TOWN OF TELLURIDE

Public Works Department
P.O. Box 397
Telluride, CO 81435

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May 4, 2020

Colorado Water Conservation Board
ATTN: Mr. Kevin Reidy
1313 Sherman St., Rm 721
Denver, CO 80203

VIA EMAIL kevin.reidy@state.co.us

RE: Town of Telluride's 2020 Water Efficiency Plan Update

Dear Mr. Reidy,

Please find enclosed Telluride's final *Water Efficiency Plan (2020-2027)*, which was adopted by Town Council on April 28, 2020, after a 60-day public comment period that opened on January 28 and closed on March 28. This plan was developed over the last year with input and review from Telluride's Ecology Commission and its Town Council during multiple public meetings.

The Ecology Commission is comprised of 7 people from throughout the community. All meetings are open to the public and all agendas a posted no less than 1 week before each meeting online, via email notifications for those who are signed up, and in old-fashioned paper form at Rebekah Hall, the Town's administrative offices. Mr. Todd Brown, a representative of both the San Miguel Watershed Coalition and EcoAction Partners boards, attended meetings regularly as a member of the public. Mr. Brown is also a member of Town Council.

The Town Council also has 7 members, including me as Mayor. Meeting agendas are made public in the same process as stated in the previous paragraph. All meetings were broadcast live on KOTO Radio and in video format with help from Telluride TV. Persons representing San Miguel Valley Corporation, the newspapers, and one of our largest water users—Lone Tree Cemetery—all were in attendance and participated during multiple Town Council work sessions.

I believe that this document was updated through a robust and thorough public process and accurately represents the next steps that our Town and service area can take to continue to use our water resources wisely.

Please direct any questions you may have about Telluride's Water Efficiency Plan (2020-2027) to the Plan Administrator, whose information is provided below:

Karen Guglielmone
Environmental & Engineering Division Manager
Telluride Public Works Department
P.O. Box 397
Telluride, CO 81435

Landline: 970-728-0190
Cell: 970-729-1015
Email: kguglielmone@telluride-co.gov

Thank you for your time and consideration.

Respectfully,

DeLanie Young, Mayor
Town of Telluride

Enclosure

Water Efficiency Plan 2020-2027

DRAFT FOR PUBLIC COMMENT

Adopted by the Telluride Town Council on April 28, 2020, after 60-day Public Comment Period

Town of Telluride

P.O. Box 397

Telluride, Colorado 81435

Executive Summary

The Town of Telluride (Town) is in the southwest corner of the State of Colorado in San Miguel County at the end of a three-mile spur off State Highway 145. It is comprised of roughly fifty square blocks and 1,081 acres of open space and parks. Serving approximately 2,360 full-time residents, its visitor population can be significantly larger than this.

Telluride has been planning for and managing its water supplies and their use since the 1980s. It was not until Telluride's 1994 Water Plan Update (Resource Engineering, 1994) that conservation was formally considered a viable strategy to help decrease or delay the need for new water supply facilities. More recently, the Town integrated water efficiency as essential to its stewardship of water that the community puts to use from its watershed. Simply put, using water wisely is the right thing to do. Like the Colorado Water Conservation Board's (CWCB) mission in Colorado, a primary goal of the Town of Telluride is to conserve, develop, protect, and manage its water resources for present and future generations. To accomplish this, the Town is working to optimize water use efficiencies in its water diversion, transmission, distribution, and treatment systems to satisfy water supply needs without compromising desired water services. End use efficiencies are also a part of this strategy.

To develop this updated Water Efficiency Plan (2020-2027), the Town of Telluride determined to follow the CWCB's *Water Conservation Plan Guidelines*, which are used when reviewing and approving Water Efficiency Plans submitted to the Office in accordance with §37-60-126(7). While the Town of Telluride does not meet the criteria for being a "Planning Entity" under the State Statute, the systematic and transparent approach provided in the Guidelines was appealing. Under the State Statute, a "Planning Entity" is defined as any municipality, agency, utility, including any privately owned utility, or other publicly owned entity with a legal obligation to supply, distribute, or otherwise provide water at retail to domestic, commercial, industrial, or public facility customers that has a total demand for such customers of more than two thousand acre-feet. At present, the Town's total annual water demand is less than 500 acre-feet.

Water Efficiency Goals

The Town of Telluride currently has no reclaimed water supplies. It does have two (2) non-potable groundwater wells that it uses for irrigation, street cleaning, and periodic dust suppression. In 2020, Telluride's major existing treated water system components are:

- Three (3) water treatment facilities or plants (Pandora, Mill Creek, and Stillwell);
- Collection and distribution system piping, valves, fire hydrants, and appurtenances; and
- Three (3) water storage reservoirs (Pandora Tank and two tanks at the Stillwell site).

Its major wastewater treatment system components are:

- One (1) wastewater treatment facility (Telluride Regional Wastewater Treatment Plant); and
- Collection system piping and appurtenances.

Mill Creek Water Treatment Plant (WTP) has remained Telluride's primary source of drinking water for the Town of Telluride and the Pandora Water Treatment WTP provides supplemental treated water to ensure sufficient supply during peak demand. The Stillwell WTP is normally off line remaining available for service in an emergency.

Developing an ambitious, yet attainable, water efficiency goal for this relatively complex municipal water system has remained a daunting task. The scope was compounded when staff recognized that Telluride's municipal water system includes all users connected to the public system, as well. Public Works Department staff developed draft goals and objectives, which were presented to the Telluride Ecology Commission and the Telluride Town Council for formal consideration. The final goal and supporting objectives for the next 7 years are as follows:

***Goal** – Optimize water efficiency throughout the water and wastewater system, which includes all water users as well as traditional infrastructure. This will:*

- Minimize energy use for pumping and treatment and use of chemicals for treatment; thereby minimizing operational costs;
- Demonstrate leadership to the community that decreasing waste is the right thing to do.
- Provide "insurance" that there will be more water and wastewater capacity available for the local tourist economy, as drought protection, and as in-stream flows to protect or enhance environmental and recreational values that benefit the local economy.

Objectives for the Next 7 Years (using 2019 usage as a basis) –

1. Decrease use of potable water for outdoor irrigation by another 5%
2. Reduce wastewater discharges by decreasing indoor residential by 5%
3. Reduce wastewater discharges by decreasing commercial water use by 5%
4. Reduce peak day summer demand by 5%
5. Reduce non-revenue water by 10% by applying appropriate principals and methodologies from AWWA M36.

Water Efficiency Activities

The Town revisited the original 89 water efficiency activities identified during development of the 2014 Water Efficiency Plan and added 20 for a total of 109 potential and existing activities. The 2014 process involved brainstorming by government staff, and at public meetings of the Telluride Ecology Commission and Telluride Town Council. The 2019 process involved reviewing and discussing the original activities and then adding several that were not included in the first round. Worksheets D through H in the appendices provide a detailed list of all water efficiency activities discussed and reviewed during the 2019 process. Staff eliminated 8 activities that were completed over the last 5 years.

To help select and prioritize among the universe of identified activities, the community reviewed the selection criteria identified in 2014. One change to the criteria was suggested by Town Council, which was to place less emphasis on activities that can be completed within the 7-year period of implementation and more on activities that will move the community toward its long-term goals. Staff applied these criteria to prioritize 34 water efficiency activities for implementation over the next 7 years. Worksheet I in Appendix 2 details the water efficiency activities that were selected, estimated water savings—when possible, and estimated cost for each activity.

Implementation & Monitoring

Worksheet J in Appendix 2 provides a detailed Implementation Plan for all water efficiency activities identified by the community and staff and prioritized by applying selection criteria. The Environmental & Engineering Division of the Public Works Department will be responsible for monitoring progress on the implementation plan and whether water use does change as anticipated by this Water Efficiency Plan. Worksheets K and L in Appendix 2 provide details of the Monitoring Plan, but overall, monitoring will occur annually when a full year of data are available for analysis from the Water-Wastewater and the Streets & Utilities divisions of the Public Works Department, and from the Finance Department (from the billing files).

Table of Contents

1.0 Profile of Existing Water Supply & Wastewater Treatment System

1.1 Overview of Existing Water Supply & Wastewater Treatment System

Development of the Town's municipal water system began in 1886 in Cornet Creek. Sanitary sewer was added around 1913. In 1977, the Town completed a Water System Master Plan to develop a long-range strategy that would "assure the Town of having a high-quality water supply of sufficient capacity" (Wright-McLaughlin Engineers, 1977). The study concluded that it was difficult to accurately estimate historical per capita water consumption for the Town's service area because there were no meters or flow measuring devices at the diversion points or at the water treatment plant. General observations by the Wright-McLaughlin Engineers at that time indicated the Town appeared to use an unusually large amount of water, likely because of the deteriorated condition of water lines, bleeding of service lines to prevent freezing in winter, and water wasted by overflowing storage tanks. Today, service meters and water and wastewater plant flow monitoring devices are standard. Service lines are no longer bled in winter and the storage tanks do not overflow. In 1994, the Town updated its Water System Master Plan, including guidelines for implementing numerous water conservation measures (Resource Engineering, 1994). While several of the recommended conservation measures were implemented by the Town, there is room to improve existing water efficiency efforts and to consider new activities.

The paragraphs below provide a synopsis of Telluride's municipal water system as it is today.

The Town of Telluride currently has no reclaimed water supplies. It does have two (2) non-potable groundwater wells that it uses for irrigation, street cleaning, and periodic dust suppression. In 2020, Telluride's major existing treated water system components are:

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- Collection system piping and appurtenances.

Mill Creek Water Treatment Plant (WTP) has remained Telluride's primary source of drinking water for the Town of Telluride and the Pandora WTP provides supplemental treated water to ensure sufficient supply during peak demand. The Stillwell WTP is normally offline, remaining available for service in an emergency.

Figure 1.1 shows the general arrangement and capacity of these facilities.

MILL CREEK WATER TREATMENT PLANT

The Mill Creek WTP was completed in 1987. Treatment consists of pre-sedimentation; coagulation; flocculation; clarification; filtration with two 0.5 MGD membrane filter (ultrafiltration); and chlorination disinfection. Water is diverted to the plant from Mill Creek through a diversion structure located on the creek just above the plant. The concrete diversion structure includes a radial gate spanning the creek and a two-level slide gate structure that diverts water into the plant's pre-sedimentation pond. The radial gate is raised occasionally to flush sediment from the structure.

Water treated on site is conveyed in a 10-inch steel pipe to two (2) 250,000-gallon storage tanks located north of Town at the Stillwell WTP. The pipeline, approximately 13,000 feet long, was constructed in 1965 as a raw water flow line to convey untreated Mill Creek water to the Stillwell WTP for treatment. At the time the Mill Creek WTP was constructed, new air and vacuum relief valves were installed in the line. Inspection of the pipeline at that time found the pipe in generally good condition.

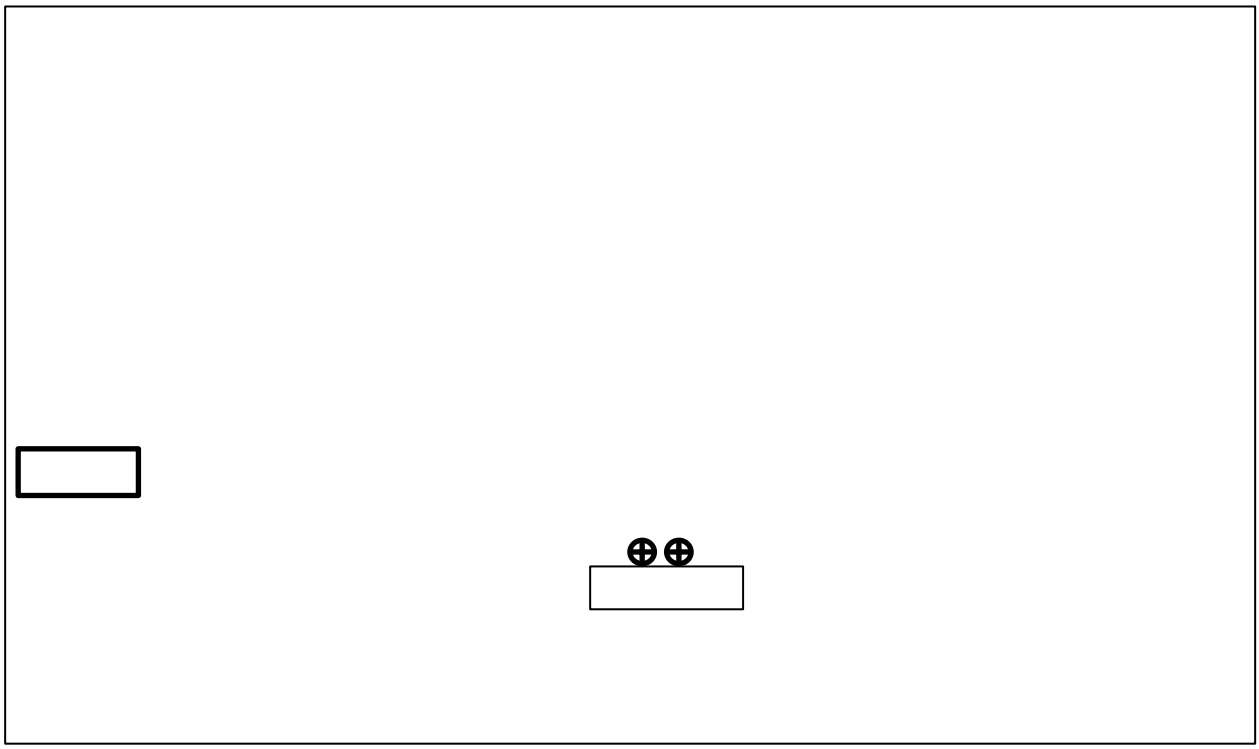


Figure 1.1 Telluride's Water Sources and Major Facilities (URS, 2010; modified 2019)

The Mill Creek WTP's current treatment capacity is 1.0 MGD or approximately 1.5 cfs. The WTP was designed to allow the addition of a third 0.5 MGD filtration unit to increase treatment capacity to 1.5 MGD (2.3 cfs). While the plant has been designed to be expanded to a capacity of 1.5 MGD (2.3 cfs), the raw water supply is not reliable. The amount of available water in the creek can drop to approximately 0.7 MGD. In addition, during periods of high turbidity, such as the spring run-off season, the plant capacity reduces to 0.25 MGD. Therefore, expansion of the Mill Creek WTP is considered infeasible.

Overall, the Mill Creek WTP is in fair condition and consistently produces water that meets drinking water standards (URS, 2010; Telluride Town Engineer, 2019).

STILLWELL WATER TREATMENT PLANT

The Stillwell Water Plant has served the Town of Telluride for over 100 years. It consists of the treatment plant itself and two treated water storage tanks. It maintains an important role in water treatment, treated water storage, and water delivery to all of Telluride's water users. The plant sits at an elevation of 9200 feet on the hillside directly north of town.

Prior to the Pandora WTP coming on line, the Stillwell WTP was used approximately 5 months per year during periods of peak water demand. It is now kept available for emergency service only. Nevertheless, the current capacity of the Stillwell WTP is 1.0 MGD, with two (2) 0.5 MGD conventional sand filters and chlorine disinfection. The treatment facility was upgraded over the years. For example, in 2010, Telluride installed an absorptive media filtration system to remove arsenic.

The two (2) treated water storage tanks are each 250,000-gallon tanks and these remain full and in use year-round. Treated water from the Mill Creek WTP reaches the tanks via gravity. Treated water from the Pandora WTP reaches the tanks via a Booster Pump Station located just west of Butcher Creek Drive. The tanks provide the hydraulic water grade line for the Town of Telluride's highest water pressure zone, which then cascades down to

the middle and lower pressure zones. The treated water stored in these tanks supplies Telluride with water for domestic use and fire protection.

Expansion of the Stillwell WTP capacity was rejected due to a constricted site and the unreliability of the raw water supply, which fluctuates between 0.02 and 1.0 MGD. When temperatures reach freezing, Stillwell's raw water supply can be zero (URS, 2010).

PANDORA WATER TREATMENT PLANT

The Pandora WTP currently has a capacity of 1 MGD or 1.55 cubic feet per second (cfs). The facility will be able to be expanded to 2 MGD or 3.0 cfs in the future, if needed. It currently houses a 700 gallons per minute (gpm) membrane filter, with space provided for a second future 700 gpm membrane unit, clean-in-place (CIP) equipment, ultraviolet (UV) and sodium hypochlorite disinfection systems, other chemical systems. The water supply to the Pandora WTP comes from the Bridal Veil Basin, which adds raw water storage to the Town's water supply through the Blue Lake Reservoir and other associated smaller reservoirs. This new portion of the water system connects to the Pandora Storage Tank, which has capacity to store 750,000 gallons of treated water. Water from the Pandora WTP and Storage Tank can also be pumped to the Stillwell Tanks via a Booster Pump Station.

EXISTING TREATMENT & WATER STORAGE SUMMARY

The total reliable production of the three existing water treatment plants will vary from 1.75 to 3.0 MGD depending upon the season. As a rule, with the only two plants operating, the seasonal production will total 1.75 MGD during the spring and winter, and 3.0 MGD during the summer. If additional sources of raw water supply are required to meet existing and future water demands, it is physically possible to increase the capacity of the Pandora WTP by an additional 1 MGD (URS, 2010; Telluride Town Engineer, 2019).

The Town has a total treated water storage capacity of 1,250,000 gallons as summarized in Table 1.1 below.

Table 1.1

Town of Telluride Treated Water Storage Capacity

Water System Component	Water Type	Total Capacity, gallons
Pandora Water Storage Tank	Treated	750,000
Stillwell Water Storage Tank No. 1	Treated	250,000
Stillwell Water Storage Tank No. 2	Treated	250,000
TOTAL		1,250,000

WATER DISTRIBUTION SYSTEM

Telluride retained Farnsworth Group to develop a Capital Asset Maintenance Plan for the existing water and wastewater systems in 2011. The primary purpose of the plan was to prioritize annual infrastructure replacement, keeping in mind the Town's budget constraints. The assessment was based on an inventory of pipe location, pipe age, and pipe construction material (Farnsworth, 2012). The inventory was created in a geographic information system. In 2019, Telluride Public Works updated this information about the water collection and distribution system and placed it on an interactive geographic information system platform. The updated data are presented in Table 1.2.

The Town of Telluride's water distribution system is summarized in Table 1.2 and described below:

- Approximately 109,555 lineal feet (103,654 plus 5,900), or 20.7 miles of pipe with diameters of 4-inch and larger.

- Approximately 2101.7 lineal feet of pipe labeled Hydrant Line of unknown material with 6-inch diameter. This is not included in the distribution pipe number.
- Nine pressure reducing valves (plus 1 before the Town Park festival use meter).
- One booster pump station
- Approximately 280 isolation valves
- Approximately 139 Hydrants
- Three pressure zones, 2 major and 1 minor or small

Table 1.2
Telluride's Water Distribution Pipe Length by Diameter and Material (updated 2019)

Diameter (inches)	Material	Length (ft)
6	AC (Asbestos cement)	2,608.5
8	AC	12.8
4	DIP (Ductile Iron Pipe)	3,399
6	DIP	21,242
8	DIP	24,342.8
10	DIP	25,296.9
12	DIP	4,711.3
4	HDPE (High Density Polyethylene	1,541
6	HDPE	23
4	PVC (Polyvinyl Chloride)	5,128
6	PVC	288
10	PVC	787
10	Spiral Wound Steel	10,646.3
10	Unknown	3,628
12	DIP (Pandora TWL)	5,900
	TOTAL	109,555

Source: Town of Telluride Public Works Utility GIS, 2019

WATER COLLECTION SYSTEM (BRIDAL VEIL BASIN)

The Pandora WTP and its associated collection system are considered a reliable water supply now and into the future. The Town divides the collection system for the Pandora WTP into two sections: (1) the Bridal Veil Water System; and (2) the Pandora Raw Water Pipeline, which originates below a Concrete Junction Box located immediately downstream from the Bridal Veil Power House tailrace. The raw water pipeline consists of 12-inch diameter steel and ductile iron pipe extending 10,200 feet and ranging in elevation from 10,295 feet at the power house to an elevation of 9,222.5 feet at the Pandora WTP. A Constant Head Box is located downstream of the Concrete Junction Box. Its function is to prevent air from entering the raw water pipeline and to allow trapped air to escape, if needed, away from the historic Bridal Veil Powerhouse.

Bridal Veil Water System

The Bridal Veil Water System is situated in the watershed above the Concrete Junction Box upstream of the Bridal Veil Power House tailrace. Effective January 8, 2013, Idarado Mining Company and the Town entered into a Comprehensive Settlement Agreement regarding the Bridal Veil Water System, which was recorded September 16, 2013, at Reception No. 429773 of the records of the San Miguel County Clerk and Recorder. The provisions of the Comprehensive Settlement Agreement contemplate and govern the shared operation and maintenance activities of the Bridal Veil Water System, with the Town owning 15/39^{ths} of the system and Idarado Mining Company owning 24/39^{ths} of the system. The Bridal Veil Water System includes, but is not limited to, the following components:

1. Blue Lake Reservoir Nos. 1 and 2 (together referred to as "Blue Lake").

2. Blue Lake Pipeline. Beginning at the outlet of Blue Lake Reservoir and terminating at the Bridal Veil Power Station.

3. Mud Lake Creek Pipeline. From the head gate on Mud Lake Creek approximately 1,500 feet upstream from its confluence with Bridal Veil Creek.

4. Blue Lake Supply Pipeline, Bridal Veil Branch (a/k/a "Lewis Pipeline").

5. Head of Bridal Veil Reservoir (a/k/a "Lewis Lake").

6. Bridal Veil Powerhouse (BVPH) Bypass. This conduit is used to divert water in the Blue lake Pipeline around the Bridal Veil Power Station.

7. Falls Crest Diversion Point (a/k/a "Bridal Veil Pipeline and Water Right").

Telluride owns a total of 1,500 acre feet of relatively senior storage rights in the Bridal Veil Basin as follows:

- 920 acre feet in Blue Lake under 8-25-1899 appropriation;
- 413 acre feet in Blue Lake under 7-15-1903 appropriation;
- 67 acre feet in Lewis Lake (Head of Bridal Veil reservoir) under appropriation 7-2-1916.

Telluride also owns 6,198.7 acre feet of junior conditional water storage rights in the basin.

All storage rights owned by the Town in Bridal Veil Basin are subject to limits contained in various water rights decrees, as well as the 2013 Comprehensive Settlement Agreement with Idarado Mining Company.

