CITY OF THOMPSON FALLS

DRAFT

Stormwater Improvements 2026

Preliminary Engineering Report

August 2026

Prepared By:
Carrie Gardner, PE
Paul Karcher, EI

QA/QC By:
Jeremiah Theys, PE

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION AND BACKGROUND

The City of Thompson Falls is a City located in northwestern Montana, and the municipality serves as the county seat for Sanders County. The City is located along the Clark Fork River, and both a BNSF railway and MT Highway 200 pass through the community. Thompson Falls is approximately 20 miles east of the state border with Idaho and about 80 miles northwest of Missoula. The community is accessible by traveling 64 miles west along MT HWY 200 at its junction with US Highway 93 at Ravalli, MT.

The community is located entirely north of the Clark River with MT Highway 200 and the railroad bisecting Thompson Falls. Generally, businesses are located along Main Street/Highway 200 with some mixed residential between these businesses and the Clark Fork River. The majority of the population is located north of the highway and railroad on the area referred to locally as “the Hill”. Recent zoning laws limit commercial development on the Hill to promote residential growth; however, previously existing business were grandfathered into the most recent zoning laws. Most of these businesses are professional services, but there are automobile mechanic shops, powder coating facilities, and other light commercial businesses.

The oldest stormwater infrastructure in the area are large culverts that were constructed underneath railroad tracks to convey water from the north into the Clark Fork River. The earliest stormwater improvements that are still functioning were completed by MDT in 1990. These improvements were completed as part of improvements to MT Highway 200 through Thompson Falls, MT. There have not been any major improvements to this component owned by MDT since the original installation.

Most stormwater infrastructure prior to the 1990s was owned by individual private property owners who installed downspouts, small ditches, or dry wells themselves. Most of the stormwater was assumed to be directed overland to the Clark Fork River using the established right-of-ways. After 1990 the City began installing stormwater infrastructure to resolve local drainage issues. Infrastructure was mostly installed in two locations. The first region was downtown in areas with large impervious areas and inadequate surface drainage. Secondly, some dry wells and drop inlets were installed on the Hill between Wood Street and Greenwood Street.

The infrastructure that the City has installed has generally been additions to planned projects involving their water or wastewater utility. The majority of the City's current stormwater structures and piping were installed from 1998 through 2000 as part of the water and wastewater improvements. In 1998 wastewater improvements along maiden lane included new inlets and storm piping along Maiden Lane and Lincoln Street with new outfalls to the Clark Fork River. The water system improvements in 1999 included the installation of dry wells downtown and on the Hill in known problem areas. The City has also performed small extensions and improvements like adding a storm inlet and drainpipe to day light at the corner of Broad Steet and Haley Avenue.

1.2 PROBLEM DEFINITION

High velocity water from the stormwater runoff on the Hill is a chronic problem. The current routing of stormwater over the ground surface along the edge of the existing roads results in channelization in the road shoulder. Additionally, there are a small number of driveways and private access that have culverts to allow for stormwater to flow underneath driving areas. Since most roads and driveways have a essentially a flat cross grade, the runoff spreads from the shoulders and begins downcutting graveled areas. The combination of routing and steep slopes causes the movement of gravel and sediment into the driving lanes along the roads that run north and south on the Hill.

The resultant loose gravel creates several issues with the public roads. The removed gravel from the shoulder of the road exposes the edge of the pavement to traffic loads which causes fractures and separation of the road edge. This occurrence both reduces the driving lane and lifespan of the pavement substantially.

The loose gravel in the driving lanes poses an immediate threat to public safety. Vehicles traveling along the steep north and south routes experience steep slopes which inherently increase breaking distance when travelling downhill. The addition of gravel in the driving lane can cause a loss of traction between the road and tire which results in loss of control and the inability to successfully brake. The City has readily addressed maintenance to prevent his occurrence. Although the gravel has not been a cause of traffic accidents, icy road conditions in the winter have results in similar accidents within the last 10 years.

There has been no widespread or localized flooding in the community in recent years. Most of the existing stormwater infrastructure is in serviceable condition. There are some culverts with crushed pipe ends. Several inlets have sediment and trash buildup, but the City provides maintenance as needed. Some inlets along Preston Avenue experience ponding during rain and snow events which allows spillover onto Preston. This runoff and potential of freezing during winter months causes traffic hazards that have contributed to accidents.

1.3 ALTERNATIVES CONSIDERED

This report developed and analyzed alternatives for the collection and storage systems separately. No treatment or pumping systems were considered necessary or feasible as part of this project. The City is not under any regulatory requirements to store or treatment stormwater before discharge into the Clark Fork River.

There were several potential alternatives for the collection system that were considered technically and fiscally infeasible. Installing a series of ditches and culverts on the Hill was not considered because of the high cost and lack of community support. Alternatively, a new storm sewer system on the Hill would be prohibitively expensive, require difficult installation to avoid utility conflicts, and require substantial amount of earthwork and restoration. The list below lists the developed alternatives with descriptions.

- Collection System
  - Alternative C-0: No Action
    - The City does not implement any capital improvements to the collection system, and existing stormwater runoff issues persist.
  - Alternative C-1: Clean and Inspect Existing Infrastructure
    - The City jets, cleans, and inspects all of the existing infrastructure in the community. The inspection would include television of existing pipes to identify any broken pipe or other deficiencies in the pipe.
  - Alternative C-2: Existing Infrastructure Rehabilitation
    - Identified deficient infrastructure such as collection piping and stormwater inlet structures would be replaced or rehabilitated. Rehabilitation could include completely replacement with new materials, installation of cure-in-place pipe (CIPP), or lining concrete structures.
  - Alternative C-3: Ferry Street Collection Expansion
    - This alternative includes installing additional stormwater collection infrastructure and improving surface drainage in known problem areas.

Specifically, new collection components would be installed on Ferry Street between Haley Avenue and Third Avenue.
    - Existing collection piping downstream of Haley Avenue would need to be replaced in order to convey the stormwater runoff.
  - Alternative C-4: New Culverts in East Thompson Falls
    - This alternative includes the construction of new culverts in the eastern section of Thompson Falls to ensure proper drainage across the existing roads. Currently, stormwater must accumulate until the ponded water overtops the road.
  - Alternative C-5: Shallow Aggregate Swales on the Hill
    - The final collection system alternative is to provide reinforcement material along the edge of the existing roads. Two methods were considered for this alternative: installing crushed rock to strengthen the shoulder or constructing an asphalt valley gutter along the edge of the roads.
    - The Work is divided into four phases across the streets on the Hill.
    - The proposed alternative focuses on the streets that run along the north and south of the Hill. Some work on the avenues that run east and west are assumed to be necessary.
  - Alternative C-6: Complete Storm Sewer System for the Hill
    - A complete storm sewer system would be constructed across all the streets on the Hill.

The storage system alternatives were developed to address issues and potential future concerns in Thompson Falls. The no action alternative is considered feasible for storage systems because there is no regulatory requirement to install storage components or existing infrastructure that needs improvement. Two technologies were considered for storage: infiltration chambers and a retention pond

- Storage System
  - Alternative S-0: No Action
    - The City does not implement any capital improvements to the storage system.
  - Alternative S-1: Ferry Street Infiltration Chambers
    - In order to reduce the peak runoff flow from Ferry Street, infiltration chambers would be installed to discharge a portion of stormwater into the

subsurface. The proposed infiltration chambers would be installed on property owned by the local school district along Ferry Street.

- The reduction in peak flow would allow for the existing stormwater piping below Haley Avenue to be unaltered.

- Alternative S-2: Retention Pond for East Thompson Falls
  - This alternative would construct a complete retention pond for the eastern developed area in Thompson Falls. This pond would be constructed on land owned by the City at the existing low point for that area. There was not a substantial difference in cost or size when sizing a detention pond.

1.4 PREFERRED ALTERNATIVE

The preferred project for Thompson Falls

The preferred project for Thompson Falls based on analysis in this report is to perform site rehabilitation at the lagoons (Alternative T-1) and to implement an inspection program for the existing collection system (Alternative C-1). There are currently no consent orders or other regulatory actions imposed on Thompson Falls for their wastewater system. The recommended project provides a framework for the Town to identify specific sources of excessive I/I and stabilize their lagoons. Site stabilization reduces the risk of global failure at the site due to groundwater and soil migration. Reduction in I/I will allow for future improvements to be optimized to meet reduced design flows which lowers capital costs greatly.

1.5 PROJECT COSTS AND BUDGET

The overall project budget is estimated to be $2.05 million dollars with an additional O&M of $28,000 annually. These costs include contingency, engineering design, engineering inspection, and construction. Grant administration, administrative support, legal fees, and other professional services were included in final project costs.

In order to pay for the proposed project, the following sources were concluded to be the most economical.

- ~~RD~~/SRF Loan: $2,046,000

Using these funding options, the projected monthly sewer rate per EDU is $96.37. This rate increase would result in an estimated combined service rate of $127.54, which is 133.5% of the target rate.

A preliminary schedule was developed to include important milestones such as the completion of planning documents, funding procurement, design completion, and construction. the completion and acceptance of this PER by the City of Thompson Falls is planned to be completed by the end of September 2026.. Funding awards for loans and grants are expected for the summer of 2029. Design, permitting, and bidding would be completed over the fall and winter of 2029. Construction is anticipated for the summer of 2030.

2.0 PROJECT PLANNING

2.1 LOCATION

Thompson Falls is the county seat of Sanders County in northwestern Montana. The City is located along the Clark Fork River, and both a BNSF railway and MT Highway 200 pass through the community. Thompson Falls is approximately 20 miles east of the state border with Idaho and about 80 miles northwest of Missoula. The community is accessible by traveling 64 miles west along MT HWY 200 at its junction with US Highway 93 at Ravalli, MT.

The project area includes the current City limits and small sections of surrounding areas just outside of the City. The contributing watershed area north of the community in the Lolo National Forest is included in the report for hydrologic analysis; however, proposed improvements would not include work outside of the City. More specifically, the City is located at:

<u>Township/Range/Sections:</u> Township 21N, Range 29W, Sections: 04, 05, 06, 07, 08, & 09

<u>Latitude/Longitude:</u> 47.5940492 °N, 115.3486612 °W

<u>Elevation:</u> 2,400 to 2,650 feet

The community is located entirely north of the Clark River with MT Highway 200 and the railroad bisecting Thompson Falls. Generally, businesses are located along Main Street/Highway 200 with some mixed residential between these businesses and the Clark Fork River. The majority of the population is located north of the highway and railroad on the area referred to locally as “the Hill”. Recent zoning laws limit commercial development on the Hill to promote residential growth; however, previously existing business were grandfathered into the most recent zoning laws. Most of these businesses are professional services, but there are automobile mechanic shops, powder coating facilities, and other light commercial businesses. A map of the project location is provided in Figure 2-1.

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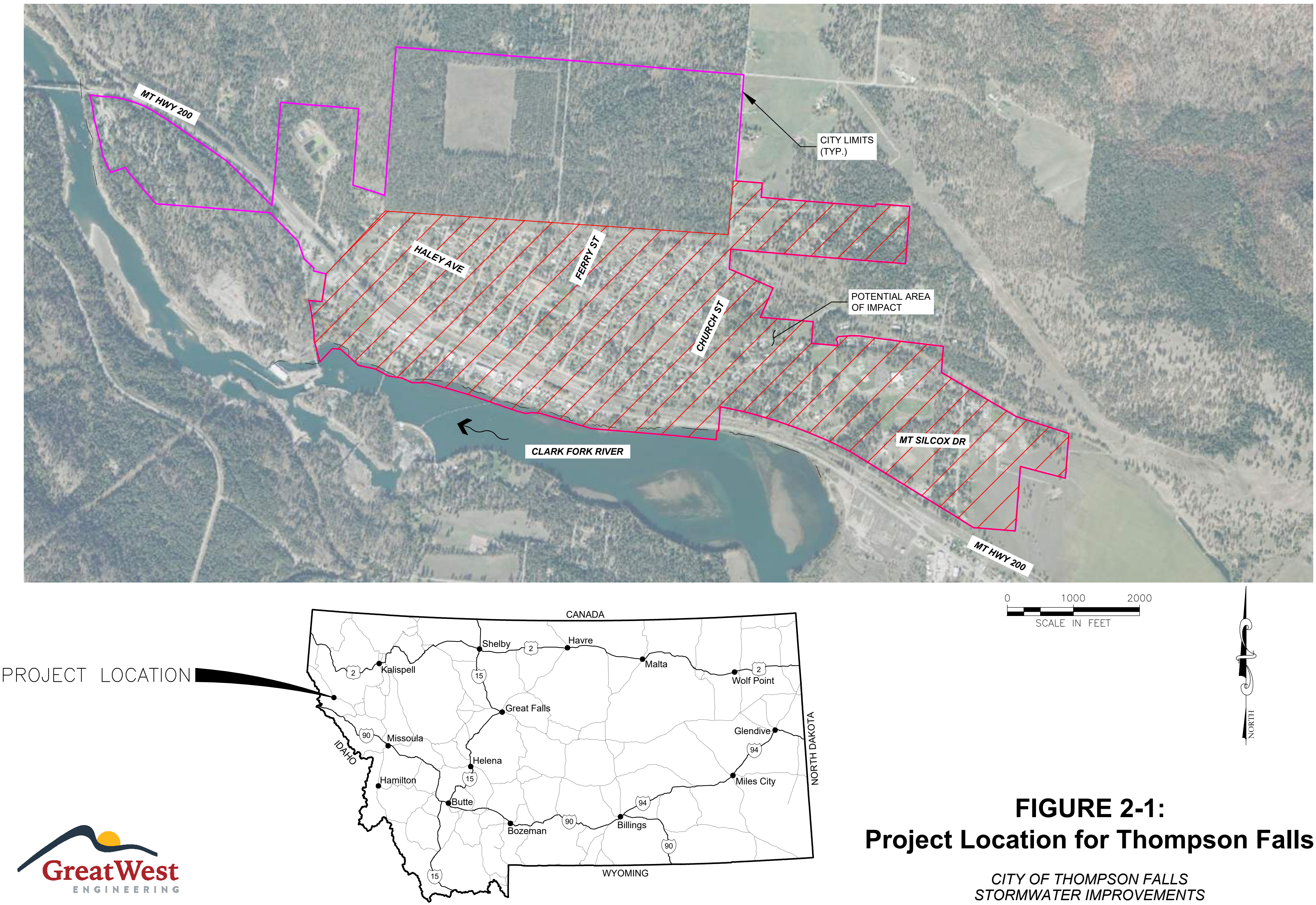


FIGURE 2-1:
Project Location for Thompson Falls

CITY OF THOMPSON FALLS
STORMWATER IMPROVEMENTS

GreatWest ENGINEERING

2.2 ENVIRONMENTAL RESOURCES PRESENT

As part of any major construction project, the potential impacts on the surrounding environment must be considered and provisions made to mitigate any negative impacts. The Uniform Application streamlines the process by utilizing a standard procedure called the Uniform Environmental Checklist. A completed Uniform Environmental Checklist for the proposed stormwater system improvements in Thompson Falls is included in Appendix 1. No significant impacts resulting from the proposed improvements have been identified.

As part of the Checklist, consultation letters were sent out to potentially pertinent regulatory agencies and groups at the local, state, and federal levels. Copies of these solicitation letters and agency responses are presented in Appendix 2.

2.2.1 Land Resources

The current land use and classification is inventoried to ensure that construction activities have limited adverse effect on future use. To classify the land use around the City of Thompson Falls, the Montana Natural Heritage Program's (MTNHP) online mapper was used to generate a local map of land cover. A copy of this map is provided in Appendix 3.

The online mapper shows that the overwhelming majority of the land within City limits is developed. These classifications include roads, low intensity residential, high intensity residential, commercial/industrial areas, the railroad. There are some areas of developed open spaces which are generally City green spaces like Ainsworth Park.

Areas north of the City, which contribute to the local watershed, include primarily forestland, woodlands, and montane grasslands. Most of the forests are classified as Rocky Mountain (mesic-wet/xeric) Mixed Conifer Forest. Smaller components of the region are Rocky Mountain Lower Montane, Foothill, and Valley Grassland and Rocky Mountain Subalpine (mesic-wet/xeric) Spruce-Fir Forest and Woodland. These systems generally contain conifers such as lodgepole pine, ponderosa pine, western hemlock, and grand fir.

Historically, commerce in the area has been dependent on timber harvesting, mining, and industry associated with the nearby dam and railroad. These commercial activities are a result of the surrounding mountain ranges and forestland. Thompson Falls is located between the Cabinet Mountain range and the Coeur d'Alene Mountains. Additionally, the community is surrounded by the Lolo National Forest with the nearest boundaries beginning 1.5 miles to the south and 2 miles to the north.

In addition to land use, formally classified lands were identified within the region which include important farmland and forestland. To identify farmland, the Natural Resources Conservation Service's (NRCS) online Web Soil Survey was accessed to generate a custom soil report for the area. A copy of this report is included in Appendix 4.

In order of most prevalent to least, the most common soil units in the area are Elkrock-Selon complex (4% to 15% slopes), Selon fine sandy loam (0% to 4% slopes), Sacheen loam fine sand (2% to 8% slopes), and Yellowbay gravelly loam (2% to 8% slopes). These soils are typically classified as gravelly and sandy loams. Most of the soil types in the area associated with alluvium deposits and flooding events from Lake Missoula. Previous excavations within the City have revealed much of the soils west of Church Street on the Hill have large cobbles (6-inch to 12-inch) and boulders (>36") in matrix. The custom soil map also shows know rock outcroppings near East Ramp and Boulder Avenue.

Topography in the City is varied, but generally there are localized terraces that increase in elevation from the Clark Fork River to the north. Between the highway and the river, the City is mostly flat with gentle slopes of less than 5% to the east and steeper slopes towards the river ranging from 0% to 10%.

Additionally, the NRCS dataset was used to generate a map of soils that have farmland classifications. The map is included in Appendix 4. The map shows that there are classified farmlands within the City's limits. There are four types of farmland with "local importance":

- Elkrock gravelly ashy silt loam (0% to 4%),
- Elkrock-Selon complex (4% to 15%),
- Yellowbay gravelly loam (2% to 8%), and
- Whitepine ashy silt loam (4% to 15%).

The only potential "prime farmland" small areas of Selon fine sandy loam (0% to 4%) and Sacheen loamy fine sand (2% to 8%) on the eastern side of the community. Any project within the City's limits would be completed in right-of-ways or previously developed areas that were platted before August 4, 1984 which excludes the land from the Farmland Protection Policy Act (FPPA).

2.2.2 Biological Resources

The hills and forests of the area primarily provide habitat for large mammals such as deer and elk, various bird species like woodpeckers and passerines, and many smaller animals like snakes, rodents, and insects. Plants in the area vary from grasses, flowers, and many conifer species such as the ponderosa pine, lodgepole pine, and grand fir. The nearby Clark Fork River and reservoir provides wetland habitat for various reptiles, amphibians, small mammals, insects, fish, and migratory birds.

Further scrutiny must be given to those species that are of importance to ecological functioning or have a limited population in the environment. This analysis must be done to ensure that any development does not disproportionately impact any single biological resource in the project area. Species of concern are potentially more susceptible to harm from development than less resilient species. To identify these limited resources the MTNHP's online resource for species of concern and the United Staes Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) tool were used.

The MTNHP search produced a custom report for all species of concern in the Thompson Falls area which encompasses all of the potential project area. The species of concern report generated contained a comprehensive list of 73 potential species with 57 animals and 16 plants. A breakdown of the groups of species of concern is shown below in Table 2-1, and a copy of the complete report from MTNHP is available in Appendix 5.

Table 2-1 - Summary of species of concern from MTNHP

MTNHP Species of Concern	
Organism Group	**Number of Species**
Mammals	12
Birds	28
Reptiles	1
Amphibians	3
Fish	6
Invertebrates	7
Vascular Plants	11
Bryophytes	3
Lichens	2

A search of the IPaC database found six animals and one plant of having a listed status. The generated report did not list any known critical habitat or fisheries in the project area. A complete summary of these species is provided below in Table 2-2.

Table 2-2 - Listed species on custom IPaC report

IPaC Species with Listed Status			
Organism Group	**Species**	**Scientific Name**	**Status**
Mammals	Canada Lynx	*Lynx canadensis*	Threatened
Mammals	Grizzly Bear	*Ursus arctos horribillis*	Threatened
Mammals	North American Wolverine	*Gulo gulo luscus*	Threatened
Fishes	Bull Trout	*Salvelinus confluentus*	Threatened
Insects	Monarch Butterfly	*Danus plexippus*	Proposed Threatened
Insects	Suckley's Cuckoo Bumble Bee	*Bombus suckleyi*	Proposed Endangered
Flowering Plants	Spalding's Catchfly	*Silene spaldingii*	Threatened
Conifer and Cycads	Whitebark Pine	*Pinus albicaulis*	Threatened

Additionally, the report provided a list of migratory birds that may be within the area. These bird species are included within the Migratory Birds Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940. These species of birds include bald eagle, black tern, California gull, Clark's grebe, Franklin's gull, lesser yellowlegs, long-billed curlew, long-eared owl, marbled godwit, western grebe, and the willet. A complete list in the IPaC report is included in Appendix 5.

Additionally, a map from the Montana Sage Grouse Habitat Conservation Program was included in Appendix 5. The map shows that the City of Thompson Falls is exempt from the program and that no sage grouse habitat is located nearby or in any area of potential impact.

The potential areas of impact are generally developed areas and public lands within the City limits. No long-term impacts to any of the identified animals would be expected from any proposed capital improvements.

2.2.3 Water Resources

2.2.3.1 Groundwater

Alluvial groundwater can be found shallow within the area between the highway and the Clark Fork River. Depth of groundwater on the Hill generally increases moving north and way from the Clark Fork River. From the *2020 Water System Improvements Preliminary Engineering Report Update* by SAJ Engineering:

> *There are three sources of groundwater in the area, an unconfined alluvial aquifer, a deeper confined aquifer, and the Ashley Creek Springs.*
>
> *Two of the City's previous wells (#1 and #2) were developed into the shallow alluvial aquifer near the Clark Fork River just east of the City. Yields for wells in the area range from 250-1,500 gpm. Data collected during the 2000 well construction project suggests the river is a "losing stream" in this area and is recharging the groundwater aquifer. The water quality in these wells exceeds the secondary standards for iron and manganese and also has arsenic present. The wells were disconnected due to poor water quality.*
>
> *City wells #3 and #4 were constructed east of the City in 2000. The wells were constructed in a locally confined aquifer just above bedrock. Yields for wells range from 350-1,100 gpm.*

The well logs for the aforementioned public supply wells were retrieved from the Montana Bureau of Mines and Geology's (MBMG's) Ground Water Information Center (GWIC). Additionally, a summary report of all wells in the project area was generated. According to the GWIC database, the total depth of wells ranged from 5 feet bgs to 825 feet bgs with an average of 156 feet bgs. The static water level (SWL) varies greatly from 0 feet bgs to 390 feet bgs with an average of 94 feet bgs. The information from GWIC is compiled in Appendix 6, and the public supply well logs are summarized in Table 2-3.

