6 Chapter 6 Utilities

Figure 6-1: Installing water lines in the Lower Main Street right-of-way in 2014

While the Town of Jamestown provides water service to most residences within the community, some properties are served by individual wells. Wastewater treatment is provided by individual on-site wastewater systems that are regulated and permitted by Boulder County. Other common utilities, such as internet and electricity, are made available by private (non-Town of Jamestown) providers.

Wastewater Treatment

Jamestown wastewater is disposed of primarily by individual on-site wastewater treatment (septic) systems. The permitting process for installation is under the jurisdiction of the Boulder County Public Health Department, as is the enforcement to correct all malfunctioning systems and the monitoring of the water supply for contamination from wastewater treatment system failure. The maintenance of a system is the responsibility of the individual property owner. Health hazards will be rectified by various actions of the Boulder County Public Health Department such as terminating the use of failing or illegal systems, discontinuing the issuance of new septic permits or mandating the construction of a community wastewater treatment system.

All systems, not just new systems, in Boulder County must be reviewed and approved to ensure that they are properly installed and are properly functioning. The Boulder County Public Health Department is reviewing

all systems within the county to determine compliance to the County's on-site wastewater treatment system regulations. The deadline for review and approval of all systems in the Jamestown area is December 31, 2017[1]. Others in the County are to be reviewed and approved by the end of 2023[2]. The expedited deadline for the Jamestown area is due to the number of septics in the area and their close proximity to the local creeks and drainages. These conditions increase the risk of contamination of the water supply.

Inspection of a property's on-site wastewater system is also required at the time of property sale or transfer. All issues associated with the on-site wastewater system is to be disclosed to the new buyer. The existing property owner or new buyer must make necessary repairs within one year of the closing date.

Wastewater Treatment System Issues

On-site wastewater systems are the second most frequently cited source of groundwater contamination in Boulder County[3]. Contamination is a potential result of unapproved, aging and failing on-site wastewater treatment systems. In addition, a number of other factors contribute to the level of risk associated with on-site wastewater treatment systems. For the Jamestown area, terrain and soils are the major issues:

- Improper soil may be too porous; sewage will run too fast to be purified.
- Improper soil may be too dense or wet; penetration of soil surfaces may be difficult or impossible.
- Too steep a slope: sewage will run too fast to be purified, even if the soil is good for septic systems.
- Septic tanks too close to a surface water source may infiltrate the water source may infiltrate the water table and contaminate the drinking water.

These physical and environmental issues should continue to be considered as new wastewater systems are approved.

Water System

Source

The source of Jamestown water is groundwater and surface water in James Creek and Little James Creek. The use is allowed for irrigation, commercial, recreation, fire protection, stockwatering, industrial, fishery, domestic, and all municipal purposes.

The legal status of the Town's water rights are as follows:

- Jamestown owns 24 shares of the Left Hand Ditch Company
- The Town maintains water rights associated with a Mesa Street diversion point, and water rights associated with a Main Street diversion point.
- The Town also maintains water rights associated with the town irrigation ditch.

The 24 shares allows the water treatment plant to process 12.5 acre feet[4] of water per year.

1 Boulder County Health Department
2 www.bouldercounty.org/env/water/pages/septicsmartindex.aspx
3 Ibid.
4 Jamestown Water Use Annual Report document dated March 13, 2006; the 12.5 acre feet is based on a dry year.

Figure 6-2: Jamestown Water Treatment Plant

The Jamestown water supply for the water treatment plant is obtained from the James Creek via two distinct sources: an infiltration well and surface water off of the creek. One of the sources is located on Main Street and the other is located on Mesa Street. Both sources have very good infrastructure after improvements made in 2014 and 2015 as a result of rebuilding the system after the 2013 flood event.

At the time of this plan preparation, a second well location was being studied to allow for a backup to the primary gallery along Ward Street. The second well would build additional resiliency to the existing system particularly in the cases of emergency. Options for the second well may exist in the area of Elysian Park. Despite this, funding for the second well is an issue and will need to be determined before the second location can be secured.

Jamestown has an irrigation ditch that is used to transfer water for irrigation of private properties along the ditch. This water can be used to relieve stress on the Town's potable water system. The west end of the irrigation ditch was damaged in the 2013 flood event. The head gate and damaged section are scheduled to be replaced in 2017.

