial proposed TWP corridor and ten alternative configurations were analyzed to develop the TWP corridor presented for approval in this Application. Descriptions and figures showing the alternatives are found in **Appendix A**.

Water Tank Appurtenance

The water tank will be located at the high point in the TWP corridor to provide for gravity flow of water for the greatest length of pipe.

Source Water Pump Station

The source water pump station will be located near the source water connection appurtenance in order to be able to pump the source water to the TWP water tank. Five source water pump station locations were analyzed with the ten alternative configurations analysis described previously and is included in *Technical Memorandum, Thornton Water Project, Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9 (Appendix A)*.

2.e Description of the Features of the Project that Make It Consistent with the Intent of the Master Plan and Any Applicable Intergovernmental Agreements Affecting Land Use and Development

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 2.e, and the criteria and standards described in LUC Sections 4.2.2, 8.1 through 8.5, 8.8, 8.11, 8.12, 8.15, 12.1.B, 14.10.D.1, and 14.10.D.3 through 14.10.D.11.

Larimer County adopted a Master Plan in 1997 to guide land use and development in unincorporated Larimer County (Larimer County 1997). The TWP is consistent with applicable Larimer County Master Plan policies and their associated lists of goals regarding the following:

- Chapter 2, Growth Management
- Chapter 3, Land Use
- Chapter 4, Public Facilities and Services
- Chapter 5, Transportation
- Chapter 6, Environmental Resources and Hazards

The TWP is consistent with the Intergovernmental Agreements (IGA) and plans listed below:

- IGA for Growth Management City of Loveland, Colorado and Larimer County, Colorado approved January 12, 2004 (IGA Larimer County/Loveland)
- IGA (Regarding Cooperation on Managing Urban Development) by and between Larimer County, Colorado and the town of Windsor, executed January 8, 2001 (IGA Larimer County/Windsor)
- Larimer County Open Lands Master Plan (Larimer County, June 2015)
- Larimer County Transportation Master Plan (Larimer County, July 2017)

2.e.1 Larimer County Master Plan

The Larimer County Master Plan contains policies to guide land use within unincorporated areas of Larimer County. Many of the policies are directed toward residential development, transportation, or other areas not directly related to the TWP. For this reason, the following discussion addresses only those land use and other policies relevant to the TWP. The information provided herein demonstrates that the TWP is consistent with the goals and policies of the Larimer County Master Plan.

Larimer County Master Plan, Chapter 2 – Growth Management

The growth management (GM) process established in the Larimer County Master Plan is designed to ensure that Larimer County operates within its resources, protects the environment, and enhances the lives of Larimer County residents.

No long-term effects resulting from the TWP are anticipated to the following:

- The volume of traffic on local streets
- The use of local utilities
- The need for additional law enforcement or fire protection
- Sensitive biological resources
- Agricultural lands

The Larimer County policies related to growth management are discussed below.

GM-1 Larimer County shall plan for long-term growth and physical expansion based on environmental, land use, community design, and infrastructure considerations.

The TWP minimizes effects on the environment, land use, and community resources. The TWP will utilize trenchless construction methods for water pipeline installation to minimize impacts to natural resources such as jurisdictional waters and wildlife habitat associated with those areas. The area disturbed in constructing the water pipeline will be restored to pre-construction conditions, including grade and vegetation, minimizing long-term impacts to wildlife. Trenchless construction methods will also be used at major road crossings as required by the regulatory agencies having jurisdiction of the road to minimize impacts to traffic and public safety.

The majority of the TWP corridor is located in rural land use areas. The water pipeline and fiber optic cable will be buried, and effects on agricultural use will be minimal. Agricultural use within the permanent easement may continue after construction. The buried water pipeline and fiber optic cable are compatible with other land uses, such as residential use, that the TWP corridor crosses.

Where the corridor parallels Douglas Road and 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 TWP

was reviewed in conjunction with the area goals and transportation improvement plans outlined in the *Larimer County Transportation Master Plan*, adopted in July 2017. The *Larimer County Transportation Master Plan* identifies multiple road improvement projects within the area along the TWP corridor. Thornton will coordinate design efforts with Larimer County improvement projects to minimize conflicts with future plans. If Larimer County's improvement projects occur within the timeframe of the construction of the TWP, Thornton will work with Larimer County and other involved parties to coordinate construction and minimize disruption. The *Larimer County Transportation Master Plan* includes planned improvements for Douglas Road within the TWP corridor. To the extent feasible, Thornton will coordinate TWP construction activities with Larimer County's planned improvements for Douglas Road.

Thornton has met with local governments along the TWP corridor to coordinate the TWP with future long-term community design plans, including plans within Growth Management Areas (GMAs) and Transportation Master Plans. The TWP corridor was developed based on input received in multiple rounds of local government outreach.

GM-2 Service demands of new development shall not exceed the capacities of existing roads and streets, utilities or public services.

During construction, water may be purchased from local water providers for construction activities such as watering the site to minimize fugitive dust or hydrotesting the water pipeline. TWP Contractors will provide bottled water, water cooler service, or other temporary sources of drinking water during construction. Portable toilets will be used during construction. No additional level of service from Larimer County is anticipated to be required.

The existing road network has adequate capacity to serve anticipated construction traffic needs. See the traffic narrative in Section 8, Technical Reports, 8.d Traffic Impact Study for impacts to traffic volumes during construction.

After construction, the TWP facilities may operate year-round, 24 hours of a day; however, the facilities are intended to be unmanned. The source water pump station and water tank will be monitored and operated remotely, inspected daily, and repaired and maintained as needed. The existing road network has adequate capacity to serve anticipated operational traffic needs. It is anticipated that TWP operators could visit these facilities daily to check operations. These checks entail one pickup truck accessing the source water pump station and water tank site, and driving along the water pipeline corridor for inspection and maintenance activities. Consequently, there will be minimal effects on the volume of traffic on local streets. See Section 8, Technical Reports, 8.d Traffic Impact Study for additional information.

The unmanned facilities are not anticipated to require any permanent drinking water source or sewage disposal system. Thornton contacted PVREA to determine if current infrastructure in the area supports the proposed load, and they confirmed sufficient power is available in the area to supply the source water pump station. In addition, it may be possible for PVREA to extend a second, redundant power feed to the source water pump station for emergency backup power. If a second feed is feasible and cost-effective, an emergency diesel powered backup generator will not be required. Thornton will continue to coordinate with PVREA to determine specific requirements for power service to the source water pump station. The TWP has no additional effect on the need for law enforcement. Fire hydrants are located along the roadway adjacent to the proposed source water pump station site. Final design of the source water pump station will meet fire protection level-of-service standards as required in LUC Section 8.1.4. A Larimer County Site Plan Review permit application will be submitted to Larimer County for the source water pump station after design.

GM-13 Larimer County supports the development of a local economy that is increasingly self-reliant and that meets the needs of the present without compromising the needs of future generations.

GM-13-s1 County-sponsored economic development activities shall be supportive of existing businesses and retain existing employment, as well as fostering new employment opportunities, which create a positive impact on the County.

The TWP will employ Thornton employees, a construction management team, and contractors to complete the construction of the TWP. It is anticipated that Thornton will provide approximately 10 to 15 employees during the construction phase. No lodging or temporary housing is expected to be required for Thornton employees or the construction management team. Contractors for the construction phase of the TWP will be hired. The TWP contractors will provide construction crews that are not anticipated to exceed approximately 100 workers at any one time. Some workers may reside outside of the local areas and will require lodging or temporary housing. The number of construction workers on site will depend on the contractor and the construction activity occurring during a particular time. Thornton will endorse hiring local workers.

TWP contractors and construction workers will likely support local businesses to meet a need for durable and nondurable goods and services.

Normal operations and maintenance of the TWP facilities will be completed by Thornton employees from within the region, and no significant demand for goods and services is anticipated.

Larimer County Master Plan, Chapter 3 – Land Use

Future land use (LU) issues comprise the core of the Larimer County Master Plan. Thornton has met with local governments whose town boundaries and GMAs fall within the TWP corridor. Thornton will continue meeting with these governments to gather input and feedback on the final water pipeline alignment location within city and town boundaries and GMAs as it is developed. One of Thornton's objectives is to provide efficient integration of the TWP with planned future municipal or county developments.

LU-4 In rural areas, allowed uses and residential densities shall be based on the current zoning of the property.

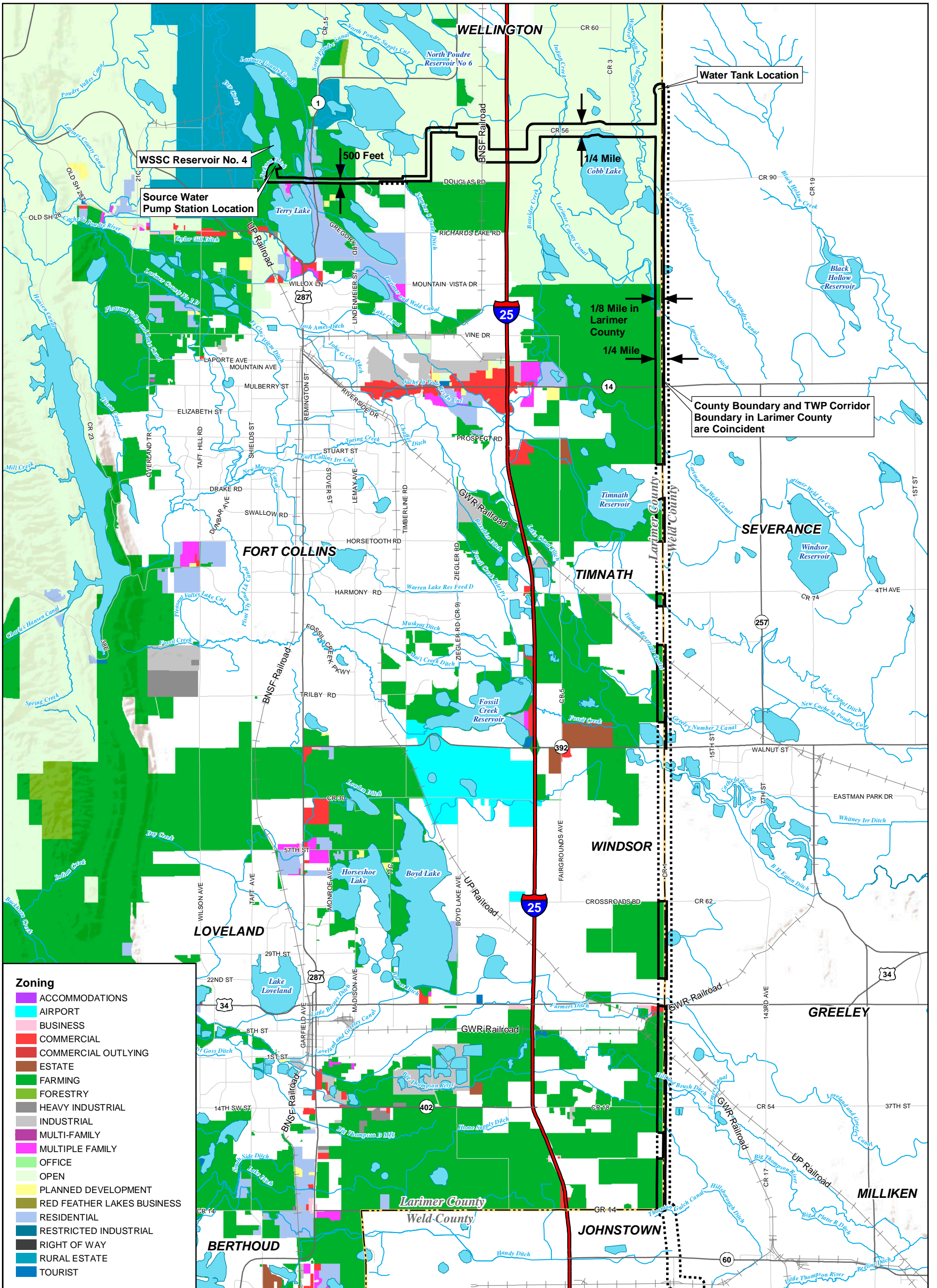
The majority of the TWP corridor within unincorporated Larimer County is located in rural land use areas designated as farming and open zoning. The water pipeline and fiber optic cable will be buried, and land use effects on agricultural and other similar use will be temporary during construction and are anticipated to be minimal after construction. Agricultural use within the permanent easement can continue after construction. The buried pipeline and fiber optic cable are compatible with other land uses, such as residential use, that the TWP corridor crosses.

Figure 2.e.1-1 shows the zoning within the TWP corridor in Larimer County.

LU-9 Undevelopable land shall be defined in the Land Use Code and shall include the Floodway (FW) zone district and land below the high water mark of existing bodies of water.

The TWP water pipeline will be buried in floodway zone districts and within land below the high water mark of existing water bodies. Water pipeline crossings of jurisdictional waters will utilize trenchless construction methods. One-hundred-year floodplains typically extend outside the jurisdictional water. Areas outside the jurisdictional water but within a floodplain could be constructed using open-cut construction. Material storage will be outside of the floodplain per local floodplain criteria. Land will be restored to pre-construction grades, and the buried water pipeline

Thornton Water Project



- Zoning**
- ACCOMMODATIONS
 - AIRPORT
 - BUSINESS
 - COMMERCIAL
 - COMMERCIAL OUTLYING
 - ESTATE
 - FARMING
 - FORESTRY
 - HEAVY INDUSTRIAL
 - INDUSTRIAL
 - MULTI-FAMILY
 - MULTIPLE FAMILY
 - OFFICE
 - OPEN
 - PLANNED DEVELOPMENT
 - RED FEATHER LAKES BUSINESS
 - RESIDENTIAL
 - RESTRICTED INDUSTRIAL
 - RIGHT OF WAY
 - RURAL ESTATE
 - TOURIST

**CITY OF THORNTON
COLORADO**

12450 WASHINGTON ST
THORNTON, CO 80241-2405

12/29/2017



1 in = 1.8 miles
0 0.9 1.8 Miles

- TWP Corridor in Unincorporated Larimer County
- TWP Corridor outside Unincorporated Larimer County
- County Boundary
- Railroad
- Lake/Reservoir
- River/Stream/Canal/Ditch

**Figure 2.e.1-1
Zoning**

Sources: NHD, CDWR, Larimer County, CDOT

will have no effect to the 100-year floodplain. These methods will be employed to minimize effects to natural resources such as jurisdictional waters and wildlife habitat associated with those areas. Thornton will obtain floodplain development permits from Larimer County for floodplain crossings in unincorporated Larimer County.

LU-10 All new development shall be located and designed for compatibility with sensitive natural areas.

LU-10-s1 The Land Use Code shall include the provision that mapping of natural hazard areas, wetlands, ridgelines and other natural and cultural resource area information available from the Planning Division, be included on initial development submittals and considered in development design. Additional natural resource information that becomes available through the development review process should be incorporated in the design. (See also Sec. 6.1.).

The TWP corridor was developed considering compatibility with sensitive natural areas. The TWP corridor route was established to minimize impacts to sensitive natural areas utilizing Thornton's GIS data for the TWP area supplemented by Larimer County's GIS data. Additional information regarding the development of the TWP corridor is located in **Appendix A**.