Table 2-3 - Summary of well logs of public supply wells

Public Supply Wells in Thompson Falls, MT						
Source	GWIC	Active	Total Depth (ft.)	SWL (ft.)	Surface El. (ft.)	Water El. (ft.)
Well 1	173088	No	47	18	2406	2388
Well 2	76356	No	54	16	2406	2390
Test Well 1	76358	No	44	18	2406	2388

Well 3	188077	Yes	201	104	2493	2389
Well 4	188076	Yes	195	105	2493	2388
Unused	188078	No	176	118	2493	2375

Like previous PERs have indicated, the groundwater in the area was generally of good quality. The City had taken previous water quality samples from their public supply sources. The historical results of specific conductance was retrieved from Montana's online Drinking Water Watch database which is part of the Safe Drinking Water Information System (SDWIS). There are no recent measurements; however, the historical measurements can provide adequate information for formal classification based on state requirements.

Table 2-4 - Specific conductivity measurements from supply wells in Thompson Falls, MT

Historical Groundwater Conductivity		
Source	Year	Conductivity (µS/cm)
Ashley Springs	1995	150
Ashley Springs	1995	165
Well 1	1995	387
Well 2	1995	163

All of the measurements were under 1,000 µS/cm at 25 °C which is the threshold for Class 1 ground waters in Montana. According to ARM 17.30.1006, Class 1 ground water quality must be maintained for the following beneficial uses with little or no treatment:

i. Public and private water supplies;
ii. Culinary and food processing purposes;
iii. Irrigation;
iv. Drinking water for livestock and wildlife; and
v. Commercial and industrial purposes.

Any stormwater improvements that affect groundwater must not result be considered by the state to have a non-significant impact to water quality to maintain use.

2.2.3.2 Surface Water

There are two surface water drainages with perennial flow in and near the project area: the Clark Fork River and Ashley Creek. The Clark Fork River runs westerly along the south border of the

City. Ashley Creek flows from the Cabinet Mountains south to the Clark Fork River. Ashley Creek flows across the agricultural land east of the City. There is also an ephemeral drainage from Dry Gulch which comes from the mountains due north of the City. This drainage contributes directly to stormwater runoff in the community.

The reach of the Clark Fork River in the area is part of the Lower Clark Fork Basin which USGS assigned the hydrologic unit code (HUC) of 17010213. The reach of the Clark Fork where Thompson Falls is located is between the confluence of the Flathead River to the east and the Idaho border to the west where the Clark Fork River reaches Lake Pend Oreille. Along this section of the Clark Fork River, numerous drainages from the Cabinet and Coeur d'Alene Mountains which include the Bull River and the Thompson River. A map of the nearby surface waters is included in Appendix 7.

Flow data of the Clark Fork River was obtained from USGS's online National Water Dashboard. Specifically, historical data from the USGS gage near Plains, MT (USGS Gage 112389000). Flows varied greatly through the historic period with the lowest flow of 3,200 cubic feet per second (cfs) in February of 1936 and the highest peak flow of 133,000 cfs in May and June of 1948. Generally, the average flow of the river is stable around 10,000 cfs throughout most of the year, but there is a symmetrical peak event in June. Flow increases from April to June and then decreases at a similar rate from June to August. The average flow during the peak of spring runoff is around 53,000 cfs. A plot of the historical data summarized by month is presented in Figure 2-2.

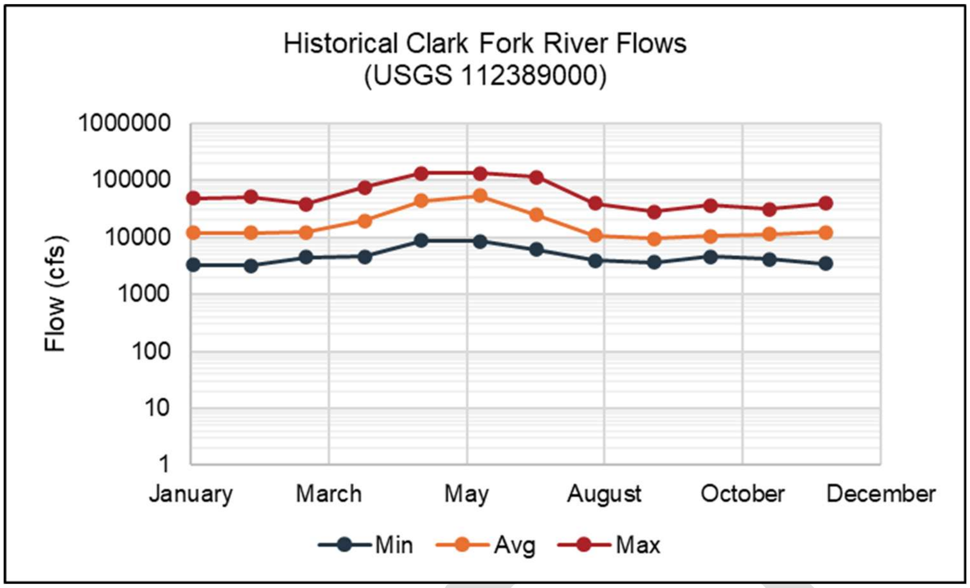


Figure 2-2 - Historical flows of the Clark Fork River, MT (USGS 112389000)

In addition to average and extreme flows, the low flows were calculated using the dataset. Two low flow values were calculated: the average weekly minimum flow for 10 years (7Q10) and the average two week minimum flow for 5 years (14Q5). The 7Q10 was calculated to be 6,563 cfs, and the 14Q5 was determined to be 6,828 cfs.

The Clark Fork River at Thompson Falls and nearby tributaries are classified as B-1 for beneficial us. The only exception is Ashley Creek above the City's public drinking water supply intake. Ashly Creek above this location is classified as A-Closed. Waters classified as B-1 are to be maintained as suitable for drinking, culinary and food processing purposes, after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply. Waters classified as A-Closed are to be maintained suitable for drinking, culinary and food processing purposes after simple disinfection.

Surface waters in the area are used for power production, irrigation, and stock animals. The Thompson Falls dam on the Clark Fork is used for hydroelectric production. Some irrigation water may be diverted from the river, but irrigation demands are considerably lower in the region than other areas in Montana.

Northwestern energy periodically publishes water quality data for the Clark Fork River directly upstream and downstream of the Thompson Falls Dam. The most recent report was published in 2022 includes data from 2019 through 2021. A summary of the measured contaminants from the report are listed in Table 2-5.

Table 2-5 - Water quality in Thompson Falls Reservoir from Northwestern Energy

Water Quality Measurements (2019-2021)			
Contaminant	**Value**	**Limit[1,2]**	**Units**
Total Nitrogen	0.13	0.275	mg/L
Nitrate + Nitrite	0.03	10	mg/L
Total Kjeldahl Nitrogen[3]	0.10	-	mg/L
Total Phosphorus	0.01	0.025	mg/L
Chlorophyll-*a*	32	-	mg/m^2
Arsenic	0.9	10	µg/L
Cadmium	0.5	5	µg/L
Copper	2.0	1,300	µg/L
Iron	0.05	-	mg/L
Lead	0.5	15	µg/L
Zinc	5.0	7,400	µg/L
Specific Conductance	175	-	µS/cm
pH	8.1	-	s.u.
Turbidity	2.0	-	NTU
Dissolved Oxygen	10.1	-	mg/L
Max. 7 Day Temperature	73.33	-	°F

1. *Limit based on human health standards for surface water from DEQ-7 (except for TN and TP).*
2. *Limit based on eco-region limits from DEQ-12 (only for TN and TP).*
3. *TKN was calculated based on measured TN and N+N values.*

The measurements showed that the Clark Fork River at Thompson Falls does not have any substantial contamination. The Clark Fork River, however, is still listed as being impaired for aquatic life along this reach in the *Montana 2020 final Water Quality Integrated Report*. The causes were listed as dissolved gas supersaturation and fish passage barrier with the sources being list as “dam or impoundment” and “hydrostructure impacts on fish passage”. The pooling in the Thompson Falls reservoir likely allows for emergent and submerged vegetation to proliferate and super saturate the water with dissolved oxygen. The dam also provides a fish barrier. Nn stormwater improvements would impact these impairments.

Several other planning documents for protecting and improving the water quality in the Lower Clark Fork Watershed have been developed in recent years. Relevant documents include the total maximum daily limit (TMDL) for Thompson River in 2014, the watershed restoration plan for Thompson River in 2018, and WRP produced by the Lower Clark Fork Watershed Group in 2019. None of these documents directly address any deficiencies or improvements at the Clark Fork River where the City discharges stormwater.

2.2.4 Floodplains

The City of Thompson Falls is not located within floodplains mapped under the Federal Emergency Management Agency (FEMA) for their Flood Insurance Rate Map (FIRM) program. A copy of the map was retrieved from FEMA's online map service center and is provided in Appendix 8.

The map depicts the 100-year floodplain within the bankfull width of the reservoir formed by the Thompson Falls Dam. No 500-year floodplain is mapped due to reservoir regulation through the dam. The top of the dam is lower than City property, so water would overtop the structure before floodwater reaches the City. Outfalls from the stormwater system discharge into the Clark Fork River at elevations below the bankfull conditions. Although the outfalls can be submerged, the storm grate inlets and associated piping are above the 100-year base flood elevation.

2.2.5 Wetlands

Wetlands are a vital natural resource for maintaining the function of ecological systems and protecting the water quality of a region. In order to inventory potential wetlands in the area, the National Wetland Mapper by USFWS was used to generate a map of wetlands around Thompson Falls. A copy of the map is included in Appendix 9.

There are few mapped wetlands within the project area. Existing wetlands shown from the database are associated primarily with the Clark Fork River and various small creeks that feed the river. Along the south edge of Thompson Falls, there are small slivers of freshwater emergent wetlands between the reservoir and the City's limits. Other distant wetlands, associated with Dry Creek to the south and Ashley Creek to the north, include freshwater emergent and freshwater forested/shrub wetlands. Additionally there are small areas of forested riparian areas in the surrounding areas

2.2.6 Cultural Resources

Cultural resources include historic and prehistoric archaeological sites, historical architecture, engineering features and structures, and resources of significance to Native American tribes. The Montana Historic Preservation Office (SHPO) was contacted to determine whether significant historical and cultural resources are within the project area. SHPO correspondence stated,

> *"As long as there will be no disturbance or alteration to structures over fifty years of age, we feel that there is a low likelihood cultural properties will be impacted. We, therefore, feel that a recommendation for a cultural resource inventory is unwarranted at this time. However, should structures need to be altered or if cultural materials are inadvertently discovered during this project, we would ask that our office be contacted, and the site investigated."*

From the correspondence, no significant impact to cultural resources is expected. A copy of the SHPO letter is provided in Appendix 2.

The results from SHPO's search indicate :

Additionally, a query of the National Register of Historic Place's (NHP) online database was completed to search for historical sites. The NHP database produced 21 results in the area. The majority of the historic places were individual buildings and residences. There were eleven dwellings in the list, and there were seven buildings that were originally used for commerce. Other sites included the Thompson Falls Dam and Cougar Peak lookout. A complete list of the NHP properties is included in Table 2-6.

Table 2-6 - List of National Registered Historic Places in Thompson Falls, MT

National Registered Historic Places				
Reference Number	**Name**	**Address**	**Area of Significance**	**Category of Property**
86002756	Thompson Falls Hydroelectric Dam Historic District	Southwest Thompson Falls	Commerce, Engineering, Architecture, Industry	District
86002761	IOOF Lodge	520 Main St.	Architecture, Social History	Building
86002763	Weber's Store	510 Main St.	Commerce	Building
86002765	Tourist Hotel	101 Main St.	Commerce	Building
86002767	Gem Saloon	808 Main St.	Commerce	Building
86002769	Ward Hotel	919 Main St.	Commerce	Building
86002771	Ainsworth House	911 Maiden Ln.	Architecture	Building
86002774	Sanders County Jail	Madison and Maiden Lane	Community Planning and Development, Architecture	Building

86002775	Norby House	13 Pond St.	Architecture	Building
86002776	Grandchamp House	1012 Preston Ave.	Architecture	Building
86002777	House at 916 Preston Avenue	916 Preston Ave.	Architecture	Building
86002778	House at 112 Park Street	112 Park St.	Architecture	Building
86002779	Griffen House	205 Gallatin St.	Architecture	Building
86002780	Hoyt House	204 Gallatin St.	Architecture	Building
86002781	Thayer House	109 Jefferson St.	Architecture	Building
86002782	Rinard House	210 Jefferson St.	Architecture	Building
86002783	Bedard House	207 Spruce St.	Architecture	Building
86002784	Preston House	205 Ferry St.	Architecture	Building
86002785	Northern Pacific Warehouse	Bounded by Preston Ave. and Main St.	Commerce	Building
100002774	Cougar Peak Lookout	Plains/Thompson Falls Ranger District, Lolo NF	Architecture, Conservation, Engineering, Politics/Government	Building
100007902	Thompson Falls Hydroelectric Dam Historic District	US ALT 10 at Clark Fork River	Commerce, Engineering, Architecture, Industry	District

None of the identified sites are in the public right-of-way and are not planned to alter any existing structures or dwellings.

2.2.7 Socio-economic and Environmental Justice Issues

The proposed project will not have a disproportionate effect on the community nor have an adverse effect on the environment. The analysis and improvements across the entire water system provide benefits equally across the community by improving public health and reducing safety risks. The proposed improvements will not adversely impact the environment, and no demographic groups will feel disproportionate effects of socio-economic or environmental justice.

The Montana Department of Commerce (MDOC) provides a summary of Montana communities socioeconomic statistics. At the time of this report, MDOC was utilizing the American Communities Survey (ACS) data from 2019 to 2023. According to MDOC, the City of Thompson Falls is considered to have a low and moderate income (LMI) percentage of 62.6% and a median household income (MHI) of $53,203. The poverty rate from this source is also 7.7%.

More detailed data from the 2019 to 2023 ACS was retrieved from Census Bureau. The dataset provides information on workforce statistics. The most prevalent industries in the area are educational services, health care, and social assistance with 18.5%; transportation, warehousing, and utilities with 16.6%; retail trade with 13.9%; and public administration with 9.1%.

In addition to economic factors, other environmental conditions that exist are considered. These factors include air quality and urban decay. The Environmental Protection Agency's (EPA) online Green Book was used to describe air quality. The City of Thompson Falls had previously been classified as a nonattainment area; however, this classification was removed from the area several years ago. Specifically, the Thompson Falls area was classified as nonattainment for particulate matter under 10 micrometers (PM-10) under the 1987 rules from 1991 until 2021.

Additionally, EPA's online ACRES mapper was used to identify Brownfield Sites in the community. These are locations and properties that receive funding from the EPA to clean up the site for revitalization of the local community. This program helps communities prevent and remediate urban decay, and a large concentration of these projects in an area can indicate poor economic conditions. No Brownfield or Superfund Sites were identified in the project area.

2.3 POPULATION TRENDS

Planning for future development is necessary to ensure that any designs will be successful over a designated planning period. The population represents the overall development of the City and is important for meeting future stormwater runoff from improvements. A standard planning period of 20 years with construction being completed in 2029 is assumed.

Historical population data for the City of Thompson Falls and Madison County was taken from the United States Census Bureau's online database. Retrieved data from the Census can be found in Appendix 11. The population was taken from the U.S. Decennial Census from 1990 through 2020. Below in Table 2-7, a summary of the population and growth rate is shown.

Table 2-7 - Historical population and population projections in Thompson Falls, MT

Historical Population in Thompson Falls, MT				
Year	Thompson Falls(1)	% Annual Increase/Decrease	Sanders County(1)	% Annual Increase/Decrease
1990	1,319	-	8,669	-
2000	1,321	0.02	10,227	1.80
2010	1,313	-0.06	11,413	1.16
2020	1,336	0.18	12,400	0.86
Average	**0.04**		**1.27**	
2049(2)	1,783	1.0	16,548	1.0

(1) US Census Bureau
(2) Population of Town at Design Year (2049) estimated from 2020 Census at conservative 1.0% Annual Growth

The above table does not show much growth over the past several Decennial Censuses. A conservative growth rate of 1.0% was assumed to account for all potential growth in the City which would include potential annexations and any new subdivisions. Based on a 2020 population of 1,336 people and an annual growth rate of 1.0%, the population at the end of the design period is 1,783.

In addition to the population of the community, any development needs to be estimated. This estimate needs to include the type of development and area of impact. The City has recently updated their zoning regulations in the summer of 2024. The most recent zoning map is provided in Figure 2-3.

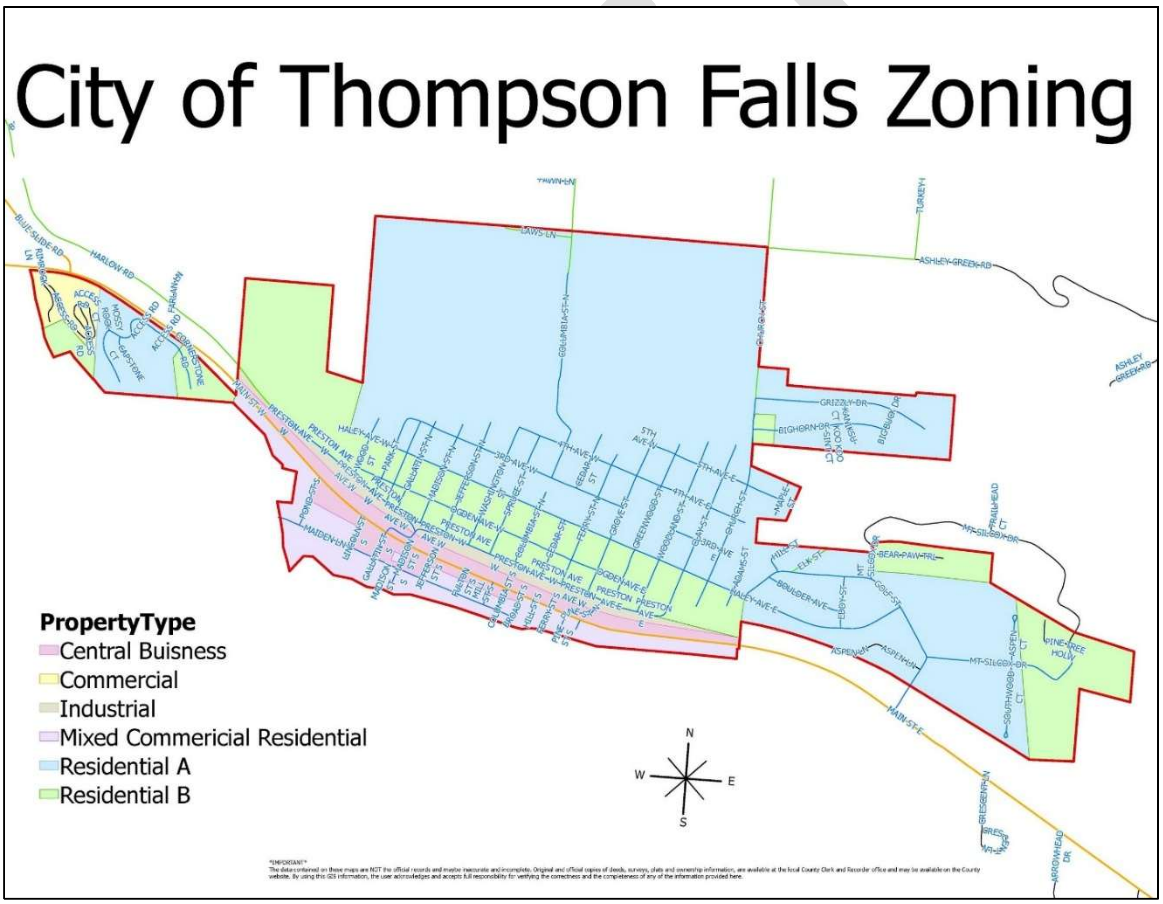


Figure 2-3 – The 2024 map of zoning in Thompson Falls, MT

The map shows the general areas of each zone. New development is limited within the City limits to primarily existing vacant lots. There are not substantial areas that can be improved within the commercial and industrial zones. The only possible areas are within residentially zoned areas north of the railroad which are Residential A and Residential B. The difference between these zonings are density of housing: Residential A allows for denser housing than Residential B. Although there may be some difference in use, most zoning rules result in similar percentage of impervious areas.

Census data was used to estimate the number of future dwellings. The number of dwellings and amount occupied, vacant, and total were retrieved from the last two Decennial Censuses. Historical data of dwelling numbers and occupancy is shown in Table 2-8.

Table 2-8 - Historical dwelling statistics in Thompson Falls, MT

Historical Dwellings Data			
Dwelling Status	**2010**	**2020**	**Percent Change**
Occupied	618	611	-0.11%
Vacant	63	38	-3.97%
Total	**681**	**649**	**-0.47%**

Historical data trends of dwellings match closely with the historical population trends with minimal change over the last twenty years. There has been a decrease in the total number of dwellings; however, the number of occupied dwellings has experienced almost no change. The discrepancy is likely the removal of abandoned structures like manufactured housing or mobile homes to clear land for future development. To estimate the total number of future dwellings, the average occupation rate was scaled based on the future population. Previous occupancy rates based on Decennial Census data are provided in Table 2-9.

Table 2-9 - Historical occupancy rates in Thompson Falls, MT

Historical Occupancy Rates			
Year	**Population**	**Occupied Dwellings**	**Occupancy Rate**
2010	1,313	618	2.12
2020	1,336	611	2.19
Average			**2.16**

Assuming an occupancy rate of 2.16 and a projected population of 1,783 people, the number of projected dwellings in 2049 is 827 dwellings. An addition of more than 200 dwellings would only be feasible in the eastern portion of the community, which would require subdivision of existing land. The current City ordinances require that new subdivisions are responsible for installing any new stormwater infrastructure.

2.4 COMMUNITY ENGAGEMENT

Prior to the completion of the draft PER Amendment, several work sessions and meetings were held with City council personnel and the public works director that provided further detailed analysis and water alternative project costs. Funding options, more detailed costs and related impacts were also discussed as the PER findings progressed. The City staff provided input regarding the overall project scope and project costs were presented to the public at a public meeting held August 27th, 2026. All Council meetings are open to and attended by the public. The City council updated the public on the project status regularly at council meetings and published articles in the local Sanders County Ledger. (To be updated after public meeting)

Public Meeting – August 27th, 2026 at 6:00 pm.

PER AND EA MEETING/ACCEPTPANCE (August and September 2026)

Appendix 12

3.0 EXISTING FACILITIES

3.1 LOCATION MAP

The City of Thompson Fall's stormwater collection system is mostly a series of disconnected structures and piping throughout the City. Additionally, the City does not own and operate all of the stormwater infrastructure within the City limits. Stormwater infrastructure stakeholders within the community include the City of Thompson Falls, individual private properties, the Burlington-Northern Sante Fe Railway Company (BNSF), and the Montana Department of Transportation (MDT).

Beyond the stormwater infrastructure, the watershed area that contributes to stormwater runoff extends beyond the municipality's boundaries. A substantial area of the watershed is located north of the community in the nearby Lolo National Forest.

3.2 HISTORY

The oldest stormwater infrastructure in the area is directly related to the construction of the Northern Pacific Railroad. The original railway alignment along the Clark Fork River was completed in 1883 before Thompson Falls became a formal community. The original infrastructure is likely not in use or has been replaced by one of the several rail companies that owned and operated this route. These systems were limited to large culverts that directed runoff from the uphill side of the railroad to the Clark Fork River.

During the early development of the community in the early 1900s, stormwater management likely relied on overland flow to drain runoff into the Clark Fork River. The earliest stormwater improvements that are still functioning were completed by MDT in 1990. These improvements were completed as part of improvements to MT Highway 200 through Thompson Falls, MT. The project included repaving the road, installing curb and gutter along the edge of the road, installing drop inlets and stormwater piping, and installing a large diameter infiltration basin at the east end of the City near Goose Landing Park. There have not been any major improvements to this component owned by MDT since the original installation.