BVPH Bypass

Water from Blue Lake flows into the Blue Lake Pipeline and travels towards the BVPH. Before entering the BVPH, the water flows through a valve and pipe manifold system that allows water to be directed into the BVPH or around the building and into the Town's bypass line. Standard/normal operation directs water through a valve, which is open during normal operations, and into the BVPH for electricity production before it leaves the building and flows into the Town and Idarado's respective water lines. If the BVPH needs maintenance and water must bypass the building, the normally open valve is closed and the bypass valve (normally closed) is open so all water entering the Blue Lake pipeline is directed into the bypass line. The bypass line is composed of 10-inch carbon steel and connects to the Pandora Raw Water Pipeline upstream of the Constant Head Box. The bypass line allows the Town to continue receiving raw water at Pandora WTP despite regardless of circumstances at the BVPH.

Constant Head Box

The Constant Head Box was designed and installed to prevent air accumulation in the Pandora Raw Water Pipeline. The steep slope of the pipe down the cliff face and along County Road K69 to the Pandora Water Treatment Plant (Pandora WTP) can create air pockets that can result in aggressive, high pressure releases that may create violent back blasts when they exit the pipe.

The Constant Head Box allows water from either the Concrete Box (i.e., water exiting the BVPH) or the Town's bypass line to enter the raw water pipeline without air entrapment issues. Water travels into the box and fills the upstream chamber. A perforated baffle calms turbulent influent flow before water travels downstream to a channel where most of the entrained air bubbles leave the water column. The box becomes deeper downstream to prevent remaining air bubbles from reaching the vertical stainless-steel outlet pipe. Water collected from the box through the vertical pipe is directed to the Pandora WTP. A small quantity of water overflows from the constant head box to provide a visual check for operators that sufficient flows are entering and exiting the box for the system to work as designed.

Pandora Raw Water Pipeline

The Pandora Raw Water Pipeline starts at a location identified as the Concrete Junction Box, which is situated just downstream from the Bridal Veil Power Station tailrace. It includes 119 feet of 16-inch ductile iron pipe and 10,081 feet of 12-inch steel and ductile iron pipe, which drops from an elevation of 10,295 feet at the Concrete Box to an elevation of 9,222.5 feet at the Pandora Water Treatment Plant.

TOWN PARK GROUNDWATER WELLS

Telluride owns and operates two (2) non-potable groundwater wells located in the Town Park adjacent to the San Miguel River. The wells are developed in alluvial materials consisting of interbedded rock, sand, and gravel. They are recharged by Bear Creek and the San Miguel River (Resource Engineering, 1994). During periods of prolonged pumping, the wells are hydraulically connected to San Miguel River streamflow. These water supplies are considered reliable from a quantity perspective.

Telluride's Parks and Recreation Department uses water from these wells in spring, summer, and fall for non-potable water uses such as parkland irrigation and for periodic street cleaning, and dust suppression on construction sites and roadways. Telluride Well TH-1 is metered and has been read manually on a regular basis since 2003. Telluride Well TH-2 is metered and has been read manually on a regular basis since 2000. Figure 1.2 presents the recorded water usage for these wells over time. Telluride Well TH-1 production is shown in light blue, and Telluride Well TH-2 production is shown in dark blue.

> Telluride Well TH-1 is located approximately 400 feet south of the San Miguel River and 1,200 feet down the San Miguel River from its confluence with Bear Creek. Drill Date – started August 3, 1977 and ended on October 7, 1977. Total depth – 90.5 feet. Diameter – varies from 19 inches down to 20 feet, to 12 inches down to 90.5 feet. Volume capacity – 250 – 500 gpm (WWE, 1977). Long term pumping tests indicated a sustainable yield of 230 gpm (0.33 MGD) (Resource Engineering, 1994).
>
> Telluride Well TH-2 is located approximately 150 south of the San Miguel River and 1200 feet down the San Miguel River from its confluence with Bear Creek. Drill Date – started on September 21, 1977 and ended on October 7, 1977. Total depth – 116 feet. Diameter – 10 inches for entire depth. Volume capacity – 1,000 gpm (WWE, 1977). Long term pumping tests indicated a sustainable yield of 640 gpm (0.9 MGD) (Resource Engineering, 1994).

It is unlikely that these water sources will be used for potable water needs in the future. The ground water in the vicinity of the wells was contaminated by mining and milling activities shortly after their construction. Water quality analyses found hexavalent chromium in excess of safe drinking water standards, as well as measurable amounts of lead. Water quality analyses in 2012 indicated that the groundwater from the wells is no longer contaminated; however, the Colorado Department of Public Health and Environment has historically advised Town that the wells do not represent a safe drinking water source (Resource Engineering, 1994).

TELLURIDE REGIONAL WASTEWATER TREATMENT PLANT

The Town of Telluride operates and maintains the Telluride Regional Wastewater Treatment Plant (Telluride WWTP), collecting and treating wastewater from the Town of Telluride, the Town of Mountain Village, Aldasoro Ranch, Lawson Hill, Hillside Subdivision, Sunset Ridge Subdivision, and Eider Creek Subdivision. It is an aerobic secondary treatment facility that has a rated capacity of 2.1 MGD.

The Town of Mountain village contributes 35 percent of capital and operating expenses in exchange for 35 percent of the plant's treatment capacity. The treatment plant operates under standards of the National Pollution Discharge Permit System administered by the State of Colorado.

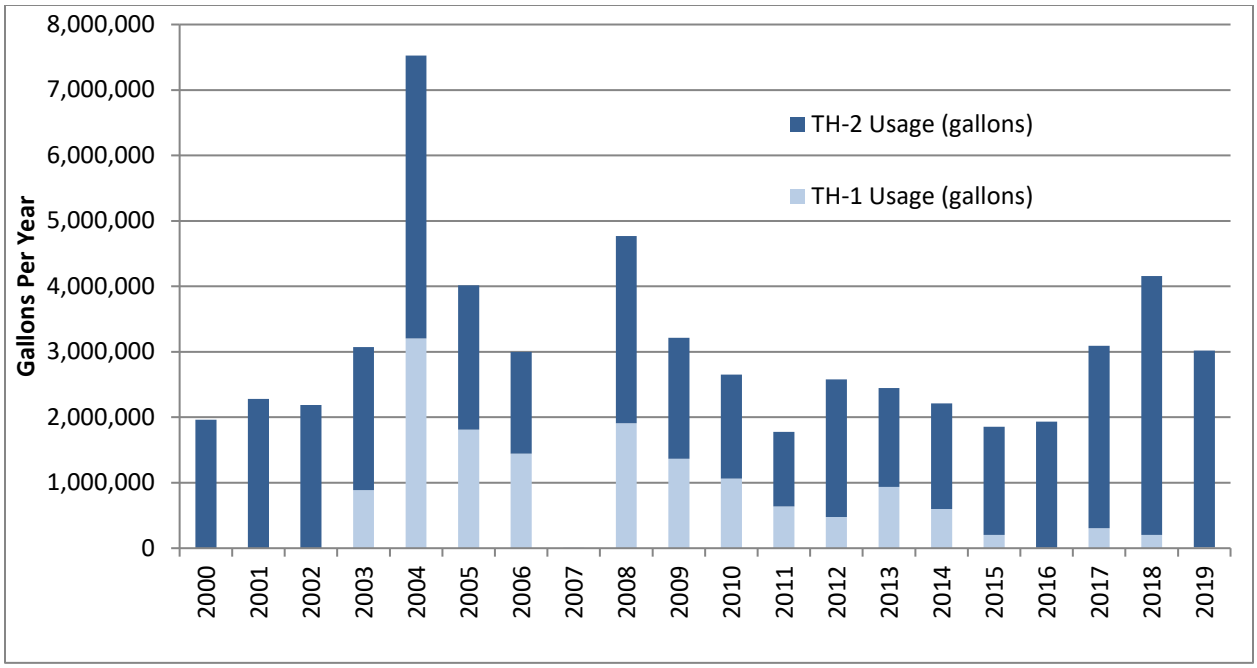


Figure 1.2 Town Park Wells Usage Over Time

Historically, biosolids (i.e., solids that remain after treatment) from the Telluride WWTP were transported 65 miles west to a land application site and incorporated into the soil as a fertilizer at an agronomic rate for beneficial use. In 2012, this rate was approximately 0.53 tons biosolids per acre or 4.5 percent solids. This equated to approximately 40 pounds of nitrogen per acre based on the *Guide to Fertilizer Recommendation in Colorado, 1985 Co-op Extension Service, C.S.U. Publication No. XCM-37*. In fall 2019, the land application site reached its limit and will remain fallow for approximately 2 years. A new dewatering system was installed and began operating at this time. The dewatered biosolids (at approximately 15% solids) are transported 65 miles to the Broad Canyon Landfill for disposal until land application is once again possible or a biosolids composting facility is determined to be viable. Biosolids composting is considered a better solution as it will enable full circle beneficial reuse of this resource.

WASTEWATER COLLECTION SYSTEM

Farnsworth Group developed a Capital Asset Maintenance Plan for Telluride's existing water and wastewater collection and distribution systems in 2011. The primary purpose of the plan was to prioritize annual infrastructure replacement within the Town's budget constraints. The assessment was based on an inventory of pipe location, pipe age, and pipe construction material was created in a geographic information system (Farnsworth, 2012). In 2019, Telluride Public Works placed this information, and updated information about the wastewater collection system, on an interactive geographic information system platform. The updated data are presented in Table 1.3.

The Town of Telluride's wastewater collection system is made of up the following components:

- Approximately 129,071 lineal feet or 24.4 miles with pipe diameters of 3-inches and larger;
- Five (5) sewer lift stations (one was abandoned in fall 2019); and
- Approximately 659 manholes.

A more detailed inventory list of the Town's wastewater collection system is shown in Table 1.3 below.

Table 1.3
Telluride's Wastewater Collection Pipe Length by Diameter and Material (2019)

Diameter (inches)	Material	Length (ft)
3	Steel FM	216.5
4	Clay	722
4	DIP (Ductile Iron Pipe)	280
4	PVC (Polyvinyl Chloride	808
4	Yelomine PVC	1,559
6	AC (Asbestos Concrete)	1,873
6	Clay	1,385
6	PVC	3,697
8	Clay	15515.4
8	DIP	104
8	PVC	72,749
10	Clay	582.3
10	PVC	3513.8
12	Clay	546
12	PVC	4,211
14	DIP	278
18	Clay	10,211
18	DIP	1,734
18	PVC	7,720
21	PVC	346
24	PVC	1,020
	TOTAL	129,071

Source: Town of Telluride Public Works Utility GIS, 2019

1.2 Water Supply Reliability

Telluride is located within the Colorado and San Juan/Dolores River Basin, which falls within the Colorado Statewide Water Supply Initiative's (SWSI) Southwest Basin. The 2007 SWSI report (CDM, 2007) estimated water shortfalls in the range of 5,100 -16,000 acres feet per year by 2050 for the Southwest Basin as a whole, depending on what projects are completed. However, based on SWSI 1 analyses, existing supplies and water rights are anticipated to be adequate to meet future needs in Montrose, San Juan, and San Miguel counties (CDM, 2007).

Telluride began to formally plan for its future water needs with its first Water System Master Plan Report (Wright-McLaughlin, 1977). Since that time, the Town has adhered to the idea that using multiple water sources can optimize the Town's water rights and area water resources, thereby increasing system reliability while also protecting the overall ecosystem (Wright-McLaughlin, 1977).

Telluride has historically determined water supply reliability through real-time analysis of water demand versus water source volumes and treatment capacity. As a resort community, Town staff conducts limited projections of water supply reliability for high-tourist volume periods, such as the Annual Bluegrass Festival toward the end of June and during the winter holidays. These projections/predictions include no safety factors in the calculations.

Telluride uses water conservation to improve overall water supply reliability, but to date has not relied on conservation to use saved water to support future population growth.

To date, the Town of Telluride has not included potential changes to water availability from climate change as a factor in its water supply planning.

When Telluride's water supply is adversely impacted by source water reliability or drought, specific criteria that trigger water conservation measures are identified in the Town's Municipal Code at §13-5-40 *Water shortages and conservation*, which is provided in the text box on the next page.

MILL CREEK

Mill Creek remains the primary water source for the Town of Telluride. Mill Creek water is generally good, but quality decreases due to turbidity seasonally with spring runoff. This increase in turbidity results in a necessary temporary reduction of Mill Creek WTP capacity in order to maintain treatment standards and backwash demands. The quantity of water in Mill Creek also varies seasonably and at times does not provide enough raw water to meet the capacity of the Mill Creek WTP and the Town water demand (URS, 2010).

As there is no method to store water within the Mill Creek system, excess Mill Creek flows continue downstream into the watershed supplementing flows in-stream.

CORNET CREEK WATER TREATMENT PLANT (FORMERLY, STILLWELL TUNNEL)

Prior to 2015, the Cornet Creek WTP was Telluride's secondary source of treated water. The Cornet Creek WTP is fed from groundwater accumulated in the Stillwell Tunnel. This water supply is influenced by historic mining activities and at times has elevated levels of arsenic. Water from the Cornet Creek WTP must be blended with water from the Mill Creek plant to meet standards (URS, 2010). When the Pandora WTP began operating, Cornet Creek WTP was turned off and transition to emergency water service only.

There is 0.5 million gallons of storage capacity within the Cornet Creek WTP system (i.e., 500,000 gallons in storage tanks). Any excess flows from the Stillwell tunnel that are not or cannot be stored continue downstream into Cornet Creek and then into the San Miguel River, supplementing in-stream flows.

Firm yield is the amount of water that can be diverted and beneficially used each year including during drought periods and the driest years of record. Data have indicated that the reliable production of the Mill Creek and Cornet Creek WTPs in a dry year is 0.86 MGD (1.3 cfs) in summer and 0.92 MGD (1.4 cfs) in winter (Resource Engineering, 1994). The Resource Engineering Water Plan Update (1994) noted that an additional winter supply of 1.15 MGD (1.8 cfs) was needed to supply the projected winter peak day demand and an additional summer supply of 1.75 MGD (2.7cfs) was needed to supply the projected summer peak day demand. For this reason, the Town moved forward to develop the Bridal Veil Water System to provide for this shortfall through production at the Pandora Water Treatment Plant.

PANDORA WATER TREATMENT PLANT & THE BRIDAL VEIL WATER SYSTEM

Due to the inability of the raw water supplies in Mill Creek and the Stillwell Tunnel to meet the quality and quantity demands of the Town, additional raw water sources were developed in the Bridal Veil Basin. Water from the Bridal Veil Basin, which currently includes Mud Lake, Blue Lake, and Lewis Lake, will provide a high quality, more reliable supply to the Town of Telluride (URS, 2010).

Water from Bridal Veil Basin supplies the Pandora WTP, rectifying problems with the Mill Creek and Cornet Creek (formerly, Stillwell) water system components that were identified in previous water system master plans and evaluations. These problems were primarily associated with a lack of a reliable raw water supply, but water quality limitations also played a role.

Telluride Municipal Code Section 13-5-40 Water shortages and conservation

(a) Water shortage defined. A water shortage is declared to existing if one (1) or more of the following circumstances exist:

(1) When the Town's total water treatment capacity and potable water consumption are approaching or at eighty percent (80%) for voluntary conservation and ninety percent (90%) for mandatory conservation; or the Town Manager otherwise determines that the Town's raw water supply or water treatment system is insufficient to satisfy the daily water use demands for the applicable time period. Total water treatment capacity shall be determined by the Public Works Director utilizing the total combined treated water available from the Town's Mill Creek Plant, the Stillwell Tunnel Plant and such other potable water supply systems as may be developed by the Town.

(2) When the Town is unable to treat sufficient water to maintain its treated water storage reservoirs at Stillwell, the Falls at Telluride or any other raw or treated water storage reservoirs developed by the Town, at their maximum capacity.

(3) When an emergency condition arises such as a mechanical breakdown or reduced treatment capacity due to high stream turbidity, insufficient raw water supply or fire flow requirements.

(4) When any or all of the above is anticipated to occur in the near future and it is determined that immediate imposition of the conservation measures is necessary to ensure adequate time for public awareness and education to ensure the level of compliance required.

(5) When implementation of water conservation measures is required by reason of any water court decree or stipulation.

The Idarado Mining Company also owns water rights and diversion and storage facilities in the Bridal Veil Basin. Many of the facilities are jointly owned with the Town and the two entities coordinate their water supply activities. Historically, the Town has estimated that the firm yield of the Bridal Veil Basin is approximately 2,000 to 2,250 acre-feet annually. However, these estimates are based upon hydrologic modeling of the basin, not upon actual operations within the basin. As a result, the Town of Telluride and Idarado Mining Company share data and other information relating to the firm annual yield of the Bridal Veil Water System and periodically update their estimates of firm yield through analysis of multiple years of operations and water supply.

The Town plans to store excess water supplies in the Bridal Veil Water System as drought reserves.

TOWN PARK GROUNDWATER WELLS

As described earlier, the Town uses untreated water from groundwater wells TH-1 and TH-2 for irrigating its playing fields at the Town Park. The wells have been developed in alluvial sands and gravels adjacent to the San Miguel River and production from these wells is considered very reliable even during drought years when surface streams are low.

1.3 Supply-side Limits and Future Needs

Supply-side limits and the future water needs of Telluride's water service area are summarized in the paragraphs below. As well, Worksheet A in Appendix 3 provides a summarized tabulation of these water supply limits and future water needs.

FACILITY ENHANCEMENTS

The Town last updated its Water Supply Master Plan in 2010. This update substantiated conclusions outlined in the Town's 1994 and 2002 Water Master Plan updates—without the development of additional water supplies, the

Town could experience water shortages in the foreseeable future. These findings supported Telluride's work to complete the Pandora WTP and its associated water collection and distribution system components.

The Pandora WTP is designed to house future capacity increase of 1.0 MGD, if demand requires. Specifically, the Pandora WTP, since it began operations in November 2014, is sized for 700 GPM. A Phase 2 future expansion could add another 700 GPM, which would result in a total capacity of 1,400 GPM or 2 MGD. However, the Comprehensive Settlement Agreement with Idarado Mining Company at Section XIII.3 (page 19 of 108) states "that in the event Telluride determines it is necessary to increase the capacity of the PWTP, it will give Idarado one year of notice prior to operating the PWTP at a capacity greater than 1.0 MGD."

WATER ACQUISITION

The Town owns an extensive water rights portfolio that supports various direct flow and storage diversion sites located throughout the valley. The Town does not have plans to acquire additional water rights at this time.

As well, with the completion of the Pandora WTP and associated water supplies available from the Bridal Veil Creek Basin, the Town believes that it will have an adequate water supply to meet current and future needs. No future water acquisitions are planned. During the term of the Comprehensive Settlement Agreement with Idarado Mining Company, which started January 2012 and will continue for 20 years, pursuant to Section XIX.6 (page 25 of 108) Telluride and Idarado have both agreed not to appropriate additional water rights in the upper San Miguel River basin without advance written consent of the other Party.

WATER EFFICIENCY

It remains unclear whether water efficiency measures might quantitatively help address water supply limits and future needs of Telluride.

2.0 Profile of Water Demands and Historical Demand Management

Telluride's treated water supply is used by residents for domestic in-house purposes and lawn irrigation and by commercial enterprises within the Town's water service area. The Town's geographic water service area remains as described in the 1993 Master Plan (Resource Engineering, 1993). Generally, it includes those areas that can be logically serviced through a gravity distribution system including the downtown core, the Falls Subdivision, Brown Homestead, Hillside/Eider Creek, Sunset Ridge Subdivision, the valley floor (north of Highway 145), and Lawson Hill (Resource Engineering, 2010). It is important to note that a large portion of the valley floor area north of Highway 145 was approved for development and will be providing its own water. Figure 2.1 presents a map of the Town of Telluride's water service area.

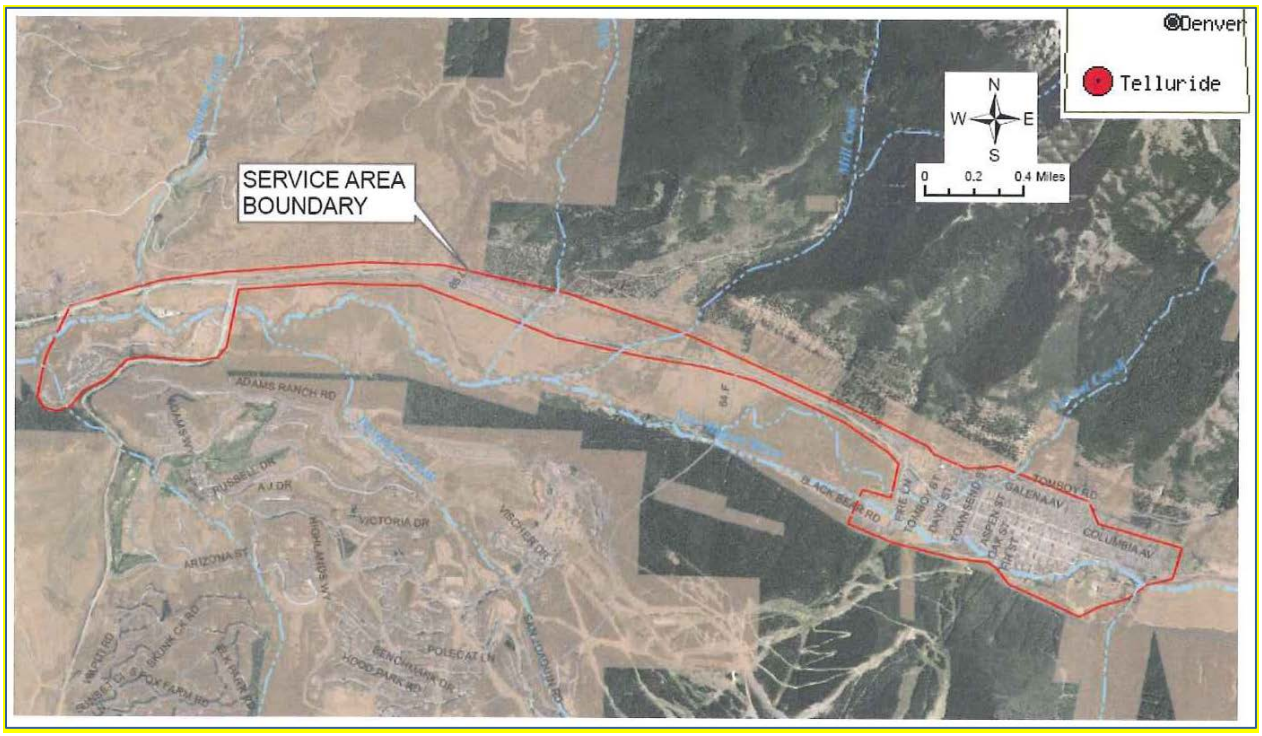


Figure 2.1 Map of the Town of Telluride's Water Service Area (URS, 2010)

2.1 Demographics and Key Characteristics of the Service Area

WATER CUSTOMER CATEGORIES

As of January 1, 2020, the Town of Telluride has the following eleven (11) customer categories:

1. In-Town Residential
2. In-Town Commercial
3. Construction Discount
4. Out-of-Town Residential
5. Out-of-Town Commercial
6. Commercial – Hillside
7. Hillside (residential)
8. Lawson (residential)
9. Size & Deed Restricted Residential
10. Irrigation Only
11. Elderly Very Low Income Residential

SERVICE AREA POPULATION

Interpolation using the Colorado Department of Local Affairs Census information places the Telluride Service Area Population at approximately 3,670 individuals. Because the Town of Telluride service area is part of a resort economy, the sample population for State of Colorado permits is 9,600 individuals. This higher number is an attempt to incorporate the seasonal swings in water use created by tourists and second homeowners.