System

Following the 2013 flood event, approximately half of the water distribution system was rebuilt. Figure 6-3 displays the system map. The potable water distribution system was updated for the remaining half of the town in 2015 and 2016. Improvements included water mains, valves, and hydrant replacement for systems along many of the town streets. The water lines were extended to reach the Rose M Subdivision on the east end of town. The storage tanks were rehabbed and valves were replaced in 2016 and 2017.

The water treatment plant was also improved in 2014. The water treatment plant uses a sand filter system with a two-chamber roughing filter to clean the water diverted to the plant. Water quality issues tend to be related to seasonal effects such as raw water quality and health of filters. As of the date of this report, the water treatment plant's sand filter system still needed to mature before desired water quality is obtained.

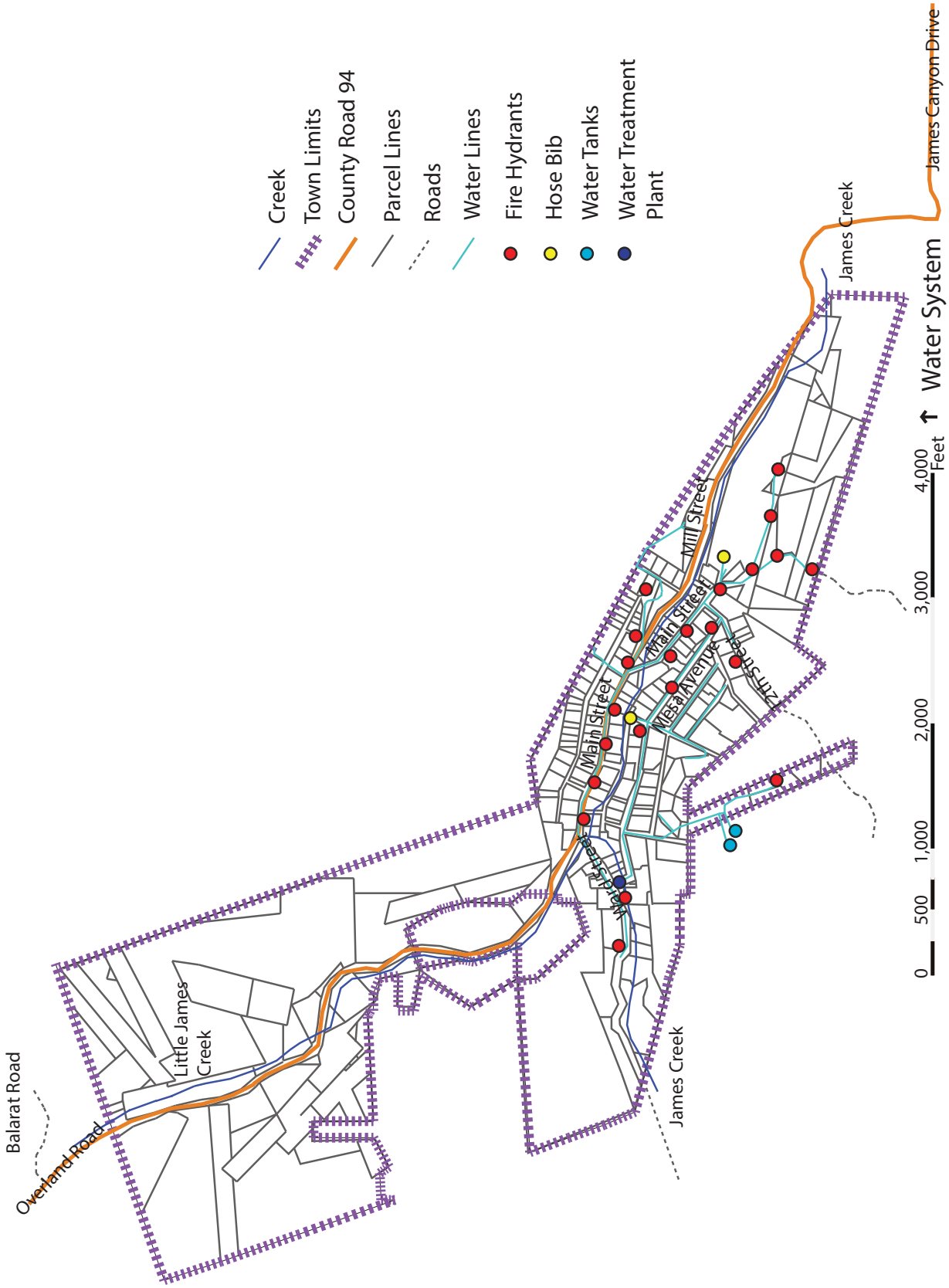

Figure 6-3: Water System Map

According to the Town's Water Committee, the rated capacity of the plant exceeds 100,000 gallons per day (gpd); however, the daily capacity typically fluctuates between 20,000 and 40,000 gpd[5]. Water production could be increased at the plant to support a larger population in Jamestown and the water rights can support it. With the new treatment facility, the water service capacity has increased and it is estimated that it can accommodate additional growth of at least 20 to 30 new residences[6]. Despite this, capacity should be monitored over time to detect issues before they occur. In addition, other factors, such as spacing requirements for on-site wastewater treatment systems, hazardous areas, and terrain, will affect the eventual development potential and density of new houses in the town.

The majority (86%) of the respondents in the 2015 Land Use and Housing Study: Household Survey found the existing water system satisfactory. The majority (69%) indicated that they were satisfied with the availability of services and (57%) the cost of services. Respondents indicating support for extending water service west of Ward Street was 56%, with 77% in support of water service to the Rose M Subdivision on the east end of town.

Water System Issues

Cost of Water

Jamestown faces the challenge of economies of scale in terms of continued water service to the community. Jamestown has a relatively unique situation where it has an established system that has a set cost required to operate and maintain as well as a small population base to which to distribute that cost. As a result, the cost of providing water to homes does not depend solely on water use for individual homes but is largely dependent on the base cost of system operation and maintenance itself.

The cost of water service is covered by user water fees. Initially, a flat fee rate is set to cover the base cost of water operations and system maintenance and all community members with taps need to pay rates that cover those costs. The fee rate is then adjusted based on the number of bathrooms in a residence. An alternative to this formula may be to install meters along the system for each unit and base the rate on overall water use. However, the cost of the meters and their installation will need to be paid for by users in addition the base rate needed to maintain the system (which will not change), as well as the amount of water used. As a result, the fees may be charged in a more equitable manner for water use itself but the cost of service would not be reduced. Because of this situation, the Town continues its current fee system for water.