Most stormwater infrastructure prior to the 1990s was owned by individual private property owners who installed downspouts, small ditches, or dry wells themselves. Most of the stormwater was assumed to be directed overland to the Clark Fork River using the established right-of-ways. After 1990 the City began installing stormwater infrastructure to resolve local drainage issues. Infrastructure was mostly installed in two locations. The first region was downtown in areas with large impervious areas and inadequate surface drainage. Secondly, some dry wells and drop inlets were installed on the Hill between Wood Street and Greenwood Street.

The infrastructure that the City has installed has generally been additions to planned projects involving their water or wastewater utility. The majority of the City's current stormwater structures and piping were installed from 1998 through 2000 as part of the water and wastewater improvements. In 1998 wastewater improvements along maiden lane included new inlets and storm piping along Maiden Lane and Lincoln Street with new outfalls to the Clark Fork River. The water system improvements in 1999 included the installation of dry wells downtown and on the Hill in known problem areas. The City has also performed small extensions and improvements like adding a storm inlet and drainpipe to day light at the corner of Broad Steet and Haley Avenue.

Over the history of the existing system, there have not been many independent stormwater projects. The City has relied on temporary fixes and additional work with other projects to address any stormwater runoff issues and concern.

3.3 CONDITION OF EXISTING FACILITIES

3.3.1 Existing Flows

As part of the design standards for municipal stormwater systems in Montana, there were two primary design standards and manuals used: *DEQ Circular 8 (DEQ-8)* and MDT's *Hydraulic Manual 2023.*

Several hydrologic methods are defined in these documents for estimating peak runoff flows and runoff volumes. Generally, regression methods are the preferred approach by MDT; however, the area around Thompson Falls does not have gaged streams that have developed areas in the contributing watershed and that are not impacted by the dam on the Clark Fork River. Regression equations would not provide representative hydrographs for the developed watershed. Hydrologic approaches that do not utilize regression include the Rational Method, the Natural Resource Conservation Service's Technical Release 55 (formerly SCS TR-55), and the Environmental Protection Agency's Storm Water Management Model (EPA SWMM). The Rational Method was not used because of the entire watershed and several sub-basins are larger than 200 acres. The EPA SWMM is not listed as an approved method in *DEQ-8*, and the City's current subdivision ordinances require that new development utilizes current standards by DEQ. To accommodate the varied conditions and stages of development within the City and across the entire contributing watershed, the NRCS TR-55 hydrologic method was used in this report for preliminary design.

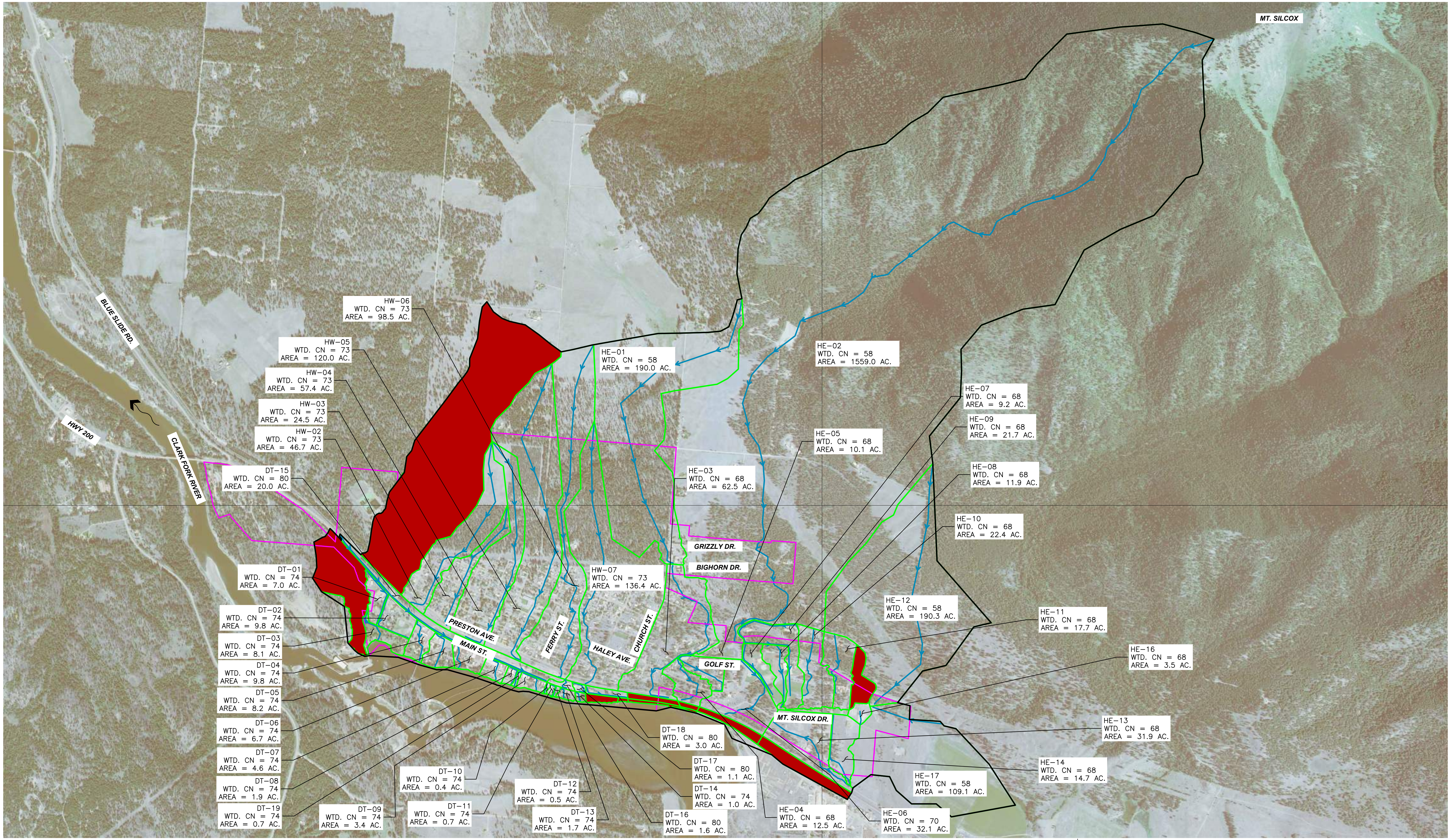
MDT's design manual provides a detailed procedure for utilizing the NRCS TR-55 method. Additionally, *DEQ-8* relies on the detailed method of MDT's manual for design standards. A brief description of the design process and the source of design values is provided below in this section.

Stormwater runoff is dependent on rainfall distribution, land use, local soils, and topography. The volume of stormwater from a storm event was retrieved from MDT's hydraulic manual. Information about land use and soils were retrieved from the SCS soils report and land use maps developed in Section 2.2.1. Topographical data within City limits was previously obtained through an aerial LiDAR survey for ongoing infrastructure improvements. For the areas outside of the City's available LiDAR system, topographical data from USGS's 7.5-minute map for the area was used as a supplement.

The design storm for the existing system and proposed improvements is based on recommendations from the referenced design manuals. Specifically, for the storm sewer improvements a 10-year, 24-hour storm was used. The cumulative depth used in this storm was 1.77 inches based on MDT's hydraulic manual for the nearby community of Plains, MT. This depth is representative of Thompson Falls because of the measured location's proximity and similar elevation to Thompson Falls.

The TR-55 method utilizes weighted "curve number" (CN) values which represents a specific land surface's runoff potential. The valves range from 0 to 100 with higher values representing more precipitation runoff than lower values. The MDT *Hydraulics Manual* and *DEQ-8* provides recommended values for different land use types based on soil groups. Utilizing the previously developed soil maps and land use maps, weighted curve numbers for each watershed were assigned.

The time to concentration is the time that runoff from the furthest flow path to the concentration point. The concentrating of all runoff in a watershed results in the peak runoff flow. Using topographical data from LiDAR and USGS sources, the slopes and lengths of drainage pathways were determined for each watershed. The time of concentration for flow was determined using recommended equations by MDT. A summary of the major subbasins is shown in Table 3-3.



LEGEND

MAJOR WATERSHED BOUNDARY
SUB-WATERSHED BOUNDARY
WATERSHED LONGEST FLOWPATH
CITY LIMITS
NONCONTRIBUTING WATERSHED

0 1000 2000
SCALE IN FEET

NORTH

GreatWest ENGINEERING

Figure 3-1: Existing Watersheds

CITY OF THOMPSON FALLS STORMWATER IMPROVEMENTS

The developed TR-55 values were analyzed using AutoDesk's Storm and Sanitary Analysis 2023 (SSA) program. The peak stormwater runoff for each watershed is listed below in Table 3-1 for existing conditions.

Table 3-1 - Peak runoff values for current conditions

Existing Peak Runoff from Subbasins					
Subbasin	Peak Flow (cfs)	Peak Flow (GPM)	Subbasin	Peak Flow (cfs)	Peak Flow (GPM)
DT-01	1.71	767.6	HE-05	0.36	161.6
DT-02	2.61	1171.5	HE-06	1.05	471.3
DT-04	2.61	1171.5	HE-07	0.35	157.1
DT-05	2.55	1144.6	HE-08	0.39	175.1
DT-06	2.08	933.6	HE-09	0.62	278.3
DT-07	1.43	641.9	HE-10	0.91	408.5
DT-08	0.59	264.8	HE-11	0.72	323.2
DT-09	1.06	475.8	HE-12	0.31	139.1
DT-11	0.21	94.3	HE-13	0.83	372.6
DT-14	0.3	134.7	HE-14	0.32	143.6
DT-15	3.72	1669.8	HE-16	0.15	67.3
DT-16	0.97	435.4	HE-17	3.65	1638.3
DT-17	0.64	287.3	HW-01	0.31	139.1
DT-18	1.75	785.5	HW-02	3.84	1723.6
DT-19	0.23	103.2	HW-03	3.13	1404.9
HE-01	0.31	139.1	HW-04	5.64	2531.6
HE-02	2.52	1131.1	HW-05	9.89	4439.2
HE-03	1.96	879.8	HW-06	7.54	3384.4
HE-04	0.57	255.9	HW-07	11.97	5372.9

3.3.1.1 Flow Projections for Design Period

Future flow projections were developed using the methods described in the previous sections. No change in rainfall depth or intensity for the design storms is anticipated over a 20-year design period. The same depths and intensities for the 24-hour storms with return intervals of 10-year are the same as the existing conditions.

Development in Thompson Falls is limited because of the limited room for expansion. There are only a limited number of private lots that have not been fully developed yet. Downtown has virtually no undeveloped lots and current setback regulations for new construction prevent further construction on already developed lots. Since new zoning regulations prevent the construction of new commercial or industrial properties north of the railroad tracks, only a small amount of residential infill is anticipated. Some minor subdivisions may create additional housing units at the eastern edge of City limits. There are no current plans for the City to alter existing greenspaces or increase the impermeable area in existing right-of-ways.

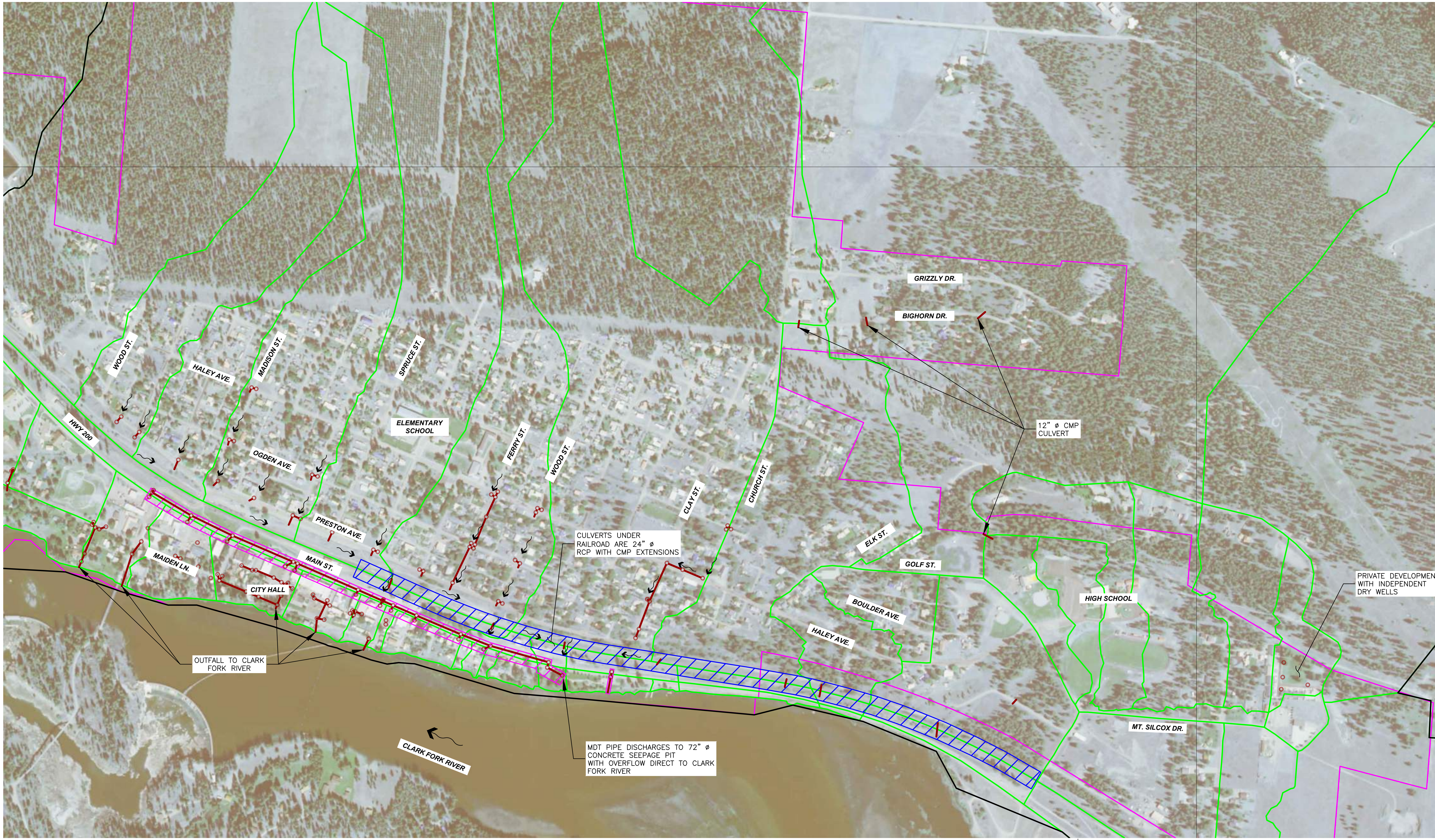
The amount of infill construction in the eastern sections of the City is not expected to exceed the existing land cover on the Hill or downtown. To estimate the future runoff, the CN estimates for the subbasins on the Hill were applied to all subbasins in the eastern portion of the City where development is expected. The peak stormwater runoff for each watershed is shown below in Table 3-2.

Table 3-2 - Peak runoff values for future conditions

Existing Peak Runoff from Subbasins					
Sub Basin	Peak Flow (cfs)	Peak Flow (GPM)	Sub Basin	Peak Flow (cfs)	Peak Flow (GPM)
DT-01	1.71	767.6	HE-05	0.36	161.6
DT-02	2.61	1171.5	HE-06	1.05	471.3
DT-04	2.61	1171.5	HE-07	0.35	157.1
DT-05	2.55	1144.6	HE-08	1.44	646.4
DT-06	2.08	933.6	HE-09	2.06	924.7
DT-07	1.43	641.9	HE-10	3.46	1553.1
DT-08	0.59	264.8	HE-11	2.75	1234.4
DT-09	1.06	475.8	HE-12	0.52	233.4
DT-11	0.21	94.3	HE-13	2.63	1180.5
DT-14	0.3	134.7	HE-14	0.96	430.9
DT-15	3.72	1669.8	HE-16	0.53	237.9
DT-16	0.97	435.4	HE-17	12.87	5776.8
DT-17	0.64	287.3	HW-01	0.31	139.1
DT-18	1.75	785.5	HW-02	4.57	2051.3
DT-19	0.23	103.2	HW-03	3.71	1665.3
HE-01	0.31	139.1	HW-04	6.67	2993.9
HE-02	4.23	1898.7	HW-05	11.65	5229.2
HE-03	6.7	3007.4	HW-06	8.83	3963.4
HE-04	2.31	1036.9	HW-07	14.12	6337.9

3.3.2 Collection System

The stormwater collection system in the community is comprised of several disjointed sections of storm sewer systems, culverts, and dry wells. Additionally, there are several major stakeholders who own and maintain different portions of the stormwater system. The primary stakeholders in the area are the City of Thompson Falls, the Montana Department of Transportation (MDT), and the Burlington Northern Sante Fe Railway Company (BNSF). Separately, private property owners throughout the municipality also own and maintain their own on-site systems which are usually drywells in a paved area. A map of the existing stormwater infrastructure and system owners are shown in Figure 3-2.



LEGEND

- MAJOR WATERSHED BOUNDARY
- SUB-WATERSHED BOUNDARY
- EXISTING STORMWATER PIPING
- MDT STORMWATER SYSTEM
- BNSF STORMWATER SYSTEM
- CITY LIMITS

0 375 750
SCALE IN FEET

NORTH

GreatWest ENGINEERING

Figure 3-2: Existing Stormwater System

CITY OF THOMPSON FALLS
STORMWATER IMPROVEMENTS

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The City of Thompson Falls operates a decentralized system of storm inlets, dry wells, and buried stormwater piping in the City. Most of the existing infrastructure is installed on the older, western side of the community. There are approximately 18 drywells, and a sum of 67 manholes and inlet structures. Additionally, several private properties have their own dry wells which the City does not maintain.

Downtown has seven distinct storm sewer systems with independent outfalls that the City maintains. The majority of the piping is 8-inch PVC with the largest pipe being 12 inches in diameter. A summary of the existing stormwater pipe maintained by the City is shown below in Table 3-3.

Table 3-3 - Pipe schedule of Thompson Falls

Thompson Falls Pipe Schedule	
Pipe Diameter (in.)	Length (ft.)
6	400
8	4,200
12	1,300
Total	**5,900**

Generally, the existing sewer infrastructure is in serviceable condition across the community. Storm inlets are periodically clogged from sediment and trash, and the City removes this debris as needed. There are no known major deficiencies in pipe or structures. Known problems include the outfall pipe at the end of Fulton Street being submerged under the reservoirs water level and excessive sediment buildup in the storm inlet at the end of Mill Street. These issues are resolvable and are not currently causing hazards from stormwater in the community.

The MDT stormwater system in Thompson Falls is located along the right-of-way for Highway 200. The system generally runs from the West Ramp to the East Ramp with the trunkline running underneath the north curb and gutter of Highway 200. Additionally, there are several laterals with curb inlets along the south side of Highway 200. Pipe sizes range from 12 inches to 21 inches. All manholes and inlet structures utilize a Type 4 drop inlet grate based on MDT standard drawings. The minimum slope of the piping is 0.0020 ft./ft. or 0.2%. Collected stormwater flows from the west to the east where the ultimate disposal is a 72-inch diameter seepage pit with overflows that end at the east end of Goose Landing Park. The existing pipe schedule of the MDT stormwater system is listed below in Table 3-4.

Table 3-4 - Pipe schedule of MDT stormwater pipe in Thompson Falls

MDT Pipe Schedule		
Pipe Diameter (in.)	Material	Length (ft.)
12	RCP	640
18	RCP	2,215
21	RCP	1,475

The BNSF railroad that bisects the community has several culverts that cross underneath the existing railway. The previous Figure 3-2 shows the locations of the MDT stormwater components.

3.3.2.1 Storm Sewer Capacities

Modeling of the entire stormwater system indicated that the existing stormwater system generally has capacity for the 10-year, 24-hr storm. Intensive modeling was completed for the downtown sections of the stormwater system which assumed that the pipe and structures are in serviceable condition without and reduced capacity. Acute issues of stormwater runoff entering private property or clogged inlets are addressed by City workers as discovered. Generally, there are no concerns downtown besides clogged inlets and stormwater pipe that needs to be jetted.

Since there is limited stormwater infrastructure north of the railroad in Thompson Falls, most stormwater runoff is directed through surface flow towards the Clark Fork River. The few sections of underground stormwater collection systems on the Hill generally have capacity for the design storm. The existing stormwater pipe along Ferry Street; however, is currently undersized and has deficient drainage pathways to existing inlets. Based on modeling efforts, the majority of stormwater inlets surcharge from the design storm. These results are consistent with the City's observation and regular maintenance along this street.

3.3.2.2 Culvert Capacities

The City maintains a small number of culverts in the community. These culverts are in variable condition, but modeling and historical observation indicate that the culverts have adequate capacity. There are instances of pipe crush at inlets and outlets from vehicle damage. These culverts should be identified and repaired as part of regular maintenance. Individual property owners install and maintain culverts across private driveways and other locations on private property.

3.3.2.3 Dry Well Capacities

Dry wells throughout the community provide some storage and infiltration of stormwater into the subsurface. The typical dry well that the City owns is 7 feet depth with an internal diameter of 48 inches. The available storage for each of these drywells is approximately 88 cubic feet or 658 gallons. Generally, the percolation rate of soils in the area is 1.25 inches per hour from the SCS soils report. Assuming a constant percolation rate, a completely full dry well would require approximately 28 minutes to discharge to the subsurface assuming a constant percolation rate. Modeling efforts and historical observations do not show any surcharging from existing drywells.

3.3.3 Reclaimed Water System

The City does not reclaim any stormwater for beneficial use as part of their stormwater system.

3.3.4 Pumping Stations

There are no pumping stations for the City's stormwater system.

3.3.5 Storage

The City does not operate or maintain any stormwater storage ponds for either retention or detention in Thompson Falls. Generally, there are no sumps in existing inlets between the pipe inverts and the bottom of the structure. Dry wells, however, have some available space between the bottom gravel and pipe inverts. The standard size that Thompson Falls utilizes is a 1,000-gallon nominal size based on Idaho Transportation Department's (ITD's) standard drawing for drywells (STD. DWG. 605-13).

3.3.6 Treatment

The City does not provide any treatment to collected stormwater. All stormwater is conveyed to the Clark Fork River or discharged into the subsurface using drywells throughout the community.

Existing Treatment Standards

There are no current treatment standards required or enforced for Thompson Falls, MT. The DEQ currently uses a general permit for the entire state to comply with federal rules regarding storm water discharges associated with small municipal separate storm sewer systems (MS4s).

Currently, the general permit is numbered MTR040000 and is effective from April 1, 2022 until March 31, 2027.

Section 17.30.1102.23 of the Administrative Rules of Montana (ARM) provides the definitions for an area to utilize an MS4 permit: These areas are isolated to the developed cities within the state: Billings, Missoula, Great Falls, Butte (Butte-Silver Bow), Helena, and Kalispell. Additionally, MDT also discharges in these urban areas under the same permit. These locations are identified by the most recent decennial census as being “urbanized areas” or having a population of at least 10,000.

Future Treatment Standards

The population of Thompson Falls is not projected to exceed 10,000 people at the end of the design period. No treatment standards are anticipated to be enforced under any regulation in the design period.