AGE OF HOUSING STOCK

The Town of Telluride relies on data from the San Miguel County Assessor's Office to determine the age of the housing stock in its water service area. However, there is no certain way to determine the age of indoor appliances and fixtures. Table 2.1 lists the number of buildings in a variety of building age ranges. Older buildings that have been remodeled are listed in the age range of the remodel.

Table 2.1
Housing Stock Age Within Town of Telluride Water Service Area

BUILDING AGE RANGE	NUMBER OF UNITS
1883 – 1969	76
1970 – 1979	223
1980 – 1989	457
1990 – 1999	289
2000 – 2009	287
2010 - 2020	261
UNKNOWN	25
TOTAL	2,218

Source: San Miguel County Assessor's Office, May 2019

AGE OF WATER DISTRIBUTION SYSTEM INFRASTRUCTURE

Pipe age and pipe material were the two main factors used to assess the water system for the Water/Wastewater Capital Asset Maintenance Plan (Farnsworth Group, 2012). Based on as-built records, the Farnsworth Group created layer attribute data tables for use in a Geographic Information System that include pipe material, pipe diameter, and date of construction. These data are regularly updated by the Public Works Department. Figure 2.1 depicts the age of the pipe that makes up Telluride's water distribution system. In general, it ranges from less than 1 year old to over 60 years old (sections of pipe associated with the Mill Creek Water Treatment Plant).

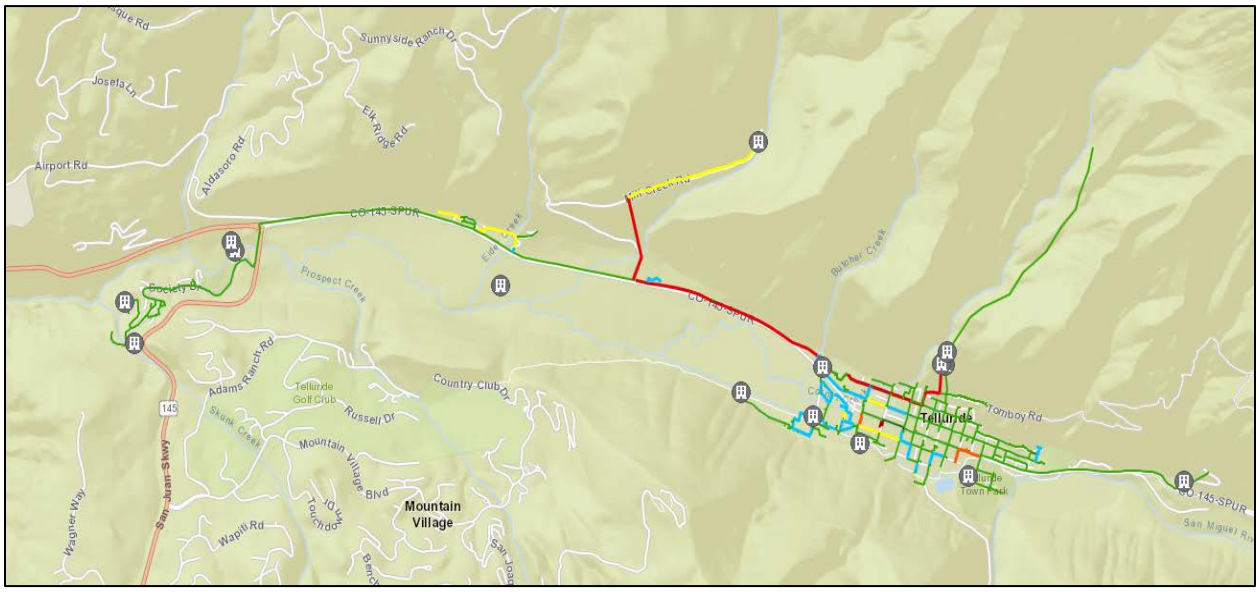


Figure 2.1 Water Distribution Pipe Quality Based on Age (Source: Town of Telluride Public Works Utility GIS, 2019)

2.2 Historic Water Demands

Table 2.2 presents 31 years of maximum (MDD) and average daily demand (ADD) in gallons per day for each year, for the winter season (October through March), and for the summer season, (April through September). Figure 2.2 and Figure 2.3 compare 5-year averages for the yearly, winter, and summer ADDs and MDDs, respectively.

Winter

- The average demand (i.e., ADD) for winter decreased by 5.7% between 1989 and 2018.
- The peak demand (i.e., MDD) for winter increased by 2.6% between 1989 and 2018.
- Winter use peaked in the period between 1994 and 1998

Summer

- The average demand (i.e., ADD) for summer increased by 4.5% between 1989 and 2018.
- The peak demand (i.e., MDD) for summer decreased by 0.2% between 1989 and 2018.
- Summer use peaked in the period between 1999 and 2003.

LIMITS ASSOCIATED WITH THE AVAILABILITY OF THE DEMAND DATA

Table 2.3 summarizes the Town's total treated water volume and allocates the distributed water into billed and non-billed categories for the period 1989 through 2018.

The Telluride Parks and Recreation Department uses raw water from the Town's wells TH-1 and TH-2 to irrigate the playing fields in the park. This usage is metered. Both Lawson Hill and the Hillside subdivision use raw water sources, which are completely independent from the Towns water service, for landscaping irrigation. The Town of Telluride has no data regarding water volumes used.

There is currently no reclaimed water use within the Telluride Water Service Area.

WATER DEMAND BY CUSTOMER CATEGORIES

Prior to January 1, 2014, the Town divided its customers into 8 categories. Two additional categories – "irrigation only" and "small deed-restricted" – were added starting in 2014 for billing purposes. An "Elderly, Fixed Income" category was created in 2019. The few "irrigation only", "small deed-restricted" and "elderly, fixed income" are included in the residential usage category based on location for all analyses.

Table 2.4 shows annual treated metered water use by customer category from 2001 through 2018. These data can be divided into bi-monthly usage. Continuing to maintain these data facilitates robust long-term data analysis of water use trends by customer type. The Telluride Parks and Recreation Department is the only raw water/reclaimed metered water user within the Town's Service Area. The Parks and Recreation Department irrigates the park playing fields with raw water from the Town's wells TH-1 and TH-2. These annual data are presented in Table 2.3, but are not included in Table 2.2 or Table 2.4.

Both Lawson Hill HOA and the entire Hillside Subdivision use raw water to irrigate. Lawson Hill uses its water rights from Skunk Creek, diverting approximately 0.25 cfs to irrigate landscaping on common areas of the Property Owners' Association. Hillside uses Telluride's right to Eider Creek, when it is not being used by the Town to irrigate the Valley Floor. They also make use of a spring that goes to a tank and into a water system used by the Subdivision prior to it being connected to Telluride's treated water system. It is estimated that the subdivision uses between 6,000 and 7,000 gallons per day during the irrigation season.

Figures 2.4 and 2.5 present data for residential and commercial water users over time by billing period. Not surprisingly, the July-August use/billing period is highest for all user groups. This summer period is when summer irrigation is greatest and only a small proportion of irrigation usage is metered separately. The commercial users' secondary peak usage is during the peak holiday season.

TABLE 2.2

Average Day Demand (ADD) and Estimated Maximum Day Demand (MDD) in gallons per day

Year	Total MDD[1]	Total ADD[2]	Winter MDD[3]	Winter ADD[4]	Summer MDD[5]	Summer ADD[6]
1988		440,518	696,600		883,700	
1989	508,017	461,833	508,017	461,833	969,850	554,254
1990	464,467	422,243	646,567	368,428	886,710	480,837
1991	465,556	423,233	592,526	403,689	888,790	442,375
1992	530,030	481,845	674,583	445,536	1,011,875	518,200
1993	410,332	373,029	522,240	398,981	783,360	347,656
1994	534,366	485,788	680,103	425,734	1,020,154	545,443
1995	535,504	486,821	681,550	434,864	1,022,325	537,798
1996	612,242	556,584	779,217	467,368	1,168,825	645,298
1997	629,541	572,310	801,234	486,549	1,201,851	655,948
1998	645,216	586,560	821,184	497,607	1,231,775	674,239
1999	675,158	613,780	859,292	520,826	1,288,937	707,191
2000	598,813	544,375	762,125	462,185	1,143,188	625,565
2001	587,232	533,848	747,387	429,850	1,121,080	637,058
2002	556,177	505,615	707,861	428,717	1,061,792	581,520
2003	548,212	498,374	697,724	411,348	1,046,586	585,219
2004	570,907	519,006	726,608	403,468	1,089,913	656,997
2005	588,300	534,819	748,746	426,661	1,123,119	642,410
2006	486,183	441,984	618,778	365,290	928,167	519,450
2007	500,269	454,790	636,707	395,055	955,060	514,565
2008	522,208	474,735	664,629	375,312	996,943	573,569
2009	482,318	438,471	613,859	347,458	920,788	528,506
2010	526,357	478,506	669,909	364,490	1,004,863	590,871
2011	527,521	479,564	671,390	366,541	1,007,085	592,105
2012	507,819	461,654	646,315	339,597	969,473	582,390
2013	509,239	462,945	648,123	358,815	972,184	565,780
2014	509,239	462,945	648,123	358,815	972,184	565,780
2015	548,125	498,295	697,613	427,836	1,046,420	573,354
2016	437,983	398,166	557,433	347,143	836,149	448,753
2017	445,625	405,114	567,159	353,176	850,739	456,608
2018	468,145	425,587	595,821	356,497	893,732	494,134
AVERAGE	529,844	481,677	671,576	405,208	1,011,521	558,483

Source: Water production data provided by the Telluride Water-Wastewater Division (2019)

Column Explanations:

Column 1 – Estimated total maximum day demand is calculated as the sum of the measured maximum day demands for each month, divided by 365 days and then multiplied by 1.1.

Column 2 – Total average day demand is calculated as the sum of the measured annual water production, divided by 365 days.

Column 3 – Estimated winter maximum day demand is calculated as the sum of the measured maximum day demands for each month, divided by 365 days and then multiplied by 1.4.

Column 4 – Estimated winter average day demand is calculated as the average of the measured water production from October through March.

Column 5 – Estimated summer maximum day demand is calculated as the sum of the measured maximum day demands for each month, divided by 365 days and then multiplied by 2.1.

Column 6 – Estimated summer average day demand is calculated as the average of the measured water production from April through September.

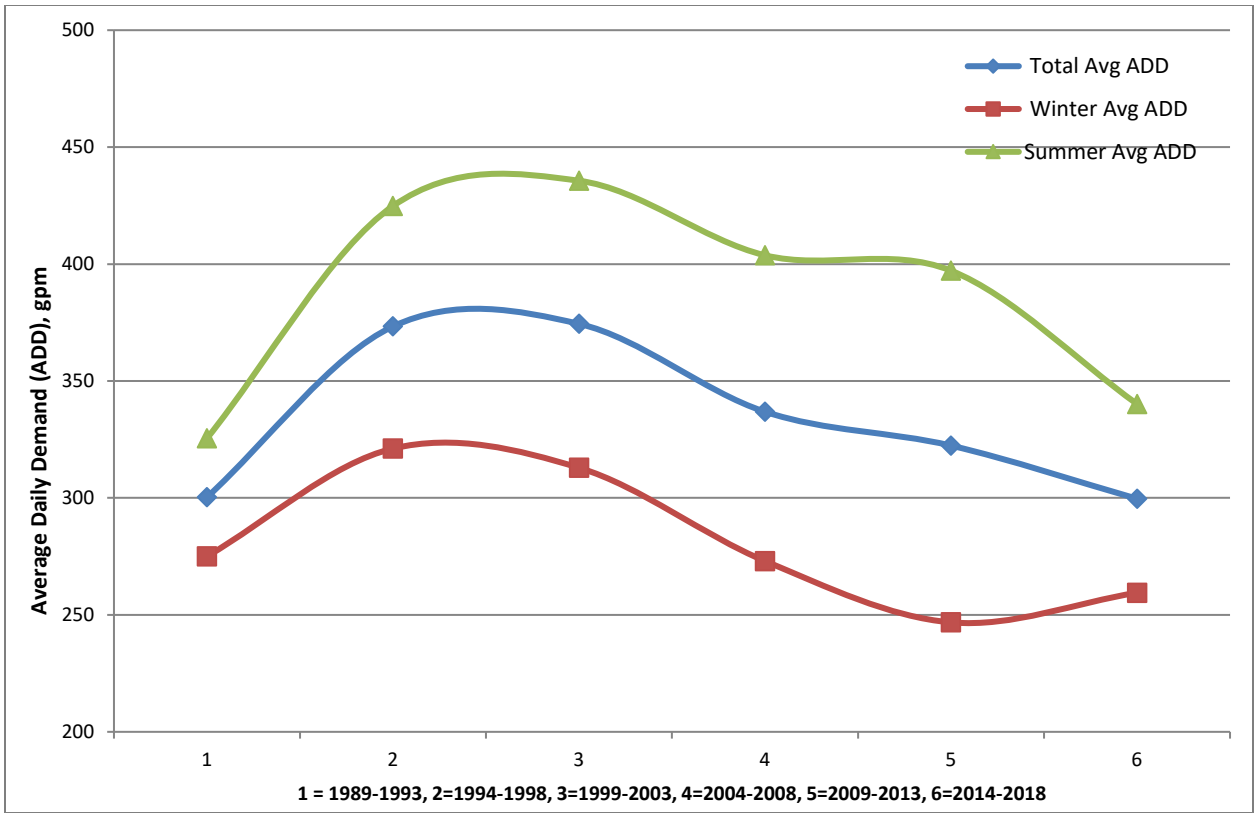


Figure 2.2 Average daily demand for treated water over time (5-year averages)

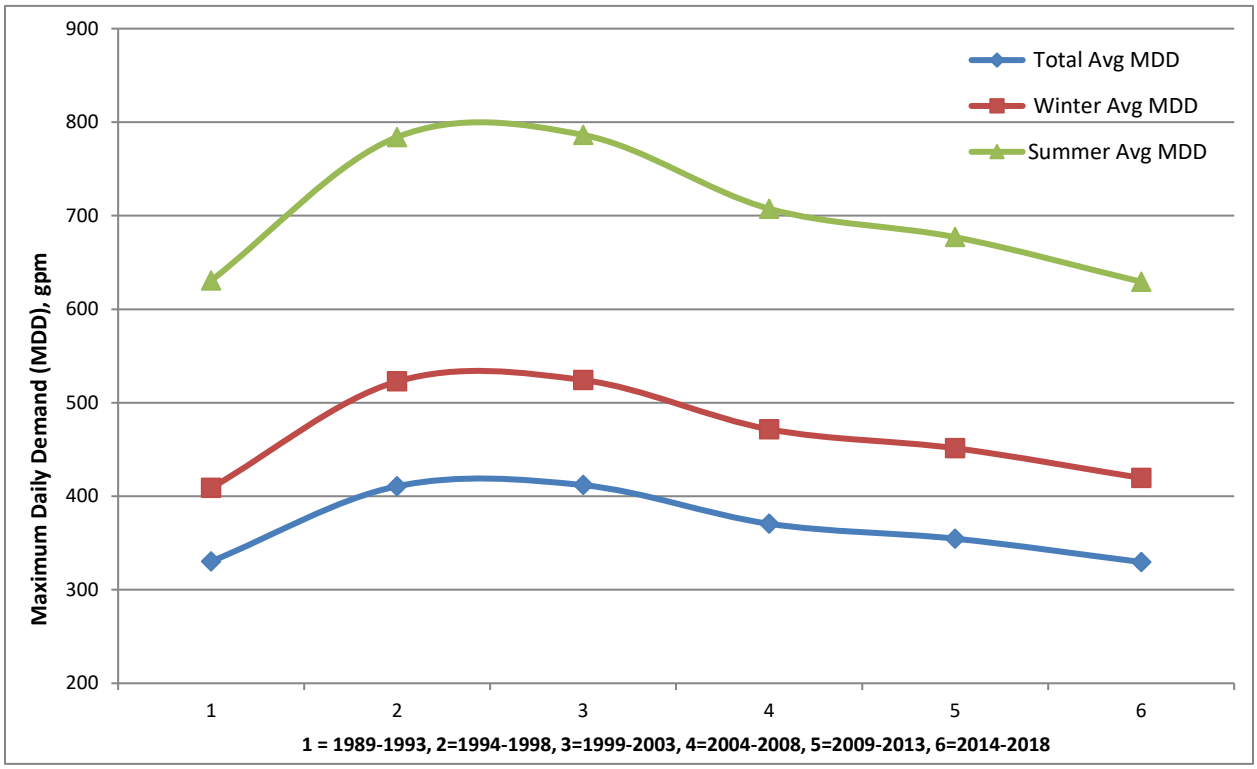


Figure 2.3 Maximum daily demand for treated water over time (5-year averages)

TABLE 2.3

Total Annual Accounted for Water Volume and Unaccounted for Volume,

millions of gallons, 1989 – 2018

	Treated Water Volume			Authorized Consumption (Accounted for Treated Water Volume)[1]			Water Losses (Unaccounted for Water Volume)[2]			Raw Distributed[3] Non-potable Water (used for park irrigation)
Year	Total	Winter (Oct-Mar)	Summer (Apr-Sep)	Total	Winter (Oct-Mar)	Summer (Apr-Sep)	Total	Apparent Losses	Real Losses	
1989	169	67	102	-	-	-	-	-	-	-
1990	154	66	88	-	-	-	-	-	-	-
1991	154	73	81	-	-	-	-	-	-	-
1992	176	81	95	-	-	-	-	-	-	-
1993	136	72	64	-	-	-	-	-	-	-
1994	177	100	77	-	-	-	-	-	-	-
1995	178	99	79	-	-	-	-	-	-	-
1996	203	85	118	-	-	-	-	-	-	-
1997	209	89	120	67	27	31	142	-	-	-
1998	214	91	123	-	-	-	-	-	-	-
1999	224	95	129	109	-	-	115	84	30.8	-
2000	199	84	115	-	-	-	-	-	-	2
2001	195	78	117	111	53	57	84	-	-	2
2002	185	78	107	125	55	69	60	-	-	2
2003	182	75	107	-	-	-	-	-	-	3
2004	189	73	116	117	53	63	72	61	11.3	8
2005	195	78	117	-	-	-	-	-	-	4
2006	161	66	95	125	56	67	36	-	-	3
2007	166	72	94	144	66	77	22	-	-	0
2008	173	68	105	125	60	64	48	-	-	5
2009	160	63	97	125	55	69	35	-	-	3
2010	175	66	109	120	54	64	55	-	-	3
2011	175	67	108	119	54	63	56	-	-	2
2012	169	62	107	111	49	61	58	-	-	3
2013	169	65	104	115	53	62	54	43	11.3	2
2014	182	77	105	118	55	63	64	63	0.7	2
2015	145	63	82	110	51	59	35	23	11.9	2
2016	148	64	84	117	51	66	31	21	10.3	2
2017	155	65	90	118	51	67	37	24	13.0	3
2018	157	70	87	117	51	64	41	26	14.3	4
AVERAGE (2014-2018)	**157**	**68**	**90**	**116**	**52**	**64**	**42**	**32**	**10**	**3**
AVERAGE (1989-2013)	**179**	**77**	**103**	**116**	**53**	**62**	**64**	**63**	**18**	**3**

Source: Data provided by the Telluride Water-Wastewater Division, Finance Department, & Parks Department

[1] Based on billed water volume sales from metered accounts.

[2] Based on treated water data from the water treatment plant

[3] Meter readings for Town Park Wells TH-1 and TH2, which are used only to irrigate Town Park playing fields

TABLE 2.3
Telluride Water System Historical Demand Volume by Customer Category
Thousands of Gallons, 2001 – 2018

Year	Commer-cial In-Town	Commer-cial Hillside	Commer-cial Out of Town	Con-struc-tion	Hillside	Lawson	Resi-dential	Resi-dential out of Town	Un-billed Author-ized Use	Spec. Use Mtrd & Billed Author-ized Use	Total Annual Usage, 1000Xgal
2001	64,539	162	2,605	-	2,220	5,790	34,724	-	1,400		111,440
2002	69,230	26	2,530	-	1,919	5,749	44,594	-	1,400		125,448
2003	-	-	-	-	-	-	-	-			-
2004	63,062	217	2,143	-	2,250	5,696	41,488	495	1,400		116,751
2005				-							
2006	70,152	684	2,361	-	2,559	5,992	40,924	451	1,400		124,523
2007				-					1,400		143,834
2008	66,678	1,985	1,216	0	2,936	6,169	36,662	198	1,400		124,602
2009	65,831	2,867	2,200	16	2,601	6,006	43,330	431	1,400		124,682
2010	60,649	2,443	1,723	0	2,594	6,002	44,444	530	1,400		119,785
2011	59,335	2,418	1,637	0	2,544	5,486	45,609	472	1,400		118,901
2012	53,758	2,553	1,830	37	2,411	5,972	42,675	394	1,400		111,030
2013	56,218	2,241	2,291	69	2,351	7,942	43,630	344	1,400		116,486
2014	59,672	1,989	2,893	65	2,323	7,135	43,733	341	1,400		119,551
2015	52,855	1,828	5,200	41	2,121	5,303	40,875	288	1,509		110,020
2016	58,017	1,946	3,571	-	2,078	5,284	41,694	337	3,524	223	116,674
2017	57,678	1,946	3,659	-	2,169	5,560	42,881	290	4,035	2	118,220
2018	55,821	2,029	3,604	7	2,459	5,277	41,223	350	4,798	685	116,253

Source: Finance Department Billing Records Data

LARGEST WATER USER GROUPS

The largest water user groups by volume are in-town commercial and in-town residential, respectively. It should be noted that the term “commercial” is applied not only to businesses, but also to hotels and condominium complexes of 8 units or more. Both in-town commercial and in-town residential water users implemented basic water efficiency appliances and devices as required in Telluride’s building codes when the spaces were built or remodeled. No one water user customer category has been targeted for specific water efficiency activities. Therefore, it is not possible to attribute reductions in water use over time to specific activities.