Feasible options to increase revenue for the water system may include having people who are on wells and are within the current water system become water subscribers and / or charging accessory dwelling units as separate independent one bathroom units instead of the current method of only charging for an extra bathroom for the principle dwelling unit.

5 Town of Jamestown Water Committee
6 Ibid.

Extending Service

Consideration to extend the water service lines was discussed during the *2015 Jamestown Area Long Term Recovery Plan*. The purpose was to explore opportunities for new development to help offset the homes lost during the 2013 flood event. There was also support for providing water as a fire protection measure for the area. A formal assessment was not conducted but a rough estimate suggested that the cost would be substantial due to length of pipe, terrain, and the grade of the land being higher than the core of town where the existing water service area is. Without an external funding source, the Town would not be able to pay for such extensions. One-third of the residences lost in the flood have been replaced. Other options, such as accessory dwelling units and the subdivision of land closer to the center of town to accommodate new residences, would allow for some growth without adding the cost of water extension at this time.

Improvements Plan

The Town's water treatment and distribution systems are relatively new; however, there is still a lifespan associated with the system. In order to maintain the systems over time in a fiscally responsible manner, the Town will need to plan for future needs. This may include allocating a portion of water user service fees toward a fund for future use as the system needs to be updated. It is highly unlikely that the Town can reserve the amount of money needed to replace all components of the system when it is needed but it can plan for a reserve that can contribute towards matching funds or other seed money.

Water Quality

Water quality is very important for the community. Being located near the top of the watershed, as Jamestown is, can be a benefit to the community because there are fewer land uses between the water source and the water treatment system that might compromise the water quality. However, due to the presence of local individual on-site wastewater treatment systems, contaminated soils due to past mining operations, and by the threat of regional hazards such as

Figure 6-4: Water Committee in the field

wildfires and debris flows that can impact water quality, the watershed is still very vulnerable. To ensure clean water and an adequate water supply Jamestown should participate in regional efforts for watershed health as well as wildfire prevention.

Current Regulations and Programs

The Town has the following ordinances and committees that pertain to Town utilities:

Ordinance 4, Series 2011 is the waterworks and watershed ordinance. This ordinance requires review and permitting of certain activities in an attempt to protect the town's water supply from pollution or from activities that will create hazard to health and water quality.