Natural hazards information including figures are presented in Section 8.c, Natural Hazard Mitigation Plan. The TWP will be located outside of any Larimer County designated wildfire hazard areas. The TWP corridor crosses several locations defined as severe geologic class 5, 6, and 7 hazard conditions. These areas generally correspond to areas of greater slope and soil erodibility. Mitigation measures that could be implemented in these areas of geologic hazard include using trenchless construction methods for water pipeline installation, using imported backfill material, implementing BMPs, developing the final water pipeline alignment in a location with the least impact to the area, and others as described in Section 8.c. A subsurface geotechnical investigation of geologic conditions utilizing soil borings will be completed during the design phase of the TWP to further determine the subsurface soil conditions and associated geological hazards and identify the best mitigation measures for the TWP.

The TWP corridor was assessed for potential jurisdictional waters and wildlife habitat using publicly available mapping and aerial photographs, and by conducting a windshield survey of areas that could be publicly accessed. Site surveys will be performed once access to the land is available to aid in the determination of jurisdictional waters and wildlife habitat. Information from the corridor assessment and survey information will be used to develop the final pipeline alignment. Mitigation methods to minimize impacts to these areas will be incorporated into the design and construction as appropriate. Jurisdictional water crossings will be constructed using trenchless construction methods.

A Class I File Search and Literature Review for cultural resources was conducted. Based on that review, there are no cultural sites or structures that are listed on the State and National Register of Historic places within the TWP corridor within unincorporated Larimer County. Additional information on natural and cultural resources within the TWP corridor is presented in **Appendix C**, Natural and Cultural Resource Assessment. Information provided there includes mitigation measures that could be implemented for the TWP.

Appropriate mitigation measures will be implemented in the development of the final pipeline alignment considering data received from the Planning Division, environmental field surveys that will be completed for the TWP once access is available, and other sources as additional studies are conducted during the design phase.

LU-10-s3 *The Land Use Code shall establish standards to control erosion and prevent infestation of noxious weeds during construction of new development.*

Surface drainage BMPs implemented during construction will include application of erosion control techniques and the successful revegetation of disturbed areas. The required CDPHE construction stormwater permits will be obtained prior to construction, and the associated SWMPs will include detailed descriptions of BMPs that will be used to control erosion. Disturbed areas will be restored to pre-construction grades and revegetated at the conclusion of construction. Certified weed-free seed mix consisting of drought-tolerant native grasses will be specified in the SWMP for the revegetation of disturbed areas to meet property owner and regulatory requirements. Disturbed mature vegetation will be replaced, per a property owner's reasonable request, with a like species. Measures that may be employed to protect surface water and control erosion are provided in **Appendix D**.

A noxious weed mitigation plan is included in **Appendix C**.

LU-11 **Compatibility with adjacent land use shall be considered in the design of all new development.**

The water pipeline and fiber optic cable will be compatible with adjacent land uses because they will be buried at a depth sufficient to prevent interference with anticipated land uses. The majority of the TWP corridor is located in and adjacent to rural land use areas. Agricultural use within the permanent easement can continue after construction. The TWP is not anticipated to impact standard agricultural practices once the TWP is installed. Thornton will coordinate placement of the water pipeline and appurtenances, including bury depth, with individual property owners to minimize impacts to property operations. Development of the TWP corridor included consideration of ROW, community impacts, and feedback received from local governments as discussed in Section 2.c and presented in **Appendix A**.

As described in Section 2.a.2, General Description, Final Pipeline Alignment Design Criteria, criteria for developing the final pipeline alignment will include:

- Be outside current and future planned road ROW unless otherwise approved by Larimer County.
- Be adjacent to roads, current or future road ROW, existing utility easements, and property lines.
- Minimize impacts to agricultural use.
- Minimize impacts to existing structures.
- Cross waters, irrigation ditches, roads, and railroads perpendicular to the feature.
- Minimize road crossings.
- Minimize impacts to environmental and cultural resources.
- Minimize impacts to open lands/conservation easements.

The water tank will be located within approximately 1 mile of an existing water tank that is located along County Road 1.

LU-11-s1 *Neighborhood meetings shall be required where compatibility with existing residential uses is an issue.*

The TWP is not incompatible with existing residential uses. Public outreach is not required by Larimer County's 1041 permit application process. However, in order to introduce the public and potentially affected property owners to the TWP, respond to questions, and to collect input from the public and potentially affected property owners, Thornton conducted a series of Open Houses in November and December 2016, an outreach meeting with residents from the areas around WSSC Reservoir No. 4 in February 2017, and a Community Update meeting for area residents near Douglas Road in September 2017. Eight hundred forty-nine property owners within the initial proposed corridor and within 500 feet of the initial proposed corridor in Larimer County were mailed invitations to the Open Houses. Nine hundred seven property owners within the Larimer County alternative configuration analysis area were mailed invitations plus 215 property owners were e-mailed invitations to the Community Update meeting. Property owners who were e-mailed invitations had provided their e-mail addresses for project updates via the TWP website or via comment cards from previously held Open Houses. Invitations were also sent to local municipality representatives and the home owners' associations near WSSC Reservoir No. 4. **Appendix B** includes the mailing lists and maps of the notification areas for the Open Houses and Community Update meeting. Section 2.k and **Appendix B** include additional information on the Open Houses, meetings with home owners' associations, and the Community Update meeting.

The TWP website, www.ThorntonWaterProject.com launched on October 28, 2016, provides an opportunity for questions and the collection of input from the public and potentially affected property owners.

Based on feedback received from area residents near WSSC Reservoir No. 4 impacts to adjacent property owners were considered for siting of the source water pump station; this information is included in *Technical Memorandum, Thornton Water Project, Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9 (Appendix A)*. Thornton will submit a Site Plan Review permit application for the source water pump station to Larimer County in accordance with LUC Section 6.0.

LU-11-s2 *Development adjacent to agricultural uses shall provide adequate buffers to minimize conflicts and complaints concerning standard agricultural practices.*

The majority of the TWP corridor is located in and adjacent to rural land use areas. The water pipeline and fiber optic cable will be compatible with agricultural uses because they will be buried at a depth sufficient to prevent interference with agricultural uses and agricultural use within the permanent easement can continue after construction. The TWP is not anticipated to impact standard agricultural practices once the water pipeline and fiber optic cable are installed. Thornton will coordinate placement of the water pipeline and appurtenances, including bury depth, with individual property owners to minimize impacts to property operations.

LU-11-s3 *The Land Use Code shall include guidelines for the use of design elements such as landscaping and buffer areas to help achieve compatibility.*

Areas disturbed for the construction of the water pipeline and water tank will be restored to pre-construction conditions, including grade and vegetation. The landscaping at the source water pump station site will adhere to LUC Section 8.5. Landscape plans or narrative, as appropriate, will be provided to Larimer County with the Site Plan Review permit application in accordance with LUC Section 6.0.

LU-11-s4 *Landscaping plans shall be required as part of all major development applications and all multi-family, commercial and industrial building permits. Existing vegetation shall be maintained wherever possible, except in wildfire hazard areas where thinning to achieve defensible space is necessary. Native plants, existing drainage patterns and natural designs should be used to increase the sustainability of the landscaping.*

The majority of the impacts on vegetation will be temporary during construction of the water pipeline and long-term impacts to native vegetation communities are not expected. Disturbed areas will be restored to pre-construction grades and revegetated at the conclusion of construction. Certified weed-free seed mix consisting of drought-tolerant native grasses will be specified in the SWMP for the revegetation of disturbed areas to meet property owners preferences and regulatory requirements. Disturbed mature vegetation will be replaced, per a property owner's reasonable request, with a like species.

Potential future repairs and maintenance could affect discrete areas of vegetation when the water pipeline is accessed in a particular location. Any vegetated areas disturbed during maintenance or required repairs will be restored by the methods used during construction.

Based on site visits conducted in 2016 and 2017 along publicly accessible areas and using Google Earth imagery, six broad vegetation communities within the TWP corridor and study buffer were identified and are as follows:

- Mixed upland
- Nonnative upland
- Riparian
- Wetlands
- Agricultural lands
- Developed/disturbed areas

Water pipeline crossings of high-quality vegetation such as wetlands or riparian communities will be constructed using trenchless construction methods. Additional information on existing vegetation is included in **Appendix C**.

Permanent impacts will occur from construction of the source water pump station and water tank sites where aboveground structures will be constructed. Areas around the aboveground water tank will be restored to pre-construction grades and vegetation similarly to the areas disturbed for water pipeline construction. Landscaping at the source water pump station site will adhere to LUC Section 8.5. Landscape plans or narrative, as appropriate, will be provided to Larimer County with the Site Plan Review and building permit applications in accordance with Larimer County requirements.

LU-12 Site design of commercial and industrial uses shall enhance and protect the aesthetic quality of community gateways and other high visibility corridors, including I-25, US Highways 34 and 287, and Colorado Highway 14.

LU-12-s1 The Land Use Code shall establish aesthetic standards and guidelines for commercial and industrial development addressing landscaping, screening of outdoor storage and operations, orientation of buildings (so that businesses do not back onto high visibility corridors), parking lot design and similar design considerations.

The water pipeline will be buried and will not affect community gateways or other high-visibility corridors. The buried water pipeline will cross Interstate 25, US Highway 34, and Colorado Highway 14. Visual effects during construction will be temporary and associated with the activities of equipment and construction crews. Activities will include removal of existing vegetation, exposure of bare soils, earthwork and grading, and revegetation. There will not be significant long-term visual effects. Screening and/or buffering will not be necessary. Following construction, disturbed areas will be revegetated and the water pipeline will not be visible. Water pipeline markers will be installed and maintained over the water pipeline and extend approximately 4 feet above ground. Water pipeline markers will occur approximately every 500 feet or in line of sight, on both sides of road and railroad crossings, and at changes in direction to identify the location of the water pipeline for safety and to reduce the risk of inadvertent third-party damage or interference. **Figure 2.e.1-2** shows a photo from a similar water project after construction and revegetation. Other items that could be visible above ground include vent pipes, access manways, and manhole covers that are associated with water pipeline appurtenances located below grade. See Section 2.a.2, General Description, Project Components and **Figure 2.a-3** for additional information.

The water tank is planned to be painted a tan shade to blend into the surrounding area. **Figure 2.a-2** shows a photo of an existing water tank located within 1 mile of the TWP water tank location.



FIGURE 2.e.1-2
Photo of Similar Water Pipeline Project Restoration

Design of the source water pump station will incorporate aesthetic standards and guidelines to meet Larimer County requirements.

LU-13 New development in wildfire hazard areas shall be designed to allow defensible space around structures and otherwise mitigate potential hazards to life and property.

Based on Larimer County mapping, the TWP will not be constructed in any wildfire hazard areas. See Section 8.c, Natural Hazard Mitigation Plan for additional information.

LU-14 Energy-efficient design, including the potential for solar access, shall be considered in subdivision design and in the orientation of individual building sites.

Pumps for the source water pump station will be chosen to operate near their best efficiency point and equipped with variable frequency drives to increase energy efficiency.

LU-15 New roadways, including Larimer County roads, shall be designed and constructed in a manner that minimizes the impact on water quality and sensitive environmental areas and considers aesthetics.

No new permanent roadways will be necessary to construct and maintain the TWP. At most locations, construction traffic will parallel existing roadways and use permanent and temporary construction easements. Existing access points will be used whenever possible. Cross-country travel during construction will be necessary along property lines and other locations within easements in unincorporated Larimer County. Thornton and the TWP contractors will exercise care and will coordinate with property owners to minimize impacts to property owner's existing access locations. New temporary access locations may be required. They will be designed and

constructed outside of sensitive environmental areas and will be designed to minimize impacts on water quality by implementing appropriate BMPs.

Surface drainage BMPs will include application of erosion control techniques and the revegetation of disturbed areas. SWMPs will include detailed descriptions of BMPs that will be used to protect surface hydrology and water quality.

Larimer County Master Plan, Chapter 4 – Public Facilities and Services

The TWP does not include any publicly accessible facilities, and impacts to existing facilities will be managed and mitigated. Thornton has met with the local governments along the TWP corridor and has coordinated the placement of the corridor such that it minimizes impacts to public facilities and known future development. Thornton has also been in discussions with other utility companies regarding possible conflicts with existing and proposed future utilities. Further utility investigation will be conducted for the development of the final pipeline alignment. The design will incorporate criteria for crossing existing utilities, such as minimum clearance requirements between pipelines.

PF-1 New development shall be approved only when adequate public facilities and services are available, or when necessary improvements will be made as part of the development project.

PF-1-s1 Adequate facilities and service levels shall be clearly defined in the Land Use Code and shall include standards for water, sewer, fire protection, stormwater management and transportation at a minimum. In Growth Management Areas, service level standards shall be compatible with those of the adjacent municipality, as specified in an Intergovernmental Agreement with the municipality. In other areas, standards shall be based on the density and intensity of the use.

During construction, water may be purchased from local water providers for construction activities such as watering a site to minimize fugitive dust or hydrotesting the water pipeline. TWP contractors will provide bottled water, water cooler service, or other temporary source of drinking water during construction. Portable toilets will be used during construction. No additional level of service from Larimer County is anticipated to be required.

The existing road network has adequate capacity to serve anticipated construction traffic needs. See the traffic narrative in Section 8, Technical Reports, 8.d Traffic Impact Study for impacts to traffic volumes during construction. Local fire districts will be notified of construction activities prior to start of construction. On-site fire district personnel will not be required during construction.

After construction, the TWP facilities may operate year-round, 24 hours a day; however, the facilities are intended to be unmanned. The source water pump station and water tank will be monitored and operated remotely, inspected daily, and repaired and maintained as needed. The existing road network has adequate capacity to serve anticipated operational traffic needs. It is anticipated that TWP operators could visit facilities daily to check operations. This entails one pickup truck accessing the source water pump station and water tank site and driving along the pipeline corridor for inspection and maintenance activities. Consequently, there will be minimal effects on the volume of traffic on local streets. Section 8, Technical Reports, 8.d Traffic Impact Study includes additional information.

The unmanned facilities are not anticipated to require a permanent drinking water source or sewage disposal system. Sufficient power is available in the area to supply the source water pump

station. Thornton contacted PVREA to determine if current infrastructure in the area supports the proposed load, and they confirmed sufficient power is available in the area to supply the source water pump station. In addition, it may be possible for PVREA to extend a second, redundant power feed to the source water pump station for emergency backup power. If a second feed is feasible and cost-effective, an emergency diesel powered backup generator will not be required. Thornton will continue to coordinate with PVREA to determine specific requirements for power service to the source water pump station. The TWP has no additional effect on the need for law enforcement. Fire hydrants are located along the roadway adjacent to the proposed source water pump station site. Final design of the source water pump station will meet fire protection level of service standards as required by LUC Section 8.1.4. A Larimer County Site Plan Review permit application will be submitted to Larimer County for the source water pump station after design.

Section 8.e, Drainage and Erosion Control Report and Plan includes information on stormwater management.

PF-4 Larimer County water service providers and fire protection districts shall coordinate domestic water service standards and fire protection standards for water supply to ensure that all County residents have adequate water supplies for domestic use and for fire protection.

TWP designers will coordinate with water service providers and applicable fire protection districts during the design phase.

PF-5-s1 Guidelines for defining, acquiring and maintaining open lands are contained in the Help Preserve Open Space Initiative and in the Mission Statement for the Larimer County Open Lands Program, adopted by the Board of County Commissioners in July 1996.

The construction of the TWP will not conflict with the overall Mission Statement for the Larimer County Open Lands Program or the Help Preserve Open Space Initiative. The TWP water pipeline will be constructed below ground, and the surface will be restored to pre-construction conditions after the water pipeline is installed.