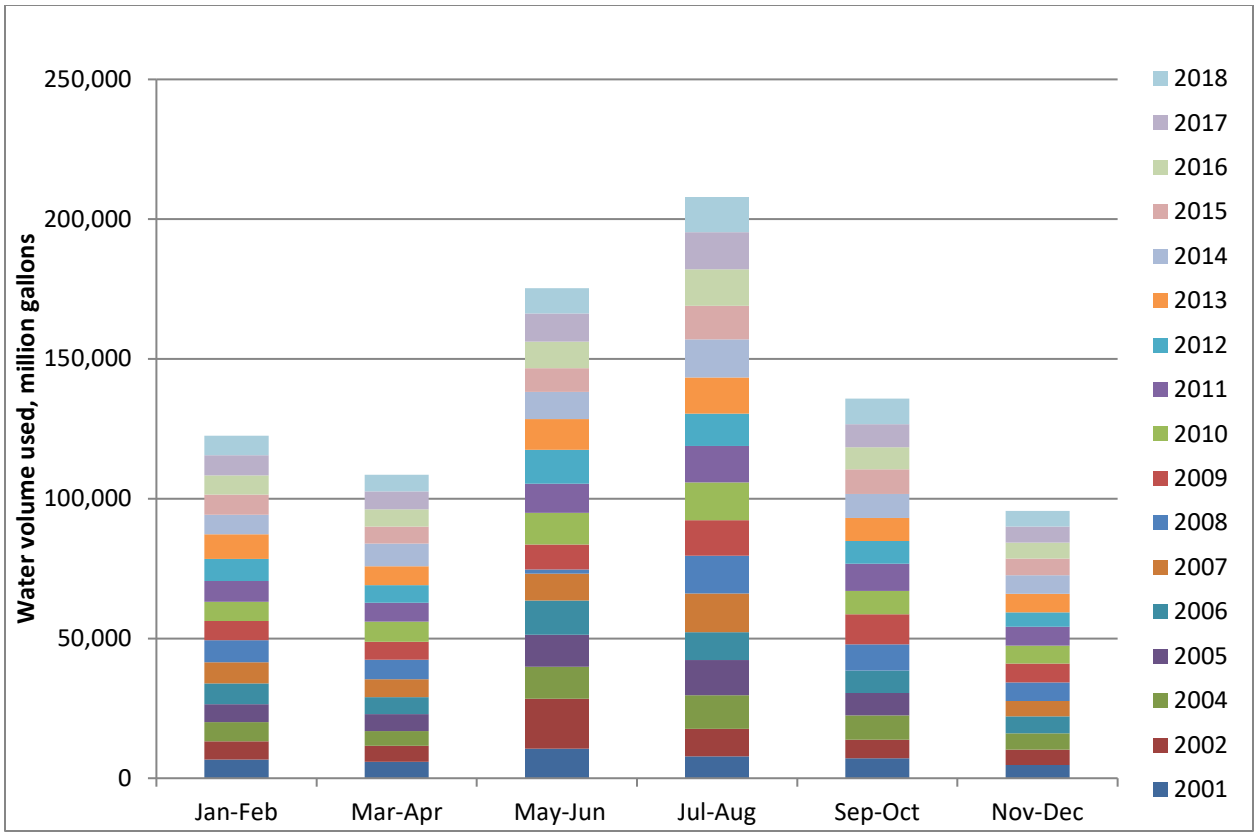


Figure 2.4. Residential water usage by billing period, 2001 through 2018.

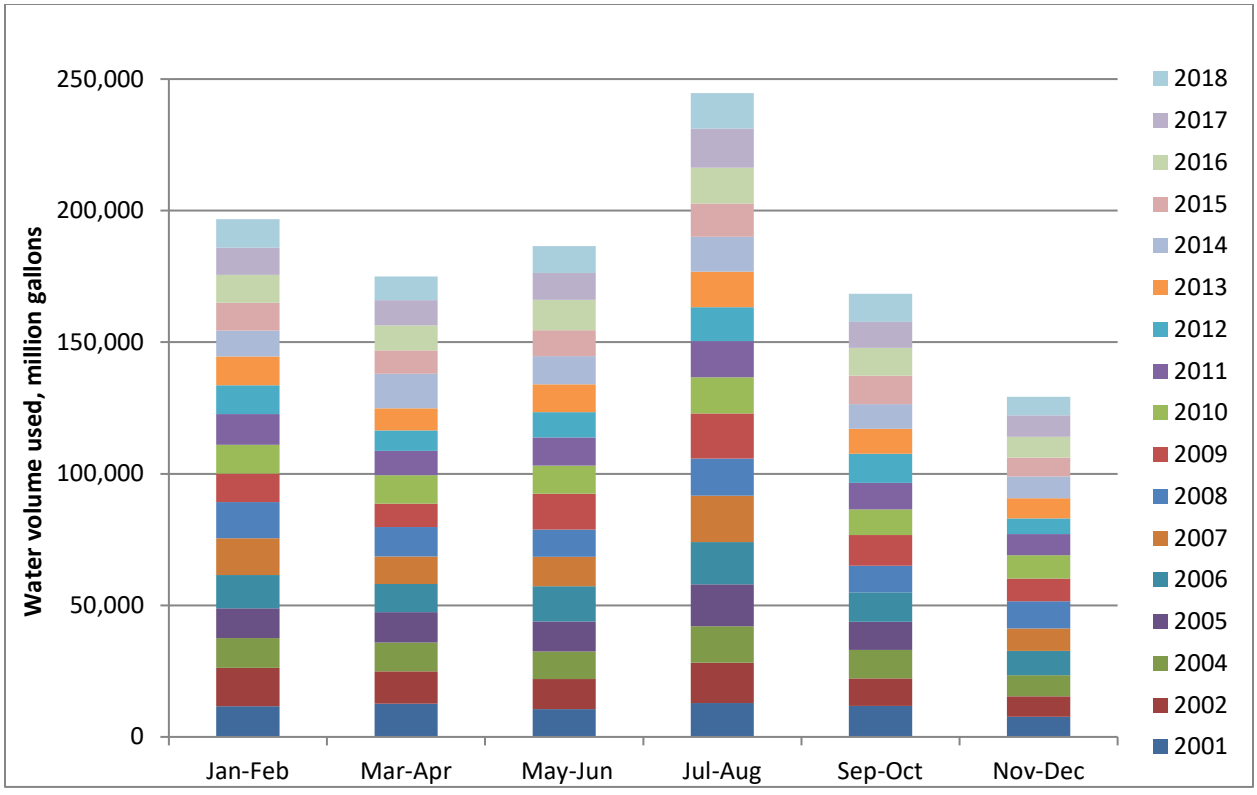


Figure 2.5 Commercial water usage by billing period, 2001 through 2018.

2.3 Past and Current Demand Management Activities and Impact to Demands

In its report on water demand (2010), Resource Engineering noted an observed decline in overall domestic water use. Water demand peaked in 1999 followed by a general decline through 2018. See figures 2.2 and 2.3. Although overall average water demand has declined in recent years, peak day water use patterns, both summer and winter, have remained similar over the last 13 years.

CONSERVATION MEASURES

Resource Engineering (2010) attributed the decline in domestic water demand to a series of water conservation measures implemented by the Town of Telluride. From a broader perspective, it may be that the Town was also seeing the results of the Energy Policy Act of 1992, which mandated the manufacture of low flow toilets and showerheads. These measures, which are classified as "Foundational Conservation Measures" by the Colorado Water Conservation Board, are detailed below.

- *Metering*. Historically, like many small, mountain towns, Telluride did not meter treated water use. The first attempts to meter potable water use were in the 1970s. The success of this early program was limited, at best. The 1993 Master Plan recommended trying metering again. This last round was completed between 2003 and 2006, over 10 years later. According to the available data, only a few water users remained unmetered in 2014, due to the difficulty of meter installation. As opportunities arose over the last 5 years, these accounts were metered.

- *Water Conservation Ordinance*. Telluride developed and implemented a Water Conservation Ordinance within its Municipal Code in 2002-2003 in response to the 2002 drought and concerns that the Town's existing water supplies would not meet demand in times of drought. The Ordinance is broken into three parts: (1) Installation of high-efficiency fixtures; (2) Landscaping; and (3) Water shortages and conservation (i.e., emergency conservation measures). Telluride's Green Building Code also requires specific high-efficiency standards for plumbing that supplement the Water Conservation Ordinance.

- *Water Main Replacement*. The Town replaced the aging, leaky water main along Colorado Avenue from Willow Street to Davis Street and then down to Pacific Avenue over a period of 5 construction seasons, starting in 2009. Water service lines to individual buildings were updated as part of a coordinated effort during the main line replacement. The water savings that resulted from this major replacement/repair project has not been quantified.

- *Systematic Leak Detection and Repair*. The Public Works Department implemented a leak detection and repair program in the mid-1980s. Currently, a new leak detection survey is conducted every 12 to 18 months. Repairs are then scheduled to occur soon thereafter to minimize system losses due to leaks. When new leaks are detected during the field season (i.e., April 1 through October 31), they are repaired immediately.

- *Rate Structure*. The Town completed a water rate analysis in 2004, which culminated in the adoption of an increasing block rate structure that penalizes excessive water use. The Town updated this study in 2013 (Burns & McDonnell, 2013), creating two new rate categories and making fees for excessive water use steeper. Figure 2.6 presents the relative changes in cost for increasing water use under the previous billing system and the current billing system and compares these rates with the rates charged by other jurisdictions. Rate studies conducted in 2018 and 2019 did not alter this basic block rate structure.

- *Green Building Code*. Telluride developed and implemented a Green Building Ordinance within its Municipal Code in 2006. The Ordinance requires specific low-flow appliances for new construction and significant remodels. Updates to this Code were adopted as part of the 2018 International Building Code in early 2020.

- *Land Use Planning*. Telluride's Development Review Team—in place since the 1990s—includes staff from the Public Works Department (i.e., responsible for water treatment and supply), the Planning & Building Department, and the Legal Department. Every development proposal is reviewed and evaluated by staff, for consistency with the Telluride Land Use and Municipal codes (LUC and MUC). Applicable sections for water conservation include but are not limited to the following: MUC Chapter 13 Municipal Utilities (i.e., service line and shut off specifications, metering, rates, Water Conservation Code); MUC Chapter 15 Building Regulations (i.e., low flow plumbing specifications); Streetscapes Manual of Standards (i.e., irrigation and planting standards).

The above-described improvements and conservation measures appear to have had a noticeable impact on average day demand (ADD), decreasing ADD overall by approximately 25 percent, winter ADD by approximately 31 percent, and summer ADD by approximately 20 percent since demand peaked in 1999.

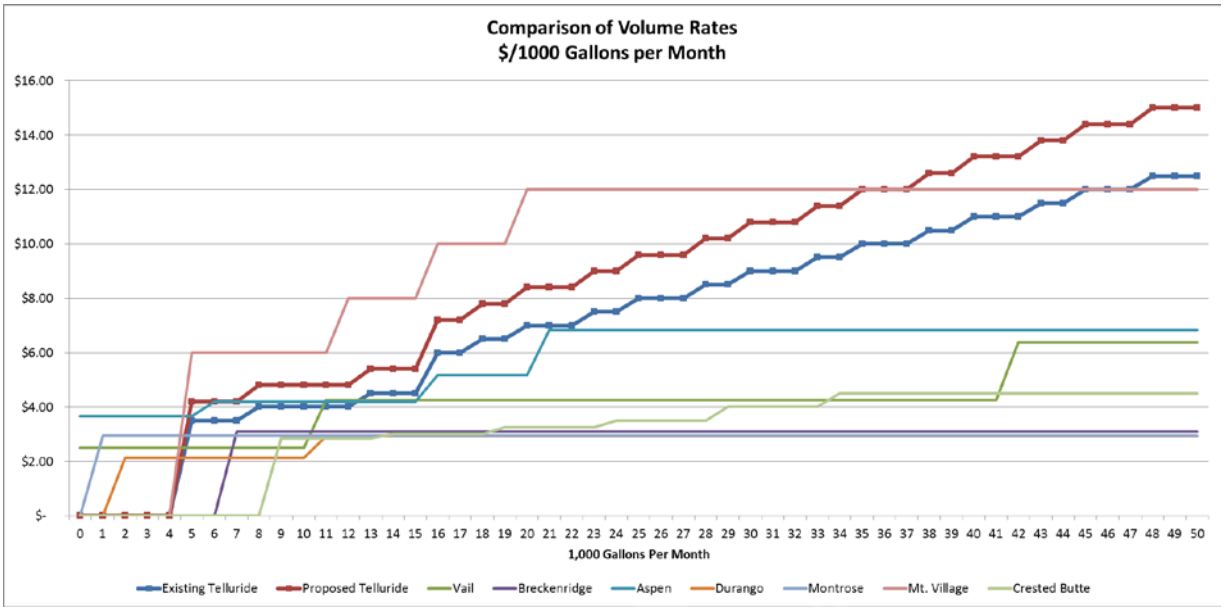


Figure 2.6. The increasing block rate structure proposed to the Telluride Town Council (the red line) as part of water service rate adjustment discussions in fall 2013 was adopted and put into effect starting January 1, 2014. It remains in place.

2.4 Demand Forecasts

The planning horizon for this Water Efficiency Plan is 7 years (i.e., through 2027). The Town has updated its Water Supply Master Plan and associated demand forecasts on three occasions: 1993, 2002, and 2010. Each demand forecast was based upon the most recent water use records, existing and projected populations, and limits associated with the Town's water service area. As noted earlier, the studies have documented a decline in per capita water use due to a variety of factors including leak detection and repair and water conservation. In addition, current growth projections have not changed from the 1.5% per year predicted in the 2010 study. The future demand forecast for each of the referenced studies is summarized in Table 2.5.

As shown Table 2.5, it is projected that the Town will need to divert approximately 2.0 mgd (3.0 cfs) of water during peak day summer demands at build-out conditions. Public Works has determined that there have been no significant changes between 2010 and 2019 to require revising these projections. The assumptions regarding population, residential and commercial uses and associated water demands that were used in the Town's 2010 Master Plan update are summarized in Table 2.6.

TABLE 2.5

Telluride's Projected Water Demand at Build-Out Within its Service Area and Current Demand Levels

	Winter				Summer			
	Avg. Day		Peak Day		Avg. Day		Peak Day	
	mgd	cfs	mgd	cfs	mgd	cfs	mgd	cfs
1993 Master Plan	1.49	2.31	2.08	3.22	1.80	2.79	2.61	4.05
March 2002 Update	1.15	1.78	1.61	2.49	1.43	2.22	2.08	3.22
April 2010 Update	1.08	1.67	1.52	2.34	1.34	2.07	1.96	3.02
Current Actual Demand (2018)	0.38	0.59	0.60	0.93	0.48	0.74	0.90	1.40

Sources: Resource Engineering, 1993, 2002 and 2010; and actual demand data for the comparison.

TABLE 2.6

Population and Water Demand Projections for Town of Telluride Geographical Water Service Area (Resource Engineering, 2010)
(In-House and Irrigation Demand Reduced by 10.6% from 2/12/2002 Update to Reflect Town Conservation Measures)

LOCATION Use Type	PROJECTED POPULATION			PROJECTED IN-HOUSE DEMAND				PROJECTED IRRIGATION DEMAND		PROJECTED MAXIMUM DEMAND (In-House + Irrigation)		
	No. of Units or Sq. Ft.	Persons per Unit	Projected Population	Gal/Day per Unit	Units	Avg. Day (gal)	Peak Day (gal)	Area (acres)	Avg. Day (gal)	Peak Day (gal)	Avg. Day (gal)	Peak Day (gal)
Town of Telluride												
Single/Multi Family	2,658	2	6,087	98	Person	598,578	838,009					
Comm. / Public	680,000			0	Sq. Ft.	91,188	127,663					
Lodging	545	3	1,690	98	Person	166,145	232,604	13.1	153,437	260,843	1,009,348	1,459,119
The Falls												
Single Family	5	3	13	98	Person	1,229	1,721	0.275	3,221	5,476	4,450	7,197
S.M.V.C.												
Society Turn Comm.	98,800	3		0	Sq. Ft.	13,249	18,549	4	46,851	79,647		
Employee Housing	49		123	98	Person	12,047	16,865	0	-	-	72,147	115,061
Brown Homestead												
Single Family	21	3	53	98	Person	5,163	7,228	0.25	2,928	4,978	8,091	12,206
Eider Creek (formerly Goldking)												
Condominium	58	3	145	98	Person	14,259	19,963	0.67	7,848	13,341	22,107	33,304
Hillside												
Single Family	50	3	125	98	Person	12,293	17,210	1.06	12,416	21,106	24,708	38,316
Lawson Hill												
Single / Multi Family	277	3	693	98	Person	68,100	95,341	1.74	20,380	34,646	133,136	192,504
Public/Lt. Industrial	33,000			0	Sq. Ft.	44,655	62,517					
Total			8,929			1,026,907	1,437,669	21	247,081	420,037	1,273,987	1,857,707
Total, cfs						2	2.22				1.97	2.87

Note: The projected population and projected in-house demand data were verified in February 2014 by Michelle Haynes, Telluride Planning Director, using the following resources: 2003 Commercial and Accommodations Land Use Study; 1995 Telluride Regional Growth Study, Building Permit Data

Column Explanations:

Column 1 – Unit projections per CPAC and Lawson Hill Agreement with updated square footage projections per Steve Ferris, Telluride Planning Director.
S.M.V.C development level per Chase Appraisal.

Column 2 – Residential densities per 2000 Housing Needs Assessment. Lodging per CPAC. Both provided by Steve Ferris, Telluride Planning Director.

Column 3 – Col 1 X Col 2

Column 4 – Unit average daily water demand rates from 1993 Draft Water Master Plan and March 2002 Update reduced by 10.85% to reflect observed per capita usage reduction.

Column 5 – Units, in persons or square footage, associated with the daily water demand.

Column 6 – Average winter day demand. Col. 3 X Col. 4 for population and Col. 1 X Col. 4 for commercial / public / industrial.

Column 7 – Projected peak winter day demand. Col. 6 X 1.4. This is the minimum projected winter water supply requirement.

Column 8 – Projected irrigated area based on existing acreage plus future acreage with future area established as follows:
Single/Multi Family: 1,000 Sq. Ft. per unit (Except in Town where total irrigated acreage is expected to be no more than 13.1 acres.)

Column 9 – Average daily irrigation demand assuming a 6-inch July application requirement and 40% application efficiency or 0.484-inch daily application then reduced by 10.85% to reflect observed per capita usage reduction.

Column 10 – Peak day irrigation demand. Col 9 X 1.7

Column 11 – Projected average summer day demand. Col. 6 + Col. 9

Column 12 – Projected peak summer day demand. Col. 7 + Col 10

3.0 Integrated Planning and Water Efficiency Benefits and Goals

3.1 Water Efficiency and Water Supply Planning

C.R.S. 37-60-126 (4) requires a description of how long-term water savings garnered through water efficiency activities are incorporated into water supply planning and decision making. At this time**, the Town has indicated it has no plans to secure additional water supplies**. This increases the importance of ensuring existing water supplies are used as efficiently as possible. The Town of Telluride has identified the following five (5) benefits to implementing an effective water efficiency program:

1. *Keeps more water in the ecosystem, providing habitat benefits for the local biome*.

2. *Decreases energy use per capita to supply water needs and to manage the resulting wastewater*. This is important for reaching the greenhouse gas emissions reduction goals set by the Town Government for its facilities and operations, as well as for the broader community.

3. *Decreases operating costs for the water and wastewater facilities due to lower energy bills, fewer needed chemicals, etc*. This in turn will help to moderate water and wastewater service rates increases over time.

4. *Tangibly demonstrates the community's commitment to sustainability*.

5. *Assists with meeting contractual obligations and agreements with neighbors* (i.e., Idarado Mining Company Comprehensive Settlement Agreement, 2013; Water Case No. 96CW313.)

The primary benefit associated with increased water efficiency by Telluride Water Service Area users is protection of the visual and aquatic values associated with stream flows within the San Miguel River and its headwater tributaries. There is an extended distance between the Town's points of diversion and the point of return flow to the river at its wastewater treatment plant at Society Turn. Within this reach, the Town's in-house diversions are entirely consumptive to the river. Any water savings gained through conservation efforts directly benefit the river ecosystem, which is an amenity that attracts thousands of visitors annually.

The use to which saved water will be put depends on which Town of Telluride water source is affected. Water that is not used from Blue Lake maintains or improves the stored raw water reserves for the Town and Idarado Mining Company, ensuring water in times of drought and ensuring water to create energy at the Bridal Veil Power House and the Pandora Hydroelectric Generation Facility. Water that is not used from the Bridal Veil Basin at Lewis Lake, Mud Lake, and Bridal Veil Creek at The Falls Diversion remains in the San Miguel River, sustaining the ecosystem and benefiting all associated natural and recreational uses in and near the river. Water that is not used from Stillwell Tunnel will maintain/enhance flows in Cornet Creek, benefiting the creek and its ecosystem throughout the Town. Water that is not diverted for treatment at the Mill Creek Water Treatment Plant will maintain/enhance flows downstream along the Mill Creek corridor, benefiting wetlands and riparian areas until its confluence with the San Miguel River. As well, water not used also ensures that the two Stillwell Tanks remains full and available for use when needed for fire protection, drought, and peak demands for festivals.

Land use planning efforts affecting water conservation are not anticipated to modify currently planned water infrastructure improvements at this time or in the future. Infrastructure improvements are focused on minimizing leaks and maximizing the transmission and storage efficiencies of an aged system. As stated in the first paragraph of this section, the Town has indicated it has no plans to secure additional water supplies. Water conservation efforts, including those through land use planning, will help ensure that current water supplies will be sufficient into the future.

3.2 Water Efficiency Goals

Public Works Department personnel worked collaboratively to develop a single, achievable goal for the water and wastewater system that serves the Telluride community. This water and wastewater system includes not only the water and wastewater treatment plants and their associated distribution and collection piping, but all of the users connected to the public system. The original 2014 goal and objectives were presented to the staff Water Efficiency Task Force for review and comment, and then the Telluride Ecology Commission and the Telluride Town Council for consideration. For this 2020 Plan, the original goal and objectives were reviewed with staff, the Telluride Ecology Commission, and the Telluride Town Council. These groups determined that some changes were warranted. The final 2020 goal and objectives for moving toward the goal are as follows:

Goal – Optimize water efficiency throughout the water and wastewater system, which includes all water users as well as traditional infrastructure. This will:

- Minimize energy use for pumping and treatment and use of chemicals for treatment, thereby minimizing operational costs.
- Demonstrate leadership to the community that using water wisely is the right thing to do.
- Provide "insurance" that there will be more water and wastewater capacity available for the local tourist economy, as drought protection, and as in-stream flows to protect or enhance environmental and recreational values that benefit the local economy.