Sediment and Solids

The high velocities that stormwater runoff obtains on the steep slopes of the Hill results in the erosion and transport of shoulder and driveway gravel downhill and into traffic areas. In addition to the aggregate, trash and debris is regularly deposited on inlets and inside structures. Erosion and transport of solid contaminants is a repeat cause of maintenance of the stormwater system for the City. After large rain events, the City has to utilize their street sweeper to clean streets of transported gravel. In addition to street sweeping, City workers have to clear trash and sediment from inlet and structures after large storm events.

3.4 OPERATIONAL AND MANAGEMENT PRACTICES AND CAPABILITIES

The City of Thompson Falls has a small workforce of four full-time City employees who maintain all of the infrastructure in the community which includes the water system, wastewater system, roads, and stormwater system. The City has some equipment that they can use to fix buried infrastructure. This equipment includes a backhoe, a front-end loader, and a trailer mounted pipe jetter. With the limited available equipment and labor, the City typically performs annual jetting to clear most of their accessible storm piping. Additional jetting may be completed in instances of clogging as needed. The City has begun installing filter fabric on storm inlets that collect large amount of sediment and debris. The collected sediment and trash are removed after runoff events to ensure that storm inlets' capacities are maintained.

3.5 FINANCIAL STATUS OF ANY EXISTING FACILITIES

Placeholder – *to be updated with most current information prior to finalized PER.*

3.6 WATER/ENERGY/WASTE AUDITS

There has not been any formal review of the City's existing stormwater system recently. This document represents the most current condition of the system, its capacity, and known deficiencies. The City maintains clerical records for costs to maintain the system including hours of labor, materials used, and any insurance claims against Thompson Falls.

4.0 NEED FOR PROJECT

4.1 HEALTH, SANITATION AND SECURITY

Stormwater has the potential to create acute and chronic hazards to public health and safety. Flooding can cause property damage that needs repair immediately, but long-term effects may include the accumulation of pests and pathogens in the community. There are not many recorded instances of flooding in Thompson Falls in the past several years, but delayed maintenance increases the risk for flooding.

One of the primary threats to the public that flooding causes is damage to private property and infrastructure. Flooding of roadways creates potentially dangerous or impassable driving conditions that can cause accidents or hinder emergency workers' movement. Besides roadways, structures are often susceptible to damage. Runoff that is not contained by the stormwater system can lead to erosion around structures and their foundations which can lead to damage of the structure or a preferential flow path for future rain events to the foundation.

Beyond damage to the overall structure, excessive runoff can penetrate into basements and building subgrades through cracks in foundations, basement windows, or low vents. Floodwater can damage personal property besides the structure itself. The damage to structures and intrusion of water into buildings can lead to personal injury in addition to loss of property.

Stagnant water provides an opportunity for pests and pathogens to grow and to harm members of the community. Water that enters and accumulates in dark, cool crawlspaces or basements of dwellings creates an ideal environment for molds and other fungi to grow. Some of these fungi can generate toxins that can cause illness in inhabitants if not addressed promptly. Additionally, summer storm events have the potential to promote an increase in the populations of mosquitoes and other pests. Standing water and heat provides a breeding ground for insects like mosquitoes which are vectors of bloodborne pathogens such as West Nile Virus (WNV), easter equine encephalomyelitis (EEE), St. Loui encephalitis (SLE), La Crosse encephalitis, and wester equine encephalomyelitis (WEE).

Although flooding has not been a recent tissue, the high velocity water from the stormwater runoff on the Hill is a chronic problem. The current routing of stormwater over the ground surface along the edge of the existing roads results in channelization in the road shoulder. Additionally, there are a small number of driveways and private access that have culverts to allow for stormwater to flow underneath driving areas. Since most roads and driveways have a essentially a flat cross grade, the runoff spreads from the shoulders and begins downcutting graveled areas. The combination of routing and steep slopes causes the movement of gravel and sediment into the driving lanes along the roads that run north and south on the Hill.

The resultant loose gravel creates several issues with the public roads. The removed gravel from the shoulder of the road exposes the edge of the pavement to traffic loads which causes fractures and separation of the road edge. This occurrence both reduces the driving lane and lifespan of the pavement substantially.

The loose gravel in the driving lanes poses an immediate threat to public safety. Vehicles traveling along the steep north and south routes experience steep slopes which inherently increase breaking distance when travelling downhill. The addition of gravel in the driving lane can cause a loss of traction between the road and tire which results in loss of control and the inability to successfully brake. The City has readily addressed maintenance to prevent his occurrence. Although the gravel has not been a cause of traffic accidents, icy road conditions in the winter have results in similar accidents within the last 10 years.

After large storm events, the City completes restorative maintenance to remove loose gravel on the road and to replace the lost gravel from the edge of the roads. This work includes running the City's street sweeper to clear the road of loose gravel. Restoration of private driveways and the gravel shoulder is completed by delivering and packing gravel using the City's front end loader. Additionally, the problematic areas in the City include sections of Ferry Street where school buses enter and exit for shuttling students to and from school. The steep slopes in the community result in increased maintenance of streets on the Hill and poses a threat to public safety.

In order to prevent vehicles losing control and falling off Preston Avenue into the BNSF right-of-way, the City has placed ecology blocks on the south side of Preston Avenue as barricades. These blocks were placed along three streets: Jefferson Street, Ferry Street, and Grove Street. These streets have steep slopes and minimal shoulder of Preston Avenue on the south side. Pictures of these barricades are shown below in Figure 4-1, Figure 4-2, and Figure 4-3.

Figure 4-1 - Ecology blocks at Jefferson Street and Preston Avenue

Figure 4-2 - Ecology blocks at Ferry Street and Preston Avenue

Figure 4-3 - Ecology blocks at the intersection of Grove Street and Preston Avenue

4.2 AGING INFRASTRUCTURE

Most components of the existing stormwater system are around 20 to 30 years old. This infrastructure was generally installed in conjunction with water and wastewater system replacement and expansion. Most of the current piping in the City's system is PVC connected by concrete structures and inlets. There are some isolated sections of stormwater infrastructure that are older than the rest of the system by several decades and are made of alternate materials like AC and corrugated steel.

The majority of the stormwater infrastructure in the community is functional and provides adequate capacity for design storm events. There are some sections of older components downtown that appear to only require maintenance and not complete replacement. The majority of deficient components do not have adequate capacity because of the original design requirements, sediment buildup, or traffic damage. The infrastructure materials appear generally sound and free of structural failure.

The current infrastructure does not appear to need comprehensive replacement. Some storm inlets are experiencing sediment buildup and movement of concrete joints at structures. These issues are isolated and not typical across most of the stormwater collection system. Individual assessment and rehabilitation of pipe and structures would be more effective than complete replacements based on the current condition of infrastructure.

4.3 REASONABLE GROWTH

The estimated population growth over the design period was completed using a conservative 1.0% growth rate. The projections of population and housing to 2049 are 1,783 people and 827 dwellings. Most of the existing properties west of Church Street have been fully developed, so the increase in impervious area in this section is not expected to substantially increase. Growth in the community is expected to occur almost entirely on properties east of Church Street in the newest subdivisions of the community. There is also undeveloped land that is abut to the City limits which may later be annexed or voluntarily join the City.

In the projected peak flow rates for the design storm, the flows do not increase significantly compared to the assumed development in the western portion of Thompson Falls. Although there is some current densification and infill growth, this development is a small component of the overall area analyzed. The building of new dwellings and further development is assumed to occur virtually on land east of Church Street.

The current City ordinances require new subdivisions to develop and install stormwater infrastructure in compliance with modern stormwater management practices. Any development will be required to control and discharge stormwater at the same peak runoff flows. Since new developers would be responsible for managing changes in runoff, the City’s downstream infrastructure does not need upsized because the receiving runoff flow rate has not increased. The existing problems for the stormwater system are associated primarily with current conditions, and the City’s current planning will defer future costs to developers during construction.

5.0 ALTERNATIVES CONSIDERED

5.1 ALTERNATIVE SCREENING

The previous sections described the existing infrastructure's condition and the known deficiencies. Most of the current issues with the City's stormwater system are a result of aging infrastructure and insufficient capacity. To address the existing problems of the Thompson Falls stormwater system, several technical alternatives were developed. Some potential improvement projects were not fully developed because of technical or financial limitations.

5.2 COLLECTION SYSTEM ALTERNATIVES

Most of the collection system alternatives were developed to address localized deficiencies. Since the City's existing system is decentralized, individual sections of the stormwater infrastructure had to be examined independently to develop size and materials for an alternative. Three alternatives were developed fully to examine an overarching approach to improving the stormwater system: no action, existing stormwater rehabilitation, and erosion control technologies along steep streets. Infeasible global alternatives that were not fully developed included paving all streets and developed alleys, installing curbs and gutters along all developed streets, digging conveyance channels with new culverts at all road crossings, and implementing a stormwater sewer collection system across the entire community. These alternatives are impractical because of prohibitively expensive capital costs and the construction of oversized infrastructure throughout most of the City. Additionally, these alternatives would reduce the residents ability to park vehicles in the existing right-of-way.

Several targeted alternatives were made in order to provide focused projects for the most severe deficiencies that pose the greatest risk to the community's health and safety. The current problematic areas in Thompson Falls that need immediate attention include erosion and excess overland runoff on Ferry Street, Jefferson Street, and Washington Street, as well as poor drainage on the eastern side of the City.

5.2.1 Alt. C-0: No Action

The “no action” alternative represents the City maintaining its current operation of the stormwater system. Specifically, the City would perform annual jetting of storm drains and any other maintenance as needed.

Design Criteria

There are no design criteria for continued maintenance of the existing system.

Map

A map of the existing stormwater infrastructure was previously shown in Figure 3-2.

Environmental impacts

There is no benefit to the local environment or reduction of impact from stormwater runoff. Erosion of soil along steep streets on the Hill will continue to occur and require periodic maintenance. One continued negative environmental impact will continue from soil loss.

Land Requirements

The City’s existing infrastructure is located within the existing right-of-way and on City property. No additional land is required the City to maintain the existing system.

Potential Construction Problems

No specific construction problems are associated with continued maintenance. The City’s existing equipment is sufficient for repairing the existing storm systems.

Sustainability Considerations

Water and Energy Efficiency

The current stormwater systems do not require any water or electricity to operate in normal conditions. Gravity is used to convey water through the system and percolate into the subsurface or discharge into the Clark Fork River. The City does have some fuel costs associated with equipment used to maintain the system.

Green Infrastructure

The existing stormwater system has several dry wells that discharge collected groundwater into the subsurface. There is no treatment or reuse of stormwater.

Cost Estimates

There are no capital costs associated with this alternative.

5.2.2 Alt. C-1: Clean and Inspect Existing Infrastructure

Cleaning and inspecting the existing stormwater infrastructure includes the jetting, cleaning, removing debris, and television inspection of all stormwater infrastructure in the City. The City would contract with a specialty business that can complete jetting, television inspection, and vacuum removal of debris.

Design Criteria

No regulatory agency requires specific design criteria for jetting and inspecting sewer line. The alternative includes all of the infrastructure including structures and pipe. The City can utilize a phased approach to complete this work over several years.

Typical video inspection of sewer mains adhere to standards set forth by the National Association of Sewer Service Companies (NASSCO). NASSCO operates a Pipeline Assessment Certification Program to commercial businesses that perform inspection and jetting.

Map

A map of the existing stormwater infrastructure was previously shown in Figure 3-2. Only infrastructure owned and maintained by the City would be inspected and cleaned.

Environmental impacts

There are no significant changes to environmental impacts through cleaning and inspection. Cleaning the infrastructure will reclaim capacity of the system which will reduce the volume of stormwater runoff that reaches the Clark Fork River through surface flow.

Land Requirements

All work would be done within existing public right-of-ways, and no new land is required for this alternative.

Potential Construction Problems

No construction problems are anticipated. This alternative does not include excavation, so groundwater and large rock is not a concern when cleaning and inspecting the lines.

Sustainability Considerations

Water and Energy Efficiency

No improvements to water or energy use are expected with the inspection of the existing collection system.

Green Infrastructure

No green infrastructure components are included in this alternative.

Cost Estimates

The cost for cleaning and inspecting every component of the stormwater is summarized below in Table 5-1. The total project cost is estimated to be $133,000. There is no engineering design or review included in the cost estimate. Inflation and contingency are included in the cost estimate. The total cost estimate is under $150,000 which is the threshold for requiring a public bid process. The City could realistically solicit cost estimates and select a service provider to complete the work. There is no change to operation and maintenance cost from this project.

Table 5-1 - Alt. C-1 capital cost estimate

OPINION OF PROBABLE COST CITY OF THOMPSON FALLS ALT. C-1: COLLECTION SYSTEM INSPECTION AND CLEANING					
#	BID ITEM	QTY	UNITS	UNIT PRICE [1]	TOTAL
100	Television Inspection and Jetting	5,900	LF	$ 3.50	$ 20,650
101	Vacuum Truck Manhole/Structure	85	EA	$ 750.00	$ 63,750
	Direct Construction Subtotal				**$ 84,000**
Mobilization				10%	$ 8,000

Traffic Control		1%	$ 1,000
Construction Subtotal			**$ 93,000**
Construction Cost Inflated to [2]	**2029**	**3.0%**	**$ 111,000**
Contingency		20%	$ 22,000
TOTAL			**$ 133,000**

[1] Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.

[2] The ENR average Construction Cost Index is +2.60% (as of April 2026), so capital costs are projected to the anticipated construction date using a 3% inflation rate.

5.2.3 Alt. C-2: Existing Infrastructure Rehabilitation

In order to restore complete functionality of existing stormwater infrastructure, rehabilitation efforts are proposed for sections of the stormwater system. Anticipated repairs include lining pipes that may be allowing inflow of groundwater or root instruction, repairing breaks in pipe runs or "bellies", and fixing damage culvert ends. The proposed improvements would be completed after television inspection and locating known deficiencies. Rehabilitation of pipe would be expected to be completed through a combination of trenchless technologies and open-cut repairs. A summary of each method is described below.

Cure in place pipe (CIPP) is a trenchless technology that is used for rehabilitating collection mains. First, the mains are television inspected for structural soundness. A resin impregnated flexible "sock" is then pushed into the pipe with water pressure. Once the sock is in place, the resin impregnated side of the sock faces the interior surface of the old pipe. Hot water or steam at high pressure is then circulated through the pipe curing the sock in-place. Alternatively, ultraviolet (UV) curing has become more commonly employed which uses UV lamps in place of heat and steam. The resulting product is a hard structurally sound pipe inside the old pipe.

Advantages of CIPP include minimal disruption of streets and alleys during construction since minimal excavation is necessary. Also, because there is less digging, construction can be completed more quickly than with traditional open-cut replacement. Finally, the product is a seamless pipe with no joints that will be almost completely infiltration-proof.

The open cut method involves excavation and installation of new pipe and manholes. It is typically more costly than trenchless rehabilitation technologies but has several advantages. The primary advantage to this approach is that improper grades, offset joints, sags, and other physical deficiencies in the storm sewer mains can be corrected during the installation of the new pipe.

The biggest disadvantage of open trench construction is the disturbance of the surface. Surface disturbance requires traffic control, management of spoil materials, coordination with other utilities, and street replacement. Open trench construction may disturb access to businesses and residents that must be managed. Construction can be especially difficult when working in tight alleys, replacing deep pipelines, and/or working in an area with high groundwater.

Repair of concrete structures can be accomplished through cure in place resin similar to CIPP, grout repair, and epoxy injection. These methods would seal joints and prevent groundwater inflow. Repairing the ends of culverts is done with minimal excavation at the exposed inlets and outlets.

Design Criteria

The design criteria for rehabilitation of the existing infrastructure is to ensure that the structures are watertight and that there are no adverse slopes in existing piping. Since there are generally no known issues with the existing infrastructure, relining of existing storm sewer pipe is assumed to be 25% of the entire length, and 25% of all structures are assumed to require concrete repair or lining.

Additionally, every 250 feet of pipe run is assumed to need a spot repair. The culvert end repairs are assumed to be done at four locations based on field survey information.

Map

A map of the existing stormwater infrastructure was previously shown in Figure 3-2. Only infrastructure owned and maintained by the City would be rehabilitated.

Environmental impacts

There are no significant changes to environmental impacts through system rehabilitation. Rehabilitating the infrastructure will reclaim capacity of the system which will reduce the volume of stormwater runoff that reaches the Clark Fork River through surface flow. Utilizing underground conveyance also assists in reducing the amount of sediment erosion in the City.

Land Requirements

All work would be done within existing public right-of-ways, and no new land is required for this alternative.

Potential Construction Problems

No construction problems are anticipated. This alternative includes some excavation in previously excavated areas, so large rock is not a concern. Generally, stormwater piping is above the seasonal high groundwater near the Clark Fork River, so no dewatering is expected.

Sustainability Considerations

Water and Energy Efficiency

No improvements to water or energy use are expected with the inspection of the existing collection system.

Green Infrastructure

No green infrastructure components are included in this alternative.

Cost Estimates

The cost estimate for rehabilitating portions of the existing stormwater collection system includes construction, engineering design, construction management, and administrative costs. No change to the City's operation and maintenance is expected from the improvements. The total project cost is estimated to be $826,000. The cost breakdown is presented in Table 5-2.

Table 5-2 - Alt. C-2 capital cost estimate

OPINION OF PROBABLE COST CITY OF THOMPSON FALLS ALT. C-2: STORMWATER SYSTEM REHABILITATION					
#	BID ITEM	QTY	UNITS	UNIT PRICE [1]	TOTAL
100	6" CIPP	100	LF	$ 95.00	$ 9,500
101	8" CIPP	1,050	LF	$ 105.00	$ 110,250
102	12" CIPP	325	LF	$ 115.00	$ 37,375
103	Pipe Spot Repairs	25	EA	$ 5,000.00	$ 125,000
104	Stormwater Structure Lining	17	EA	$ 10,000.00	$ 170,000
105	Culvert End Repair	4	EA	$ 1,500.00	$ 6,000
Direct Construction Subtotal					**$ 458,000**
Mobilization				10%	$ 46,000

Traffic Control		1%	$ 5,000
Construction Subtotal			**$ 509,000**
Construction Cost Inflated to [2]	**2029**	**3.0%**	**$ 608,000**
Contingency		20%	$ 122,000
Engineering Design			$ 37,000
Engineering Construction			$ 37,000
Grant Admin, Legal, & Administrative			$ 22,000
TOTAL			**$ 826,000**

[1] *Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.*

[2] *The ENR average Construction Cost Index is +2.60% (as of April 2026), so capital costs are projected to the anticipated construction date using a 3% inflation rate.*

5.2.4 Alt. C-3: Ferry Street Collection Expansion

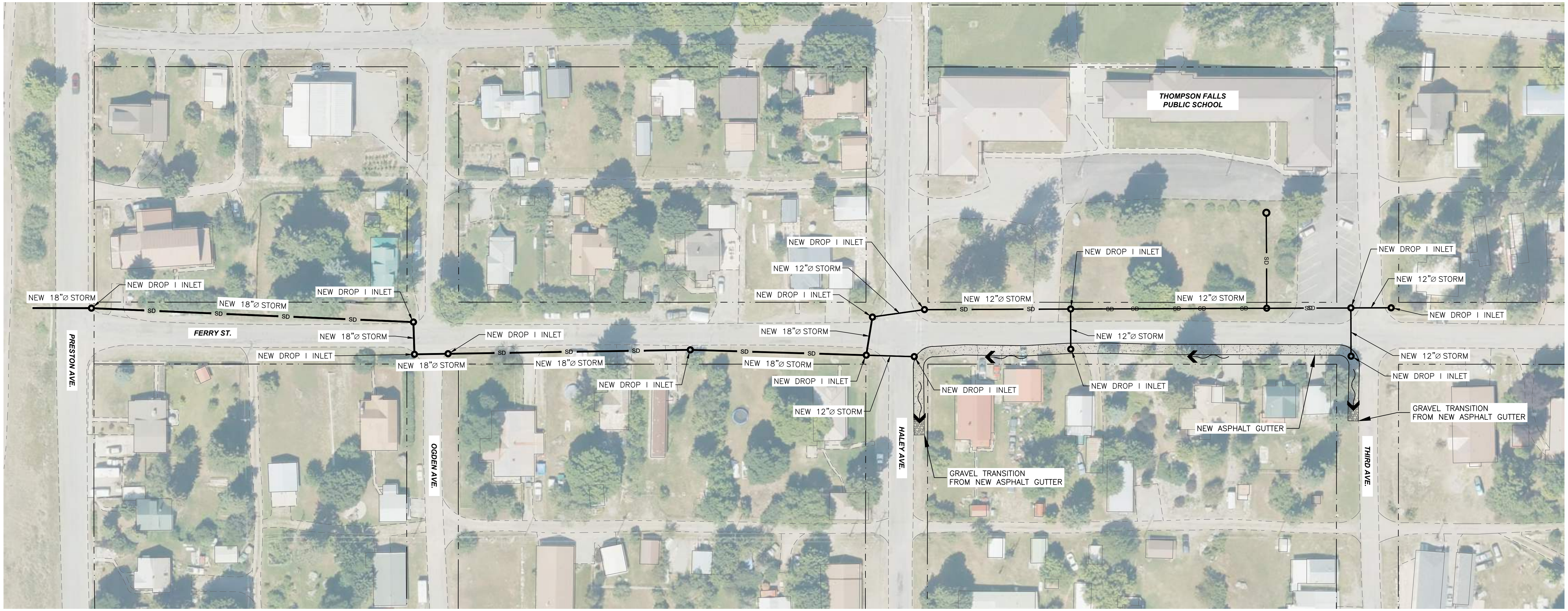
The existing stormwater collection system on the hill along Ferry Street is insufficient to convey stormwater. The collection main is undersized, and there are not enough stormwater catch basins to capture all of the design storm runoff. This alternative includes installing additional stormwater collection infrastructure and improving surface drainage in known problem areas. Specifically, new collection components would be installed on Ferry Street between Haley Avenue and Third Avenue. The downstream collection system below Haley Avenue would be replaced with appropriatly sized collection infrastructure.

Design Criteria

The stormwater collection system would be designed to recommended parameters of MDT's *Hydraulics Manual* and *DEQ-8*. The design storm was previously established in Section 3.3.1.1 for the 10-yr, 24-hr storm. Pipe and structures are assumed to be made of reinforce concrete. The Manning's n roughness coefficient is assumed to be 0.013 for all new storm drains. Other design criteria includes maximum velocity of 10 ft./s and a maximum depth to diameter ratio of 0.75. Construction of stormwater infrastructure will adopt MDT's standard hydraulic drawings as relevant.

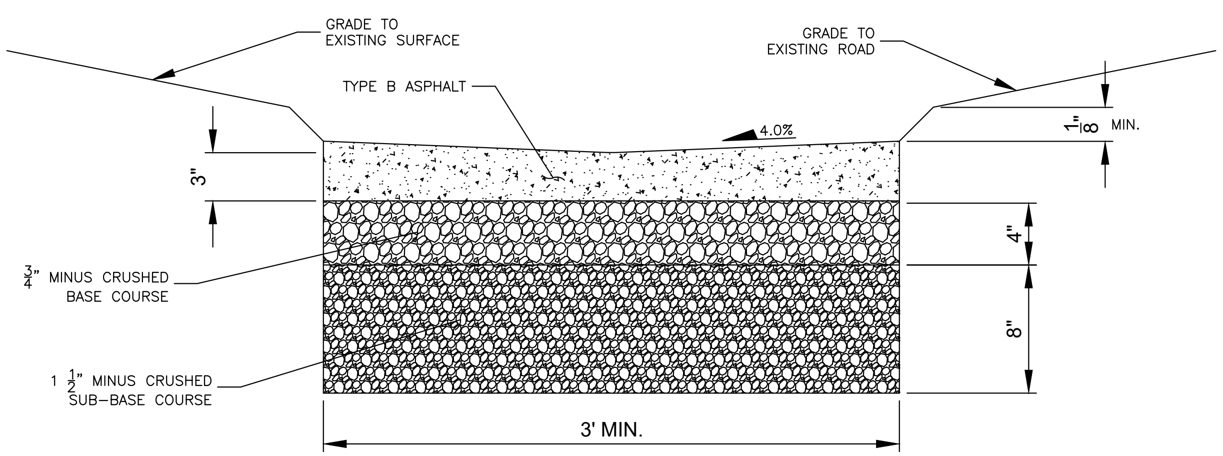
Map

A map of the proposed alternatives along Ferry Street are shown in Figure 5-1.