The proposed TWP corridor intersects the Kraft Farm Conservation Easement northwest of Bartel Reservoir and the Wellington State Wildlife Area immediately north of Cobb Lake within unincorporated Larimer County based on the Larimer County Parks and Open Space GIS layer, downloaded in August 2016. The Kraft Farm Conservation Easement abuts County Road 56 on the north side of the easement. The water pipeline is proposed to be located in the County Road 56 ROW where feasible and as approved by Larimer County. During the development of the final pipeline alignment, designers will consider routing the water pipeline location around these areas where practicable. If the water pipeline cannot be routed around a dedicated conservation easement or wildlife area, impacts to these areas will be temporary and only occur while the water pipeline construction is taking place. After construction is completed, the area will be restored to pre-construction grades and vegetation, restoring it to its open lands condition. Thornton will coordinate with stakeholders of these areas to determine if other appropriate mitigation measures may need to be implemented.

PF-8 The location and design of new public facilities shall be consistent with the Master Plan.

The TWP is consistent with applicable guiding principles of Chapter 4 of the Master Plan. More specifically:

- The TWP will not permanently impact community gateways and view corridors.

- No public facilities and services for construction, operations, or maintenance will be required.
- The existing road network has adequate capacity to serve anticipated operational traffic needs.
- No water and sewer utility services for operations and maintenance will be required.
- No on-site personnel will be required, and no added burden will be placed on existing fire and police facilities.

PF-10 New development shall not reduce existing service below adequate levels, nor shall capital improvements to support new development be subsidized by existing residents.

The TWP will not reduce existing service below adequate levels. Larimer County residents will not subsidize the TWP. Similar to other utility/water providers, Thornton's water utility customers will pay for the TWP.

Larimer County Master Plan, Chapter 5 – Transportation

The majority of the corridor is located in rural land use areas. The existing road network has adequate capacity to meet anticipated operational traffic needs. Trenchless construction methods will be used at major road crossings as required by the regulatory agency having jurisdiction of the road to minimize effects to traffic and public safety. Section 8.d, Traffic Impact Study includes additional information. Where the corridor parallels Douglas Road and County Road 56, the water pipeline is proposed to be located in the Larimer County ROW where feasible and as approved by Larimer County. At other locations, the water pipeline alignment is proposed to be located outside current and future planned road ROW in unincorporated Larimer County, unless otherwise approved by Larimer County. The TWP was reviewed in conjunction with the area goals and transportation improvement plans outlined in the *Larimer County Transportation Master Plan*, adopted in July 2017. The *Larimer County Transportation Master Plan* identifies multiple road improvement projects within the area along the TWP corridor. Thornton will coordinate design efforts with Larimer County improvement projects to minimize conflicts with future plans. If Larimer County's improvement projects occur within the timeframe of the construction of the TWP, Thornton will work with Larimer County and other involved parties to coordinate construction and minimize disruption. The *Larimer County Transportation Master Plan* includes planned improvements for Douglas Road within the TWP corridor. To the extent feasible, Thornton will coordinate TWP construction activities with Larimer County's planned improvements for Douglas Road.

TR-1 The Larimer County transportation planning process shall complement the development patterns and principles of the Master Plan.

TR-1-s1 The Functional Road Classification Map shall be used as the official future roadway plan for the County.

Water pipeline installation within Larimer County ROW other than as specifically approved in a 1041 permit will require approval from Larimer County. At most locations the final water pipeline alignment is anticipated to parallel existing ROW and, if practicable, future road ROW. Where the corridor parallels Douglas Road and County Road 56, the water pipeline is proposed to be located in the Larimer County ROW where feasible and as approved by Larimer County.

Other local governments have variously indicated preferences for the water pipeline to be inside and outside of ROW. Thornton will coordinate with the agency having jurisdiction of roadway in the development of the final pipeline alignment location, and the Functional Road Classification Map will be used to determine future roadway plans.

The *Larimer County Transportation Master Plan*, adopted in July 2017, was consulted to confirm that the TWP is consistent with area goals and transportation improvement plans. The *Larimer County Transportation Master Plan* identifies multiple road improvement projects within the area along the TWP corridor. Thornton will coordinate design efforts with Larimer County improvement projects to minimize conflicts with future plans. If Larimer County's improvement projects occur within the timeframe of the construction of the TWP, Thornton will work with Larimer County and other involved parties to coordinate construction and minimize disruption. Larimer County has long-term plans for rehabilitation/replacement of Douglas Road, including intersection improvements at Highway 1. Thornton has met with Larimer County staff to discuss possible coordination of projects and will continue coordination efforts through the design and construction of the TWP. Section 8.d, Traffic Impact Study includes additional information.

TR-2 New development shall occur only where existing transportation facilities are adequate or where necessary improvements will be made as part of the development project.

Existing transportation facilities are adequate to serve construction of the TWP, and no new roads or improvements to existing roads are anticipated to be necessary in unincorporated Larimer County. Access will be via existing roads, temporary construction access, and the ROWs negotiated through individual easements.

Larimer County Master Plan, Chapter 6 – Environmental Resources and Hazards

The TWP will utilize trenchless construction methods for water pipeline installation to minimize effects to natural resources such as jurisdictional waters and wildlife habitat associated with those areas. The area disturbed for constructing the water pipeline will be restored to pre-construction conditions, including grade and revegetation, thus minimizing long-term impacts to wildlife. Areas of significant concern can utilize trenchless construction methods or the alignment of the water pipeline could be adjusted to reduce the impact the water pipeline has in a particular area. Additional information is included in **Appendix C** and the following reports in Section 8:

- 8.a Wetland Mitigation Plan
- 8.b Wildlife Conservation Plan
- 8.c Natural Hazard Mitigation Plan
- 8.f Floodplain Hydraulic/Hydrologic Modeling Report

ER-1 Resources and environmental conditions potentially impacted by proposed development shall be identified in the initial stages of the project, to best design a development that protects the environment.

Appendix C presents an assessment of natural and cultural resources within the TWP corridor. Site surveys will be performed once access to land is available to aid in the determination of jurisdictional waters and wildlife habitat. Information from the assessment and survey information will be used to develop the final pipeline alignment. Mitigation methods to minimize impacts to these areas will be incorporated into the design and construction as appropriate.

ER-1-s1 Environmental review shall be a formal required process beginning at the concept stage of all new development projects. Applicants will submit a checklist indicating which environmental resources and conditions will have significant, mitigable or no significant impact. In addition, resource information available from the Planning Department, pertaining to the project site and the area at least 1200 feet beyond project boundaries, shall be included on the concept plan submitted with the application.

Appendix C presents an assessment of natural resources within the TWP corridor. Thornton has met multiple times with staff from the Larimer County Planning Department regarding the TWP, the 1041 permit application process, and permit requirements. The Pre-Application Conference and follow-up meetings provided Thornton with guidance and recommendations from Larimer County staff to help ensure a complete permit application submittal. For long linear projects, Larimer County staff indicated that an environmental study of the project corridor would be sufficient. However, Thornton included an additional study buffer at most locations that includes a 500-foot buffer from the TWP corridor for the water pipeline and a 1,200-foot buffer around the TWP corridor near the water tank and source water pump station locations. Additional study buffer was not evaluated in areas where environmental impacts are expected to be minor, that is, where the water pipeline is proposed to be located in the Larimer County Douglas Road ROW or on Thornton-owned property near Douglas Road where ground-disturbing activities already take place.

Table 2.e.1-1 presents the anticipated effects on resources within the TWP corridor and study buffer.

TABLE 2.e.1-1
 Environmental Checklist for Resources Identified within the TWP Corridor and Study Buffer

Resource	Impact	Application Section Reference
100-Year Floodplains	Mitigable	Section 8.f, Floodplain Hydraulic/Hydrologic Modeling Report
Wildfire Hazards	No Significant Impact	Section 8.c, Natural Hazard Mitigation Plan
Geological Hazards	Mitigable	Section 8.c, Natural Hazard Mitigation Plan
Cultural	No Significant Impact	Appendix C, Natural and Cultural Resources Assessment Report
Jurisdictional Waters	No Significant Impact	Section 8.a, Wetland Mitigation Plan and Appendix C, Natural and Cultural Resources Assessment Report
Vegetation	Mitigable	Appendix C, Natural and Cultural Resources Assessment Report
Wildlife	Mitigable	Section 8.b, Wildlife Conservation Plan and Appendix C, Natural and Cultural Resources Assessment Report
Special Status Species	Mitigable	Section 8.b, Wildlife Conservation Plan and Appendix C, Natural and Cultural Resources Assessment Report

100-Year Floodplains

The TWP corridor and study buffer in Larimer County crosses three designated 100-year floodplains:

- Box Elder Creek east of I-25 near County Road 56
- Cache la Poudre River near Highway 392
- Big Thompson River near County Road 54

The TWP will not alter the floodplains. The TWP will utilize trenchless construction methods under jurisdictional waters, including streams, rivers, lakes, and wetland areas, and work conducted

within the floodplain fringe areas will be restored to pre-construction conditions. Therefore, the TWP will have no impact on the hydraulics and hydrology of the floodplain.

Wildfire Hazards

The TWP corridor and study buffer do not cross wildfire areas.

Geologic Hazards

Based on Larimer County GIS data downloaded August 2016 from Larimer County's GIS Digital Data and shown in **Figure 8.c-2**, the majority of the TWP corridor and study buffer is located in a low geologic hazard category. The TWP corridor and study buffer crosses two Moderate Class 3 and 4 areas generally described as marshy with wetlands and sandy soils with increased sloughing. Mitigation measures will be implemented in areas outside of any jurisdictional waters.

Jurisdictional waters will be crossed using trenchless construction methods.

The TWP corridor and study buffer crosses several locations defined as Severe Geologic Class 5, 6, and 7 hazard conditions. These locations are associated with major drainages and generally correspond to areas of greater slope and soil erodibility. The geologic hazard could be mitigated by using trenchless construction methods for water pipeline installation. Jurisdictional waters will be crossed using trenchless construction methods. Other possible mitigation measures that could be implemented are described in Section 8.c.

A subsurface geotechnical investigation of geologic conditions utilizing soil borings will be completed during design to further determine the subsurface soil conditions and associated geological hazards along the TWP corridor. Mitigation measures will be further refined during design to meet site-specific geological hazards.

Cultural

A Class I File Search and Literature Review for cultural resources was conducted in the second quarter of 2016 and the third quarter of 2017 for the additional analysis area. No cultural sites or structures listed on the State and National Register of Historic Places are located within the TWP corridor or study buffer within Larimer County. Additional information can be found in the Natural and Cultural Resources Assessment Report and the addendum to that report in **Appendix C**.

Jurisdictional Waters

The TWP corridor and study buffer cross multiple open waters, riparian areas, and wetlands. Water pipeline crossings of jurisdictional waters will be constructed using trenchless construction methods. Thornton has been in discussions with USACE, and Thornton plans to submit a jurisdictional determination request to USACE to determine which areas in the TWP corridor are jurisdictional. Additional information can be found in the Natural and Cultural Resources Assessment Report and the addendum to that report in **Appendix C**.

Vegetation

Impacts to vegetation will be temporary during construction except at the water tank and source water pump station and associated sites. The area around the water tank and associated sites will be restored to pre-construction conditions. Restoration around the source water pump station will be determined during design. Temporarily disturbed areas will be returned to pre-construction grades and will be seeded with native vegetation to meet property owner preferences and regulatory requirements. No long-term adverse effects on vegetation will occur. Additional

information can be found in the Natural and Cultural Resources Assessment Report and the addendum to that report in **Appendix C**.

Wildlife

An assessment of the TWP corridor and study buffer was conducted for wildlife and wildlife habitat. Information on terrestrial and aquatic animals was obtained from various sources including Colorado Parks and Wildlife, Colorado Natural Diversity Information System, Colorado Natural Heritage Program, U.S. Fish and Wildlife Service, published literature, and field surveys. Additional information including mitigation measures to minimize impacts to wildlife can be found in the Natural and Cultural Resources Assessment Report and the addendum to that report in **Appendix C**.

Special Status Species

An assessment of the TWP corridor and study buffer was conducted for potential habitat of federally threatened, endangered, and candidate species protected under the Endangered Species Act. The TWP will have no effect on federally listed threatened, endangered, or candidate wildlife or plant species. Mitigation measures such as restricting construction during nesting seasons may be implemented as appropriate. Additional information can be found in the Natural and Cultural Resources Assessment Report and the addendum to that report in **Appendix C**.

ER-3 Larimer County shall endeavor to protect all identified wetland areas of the County, in recognition of their importance in maintaining water quality, wildlife habitat, flood protection and other critical environmental functions.

ER-3-s3 A Wetland Mitigation Plan shall be developed for any development project which impacts a wetland. Requirements and performance standards for the mitigation plan shall be clearly established in the Land Use Code, and shall be the basis for approval of that plan.

Based on desktop analysis and field surveys conducted where access was available in May through July 2016 and in August and September 2017, the TWP corridor crosses multiple wetlands. More detailed field surveys will be conducted during the design phase once access is available to determine the extent of wetlands and other jurisdictional waters. Water pipeline crossings of jurisdictional waters including wetlands will be constructed using trenchless construction methods. Additional information can be found in the Natural and Cultural Resources Assessment Report and the addendum to that report in **Appendix C**.

ER-4 Larimer County shall endeavor to protect all areas identified as highest priority on the Important Wildlife Habitat Map, which is adopted by reference as part of the Master Plan.

An assessment of the TWP corridor and study buffer was conducted for wildlife and wildlife habitat. Information on terrestrial and aquatic animals was obtained from various sources including Colorado Parks and Wildlife, Colorado Natural Diversity Information System, Colorado Natural Heritage Program, U.S. Fish and Wildlife Service, published literature, and field surveys. Wildlife, including habitat and special status species, and associated mitigation measures that could be implemented to minimize impacts to wildlife are discussed in the Natural and Cultural Resources Assessment Report in **Appendix C**.

ER-4-s3 A Wildlife Impact Mitigation Plan shall be developed for any development project which impacts an Important Habitat, or which presents concerns of detrimental

human-wildlife interaction. Requirements and performance standards for the mitigation plan shall be clearly established in the Land Use Code and shall be the basis for approval of the plan.

Wildlife, including habitat and special status species, and associated mitigation measures that could be implemented to minimize impacts are discussed in the Natural and Cultural Resources Assessment Report in **Appendix C**.

ER-5 Approval of development in hazard areas shall require a finding that the proposed development is compatible with the potential hazards and that future owners or the County shall not be subject to safety hazards or economic costs associated with development related to the natural disturbance.

ER-5-s2 Moderate hazard areas shall be avoided wherever possible or the potential disturbance adequately mitigated. The Land Use Code shall establish guidelines for mitigation plans and require that the plans be reviewed by professionals having demonstrated expertise in the appropriate field, i.e., geology or wildfire management.

The TWP corridor and study buffer in Larimer County crosses three designated 100-year floodplains:

- Box Elder Creek
- Cache la Poudre River
- Big Thompson River

The TWP will not alter these floodplains. The TWP will utilize trenchless construction methods under jurisdictional waters, including streams, rivers, lakes, and wetland areas, and work conducted within the floodplain fringe areas will be restored to pre-construction conditions. Therefore, the TWP will have no impact on the hydraulics and hydrology of the floodplain.

The TWP corridor is not located in a wildfire hazard area.

The majority of the TWP corridor is located in a low geologic hazard category. The TWP corridor and study buffer crosses two Moderate Class 3 and 4 areas generally described as marshy with wetlands and sandy soils with increased sloughing. Mitigation measures will be implemented in areas outside of any jurisdictional waters. Jurisdictional waters will be crossed using trenchless construction methods.