Objectives for the Next 7 Years

1. Decrease use of potable water for outdoor irrigation by another 5% f
2. Reduce wastewater discharges by decreasing indoor residential by 5%
3. Reduce wastewater discharges by decreasing commercial water use by 5%
4. Reduce peak day summer demand by 5%
5. Reduce non-revenue water by 10% by applying appropriate principals and methodologies from AWWA M36.

The success of Objective 1 will be assessed based on analysis of the various irrigation accounts and on metered use at the Lone Tree Cemetery. The success of Objectives 2 and 3 will be measured by analyzing billing data for specific user classes. The success of Objective 4 will be measured using calculated peak day summer demand for water production. The success of Objective 5 will be measured by applying appropriate principals and methodologies from AWWA M36 that quantify non-revenue water.

3.3 Integrated Planning and Water Efficiency Benefits and Goals

The Town of Telluride has pursued an integrated planning model through its Development Review Team (DRT) since the 1990s. DRT meets weekly to discuss each proposed development within the Town, and when warranted, within the water service area, which includes parts of unincorporated San Miguel County. The team includes the Public Works Director, the Town Engineer, the Environmental & Engineering Division Manager, the Planning Director and all Planning Technicians, the Historic Planning Director, the Building Official, the Legal Assistant, and at times, the Town Manager. Every development proposal is reviewed and evaluated by staff, as required by the Telluride Land Use and Municipal codes (LUC and MUC). Applicable sections for water conservation include but are not limited to the following: MUC Chapter 13 Municipal Utilities (i.e., service line and shut off specifications, metering, rates, Water Conservation Code); MUC Chapter 15 Building Regulations (i.e., low flow plumbing specifications); Streetscapes Manual of Standards (i.e., irrigation and planting standards); and LUC Division 3 Street and Utility Requirements; Telluride Master Plan (2006) Planning Principles and Values J.

Telluride Master Plan (2006), Planning Principles and Values J

Optimization of existing infrastructure will be considered as a condition of any significant expansion of built facilities. The overriding principle is to ensure that the Town will make maximum use of existing public services and facilities such as water, wastewater, parks, and recreation facilities before undertaking significant expansion projects. Telluride will pursue the optimization of community resources through encouraging collaboration and synergy between community groups. In addition, the Town will consider infrastructure and capacity issues in marketing and events planning.

4.0 Selection of Water Efficiency Activities

4.1 Summary of Identification & Selection Process

The Original 2014 Process

In 2014, the original process of identifying and selecting potential water efficiency activities for this report began with the collection of general information on Telluride's current water conservation efforts and other aspects of the water supply system and service area. The next step involved educating Town staff and the general public through Ecology Commission and Town Council meetings about these water system basics. Agendas for all public meetings were posted at Rebekah Hall and on the Town's website no less than one (1) week prior to the meeting. As well, Town Council meetings are televised and broadcast over the local television and radio station so those who could not attend in person could listen. Therefore, it is reasonable to assume that a good portion of the community was educated.

Next, the identification of potential new water efficiency activities and selection criteria was undertaken at four levels: (1) informal staff discussions using the Colorado Water Conservation Board guidance worksheets as a template; (2) staff Water Efficiency Plan Task Force meetings; (3) public work sessions with Telluride's Ecology Commission at their regularly scheduled meetings; and (4) public work sessions with Telluride's Town Council at their regularly scheduled meetings. The universe of potential activities that were identified was provided in worksheets D through G in the appendices of the original Water Efficiency Plan (2014).

Staff qualitatively screened the universe of potential activities that were identified using the following four primary or qualitative criteria (QC).

QC1 – Under the Town's direct control
QC2 – Likely to measurably decrease water use
QC3 – Builds on an ongoing activity
QC4 – Provides positive reinforcement to conserve

Worksheet D in Appendix 3 of the original Water Efficiency Plan (2014) showed how various activities compared to each other when these four selection criteria were applied.

The final phase of activity selection required staff to use the evaluative criteria and then the additional qualitative criteria listed below to prioritize potential activities. The additional qualitative criteria corresponded directly to the 5-year objectives identified to help meet the original Water Efficiency Plan (2014) goal.

EC1 – Can be accomplished with current staffing
EC2 – Technically feasible
EC3 – Relatively low cost
EC4 – Will help meet long-term goals

QC5 – Decrease outdoor irrigation
QC6 – Reduce wastewater discharge by reducing indoor water use
QC7 – Reduce peak day summer demand
QC8 – Decrease non-revenue water

For this final sorting, the Water Efficiency Plan Task Force applied a final polishing of potential activities by discussing each activity in detail to make sure that the results of the identification, evaluation, and prioritization process made sense and were in line with the goals and objectives for the water efficiency program.

The Process for the 2020 Plan

The process of identifying and selecting potential water efficiency activities for the Water Efficiency Plan (2020-2027) began with a review of the universe of potential activities that were identified during original Water Efficiency Plan (2014) development. Staff presented and led a discussion of these activities with the Telluride Ecology Commission and the Telluride Town Council in June and August 2019. Each of these entities was asked to propose new activities. Commissioners and Council Persons were also asked to review the selection criteria for their current relevance. The Council determined to replace EC4 – "Can be completed within the 7-year window of Water Efficiency Plan", with "Essential for achieving long-term goals".

As a result of these discussions, staff kept the original universe of potential activities that were identified in 2014 (provided in worksheets D through G in Appendix 3 of this plan), noted which activities were completed over the last 5 years, added the new activities identified for this update, and then proceeded through the selection and prioritization process.

Once again, for the 2020-2027 Plan, staff applied a final polishing of potential activities by discussing each activity in detail to make sure that the results of the identification, evaluation, and prioritization process made sense and were in line with the goals and objectives for the water efficiency program.

4.2 Demand Management Activities

It is important to note that this subsection presents the demand management activities selected for implementation. It focuses on the screening and evaluation results; not the process. Documentation on the screening and evaluation process for each water efficiency activity is included in tabular format in worksheets D through H in Appendix 2. A summary list of the selected water efficiency activities that will be continued, expanded, and/or initiated by the Town of Telluride during the next 7-year period of this updated Water Efficiency Plan is provided below.

1. Continue Unchanged

    a. Meter reading and bimonthly billing
    b. Meter upgrades
    c. Leak Detection & Repair Program
    d. Water efficiency-oriented water service rates; tiered increasing block rates composed of a base rate and volume used.
    e. Water Conservation Ordinance landscaping and irrigation system requirements
    f. During TRWWTP upgrades implementation, decrease potable water usage where possible.
    g. Toilet retrofits/rebates
    h. Work with the cemetery as a Large Water User to improve irrigation efficiency, install a more drought tolerant landscape, and/or find a different source of water.
    i. Water Wise Outreach Program (KOTO Radio Access, newspaper PSAs, webpage information, water bill inserts, Daily Planet articles, Facebook information, etc.)

2. Expanded

    a. Meter Testing - Investigate the potential range of inaccuracy of existing "typical" meters used throughout the water system to refine quantification of "non-revenue" water.
    b. Change the Water Conservation Ordinance (Municipal Code §13-5-30(6)) to require limited water times throughout the season, not just during identified water shortages.
    c. Replace the Mill Creek High Pressure Water Line

3. Initiated

    a. Commercial equipment replacement grants through Green Grant Program

4.3 Status of Foundational Activities

4.3.2 Metering

C.R.S. 37-60-126 (4) requires a description of current and planned metering programs. Historically, like many small, mountain towns, Telluride did not meter treated water use. The first attempts to meter potable water use were in the 1970s. The success of this early program was limited, at best. The 1993 Master Plan recommended installing automatic read (AMR) meters. This program was completed between 1995 and 2006, over 10 years later. In 2016, the Town determined to institute a meter replacement program, targeting replacement of 125 meters each year. At the end of 2019, there were approximately 1775 metered water accounts. In addition, approximately 4 water lines are metered, but not read as part of the regular meter reading schedule. The Environmental & Engineering Division and the Finance Department (i.e., Utility Billing) are responsible for getting data from these meters at each billing cycle and at the end of each year to include in the annual Water Audit.

C.R.S. 37-60-126 (4) requires that modifications and/or new metering programs selected as a result of the water efficiency planning effort include anticipated implementation costs, estimated water savings, and any additional information beneficial to refer to during implementation. In 2014, the benefits of replacing existing meters throughout town with new meters that would read more accurately were unclear. A subsequent analysis indicated that the benefits would be large. To date, meter testing indicates that older meters can under-read water use by 3% to 50% when compared to new meters. As a result, a new meter technology was selected and since 2016 approximately 130 meters are replaced each year. The meter replacement program is included as a permanent line item within the Water Fund Operations & Maintenance budget. The Meter Testing Program will be expanded for the next 7-year cycle to further refine estimates of apparent water losses

The most significant unmetered uses of potable water over the past several years have been process uses of potable water at the Telluride Regional Wastewater Treatment Plant (TRWWTP) and irrigation for the regional cemetery. In mid-2013, a meter was installed and is being read monthly at the wastewater plant. A manual-read meter was installed at the cemetery in fall of 2013. This cemetery meter is typically put in place in early May and removed at the end of the irrigation season in mid-October. The cemetery meter is read at the beginning and the end of each irrigation season.

4.3.2 Demand Data Collection and Billing Systems

C.R.S. 37-60-126 (4) requires a description of the demand data that is available through the billing system, including, water usage by customer category and billing frequency. Subsection *Water Demand by Customer Category* under **Section 2.2 Historical Water Demand** in this Water Efficiency Plan provides this information and use data in detail. Telluride currently reads meters every other month and aggregates these data to bill every two (2) months for 11 different customer categories. Prior to 2014, the number of customer categories was 8. In fall 2013, the number of customer categories was increased to 10. In 2019, this was increased once again to 11. During the 2014 Water Efficiency Plan implementation period, staff investigated the costs and benefits of moving to a monthly billing cycle from the current bi-monthly cycle. Staff concluded that the costs outweighed the benefits and this conclusion will not be re-evaluated during the next 7-year cycle.

The Billing System that is currently in place dictates the type of water use data that can be collected over time. Finance Department staff send the billing report to the Environmental & Engineering Division Manager immediately after utility bills are sent out. This eliminates the potential of losing these detailed user-specific data. However, it is possible to retrieve all data related to general user categories per billing cycle (every two (2) months) for a given year for up to three (3) years after it is generated.

C.R.S. 37-60-126 (4) requires a description of any planning modifications to the data collection and billing system that results from the water efficiency planning effort. During 2014 Water Efficiency Plan development staff discovered that metered users that were not billed, such as Town-owned facilities and the Historical Museum, were not included in the meter read report. This was changed with a request to the meter reader to read and down load these data, submit them to the Finance Department, and then to have the Finance Department include

them in the detailed water user data download each billing period will allow Public Works to account for this water use and further refine its estimate of "non-revenue" water. There are plans during Water Efficiency Plan (2020-2027) implementation to capture revenues from at least some of the "non-revenue" water.

4.3.3 Water Efficiency Oriented Rates and Tap Fees

C.R.S. 37-60-126 (4) requires billing systems designed to encourage water efficiency in a fiscally responsible manner to be fully evaluated. The Town of Telluride instituted an increasing block rate structure in 2004 for water use in its service area according to multiple customer categories. A Water Services Rate Study (Burns & McDonnell, 2013) recommended water service rate increases over a 5-year period, which the Town Council approved. These rate increases made the increasing block rate structure even steeper than the previous rates. See Figure 2.6 for an illustrated comparison of Telluride's increasing block rate structure compared to similar communities in the region. The Town conducted water rate analyses in 2018 and 2019, which resulted in increased water rates each of those years. Staff anticipates conducting a financial analysis of the water system at least every 2 years to ensure that rates accurately reflect the cost of service.

The current Tap Fee structure does not reward or incentivize water efficiency. It is widely held that Tap Fees pay for the existing infrastructure, which is not impacted by water efficiency and that incentives or rewards for installing water efficient appliances will be seen through lowered water usage and therefore in lower water service rates.

4.3.4 System Water Loss Management and Control

C.R.S. 37-60-126 (4) requires that a distribution system leak identification and repair system designed to encourage water efficiency in a fiscally responsible manner be fully evaluated and requires a description of current and planned system water loss management and control programs. Examples of system water loss management and control programs include annual system-wide water audits, investigation of apparent losses, leak detection and repair programs, and water line replacement programs.

The Telluride Public Works Department distribution system leak identification and repair system has been in place since 1998. Each year the entire water distribution system is inspected using audible detection to develop a list of required repairs. The *Town of Telluride Water/Wastewater Capital Asset Maintenance Plan* (Farnsworth Group, 2012) identified pipes that require replacement due to age. This report continues to inform Public Works Department capital planning for water line replacement. In more recent years, Public Works has been coordinating closely with the Finance Department when a meter reading for a specific customer is significantly different than previous readings, which sometimes indicates that there is a leak in either the distribution or service line to that specific meter or perhaps in an appliance within the structure.

4.4 Targeted Technical Assistance and Incentives

4.4.1 Level 1: Utility/Municipal Facility Water Efficiency

Town facility water efficiency improvements will continue to be a focus over the next 7-year cycle. Water efficiency activities that staff will continue to pursue, which fall under this categorization, include:

- Investigate the potential range of inaccuracy of exiting "typical" meters used throughout the water system to refine quantification of "non-revenue" water.
- Assess opportunities to decrease use of treated water at the Telluride Regional Wastewater Treatment Plant as part of the planned upgrades.
- Appliance Replacement – incentivize replacement of old-style toilets at large HOA or commercial facilities.

The first notable large demand customer is the Telluride Regional Wastewater Treatment Plant (TRWWTP). While potable water use was not historically metered at this Town-managed facility, a meter was installed in mid-2013

and use has been closely tracked by staff ever since. The TRWWTP will be undergoing a series of upgrades over the next 7 years (and longer). As new technologies are investigated, water use efficiency and/or water recycling will be a serious consideration.

4.4.2 Level 2: Management of Largest Customer Demands

Staff currently tracks usage by all "large water users", listing the top 10 users each year in the annual Water Audit. Targeting specific customers within the overall database has proven to be an effective strategy. The 2020 Water Efficiency Plan activities specifically targets continuing to work with the Lone Tree Cemetery board and their irrigation specialist to improve overall irrigation system efficiency and to investigate moving them to an alternative source of water for irrigation. Staff will continue to try to get fewer acres irrigated at the cemetery, changing some areas to native wildflowers from turf, if possible. Finding an alternative source of water will ultimately be the best option for this user and will result in the largest decrease for irrigation demand in summer.

4.4.3 Level 3: Management of Remaining Customer Demands

Demand management activities that focus on the customer service area are more difficult to monitor and less cost effective than focusing on the Level 1 and 2 customers. From a business perspective, it makes the most sense for Telluride to focus on Level 1 and 2 customers and then target Level 3 customers within the service area later.

4.5 Ordinances and Regulations

4.5.1 Level 1 Existing Service Area

There are several ordinances, regulations, and guidelines in place that apply to Telluride's existing water service area. These include (1) the Telluride Municipal Code Section 13 Article 1 Municipal Utilities (MUC §13); (2) the Telluride Municipal Code Section 13 Article 5 Water Conservation Code (MUC §13-5); (3) the Telluride Municipal Code Section 15 Building Regulations (MUC §15); (4) the Streetscape Manual of Standards (TOT, 2007) Right of Way Landscaping Guidelines, which were adopted by the Town Council in 2007; and (5) a long-time local landscaping guide entitled, *Gardening and Landscaping at High Altitude, An Ecological Approach to Landscaping in the Telluride Region* (Gick, 1998).

MUC §13, Utilities, was adopted by the Telluride Town Council as part of the original Municipal Code. It applies to all services provided within the water and sewer service areas. While these service areas do overlap, they are not identical. This is the section of the municipal code that specifies water and sewer tap fees, water and sewer rates, and billing protocols; and requires metering for water service. Water efficiency activity identification yielded no immediate changes to this section of the Code.

MUC §13-5, Water Conservation Code, was adopted by the Telluride Town Council in 2002. It is provided in its entirety in Appendix 1 of this Plan. Its preface recognizes water as a finite and precious resource and that water waste is to be discouraged and water conservation encouraged. Section 13-5-40 pertains to water conservation measures that are needed when a water shortage is declared by the Town Manager or Town Council. During the Water Efficiency Activity Identification phase of the 2020 Water Efficiency Plan development, the Town Council once again determined that this code be carefully reviewed by staff for potential revisions. Of interest, once again, was changing the restrictions on irrigating to include a year-round ban on irrigation between during the heat of the day (e.g., between 9 am and 9 pm). The goal is to make remembering the watering restrictions easier for the public.

MUC §15, Building Regulations is currently being updated to reflect the 2018 International Building Code, which reflects the most progressive requirements for plumbing codes. MUC §15 also incorporates Telluride's Green Building Code, which further emphasizes water conservation and efficiency for all appliances and fixtures.

The *Streetscape Manual of Standards Right of Water Landscaping Guidelines* applies to green strips in the publicly-owned right of way that are planted and managed by fronting property owners. It re-iterates the landscaping

requirements from MUC §13-5 and includes landscaping information that is also available in *Gardening and Landscaping at High Altitude, An Ecological Approach to Landscaping in the Telluride Region* (Gick, 1998).

4.5.2 Level 2 New Construction Regulations

There are several ordinances, regulations, and guidelines in place that apply to new construction within Telluride's water service area. These include (1) the Telluride Municipal Code Section 13 Article 1 Municipal Utilities (MUC §13-1); (2) the Telluride Municipal Code Section 13 Article 5 Water Conservation Code (MUC §13-5); (3) the Telluride Municipal Code Section 15 Article 9 Energy Codes (MUC §15-9); (4) the Streetscape Manual of Standards (TOT, 2007) Right of Way Landscaping Guidelines; and (5) the local landscaping guide entitled, *Gardening and Landscaping at High Altitude, An Ecological Approach to Landscaping in the Telluride Region* (Gick, 1998).

MUC §13-5, Water Conservation Code, was adopted by the Telluride Town Council in 2002. It is provided in its entirety in Appendix 1 of this Plan. Section 13-5-20 applies to all new construction, requiring the installation of high-efficiency fixtures. Section 13-5-30 requires high efficiency irrigation systems and drought-tolerant plantings if potable water is to be used for watering new landscaping.

Finally, the Telluride Town Council adopted MUC §15-9, Energy Code, in 2006 and updated in 2009. Current updates are being incorporated during winter 2020 as part of adopting the 2018 International Building Code. MUC §15-9-f-ii requires specific water efficiencies for showerheads, bathroom faucets, kitchen faucets, and irrigation systems.

4.5.3 Level 3 Point of Sales Ordinances on Existing Building Stock

Point of sales ordinances on existing building stock were eliminated from discussions early in the development process for Telluride's Water Efficiency Plan. Such a program was considered overly burdensome not only on existing staff regarding potential tracking and administration, but also on the local real estate market. Building Department records indicate that a good portion of the existing building stock has been renovated within the last ten (10) to fifteen (15) years, usually after the point of sale. Staff believes that the increasingly limited number of properties that need to be upgraded can be addressed through a targeted audit, grant, and rebate program.

4.6 Education Activities

4.6.1 Level 1 One-Way Education Activities

The Town Government and other community resources are currently engaging in several Level 1 One-Way Educational Activities, which are focused on creating water efficient landscapes. These include (1) the native planting demonstration garden; (2) the Streetscape Manual of Standards (TOT, 2007) Right of Way Landscaping Guidelines; and (3) the local landscaping guide entitled, *Gardening and Landscaping at High Altitude, An Ecological Approach to Landscaping in the Telluride Region* (Gick, 1998). The native planting demonstration garden, which is prominently located in the Town Park along the River Trail, was planted by the regional Cooperative Extension Office several years ago. The native planting demonstration garden, the Streetscape Landscaping Guidelines, and the local landscaping guide all work in concert and are common references when local property owners and local landscapers work with staff on new landscaping. These outreach activities are planned to continue.

4.6.2 Level 2 One-Way Education with Feedback

Water efficiency activity identification exercises identified several Level 2 One-Way Education Activities. A K-12 Water Fair was one that the Telluride Ecology Commission thought would be useful and fun. The prioritization process once again eliminated the water fair and K-12 teacher and classroom education programs because it was believed these activities would be difficult to implement (i.e., the Town does not have sufficient personnel) and were not likely to yield significant results compared to other potential new activities. Social networking (i.e., Facebook) capabilities by staff are now available. Staff has therefore added ongoing interactions and reminders about being "water wise" on the town's Facebook page as a new activity.

4.6.3 Level 3 Two-Way Education

Focus groups, customer surveys, and citizen advisory boards were discussed during the water efficiency activity identification exercises. The Ecology Commission, the Telluride Town Council, and staff all agreed that these activities would be difficult to implement (i.e., the Town does not have sufficient personnel resources) and were not likely to yield significant results compared to other potential new activities.

5.0 Implementation and Monitoring Plan

5.1 Implementation Plan

Worksheet J – Implementation Plan – 2020, which is provided toward the end of Appendix 2, details the Water Efficiency Activities that were selected for implementation as a result of brainstorming, applying selection criteria, and troubleshooting the final list. Ultimately, the Water Efficiency Activities are intended to help achieve the adopted goal and objectives shown in the text box. The estimated savings, as shown on Worksheet I of Appendix 2 is approximately 9.7 million gallons annually or 6 percent of the water produced in 2018.

TELLURIDE'S WATER & WASTEWATER SYSTEM

GOAL

Optimize water efficiency throughout the water and wastewater system, which includes all water users as well as traditional infrastructure. This will:

- Minimize energy use for pumping and treatment and use of chemicals for treatment; thereby minimizing operational costs;
- Demonstrate leadership to the community that using water wisely is the right thing to do.
- Provide "insurance" that there will be more water and wastewater capacity available for the local tourist economy, as drought protection, and as in-stream flows to protect or enhance environmental and recreational values that benefit the local economy.

OBJECTIVES FOR THE NEXT 7 YEARS

1. Decrease use of potable water for outdoor irrigation by another 5%
2. Reduce wastewater discharges by decreasing indoor residential by 5%
3. Reduce wastewater discharges by decreasing commercial water use by 5%
4. Reduce peak day summer demand by 5%
5. Reduce non-revenue water by 10% by applying appropriate principals and methodologies from AWWA M36.