PLAN VIEW OF FERRY STREET STORMWATER EXPANSION

0 50 100
SCALE IN FEET



ASPHALT GUTTER DETAIL

NOT TO SCALE

GreatWest ENGINEERING

Figure 5-1: Alt. C-3 Ferry Street Stormwater Expansion

CITY OF THOMPSON FALLS
STORMWATER IMPROVEMENTS

Environmental impacts

There are some minor improvements to environmental impacts by reducing potential erosion and sediment transport downhill.

Land Requirements

All of the new infrastructure would be installed along the existing public right-of-way maintained by the City. Work across Preston Avenue may require coordination with BNSF to confirm acceptance of work in their right-of-way. The City has an existing storm sewer line and agreement to maintain the street along Preston Avenue, so acquiring a BNSF permit is likely not necessary.

Potential Construction Problems

Thompson Falls has large rock greater than 24-inches in diameter commonly found on the Hill within 5 feet of the ground surface. Proposed excavations would be done at minimal depths to avoid conflict with rock; however, cost estimates assume the use of a hydraulic rockhammer to remove any newly encountered rock. Replacement of existing pipe with larger diameter pipe are not assumed to require rockhammer because the pipe would be replaced in the existing alignment.

Construction around the school will require coordination between the Contractor and the local school administration. Ferry Street is the primary entrance and exit of the school buses for shuttling students to and from school.

Sustainability Considerations

Water and Energy Efficiency

No improvements to water or energy use are expected with the inspection of the existing collection system. The City may see some fuel saving for reduced surface restoration after storm events.

Green Infrastructure

Stormwater management during the project will include temporary erosion and sediment control including the installation and maintenance of temporary structural control measures to reduce or eliminate the erosion of soils and transportation of sediments offsite because of construction activities.

Cost Estimates

The cost estimate for expanding and upgrading the stormwater collection system along Ferry Street includes construction, contingency, engineering, and permitting fees. The proposed improvements have an estimated capital cost of $975,000. A summary of the cost estimate is presented in Table 5-3.

Table 5-3 - Alt. C-3 capital cost estimate

OPINION OF PROBABLE COST CITY OF THOMPSON FALLS ALT. C-3: Ferry Street Collection System Expansion							
#	BID ITEM	QTY	UNITS	UNIT PRICE [1]		TOTAL	
100	Exploratory Excavation	25	HR	$	500.00	$	12,500
101	Rockhammer	50	HR	$	200.00	$	10,000
102	12" RCP Class II	630	LF	$	150.00	$	94,500
103	18" RCP Class III	880	LF	$	190.00	$	167,200
104	48" Manhole with Inlet Lid	14	EA	$	11,000.00	$	154,000
105	Asphalt Valley Gutter	560	LF	$	80.00	$	44,800
106	Type A Restoration (Asphalt)	400	LF	$	60.00	$	24,000
107	Type C Restoration (Aggregate)	1,110	LF	$	15.00	$	16,650
108	Driveway Crossings	5	EA	$	2,500.00	$	12,500
Direct Construction Subtotal						**$**	**536,000**
Mobilization				10%		$	54,000
Traffic Control				1%		$	5,000
Construction Subtotal						**$**	**595,000**
Construction Cost Inflated to [2]			**2029**	**3.0%**		**$**	**710,000**
Contingency				20%		$	142,000
Permitting						$	20,000
Engineering Design						$	85,000
Engineering Construction						$	85,000
Grant Admin, Legal, & Administrative						$	26,000
TOTAL						**$**	**1,068,000**

[1] *Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.*

[2] *The ENR average Construction Cost Index is +2.60% (as of April 2026), so capital costs are projected to the anticipated construction date using a 3% inflation rate.*

In addition to the capital cost, changes in the City's annual operation and maintenance costs were estimated. Providing adequately sized stormwater infrastructure will help reduce erosion along the shoulders of road. As a result, the amount of street sweeping and gravel replacement will be reduced. Conversely, an increase in piping and structures increases annual maintenance of jetting and cleaning. There are more reductions in annual O&M than increases. A summary of the anticipated O&M costs is provided in Figure 5-5.

Table 5-4 - Alt. C-3 O&M cost estimate

OPINION OF PROBABLE ANNUAL OPERATION & MAINTENANCE COSTS CITY OF THOMPSON FALLS ALT. C-3: Ferry Street Collection System Expansion					
#	**ITEM**	**QTY**	**UNITS**	**UNIT PRICE**	**TOTAL**
1	Street Sweeping	40	MH	$ (40.00)	$ (1,600.00)
2	Gravel Replacement	3	CY	$ (250.00)	$ (750.00)
3	Additional Inlet Cleaning	10	MH	$ 40.00	$ 400.00
TOTAL					**$ (2,000.00)**

5.2.5 Alt. C-4: <u>New Culverts in East Thompson Falls</u>

This alternative includes the construction of new culverts in the eastern section of Thompson Falls to ensure proper drainage across the existing roads. Currently, stormwater must accumulate until the ponded water overtops the road. These ponding areas create areas of saturated soils and standing water which can lead to site instability and breeding habitat for pests like mosquitoes.

Design Criteria

The stormwater collection system would be designed to recommended parameters of MDT's *Hydraulics Manual* and *DEQ-8*. The design storm was previously established in Section 3.3.1.1 for the 10-yr, 24-hr storm. Pipe and structures are assumed to be made of reinforce concrete. The Manning's n roughness coefficient is assumed to be 0.025 for all new corrugated metal pipe (CMP) culverts. Other design criteria include maximum velocity of 10 ft./s and a maximum depth to diameter ratio of 0.75. Construction of stormwater infrastructure will adopt MDT's standard hydraulic drawings as relevant.

Map

A map of the proposed new culverts on the east side of the community is shown in Figure 5-2.

PLAN VIEW OF PROPOSED CULVERTS

0 125 250
SCALE IN FEET

NORTH

GreatWest ENGINEERING

Figure 5-2:
Alt. C-4 New Culverts in East Thompson Falls

CITY OF THOMPSON FALLS
STORMWATER IMPROVEMENTS

Y:\Shared\Helena Projects\1-21204-Thompson Falls On-Call 2021\TO 7 - Stormwater PER\CADD 1-21204-T07\Exhibits\1-21204-T07-New Culverts.dwg

Environmental impacts

There are no significant changes to environmental impacts by installing new culverts.

Land Requirements

All work would be done within existing public right-of-ways, and no new land is required for this alternative.

Potential Construction Problems

There are no unique construction problems associated with this alternative. Installation of new culverts would be done to utilize existing topography and avoid excessive ground cover. Since the bury depth of the new culvert would be within 4 feet of existing grade, the impact of large rock in the area is not expected to affect construction. No groundwater is present at shallow depths on the eastern side of Thompson Falls. There is limited traffic access at some streets, but the selected Contractor would be responsible for maintaining local access throughout construction.

Sustainability Considerations

Water and Energy Efficiency

No improvements to water or energy use are expected with the installation of new culverts.

Green Infrastructure

Stormwater management during the project will include temporary erosion and sediment control including the installation and maintenance of temporary structural control measures to reduce or eliminate the erosion of soils and transportation of sediments offsite because of construction activities.

Cost Estimates

The cost estimate for installing new culverts on the eastern section of Thompson Falls includes construction, contingency, and engineering. The proposed improvements have an estimated capital cost of $274,000. A summary of the cost estimate is presented in Table 5-5. An annual cleaning cost of $1,700 for additional labor to clear debris and clean out the new culverts.

Table 5-5 - Alt. C-4 capital cost estimate

OPINION OF PROBABLE COST CITY OF THOMPSON FALLS ALT. C-4: New Culverts in East Thompson Falls					
#	**BID ITEM**	**QTY**	**UNITS**	**UNIT PRICE [1]**	**TOTAL**
100	Exploratory Excavation	15	HR	$ 500.00	$ 7,500
101	Rockhammer	20	HR	$ 200.00	$ 4,000
102	12" CMP	120	LF	$ 160.00	$ 19,200
103	18" CMP	90	LF	$ 190.00	$ 17,100
104	24" CMP	300	LF	$ 220.00	$ 66,000
105	Type A Restoration (Asphalt)	510	LF	$ 60.00	$ 30,600
	Direct Construction Subtotal				**$ 144,000**
Mobilization				10%	$ 14,000
Traffic Control				1%	$ 1,000
	Construction Subtotal				**$ 159,000**
	Construction Cost Inflated to [2]		**2029**	**3.0%**	**$ 190,000**
Contingency				20%	$ 38,000
Engineering Design					$ 23,000
Engineering Construction					$ 23,000
Grant Admin, Legal, & Administrative					$ 7,000
TOTAL					**$ 281,000**

[1] Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.

[2] The ENR average Construction Cost Index is +2.60% (as of April 2026), so capital costs are projected to the anticipated construction date using a 3% inflation rate.

Table 5-6 - Alt. C-4 O&M cost estimate

OPINION OF PROBABLE ANNUAL OPERATION & MAINTENANCE COSTS CITY OF THOMPSON FALLS ALT. C-4: New Culverts in East Thompson Falls					
#	**ITEM**	**QTY**	**UNITS**	**UNIT PRICE**	**TOTAL**
1	Culvert Cleaning	42	MH	$ 40.00	$ 1,680.00
	TOTAL				**$ 1,700.00**

5.2.6 Alt. C-5: Shallow Aggregate Swales on the Hill

This collection system alternative includes the construction and installation of shallow roadside swales lined with gravel and a drain rock bottom along the edge of the existing roads. The swales will be designed such that vehicles can continue to navigate and park on the shoulder of the road. In the bottom of each swale channel, larger 3" crushed rock will be installed to slow stormwater velocities, reduce erosion, and provide water conveyance below the surface. New culverts have been proposed at street crossings, most driveways should remain accessible through the swale, however where needed culverts may be installed. Construction on the hill will be completed over four phases of approximately equal work. The proposed alternative focuses on north-south streets such as Ferry, Washington, and Jefferson Streets. Although not shown, short sections of roads that run east and west may also require some additional shoulder stabilization. Additionally, preliminary phasing was completed based on the Cities identified problem areas first, then filling in and covering the remainder of the hill in later phases. The City can adjust phasing and priority areas during final design of the alternative.

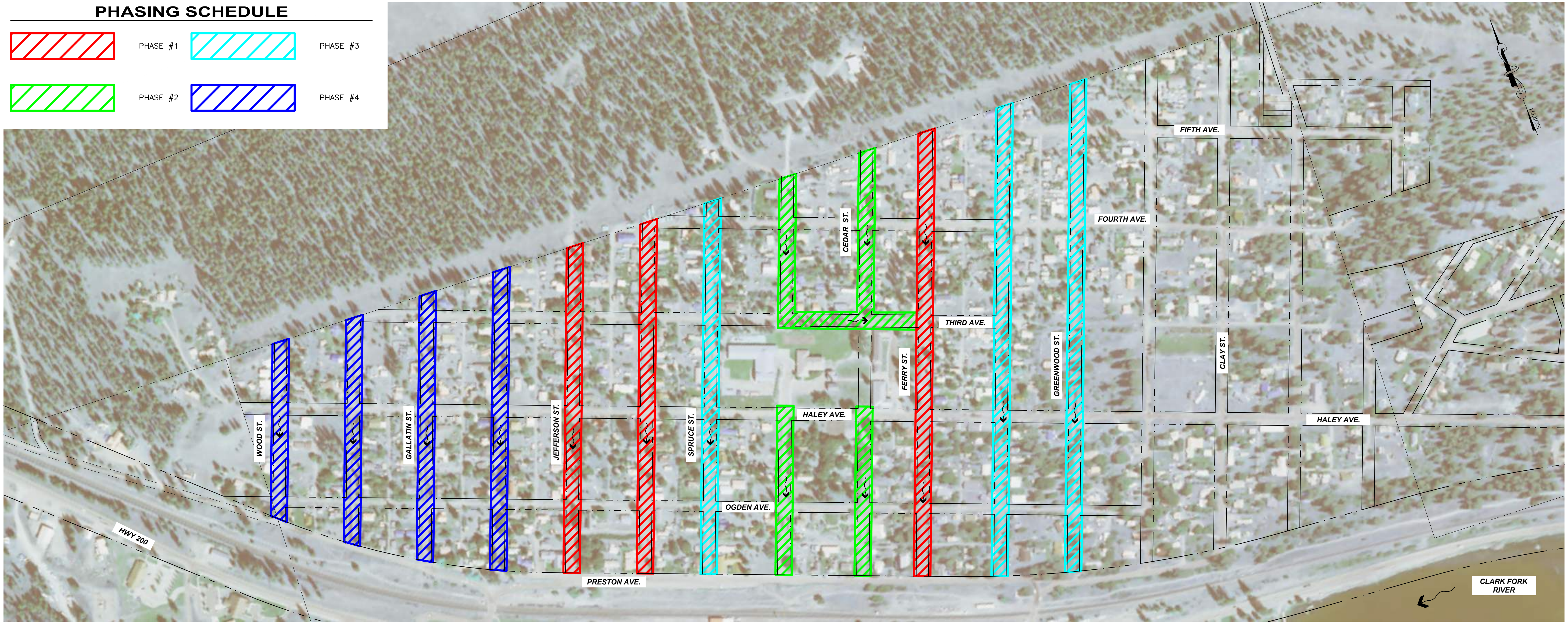
Design Criteria

The design storm and hydrologic parameters are the same as previously considered alternatives. The peak runoff is not anticipated to change substantially with the proposed alternative. The same 10-yr, 24-hr design storm is assumed.

There is no specific design criteria needed for establishing the material and alignment of the new reinforcement. The crushed rock is assumed to be washed 3-inch nominal sized material provided from the local ready-mix plant. Alternatively, an asphalt gutter is considered as an equal option for providing stronger material to the road shoulder. The construction of the asphalt gutter is based on MDT's Standard Drawing 609-00 for concrete valley gutters.

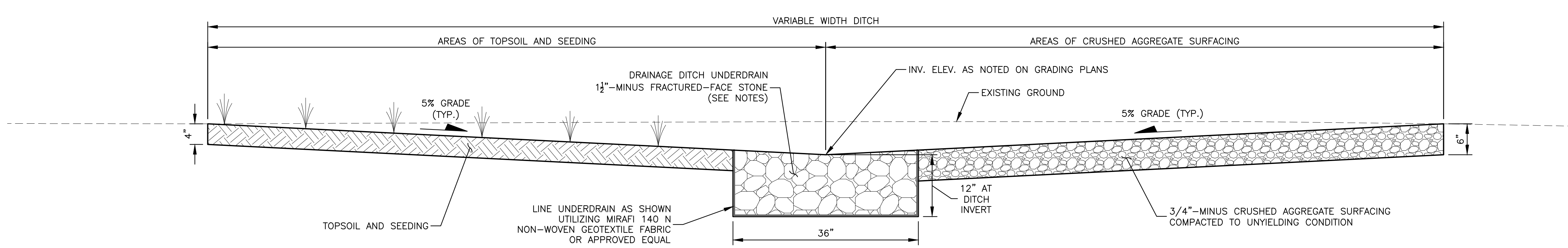
Map

A map of the proposed phasing is shown in Figure 5-3.



PLAN VIEW OF SHALLOW AGGREGATE SWALE PHASES

0 250 500
SCALE IN FEET



B
12

TYPICAL DRAINAGE DITCH SECTION DETAIL

NOT TO SCALE

Figure 5-3:
Alt. C-5 SHALLOW AGGREGATE SWALE

CITY OF THOMPSON FALLS
STORMWATER IMPROVEMENTS

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Environmental impacts

Erosion and sediment transport can greatly be reduced along the streets on the hill with shoulder stabilization. Immobilizing the surface material reduces the amount of sediment that reaches the Clark Fork River substantially.

Land Requirements

All work would be done within existing public right-of-ways, and no new land is required for this alternative.

Potential Construction Problems

The proposed alternative is to minimize the area of impact during construction. The proposed alternative requires minimal excavation which avoids the potential of excavation in areas of large rocks. Additionally, the reduced footprint minimizes the likelihood of conflict with individual residences. Although minimal construction problems are anticipated the selected Contractor will have to coordinate with local residents in order to maintain private access.

Sustainability Considerations

Water and Energy Efficiency

The City would be able to save fuel costs associated with erosion on the Hill after large storm events. The City currently performs street sweeping and replaces gravel shouldering along several streets on the Hill after stormwater runoff erodes gravel shouldering and driveways. Stabilizing the shoulder with immobile material will greatly reduce the fuel cost of running equipment and purchasing replacement aggregate.

Green Infrastructure

Stormwater management during the project will include temporary erosion and sediment control including the installation and maintenance of temporary structural control measures to reduce or eliminate the erosion of soils and transportation of sediments offsite because of construction activities.

Cost Estimates

The cost estimate of constructing a new shoulder includes construction, contingency, and engineering. Only the first phase of this project is presented. The proposed alternative has a capital cost estimate of $2.2 million. Additionally, an annual O&M decrease is estimated at $15,400 per phase. The capital cost breakdown is shown in Table 5-7, and the annual O&M is shown in Table 5-8.

Table 5-7 - Alt. C-5 capital cost estimate

OPINION OF PROBABLE COST CITY OF THOMPSON FALLS ALT. C-5: Shoulder Stabilization (Phase 1)					
#	**BID ITEM**	**QTY**	**UNITS**	**UNIT PRICE [1]**	**TOTAL**
100	Exploratory Excavation	10	HR	$ 500.00	$ 5,000
101	Asphalt Gutter/Crushed Rock Shoulder	530	LF	$ 80.00	$ 42,400
102	Driveway Crossing	75	LF	$ 2,500.00	$ 187,500
103	Shallow Swale w/ drain rock	9,300	LF	$ 100.00	$ 930,000
104	12" CMP Culverts	12	EA	$ 8,375.00	$ 100,500
105	18" CMP Culverts	8	EA	$ 9,375.00	$ 75,000
Direct Construction Subtotal					**$ 1,340,000**
Mobilization				$ 134,000	$ 122,000
Traffic Control				$ 13,000	$ 12,000
Construction Subtotal					**$ 1,487,000**
Construction Cost Inflated to [2]			**2029**	**3.0%**	**$ 1,614,000**
Contingency				20%	$ 323,000
Engineering Design					$ 107,000
Engineering Construction					$ 107,000
Grant Admin, Legal, & Administrative					$ 64,000
$ 2,409,000					**$ 2,409,000**

[1] Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.

[2] The ENR average Construction Cost Index is +2.60% (as of April 2026), so capital costs are projected to the anticipated construction date using a 3% inflation rate.

Table 5-8 - Alt. C-5 O&M cost estimate

OPINION OF PROBABLE ANNUAL OPERATION & MAINTENANCE COSTS CITY OF THOMPSON FALLS ALT. C-5: Shoulder Stabilization (Phase 1)					
#	**ITEM**	**QTY**	**UNITS**	**UNIT PRICE**	**TOTAL**

1	Street Sweeping	160	MH	$ (40.00)	$ (6,400.00)
2	Gravel Replacement	39	CY	$ (250.00)	$ (9,750.00)
	TOTAL				**$ (16,200.00)**

5.2.7 Alt. C-6: New Storm Sewer Collection System

This collection system alternative includes the construction and installation of a completely new storm sewer for the northwest portion of the City. The system would consist of new inlet structures at each intersection, 48" or 60" concrete manholes and reinforced concrete pipe (RCP) running down each street. The new storm sewers would connect to the existing culverts under Preston Ave. and into the existing ditch maintained by the BNSF Railroad to minimize permitting and maintain existing flow paths. In addition to below ground infrastructure, new roadside ditches would need to be constructed to capture and convey water off the roadways and into inlets. An option for a new stormwater detention pond has been included to be installed west of Ferry Street on School property if storage or treatment are desired. This alternative was deemed not financially feasible, and could not provide a positive benefit to cost ratio. As such, this alternative will not be included in the alternatives comparison.

Design Criteria

If conditions change and a new storm sewer is considered for the city, the design storm and hydrologic parameters are the same as previously considered alternatives. The peak runoff is not anticipated to change substantially with the proposed alternative. The same 10-yr, 24-hr design storm is assumed.

The stormwater collection system would be designed to the recommended parameters of MDT's *Hydraulics Manual* and *DEQ-8*. Pipe and structures are assumed to be made of reinforce concrete. The Manning's n roughness coefficient is assumed to be 0.025 for all new corrugated metal pipe (CMP) culverts. Other design criteria include maximum velocity of 10 ft./s and a maximum depth to diameter ratio of 0.75. Construction of stormwater infrastructure will adopt MDT's standard hydraulic drawings as relevant.

Map

A map of the proposed phasing is shown in Figure 5-4.

PLAN VIEW OF TOWN WIDE COLLECTION SYSTEM

0 250 500
SCALE IN FEET

NORTH

Figure 5-4
Alt. C-6 New Storm Sewer Collection System

CITY OF THOMPSON FALLS
STORMWATER IMPROVEMENTS

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Y:\Shared\Helena Projects\1-21204-Thompson Falls On-Call 2021\TO 7 - Stormwater PER\CADD 1-21204-T07\Exhibits\1-21204-T07-Figure-5-4 Alt C6.dwg

Environmental impacts

Erosion and sediment transport can greatly be reduced along the streets on the hill and standing water can be minimized with a new storm sewer system. Capturing and conveying stormwater quickly can reduce surface velocities which reduces the amount of sediment that can be mobilized and reaches the Clark Fork River substantially.

Land Requirements

All work would be done within existing public right-of-ways, and no new land is required for this alternative.

Potential Construction Problems

The proposed alternative will require significant construction and ground disturbance along streets. As experienced during recent water and sewer projects in the area, Thompson Falls has very rocky ground that will likely require rock hammering. The selected Contractor will have to plan for difficult ground conditions to avoid work stoppage and must coordinate with local residents in order to maintain private access. Additionally, BNSF permits may be needed where connection to existing culverts is not feasible and new outfalls onto BNSF land may be needed.

Sustainability Considerations

Water and Energy Efficiency

The City would be able to save fuel costs associated with street sweeping erosion on the hill after large storm events. The City currently performs street sweeping and replaces gravel shouldering along several streets on the hill after stormwater runoff erodes gravel shouldering and driveways. A new storm sewer will significantly reduce sediment transport and will greatly reduce the fuel cost of running equipment and purchasing replacement aggregate.

Green Infrastructure

Stormwater management during the project will include temporary erosion and sediment control including the installation and maintenance of temporary structural control measures to reduce or eliminate the erosion of soils and transportation of sediments offsite because of construction activities.

Cost Estimates

The cost estimate of constructing a new storm sewer includes construction, contingency, and engineering. The proposed alternative has a capital cost estimate of $20.6 million. Additionally, an annual O&M decrease is estimated at $51,400. The capital cost breakdown is shown in Table 5-9, and the annual O&M is shown in Table 5-10.