The TWP corridor and study buffer crosses several locations defined as Severe Geologic Class 5, 6, and 7 hazard conditions. These locations are associated with major drainages and generally correspond to areas of greater slope and soil erodibility. The geologic hazard could be mitigated by using trenchless construction methods for water pipeline installation. Jurisdictional waters will be crossed using trenchless construction methods. Other possible mitigation measures that could be implemented are described in Section 8.c.

A subsurface geotechnical investigation of geologic conditions using soil borings will be completed during design to further determine the subsurface soil conditions and associated geological hazards along the TWP corridor. Mitigation measures will be further refined during design to meet site-specific geological hazards.

ER-5-s3 Potential disturbances shall be eliminated in constraint areas as part of the development design process. Approval of development in constraint areas shall be

conditional, based on adequate mitigation of the potential natural disturbance. Strategies for follow-up monitoring to ensure that mitigation has occurred shall be incorporated when appropriate.

The design team will coordinate with Larimer County to determine the location of any constraint areas and will implement required mitigation or avoidance practices in line with industry standards. Monitoring requirements will be coordinated with the County should any mitigation take place.

ER-6 New development in wildfire hazard areas shall be designed to create communities less susceptible to loss of life and property from wildfire.

ER-6-s1 All new development in designated wildfire hazard areas shall complete and implement a wildfire mitigation plan specific to that development. Mitigation plan standards and guidelines shall be clearly established in the Land Use Code and shall be the basis for plan approval. Standards shall include provisions for emergency equipment access and year-round water supply.

Based on the *Larimer County Wildfire Hazard Areas Map*, the TWP corridor in unincorporated Larimer County is located outside of the wildfire hazard area. The water pipeline will be buried and is not susceptible to wildfires. Appurtenances will be constructed of steel, concrete, and other non-flammable materials.

ER-8 Larimer County shall protect its commercial mineral resources, pursuant to 34-1-302(1) C.R.S.

No significant mineral resources have been identified within the TWP corridor. The TWP is a linear project that follows many existing linear corridors. The development of undiscovered mineral resources would not be limited by the TWP. **Figure 4.n** shows locations of commercial mineral mines, active hard rock mines, sand and gravel construction mines, and Division of Reclamation Mining and Safety mines in Larimer County. One active sand and gravel construction pit is shown on the figure within unincorporated Larimer County.

ER-13 Development proposals shall minimize negative air quality impacts to the maximum extent possible.

ER-13-s2 Development applicants shall comply with State requirements for controlling dust emissions during the construction phase of development. The Land Use Code shall reference performance standards for dust control.

Thornton and/or the TWP contractors will develop a fugitive dust control plan, submit an air pollution emissions notice, and obtain a permit from CDPHE prior to construction activities in accordance with state air quality regulations. Additional information including possible mitigation measures to be used during construction can be found in Section 8.I, Air Quality Impact and Mitigation Report.

ER-14 Water quality shall be protected by analyzing potential impacts of development proposals, the application of best management practices to reduce or control sources of contamination, and a demonstration of compliance with local, State and Federal requirements.

ER-14-s1 Applicants for new development shall address potential water quality impacts for properties that contain surface water or have the potential to impact surface or

groundwater quality. A water quality management plan shall be included as part of the stormwater report in the development review process.

Development of the final water pipeline alignment will consider water pipeline construction locations that minimize impacts to historical surface and subsurface water flows in the project area. Water pipeline crossings of jurisdictional waters, including wetlands, will be constructed utilizing trenchless construction methods. This construction method will eliminate surface disturbance to the waterbody and effects on water quality. The TWP corridor and study buffer cross multiple open waters, riparian areas, and wetlands. Additional information can be found in the Natural and Cultural Resources Assessment Report in **Appendix C**.

The TWP will cross multiple irrigation ditches within unincorporated Larimer County as presented in **Table 2.e.1-2**. Thornton has begun initial outreach to each irrigation ditch company to begin coordination activities. Thornton will obtain appropriate agreements for each crossing prior to construction. No direct effects on water quality in the irrigation ditches are anticipated. Crossings will be constructed using either open-cut or trenchless construction methods as directed by the irrigation ditch company and during off season, if required.

TABLE 2.e.1-2

TWP Corridor Irrigation Ditch Crossings

Irrigation Ditch Name	Irrigation Ditch Owner
Jackson Ditch	The Jackson Ditch Company
Larimer County Ditch/Larimer County Canal	Water Supply and Storage Company
Cowan Lateral/Cactus Hill Lateral	North Poudre Irrigation Company
No. 8 Outlet Ditch/Windsor Ditch/Larimer and Weld Canal/ Larimer Weld Irrigation Canal	Windsor Reservoir and Canal Company
Lake Canal/Lake Canal Ditch	Lake Canal Reservoir Company
Timnath Reservoir Outlet/Greeley Number 2 Canal	Cache la Poudre Reservoir Company
Farmers Ditch	Highland Ditch Company
Hillsborough Ditch/Hill and Brush Ditch	Consolidated Hillsborough Ditch Company

Prior to construction, Thornton and/or the TWP contractors will obtain a Stormwater Discharge Associated with Construction Activity - General Permit from CDPHE. SWMPs will be developed under the general permit to protect the quality of stormwater runoff during construction in accordance with the Construction Stormwater Discharge Permit requirements.

Construction wastewater associated with the potential dewatering of trenches would be handled in accordance with CDPHE permit discharge requirements. Prior to construction, Thornton and/or the TWP contractors will obtain a General Permit for Construction Dewatering Activities from CDPHE and specify the management measures to be used to capture and manage any generated discharge.

Section 8.e, Drainage and Erosion Control Report and Plan and **Appendix D**, Construction Stormwater Best Management Practices – Example Descriptions include additional information.

Construction, operation, and maintenance activities will comply with applicable federal, state, and local laws and regulations regarding the use of hazardous substances as described in Section 2.h.

ER-14-s2 *Drinking water sources shall be provided the highest achievable levels of environmental protection. Stormwater from new developments must not be discharged into a drinking water supply reservoir unless it can be demonstrated that water quality will not be impaired. Water quality management plans shall address water chemistry, as well as sediment transport and control.*

Prior to construction, Thornton and/or the TWP contractors will obtain a Stormwater Discharge Associated with Construction Activity - General Permit from CDPHE. SWMPs will be developed under the general permit to protect the quality of stormwater runoff during construction in accordance with the Construction Stormwater Discharge Permit requirements.

ER-14-s3 *Local and State requirements for individual on-site sewage disposal systems shall be considered in the initial stages of the development review process. All new lots to be served with individual septic systems shall be at least 2.29 acres and shall demonstrate the ability to meet local standards prior to preliminary subdivision approval.*

After construction, the TWP facilities may operate year-round, 24 hours a day; however, the facilities are intended to be unmanned. The source water pump station and water tank will be monitored remotely, inspected daily, and repaired and maintained as needed. The unmanned facilities are not anticipated to require any permanent drinking water source or sewage disposal system.

ER-14-s4 *Applicants for construction activities, industrial uses and mining activities which meet thresholds under State law shall demonstrate that they have obtained a Colorado Stormwater Permit. Colorado Stormwater permits require applicants to identify and carry out appropriate best management practices to minimize polluted runoff from their sites.*

Prior to construction, Thornton and/or the TWP contractors will obtain a Stormwater Discharge Associated with Construction Activity - General Permit from the CDPHE. SWMPs will be developed under the general permit to protect the quality of stormwater runoff during construction in accordance with the Construction Stormwater Discharge Permit requirements.

ER-15 **All new development shall be required to adequately provide for stormwater management in a manner which reflects current engineering practice and which takes into account up-to-date hydrologic standards.**

Stormwater management practices will be incorporated in the design of both the source water pump station and water tank sites.

ER-17 **Larimer County shall develop noise and glare performance standards and enforce State odor condition standards to protect the health, safety and welfare of County residents.**

ER-17-s1 *Noise standards from the County Noise Ordinance shall be used in the development review process to ensure that new development does not create unacceptable noise conditions beyond its property boundaries. The Land Use Code shall reference maximum permissible noise levels consistent with the existing County Noise Ordinance. If the County has reason to believe that a proposed use may cause noise which would be objectionable or otherwise cause a nuisance, a noise mitigation plan may be required as part of a development application.*

During construction of the TWP, the TWP will comply with Larimer County's then-existing Noise Level Ordinance (currently Ordinance No. 97-03). Noise from construction equipment will be of short duration during construction.

Post-construction, noise at the source water pump station is anticipated to come from the permanent emergency backup generator if included, air conditioning unit(s), and from equipment inside the building such as pumps and motors. It may be possible for PVREA to extend a second, redundant power feed to the source water pump station for emergency backup power. If a second feed is feasible and cost-effective, an emergency diesel powered backup generator will not be required. Thornton will continue to coordinate with PVREA to determine specific requirements for power service to the source water pump station. The facility will be designed to meet the then-existing Larimer County Noise Level Ordinance. No noises related to the water pipeline and water tank are anticipated. A Larimer County Site Plan Review permit application will be submitted to Larimer County for the source water pump station after design.

Section 8.k, Noise Analysis includes additional information.

ER-17-s2 Performance standards for glare shall be addressed in the development review process to limit off-site impacts associated with glare and light level disturbance. The Land Use Code shall specifically address outdoor lighting standards and provide a review process for outdoor lighting activities and uses such as lighted playing fields and outdoor arenas.

Lighting is not required for the water pipeline. For security, lighting will be provided at the source water pump station and water tank. The lighting plan for the source water pump station will be submitted to Larimer County with the Site Plan Review Permit application. Lighting for the water tank will meet requirements defined in the LUC Section 8.15. Fixtures will be designed, shielded, aimed, located and maintained to prevent glare and light trespass on abutting properties and the vicinity.

ER-18 The development review process shall assist in the protection of the special places of Larimer County.

A Class I File Search and Literature Review for cultural resources was conducted in the second quarter of 2016. No cultural sites or structures listed on the State and National Register of Historic Places are located within the TWP corridor or study buffer within Larimer County. Additional information can be found in the Natural and Cultural Resources Assessment Report in **Appendix C**.

2.e.2 Applicable Intergovernmental Agreements and Municipality Plans

Several municipalities have IGAs with Larimer County. These IGAs were examined for applicability to the TWP. IGAs applicable to the TWP are with the city of Loveland (Loveland), the town of Windsor (Windsor), and the city of Fort Collins (Fort Collins).

IGA Larimer County/Loveland

The TWP corridor does not intersect Loveland's GMA. The TWP corridor lies within the boundary of Loveland's community influence area (CIA) and cooperative planning area (CPA), making Loveland a referral agency. As a referral agency, Loveland may review and comment on this Application to identify the impacts of the TWP on infrastructure in Loveland, and particularly, on existing road and storm drainage systems. Traffic impacts will be temporary during construction; Section 8.d, Traffic Impact Study provides additional information. The water pipeline will be buried

and areas impacted by construction will be restored to pre-construction conditions. No long-term impacts to storm drain systems are anticipated.

IGA Larimer County/Windsor

The TWP corridor extends through portions of the town boundaries of Windsor and Windsor's GMA, CIA, and 3-Mile Planning Area and will be subject to the IGA Regarding Cooperation on Managing Urban Development between Windsor and Larimer County. The TWP within Windsor's municipal limits will be subject to the specifications, regulations, and permit requirements of Windsor. Thornton has participated in several discussions with Windsor regarding Windsor's requirements and will continue coordination as the final water pipeline alignment is developed.

For portions of the TWP corridor that lie within the GMA, CIA, and the 3-Mile Planning Area, Windsor will be a referral agency and may review and comment on this Application. No changes to existing zoning are anticipated to be required for the water pipeline and no annexations will be required for the water pipeline easement. Land use of each parcel crossed by the water pipeline will be considered during the development of the final water pipeline alignment. As stated above, Thornton has initiated coordination activities with Windsor and will continue discussions to coordinate planning activities. In addition, Windsor and other local municipalities were consulted on the preferred location of the TWP corridor.

IGA Larimer County/Fort Collins

The TWP corridor extends through portions of the city boundaries of Fort Collins and Fort Collins' GMA and will be subject to the IGA. The TWP within Fort Collins' municipal limits will be subject to the specifications, regulations, and permit requirements of Fort Collins. Thornton has participated in an initial outreach meeting with Fort Collins and will continue coordination as the final water pipeline alignment is developed if the water pipeline is proposed to be located within the city of Fort Collins.

2.e.3 Larimer County Open Lands Master Plan

The TWP corridor does not cross any existing Larimer County Open Space and Parks identified in the Larimer County Open Lands Master Plan. One conservation easement, the Kraft Farm Conservation Easement, indicated in the Larimer County Open Lands Master Plan, is within the TWP corridor. The Kraft Farm Conservation Easement abuts County Road 56 on the north side of the easement. The water pipeline is proposed to be located in the County Road 56 ROW where feasible and as approved by Larimer County. Impacts are expected to be minimal by routing the water pipeline location around this area where practicable. If the water pipeline cannot be routed around this area, impacts to this area will be temporary and only occur while the water pipeline construction is taking place. After construction is completed, the area will be restored to pre-construction grades and vegetation, restoring it to its open lands condition.

The TWP corridor crosses multiple priority areas that Larimer County considers as prime candidates for protection when willing property owners desire to sell or donate their land or conservation easements to Larimer County. The TWP will obtain easements for the water pipeline in these areas and will not purchase any property that could be considered for conservation easements. The priority areas that the TWP corridor crosses that are indicated in the Larimer County Open Lands Master Plan include the following:

- Wellington Separator Area
- River Corridor Priority Areas

- Cache la Poudre River
- Big Thompson River

Impacts in the Wellington Separator area will be temporary during construction because the water pipeline will be buried and disturbed areas will be restored to pre-construction grades and vegetation, effectively restoring these areas to their open lands condition.

River crossings within jurisdictional waters will be constructed using trenchless construction methods. Areas outside jurisdictional waters will be restored to pre-construction grades and vegetation, effectively restoring these areas to open lands condition. The TWP corridor crosses the Cache la Poudre River at the Frank State Wildlife Area, which is a conservation easement granted to Colorado Department of Natural Resources, Colorado Division of Wildlife. Thornton has attended an initial coordination meeting with Colorado Parks and Wildlife (CPW) regarding the crossing of this conservation easement. Thornton will continue coordination with CPW as the TWP is developed and implemented.

From the Larimer County Open Lands Master Plan:

Requests for easements that affect open spaces must be considered within this context. Accordingly, the general policy is to avoid, to the maximum extent feasible, granting easements for activities that will adversely affect the resource and open space values and their protection. Where easements are determined to be acceptable, the general policy is to minimize the impact on the open space by limiting the size, scope, and visibility of the area affected, by managing construction or other human activities with respect to their timing, duration, and frequency of occurrence, and by restoring affected areas to a condition that is equal to or better than the condition at the time the easement is granted.

The TWP will implement mitigation measures to minimize impacts during construction, especially in sensitive areas. Existing grades will be restored to their pre-construction conditions and revegetated to match existing conditions. Additional information and mitigation measures that could be implemented are discussed in the Natural and Cultural Resources Assessment Report in **Appendix C**.

From the Larimer County Open Lands Master Plan:

Underground Utility Transmission Facilities or Pipelines. To the extent possible, underground utility transmission facilities (e.g. electric, telephone, fiber optic, etc.) and pipelines (e.g. gas, water, sewer) will be located within the street and utility right-of-way adjacent to the open space. In instances where the existing right-of-way does not conform to the planned future street right-of-way as depicted on the applicable adopted Transportation Master Plan, cable or pipeline easements will be located parallel to the existing roadway and within the area encompassed by the future street and utility right-of-way.