5.2 Monitoring Plan

The Environmental & Engineering Division of the Public Works Department is responsible for monitoring implementation plan progress and whether water use does change as anticipated. Monitoring occurs annually during preparation of the Water Audit, when a full year of data are available for analysis from the Water-Wastewater Division of the Public Works Department and from the Finance Department (from the billing files). The Finance Department sends detailed bi-monthly billing data to the Environmental & Engineering Division immediately after each billing cycle. Staff employ the AWWA M36 methodology to assist with this analysis.

6.0 Adoption of New Policy, Public Review and Formal Approval

6.1 Adoption of New Policy

Under the Telluride Town Charter, the Telluride Town Council is charged with the creation and adoption of new policies. Seeking to optimize the water and wastewater system throughout the Town's service areas is not new policy, but it is evolving over time. Such evolution requires periodic discussions about the means of achieving goals identified by the overarching policy of keeping water use as efficient as possible, minimizing water waste, and providing stewardship of the water resources in the Town's charge.

6.2 Public Review Process

Public input was solicited on a three-tier track. The Ecology Commission was an important public venue for obtaining input on the document and for moving through the steps to select and prioritize efficiency activities. The Commission's monthly meetings are open to the general public. The agenda for each meeting is posted in two locations in the Town and on the Town's web site, and a notice of the agenda postings are sent via email to those who have signed up for the service. The Water Efficiency Plan (2020-2027) was on the Ecology Commission's 2019 and 2020 Work Plans and on the Commissions meeting agendas on the following dates: August 7, 2019; September 4, 2019; November 6, 2019; January 8, 2020; and February 5, 2020.

The Telluride Town Council at their public, monthly meetings was also an essential element regarding development and local adoption of the plan. The agenda for each Town Council meeting is posted in two locations in the Town and on the Town's web site, and a notice of the agenda postings are sent via email to those who have signed up for the service. The Water Efficiency Plan (2020-2027) was discussed at Town Council on the following dates: June 4, 2019; August 13, 2019; January 28, 2020; and March 31, 2020.

Finally, the public was invited to review the final draft document for a 60-day public comment period within the Town Council Packet published on January 24, 2020, at the Town Council Meeting on January 28, 2020, at 3 pm. Town Council announced at its meeting that the official PUBLIC COMMENT PERIOD on the final draft Water Efficiency Plan (2020-2027) starts on January 28, 2020, at 3 pm and ends on March 28, 2020, at 3 pm. The plan was made available online at the Town's website under "News", in hard-copy at Rebekah Hall and Old Town Hall, and via email request to kguglielmone@telluride-co.gov.

6.3 Local Adoption and State Approval Processes

The Public Works Department coordinated with Colorado Water Conservation Board staff to develop the Water Efficiency Plan early in the development and update process to ensure that the plan contained all required elements and was approvable by the Colorado Water Conservation Board. After the Public Review Process, the Town Council formally adopted the plan by resolution at one of its regularly scheduled meetings. The plan was then submitted to the Colorado Water Conservation Board for formal review and approval at the State level.

6.4 Periodic Review and Update

The Public Works Department will schedule a review and update of Telluride's Water Efficiency Plan every seven (7) years (i.e., 2027, 2034, 2041 etc.) as is required by the CWCB. The Annual Water Audit will serve as an annual assessment of progress.

References

AMEC. 2012. **Municipal Water Efficiency Plan Guidance Document**. Prepared by AMEC Environment & Infrastructure, Boulder, Colorado. Prepared for Colorado Water Conservation Board, Denver, Colorado. July 2012.

AWWA. 2006. **Water Conservation Programs – A Planning Manual**. Manual of Water Supply Practices M52. First Edition. American Water Works Association.

Burns & McDonnell. 2013a. *Report on the Water Services Rate Study*. Prepared for the Town of Telluride, CO, by Burns & McDonnell, Kansas City, MO. Project No. 72447.

Burns & McDonnell. 2013b. *Report on the Wastewater Services Rate Study*. Prepared for the Town of Telluride, CO, by Burns & McDonnell, Kansas City, MO. Project No. 72447.

Burns & McDonnell. 2018. *Water Revenue Sufficiency Analysis and Rate Study*. Prepared for the Town of Telluride, CO, by Burns & McDonnell, Kansas City, MO. Project No. 111076.

Castle, A.J. and E. Rugland. 2019. **Best Practices for implementing Water Conservation and Demand Management through Lan Use Planning Efforts: Addendum to 2012 Guidance Document**. Prepared for the Colorado Water Conservation Board. Getches-Wilkinson Center, University of Colorado, and Babbitt Center for Land and Water Policy.

CDM. 2004. **Statewide Water Supply Initiative Phase I**, Colorado Water Conservation Board. Prepared by Camp, Dresser & McKee.

CDM. 2007. **Statewide Water Supply Initiative Phase II**, Colorado Water Conservation Board. Prepared by Camp, Dresser & McKee.

Farnsworth Group. 2012. *Town of Telluride Water/Wastewater Capital Asset Maintenance Plan*. Prepared for the Telluride Public Works Department, Telluride, Colorado, January 30, 2012.

FCS Group. 2018. *2018 Wastewater Rate Study*. Prepared for the Town of Telluride, CO, by FCS Group, Boulder, CO.

Gick, Elizabeth. 1998. *Gardening and Landscaping at High Altitude - An Ecological Approach to Landscaping in the Telluride Region.* Prepared for the Telluride Region, Telluride, Colorado.

Great Western Institute. 2010. *SWSI Conservation Levels Analysis Final Report*. Prepared for the Colorado Water Conservation Board. June 2010.

Wright-McLaughlin Engineers. 1977. *Water System Master Plan Report*. Town of Telluride, San Miguel County, Colorado.

Resource Engineering. 1993. *Town of Telluride Water Master Plan Update*. Prepared for the Town of Telluride by Resource Engineering, Inc., Glenwood Springs, CO.

Resource Engineering. 2002. Letter correspondence to Sandra Stuller, Esq., *Updated Projected Water Demand Estimate – Town of Telluride. March 12, 2002.* Prepared for the Town of Telluride by Resource Engineering, Inc., Glenwood Springs, CO.

Resource Engineering. 2004. *Town of Telluride Municipal Water Rate Review Study*. Prepared by Resource Engineering, Inc. Glenwood Springs, CO.

Resource Engineering. 2010. Letter correspondence to Jay Montgomery, *Town of Telluride Projected Water Demand*. April 14, 2010. Prepared for the Town of Telluride by Resource Engineering, Inc., Glenwood Springs, CO.

TOT. 2007. *Town of Telluride Streetscapes Manual of Standards*. Prepared by the Town of Telluride Public Works Department and the Town of Telluride Planning & Building Department.

TOT. 2012. Town of Telluride NPDES Co-0041840 COG-650100 Biosolids Report for Year 2012.

TOT. 2018. Town of Telluride NPDES Co-0041840 COG-650100 Biosolids Report for Year 2018.

TOT. 2019. Geographic Information System for Water & Wastewater Systems.

URS. 2009. Memorandum to Stan Berryman, Paul Ruud, and Bill Goldsworthy, Telluride Water Treatment and Approximate Available Fire Flow. December 29, 2009. Prepared by Kathy Schlosser and Bill Wemmert, URS, Denver, CO.

URS. 2010. *Pandora Water Treatment Plant Project Engineering Design Report*. Prepared for the Colorado Department of Public Health and Environment, Water Quality Control Division, West Slope Regional Office, Grand Junction, CO on behalf of the Town of Telluride. February 22, 2010. URS, Denver, CO, Project No. 22239481.

WWE. 1977. Well Completion Report for the Town of Telluride, Colorado, Test Holes TW-1 and TW-2. Prepared by Wright Water Engineers December 13, 1977, for the Town of Telluride, CO.

Glossary & Acronyms

Active Water Conservation Savings: Water savings from utility-sponsored water conservation programs. Such measures and programs may include education programs, incentives and rebates, fixture replacement programs, audits and conservation rates and surcharges (CDM, 2004)

CWCB: Colorado Water Conservation Board

Firm Yield: The amount of water that can be diverted and beneficially used each year including during drought periods and the driest years of record.

ADD, Average Daily Demand: The potable water produced to meet the demand averaged over a 24-hour period.

MDD, Estimated Maximum Daily Demand: The potable water produced to meet the demand. Calculated by averaging the maximum daily demand from winter and the maximum daily demand from summer.

Passive (or naturally-occurring) Water Conservation Savings: Water savings that result from the impacts of plumbing codes, ordinances, and standards that improve the efficiency of water use. These conservation savings are called "passive" savings because water utilities do not actively fund or implement programs that produce these savings. (CDM, 2004)

SWSI: Statewide Water Supply Initiative

Water Conservation: Water use efficiency, wise water use, water transmission and distribution system efficiency, and supply substitution. The objective of water conservation is a long-term increase in the productive use of water supply in order to satisfy water supply needs without compromising desired water services.

WEP: Water Efficiency Plan

Water Reuse: Use of reclaimed water for a beneficial use constitutes water reuse. Direct water reuse includes treating wastewater and piping it directly into a water system without intervening dilution in natural water bodies. Indirect reuse includes an intermediate step between the generation of reclaimed water and reuse, which may be through discharge, retention, and mixing with another water supply.

Water-Saving Measures and Programs: This includes any device, fixture, practice, hardware, or equipment that reduces water demands and a program that uses a combination of measures and incentives that provides for an increase in the productive use of a local water supply.

Appendices

Appendix 1 Telluride Municipal Code Article 13 Section 5 Water Conservation Code

Appendix 2 Statewide Water Supply Initiative Work Sheets

APPENDIX 1 Telluride Municipal Code Section 13 Article 5 Water Conservation Code

APPENDIX 2 Statewide Water Supply Initiative Worksheets

WORKSHEET A – TABULATION OF WATER SUPPLY LIMITATIONS AND FUTURE WATER NEEDS (2020-2027)

Limitation and/or Future Need	Yes	No	Comments on Limitation or Future Need	How is Limitation or Future Need Being Addressed
System is in a designated critical water supply shortage area		✓		
System experiences frequent water supply shortages and/or emergencies		✓		The Town of Telluride enjoys diverse water sources that can be treated by any one of two (2) water treatment plants. A third water treatment plant is on standby for emergencies. The Pandora Water System includes storage elements that make Telluride's entire water system resilient to drought.
System has substantial non-revenue water	✓			Table 2.2 suggests that Telluride Water System continues to have substantial (~26%) non-revenue water. For this reason, the Town has identified reducing non-revenue water by 10% as an objective for the 2020 Water Efficiency Plan. Several Water Efficiency Activities were selected because they will help achieve this objective.
Experiencing high rates of population and demand growth		✓		
Planning substantial improvements or additions		✓		
Increases to water system capacity anticipated		✓		If needed, the Pandora WTP's capacity can be increased to 2 MGD.
Need additional drought reserves		✓		The Pandora Water System, which supplies water from the Bridal Veil Basin, includes reservoir storage.
Drinking water quality issues		✓	The Town's water supply meets drinking water standards.	
Aging infrastructure in need of repair	✓		Telluride's *2012 Water/Wastewater Capital Asset Maintenance Plan* classified the status of nearly 20 miles of water supply piping. The collection system in Bridal Veil Basin has added to this mileage.	Capital expenditures to replace aging pipes are incorporated into each new rate study and into the Town's Capital Implementation Plan.
Issues with water pressure in portions of distribution system		✓		

WORKSHEET B – HISTORICAL AND CURRENT WATER EFFICIENCY ACTIVITIES - (2020-2027)

Historical and Current Water Efficiency Activities (1)	Period of Implementation (2)	Annual Water Savings for Past Five Years (million gallons)					Total Five-Year Water Savings (4)	Average Annual Savings (5)
		2014	2015	2016	2017	2018		
Foundational Activities (Focus on system operations and water efficiencies within Telluride government)								
Automatic meter reading installation and operations	2003 - present							
Change remaining manual read meters (~100) to auto read meters	2015							
Identify unmetered/unbilled treated water uses on all Town-owned facilities	2014-2019							
Frequency of meter reading – investigate the requirements of moving to monthly billing	2014-2019							
Frequency of billing – Bi-monthly	2003 - present							
Tracking water use by customer type	2003 - present							
Modify existing billing system to track use by sufficient customer types	2014-2019							
Tracking water use for large customers	2014 - present							
Create a "new" category under the billing program for Town-owned facilities	Before 2003 - present							
Volumetric bill	Before 2003 - present							
Water rate adjustments	Before 2003 - present							
Inclining/tiered rates	Before 2003 - present							
Investigate lowering the 3000 gallon per month cap for base rate to 3000 gallons per month	2015							
Control of apparent losses (with metering) [Assumes 5% under-read based on testing. 5% of 100 gal/day * # meters changed]	2014 – present			0.03	0.33	0.27	0.63	0.21
Leak Detection & Repair	1970s – present	0.65	0.61	0.66	2.00	0.72	4.64	0.93
Water line replacement program: Phase 2 & 3 West Colorado Water Line Replacement Project	2015, 2016		0.05	0.10	0.10	0.10	0.35	0.09
Master Plans / water supply plans	2010							
Capital Improvement Plans	Ongoing							
Integrated Water Resource Plans	Ongoing							
Targeted Technical Assistance and Incentives								
Toilet retrofits – Shandoka Affordable Rental Housing	2014 - present		0.62	1.07	1.22	0.74	3.65	0.91
Work with the cemetery on irrigation system	2014 - present							
Work with the Telluride HS/MS on irrigation system	2014 - present		1.82	1.37	1.36	1.47	6.02	1.51
Water Efficient Washing Machine Rebates	~2010 - present							
Water Efficient Dishwasher Rebates	~2010 - present							
Ordinances and Regulations								
Water Conservation Code (Title 13, Article 5), includes time of day watering restrictions	2002 - present							
With each building permit require a service line audit from main to meter	2016 - present							
Rules and regulations for landscape design/installation	2000 – present							
Irrigation equipment requirements	2000 – present							
Soil amendment requirements	2000 – present							
Indoor plumbing requirements	2000 – present							
Green Building construction (Telluride Municipal Code Title 15, "Building Codes")	6/2010 - present							
Education								
1 KOTO Radio Access per year about wise use of water	2014 - present							
PSA newspaper water wise advertisements	2014 - present							
Water bill insert one time each year	2014 - present							
Newspaper articles	2014 - present							
Web pages	2018 - present							
Native plant/xeriscape demonstration garden	2014 - present							
	Total Savings	0.65	3.10	3.20	5.01	3.30	15.26	3.05

WORKSHEET C – ACTUAL AND POTENTIAL MODIFICATIONS TO CAPITAL IMPROVEMENT PROJECTS AND WATER ACQUISITIONS - (2020-2027)

Capital Improvement Projects and Water Acquisitions (1)	Estimated or Actual Cost (2)	Action as a Result of Reduced Demands (3)				Potential Cost Savings (5)
		Eliminated	Postponed	Downsized	Comments (4)	
Pandora Water Treatment Plant expansion by 1 mgd (for a total capacity of 2 mgd), if water demand warrants.	$1,000,000		X		Would not expand the Pandora Plant capacity by 1 mgd, if water demand is met by current system.	$1,000,000.00
Phase 1 West Colorado Water Line Replacement Project (completed 2009, actual cost)	$915,000				None.	$0.00
Phase 2 West Colorado Water Line Replacement Project (completed 2015, actual cost)	$900,000				None.	$0.00
Phase 3 West Colorado Water Line Replacement Project (completed 2016, actual cost)	$680,000				None.	$0.00
Mill Creek High Pressure Water Line Replacement	2,450,000				None	$0.00
BVWS Lewis Line Replacement	1,000,000				None	$0.00
BVWS Blue Lake Pipeline Replacement – The Nose	1,087,500				None	$0.00
BVWS Blue Lake Pipeline Replacement – Near Blue Lake	1,087,500				None	$0.00
Blue Lake Valve House Replacement	215,000				None	$0.00
Blue Lake Dam Repair	300,000				None	$0.00

WORKSHEET D – IDENTIFICATION AND SCREENING OF FOUNDATIONAL ACTIVITIES - (2020-2027)

Water Efficiency Activities for Screening	State Statute Requirement (2)	Identification		Qualitative Screening (5)				Additional Pros	Carry to Evaluation (6)	Reason for Elimination (7)
		Existing/ Potential Activity (3)	Targeted Customer Category (4)	Under the Towns direct control	Likely to measurably decrease water use	Builds on an ongoing activity	Provides positive reinforcement to conserve			
Metering (BP1)	V,VII									
Automatic meter reading installation and operations		E		-	-	-	-	All existing programs will continue.	X	
Submetering for large users (indoor and outdoor)		P	Large User	X	X	X	X			Question whether this will provide improved information. Timing is wrong. Too preliminary. Large water users are identified and prioritized.
Meter testing		E		X	-	X	X	All existing programs will continue.	X	
Meter upgrades		E		X	-	X	X	All existing programs will continue	X	
Change remaining manual read meters (~100) to autoread meters		Complete 2019								Completed under 2014 Water Efficiency Plan
Identify unmetered/unbilled treated water uses on all Town-owned facilities		Complete 2019								Completed under 2014 Water Efficiency Plan
Data Collection – Monitoring and Verification (BP2)										
Tracking water use by customer type		E		-	-	-	-	All existing programs will continue.	X	
Modify existing billing system to track use by sufficient customer types		E		-	-	-	-	All existing programs will continue.	X	
Tracking water use for large customers		E	Large User	X	X	X	-	Provides information about where to focus activities for potential largest efficiency gains.	X	
Investigate the potential range of inaccuracy of existing "typical" meters used throughout the water system to refine quantification of non-revenue water.		E		X	X	X	-		X	
Area of irrigated lands in service area (e.g., acres)		P		X	-	-	-			Having these data does not assist with targeting specific large irrigators. Overall, most lots have no or very little landscaped acreage.
Frequency of meter reading - investigate the requirements of moving to monthly billing		Complete 2019								Completed under 2014 Water Efficiency Plan
Create a new category under the billing program for Town-owned facilities to track		Complete 2019								Completed under 2014 Water Efficiency Plan
Investigate cost and administrative challenges of changing all meters to a new system		Complete 2019								Completed under 2014 Water Efficiency Plan
Water Use Efficiency Oriented Rates and Tap Fees (BP1)	VII,VIII									
Volumetric bill		E		X	-	-	-	All existing programs will continue.	X	
Water rate adjustments		E	Large User	X	-	-	-	All existing programs will continue.	X	
Inclining/tiered rates		E	Large User	X	-	-	-	All existing programs will continue.	X	
Water Budgets		P	Large User	-	-	-	-			It remains unclear whether significant benefits will result from developing water budgets for customers or the system.
Frequency of billing – Investigate bi-monthly to monthly billing		Complete 2019								Given current staffing, monthly billing is too intensive.
Tap fees with water use efficiency incentives		Complete 2019								Water system needs all possible revenues. Water efficient systems in required in regulations.
Investigate lowering the 4000 gallon per month cap for base rate to 3000 gallons per month		Complete 2019								Penalizes families that may have more persons per household and use less water per capita but are over the base rate.
System Water Loss Management and Control (BP3)	VI									
Control of apparent losses (with metering, BP1)		E		X	X	X	-	All existing programs will continue.	X	
Leak detection and repair		E		X	X	X	-	All existing programs will continue.	X	
Water line replacement program		E		X	X	X	-	All existing programs will continue.	X	Mill Creek High Pressure Line Replacement. Pipelines in the Bridal Veil collection system. Numerous projects to upgrade system in Bridal Veil Basin.
System wide water audits		E		X	-		-			Annual AWWA M36 Audit
Water Meter Testing at Mill Creek and Pandora WTPs		P		X	-	X	-	Staff ID'd		Staff determined that this activity had already been completed last year and so was no longer necessary.
Planning (BP2)										
Master plans/water supply plans		E		X	-	-	-	All existing programs will continue.	X	
Capital improvement plans		E		X	X	X	-	All existing programs will continue.	X	
Integrated water resources plans		E		X	X	X	X	All existing programs will continue.	X	This applies to the Comprehensive Settlement Agreement with Idarado Mining Company (January 2013) and several water rights case agreements.
Feasibility studies		P		X	-	-	-			There is no need for a Feasibility study as no new projects are envisioned or slated at this time.
Staff (BP4)										
Water Conservation Coordinator		E		X	-	X	X	All existing programs will continue.	X	The Environmental & Engineering Division Manager acts as Telluride's Water Conservation Coordinator.