Table 5-9 - Alt. C-6 capital cost estimate

OPINION OF PROBABLE COST CITY OF THOMPSON FALLS ALT. C-6: New Storm Sewer Collection System – Phase 1					
#	**BID ITEM**	**QTY**	**UNITS**	**UNIT PRICE [1]**	**TOTAL**
100	Exploratory Excavation	3	HR	$ 500.00	$ 1,250
101	Roadside Ditch	3,334	LF	$ 60.00	$ 200,063
102	12" RCP	4,984	LF	$ 150.00	$ 747,525
103	18" RCP	1,685	LF	$ 190.00	$ 320,198
104	Storm Inlets	36	EA	$ 5,000.00	$ 177,500
105	48" Diameter Storm Manhole	11	EA	$ 11,000.00	$ 121,000
106	60" Diameter Storm Manhole	6	EA	$ 16,500.00	$ 90,750
107	Connect to Existing Storm Sewer	3	EA	$ 5,000.00	$ 15,000
108	New Storm Detention Pond	1	LS	$ 165,000.00	$ 165,000
109	Utility Crossing	15	EA	$ 5,000.00	$ 75,000
110	Rockhammer	225	HR	$ 250.00	$ 56,250
111	Type A Surface Restoration	6,669	LF	$ 60.00	$ 400,125
112	Type C Surface Restoration	1,250	LF	$ 15.00	$ 18,750
Direct Construction Subtotal					**$ 2,388,000**
Mobilization				10%	$ 239,000
Traffic Control				1%	$ 24,000
Construction Subtotal					**$ 2,651,000**
Construction Cost Inflated to [2]			**2029**	**3.0%**	**$ 3,165,000**
Contingency				20%	$ 633,000
Engineering Design					$ 190,000
Engineering Construction					$ 190,000
Grant Admin, Legal, & Administrative					$ 114,000

$	2,409,000	$	4,292,000

[1] *Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.*

[2] *The ENR average Construction Cost Index is +2.60% (as of April 2026), so capital costs are projected to the anticipated construction date using a 3% inflation rate.*

Table 5-10 - Alt. C-6 O&M cost estimate

OPINION OF PROBABLE ANNUAL OPERATION & MAINTENANCE COSTS CITY OF THOMPSON FALLS ALT. C-6: New Storm Sewer Collection System					
#	ITEM	QTY	UNITS	UNIT PRICE	TOTAL
1	Street Sweeping	160	MH	$ (40.00)	$ (6,400.00)
2	Gravel Replacement	45	CY	$ (250.00)	$ (11,250.00)
3	Inlet Cleaning and Vac Truck	7	EA	$ 300.00	$ 2,100.00
	TOTAL				**$ (15,600.00)**

5.3 STORAGE ALTERNATIVES

In addition to conveyance of stormwater to existing infrastructure, several storage alternatives were considered. The alternatives developed include the no action alternative, underground chambers for Ferry Street, and a complete retention pond for the eastern side of the community. These alternatives were completed as supplements to the other alternatives and cannot be implemented independently. There is currently inadequate conveyance in order to capture the stormwater runoff that would be stored in the following alternatives.

5.3.1 Alt. S-0: No Action

The "no action" alternative represents the City maintaining its current operation of the stormwater system. Since the City does not utilize any stormwater storage components, this alternative provides a basis to measure benefits of installing new infrastructure.

Design Criteria

There is no design criteria required for the "no action" alternative for storage components.

Map

There are currently no stormwater storage infrastructure installed in Thompson Falls that is maintained by the City.

Environmental impacts

There are no changes to environmental impacts from the “no action” alternative.

Land Requirements

No land or access needs to be obtained with this alternative.

Potential Construction Problems

There are no potential construction problems with this alternative.

Sustainability Considerations

Water and Energy Efficiency

Since there are no existing storage systems installed, there is no current water or energy demand. The no action alternative does not affect water or energy demand.

Green Infrastructure

Stormwater management during the project will include temporary erosion and sediment control including the installation and maintenance of temporary structural control measures to reduce or eliminate the erosion of soils and transportation of sediments offsite because of construction activities.

Cost Estimates

There are no capital costs associated with this alternative.

5.3.2 Alt. S-1: Ferry Street Infiltration Chambers

In order to reduce the peak runoff flow from Ferry Street, an infiltration field using manufactured infiltration chambers to discharge a portion of stormwater into the subsurface. The proposed infiltration chambers would be installed on property owned by the local school district along Ferry Street. Stormwater would be captured from nearby stormwater catch basins and directed to the infiltration chambers.

The project would include the expansion of the stormwater infrastructure on Ferry Street from Haley Avenue to Third Avenue. A portion of the runoff from the area above Third Avenue would be diverted to the infiltration field and the remainder to the existing stormwater collection system. The reduction in peak flow would allow for the existing stormwater piping below Haley Avenue to be unaltered.

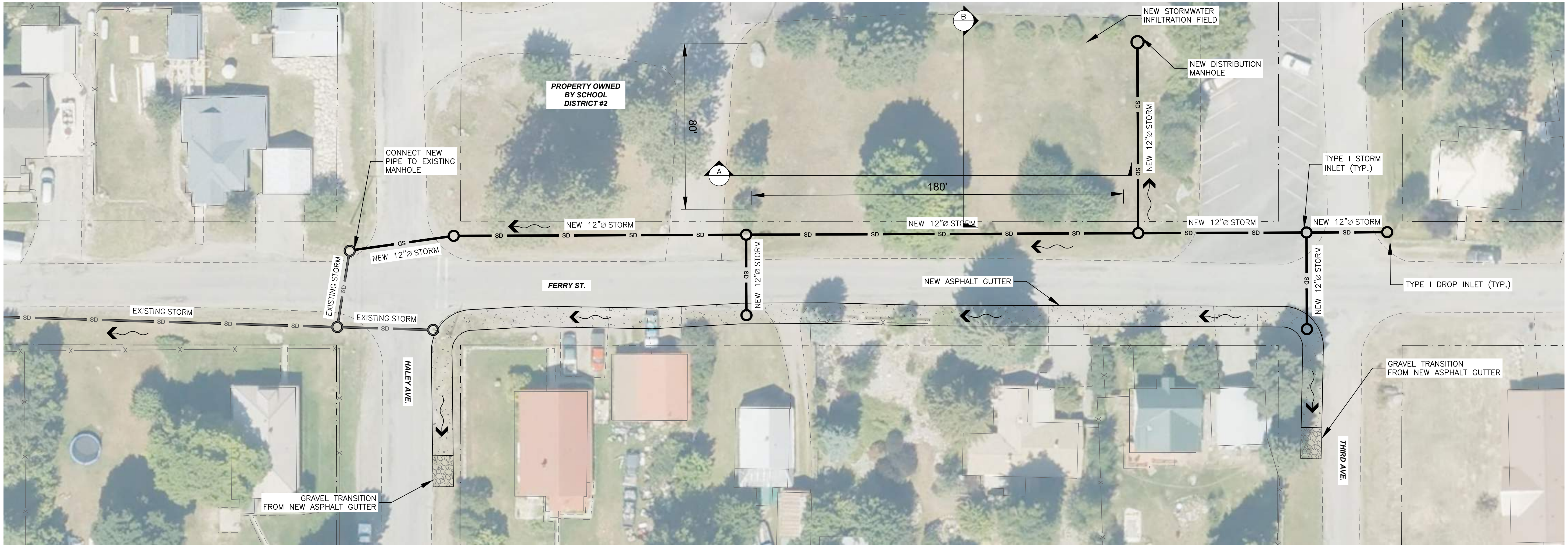
Design Criteria

The stormwater collection system would be designed to recommended parameters of MDT's *Hydraulics Manual* and *DEQ-8*. The design storm was previously established in Section 3.3.1.1 for the 10-yr, 24-hr storm. Pipe and structures are assumed to be made of reinforce concrete. The Manning's n roughness coefficient is assumed to be 0.013 for all new storm drains. Other design criteria includes maximum velocity of 10 ft./s and a maximum depth to diameter ratio of 0.75. Construction of stormwater infrastructure will adopt MDT's standard hydraulic drawings as relevant.

The infiltration chambers used during preliminary design are StormTech SC 740 as manufactured by Advanced Drainage Systems (ADS). Additionally, fill stone is assumed to have 40% void space. The area utilized is approximately 80 feet by 180 feet which results in a maximum storage capacity of 2,287 cubic feet or 305 gallons. Based on SCS custom soil reports and recommended values built into SSA, a constant exfiltration rate of 2.41 inches per hour was used.

Map

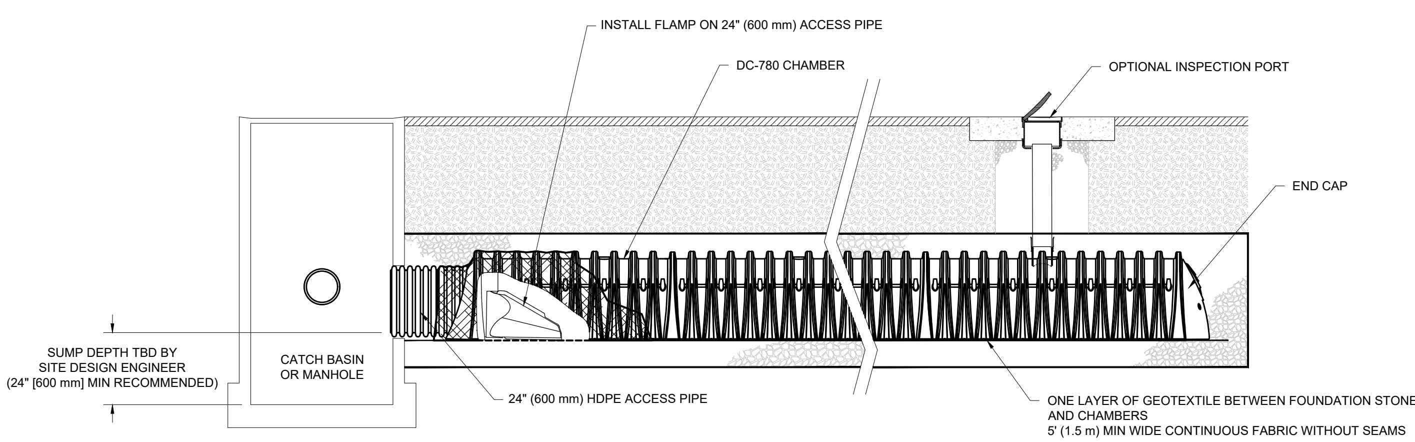
A layout of the proposed infiltration chambers on Ferry Street are shown in Figure 5-5.



PLAN VIEW OF NEW FERRY STREET STORM WITH INFILTRATION FIELD

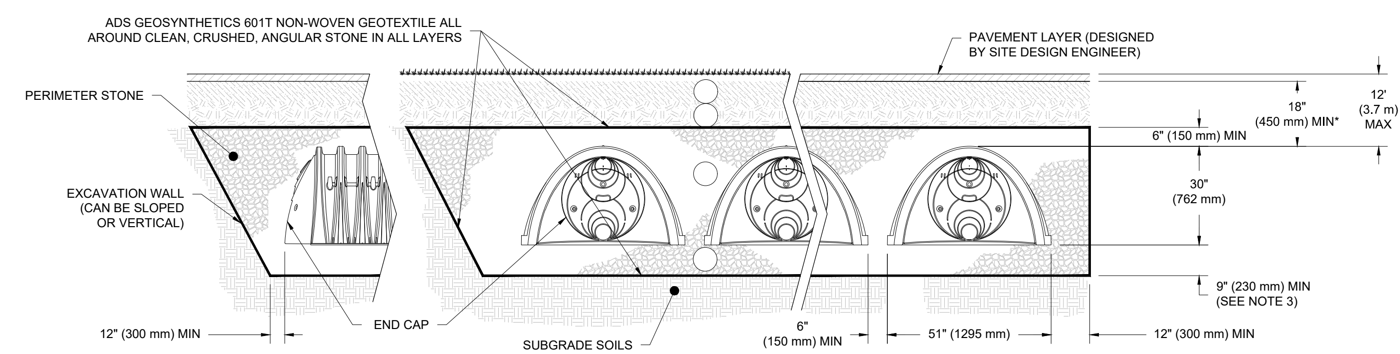
0 25 50
SCALE IN FEET

NORTH



A **INFILTRATOR CROSS SECTION - LONGITUDINAL**

NOT TO SCALE



B **INFILTRATOR CROSS SECTION - TRANSVERSE**

NOT TO SCALE

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Figure 5-5:
Alt. S-1 Ferry Street Infiltration Field

CITY OF THOMPSON FALLS
STORMWATER IMPROVEMENTS

Environmental impacts

The discharge of stormwater runoff into the subsurface provides several benefits to the local environment. The primary pollutant for stormwater in the community is sediment and gravel from erosion along the gravel edges and gravel roads. The proposed alternative would provide a catch basin to immobilize sediment before it can reach the Clark Fork River. Additionally, less common pollutants like oils and other chemicals that can come from paved surfaces would be sequestered into the subsurface. This discharge to the ground provides protection to the receiving Clark Fork River.

Land Requirements

This alternative requires the City to acquire or reach a permanent easement from the local school district. The preliminary area for the infiltration gallery is approximately 0.33 acres. During the City's recent wastewater project, the fair market price for bare land in City limits is $74,711.66 per acre. At 0.33 acres, the cost would be $24,654.85. For planning purposes, a value of $25,000 will be included in the project cost. All other piping and new infrastructure will be installed within the existing right-of-way.

Potential Construction Problems

There are several tall trees and fruit trees in the proposed area for the infiltration chambers. This vegetation will likely need to be removed in order to prevent root growth from clogging the chambers and distribution piping. Excavation depth should be minimal throughout the project area; however, large rock is present in Thompson Falls which requires the use of hydraulic rockhammer. A line item for some demolition and excavation utilizing a rockhammer is included in the cost estimates.

Sustainability Considerations

Water and Energy Efficiency

The proposed improvements will not require any water or energy for typical operation of the proposed system. There will need to be periodic jetting of stormwater collection lines and cleaning of stormwater structure of built-up sediment. This maintenance will require the City to utilize their existing equipment to clear the lines and dispose of the removed debris.

Green Infrastructure

Stormwater management during the project will include temporary erosion and sediment control including the installation and maintenance of temporary structural control measures to reduce or eliminate the erosion of soils and transportation of sediments offsite because of construction activities.

Sediment will be trapped in the distribution manhole to the infiltration chambers. Additionally, the stormwater will be directly discharged into the groundwater which keeps the stormwater within the aquifer.

Cost Estimates

The cost estimate of installing new infiltration chambers includes construction, contingency, and engineering. Only the first phase of this project is presented. The proposed alternative has a capital cost estimate of $1.0 million. The capital cost breakdown is shown in Table 5-11.

Table 5-11 - Alt. S-1 capital cost estimate

OPINION OF PROBABLE COST CITY OF THOMPSON FALLS ALT. S-1: Ferry Street Infiltration Field					
#	BID ITEM	QTY	UNITS	UNIT PRICE [1]	TOTAL
100	Exploratory Excavation	15	HR	$ 500.00	$ 7,500
101	Rockhammer	25	HR	$ 200.00	$ 5,000
102	12" RCP Class II	600	LF	$ 135.00	$ 81,000
103	48" Manhole with Inlet Lid	7	EA	$ 10,000.00	$ 70,000
104	Connect to Existing	1	EA	$ 15,000.00	$ 15,000
105	Infiltration Chambers	3,060	LF	$ 100.00	$ 306,000
106	Reseed and Restore Site	1	LS	$ 1,500.00	$ 1,500
107	Asphalt Valley Gutter	560	LF	$ 80.00	$ 44,800
108	Type A Restoration (Asphalt)	150	LF	$ 60.00	$ 9,000
109	Type C Restoration (Lawn)	450	LF	$ 20.00	$ 9,000
Direct Construction Subtotal					**$ 549,000**
Mobilization				10%	$ 55,000
Traffic Control				1%	$ 5,000

Construction Subtotal		**$**	**609,000**
Construction Cost Inflated to [2] 2029	**3.0%**	**$**	**727,000**
Contingency	20%	$	145,000
Land Acquisition		$	25,000
Engineering Design		$	44,000
Engineering Construction		$	44,000
Grant Admin, Legal, & Administrative		$	26,000
TOTAL		**$**	**1,011,000**

[1] *Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.*

[2] *The ENR average Construction Cost Index is +2.60% (as of April 2026), so capital costs are projected to the anticipated construction date using a 3% inflation rate.*

In addition to the capital cost, changes in the City's annual operation and maintenance costs were estimated. Providing adequately sized stormwater infrastructure will help reduce erosion along the shoulders of road. As a result, the amount of street sweeping and gravel replacement will be reduced. Conversely, an increase in piping and structures increases annual maintenance of jetting and cleaning. There are more reductions in annual O&M than increases, so a total decrease to O&M is estimated to be $3,600. A summary of the anticipated O&M costs is provided in Table 5-12Figure 5-5.

Table 5-12 - Alt. S-1 O&M cost estimate

OPINION OF PROBABLE ANNUAL OPERATION & MAINTENANCE COSTS CITY OF THOMPSON FALLS ALT. S-1: Ferry Street Infiltration Field							
#	**ITEM**	**QTY**	**UNITS**	**UNIT PRICE**		**TOTAL**	
1	Clean Captured Sediment	24	MH	$	40.00	$	960.00
2	Gravel Replacement	12	CY	$	(250.00)	$	(3,000.00)
3	Street Sweeping	40	MH	$	(40.00)	$	(1,600.00)
	TOTAL					**$**	**(3,600.00)**

5.3.3 Alt. S-2: <u>Retention Pond for East Thompson Falls</u>

The second developed alternative is to construct a complete retention pond for the eastern developed area in Thompson Falls. This pond would be constructed on land owned by the City at the existing low point for that area. There was not a substantial difference in cost or size when sizing a detention pond. The final sizing and proposed alternative utilized a total retention design to maximize treatment and reduce pollution reaching the Clark Fork River.

Design Criteria

The stormwater collection system would be designed to the recommended parameters of MDT's *Hydraulics Manual* and *DEQ-8*. The design storm was previously established in Section 3.3.1.1 for the 10-yr, 24-hr storm. The stormwater runoff generally includes areas east of Church Street.

Map

A map showing the proposed retention pond is shown below in Figure 5-6.

PLAN VIEW OF PROPOSED CULVERTS AND RETENION POND

0 125 250
SCALE IN FEET

NORTH

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Figure 5-6:
Alt. S-2 New Retention Pond

CITY OF THOMPSON FALLS
STORMWATER IMPROVEMENTS

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Environmental impacts

The proposed alternative includes complete retention which will prevent any of the urban runoff from this area from reaching the Clark Fork River. The complete capture prevents any pollutants from the watershed from reaching the main channel. Pollutants captured included sediment, suspended solids, and dissolved contaminants.

Land Requirements

The proposed project would occur in public right-of-ways and on land owned by the City. No additional land is required for this alternative.

Potential Construction Problems

A preliminary cut and fill balance for earthwork was completed for this alternative. There is adequate earth available on site to eliminate the need for import material. Large rock is prevalent in the City of Thompson Falls; however, the proposed project area has been shown to be less affected than the remainder of the community. Additionally, excavation will not be planned for depths more than five feet.

Sustainability Considerations

Water and Energy Efficiency

There is no water or energy requirements to operate the proposed retention pond. There may be occasional cleaning of sediment from the pond and piping. This would require a nominal amount of water and energy to operate the City's equipment.

Green Infrastructure

Stormwater management during the project will include temporary erosion and sediment control including the installation and maintenance of temporary structural control measures to reduce or eliminate the erosion of soils and transportation of sediments offsite because of construction activities.

Sediment will be retained in the new storage pond. Additionally, the stormwater will be directly discharged into the groundwater which keeps the stormwater within the aquifer.

Cost Estimates

The cost estimate of a new stormwater storage pond includes construction, contingency, and engineering. The proposed alternative has a capital cost estimate of $324,000. Additionally, an annual O&M increase is estimated at $5,900. The capital cost breakdown is shown in Table 5-13, and the annual O&M is shown in Table 5-14.

Table 5-13 - Alt. S-2 capital cost estimate

OPINION OF PROBABLE COST CITY OF THOMPSON FALLS ALT. S-2: New Retention Pond in East Thompson Falls					
#	**BID ITEM**	**QTY**	**UNITS**	**UNIT PRICE [1]**	**TOTAL**
100	Exploratory Excavation	10	HR	$ 500.00	$ 5,000
101	Rockhammer	25	HR	$ 200.00	$ 5,000
102	Earthwork	10,000	CY	$ 10.00	$ 100,000
103	Inlet Structure	1	LS	$ 20,000.00	$ 20,000
104	Emergency Overflow	1	LS	$ 15,000.00	$ 15,000
105	Type B Restoration (Aggregate)	1,100	LF	$ 20.00	$ 22,000
106	Reseed and Restore Site	1	LS	$ 5,000.00	$ 5,000
Direct Construction Subtotal					**$ 172,000**
Mobilization				10%	$ 17,000
Traffic Control				1%	$ 2,000
Construction Subtotal					**$ 191,000**
Construction Cost Inflated to [2]			**2028**	**3.0%**	**$ 228,000**
Contingency				20%	$ 46,000
Engineering Design					$ 21,000
Engineering Construction					$ 21,000
Grant Admin, Legal, & Administrative					$ 8,000
TOTAL					**$ 324,000**

[1] *Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.*

[2] *The ENR average Construction Cost Index is +2.60% (as of April 2026), so capital costs are projected to the anticipated construction date using a 3% inflation rate.*

Table 5-14 - Alt. S-2 O&M cost estimate

OPINION OF PROBABLE ANNUAL OPERATION & MAINTENANCE COSTS CITY OF THOMPSON FALLS ALT. S-2: New Retention Pond in East Thompson Falls					
#	ITEM	QTY	UNITS	UNIT PRICE	TOTAL
1	Mowing	96	HR	$ 55.00	$ 5,280.00
2	Cleaning of Sediment	1	LS	$ 608.00	$ 608.00
	TOTAL				**$ 5,900.00**

6.0 SELECTION OF AN ALTERNATIVE

Each of the technically feasible alternatives considered meet the design criteria and applicable regulations identified in the alternative description. This section will examine advantages and disadvantages of each in terms of life cycle costs, operational and maintenance considerations, permitting concerns, social impacts, environmental impacts, and other non-monetary considerations.

6.1 LIFE CYCLE COST ANALYSIS

The cost of extensive capital improvements to meet minimum health and safety requirements, applicable regulations, and environmental impacts is a concern for communities with limited budgets and resources. Some alternatives may have a substantial capital cost but require little O&M, or the converse can be true. In order to provide an accurate comparison, a life cycle cost analysis was completed for each considered alternative using net present values.

The life cycle costs included in the analysis are capital cost, 20 year salvage value, and annual operation and maintenance costs. Components of each alternative were depreciated using a straight-line depreciation assuming a 20 year design period. To calculate a net present value, the “real” discount rate from Appendix C of OMB A-94 was used, which is currently 2.0% for a 20 year design period.

6.2 RANKING CRITERIA

A matrix to compare each alternative objectively against the other will be developed to select the preferred alternative. Each alternative will be given a score ranging from 0 to 10 for a number of criteria, with 0 representing a negative impact and 10 representing the maximum benefit to the community. The alternatives will begin with a score of 5 for each criterion unless otherwise described, and then the score will be adjusted up or down relative to the benefit of the particular alternative in relation to the other alternatives.