Some larger utility transmission facilities or pipelines are not typically placed beneath streets due to reliability or safety concern. In instances where the facility or pipeline cannot be placed within the road right-of-way, it will be located as close as practicable, and parallel to the road right-of-way.

The final water pipeline alignment will be developed based on a number of criteria including minimizing impacts to environmental resources and open lands/conservation easements. If

locating the water pipeline outside the ROW other than as specifically approved in a 1041 permit is not practicable, Larimer County approval will be pursued to allow the water pipeline to be located within the ROW. As required, alternatives within the TWP corridor will be examined prior to making such a request to Larimer County to verify that the proposed alternative is the best reasonable alternative.

From the Larimer County Open Lands Master Plan

Coordination with Other Entities: The County will generally discourage exclusive easements. As a condition of approval, the applicant must contact other utility service providers in the project vicinity to determine if they have current or future plans for additional facilities in the area. To the extent feasible, the planning, design, and construction of facilities shall be coordinated among utility providers to conserve easement corridors and to avoid repeated construction activities that may affect the open space. Applicants must provide copies of the written request for utility coordination and the responses received from other service providers.

Thornton has initiated outreach to local utility providers and will review the possibility of shared future easements with those entities. **Appendix E**, Stakeholder Outreach documents the initial outreach to local utility providers.

2.e.4 Larimer County Transportation Master Plan

The TWP was reviewed in conjunction with the area goals and transportation improvement plans outlined in the *Larimer County Transportation Master Plan*, adopted in July 2017. The *Larimer County Transportation Master Plan* identifies multiple road improvement projects within the area along the TWP corridor. Thornton will coordinate design efforts with Larimer County improvement projects to minimize conflicts with future plans. If Larimer County's improvement projects occur within the timeframe of the construction of the TWP, Thornton will work with Larimer County and other involved parties to coordinate construction and minimize disruption. Additional information is discussed in Section 8.d, Traffic Impact Study.

Larimer County has long-term plans for rehabilitation/replacement of Douglas Road, including intersection improvements at Highway 1. Thornton has met with Larimer County staff to discuss possible coordination of projects and will continue coordination efforts through the design and construction of the TWP.

2.f Description of Recent and Present Uses of the Site such as Pasture, Irrigated or Dry Land Crops, Etc.

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 2.f, and the criteria and standards described in LUC Section 14.10.D.10.

The majority of the TWP corridor within unincorporated Larimer County is located in areas categorized as rural lands as shown on **Figure 2.f**. The majority of zoning within the TWP corridor is designated as farming and open zoning districts. The water pipeline and fiber optic cable will be buried and land use effects on agricultural and other similar use will be temporary during construction and is anticipated to be minimal after construction. Agricultural use within the permanent easement can continue after construction. **Figure 2.e.1-1** shows the zoning within the TWP corridor in Larimer County.

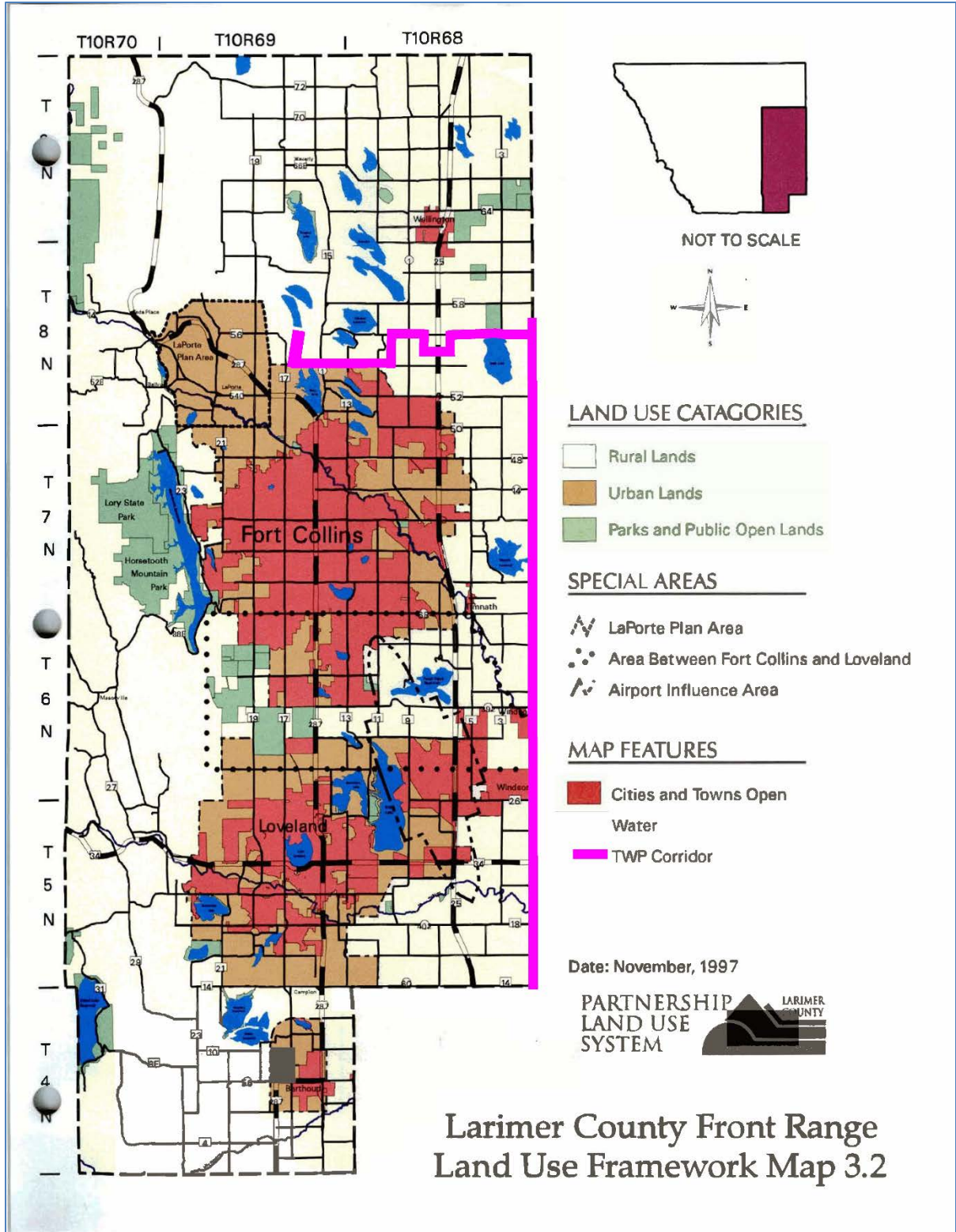


FIGURE 2.f
 Larimer County Front Range Land Use Framework Map 3.2 with TWP Corridor

Vegetation provides some indication of land uses. For example, nonnative upland vegetation typically occurs in areas that have been historically disturbed by heavy grazing, tilling, and hay production. Vegetative communities are described in and are shown on figures in the Natural and Cultural Resources Assessment Report in **Appendix C**. Vegetation types found in the TWP corridor are presented in **Table 2.f**.

TABLE 2.f
 Vegetative Communities within the TWP Corridor in Larimer County

Vegetative Community	Approximate Total Acres in TWP Corridor	Description
Agricultural Lands	1,193	Tilled or managed agricultural lands.
Developed/ Disturbed Areas	808	Have received heavy human use, including buildings and surrounding disturbed areas, livestock concentration areas, roads, trails, and other developed areas.
Nonnative Upland	649	Occurs throughout the TWP corridor in areas that have been historically disturbed by heavy grazing, tilling, and hay production.
Mixed Upland	54	Occurs primarily in historically undisturbed upland areas.
Wetlands	43	Fringes or wide benches along drainages, roadside swales, ponds and lakes, and isolated depressions
Riparian	7	Moist areas along larger tributaries and rivers.

2.g Description of the Information Obtained on the Site Inventory Map(s) (See 4. Below) and Any Mitigation Measures Proposed to Address Existing Hazards or Adverse Impacts of the Project on Existing Conditions

This section addresses *Larimer County Procedural Guide for 1041 Permit*, Item 2.g.

A description of the Site Inventory Maps can be found in Section 4. Mitigation measures for resources are presented throughout this Application as presented in **Table 2.g**.

TABLE 2.g
 Impacted Existing Condition Reference to Mitigation Measures Location in Application

Impacted Existing Condition	Impact	Application Section Reference
100-Year Floodplains	Mitigable	Section 8.f, Floodplain Hydraulic/Hydrologic Modeling Report
Wildfire Hazards	No Significant Impact	Section 8.c, Natural Hazard Mitigation Plan
Geological Hazards	Mitigable	Section 8.c, Natural Hazard Mitigation Plan
Cultural	No Significant Impact	Appendix C, Natural and Cultural Resources Assessment Report
Jurisdictional Waters	No Significant Impact	Section 8.a, Wetland Mitigation Plan and Appendix C, Natural and Cultural Resources Assessment Report
Vegetation	Mitigable	Appendix C, Natural and Cultural Resources Assessment Report

TABLE 2.g
 Impacted Existing Condition Reference to Mitigation Measures Location in Application

Impacted Existing Condition	Impact	Application Section Reference
Wildlife	Mitigable	Section 8.b, Wildlife Conservation Plan and Appendix C, Natural and Cultural Resources Assessment Report
Special Status Species	Mitigable	Section 8.b, Wildlife Conservation Plan and Appendix C, Natural and Cultural Resources Assessment Report
Transportation	Mitigable	Section 8.d, Traffic Impact Study
Drainage and Erosion	Mitigable	Section 8.e, Drainage and Erosion Control Report and Plan
Groundwater	Mitigable	Section 8.g, Groundwater Modeling Report
Noise	Mitigable	Section 8.k, Noise Analysis
Air Quality	Mitigable	Section 8.l, Air Quality Impact and Mitigation Report
Public Health and Safety	Mitigable	Section 2.h

2.h Description of Any Potential Negative Impacts of the Project to Public Health and Safety and Mitigation Measures Proposed to Address the Impacts

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 2.h, and the criteria and standards described in LUC Sections 8.12, 14.10.D.3, 14.10.D.6, and 14.10.D.11.

Environmental Hazards

Thornton and the TWP contractors will provide and maintain sanitary accommodations for the use of their employees during construction of the TWP in a manner that complies with the requirements and regulations of health departments and other governmental bodies. These accommodations, including trash dumpsters and portable toilets, will be located in several locations along the TWP construction site based on the general plan for construction. Construction waste will be stockpiled in construction staging areas and removed from the construction site during the construction process. Garbage dumpsters will be emptied approximately every 1 to 2 weeks. Possible staging areas are shown on **Figure 2.a-1**. The TWP will not include the need for permanent dumpsters or sanitary facilities.

Construction, operation, and maintenance activities will follow best management practices for the management of wastes to avoid and minimize impacts from potential spills or other releases to the environment. These practices are discussed in greater detail below. Adverse impacts from the release of construction or operations wastes are not expected.

Hazardous Materials and Waste Management Mitigation Measures

Construction, operation, and maintenance activities involving Thornton or the TWP contractors bringing any hazardous materials onto the site will comply with applicable federal, state, and local laws and regulations regarding the handling, storage, disposal, transportation, and use of hazardous substances. In its contract with the TWP contractors, Thornton will require that the TWP contractors comply with applicable laws.

If trenching activities uncover previously unknown areas of contamination that are apparent, work will be stopped until the party responsible for such contamination has properly managed and/or disposed of such contamination.

Construction staging areas will be located and arranged in a manner to preserve trees and vegetation to the extent feasible. Excavated material or other construction materials will not be stockpiled or deposited near or on stream banks or other watercourse perimeters where they could be washed away by high water or storm runoff, or could encroach upon stream banks. Best management practices will be implemented for stormwater management. A summary of BMPs to protect water resources from potential contamination is provided in **Appendix D**.

Fueling Mitigation and Safety Measures

If possible, fueling requirements will be met prior to arrival at the construction site. Heavy equipment left on site for construction activities will require onsite fueling at staging areas or the construction site. No bulk fuel storage is anticipated to occur on site. Fueling vehicles will be equipped with spill kits and fire extinguishers, and personnel will be properly trained in spill prevention, control, and countermeasures.

To minimize the potential for a spill during fuel transfers and be prepared in the event of a spill, the following measures will be followed (including the Code of Colorado Regulations [CCR] and Code of Federal Regulations [CFR] that will be followed during loading/unloading of fuel):

- Keep fire away while loading/unloading. Persons in the vicinity are forbidden to smoke, light matches, or carry any flame or lighted cigar, pipe, or cigarette. 49CFR 177.834(c, d)
- Fuel will not be loaded/unloaded from any motor vehicle while the engine is running. The exception is when the engine of the vehicle is to be used in the operation of the pump. 49CFR 177.837(a)
- The fuel tank records will be reviewed to determine the theoretical fuel tank level. 7CCR 1101-14 S2-3-1 and S2-4-2(a)(2)
- The fuel tank level gauge will be inspected to determine the actual fuel tank level before unloading takes place. (Note: Any fuel tank level discrepancies will be resolved prior to hooking up to the fuel tank.) 7CCR 1101-14 S2-3-1 & S2-4-2(a)(2)
- The supply truck driver will observe the transfer during the entire operation. 49CFR 177.834(i)(2)
- Once the truck is in position, its emergency brake will be applied and reasonable precautions will be taken to prevent motion of the truck during unloading (example: utilize wheel chocks when parked on an incline). 49CFR 177.834(e)
- Signs must be posted that remind drivers not to pull away before detaching hoses. 40CFR 112.7(h)(3)
- Containers and cargo tanks will be grounded prior to and during transfer. 49CFR 177.837(b) & (c)
- The transfer line must be properly disengaged, and the valves and piping of both the fuel tank and truck must be checked for leaks before allowing the truck to leave the site. (40CFR 112.7 h(4) for trucks)

Traffic and Roads and Mitigation Measures

Impacts caused by construction equipment and activity on Larimer County roads will be short term during construction. Access will be maintained for local area residents. Emergency vehicle

access needs will be maintained and construction activities coordinated with local fire departments, police departments, ambulance services, and other emergency responders as necessary. Thornton places a high priority on safety during construction. TWP contractors will implement traffic management plans based upon local traffic control requirements and general safe operating practices. Proper signage, flaggers, lighting, speed limits, work hours, postings, notifications, and other precautionary safety measures will be taken to protect the residents of Larimer County and TWP contractors' employees.

The water pipeline construction will utilize trenchless construction methods under Larimer County roads where required by Larimer County, resulting in little to no disruption to traffic at those locations. Temporary traffic delays and detours will be needed where the water pipeline is installed by open-cut construction across existing roads. Traffic disruption will be temporary, and will cease after construction. Traffic control plans will be implemented prior to construction, subject to approval and acquisition of permits from Larimer County Engineering.

Additional information and mitigation measures are presented in Section 8.d.

Emergency Procedures

Thornton owns and operates an extensive network of water pipelines that deliver raw and finished water to Thornton facilities and customers in residential and business areas. Providing reliable water requires that Thornton have quick access to parts and equipment to maintain or repair pipelines and related facilities, and the same will apply to the TWP. The TWP pump stations inside and outside of Larimer County will include emergency automatic shutdown control. Pump stations will undergo automatic controlled shutdown if a sudden pressure drop or increase occurs or sudden changes in water tank levels occur that indicate a water pipeline break, valve closure, or blockage.