WORKSHEET E – IDENTIFICATION AND SCREENING OF TARGETED TECHNICAL ASSISTANCE INCENTIVES - (2020-2027)

Water Efficiency Activities for Screening	State Statute Requirement (2)	Identification					Qualitative Screening (6)				Additional Pros	Carry to Evaluation (7)	Reason for Elimination (8)
		Existing/ Potential Activity (3)	SWSI Framework Levels (4)			Targeted Customer Category (5)	Under the Town's direct control	Likely to measurably decrease water use	Builds on an ongoing activity	Provides positive reinforcement to conserve			
			Level 1 Municipal Uses	Level 2 Customers with the Largest Water Use	Level 3 Customer Type(s) in Service Area								
Installation of Water Efficient Fixtures and Appliances	I												
Free or cost share for indoor water audits		E	X	X	X		X	X	X	X	Have included with Green Grants Program.	X	
Toilet retrofits		E	-	X	-	Large User	X	X	X	X	Have included with Green Grants Program.	X	
Urinal retrofits		P	X	-	-		-	-	-	X			Apparent high cost to benefit ratio at this time. Low water fixtures required by Ordinance.
Showerhead retrofits		P	X	-	-		-	-	-	X			Apparent high cost to benefit ratio at this time. Low water fixtures required by Ordinance.
Faucet retrofits (e.g., aerator installation)		P	X	-	-		-	-	-	X			Apparent high cost to benefit ratio at this time. Low water fixtures required by Ordinance.
Water efficient washing machines		P	X	-	-		-	-	-	X			Apparent high cost to benefit ratio at this time. Low water fixtures required by Ordinance.
Water efficient dishwashers		P	X	-	-		-	-	-	X			Apparent high cost to benefit ratio at this time. Low water fixtures required by Ordinance.
Efficient air conditioning use		P	X	-	-		-	-	-	X			Apparent high cost to benefit ratio at this time. Low water fixtures required by Ordinance.
Low Water Use Landscapes Incentives	II												
Investigate installation of gray water systems for irrigation		P	X	X	X		X	X	-	-			
Drought resistant/native vegetation		P	-	-	X		-	-	X	X			Apparent high cost to benefit ratio. Required by Ordinance.
Irrigation scheduling/timing		P	-	-	X		-	-	X	X			Apparent high cost to benefit ratio. Required by Ordinance.
Continue to work with the cemetery on irrigation system		E	-	X	-	Large User	-	X	-	X	All ID'd	X	
Removal of phreatophytes		n/a	-	-	-		-	-	-	X			This is not applicable in the Town of Telluride service area.
Irrigation efficiency evaluations/outdoor water audits		P	X	X	-		-	X	-	X			Apparent high cost to benefit ratio.
Outdoor irrigation controllers		E	-	-	X		-	-	-	X			Required by Ordinance. Occurring during landscaping improvements with property purchases.
Rain sensors		E	-	-	X		-	-	-	X			Occurring without incentives as properties are purchased and landscaping changed.
Residential irrigation meter installations		P	-	-	X		-	-	-	X			Increasing the number of meters to read would require significant additional staffing to install and read the meters and sort through the additional data for billing and water use.
Xeriscape		P	-	-	X		-	-	-	X			Apparent high cost to benefit ratio at this time.
Irrigation equipment retrofits		E	-	-	X		-	-	-	X			Occurring without incentives as properties are purchased and landscaping changed.
Work with Telluride HS/MS on irrigation system		Complete 2019											Installation of artificial turf removed HS/MS from Large User category.
Water Efficient Industrial and Commercial Water-Using Processes Incentives	III												
Commercial Indoor Fixture and Appliance Rebates/Retrofits		E	-	X	-		-	-	-	X		X	Green Grant funding available for equipment that goes beyond Green Building Code requirements. .
Assess potable water usage at the Telluride Regional Wastewater Treatment Plant		E	X	-	-	Town	X	X	X	X	Staff ID'd	X	A non-potable water tank is on site and in use. Research opportunities to use more of this water.
Specialized nonresidential surveys, audits and equipment efficiency Improvements		P	-	X	-		-	-	-	X			Apparent high cost to benefit ratio at this time.
Cooling equipment efficiency		E	-	X	-		-	-	-	X		X	Green Grant funding available for equipment that goes beyond Green Building Code requirements.
Restaurant equipment		E	-	X	-		-	-	-	X		X	Green Grant funding available for equipment that goes beyond Green Building Code requirements.
Rebates	X												
Water Efficient Washing Machine Rebates		E	-	X	X		-	-	X	X		X	Currently available through SMPA and Black Hills for energy efficiency purposes.
Water Efficient Dishwasher Rebates		E	-	X	X		-	-	X	X		X	Currently available through SMPA and Black Hills for energy efficiency purposes.
Water conservation rebate/award for best full-time residents		P	-	-	X		X	-	-	X	Town Council ID'd	X	
Toilet Rebates		E	-	-	X		-	-	X	X		X	Green Grant funding available for equipment that goes beyond Green Building Code requirements.
Urinal Rebates		E	-	-	X		-	-	X	X			Apparent high cost to benefit ratio. Required by Ordinance.
Showerhead Rebates		E	-	-	X		-	-	X	X			Apparent high cost to benefit ratio. Required by Ordinance.
Water Efficient Faucet or Aerator Rebates		E	-	-	X		-	-	X	X			Apparent high cost to benefit ratio. Required by Ordinance.
Efficient Irrigation Equipment Rebates		E	-	X	X		-	-	X	X			Apparent high cost to benefit ratio. Required by Ordinance.
Landscape Water Budgets Information and Customer Feedback		P	-	X	X		-	-	-	X			There are a limited number of customers in Telluride that would benefit from this because most lots are quite small with limited landscape area. The likelihood of greatly reducing water use would be small.
Turf Replacement Programs/xeriscape Incentives		P	-	X	X		-	-	-	X	Town Council ID'd		There are a limited number of customers in Telluride that would benefit from this because most lots are quite small with limited landscape area. The likelihood of greatly reducing water use would be small.
Give-aways		P	-	-	X		-	-	-	X			No room to store the "give-aways". No assurance that "give-away" is actually used or used locally.

WORKSHEET F – IDENTIFICATION AND SCREENING OF ORDINANCES AND REGULATIONS - 2020

Water Efficiency Activities for Screening	State Statute Requirement (2)	Identification					Qualitative Screening (6)				Additional Pros	Carry to Evaluation (7)	Reason for Elimination (8)
		Existing/ Potential Activity (3)	SWSI Framework Levels (4)			Targeted Customer Category (5)	Under the Town's direct control	Very likely to measurably decrease water use	Builds on an ongoing activity	Provides positive reinforcement to conserve			
			Level 1 All Customers within the Existing Service Area	Level 2 New Development	Level 3 Point of Sales on Existing Building Stock								
General Water Use Regulations	IX												
Water conservation ordinance implementation		E	X	-			X	X	X	-	All existing programs will continue.	X	
Time of Day Watering Restriction change to 9 pm – 9 am all season		P	X	-			X	X	X	-		X	Changing the current time restrictions to make it easier to remember could be helpful.
With each building permit, require a service line audit from the main to the meter to ensure functionality.		E	X	X			X	-	X	-	All existing programs will continue.	X	
Day of week watering restriction		P	X	-			X	-	X	-			Consensus that it is too complex for the public to remember which day of the week. Easier to remember you can only water at night no matter what day.
Water Waste Ordinance (BP5)		P	X	-			X	-	-	-			Consensus that enforcement is difficult to impossible without additional staff. No desire to penalize community in such a way.
Water Overspray Limitations		P	X	-			X	-	-	-			Consensus that enforcement is difficult to impossible without additional staff. No desire to penalize community in such a way.
Landscape Design/Installation Rules and Regulations	IX												
Rules and regulations for landscape design/installation (BP9)		E	X	X			-	-	X	-	All existing programs will continue.	X	
Irrigation equipment requirements		E	X	X			-	-	X	-	All existing programs will continue.	X	
Soil amendment requirements (BP9)		E	X	X			-	-		-	All existing programs will continue.	X	
Restrictions of acreage of irrigation or % of property irrigated		P	-	X			-	-	-	-	Ecology Commission ID'd		Properties typically developed with little room for significant irrigated landscaping. Little likely benefit.
Landscaper training and certification (BP8)		P	X	X			-	-	-	-			New regulations are not politically palatable. There is a problem of enforcement. Questionable noticeable/measurable efficiencies in water use.
Irrigation system installer training and certification (BP 8)		P	X	X			-	-	-	-			New regulations are not politically palatable. There is a problem of enforcement. Questionable noticeable/measurable efficiencies in water use.
Turf Restrictions (BP 9)		P	-	X			-	-	-	-			Given the very small lot sizes within the Town limits, such limitations are somewhat superfluous. Larger lot sizes are in the County and therefore outside of the ability of the Town to insist on limits. Irrigation water pricing is a likely alternative way to move this forward.
Outdoor water audits/irrigation efficiency regulation (BP 10)		P	-	X			-	-	-	-			New regulations are not politically palatable. There is a problem of enforcement. Questionable noticeable/measurable efficiencies in water use.
Outdoor green building construction (BP 8, 9)		P	-	X			-	-	-	-			
Indoor and Commercial Regulation	IX												
Indoor plumbing requirements (BP 12)		E	X	X			X	-	-	-	All existing programs will continue.	X	
Green building construction (BP 12)		E	X	X			X	-	-	-	All existing programs will continue.	X	
Town facility requirements (BP 12)		E	-	-		Town	X	-	-	X	Will serve as an example to the broader community.	X	
Low efficiency fixture and appliance replacement (BP 12)		P	X	-			-	-	-	-			New fixtures being put in place as properties turn over and structures are updated.
Commercial cooling and process water requirements (BP 14)		P	X	-		Commercial	-	-	-	-			New regulations are not politically palatable. There is a problem of enforcement. Questionable noticeable/measurable efficiencies in water use.
Required indoor residential audits (BP 13)		P	X	-			-	-	-	-			New regulations are not politically palatable. There is a problem of enforcement. Questionable noticeable/measurable efficiencies in water use.
Required indoor commercial audits (BP 14)		P	X	-			-	-	-	-			New regulations are not politically palatable. There is a problem of enforcement. Questionable noticeable/measurable efficiencies in water use.
Commercial Water Wise use regulations (car washes, restaurants, etc.		P	X	-		Commercial	-	-	-	-			New regulations are not politically palatable. There is a problem of enforcement. Questionable noticeable/measurable efficiencies in water use.

WORKSHEET G – IDENTIFICATION AND SCREENING OF EDUCATION ACTIVITIES - (2020-2027)

Water Efficiency Activities for Screening	State Statute Requirement (2)	Identification					Qualitative Screening (6)				Additional Pros	Carry to Evaluation (7)	Reason for elimination (8)
		Existing/ Potential Activity (3)	SWSI Framework Levels (4)			Targeted Customer Category (5)	Under the Town's direct control	Very likely to measurably decrease water use	Builds on an ongoing activity	Provides positive reinforcement			
			Level 1 One-Way	Level 2 One-Way with Feedback	Level 3Two-way Education (Interactive)								
Customer Education (BP6)	VI												
1 KOTO Radio Access discussion per year about wise use of water		E	-	-	X		X	-	X	X	Ecology Commission ID'd	X	
PSA newspaper water wise advertisements		E	X	-	X		X	-	X	X	Staff ID'd	X	
Water bill insert one time each year		E	X	-	X		X	-	X	X	All ID'd	X	
Newsletter		P	X	-	-		X	-	-	X			Staff time and resources expected to be excessive for little anticipated return.
Newspaper articles		E	X	-	-		X	-	-	X	Staff ID'd	X	
Mass mailings		E	X	-	-		X	-	-	X	Outreach sent in Utility Bills	X	
Web pages		E	X	-	-		X	-	-	X	Staff ID'd. Use Town web site spotlight for getting info out.	X	
Water fairs		P	-	-	X		-	-	-	X	Ecology Commission ID'd. Of interest to parents/teachers on ECOMM.	X	
K-12 Teacher and Classroom Education Programs		P	-	-	X		-	-	-	X	Ecology Commission ID'd. Of interest to parents/teachers on ECOMM.	X	
Interactive Websites		P	-	-	X		X	-	-	X			Staff time and resources expected to be excessive for little anticipated return.
Water savings competition between Telluride and another Mountain Town		P	-	-	X		-	-	-	X	Ecology Commission ID'd		Staff time and resources expected to be excessive for little anticipated return.
Social Networking (e.g., Facebook)		E	-	-	X		X	-	-	X		X	Regular outreach on Town facebook page and website.
Customer Surveys		P	-	X	-		X	-	-	X			Would require additional staff. Apparent high cost to benefit ratio at this time.
Focus Groups		P	-	X	-		X	-	-	X			Difficulty filling currently available seats on boards and commissions.
Citizen Advisory Boards		P	-	-	X		X	-	-	X			Difficulty filling currently available seats on boards and commissions.
Technical Assistance	VI												
Native plant/xeriscape demonstration garden		E	X	-	-		X	-	X	X	All existing programs will continue.	X	Should talk this up more so public knows it is there.
Customer water use workshops		P	-	-	X		X	-	-	X			Very low turnout (5 – 10 people) at workshops in Town is typical. Apparent high cost to benefit ratio.
Landscape design and maintenance Workshops		P	-	-	X		X	-	-	X			Very low turnout (5 – 10 people) at workshops in Town is typical. Apparent high cost to benefit ratio.
Water conservation expert available		P	-	-	X		X	-	-	X			Apparent high cost to benefit ratio at this time.

WORKSHEET H – EVALUATION AND SELECTION OF WATER EFFICIENCY ACTIVITIES - (2020-2027)

Water Efficiency Activities for Evaluation (1)	Existing/ Potential Activity (2)	Targeted Customer Category (3)	Evaluative Screening				Evaluation									Final Selection (8)	
			Evaluative Goals (4)				Projected Water Savings (5)		Projected Implementation Costs ($) to Town (6)	Qualitative Goals/Objectives (7)						Activities Selected for Imple-menta-tion	General notes and if eliminated, reason why.
			Can be accomplished with current staffing	Technically feasible	Relatively low cost ($)	Will help meet long term goals	Total Water Savings over 7-year Planning Window (gallons)	Average Annual Water Savings (gallons)		Decrease outdoor irrigation	Reduce wastewater discharges by reducing indoor water use	Reduce peak day summer demand	Decrease non-revenue water	Notes on Additional Pros/cons to consider		
FOUNDATIONAL ACTIVITIES																	
Metering (BP1)																	
Automatic meter reading installation and operations	E	All	X	X	X	X	unknown	unknown		-	-	-	X	Existing program to continue.		1	
Meter Testing	E		X	X	X	X	0	0		-	-	-	X			2	Essential work for AWWA M36 Protocol.
Meter Upgrades	E	All	-	X	-	-	0	0		-	-	-	X			3	Important to capture more non-revenue water.
Data Collection – Monitoring and Verification (BP2)																	
Tracking water use by customer type	E	All	X	X	X	X	0	0		X	X	X	-	Existing program to continue.		4	
Modify existing billing system to track use by sufficient customer types	E	All	X	X	X	X	0	0		X	X	X	-				11 categories seem sufficient. In 2013, added 2 categories. In 2018, added 1 category.
Tracking water use for large customers	E	Large User	X	X	X	X	0	0		X	X	X	-			5	This task is easy with Utility Billing Data and provides staff with tools for outreach.
Investigate the potential range of inaccuracy of existing "typical" meters used throughout the water system to refine quantification of non-revenue water. [Same as "Meter Testing" under BP1.]	E	n/a	X	X	X	X	0	0		-	-	-	X				Not eliminated, but part of "Meter Testing: under BP1.
Water Use Efficiency Oriented Rates and Tap Fees (BP1)																	
Volumetric bill	E	All	X	X	X	X	unknown	unknown		X	X	X	X	Existing program to continue.		6	
Water rate adjustments	E	All	X	X	X	X	unknown	unknown		X	X	X	-	Existing program to continue.		7	
Inclining/tiered rates	E	All	X	X	X	X	unknown	unknown		X	X	X	-	Existing program to continue.		8	
System Water Loss Management and Control (BP3)																	
Control of apparent losses (with metering)	E	n/a	X	X	X	X	unknown	unknown		-	-	X	X	Existing program to continue.		9	
Leak detection and repair	E	n/a	X	X	X	X	unknown	unknown		-	-	X	X	Existing program to continue.		10	
Water line replacement program	E	n/a	X	X	X	X	unknown	unknown		-	-	X	X	Existing program to continue.		11	Mill Creek High Pressure Waterline slip lining over next 4 years.
Planning (BP2)																	
Master plans/water supply plans	E	n/a	X	X		X	0	0		-	-	-	-	Existing program to continue.		12	A Water Master Plan is in place. It will likely be updated in 2020.
Capital improvement plans	E	n/a	X	X		X	>100,000	>100,000		-	-	-	-	Existing program to continue.		13	A Capital Improvement Plan for the water system is in place through 2020. It will be updated annually.
Integrated water resources plan(s)	E	n/a	X	X		X	0	0		-	-	-	-	Existing program to continue.		14	Telluride and Idarado Mining Company are implementing the Comprehensive Settlement Agreement (January 2013) and
Staff (BP4)																	
Water Conservation Coordinator	E		X	X	X	X	unknown	unknown		-	-	-	-	Existing program to continue.		15	The Environmental & Engineering Division Manager acts as Telluride's Water Conservation Coordinator.
TARGETED TECHNICAL ASSISTANCE INCENTIVES																	
Installation of Water Efficient Fixtures and Appliances																	
Free indoor water audits	E	All	-	-	-	X	0	0		-	X	X	-				While Green Grant Funding is available, contractor availability is lacking.
Toilet retrofits	E	Town	X	X	-	X	unknown	unknown	$400 per toilet	-	X	X	-			16	Green Grant Funding for projects that go beyond Green Building Code requirements.
Low Water Use Landscapes Incentives																	
Continue to work with the cemetery on irrigation system	P	Large User	X	X	-	X	600,000	120,000	?$10,000	X		X	X	Public perception of waste.		17	
Water Efficient Industrial and Commercial Water-Using Processes Incentives																	
Commercial indoor fixture and appliance rebates/retrofits	E		X	X	X	X				-	X	X	-	Existing program to continue.		18	Green Grants funding for equipment that goes beyond Building Code requirements.
Assess potable water usage at the Telluride Regional Wastewater Treatment Plant	E	Town	X	X	X	X				-	X	X	-	Existing program to continue.		19	This work is ongoing as the TRWWTP Technical Team works on improvements and upgrades.
Cooling equipment efficiency	E		X	X	X	X					X	X		Existing program to continue.		20	Green Grants funding for equipment that goes beyond IBC 2018
Restaurant equipment	E		X	X	X	X					X	X		Existing program to continue.		21	Green Grants funding for equipment that goes beyond IBC 2018
Rebates																	

Water Efficiency Activities for Evaluation (1)	Existing/ Potential Activity (2)	Targeted Customer Category (3)	Evaluative Screening												Final Selection (8)	
			Evaluative Goals (4)				Projected Water Savings (5)		Projected Implementation Costs ($) to Town (6)	Qualitative Goals/Objectives (7)					Activities Selected for Imple-menta-tion	General notes and if eliminated, reason why.
			Can be accomplished with current staffing	Technically feasible	Relatively low cost ($)	Will help meet long term goals	Total Water Savings over 7-year Planning Window (gallons)	Average Annual Water Savings (gallons)		Decrease outdoor irrigation	Reduce wastewater discharges by reducing indoor water use	Reduce peak day summer demand	Decrease non-revenue water	Notes on Additional Pros/cons to consider		
Water Efficient Washing Machine Rebates	E	All	X	X	X	X	1,155,000 – 2,390,000	231,000 – 478,000	$0	-	X	X	-	Existing program to continue.		Incidental as residents use SMPA and Black Hills rebates when replacing older appliances for newer, energy efficient models. Green Grants funding
Water Efficient Dishwasher Rebates	E	All	X	X	X	X	308,000 – 617,000	77,000 – 154,000	$0	-	X	X	-	Existing program to continue.		Incidental as residents use SMPA and Black Hills rebates when replacing older appliances for newer, energy efficient models. Green Grants funding
Water conservation rebate/reward for best full-time residents	P	All	X	X	X	X	0	0	?$1,000	-	X	X	-		22	This will be a new program that will need some vetting. Could be paid for through the TEMP Fund.
Toilet rebates	E	All	X	X	X	X					X	X		Existing program to continue.		Staff considers this the same as “Toilet Retrofits” listed above.
ORDINANCES AND REGULATIONS																
General Water Use Regulations																
Water conservation ordinance implementation	E	All	X	X	X	X	Cannot be quantified	Cannot be quantified	$0	X	X	X	-	Existing program to continue.	23	In existing regulations.
Time of day watering restriction change to 9 pm – 9 am all season	E	All	X	X	X	X	unknown	unknown	$0	X	X	X	-	Existing program to continue.	24	Will require a modification of existing regulations.
With each building permit, require a service line audit from the main to the meter to ensure functionality.	E	Redevelop ment	X	X	X	X	Cannot be quantified	Cannot be quantified	$0	X	-	X	-	Existing program to continue.	25	All re-development requires inspection of water lines, at least on the private property.
Landscape Design/Installation Rules and Regulations																
Rules and regulations for landscape design/installation (BP9)	E	New	X	X	X	X	0	0	$0	X	-	X	-	Existing program to continue.	26	
Irrigation equipment requirements	E	New	X	X	X	X	0	0	$0	X	-	X	-	Existing program to continue.	27	In existing regulations.
Soil amendment requirements (BP9)	E	New	X	X	X	X	0	0	$0	X	-	X	-	Existing program to continue.	28	In existing regulations.
Indoor and Commercial Regulation																
Indoor plumbing requirements (BP 12)	E	New	X	X	X	X	unknown	unknown	$0	-	X	X	-	Existing program to continue.	29	Includes “Town Facility Requirements”
Green building construction (BP 12)	E	New	X	X	X	X	unknown	unknown	$0	-	X	X	-	Existing program to continue.	30	
Town facility requirements (BP 12)	E	Town	X	X	X	X	unknown	unknown	$0	-	X	X	-			This is being accomplished through managerial policy and without a regulation or ordinance. Also, it is included with “Indoor plumbing requirements”, above.
EDUCATION																
Customer Education (BP6)																
1 KOTO Radio Access per year about wise use of water	E	All	X	X	X	X	0	0	$0	X	X	X	-	Existing program to continue.	31	
PSA newspaper water wise advertisements	E	All	X	X	X	X	0	0	$275 each	X	X	X	-	Existing program to continue.	32	
Water bill insert one time each year	E	All	X	X	X	X	0	0	$0	X	X	X	-	Existing program to continue.	33	
Newspaper articles	E	All	X	X	X	X	0	0	$0	X	X	X	-	Existing program to continue.	34	
Web pages	E	All	-	X	X	X	0	0	$0	X	X	X	-	On Town web page.	35	
Water fairs	P	Kids	-	X	-	X	0	0	$4,000	X	X	X	-			Implementation must be accomplished through coordination between the Ecology Commission and the schools and/or library.
K-12 Teacher and Classroom Education Programs	P	Kids	-	X	-	X	0	0	$2,500	X	X	X	-			Implementation would have to be accomplished through coordination between the Ecology Commission and the schools.
Social networking (e.g., Facebook)	E	All	X	X	X	X	0	0	$0	X	X	X	-	Existing program to continue.	36	
Technical Assistance																
Native plant/xeriscape demonstration garden	E	All					0	0	$0	X	-	X	-	Existing program to continue.		The demonstration garden and outreach are conducted by the Colorado Extension Program, not Town staff.