In addition to scoring each alternative, the criteria themselves with be weighted in relation to one another. Weighting factors ranging from 1 to 10 will be used to give greater importance to items such as cost. This is appropriate, as often times higher investments are made to overcome many other problems such as reliability or to mitigate problems with technical feasibility or environmental concerns. The maximum possible score in this analysis is 400 points.

6.2.1 Life Cycle Costs

The cost of extensive capital improvements to meet minimum health and safety requirements, applicable regulations, and environmental impacts is a great concern to small communities with limited budgets and resources. Life cycle costs also include anticipated increases to ongoing O&M costs.

Accordingly, this criterion will be provided with the maximum weighting factor of 10. This represents over 30% of the total weight, and Public Opinion is closely tied to cost also, giving the cost for each alternative even more weight.

In addition to providing the maximum emphasis on costs, a method must be utilized to provide an objective comparison of costs for each alternative relative to one another and not just an overall comparison. Given a range of costs for various alternatives, the relative cost of any alternative can be determined using the lowest cost and the highest cost from the range of costs and the following equation.

$$5 \times [(\text{Lowest Cost}) / (\text{Cost}) + (\text{Highest Cost} - \text{Cost}) / (\text{Highest Cost})]$$

For example, if a number of alternatives were compared having costs of $500,000, $1,000,000 and $2,000,000, the above equation would provide scores of 8.8, 5.0, and 1.3, respectively. The utilization of a formula to score the 20 year life cycle costs in the matrix eliminates any subjectivity and provides a consistent, relative comparison of costs.

A summary of the life cycle costs for each alternative is shown below in Table 6-1.

Table 6-1 - Life cycle cost analysis

Alternative	Capital Cost	Annual Increase to O&M	Present Worth of O&M Increase[1,2]	20 year Salvage Value[1,3]	Present Worth of Salvage[2]	Net Present Value
Collection Alternatives						
C-0	$ -	$ -	$ -	$ -	$ -	$ -
C-1	$ 133,000	$ -	$ -	$ -	$ -	$ 133,000
C-2	$ 826,000	$ -	$ -	$ 162,000	$ 109,021	$ 716,979

C-3	$ 1,068,000	$ (2,000)	$ (32,703)	$ 196,000	$ 131,902	$ 903,395
C-4	$ 281,000	$ 1,700	$ 27,797	$ 50,000	$ 33,649	$ 275,149
C-5	$ 2,409,000	$ (16,200)	$ (264,893)	$ -	$ -	$ 2,144,107
C-6	$ 4,292,000	$ (15,600)	$ (255,082)	$ -	$ -	$ 4,308,286
Storage Alternatives						
S-0	$ -	$ -	$ -	$ -	$ -	$ -
S-1	$ 1,011,000	$ (3,600)	$ (58,865)	$ 76,000	$ 51,146	$ 900,989
S-2	$ 324,000	$ 5,900	$ 96,473	$ 10,000	$ 6,730	$ 413,744

[1] *Based on a 20-year design period.*
[2] *Based on the "real" discount rate from Appendix C of OMB A-94 which is currently 2.0% for a 20- year design period.*
[3] *Based on straight line depreciation over a 20-year design period.*

6.2.2 Operational and Maintenance Considerations

Operation and maintenance is an important issue when considering any large capital improvements within a small community. The costs for O&M associated with the alternatives are included in the 20 year life cycle costs compared under the financial feasibility, but there are other considerations that must be weighed for the O&M associated with each alternative.

The City has limited resources and manpower, and some alternatives may have O&M requirements that drastically tax those limited resources creating deficiencies in other areas. City personnel also have a much more intrinsic knowledge of the system than the average resident or even Council members. Priorities identified by the operators to facilitate the efficient operation of the system must be given some weight. Generally, no change in O&M is represented by a score of 5.

This criterion will be provided with a weighting factor of 6.

6.2.3 Permitting Issues

Some alternatives may encounter permitting issues that would significantly delay the project and/or result in additional expenses for the community. An example of required permitting is acquiring permits from BNSF or MDT to work within their right-of-ways. Consideration for these concerns will be given under this criterion. For scoring all alternatives begin with a score of 10 points and then have points deducted for the number and complexity of permitting.

This criterion will be provided with a weighting factor of 3.

6.2.4 Social Impacts

Social impacts will be considered in the final alternative selection as a project poorly supported by the community will have a limited chance of success. Efforts such as public hearings are ways to identify public opinion and perceptions. Costs are always a concern with consumers, but the health and safety of their families is just as important. Communication directly with the public and through City staff is used to determine support or disapproval. All alternatives begin with a score of 5 and gain or lose points based on feedback from the community.

This criterion will be provided with a weighting factor of 7.

6.2.5 Environmental Impacts

Environmental impacts for each alternative, whether detrimental or beneficial, need to be considered in the final selection of a preferred alternative. There is limited environmental impact expected with the developed alternatives. Since there are currently no regulatory requirements for stormwater treatment, pollutant reduction was not prioritized in the project. All alternatives begin with a score of 5, and reduction in pollutants results in additional points. Conversely, projects that increase the discharge of pollutants into the environment will receive a reduced score. This criterion focuses on long-term impacts, and any temporary disturbances from construction are assumed to be negligible or completely mitigated.

This criterion will be provided with a weighting factor of 4.

6.2.6 Traffic Impacts

The stormwater improvements have a direct impact on traffic and access in the community. Proposed stormwater improvements are generally to be complete along existing paved roads where driveways and parking for private property exists. Projects that reduce parking or ease of access are considered less desirable by the community. Additionally, projects that do not reduce erosion or transport of gravel from driveways are given lower scores. All projects begin with a score of 5. The increase or decrease from the baseline is decided by two factors: duration of impact and severity of impact. Projects that only require a temporary construction impact to traffic are deducted one point. Projects that remove a hazard from traffic areas receive additional points for the amount of risk reduction.

This criterion will be provided with a weighting factor of 5.

6.2.7 Land Acquisition

Issues with land acquisition often supersede the black-and-white world of engineering. This ranking category will include the feasibility of acquiring sufficient land in terms of lease, right-of-way, and/or land purchases. Although these are not strict engineering issues, problems with land acquisition can greatly impact a project's overall feasibility and require that land issues be given consideration. All alternatives begin with a score of 5. Points are given or taken based on the acreage required for the project. Alternatives gain one point for every acre of existing stormwater infrastructure that is reduced to a maximum total of ten points. For every acre that the City must acquire for an alternative, the alternative is deducted a point to a minimum total of zero points.

This criterion will be provided with a weighting factor of 5.

6.3 SCORING OF COLLECTION SYSTEM ALTERNATIVES

6.3.1 Life Cycle Costs

The previously described formula was used to determine the score for each of the collection system alternatives except for C-0. The "No Action" alternative was assigned a score of 10 because there is no cost associated. The formula utilized the remaining collection system alternatives life cycle costs for determining scores. The results are presented in the following list.

- Alternative C-0: 10
- Alternative: C-1: 9.8
- Alternative: C-2: 5.0
- Alternative: C-3: 4.6
- Alternative: C-4: 7.1
- Alternative: C-5: 2.7
- Alternative: C-6: 0.0

6.3.2 Operational and Maintenance Considerations

The amount of operation and maintenance for each alternative varies among the collection system alternatives. Since there is no change to O&M associated with Alternative C-0, a score of 5 was assigned.

Alternative C-1 is only an operation and maintenance project. Cleaning and inspecting the existing infrastructure will restore capacity; however, long-term operation and maintenance will remain the same. Since there is a substantial amount of cleaning and inspection, the alternative was assigned a score of 3.

Rehabilitation of existing infrastructure in Alternative C-2 would restore pipe and structures capacity and extend the design life. Problems such as separated joints would be resolved which prevents soil intrusion into the collection system. Since there is a minor benefit to long-term O&M, a score of 6 is assigned.

Alternative C-3 and Alternative C-4 both provide direct benefit in the reduction of expected operation and maintenance of the stormwater system. These projects specifically reduce the City's expense to sweep up loose gravel and to restore the roads' shoulders and approaches. Alternative C-3 only reduces erosion along Ferry Street; however, the first phase armored shouldering in Alternative C-5 provides a benefit to multiple streets. Since there is an extended benefit to more areas, Alternative C-5 received a score of 8, and Alternative C-3 was assigned 7.

The installation of new culverts in the eastern portion of Thompson Falls results only in a substantial increase in O&M for the City. As a result, Alternative C-4 was given a score of 2.

- Alternative C-0: 5
- Alternative C-1: 3
- Alternative C-2: 6
- Alternative C-3: 7
- Alternative C-4: 2
- Alternative C-5: 8
- Alternative: C-6: 5

6.3.3 Permitting Issues

There are no permitting requirements for no action and only inspection and cleaning alternatives. Alternatives C-0 and C-1 received the maximum scores of 10 because no permitting is required.

Alternative C-2 includes rehabilitation of the existing infrastructure. This project would require permits during construction: a stormwater pollution prevention plan (SWPPP) and potentially dewatering permits. The type and scale of permitting is dependent on the project scope and location. These permits would be required to be obtained by the selected Contractor. Since permitting may be one or two permits for construction only, Alternative C-2 received a score of 8.

Alternative C-3 includes substantial work along Ferry Street. A portion of the work is planned to be completed in Preston Avenue which is part of the existing BNSF right-of-way. Coordinating and permitting excavation and construction in the railroad's right-of-way requires substantial cost and effort. Conversely, a construction permitting is anticipated to include only a SWPPP. Since there is comprehensive permitting for design and construction, Alternative C-3 was given a score of 5.

The construction of new culverts on the eastern side of the City will only require a SWPPP for construction. Since only one construction permit is required, Alternative C-4 received a score of 9.

Alternative C-5 includes work across a wide area of the community in each phase. During the first phase, work is planned for areas near and along Preston Avenue. The City has an existing perpetual easement for maintaining a road along Preston Avenue. Completing surface improvements is not expected to require permitting to be completed through BNSF. A SWPPP is expected for construction. Since there may need to be some coordination with BNSF, the overall score of this alternative was lowered to 7.

- Alternative C-0: 10
- Alternative C-1: 10
- Alternative C-2: 8
- Alternative C-3: 5
- Alternative C-4: 9
- Alternative C-5: 7
- Alternative: C-6: 1

6.3.4 Social Impacts

The no action alternative is attractive to the community because of the low capital cost. The existing O&M for sweeping gravel and restoring the shoulders after rainstorms does not have a net present value higher than estimated capital costs for other alternatives. Since there is no direct economic benefit and a marginal benefit to public safety, saving funds for a project later is supported by the community. The no action collection system alternative was given a score of 7.

Alternative C-1 includes cleaning and inspection of the existing stormwater infrastructure. The inspection and cleaning are not considered a desirable project as capital improvement. The community expects this work to be completed as part of the City's existing budget. Although there is support to inspect and clean, the community does not want to secure additional funding for this alternative. Since there is no support for this alternative, Alternative C-1 received a score of 1.

Although cleaning and inspection is not a valuable capital project by the community, rehabilitation of existing infrastructure is a more attractive project. There has not been substantial damage or risk to public health and safety associated with aging infrastructure. Portions of the infrastructure that would be included are in areas of erosion and sediment buildup. Rehabilitation would have minor improvements to the stormwater system. Since the project addresses some of the erosion, the lower price compared to Alternative C-3 and C-5 provides some increased support; however, there minor improvement in the system lowers the score. Alternative C-2 was given a score of 4.

Expanding stormwater collection on Ferry Street will require the upsizing of downhill infrastructure. Since the existing infrastructure is in serviceable condition, the public does not support removing functioning infrastructure if there are alternatives that can be utilized with existing infrastructure. In order to capture the public's desire to minimize removing existing infrastructure, the replacement of pipe and inlets in Alternative C-3 received a 2.

There has not been any severe threat to public health and safety in the eastern portion of Thompson Falls due to stormwater. Alternative C-4 only includes installing new culverts across roads to prevent the pooling of stormwater runoff. Since there is no immediate threat to the City's population, the community does not want to spend funds on this project. Alternative C-4 was given a score of 1.

The final collection system alternative considered is improvements along the shoulder of streets on the Hill. The primary concerns of people in Thompson Falls is the movement of gravel

- Alternative C-0: 7
- Alternative C-1: 1
- Alternative C-2: 4
- Alternative C-3: 2
- Alternative C-4: 1
- Alternative C-5: 8
- Alternative: C-6: 7

6.3.5 Environmental Impacts

There is no substantial improvement to the environment for the first three collection system alternatives: C-0, C-1, and C-2. These projects do not improve treatment of stormwater in existing infrastructure. Since there is no change in impact to the environment, these three considered projects received an equal score of 5.

The proposed project for expanding the Ferry Street stormwater collection system in Alternative C-3 would reduce sediment runoff. The impact from this project would only apply to a single street. To account for the reduction of erosion in a specific area, a score of 6 was given to Alternative C-3.

The installation of new culverts in Alternative C-4 does not have any long-term environmental impacts. The new culverts in this project would only allow stormwater to continue to the Clark Fork River without pooling along the edges of road. The no impact from Alternative C-4 results in a score of 5.

Like the Ferry Street improvements project, Alternative C-5 would provide a reduction in erosion on the Hill. This alternative, however, would have the benefit applied to a larger area than other alternatives even in a single phase. Since the reduction to the environment is scaled similarly over an increased area, the benefit to the environment is greater in Alternative C-5 than other projects. Alternative C-5 received a score of 7.

- Alternative C-0: 5
- Alternative C-1: 5
- Alternative C-2: 5
- Alternative C-3: 6
- Alternative C-4: 5
- Alternative C-5: 7
- Alternative: C-6: 6

6.3.6 Traffic Impacts

Alternative C-0 does not address any of the deficiencies of the existing stormwater collection system. Since no improvements would be made, gravel in driving areas and erosion along the side of roads would continue. A score of 3 was given to Alternative C-0 because there is no improvement to the existing erosion and safety to traffic.

The improvements in Alternative C-1 include cleaning and inspection of existing infrastructure. Performing this maintenance may provide a minor benefit to protecting the roads' shoulders in some areas, but the issue would not be eliminated. Conversely, this work would likely impact traffic during cleaning and inspection. Alternative C-1 was given a score of 3. One point was deducted for erosion of gravel still occurring after implementation, and one point was deducted for the temporary impact to construction.

Alternative C-2 received a score of 4. There is a more definite benefit to the reduction of erosion when compared to Alternative C-1. There is some minor traffic impacts expected during construction also.

The comprehensive improvements along Ferry Street would provide a substantial benefit to maintaining and facilitating future traffic. The improvements would virtually eliminate the spread of gravel in the high traffic area where the school buses enter and exit. Only a minor, temporary negative effect on traffic is expected during construction. Alternative C-3 was given a score of 7.

Constructing new culverts for eastern Thompson Falls will not provide any benefit to the current erosion in other parts of the City. Additionally, there is a minor negative impact to traffic during construction. Since there are only negative impacts on traffic, Alternative C-4 received a score of 2.

The final alternative for the collection system has similar benefits for traffic as Alternative C-3. Providing reinforced shouldering in Alternative C-5 would provide a substantial benefit to the erosion prone areas on the Hill. There are two minor negative impacts: temporary disruption during construction and changes in available parking on the shoulder for residents. Depending on the application of crushed rock or asphalt gutters, some street parking may be altered or lost. To account for the potential impact to resident parking, a score of 6 was given to Alternative C-5.

- Alternative C-0: 3
- Alternative C-1: 3
- Alternative C-2: 4
- Alternative C-3: 7
- Alternative C-4: 2

- Alternative C-5: 6
- Alternative: C-6: 3

6.3.7 Land Acquisition

No additional land is required with any of the collection system alternatives. All proposed alternatives are given an equal weight of 5.

- Alternative C-0: 5
- Alternative C-1: 5
- Alternative C-2: 5
- Alternative C-3: 5
- Alternative C-4: 5
- Alternative C-5: 5
- Alternative: C-6: 5

6.4 SCORING OF STORAGE ALTERNATIVES

6.4.1 Life Cycle Costs

The previously described formula was used to determine the score for each of the collection system alternatives except for S-0. The "No Action" alternative was assigned a score of 10 because there is no cost associated. The formula utilized the remaining collection system alternatives life cycle costs for determining scores. The results are presented in the following list.

- Alternative S-0: 10
- Alternative S-1: 2.3
- Alternative S-2: 7.7

6.4.2 Operational and Maintenance Considerations

The no action alternative specifically for the storage system received the maximum score of 10. There is no current storage system, so no O&M is currently attributed to storage infrastructure. The no action alternative maintains no O&M.

The construction of a new infiltration field on Ferry Street would increase O&M associated with storage system components; however, there would be a reduction in road sweeping and gravel replacement. Based on the overall decrease in O&M, a score of 7 was assigned to Alternative S-1.

The final storage alternative includes construction of a new retention pond on the east side of Thompson Falls. There is minimal effort for required operation; however, maintenance for a storage system would increase substantially. In order to capture the additional effort, S-2 was give a score of 2.

- Alternative S-0: 10
- Alternative S-1: 7
- Alternative S-2: 2

6.4.3 Permitting Issues

There are no permitting requirements for no action alternative. Alternative S-0 received the maximum score of 10.

Both Alternatives S-1 and S-2 are planned to be constructed in land obtained by the City, land owned by the City currently, or in the public right-of-way. The only anticipated permit would be a stormwater pollution prevention plan (SWPPP). This permit is part of construction and would be required to be obtained by the selected Contractor. To account for the standard construction permit, both alternatives S-1 and S-2 were assigned scores of 9.

- Alternative S-0: 10
- Alternative S-1: 9
- Alternative S-2: 9

6.4.4 Social Impacts

The City does not have any direct requirements to employ a storage system or provide any treatment to stormwater runoff currently. Adding components and complexity to the existing system is not an action that the community views as necessary or pragmatic. Since there is little sentiment to develop storage systems, Alternative S-0 received the maximum score of 10.

The construction of an infiltration field on Ferry Street is appealing to the community because the downstream infrastructure would not need to be modified. Although the community does not want to develop storage systems, utilizing an infiltration field would limit the area of disturbance. Alternative S-1 was given a score of 6.

Alternative S-2 does not address any of the concerns that the community has with the stormwater systems. Since there is no support for this project a score of 1 was given.

- Alternative S-0: 10
- Alternative S-1: 6
- Alternative S-2: 1

6.4.5 Environmental Impacts

The proposed improvements to the collection system were scored on their ability to isolate the community's collected wastewater from the surrounding environment. Based on the analysis of the collection system, there appears to be excessive I/I in the community. There are two direct environmental impacts associated with groundwater infiltrating the system: removing groundwater from the existing aquifer and providing a pathway for wastewater to contaminate the local aquifer. Collection system alternatives that do not improve environmental impacts received a score of 3. Alternatives that completely separate groundwater and wastewater scored a maximum of 10. Variability in expected performance was scaled below 3 for alternatives that decrease separation and scaled between 3 and 10 for alternatives that improved separation incrementally. The assigned scores are shown below.

Alternative S-1 completes similar benefits to the local environment as Alternative C-3. For the same reasons as this collection system alternative, Alternative S-1 received a score of 7. The final alternative would completely retain sediment and percolate most pollutants to the subsurface. Since pollution is prevented from reaching the river, a score of 8 was given.

- Alternative S-0: 5
- Alternative S-1: 7
- Alternative S-2: 8

6.4.6 Traffic Impacts

The no action alternative does not alter the impact traffic, so a score of 3 was assigned. The construction of a new infiltration field on Ferry Street provides the same benefits as the collection Alternative C-3. A score of 7 is given to Alternative S-1 because the project would reduce loose gravel on the road which is a traffic hazard. There is no impact to traffic in Alternative S-2, so a score of 3 was given.

- Alternative S-0: 3
- Alternative S-1: 7
- Alternative S-2: 3

6.4.7 Land Acquisition

Only Alternative S-1 requires additional land for implementation. Since the land required is less than one acre, one point is deducted from this alternative's score. The other two storage alternatives remain at a score of 5.

- Alternative S-0: 5
- Alternative S-1: 4
- Alternative S-2: 5

6.5 DECISION MATRIX AND SELECTION OF PREFERRED ALTERNATIVE

The results of the alternative analysis were tabulated and entered into a decision matrix. The results of the analysis and subsequent weighted scores are presented in Table 6-2.

Table 6-2 - Decision matrix for preferred alternative

Decision Matrix																
Alternative	Life Cycle Costs		Operation and Maintenance		Permitting		Social Impacts		Environmental Impacts		Traffic Impacts		Land Acquisition		TOTAL
	Weight:	10	Weight:	6	Weight:	3	Weight:	7	Weight:	4	Weight:	5	Weight:	5	
	Score	Wtd.	Score	Wtd.	Score	Wtd.	Score	Wtd.	Score	Wtd.	Score	Wtd.	Score	Wtd.	
Collection Alternatives															
Alt. C-0	10.0	100	5.0	30	10.0	30	7.0	49	5.0	20	3.0	15	5.0	25	**269**
Alt. C-1	9.8	98	3.0	18	10.0	30	1.0	7	5.0	20	3.0	15	5.0	25	**213**
Alt. C-2	5.0	50	6.0	36	8.0	24	6.0	42	5.0	20	4.0	20	5.0	25	**217**
Alt. C-3	4.6	46	7.0	42	5.0	15	2.0	14	6.0	24	7.0	35	5.0	25	**201**
Alt. C-4	7.1	71	2.0	12	9.0	27	1.0	7	5.0	20	2.0	10	5.0	25	**172**
Alt. C-5	2.7	27	8.0	48	7.0	21	8.0	56	7.0	28	6.0	30	5.0	25	**235**
Alt. C-6	0.0	0	5.0	30	1.0	3	7.0	49	6.0	24	7.0	35	5.0	25	**166**
Storage Alternatives															
Alt. S-0	10.0	100	10.0	60	10.0	30	10.0	70	5.0	20	3.0	15	5.0	25	**320**
Alt. S-1	2.3	23	7.0	42	9.0	27	6.0	42	7.0	28	7.0	35	4.0	20	**217**
Alt. S-2	7.7	77	2.0	12	9.0	27	1.0	7	8.0	32	3.0	15	5.0	25	**195**

It is important to note that the above scoring and weighting are subjective. Alternatives that score overall within 10 pts of each other may essentially hold the same degree of preference.

7.0 PROPOSED PROJECT

7.1 PRELIMINARY PROJECT DESIGN

There is no recommended project for capital improvements in the community.

7.1.1 Collection System

To be updated.

7.1.2 Storage

No storage component is recommended as part of the proposed project.

7.2 PROJECT SCHEDULE

The preliminary schedule for the proposed project includes the completion and adoption of the PER, funding applications, funding awards, design, and construction. The PER is planned to be completed and adopted in September of 2026. Applications for funding would be submitted by the spring of 2028, should the City decide to apply for construction grants. Design would then be anticipated to begin in the fall of 2029 and be completed in the winter. Based on the completion, construction would be planned to be completed by the end of the 2030 summer. A breakdown of the preliminary schedule is presented later in this document as Table 8-1.

7.3 PERMIT REQUIREMENTS

The proposed project does not include any work within right-of-ways maintained by the other entities such as MDT, BNSF, or BOR. No permitting for access for any work is expected with the project.

Site improvements at the wastewater treatment plant would require several construction permits. These permits include dewatering and a stormwater pollution prevention plan (SWPPP). These permits would be required to be obtained and maintained by the selected Contractor during construction.