One of the greatest risks to buried pipelines is excavation by individuals unaware of the location of a pipeline. Pipeline markers will be installed in the pipeline permanent easement to indicate that a water pipeline is buried nearby. The markers will identify the water pipeline, Thornton as the pipeline operator, the operator's 24-hour emergency contact number, and the area's utility notification number. Marking tape indicating that a water pipeline is buried in the location will also be installed above the water pipeline for the entire length of the water pipeline. The majority of the water pipeline in unincorporated Larimer County will be located within permanent easements. This approach reduces the probability that individuals could damage the water pipeline with ground-disturbing activities.

The water pipeline will be designed and constructed to be water tight. Pipe materials will be required to undergo shop testing before installation as well as hydrostatic field testing after installation.

The water pipeline, water tank, and other appurtenances will be coated and lined to prevent corrosion. As an additional safety measure, project components will be installed with cathodic protection, which will control the corrosion of a metal surface. Cathodic protection systems are commonly used to protect steel water pipelines and storage tanks.

An emergency response plan will be developed for the construction and the operation phases of the TWP. The plan will be written to include identification of emergency response departments near the TWP area, including how and when to communicate with the Loveland Rural Fire Protection District, Poudre Fire Authority, Windsor-Severance Fire Protection District, and the Larimer County Sheriff, as applicable.

2.i Description of Existing and Proposed Utilities and Facilities Needed to Provide Adequate Public Facilities (See Section 8.1 of the Code), and How Adequate Facilities will be Provided

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 2.i, and the criteria and standards described in LUC Sections 8.1, 8.15, 8.16, and 14.10.D.8.

The TWP will not have a negative effect on local government or any other existing public facilities and services. The construction, operation, and maintenance of the underground water pipeline and associated facilities will not require any new public facilities or impact existing services such as police, fire, waste water, and healthcare. During construction of the water pipeline short-term disruptions could occur to domestic water service if utility requires relocation. Area residents will be notified in advance of any service disruptions. The TWP will employ Thornton employees, a construction management team, and contractors to construct the TWP. It is anticipated that Thornton will provide approximately 10 to 15 employees during the construction phase. No lodging or temporary housing is expected to be required for Thornton employees or the construction management team. Contractors for the construction phase of the TWP will be hired. The TWP contractors will provide construction crews that are not anticipated to exceed approximately 100 workers at any one time. Some workers may reside outside of the local areas and will require lodging or temporary housing. The number of construction workers on site will depend on the contractor and the construction activity occurring during a particular time. Thornton will endorse hiring local workers.

2.i.1 Sewage Disposal

During construction, portable toilets will be placed in several locations along the TWP construction site based on the general plan for construction. The TWP will not include the need for permanent sanitary facilities as the water tank and source water pump station will be unmanned facilities.

2.i.2. Water Supply

Thornton will supply water in portable storage containers for hand washing and eye rinsing at the source water pump station.

During construction, bottled water, water cooler service, or another temporary drinking water source will be provided to construction workers for drinking water. Up to approximately 17 million gallons of water will be used for hydrostatic testing the water tank and the section of the water pipeline from the source water pump station to County Road 14, including sections outside unincorporated Larimer County. Hydrostatic pressure testing will be completed after the water pipeline has been backfilled to verify that the water pipeline is capable of withstanding the designed maximum allowable operating pressure. It is anticipated that the water pipeline will be tested in sections. Where feasible, water will be routed from one section of the water pipeline to another to recycle hydrostatic test water. Water sources for testing could include nearby fire hydrants, water pipelines, WSSC Reservoir 4 and the Larimer County Canal.

Additional water will be used as needed during construction for dust suppression (approximately 8.7 million gallons) and soil conditioning to obtain the required backfill compaction (approximately 7.2 million gallons). After construction, water will be required for revegetation (approximately 4.7 million gallons). Thornton and/or the TWP contractors will negotiate purchase of water deliveries from municipal and/or private sources.

The source water pump station will be an unmanned facility and is not anticipated to require a connection to a permanent drinking water source. Any water needed inside the source water pump station for cleaning and maintenance could be pulled from a tap on the water pipeline if

design parameters can be met. A connection to the local water distribution system is not anticipated at this time.

2.i.3 Fire Protection

During construction, fire extinguishers will be located at designated areas along the TWP including but not limited to staging area and areas of heavy machinery such as trenchless operations. In addition to the fire extinguishers, fire hydrants are located along the roadway adjacent to the proposed source water pump station site. Due to the water pipeline running along roads and mostly within agricultural land, the availability of fire hydrants during water pipeline construction is limited and not anticipated to be needed. The TWP contractor is responsible for an emergency response plan that includes fire protection and fire emergencies.

Because the water pipeline is an underground utility, there is no need for fire protection post-construction. Final design of the source water pump station will meet fire protection level of service standards as required in LUC Section 8.1.4 and building code requirements. Thornton will submit a Site Plan Review permit application to Larimer County in accordance with LUC Section 6.0. Poudre Fire Authority Station 12 is the nearest fire station to the source water pump station and is approximately 3 miles away.

2.i.4 Road

Access along the final water pipeline alignment will be along roadways, at existing access locations when practicable, or via properties owned by Thornton that are within the construction work limits. New access locations are anticipated to be required for temporary and permanent use. Thornton will obtain individual Larimer County, Colorado Department of Transportation (CDOT), and other municipal access permits for any necessary temporary and permanent access locations as applicable. If access is needed using private roads or drives, Thornton will negotiate use with the property owner. Stabilized construction entrances/exits will be installed, as necessary, at the intersections of the TWP temporary access roads with paved roads. Permanent access locations will be designed per local government standards applicable at the location of access. Temporary access will be unpaved and used primarily for transport of materials and construction workers. Temporary and permanent access locations will be closed to the public. Temporary access locations could include warning signs, flaggers, and controlled access, as necessary. Additionally, gates or other approved barriers on temporary access roads may be utilized when construction workers are not present to control unauthorized access. Temporary access locations will be restored to pre-construction conditions upon the completion of construction.

It is anticipated that access to the final water pipeline alignment will be required along Interstate 25 frontage roads, County Road 56, Douglas Road, and County Road 1. Other potential access locations, depending on the final water pipeline alignment, could be required along other local roads. A more detailed description of the possible haul routes and impacts to roads and the traveling public can be found in the Traffic Impact Study in Section 8.d.

Access to the water tank location will be along County Road 1. A new permanent gravel access will be built onto the parcel from County Road 1. This access will serve as the access for vehicles during construction as well as future maintenance. Future access requirements will be minimal as the water tank is anticipated to be unmanned with limited maintenance requirements.

Access to the source water pump station will be determined after the final site location has been determined. Access to the source water pump station is anticipated to be from Douglas Road, but is dependent the final location. Starlite Drive is a private road and, if used, use of this road will be

negotiated with the property owner. This existing dirt road could provide access for construction vehicles during construction of the pump station and for future maintenance as necessary and as approved by the property owner. The access drive and parking areas are anticipated to be gravel. Future access requirements will be minimal as this is anticipated to be an unmanned facility with limited maintenance requirements.

2.i.5 Site Improvements

The majority of the water pipeline will be located on private property. Areas disturbed by water pipeline construction will be returned to pre-construction grades and seeded with native vegetation to meet property owner preferences and regulatory requirements. Fences will be restored. Roads that will be open-cut for water pipeline installation will be restored to pre-construction condition or as required by regulatory agency having jurisdiction over the road. Storm drain systems will be restored to pre-construction conditions.

The water tank site will include a gravel access and parking area, and lighting and fencing for security will be installed in accordance with LUC Sections 8.15 and 8.16. Other disturbed areas will be returned to pre-construction grades and will be seeded with native vegetation.

No design has been completed for the source water pump station. Lighting and fencing for security will be installed in accordance with LUC Sections 8.15 and 8.16. Thornton will submit a Site Plan Review permit application to Larimer County in accordance with LUC Section 6.0.

2.j Projected Development Schedule

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 2.j.

The schedule for the TWP extends from 2016 for permitting development to 2025 for startup operations. **Figure 2.j** presents general timeline for major activities. Design and construction are anticipated to be delivered in multiple packages with overlapping schedules.



FIGURE 2.j
 TWP Timeline

Major land use permitting is anticipated to be completed in 2019. Other permits, such as contractor-obtained permits, will be acquired prior to construction. A summary table of the anticipated permits and consultations for the TWP can be found in **Table 2.j**. Additional permits and consultations may be necessary as design details progress.

TABLE 2.j
 Preliminary List of Required TWP Permits and Consultations

Agency	Permit
<i>Permits</i>	
Larimer County	1041 Permit
Larimer County	Site Plan Review
Larimer County	Sign Permit (temporary construction signage and possibly for source water pump station)
Larimer County	Miscellaneous Building Permit
Larimer County	Floodplain Permit
Larimer County	Access Permit
Larimer County	Special Transport Permit
Larimer County	ROW Construction
United States Highway Administration	United States Highway Access Agreement
CDPHE	Air Pollution Emission Notice and Construction Permit
CDPHE	Stormwater Discharge Associated with Construction Activity - General Permit
CDPHE	Construction Dewatering Discharge Permit
CDPHE	Minimal Discharge Permit for Hydrostatic Testing of Pipelines, Tanks, and Similar Vessels
Colorado Division of Water Resources (DWR)	Dewatering Well – Notice of Intent
Colorado Water Quality Control Division (WQCC)	Source Water and Design Approval for Drinking Water
CDOT	Special Use/Utility Permit
CDOT	Access Permit
CDOT	Oversized/Overweight Notification
Weld County	Use by Special Review - Pipelines
Weld County	Grading Permit
Weld County	Manufactured Structure Permit
Weld County	Building Permit
Weld County	ROW Use Permit
Weld County	Access Permit
Weld County	Floodplain Permit
Weld County	Improvements Agreement
City of Fort Collins	ROW Permit
City of Windsor	Flood Plain Development Permit

TABLE 2.j
 Preliminary List of Required TWP Permits and Consultations

Agency	Permit
City of Windsor	Curb, Gutter, and Sidewalk Permit
City of Windsor	Type I Excavation Permit
City of Windsor	Encroachment Permit
City of Windsor	Occupation of PublicROW
City of Windsor	Streets Activity/Closure Request
Town of Timnath	Site Plan
Town of Timnath	Grading
Town of Timnath	Street Cut
Town of Johnstown	ROW Work
Town of Firestone	1041
Town of Firestone	Building Permit
Town of Firestone	Fence Permit
Town of Firestone	Over Weight Vehicle Permit
Town of Firestone	Right of Way/Street Cut Permit
Town of Frederick	Development Review
Town of Frederick	General Construction Permit
Town of Frederick	ROW Permit
Town of Frederick	Oversize/Overweight Permit
Burlington Northern Santa Fe Railway	Pipeline Crossing License Request
Great Western Railway	Pipeline Crossing License Agreement
Union Pacific Railroad	Pipeline Crossing Permit
Local Irrigation and Ditch Companies	Crossing Agreement
Utilities	License Agreement/Permit
<i>Consultations</i>	
USACE	Clean Water Act Section 404 Consultation
United States Fish and Wildlife Service (USFWS)	Endangered Species Act Compliance Consultations
Colorado Office of Archaeology and Historic Preservation (OAH)	National Historic Preservation Act Section 106 Consultations
USFWS/Colorado Parks and Wildlife	Migratory Bird Treaty Act Compliance Consultations

2.k Description of the Public Input Process Prior to the Application, Including the Comments and Concerns Raised During the Process and How They are Addressed in the Proposal

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 2.k.

Public Outreach

Public outreach includes a TWP website, TWP e-mail address, and TWP phone line, Open Houses, home owner association outreach, a Community Update meeting, and stakeholder outreach.

TWP Website, TWP E-mail, and TWP Phone Line

Public outreach is not required by Larimer County's 1041 permit application process. However, to introduce the public and potentially affected property owners to the TWP, the TWP website, TWP e-mail address, and TWP phone line (www.ThorntonWaterProject.com, info@ThorntonWaterProject.com, and 720-977-6700) launched on October 28, 2016. The website, e-mail, and phone line provide opportunities for questions and the collection of input from the public and potentially affected property owners. See **Appendix B** for comments received pertaining to the TWP corridor presented for approval in this Application and corresponding responses and references to appropriate sections of this Application that further address the comments.

Open Houses

Public outreach is not required by Larimer County's 1041 permit application process. However, in order to introduce the public and potentially affected property owners to the TWP, respond to questions, and to collect input from the public and potentially affected property owners, the following Open Houses were held in Larimer and Weld Counties:

- November 14, 2016 at Southwest Weld Services Complex, 4209 Weld County Road 24 ½, Longmont
- November 16, 2016 at Poudre Valley REA, 7649 REA Parkway, Fort Collins
- December 6, 2016 at Larimer County Courthouse, 200 West Oak Street, Fort Collins
- December 8, 2016 at Johnstown Senior Center, 101 Charlotte Street, Johnstown

A total of 1,272 invitations to the Open Houses were sent to Larimer County and Weld County property owners within the initial proposed corridor and within Larimer and Weld County's major land use permit notification areas. Of the invitations sent, a total of 849 Larimer County property owners within the initial proposed corridor and within 500 feet of the initial proposed corridor were mailed invitations. Invitations were also sent to local municipality representatives and the home owners' association (HOA) near WSSC Reservoir No. 4. After the first two Open House events, a second invitation was sent to remind invitees that two Open Houses were still forthcoming. A total of 146 attendees signed in and provided addresses at one or more of the four Open Houses.

Display boards and maps that included information on the following topics were exhibited at the Open Houses:

- Overview
- Purpose and Need
- History
- Timeline

- Permitting
- Land Acquisition
- Construction
- Corridor Maps

Frequently asked questions and land acquisition brochures were available. Open House attendees were offered comment forms to provide feedback regarding route alternatives, project concerns and suggestions, and general comments. Attendees were given the opportunity to sign up for TWP updates.

The majority of attendees were interested in reviewing the initial proposed corridor. Large maps were exhibited by the TWP Team so that attendees could closely identify where the initial proposed corridor was located in proximity to their property and how the TWP could affect them. It was explained that the final alignment has not yet been developed and that one of the objectives of the Open Houses was to obtain feedback from attendees.

Written comments received from Open House attendees concerning the TWP in Larimer County have been reviewed by Thornton and are presented in **Table 2.k-1**.