WORKSHEET I – SELECTED WATER EFFICIENCY ACTIVITIES AND ESTIMATED WATER SAVINGS - (2020-2027)

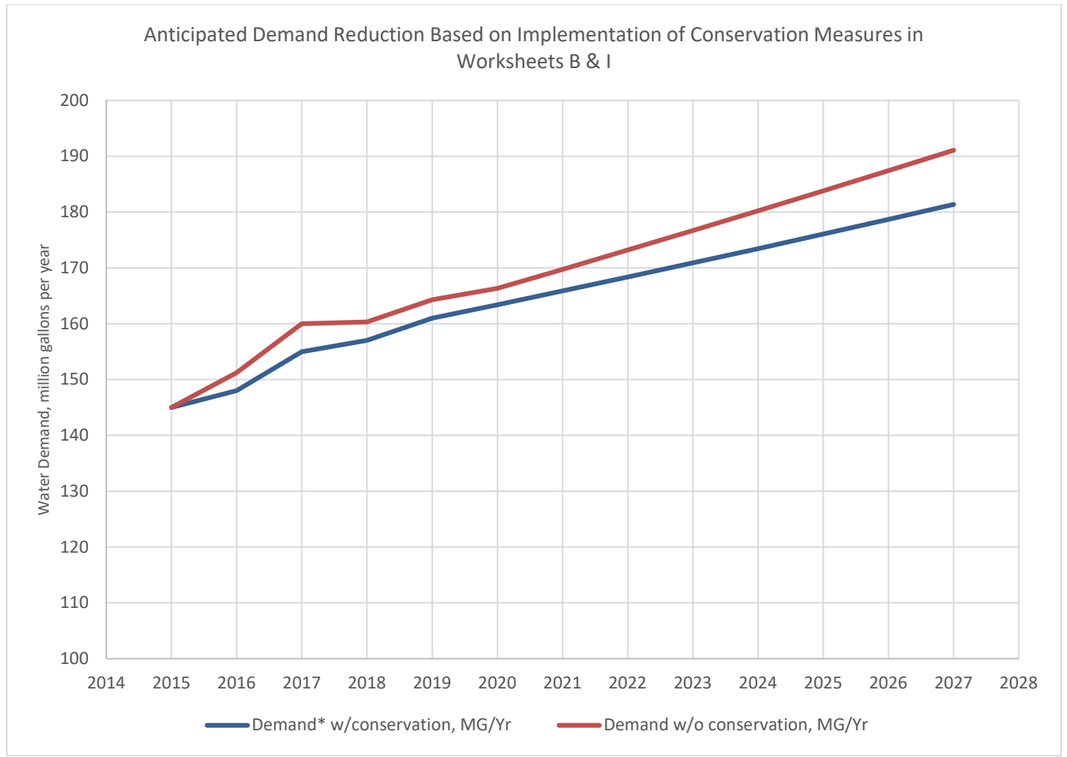
Selected Water Efficiency Activities (1)	Implementation Period of Historical Activities (2)	Historical Total Water Savings (MG/Year) (3)	Projected Water Savings for Next 7-Yr Planning Period, 2020 - 2027 (5)
FOUNDATIONAL ACTIVITIES			
Automatic meter reading installation and operations	~2000 - present		
Meter Testing	2019 – present		
Meter Upgrade [NOTE: Same as Control of apparent losses with metering.]	2016 - present		
Tracking water use by customer type	~2000 - present		
Tracking water use for large customers	2014 - present		
Volumetric bill	~2000 - present		
Water rate adjustments	2000, 2004, 2014-2019		
Inclining/tiered rates	2004 – present; adjusted January 2014; continuing through present		
Control of apparent losses (with metering)	Mid-1970s; 1980s; 1990s - present	0.21	1.47
Leak detection and repair	Mid-1970s – present	0.93	6.51
Water line replacement program	2000 - present	0.09	0.63
Master plans/water supply plans	1977, 1993, 2002, 2010		
Capital improvement plans	2000 – present		
Integrated water resources plans	2013 – present		
Water Conservation Coordinator	2014 - present		
TARGETED TECHNICAL ASSISTANCE AND INCENTIVES			
Toilet retrofits	2015 - present	0.91	1.00
Continue to work with the cemetery on irrigation system	2014 - present	0.02	116,600 gallons per year (0.07% of treated water volume). NOTE: manual read meter installed in 2013.
Commercial indoor fixture and appliance rebates/retrofits			
Assess potable water usage at the Telluride Regional WWTP			
Cooling equipment efficiency			
Restaurant equipment efficiency			
Water Efficient Washing Machine Rebates	~2010 – present		
Water Efficient Dishwasher Rebates	~2010 – present		
Investigate water conservation rebate reward for full-time residents			
Toilet rebates			
ORDINANCES AND REGULATIONS			
Water Conservation Code (Title 13, Article 5), includes time of day watering restrictions	2004 – present	7.5	Average summer usage is 150,000,000 gallons more than in winter. As evaporation at night is less than at midday, we will assume 5% of total water will be saved using this technique or 7,500,000 gallons annually (0.04%).
With each building permit, require a service line audit from the main to the meter to ensure functionality (part of Leak Detection & Repair).	2016 – present		
Rules and regulations for landscape design/installation (BP9)	~2000 – present		
Irrigation equipment requirements	~2000 – present		
Soil amendment requirements (BP9)	~2000 – present		
Indoor plumbing requirements (BP 12)	~2000 – present		
Green building construction (BP 12)	2006 – present		
EDUCATION			
1 KOTO Radio Access per year about wise use of water	2014 - present		
PSA newspaper water wise advertisements	2014 - present		
Water bill insert one time each year	2014 - present		
Newspaper articles	2014 - present		
Web pages	2014 - present		
Social networking on Facebook	2014 - present		
		9.7 MG/YR	**67.6 MG over next 7 YRS**

Anticipated Demand Reduction Over Time

Year	Demand* w/conservation, MG/Yr	Demand w/o conservation, MG/Yr	Annual Savings w/ conservation**
2015	145	145	3.1
2016	148	151	3.2
2017	155	160	5.0
2018	157	160	3.3
2019	161	164	3.3
2020	163	166	2.9
2021	166	170	3.9
2022	168	173	4.9
2023	171	177	5.8
2024	173	180	6.8
2025	176	184	7.8
2026	179	187	8.7
2027	181	191	9.7

*Actual treated water volume 2015-2019 and projected 1.5% increase thereafter

**Actual savings 2015-2019 and projected thereafter.



WORKSHEET J – IMPLEMENTATION PLAN - (2020-2027)

Selected Water Efficiency Activities	Period of Implementation	Implementation Actions	Milestone Deadlines (blanks indicate "ongoing")	Budget	Entity/Staff Responsible for Implementation	Coordination and Public Involvement	Additional Comments
FOUNDATIONAL ACTIVITIES							
1 Automatic meter reading	1996 – present	Continue bi-monthly reads and billing			WNichols, Water-Wastewater Div KOffutt, Finance Dept		
2 Meter Testing	2019 – present	Test a minimum of 25 meters that are replaced with upgrades.		$35,000 annually	Wichols, Water-Wastewater Div		
3 Meter Upgrade	2016 – present	Continue each year to replace 100-150 Sensus meters with Neptune meters.		$30,000 - $40,000 annually	WNichols, Water-Wastewater Div KOffutt, Finance Dept		
4 Tracking water use by customer type	~1996 - present	1. Finance looks over water use by customer for anomalies to identify potential problems. 2. Contacts property owner if there is a potential problem. 3. Finance provides customer use data each billing period to EEDIv 4. EEDiv maintains records to review annually		$0.00	KOffutt, Finance Dept KGuglielmone, EEDiv	When anomalies are found, coordination between the Public Works, Finance, and the property owner is required.	
5 Tracking water use for large customers	2014-present	1. Finance provides customer use data to EEDiv 2. EEDiv analyzes data	Annually	$0.00	KOffutt, Finance Dept KGuglielmone, EEDiv	Staff contacts the large use customer to work on decreasing/optimizing water usage.	
6 Volumetric bill	~2000 - present	1. Read meters 2. Troubleshoot "bad" readings 3. Bill bi-monthly		$0.00	KOffutt, Finance Dept		
7 Water rate adjustments	2000, 2004, 2014-2019, 2020	Contract for and oversee a financial analysis and rate study for the Water Fund.	Annually in September	$0.00	KGuglielmone, EEDiv	Town Council approval at a public meeting is required.	
8 Inclining/tiered rates	2004 – present; adjusted January 2014; 2024	As part of the 2024 Water Rate Study, consider modifying the inclining/tiered rate structure for usage beyond the Base Rate.	Revisit August 2020	$0.00	Town Manager, Public Works, & Finance Depts.	Town Council approval at a public meeting required.	
9 Control of apparent losses (with metering)	Mid-1970s; 1980s; 1990s - present	1. Meter replacement program. 2. ID and troubleshoot odd meter readings. 3. Track "apparent losses" using AWWA M36 annual Water Audit.		$0.00	WNichols, Water-Wastewater Div KOffutt, Finance Dept KGuglielmone, EEDiv		
10 Leak detection and repair	Mid-1970s – present	1. Conduct a Leak Detection survey each year. 2. Quantify volume of losses. 3. Repair leaks identified ASAP. 4. Track & report leak ID and repair and volumes.		Est. ~$50,000	REstes, Streets & Utilities Div KGuglielmone, EEDiv		
11 Water line replacement program	2000 – present; 2014 West Colorado Project; 2020-2023 Mill Creek High Pressure Line Replacement	1. Engineer entire length 2. Then for each of 3 phases (2021, 2022, 2023): a. Apply for DOLA Grant. b. Issue a request for bid for construction contract c. Secure construction contract d. Start construction e. Substantial completion f. End contract	June 30, 2020 a. November b. January c. March d. April e. October f. December	Eng, $200,000 Phase 1, $750,000 Phase 2, $750,000 Phase 3, $750,000	JHuang, EEDiv KGuglielmone, EEDiv REstes, Streets & Utilities Div	Each project phase is discussed and funded as part of the annual budget process undertaken by the Town Council and staff. Public involvement takes place during construction within specific neighborhoods.	Refer to 2020 5-year CIP
12 Master plans/water supply plans	1977, 1993, 2002, 2010	1. Confirm when the master plan / water supply plan will be updated. 2. Contract for update 3. Conduct update with coordinated public meetings	Unknown	$0.00	KGeiger, Town Attorney PRuud, Public Works Director	Coordination among staff, Town Council and the public (in a public process at Town Council meetings).	
13 Capital improvement plans (5-year CIP)	2000 – present; 2014 – 2019; 2020-2024	Re-assess annually during budget request cycle:	Annually August through October	Anticipated total 2020 5-yr CIP expenditures: ~ $2,049,800	JHuang, EEDiv KGuglielmone, EEDiv Water-Wastewater Supervisor	When CIP project impact specific neighborhoods, those property owners and business owners are contacted directly.	Refer to 2020 5-year CIP
14 Integrated water resources plan(s)	2013 – present	Work with Idarado Mining Company, CWCB, Teleski, and other "objectors" to ensure that all goals for water use are complied with.		Unknown	KGeiger, Town Attorney PRuud, Public Works Director	Coordination among stakeholders (Idarado Mining Company, CWCB, "objectors," State Engineer's office)	
15 Water Conservation Coordinator	2014 – present	Coordinator is in place to orchestrate all items of the Implementation Plan.		$0.00	KGuglielmone, EEDiv		
TARGETED TECHNICAL ASSISTANCE AND INCENTIVES							
16 Toilet retrofits	2020 - 2027	1. ID opportunities with larger HOAs 2. Define scope of the toilet replacement. 3. Secure grant for replacement project 4. Issue request for bids 5. Select contractor and secure contract for work 6. Begin toilet replacement project 7. Substantial completion	Unknown at this time.		KGuglielmone, EEDiv	Must coordinate with HOAs and hotels to discuss opportunities.	

Selected Water Efficiency Activities	Period of Implementation	Implementation Actions	Milestone Deadlines (blanks indicate "ongoing")	Budget	Entity/Staff Responsible for Implementation	Coordination and Public Involvement	Additional Comments
		8. Contract closed out					
17 Continue to work with cemetery on irrigation system	2014 - present	1. Continue dialogue with the Cemetery Board. 2. Continue research of potential alternative water sources 3. Agree on a scope and work plan 4. TBD based on agreed upon scope and work plan	Ongoing	TBD	KGeiger, Town Attorney PRuud, Public Works Director KGuglielmone, EEDiv	Must coordinate closely with the Cemetery Board.	
18 Commercial indoor fixture and appliance rebates/retrofits	2020 – 2027	1. Conduct outreach on availability of funds. 2. Assist with Green Grant applications	Annually	TBD	KGuglielmone, EEDiv EcoAction Partners as Green Grant Administrators	Conduct outreach as part of the Green Grants administration.	
19 Assess potable water usage at the Telluride Regional Wastewater Treatment Plant	2020 – 2027	Include the goal of reducing potable water use when identifying TRWWTP upgrade options.	Through 2027 upgrade	Unknown	JHuang, EEDiv Water-Wastewater Div PRuud, Public Works Director	TRWWTP Technical Team will have to agree on this goal.	
20 Cooling equipment efficiency	2020 – 2027	1. Conduct outreach on availability of funds. 2. Assist with Green Grant applications	Annually	TBD	KGuglielmone, EEDiv EcoAction Partners as Green Grant Administrators	Conduct outreach as part of the Green Grants administration.	
21 Restaurant equipment	2020 – 2027	1. Conduct outreach on availability of funds. 2. Assist with Green Grant applications	Annually	TBD	KGuglielmone, EEDiv EcoAction Partners as Green Grant Administrators	Conduct outreach as part of the Green Grants administration.	
22 Water conservation rebate/reward for best full-time resident or business	2023 - 2027	1. Determine what "best conservation" means 2. Develop a set of secondary criteria 3. Monitor use for all users 4. Select a user to award, one each year? 5. Determine type of award and how to provide it (i.e., a check handed over at a Town Council meeting?)	2023 in December	TBD	KGuglielmone, EEDiv	Obtain buy-in from Town Manager and Public Works Director	
ORDINANCES AND REGULATIONS							
23 Water conservation ordinance implementation	2004 – present	Management plans to review the ordinance to ensure that it remains relevant		$0.00	RHerzog, Town Manager KGeiger, Town Attorney PRuud, Public Works Director	All Town Council meetings are public meetings.	It is unknown at this time (i.e., prior to the analysis) whether any changes will be necessary to the existing ordinance.
24 Permanent time of day watering restriction, change to 9 pm – 9 am all season	2004 – present	Discuss action at Town Council meeting. 1st Reading of an Ordinance change. 2nd Reading of an Ordinance change.	February 2020 March 2020 April 2020	$0.00	KGeiger, Town Attorney KGUglielmone, EEDiv	All Town Council meetings are public meetings.	
25 With each building permit, require a service line audit from the main to the meter to ensure functionality.	2016 - present	Ongoing implementation. Triggered as part of the Development Review by Public Works.		$0.00	KGuglielmone, EEDiv REstes, Streets & Utilities		
26 Rules and regulations for landscape design/installation (BP9)	~2000 – present	TBD		$0.00	Planning & Building Dept	Within existing Ordinance (LUC Division 5; Streetscape Manual of Standards)	
27 Irrigation equipment requirements	~2000 – present	None needed.		$0.00	Planning & Building Dept	Within existing Ordinance (LUC Division 5; Streetscape Manual of Standards)	
28 Soil amendment requirements (BP9)	~2000 – present	None needed.		$0.00	Planning & Building Dept	Within existing Ordinance (LUC Division 5; Streetscape Manual of Standards)	
EDUCATION							
29 1 KOTO Radio Access per year about wise use of water	2014 – present	Each year, schedule with KOTO radio an Access to discuss water efficiency	1st week of June each year	$0.00	KGuglielmone, EEDiv	Need to schedule the talk spot with KOTO radio	
30 PSA newspaper water wise advertisements	2014 – present	Develop content for a "water wise" advertisement for the newspaper. Secure one advertisement each quarter	Quarterly	$275 each	KGuglielmone, EEDiv		
31 Water bill insert one time each year	2014 – present	Review and update content and layout for a "water wise" insert for the utility bill that is mailed closest to the summer festival season.	May Billing (and each year thereafter)	$0.00	KGuglielmone, EEDiv	Coordinate with Finance Director or her designee for the Utility Bill insert	
32 Newspaper articles	2014 – present	Write an article for the newspapers regarding water efficiency and water wise use. One for each season.	December/January each year	$0.00	KGuglielmone, EEDiv		
33 Web pages	2014 – present	Place the "water wise" insert for the water bill onto the Town's website under the Spotlight.	May/June each year	$0.00	KGuglielmone, EEDiv	Coordinate with web master to insert content.	
34 Social Networking (i.e., Facebook)	2018 - present	Place "water wise" content on facebook page on a regular basis.				Coordinate with web master to insert content or Water Coordinator will place content.	

WORKSHEET K – SELECTION OF MONITORING DEMAND DATA FOR MONITORING PLAN - (2020-2027)

Monitoring Data	HB 10-1051 Reporting Requirement				Selection				Entity/Staff Responsible for Data Collection and Evaluation	Schedule Timing of Monitoring	Comments
	Annual	Monthly	Bi-monthly	Daily	Annual	Monthly	Bi-monthly	Daily			
Total Water Use											
Total treated water produced (metered at WTP discharge)						✓			Water-Wastewater (Bill Goldsworthy) / EEDiv (KGuglielmone)	Monthly	
Total treated water delivered (sum of customer meters)	✓						✓		Finance Director (KRanta) / EEDiv (KGuglielmone)	Bi-monthly	
Raw non-potable deliveries					✓			✓	Parks & Recreation / EEDiv (KGuglielmone)	During irrigation season	Town Park Wells #1 and #2
Reclaimed water produced (metered at WWTP discharge)											
Reclaimed water delivered (sum of customer meters)											
Per capita water use					✓				Water-Wastewater (Bill Goldsworthy) / EEDiv (KGuglielmone)	December/January	Need BOD data from WWTP from BGoldsworthy for service population estimates
Indoor and outdoor treated water deliveries											
Treated water peak day produced								✓	Water-Wastewater (BGoldsworthy)	December/January	
Reclaimed water peak day produced											
Raw water peak day produced/delivered											
Non-revenue water	✓				✓				Parks & Recreation / EEDiv (KGuglielmone)	December/January	
Water Use by Customer Type											
Treated water delivered (sum of customer meters by type)		✓					✓		EEDiv (KGuglielmone), Water-Wastewater (WNichols), Finance (KJewett)	Bi-monthly	Will use billing register data provided by Finance Department for each billing period (bi-monthly)
Raw non-potable deliveries								✓	EEDiv (KGuglielmone), Parks	December/January	Will use billing register data provided by Finance Department for each billing period (bi-monthly)
Reclaimed water delivered											
Residential per capita water use							✓				
Unit water use (e.g., AF/account or AF/irrigated acre)							✓				
Indoor and outdoor treated water deliveries											
Large users							✓		EEDiv (KGuglielmone)	December/January	Will use billing register data provided by Finance Department for each billing period (bi-monthly)
Other Demand Related Data											
Irrigated landscape (e.g., AF/acre or number of irrigated acres)											
Precipitation											
Temperature											
Evapotranspiration											
Drought index information											
Economic conditions											
Population					✓				EEDiv (KGuglielmone), Water-Wastewater (BGoldsworthy)	December/January	Need BOD data from WWTP from BGoldsworthy for service population estimates
New taps					✓				EEDiv (KGuglielmone), Planning & Building (HSchumack)	December/January	Need data provided by Helen Schumack at Building Department

WORKSHEET L – MONITORING PLAN - (2020-2027)

Selected Water Efficiency Activities	Customer Category Impacted	Demand Monitoring Data										Other Monitoring Data								Entity/Staff Responsible for Data Collection and Evaluation	Schedule or Timing of Monitoring	Comments
		Total treated water produced	Total treated water delivered	Raw non-potable deliveries	Per capita water use	Treat water peak day produced	Treated water delivered (by customer type or to each customer)	Large Users	# Irrigated acres	Population	New taps	Annual costs	Lessons Learned	Water saving estimates	Administration Data	Relevant public feedback	Records of significant changes	# & locations of meters or facilities replaced	# & locations of leaks detected & repaired			
FOUNDATIONAL ACTIVITIES																						
1 Automatic meter reading installation and operations	All										X	X			X			X		WNichols, Water-Wastewater	Ongoing	
2 Meter Testing	All													X						WNichols, Water-Wastewater		
3 Meter Upgrades	All											X		X				X		WNichols, Water-Wastewater		
4 Tracking water use by customer type	All						X													KGuglielmone, EEDiv	Annually (Dec/Jan)	
5 Tracking water use for large customers	Varies							X												KGuglielmone, EEDiv	Annually (Dec/Jan)	
6 Volumetric bill	All														X					Finance	Ongoing	
7 Water rate adjustments	All														X					Finance	Annually	
8 Inclining/tiered rates	All														X					Finance	n/a	
9 Control of apparent losses (with metering)	All	X	X											X			X	X		WNichols, Water-Wastewater, REstes, Streets & Utilities	Ongoing	
10 Leak detection and repair	All													X					X	REstes, Streets & Utilities	Ongoing	
11 Water line replacement program: Mill Creek Water Main Slip Lining	n/a													X				X	X	JHuang, EEDiv	Ongoing	Linear feet of water main line replaced. Condition of line and connections.
12 Master plans/water supply plans	n/a	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	KGuglielmone, EEDiv	Unknown	
13 Capital improvement plans (5-year CIP)	n/a														X		X	X	X	KGuglielmone, EEDiv	Annually	
14 Integrated water resources plans	n/a														X		X			KGuglielmone, EEDiv	Ongoing	
15 Water Conservation Coordinator	All																			KGuglielmone, EEDiv	Ongoing	
TARGETED TECHNICAL ASSISTANCE AND INCENTIVES																						
16 Toilet retrofits	Large User						X							X				X		KGuglielmone, EEDiv	Unknown	
17 Continue to work with the cemetery on irrigation system	Large User						X						X				X			KGuglielmone, EEDiv	Ongoing	
18 Commercial indoor fixture and appliance rebates/retrofits	Commercial						X							X				X				
19 Assess potable water usage at the Telluride Regional Wastewater Treatment Plant	Town																					
20 Cooling equipment efficiency	Commercial						X							X				X				
21 Restaurant equipment	Commercial						X							X				X				
22 Water conservation rebate/reward for best full-time resident or business	All						X							X								
ORDINANCES AND REGULATIONS																						
23 Water conservation ordinance implementation	All																X			KGuglielmone, EEDiv	Ongoing	
24 Time of day watering restriction, emergency - change to 9 pm – 9 am all season	All																X			KGuglielmone, EEDiv	2020	
25 With each building permit, require a service line audit from the main to the meter to ensure functionality.	All																		X	KGuglielmone, EEDiv	Ongoing	
26 Rules and regulations for landscape design/installation (BP9)	All								X											KGuglielmone, EEDiv	Ongoing	
27 Irrigation equipment requirements	All								X											KGuglielmone, EEDiv	Ongoing	
28 Soil amendment requirements (BP9)	All								X											KGuglielmone, EEDiv	Ongoing	
EDUCATION																						
29 1 KOTO Radio Access per year about wise use of water	All														X					KGuglielmone, EEDiv	Annually (June)	
30 PSA newspaper water wise advertisements	All														X					KGuglielmone, EEDiv	Annually (June)	
31 Water bill insert one time each year	All														X					KGuglielmone, EEDiv	Annually (June)	
32 Newspaper articles	All														X					KGuglielmone, EEDiv	Annually (June)	
33 Web pages	All														X					KGuglielmone, EEDiv	Annually (June)	
34 Social Networking (i.e., Facebook)	All														X					KGuglielmone, EEDiv	Ongoing	