7.3.1 Water and Energy Efficiency

The proposed project will provide a minor improvement to energy efficiency from the City. The proposed project will reduce the need to haul replacement gravel and street sweep loose gravel on the street.

7.3.2 Green Infrastructure

No green infrastructure is planned as part of the project. The proposed aggregate swale will encourage stormwater runoff to infiltrate into the subsurface over the length of the swale.

7.4 TOTAL PROJECT COST ESTIMATE

The preferred project is a combination of expanding O&M costs and capital costs. Alternative C-1 is recommended to be adopted as part of an annual maintenance plan to maintain the existing. In order to provide a

Total Project Cost		
Alternative	Capital Cost	Annual O&M Costs
C-1: Clean and Inspection	$-	$33,250
C-5: Shallow Aggregate Swale (Ph. 1)	$2,409,000	$(16,200)
Total	**$2,409,000**	**$17,050**

7.5 ANNUAL OPERATING BUDGET

A preliminary annual operating budget based on existing cash flows and predicted revenue and expenditures was developed. Costs to Thompson Falls include existing O&M, future O&M, debt repayments, and short-lived assets. The budget is summarized in Table 7-1, and the individual components are broken down further in this section.

Table 7-1 - Preliminary annual operating budget for the stormwater system

Annual Operating Budget	
Revenues	
Charges to Users for Service	$426,712
Total Revenue	**$426,712**

Expenditures	
O&M	148,000
Debt Repayments	$275,712
Short-Lived Asset Reserve	$3,000
Total Expenditures	**$426,712**

1. User rate is $96.37 based on an EDU of 369

7.5.1 Income

The City does not currently have an enterprise fund dedicated to the stormwater system. There are two potential methods to fund the proposed project: incorporate stormwater costs into the existing wastewater fund or establish a special improvement district (SID). In both scenarios

7.5.2 Annual O&M Costs

To be updated.

7.5.3 Debt Repayments

To be updated.

7.5.4 Reserves

Debt Service Reserve

The City of Thompson Falls has no outstanding loans for improvements associated with the existing stormwater system. The City has loans for both their sanitary sewer and potable water systems; however, these reserves are accounted in the respective enterprise funds. There are no debt service reserves for the stormwater system.

Short-Lived Asset Reserve

The proposed improvements do not include any mechanical components like pumps or treatment equipment that need to be replaced periodically. The infrastructure proposed would be serviceable over the entire design period and likely beyond. There are no cost considerations given to short asset reserves.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The previous sections of this report have focused on the need for the project, environmental resources in the project area, project costs, and technical feasibility of potential alternatives. This section focuses on developing and analyzing potential financial strategies and implementation schedule. The primary goal of a comprehensive PER is to provide a workable funding plan for the recommended improvements included in the proposed project. This section discusses available funding sources, develops several funding strategies, and selects a preferable funding strategy.

8.1 FUNDING

To pay for the high cost of the proposed project, City of Thompson Falls plans to seek outside funding through grants and loans. Before different funding options can be considered, financial need must be evaluated. The Montana Department of Commerce (MDOC) established the target rate to ensure that a municipality is paying an equitable portion of a project's cost. For the City to apply for loans or grants through MDOC, the users' rates after completion of the project must meet or exceed the target rate.

The target rates are calculated as a percentage of the median household income (MHI) from the American Community Survey (ACS) for the municipality. The target rate is calculated as 1.4% of the communities MHI when only water service is provided, 0.9% in communities providing only sewer service, or 2.3% for communities providing water and sewer services.

According to MDOC's website, the MHI for the City of Thompson Falls is $53,203. Calculating 2.3% of the MHI, the combined target rate for water and sewer is $101.97 per user per month. The existing base rates for water and sewer are $60.63 and $59.00 per user per month, respectively. The average water and sewer rate per connection, including metered usage, is approximately $49.10 for water and $89.81 for sewer per month from the most recent financial information.

The City updated the base rate from $42.75 to $60.63 during the summer of 2026 and revenue has not been collected for a long enough period to estimate the new average use. The estimated $49.10 per month was calculated using data that relied on previous fiscal years with the lower base rate than current fees. In order to estimate the revenue and average user rate, the current and previous base rates were used to scale monthly average user fees. The pay factor was calculated to be 1.42. Additionally, the number of connected wastewater users is currently being increased by an ongoing wastewater system expansion. At the end of the current wastewater project, the total EDU for water and wastewater is estimated to be 855 EDUs.

The combined existing rate is approximately $138.91, which is 136.2% of the target rate. Based on the increased number of users and recent water rate increase, the estimated rate at the end of the project is $156.59, or 153.6% of the target rate.

To be updated: Assuming the stormwater project will be funded through creation of an SID and not within the City's current wastewater utility structure, the addition of the stormwater assessment will raise the combined rate above the target rate. The estimated rate increase at the end of the project will depend on the combination of grant and loans, but the current user rates are above the target rate of $108.15.

8.1.1 Funding Sources

The following sections provide a brief description of the potential funding sources and whether or not the City of Thompson Falls would be eligible for those funds.

Special Management District/Special Improvement District

The City does not currently have a stormwater enterprise account for stormwater maintenance and improvements. Street sweeping and minor maintenance is generally completed under general funds allocated for the Public Works department and more specifically their street funds. In order to fund the stormwater system and any improvements directly, a special management district (SMD) is proposed to collect user fees based on parcels located within the City Limits. For planning purposes, the fees would be assessed equally across all properties in the City. If the City chooses to pursue developing this management district, impervious area on each parcel of land is suggested to be the basis of assessment.

Congressional Appropriation Requests

Congressionally Directed Spending (CDS) / Community Project Funding (CPF)

Congressionally Directed Spending (CDS) (Senate) and Community Project Funding (CPF) (House) are federal appropriations for specifically named local projects requested by Members of

Congress and included in annual Appropriations Acts. For water infrastructure, these earmarked funds are typically administered by the U.S. Environmental Protection Agency as "Community Grants" through the State and Tribal Assistance Grants (STAG) account and may be used for eligible drinking water, wastewater, stormwater, and related water quality protection improvements; communities may also pursue congressionally directed funding through other federal agencies for solid waste or other eligible infrastructure, depending on the appropriations bill and program. Because CDS/CPF awards are tied to a specific, named project and recipient, Montana communities are advised to coordinate early with the applicable members of Montana's congressional delegation. Funding requests are typically due in early March.

Stormwater in the community does not pose an imminent threat to public health and safety. There has also not been any natural disasters in the area like flooding caused by excessive stormwater runoff. The City could pursue allocated funding; however, the application would not be strong based on public health and safety. Direct congressional funding will not be considered as part of the developed funding scenarios.

Montana Coal Endowment Program (MCEP)

MCEP is a state-funded grant program, which is administered by the Montana Department of Commerce (MDOC). MCEP provides financial assistance to local governments for infrastructure improvements. Grants are available on a competitive basis for issues related to public health and safety and financial need and can be obtained from MCEP for up to $500,000 if the projected user rates are less than 125% of the target rate, for up to $625,000 if projected user rates are between 125% and 150% of the target rate, and for up to $750,000 if the projected user rates are over 150% of the target rate. MCEP grant recipients are required to match the grant dollar for dollar, but the match may come from a variety of sources, including other grants, loans, or cash contributions.

Discuss at public meeting.

Renewable Resource Grant and Loan Program (RRGL)

The Renewable Resource Grant and Loan Program (RRGL) is a state initiative funded by interest earned from the Resource Indemnity Trust Fund and the sale of Coal Severance Tax Bonds. This program is managed by the Montana Department of Natural Resources and Conservation (DNRC). Its primary goal is to enhance renewable resources in Montana. Long-term benefits of the preferred alternative should be described in measurable terms where practicable and tied to the renewable resource(s) affected (e.g., reduced water loss/leakage, improved water quality, reduced sediment delivery, reduced energy use, improved system reliability, and reduced risk of releases). These outcomes may demonstrate conservation (reduced demand and losses), preservation (protection of surface water, groundwater, riparian areas, wetlands, and habitat), development (infrastructure improvements that enable beneficial use), and improved management (operational controls, monitoring, and maintenance practices that sustain performance over time).

The RRGL Program offers grants of up to $125,000, with no matching funds required. While matching funds are not mandatory, DNRC assesses applications by considering financial feasibility. This includes evaluating the total project cost, the availability and ratio of matching funds, and the amount of local funds committed compared to the system's annual operating budget. Projects with higher ratios of committed local funds, such as cash or capital improvement funds, receive priority. The scoring outcome affects both the likelihood and timing of funding. Typically, DNRC contracts with grant recipients during the first year of a new biennium, generally in July or August. If a project receives a lower score, DNRC may not have funds available to contract with that entity until the second year of the biennium, which is about 15 to 16 months after the grant award. A lower project ranking can impact the overall project timeline, budget, and implementation. Therefore, it is highly recommended to include a local cash contribution in project budgets to improve funding prospects.

The RRGL program is a competitive process that is focused on enhancing renewable resources. The proposed project has some indirect benefits to preserving stormwater as a resource; however, there would be limited direct benefits. The City could pursue funding through RRGL, but the application would not have a strong basis unless local funds are applied. This funding source may be able to be utilized and is considered in comparative funding scenarios.

Reclamation and Development Grant Program (RDG)

The Reclamation and Development Grant (RDG) Program, administered by the Montana Department of Natural Resources and Conservation (DNRC), provides competitive grant funding for projects that conserve, manage, develop, or protect Montana's natural resources (public resources). RDG funding is intended for projects that repair, reclaim, or mitigate environmental damage to natural resources associated with nonrenewable resource development (e.g., mining, oil and gas, and hazardous substances), and for projects that address certain statewide natural-resource priorities identified by DNRC as a crucial state need.

For RDG purposes, a crucial state need project is one that has watershed, regional, or statewide importance and either (1) prevents or eliminates severe and unacceptable damage to natural resources or (2) captures extraordinary public benefits that would otherwise be lost, where the public benefit directly relates to natural resources. Crucial state need projects must be documented in an approved watershed/regional planning document that identifies the project (or the underlying need) or is supported by documentation from an authoritative source (preferably a state agency) that addresses the need and urgency, the consequences of no action or delayed action, and the project's natural-resource benefits.

The proposed stormwater improvements do not meet the criteria listed above. Funding through the RDG program will not be considered feasible.

Community Development Block Grant (CDBG)

CDBG is a federally funded program administered by the Montana Department of Commerce (MDOC). Montana's CDBG Public and Community Facilities grants help local governments fund infrastructure improvements that primarily benefit low- to moderate-income Montanans. Projects can target LMI residents and provide a direct benefit, or they can provide an area-wide benefit to an entire community if at least 51% of the project's beneficiaries are LMI. This is usually determined by the current Census; however, under certain circumstances (such as major economic changes since the Census or if a community is only slightly below the required LMI percentage), the MDOC may allow an income survey to be completed.

The CDBG grant funds can be applied for in an amount of up to $750,000 with a limit of $20,000 per LMI household, so a community needs 38 LMI households to apply for the maximum grant funds. The use of CDBG funds requires a 25% local match, which can be provided through cash funds, loans, or a combination of both. Montana cities, towns, and counties are eligible to apply for CDBG funding assistance. A county may also apply for CDBG funding on behalf of a sub-recipient, unincorporated community, or legally created rural improvement district that is part of a county or multi-county water and sewer district.

The City's LMI is 62.6% which means that the City qualifies for CDBG as a funding source. There are 628 households based on MDOC statistics. Based on the percent and number of households, there are 393 households that are considered low to moderate income. The City qualifies for the maximum amount of $750,000 and could pursue this funding. The CDBG program will be considered as part of the funding scenarios.

State Revolving Fund (SRF)

SRF provides low-interest loan funds for both water and wastewater projects through the Drinking Water State Revolving Fund (DWSRF) and the Water Pollution Control State Revolving Fund (WPCSRF), respectively. The SRF program is co-administered by the Montana Department of Environmental Quality and DNRC. Current loan terms under the CWSRF offer an interest rate of 2.5 percent, with repayment periods of 20 or 30 years, depending on the useful life of the project improvements.

The SRF program has also provided grants, referred to as "loan principal forgiveness," for some projects. The amount of loan forgiveness varies year to year and depends on the availability of funds and the community's financial needs, as determined by SRF. Recent discussions with CWSRF representatives confirm that the FY2027 Intended Use Plan (IUP) will likely cap principal forgiveness at $750,000 or 33% of the SRF budget, whichever is less.

All projects using SRF funds must be listed in the SRF Intended Use Plan (IUP), which requires submission of an SRF Priority List Survey Form. Based on discussions with the SRF program staff, it is not appropriate to include loan forgiveness in a project budget until the applicant's eligibility is confirmed by DEQ after its loan application is submitted.

The proposed project will

Note to update if applicable – Consider referencing a copy of the completed/submitted IUP in Appendix. Also reach out to SRF about what loan forgiveness is feasible to assume in the PER

USDA Rural Development (RD)

RD provides grants and loans to municipalities for water and wastewater projects that improve the quality of life and promote economic growth in rural America. Municipalities with populations under 10,000 can apply, with priority given to those serving fewer than 5,500 residents. Eligibility for grants and loan interest rates depends on the community's median household income (MHI) and user fees. Grant eligibility is assessed against Montana's 2021 American Community Survey (ACS) non-metropolitan MHI of $63,617.

Communities with an MHI between $50,893 and $63,617 qualify for the intermediate loan rate, and up to 45% of project costs may be funded through grants. If a community's MHI is below $50,894, it qualifies for the poverty rate, which allows up to 75% grant funding if the project addresses a critical public health or sanitation issue. Without such concerns, the maximum grant remains at 45%. The City's 2021 MHI of $44,159 makes it eligible for RD's Poverty Rate of 2.875%.

As of April 1, 2026, through June 30, 2026, interest rates are set at 2.875% for the Poverty Rate, 3.75% for the Intermediate Rate, and 4.75% for the Market Rate. Rural Development reviews and updates these rates quarterly.

RD also requires a local match on some projects. The following formula was provided by RD to determine if and how much of a local match is required:

Cash – Current Liabilities – 90 days O&M – Fund Restricted = Local Cash to Project

Note updated after public meetiing– Contact RD, if prefered. If using RD in a funding package, it is strongly recommended to discuss eligibility and the % loan/grant breakdown with RD for the community. Discuss local contribution with RD.

Indian Health Services (IHS)

The Indian Health Service (IHS) provides grant funding through its Sanitation Facilities Construction (SFC) Program to support the planning, design, and construction of essential water, wastewater, and solid waste infrastructure to address documented public health and sanitation deficiencies in communities serving Tribal populations. IHS funding is intended to eliminate health hazards associated with inadequate drinking water, wastewater, or solid waste systems; reduce exposure to contaminated water, untreated sewage, and improper waste disposal; and ensure access to safe, reliable sanitation services. Funding priority is given to projects that correct documented system deficiencies, protect public health, and improve environmental conditions for Tribal members and, where applicable, surrounding service areas.

The City is located approximately 50 miles west of the Coeur d'Alene Reservation in Idaho and 30 miles east of the Flathead Reservation in Montana. According to the 2020 Decennial Census, there are 61 people in the community who are American Indian or Alaska Native, which include people of multiple races or a singular race. This group represents less than 5% of the overall community. Additionally, the list of race in the Census does not necessarily mean that any or all of the count people are enrolled tribal members of any federally recognized tribe. Since there is only a small Native American population in the community, the City would likely not have a strong application. This funding source will not be developed further.

Montana Coal Board

The Coal Board provides grant funding to municipalities to adequately provide for the expansion of public services or facilities needed as a direct consequence of coal development activities. There is no maximum limit to the amount the Coal Board can fund, but available funding is very limited so it can be difficult to receive any funds from the Coal Board, especially large sums.

The City of Thompson Falls is not located in proximity to any ongoing or planned coal development activities. The City would likely not be able to receive funding from this source.

Economic Development Administration Public Works and Economic Adjustment Assistance (PWEAA)

EDA is designed to help distressed communities revamp and enhance their physical infrastructure. By acquiring land, developing and improving infrastructure, and establishing or expanding industrial or commercial enterprises, this program can help communities attract new industries, encourage business expansion, and diversify local economies. Additionally, public works program investments can create or retain long-term jobs by developing critical public infrastructure, including water and sewer system improvements, roads, rail spurs, industrial parks, business incubator facilities, technology-based facilities, multi-tenant manufacturing facilities, port and harbor expansions, and more. The EDA determines a community's eligibility for funding using the Measuring Distress Tool on the StatsAmerica website (https://www.statsamerica.org/distress/). The EDA program provides grant funding for projects demonstrated to be needed for the placement of a new business, and the amount of the grant depends on the number of jobs created.

The proposed improvements do not have a direct impact on the creation of jobs or expansion of economic opportunity. The collection system upgrades are to reduce I&I and prevent the discharge of untreated wastewater. Additionally, treatment plant upgrades are only proposed to stabilize the existing site. The City would not qualify for EDA grants.

EDA Disaster Supplemental Program

EDA's Disaster Supplemental Program provides one-time, competitively awarded grant funding for economic recovery and resilience projects in areas impacted by Presidentially declared disasters. Under the FY2025 Disaster Supplemental Notice of Funding Opportunity (NOFO), Montana communities are generally eligible if the project is located in, serves, or directly benefits a county included in a FEMA major disaster declaration for a natural disaster occurring in calendar years 2023 or 2024 (i.e., eligible disaster-declared areas). For water and wastewater utilities, eligible projects typically include construction of critical public infrastructure that supports post-disaster economic recovery and reduces future disruption risk such as drinking water and wastewater treatment upgrades, finished-water storage, transmission/distribution or collection system rehabilitation/replacement, pump station and electrical/control improvements, and other reliability and hazard-mitigation measures when the need is clearly tied to disaster impacts and long-term economic resilience. Projects are expected to demonstrate economic benefit (e.g., business continuity, job retention/creation, protection of private investment), and to be consistent with the region's CEDS (or equivalent EDA-accepted strategy) and EDA investment priorities.

Discuss if applicable or not.

Note – To be competitive for EDA grants, PER should include letters from businesses stating exactly how the project benefits the business or will create jobs. Cases can also be made for job loss (if the project does not happen, businesses will close or jobs will be lost). Again, letters on business letterhead must be provided.

Water Infrastructure Improvements for the Nation (WIIN)

The Water Infrastructure Improvements for the Nation (WIIN) Act provides federal grant funding to assist small, underserved, and disadvantaged communities in addressing critical drinking water infrastructure needs and achieving compliance with the Safe Drinking Water Act. In Montana, WIIN funding is administered through a state pass-through program and may be used to support eligible planning, design, and construction costs for drinking water projects that improve public health and regulatory compliance, such as treatment and disinfection upgrades, drinking water distribution and storage improvements, and other system reliability measures. Eligibility and award amounts vary by funding cycle and are generally based on demonstrated community need and affordability, project readiness, and the extent to which the project addresses documented drinking water system deficiencies or compliance risks. WIIN awards are often combined with other funding sources, such as Drinking Water State Revolving Fund loans or principal forgiveness, as part of a complete project financing package.

Wastewater projects are generally not eligible under WIIN; any wastewater-related activities must be incidental and directly tied to protecting a drinking water system or achieving drinking water regulatory compliance, rather than addressing municipal wastewater collection or treatment needs.

Thompson Falls is encompassed by a watershed that contributes to the Clark Fork River which is part of the greater Columbia River Basin. Downstream users include large population centers like Sandpoint, ID and Portland, OR. The proposed project does not provide treatment to stormwater runoff, so the project is likely not eligible for this source. Funding from WIIN will not be considered in funding scenarios.

INTERCAP

INTERCAP provides loan funds at a low cost, variable interest rate to local governments. INTERCAP is administered by the Montana Board of Investments and is very flexible in the variety of funding which would include both water and wastewater projects. There is no funding cycle (funds are always available), however, the maximum loan term is 15 years. INTERCAP is often used to provide interim financing; however, due to the variable interest rate and relatively short term, it is seldom used for large capital projects.

The City does qualify for an INTERCAP loan. The proposed project, however, requires a large capital cost. The comparatively shorter terms and higher interest rates than other funding options is not a recommended funding strategy because of the potentially high user cost to make loan repayment.

Commercial Financing

The [Town/District] may finance a portion of the required local match through a commercial bank revenue loan or revenue bond, repaid from utility user charges. Typical structures provide 15–25-year amortization, with interest rates based on the then-current tax-exempt municipal or taxable market rates. As general market context, high-grade (AAA) tax-exempt municipal bond benchmark yields as of April 8, 2026 were approximately 3.15% (10-year), 4.15% (20-year), and 4.50% (30-year); actual loan or bond rates will vary based on the [Town/District]'s credit quality, maturity, call features, security provisions, and market conditions at the time of pricing.

Repayment is secured by a pledge of net system revenues and a rate covenant requiring the [Town/District] to set and collect rates sufficient to cover operations and maintenance, required reserves, and annual debt service. Commercial lenders commonly require a minimum debt service coverage ratio (DSCR) of 1.10x-1.25x, meaning net revenues must equal at least 110%–125% of annual debt service obligations.

For eligible water and wastewater projects, commercial bank financing is highly unlikely to offer terms as affordable as those available through the State Revolving Fund (SRF) or USDA Rural Development programs, both of which are statutorily designed to provide below-market interest rates — SRF at or below prevailing market rates, and USDA Rural Development at fixed rates determined by project need and community income rather than commercial market pricing. Combined with amortization periods of up to 30 years (WPCSRF) and 40 years (USDA Rural Development and DWSRF), and the potential for grant components or principal forgiveness for disadvantaged communities, these programs offer a structural cost-of-financing advantage that commercial lenders are not designed to match.

Private financing is not considered cost effective for the proposed stormwater improvements. This funding source will not be considered further.

8.2 IMPLEMENTATION

8.2.1 Funding Scenarios

8.2.2 Schedule

A preliminary schedule for the proposed project was developed as part of this document. The schedule includes important milestones such as the completion of planning documents, funding procurement, design completion, and construction. The first task that is to be accomplished is the completion and acceptance of this PER by the City of Thompson Falls. The presentation, finalizing, and ultimate adoption is planned for August and September of 2026. Loan applications would be submitted in the following spring of 2027 for the SRF program. Funding for grant sources would be submitted in the spring of 2028. Award for the grant applications is anticipated for the summer of 2029. Design would only begin with the award of grants to ensure that adequate funding is obtained before pursuing the project further. Construction is anticipated for the summer of 2030. A breakdown of the preliminary schedule is shown in Table 8-1.

Table 8-1 - Preliminary project implementation schedule

Preliminary Project Schedule	
Deadline	**Task**
August 2026	Present Draft PER and Findings to the City
August 2026	City Provides Feedback on Drafter PER
August 2026	PER is Finalized
September 2026	City Adopts PER
Spring 2027	City Submits Loan Application
March-May 2028	Grant Funding Application
July 2029	Grant Funding Awarded
Fall-Winter 2029	Design
Spring 2030	Complete Permitting and Bid Project
June 2030	Begin Construction
September 2030	Finish Construction

10.0 REFERENCES

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Appendix 1:
MEPA Checklist

Appendix 2:
Environmental Letters

Appendix 3:
Land Cover

Appendix 4:
Custom Soils Report

Appendix 5:
Biological Resources

Appendix 6:
Groundwater Data

Appendix 7:
Surface Water Map

Appendix 8:
Flood Insurance Rate Map

Appendix 9:
National Wetland Inventory Map

Appendix 10:
Target Rate

Appendix 11:
Census Data

Appendix 12:
Community Involvement