TABLE 2.k-1
2016 TWP Open House Comments

Comment	Response/Action	Relevant Application Section
Please send information by mail.	Thornton has noted in TWP update request records that property owner requests mailed information.	N/A
High ground water. When City fixed drainage across Douglas Road it caused damage to privately maintained residential road.	Commenter did not indicate who "City" is in comment. Thornton assumes "City" is agency who maintains the road. Thornton will note possible location of groundwater and provide information to Designer.	N/A
We are in the direct line proposed and we want information on the impact on our property.	No final water pipeline alignment has been developed to date and no specific information is currently available. Land Acquisition activities are scheduled to begin in 2017. Thornton will reach out to property owners during land acquisition phase to help develop best location for the water pipeline.	Section 2.a.2
I see that your corridor as shown on the map, would greatly affect our house and neighborhood. If you were to keep the pipeline on Douglas Road or go west and north of our block (Area 9) it would be the least intrusive and less populated. There is no room between our houses and I sincerely doubt you would find 4 houses willing to sell. There are fewer houses to the north and definitely more property. According to the map our area is the highest density of houses. So please take this into consideration as you plan to do this project.	No final water pipeline alignment has been developed to date and no specific information is currently available. Land Acquisition activities are scheduled to begin in 2017. Thornton will reach out to property owners during land acquisition phase to help develop best location for the water pipeline.	Subsequently the TWP corridor was finalized and property is outside the preferred corridor. See Section 2.a.2; Section 3; Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)
Please put story board information on website.	Display board information has been posted to the TWP website.	N/A
We'll keep watching. Nice start, great maps, well-informed staff members.	Thank you for attending e-mails were sent to attendees.	N/A
Following Douglas Road would be the least residential impact. We are in section 59. Please don't use our property or street.	No final water pipeline alignment has been developed to date and no specific information is currently available. Land Acquisition activities are scheduled to begin in 2017. Thornton will reach out to property owners during land acquisition phase to help develop best location for the water pipeline.	Subsequently the TWP corridor was finalized and property is outside the preferred corridor. See Section 2.a.2; Section 3; Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)

TABLE 2.k-1
 2016 TWP Open House Comments

Comment	Response/Action	Relevant Application Section
I would like to have the GIS information for the northern reaches of the project. We are working with CSU on master plan at the Agricultural Research, Development and Education Center (ARDEC).	At this point, we don't have any CAD files for the Project, and our GIS files reflect our Project preferred corridor with no specific pipeline location yet identified. You can find a copy of the preferred corridor map on our website: https://thorntonwaterproject.com/wp-content/uploads/2016/10/project_corridor_map.pdf . We can provide you with a more detailed map of the corridor in the area of ARDEC, but based on the information we currently have, I believe it is more likely that the Project would be constructed on Thornton's property adjacent to (south and east of) ARDEC, rather than on the ARDEC properties. If you are aware of plans that would indicate it would be beneficial for ARDEC or Thornton to construct the pipeline on ARDEC property instead, we'd certainly like to hear about and discuss those plans with you.	Section 2.a.2
Thank you for the info.	Thank you for attending e-mails were sent to attendees	N/A
Helpful well-informed people who listen and interact well with us. Appreciate the chance to get information on the project. Look forward to being able to work with project personnel as the project proceeds.	Thank you for attending e-mails were sent to attendees.	N/A
People very friendly and knowledgeable. Thank you for all of your considerations thus far and willingness to minimize impact on property. Good to have this meeting. We will know who you are when you call us in the future.	Thank you for attending e-mails were sent to attendees.	N/A
Thank you for reaching out to the local stakeholders fascinating and impressive project. Good luck to you.	Thank you for attending e-mails were sent to attendees	N/A
We will cooperate in any way we can within reason. Good luck!	Thank you for attending e-mails were sent to attendees.	N/A

Open House documents can be found in **Appendix B**.

Home Owner Association Outreach

Public outreach is not required by Larimer County's 1041 permit application process. However, Thornton presented TWP information to HOA groups in Larimer County near WSSC Reservoir No. 4 on Monday, February 27, 2017 at the Northside Aztlan Center in Fort Collins, CO. This presentation was requested by area residents, and was attended by Board Members and residents of Eagle Lake HOA, Braidwood HOA, Woody Creek HOA, other area residents that were not affiliated with an HOA, and a representative from Save the Poudre. The HOA groups provided the notification for the meeting, and 47 attendees signed in and provided an address. The presentation included information on population growth estimates for the Front Range, Colorado water needs, Thornton's water system, TWP purpose and need, corridor study activities, projected permitting activities, general water pipeline routing discussions, Thornton owned farms, reservoir water levels, source water pump station construction, and TWP schedule. The presentation and meeting summary can be found in **Appendix B**.

Community Update Meeting

Public outreach is not required by Larimer County's 1041 permit application process. However, to introduce the public and potentially affected property owners to the TWP, respond to questions, and collect input from the public and potentially affected property owners, a Community Update meeting was held in Larimer to present the results the alternative analysis from the connection to the WSSC system to approximately County Road 9 requested by Larimer County staff. The Community Update meeting was held on September 12, 2017 at the Larimer County Courthouse in Fort Collins.

Thornton and Larimer County received feedback from area residents near WSSC Reservoir No. 4 concerning the initial proposed corridor that was presented at Open Houses and the HOA presentation. Based on that feedback, Larimer County staff requested that an analysis of alternative pump station locations and water pipeline alignments be included in the Application. Larimer County staff indicated that the alternative analysis should be conducted from the connection to the WSSC system to approximately County Road 9. No revisions to the initial proposed corridor east of County Road 9 were required, and Thornton understands that the $\frac{1}{4}$ to $\frac{1}{8}$ -mile corridor continues to be acceptable for the Application.

Nine hundred seven property owners within the Larimer County alternative configuration analysis area were mailed invitations to the Community Update meeting, and an additional 215 people were e-mailed invitations. People who were e-mailed invitations had provided their e-mail addresses via the TWP website or via comment cards or sign-in sheets from previously held Open Houses. One hundred fifty-three attendees signed in and provided an address at the Community Update meeting.

Display boards and maps that included information on the following topics were exhibited at the Community Update:

- Overview
- History
- Timeline
- Permitting
- Potential Route Maps Used in the Analysis

Thornton presented the results of the alternatives analysis, and Larimer County staff presented information regarding Douglas Road improvements included in the *Larimer County Transportation Master Plan*.

Frequently asked questions and land acquisition brochures were available. Thornton also provided forms for the attendees to submit written comments, and has reviewed each comment provided by the attendees. Attendees were given the opportunity to sign up for TWP updates.

Community Update Meeting documents can be found in **Appendix B**.

Verbal and written comments received from Community Update Meeting attendees are presented in **Table 2.k-2**.

TABLE 2.k-2
 September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
<i>Verbal Comments</i>			
If the pipeline needs to go outside Douglas Road ROW, what side of the road is Thornton anticipating the pipeline would be located?	Thornton has been focusing mostly the north side, but further evaluation is required.		Section 2.a.2
How wide is the current Douglas Road ROW? How wide will the future Douglas Road ROW be?		<i>The current Douglas Road ROW is typically 60 feet wide but is wider at some locations near developments. The future ROW width is not yet defined. Future improvements could include two 12-foot travel lanes, a center turn lane, and borrow ditches on either side of the road. This could require an additional 12 feet of ROW on either side. The ultimate width will be determined during design.</i>	N/A
Many residents have no other access to their homes other than Douglas Road.	Thornton and designers will take this into consideration. Standard practice for this type of project would include coordination with property owners, first responders, other projects, and governing agency such as Larimer County. The construction drawings could include access plans.		Section 2.a.2; Section 2.e; Section 2.h; Section 8.d
Both sides of Douglas Road have been annexed into Fort Collins.	Larimer County records indicate that Fort Collins has annexed property located on the south side of Douglas Road west of Turnberry. Records also show that Fort Collins annexed the ½-mile of Douglas Road adjacent to this property, but no property on the north side of Douglas Road. Thornton will investigate and, if needed, obtain permits from Fort Collins as required.		Section 3

TABLE 2.k-2

September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
Will Thornton put the alternative figures on the TWP website?	Yes, figures will be uploaded to ThorntonWaterProject.com.		N/A
Confirm that South 2 is the preferred alternative and that project construction may occur in multiple locations at the same time. Thornton has indicated that a coordinated project could include up to three separate entities. Commenter does not believe that coordinated projects can occur in the TWP schedule and doesn't believe that Northern Integrated Supply Project (NISP) will happen. Douglas Road was not on the drawing board initially. How does Thornton perceive coordination occurring?	South 2 is the preferred alternative with or without a coordinated project. The project could be constructed in multiple locations at the same time. The first step is to obtain Larimer County approval of the 1041 permit application and then Thornton will work with Larimer County. There is a lot of heavy lifting required, but Thornton believes that a coordinated project is achievable.		Coordinated project comment: N/A; Preferred alternative comment: Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)
How does Thornton get to choose what reservoir the water comes from?	Thornton's decree for Water Supply and Storage Company (WSSC) shares indicate that water will be taken from WSSC Reservoir No. 4.		N/A
Is Central still the preferred route?	Based on the alternative analysis results, South 2 is the preferred route.		Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)
How will this project, if coordinated with multiple entities, compare to the Willox project in Fort Collins that includes a sewer line and road improvements?		The Willox project is an example of a coordinated effort of two projects. A coordinated project between Larimer County and Thornton could be similar and will require extensive prior planning. The pipeline would be constructed prior to road improvements.	N/A
Will there be a roundabout at the intersection of Douglas Road and Highway 1?		No. The plan is to install a traffic signal.	N/A

TABLE 2.k-2

September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
<p>When residents last met with Thornton, North 1 was discussed. Homes along Starlite Drive are some of the oldest in the area and will be affected by vibration. Homes in the area have experienced problems from cracking and damage and have undergone home repairs in basements. Residents don't want uninhabitable basements. Thornton has indicated moving forward with a Douglas Road alignment. Eagle Lake and Woody Creek communities have been heard from but Starlite residents are getting chopped down at the knees. Starlite Drive is the only access to the pump station location just south of WSSC Reservoir No. 4. Residents want you out of Starlite Drive. Starlight owners agree with these thoughts and think the preferred route should be North 1 or North 2 because those alternatives have less impact on everyone.</p>	<p>Designer will take into consideration existing conditions including soil properties, and mitigation measures will be implemented to protect properties. TWP Contractors will be required to implement safety plans during construction. The pump station location could be any place along the alignment between the connection to the WSSC Reservoir No. 4 and the outlet connection to Douglas Road. Access could occur from a new access on Douglas Road.</p>		<p>Section 2.a.2; Section 2.e; Section 2.h; Section 8.d; Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)</p>
<p>Appreciative of Thornton looking at the temporary environmental impacts due to construction. What are the environmental impacts resulting from changes in reservoir levels? Larimer County regulation 8.b requires environmental studies (Land Use Code 8.B?).</p>	<p>Historically, reservoir levels fluctuate seasonally. That is their intended use. Reservoirs fluctuate during irrigation season and during drought conditions. WSSC operates the reservoirs, not Thornton. If Thornton water were to be taken out of WSSC Reservoir No. 3, there would be no need to send Thornton water to WSSC Reservoir No. 4. Thornton has configured all alternatives to take water from WSSC Reservoir No. 4. This will maximize Thornton's storage capacity, which is very important as well as meeting the resident's concerns that Thornton water will continue to flow to WSSC Reservoir No. 4. Thornton will address environmental impacts as required in the permit application.</p>	N/A	

TABLE 2.k-2

September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
Provide additional explanation of the 500-foot corridor that Thornton plans to include in the permit application. Some homes are located within that 500-foot corridor.	The intent is to locate the pipeline within Douglas Road ROW. Larimer County recommended to Thornton that a 500-foot wide corridor be included in the permit application. If existing infrastructure in Douglas County Road requires the pipeline to be located outside ROW for short distances, Thornton will not have to apply for another permit if the pipeline is located within the permitted corridor. Thornton will work with property owners for the best location on private property to minimize impacts. The goal is to locate the pipeline within Douglas Road ROW to the extent feasible.		Section 2.a.2
Are Douglas Road improvements going to occur regardless of Thornton's project?		Yes. Improvements for sections of Douglas Road are included in the draft <i>Transportation Master Plan</i> , including a traffic signal at Highway 1. The Master Plan does not include the need for improvements for bicycle and pedestrian lanes that would be beneficial to the community. Larimer County is looking for ways to leverage funding for improvements.	N/A
Are there plans for improvements to make Douglas Road better for freight truck traffic to/from Highway 287?		No. This is not included in the draft <i>Transportation Master Plan</i> .	N/A

TABLE 2.k-2

September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
Thornton plans on obtaining a 50-foot easement for a 48-inch pipeline. Does Thornton reserve the right to install another pipeline in the easement in the future?	Thornton will obtain a 50-foot permanent easement where the pipeline is located on private property. An additional 40-foot temporary construction easement is needed for construction. If the pipeline is within road ROW, Thornton would like a minimum of 10 feet clear on either side of the pipeline from other utilities. The pipeline capacity will convey Thornton's current shares to Thornton. If the pipeline needs to be replaced after reaching the life of the system, then there is a possibility that a replacement pipeline could be installed within the easement and the older pipeline would be decommissioned.		N/A
Douglas Road has truck traffic, multiple community access locations, many utilities in the road, and there are current development plans for 150 homes along Douglas Road.	Engineering will determine locations of utilities and will design the pipeline to minimize impacts. Access will be maintained for residents.		Section 2.a.2; Section 2.e; Section 2.h; Section 8.d
How much of the entire project does the alternatives figure map represent?	The alternatives shown in the figure represent approximately 5 miles of the over 70-mile long project. There are 11 miles of pipeline in Thornton.		N/A
What are the traffic counts along County Road 56 that were used in the analysis? Did Thornton consider residential occupancy in the analysis?	The traffic counts used in the analysis are from Larimer County publicly available traffic data. Utilizing traffic counts provides an indication of the occupancy near each alternative analyzed. Alternative South 2 had the worst score for the traffic evaluation criteria due to the pipeline being located within Douglas Road. Each evaluation criterion was weighted equally so that no one criterion was deemed more important than another. Data used in the analysis will be included in the permit application.		Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)

TABLE 2.k-2
 September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
Is there planned increase in storage for Kluver Reservoir?	WSSC reservoirs are operated by WSSC. Thornton is not aware of any plans for increased storage.		N/A
Does the owner of the property designated for the South 2 pump station location have a say in the location? Resident along Starlite Drive does not want the pump station located across the street.	Yes, Thornton has been in contact with the property owner and will work with them on the best location in that area. The pump station could be located any place along the pipeline route from the connection to WSSC Reservoir No. 4 and Douglas Road.		Section 2.a.2
What is the timeline for the Larimer County permit application?		Larimer County recommends that Thornton not submit the application for a minimum of 60 days because of current planning case work load and commissioner hearings. After the application is deemed complete, the Board of County Commissioners hearing will be scheduled within 90 days.	N/A
Is South 2 Larimer County's preference?		Larimer County Planning will need to review the application prior to making a determination.	Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)
How loud will the pump station be?	The pump station will meet Larimer County's noise ordinance. Noise attenuates with distance and mitigation measures will be implemented inside the building to minimize noise.		Section 8.k
What is the size of the pump station building?	Based on the conceptual plan, the building is anticipated to be 120 feet by 90 feet; the height depends on the architecture.		Section 2.a.2

TABLE 2.k-2

September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
If Larimer County does not approve South 2, which alternative is Thornton's second choice?	It would be one of the other alternatives with a relative cost to- evaluation criteria ratio score similar to South 2. The alternative needs to be economically achievable for Thornton to implement.		Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)
When will Larimer County determine the width for the future Douglas Road ROW?		Larimer County will need to survey the existing road and begin design efforts to determine future width. Coordination efforts will take place first to establish feasibility and timeline for a coordinated project.	N/A
How can Larimer County approve a permit when they don't know specifically what the project will look like?	The intent is to locate the pipeline within Douglas Road ROW. Larimer County recommended to Thornton to include a 500-foot wide corridor in the permit application. If existing infrastructure in Douglas County Road requires the pipeline to be located outside ROW for short distances, Thornton will not have to apply for another permit if the pipeline is located within the permitted corridor. Permitting a corridor allows Thornton to work with property owners on the best location on private property to minimize impacts. The goal is to locate the pipeline within the Douglas Road ROW to the extent feasible.		Section 2.a.2
Multiple residents commented that the project should be located in the north section.	Noted.		Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)