2011 Source Water Protection Plan – The *Source Water Protection Plan* focuses on addressing issues that affect water quality such as mining activities, septic systems, impacts from transportation on roads, climate change, flood hazards, public lands, wildland fires, mountain pine beetle, reservoir and diversion operation and maintenance, and residential practices. The plan provides several management approaches that can be implemented within the protection area to help reduce the risks of potential contamination to the community's source water. These approaches complement existing regulatory protection measures implemented at the state and federal governmental levels by filling protection gaps that can only be addressed at the local level.

Ordinance 1, Series 2012 Growth Impact Fee – The Town adopted a Growth Impact Fee in 2012 for the purposes of offsetting impacts related to the growth in population and housing to parks and recreation, water plant capacity, streets and bridges, and fire and emergency medical technician safety services. The ordinance establishes a fee to apply to new residential and non-residential development/construction and details the distribution of that fee among four areas of concern including utilities.

Ordinance 1, Series 2015 and Resolution 33, Series 2015 set the parameters for providing the potable water service to the community including tap fees, water rates, and relief programs.

Jamestown Water Committee – the Town's Water Committee oversees water maintenance and planning for the town water system. The Water Committee includes the two water treatment plant operators.

James Creek Watershed Initiative (JCWI) and Lefthand Watershed Oversight Group LWOG) – Jamestown supports and is involved with the James Creek Watershed Initiative (JCWI) and Lefthand Watershed Oversight Group (LWOG). Both are community organizations working to preserve, improve, and protect the James Creek Watershed and the Left Hand Creek Watershed (in which the James Creek Watershed is located) and to improve water quality. JCWI is a local grassroots group while LWOG is a

non-profit with representatives from JCWI, area municipalities, area water districts, Boulder County, and other interested parties. Both watershed groups monitor water quality along Little James and James Creeks. LWOG also oversees the River Watch program to assess stream health for the watershed and participated with the creation of the *Left Hand Creek Master Plan* that guides recovery of the creek after the 2013 flood event.

Wastewater Treatment Policy

1. The Town should protect the quality of the town water supply and prevent other contamination resulting in health threats by cooperating with the Boulder County Public Health Department to rectify the failure of individual wastewater treatment systems and to allow installation of new wastewater treatment systems only with proper permits for construction.

Water System and Service Policies

1. Jamestown should continue to refer to the Town's water ordinance (Ordinance 1, Series 2015) to ensure that all persons served by the water system will be treated equally under the law. Unless otherwise declared, all costs for water line extensions and water tap installations are to be borne by the property owner and/or water user.

2. The Town's ability to treat and distribute water should be considered with the extent of future development. The Town should continue to monitor water capacity as new development occurs to ensure adequate supply is available. The expense of water extension should be borne by the developer or water service recipient.

3. The Town will take a watershed approach to addressing water quality and will continue to support and work with the local watershed groups, Boulder County, and the State of Colorado to ensure local water quality is maintained. Locally, Jamestown will take measures to ensure implementation of the *Source Water Protection Plan* and enforcement of the Watershed District Ordinance (Ordinance 4, Series 2011).

Proposed Wastewater Treatment Programs

1. The Town should assist in the careful and judicious monitoring of the water supply for contamination resulting from the increased density of wastewater systems as development occurs. The Town should require wastewater treatment systems to be upgraded if they do not meet County requirements.

2. Care should be exercised in permitting building in undeveloped areas "above" the town water sources to avoid water supply contamination from the failure of individual septic systems.

Proposed Water System Programs

1. The Town should continue to develop a Capital Improvements Plan for the water system in order to be prepared for future updates to the plant and distribution lines and / or any other maintenance or improvements that are found necessary.

2. The Town should continue to monitor the water system capacity over time to ensure use does not exceed capacity of treatment or distribution.

3. The Town should continue to explore ways to create a more resilient water system including the potential for a second well for emergency purposes.

4. The Town should continue to explore ways to improve the effectiveness and efficiency of the water treatment plant's sand filter system.

5. The Town should continue to be involved in ways to protect the watershed including participation in regional and local watershed groups and in regional wildfire mitigation efforts.

Topic Cross Reference

Because many of the topics in the comprehensive plan are inter-related, particularly to land use, below is a chart that conveys where additional related topics may be found.

Chapter	***For more information on:***
Environment	Natural hazards (and impacts on development), living with nature
Circulation	Roads, access and getting around town
Facilities and Services	Town facilities and services, regional services
Land Use	Existing land use and predicted future land use
External Factors	Relationships with Boulder County and the U.S. Forest Service