TABLE 2.k-2
 September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
Multiple residents expressed appreciation to Thornton for conducting the analysis, for outreach efforts, and for the work completed to date.	Noted.		N/A
Confirm that if 50 feet is required to construct the pipeline and the current ROW is 60 feet, travel on Douglas Road will not be possible.	Thornton will obtain a 50-foot permanent easement where the pipeline is located on private property. An additional 40-foot temporary construction easement is needed for construction. If the pipeline is within the road ROW, Thornton will minimize work limits as directed by Larimer County. The proposed 90-foot work limits are intended for open areas and reduces construction time. Reducing the work limits will increase the time to construct the pipeline.		Section 2.a.2; Section 2.e; Section 2.h; Section 8.d
Multiple residents expressed concern with construction within Douglas Road and the impacts to residents if reduced to one-lane travel or complete road closure.	Noted.		Section 2.a.2; Section 2.e; Section 2.h; Section 8.d
Multiple residents commented on their concern with the NISP coming through the same area 5 years later and having to go through this process and construction all over again and urge Larimer County and Thornton to find a solution that is coordinated with NISP.	Noted.		N/A
<i>Written Comments</i>			
Thank you for holding the meeting. The main presenter did a very good job.		N/A	N/A

TABLE 2.k-2

September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
<p>You heard many comments opposed to this project. Letter Enclosed! (see Appendix B for letter) Please consider a less destructive route and road for your project! Run the pipe across fields and County Rds. Thank you!</p>		N/A	<p>Section 2.h; Section 8.d; Section 8.k; Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>); Appendix C</p>
<p>My husband and I took a ride on County Road 56; this is the route for you to run the pipeline!! The homes or structures are recessed and set way back. Why Douglas Road? You would be wiping out homes, fences, trees, and other structures. Many of us have lost our Grandparents and Parents, and have planted trees as a "Living Memorial" to them. You would be so bold and brazen as to come in and wipe out these memorials? What right do you have to do this? We pay taxes, too, and the road was just paved, and bicycle lanes exist now. If the lanes need to be expanded later, we do not need to blast the road and lay a 48 inch pipe to do this. Please reconsider your route as you say repeatedly on the website and brochures that exact location has not been determined. Thank You!</p>		N/A	<p>Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)</p>
<p>Common sense says the further north the better. We at Terry Point only have one access to get in and out of our neighborhood. How many years will this take? This will be a nightmare for Terry Point, Terry Shores, Starlight, Hearthfire, etc. plus new homes projected for future off Turnberry.</p>		N/A	<p>Section 2.a.2; Section 2.e; Section 2.h; Section 8.d; Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)</p>

TABLE 2.k-2
 September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
Douglas Road will be widened regardless of Thornton's pipeline - it makes sense to have the pipeline go down Douglas. Traffic will be impacted anyway with the improvements do Douglas Road.		N/A	Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)
Thank you for your diligence and considerations. We hope you go Douglas as planned. The road is to be enlarged and your cooperation with Larimer County is the right thing to do.		N/A	Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)
If the City of Fort Collins does not allow Thornton to use Douglas Road at the 80 acres that just sold - what new route will be chosen next?		N/A	Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)
Northern Water has said publicly that the only reason to pipe water down Douglas Road would be to send water from Glade Reservoir. It is extremely unlikely that approval for that reservoir will meet your timeline.		N/A	N/A
Excellent presentation. Good patience and diligence with Q & A. A pump station on the NW view of XXXX and the other 7 homes on the lake would not be good. Also everyone in the community uses the trail where the pump would be put.		N/A	Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)
Traffic counts on County Road 56 and 54 West to East to Hwy 1, and East to West @ Hwy 1 need turn volume N & S from intersection. Explanation of math in applying factors to provide priority.		N/A	Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)

TABLE 2.k-2

September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
<p>Please avoid Douglas Road to reduce the number of people impacted. CR 56 makes more sense.</p>		N/A	<p>Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)</p>
<p>Appalled that Terry Point NOT included in previous meetings - feel this got dumped on us after Eagle Lake got to comment. Terry Point, Terry Shores, Terry Cove, Hearthfire are single entry/exit communities that are seriously affected. Point Townhome HOA (who has multiple units on Douglas Road) was never contacted. Shame!</p>			<p>Section 2.a.2; Section 2.e; Section 2.h; Section 8.d; Appendix B 2016 Open House Notification Area and mailing list; Multiple residents and HOAs in the area were mailed notifications. Presentations given to HOAs were delivered at the request of HOAs.</p>
<p>Don't go down Douglas Road; go north of that.</p>		N/A	<p>Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)</p>
<p>We were unable to attend the meeting, but our property (XXX) is right on the proposed South 2 route. Could you please provide additional information about what this will mean for us? Will this extend into our property (the dotted line on the map goes through our house) or just be the shoulder/ditch of the current road? Also will the road have more lanes added? Thank you in advance for any additional information you can provide!</p>		N/A	<p>Section 2.a.2</p>

TABLE 2.k-2

September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
<p>Please - not on Douglas Road. Douglas is too populated for this project!</p>		N/A	<p>Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)</p>
<p>It was stated very clearly at our meeting in the County Building last week and reiterated in the newspaper this morning that property and homeowners (including homeowner associations) were consulted prior to the preferred route being announced. As residents of Terry Point, one of the areas most directly affected by this decision, we were never consulted nor asked for input. This is unacceptable! While I realize this decision is based somewhat on a partnership with Larimer County, it is inexcusable, from our perspective to not engage those most affected directly. This route impacts the most homeowners who also are not interested in creating significant road enhancements that draw more truck traffic! If you were sincerely interested in our comments, you would have found a way to do so. Holding a public meeting where you announce a preferred route and then ask for input is affront to our intelligence!</p>		N/A	<p>Appendix B 2016 Open House Notification Area and mailing list; Multiple residents and HOAs in the area were mailed notifications. Presentations given to HOAs were delivered at the request of HOAs.</p>

TABLE 2.k-2

September 12, 2017 Community Update Meeting Verbal and Written Comments

Comment	Thornton Response	Larimer County Response	Relevant Application Section
<p>Go strictly for North #1 or North #2 only. Everyone will be happy.</p>		N/A	<p>Appendix A (<i>Larimer County Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9</i>)</p>
<p>I'm a resident in Terry Shores and reviewed your website today, since I could not make the meeting on 9/12. Just wanted to say that as a bicyclist and a wife of another bicyclist that had been hit at the intersection of Douglas and Route 1 years ago, I am happy to hear there will be a light going in at the intersection and bike lanes. That stretch of road is a very scary intersection to cross, even on a Sunday when there is less traffic. If your project brings improvements to that stretch of road, I'd be very happy. I would like to know if the pavement will be fresh asphalt overlay as opposed to chip seal, which has made for some really uneven and gravel strewn and sandy shoulders along Route 1. This is really scary when you are on a bicycle. It seems as the roads have not kept up with increased growth and traffic in the 28 years I've lived there, so again if your project brings improvements, I'd be very pleased.</p>	<p>Thank you for your input regarding the TWP. It is Thornton's understanding that Larimer County staff are reviewing possible reconfigurations for Douglas Road.</p>	N/A	N/A

Stakeholder Outreach

In an effort to determine the alternative corridor least impactful to local communities in Northern Colorado, Thornton, in 2015, conducted a series of outreach meetings with local governments and agencies that could be impacted by the TWP. During the initial outreach meeting with each local government and agency, feedback was collected to determine preference(s) and/or determine potential problems for the location of the water pipeline within the local government or agency's jurisdictional and/or GMA boundaries. For information on the TWP corridor development process, see **Appendix A**.

Secondary outreach meetings were conducted with local governments and agencies that had incorporated areas or GMAs overlapping alternative corridor locations to present the initial three alternative corridors. During this second round of outreach, additional feedback was collected from the local governments and agencies and, as a result, a fourth alternative corridor, was developed as the local government's preferred corridor.

Outreach meetings were conducted with the following local governments:

- Berthoud
- Dacono
- Firestone
- Fort Collins
- Frederick
- Greeley
- Johnstown
- Larimer County
- Loveland
- Mead
- Milliken
- Timnath
- Weld County
- Wellington
- Windsor

Thornton has been in discussions with USACE beginning in 2014 to provide information on the TWP to USACE staff. Thornton will continue consulting with USACE and plans to submit a jurisdictional determination request to USACE prior to initiating design activities to determine which areas in the TWP corridor are jurisdictional waters. Design will include trenchless construction methods at jurisdictional water crossings.

Additional outreach and coordination activities included:

- Meetings with local major utility providers.
- Meeting with CDOT.
- Meeting with CPW.
- Meeting with local fire district (Poudre Fire Authority)

- Presenting the TWP at the Energy Industry Working Group (Weld County oil and gas companies) on December 15, 2016.
- Sending letters to initiate coordination activities to local irrigation and ditch companies, utility providers, railroad companies, wildlife agency outreach (CPW and USFW), Natural Resources Conservation Service, (NRCS), and local fire districts.

Stakeholder outreach information is included in **Appendix E**.

2.I Any Addition Explanation Detailing How the Application Meets the Applicable Review Criteria as Stated in the Land Use Code

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 2.I.

Table 2.I presents an evaluation criteria cross-reference guide showing how this Application meets the requirements for the *Larimer County Procedural Guide for 1041 Permits* and the LUC.

TABLE 2.1
Evaluation Criteria Cross Reference Guide

Applicable Land Use Code Requirements	N/A	Section 2 - Project Description												Section 8 - Technical Reports												Appendix																
		1 - Application Form	2.a - General Description, Including Purpose and Need	2.b - Location and Total Area	2.c - Description of the Site Selection Process	2.d - Description of Other Alternatives	2.e - Consistency with Master Plans and Intergovernmental Agreements	2.f - Description of Recent and Present Uses of the Site	2.g - Description of the Site Inventory Maps	2.h - Description of Any Potential Negative Impacts of the Project to Public Health and Safety	2.i - Description of Existing and Proposed Utilities and Facilities	2.j - Projected Development Schedule	2.k - Description of Public Input Process	2.l - Additional Explanation	3 - Vicinity Maps	4 - Site Inventory Maps	5 - 1041 Permit Site Map(s)	6 - Reduced 1041 Site Permit Map(s)	7 - Legal Description	8.a - Wetland Mitigation Plan	8.b - Wildlife Conservation Plan	8.c - Natural Hazard Mitigation Plan	8.d - Traffic Impact Study	8.e - Drainage and Erosion Control Report and Plan	8.f - Floodplain Hydraulic/Hydrologic Modeling Report	8.g - Groundwater Modeling Report	8.h Non-Subdivision Water Inquiry	8.k - Noise Analysis	8.l - Air Quality Impact and Mitigation Report	9 - Adjacent Property Owners List	10 - Application Fee	11 - Signed Pre-Application Conference Form and Submittal Checklist	12 - Other	Appendix A - Alternative Analysis	Appendix B - Public Outreach Information	Appendix C - Natural and Cultural Resources Report	Appendix D - Best Management	Appendix E - Stakeholder Outreach				
Larimer County Procedural Guide for 1041 Permits, Submittal Requirements for 1041 Permits		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√			
Section 4.0 - Zoning																																										
4.2.2 – Floodplain Overlay Zones						√																	√																			
Section 8.0 - Standards for All Development																																										
8.1 - Adequate Public Facilities						√			√													√	√		√																	
8.2 - Wetland Areas						√												√						√													√					
8.3 - Hazard Area						√														√																						
8.4 - Wildlife						√														√																	√					
8.5 - Landscaping						√																																				
8.6 - Private Local Access Road and Parking Standards	√																																									
8.7 - Road Surfacing Requirements	√																																									
8.8 - Irrigation Facilities						√																																		√		
8.9 - Reserved	√																																									
8.10 - None	√																																									
8.11 - Air Quality Standards						√																																				
8.12 - Water Quality Management Standards						√		√															√		√															√		
8.13 - Commercial Mineral Deposits	√																																									

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Applicable Land Use Code Requirements	N/A	Section 2 - Project Description													Section 8 - Technical Reports											Appendix														
		1 - Application Form	2.a - General Description, Including Purpose and Need	2.b - Location and Total Area	2.c - Description of the Site Selection Process	2.d - Description of Other Alternatives	2.e - Consistency with Master Plans and Intergovernmental Agreements	2.f - Description of Recent and Present Uses of the Site	2.g - Description of the Site Inventory Maps	2.h - Description of Any Potential Negative Impacts of the Project to Public Health and Safety	2.i - Description of Existing and Proposed Utilities and Facilities	2.j - Projected Development Schedule	2.k - Description of Public Input Process	2.l - Additional Explanation	3 - Vicinity Maps	4 - Site Inventory Maps	5 - 1041 Permit Site Map(s)	6 - Reduced 1041 Site Permit Map(s)	7 - Legal Description	8.a - Wetland Mitigation Plan	8.b - Wildlife Conservation Plan	8.c - Natural Hazard Mitigation Plan	8.d - Traffic Impact Study	8.e - Drainage and Erosion Control Report and Plan	8.f - Floodplain Hydraulic/Hydrologic Modeling Report	8.g - Groundwater Modeling Report	8.h Non-Subdivision Water Inquiry	8.k - Noise Analysis	8.l - Air Quality Impact and Mitigation Report	9 - Adjacent Property Owners List	10 - Application Fee	11 - Signed Pre-Application Conference Form and Submittal Checklist	12 - Other	Appendix A - Alternative Analysis	Appendix B - Public Outreach Information	Appendix C - Natural and Cultural Resources Report	Appendix D - Best Management	Appendix E - Stakeholder Outreach		
8.14 - Development Design for Land Division	√																																							
8.15 - Lighting			√			√			√																															
8.16 - Fences			√						√																															
8.17 - Hazardous Waste Treatment and Disposal	√																																							
8.18 - Large Retail Development	√																																							
Section 12.0 Common Procedures for Development Review																																								
12.1 Application Materials Requirements																																								
12.1.A Application Form		√																																						
12.1.B Project Description/Consistency with Master Plan			√			√																																		
12.1.C Application Fee																													√											
12.1.D Property Taxes	√																																							
Section 14.0 - Areas and Activities of State Interest																																								
14.10.D Review criteria for approval of all 1041 permits:																																								
14.10.D.1 - The proposal is consistent with the master plan and applicable intergovernmental agreements affecting land use and development						√																																		

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14.10.D.2 - The applicant has presented reasonable siting and design alternatives or explained why no reasonable alternatives are available.					√	√																												√										
14.10.D.3 - The proposal conforms with adopted county standards, review criteria and mitigation requirements concerning environmental impacts, including but not limited to those contained in this Code.																																												
14.10.D.4 - The proposal will not have a significant adverse affect on or will adequately mitigate significant adverse affects on the land or its natural resources, on which the proposal is situated and on lands adjacent to the proposal.																																												
14.10.D.5 - The proposal will not adversely affect any sites and structures listed on the State or National Registers of Historic Places.																																												

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14.10.D.6 - The proposal will not negatively impact public health and safety.						√		√												√	√	√	√			√	√												
14.10.D.7 - The proposal will not be subject to significant risk from natural hazards including floods, wildfire or geologic hazards.						√														√			√																
14.10.D.8 - Adequate public facilities and services are available for the proposal or will be provided by the applicant, and the proposal will not have a significant adverse effect on the capability of local government to provide services or exceed the capacity of service delivery systems.						√				√										√	√				√														
14.10.D.9 - The applicant will mitigate any construction impacts to county roads, bridges and related facilities. Construction access will be re-graded and re-vegetated to minimize environmental impacts.						√														√																			

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14.10.D.10 - The benefits of the proposed development outweigh the losses of any natural resources or reduction of productivity of agricultural lands as a result of the proposed development.						√	√											√	√																				
14.10.D.11 - The proposal demonstrates a reasonable balance between the costs to the applicant to mitigate significant adverse affects and the benefits achieved by such mitigation.						√		√										√	√	√	√	√	√	√	√	√	√	√								√	√		
14.10.D.12 - The recommendations of staff and referral agencies have been addressed to the satisfaction of the county commissioners.	√																																						