

Wastewater Utility

February 15, 2023

Purpose

The purpose of this paper is to provide a background of Steamboat Springs' wastewater utility to the Brown Ranch Annexation Committee to frame and inform annexation negotiations pertaining to Brown Ranch.

Decision Points

Within the context of Brown Ranch annexation negotiations, the community and the community's elected and appointed representatives have several key decisions to make, including:

1. What infrastructure improvements are necessary to serve the proposed annexation?
2. When will the treatment plant need to be expanded, what will it cost, and who should pay for it?
3. Will monthly bills or tap fees change as a result of Brown Ranch?

Section 1: Wastewater System Background

Financially, the City operates the wastewater system under the Utility Fund, which is a TABOR enterprise fund set up for the specific purpose of providing drinking water and wastewater utilities for the Steamboat Springs utility district. As a TABOR enterprise fund, the Utility Fund is separated from the General Fund and it does not receive any tax revenue. All revenue for the Utility Fund is derived from customer water and sewer bills and from plant investment fees (commonly referred to as tap fees), and the fund may only obtain 10% of its annual revenue from other state and local sources.

The City performs water and wastewater rate studies every three years. These rate studies inform what the customer bills and tap fees must be to meet expenses, and Council is asked to adjust rates per recommendations provided in the rate studies. Our next rate study is slated for 2024.

For the purpose of discussing infrastructure, the wastewater system is divided into two categories: the collection system and the treatment plant.

Collection System

In the wastewater industry, the collection system is the series of sewer pipes and pumps that convey flows from homes and businesses to the treatment plant. The City has already built the offsite collection system infrastructure necessary to support the eastern basin of Brown Ranch, which appears to encompass neighborhoods A and B, as well as about 40% of neighborhood C. That infrastructure is essentially a +/- 12,000 linear foot pipeline from the applicant's property to the treatment plant ranging from 12" to 24" in diameter. From the southern boundary of Brown Ranch near Slate Creek, the pipeline is comprised of a 15" pipe that runs under Highway 40 and southward across the KOA campground site, where it then ties into a 24" pipe that conveys flows to the treatment plant. This pipe is separate from the interceptor that conveys flows from the rest of the City. An aerial depicting this pipeline is included in Figure 1 below.



Figure 1 - Sanitary Sewer Serving West Steamboat

The western basin of Brown Ranch, which appears to encompass the remaining +/- 60% of neighborhood C, as well as neighborhood D, could also flow through this same pipeline if lift stations are installed and if calculations indicate there is enough capacity within the pipeline to convey the additional flows. Otherwise, an alternate pipeline or a conveyance that runs through the Steamboat II Metro District would be necessary to serve these two neighborhoods.

Treatment Plant

The City of Steamboat Springs owns and operates a regional wastewater treatment facility located at 39565 County Road 33 in unincorporated Routt County. The site is located approximately four miles west of Steamboat Springs, at the lowest elevation of the regional treatment area, on the banks of the Yampa River, opposite Riverbend golf course.

In addition to treating wastewater from the City of Steamboat Springs sewer collection system, the treatment plant also serves the Mt. Werner Water and Sanitation District, the Steamboat II Metro District, the Tree Haus Metro District, and regional septage haulers.

There are three different parameters that govern the overall capacity of the wastewater treatment plant:

1. The high season flow, which is 7.5 million gallons per day (MGD). This is the treatment plant capacity during runoff months, which are defined as March through June.
2. The low season flow, which is 5 MGD. This is the treatment plant capacity during non-runoff months, which are defined as July through February.
3. Loading, which is 9,600 pounds per day of biochemical oxygen demand (BOD). Loading is a measure of the "strength" of the wastewater and is independent of the flow. BOD is the quantity of oxygen that bacteria are utilizing over a five-day period to consume the biological waste within the wastewater.

The loading capacity is the limiting parameter at the treatment plant. The plant is rated for 9,600 lbs/day, as averaged over a peak month. Our peak month is currently March of 2021, which saw 6,988 lbs/day of loading. Therefore, we have 2,612 lbs/day of excess capacity currently available.

Colorado Department of Public Health and Environment (CDPHE) regulations require design for treatment plant capacity upgrades to commence once 80% of the capacity is reached, and they require that construction of treatment plant capacity upgrades commence once 95% of the capacity is reached. Thus, we have 692 lbs/day of excess capacity currently available before we must commence design, and 2,132 lbs/day of excess capacity currently available before we must commence construction.

Section 2: Capacity vs. Growth Rate

An average equivalent residential unit (EQR) generates 0.6 lbs of BOD per day. Therefore, we have enough capacity to serve another 4,350 EQRs. Design must commence with another 1,150 EQRs, and construction must commence with another 3,550 EQRs. Between 2006 and 2017, the City's district has grown at approximately 60 EQRs per year, and Mt. Werner's district has grown at approximately 100 EQRs per year. Growth in the Tree Haus Metro District and the Steamboat II Metro District has been statistically negligible. Therefore, at this time, we anticipate commencing design for capacity increases in approximately 7 years and construction in approximately 22 years. Of course, if Brown Ranch is annexed and the rest of the city continues to build out at historical rates, that timeline will be advanced. Assuming the first unit in Brown Ranch comes online in 2026 and Brown Ranch builds an average of 200 EQRs per year, then design for capacity expansion would likely commence sometime around 2027, and construction would likely commence sometime around 2033. Everyone will have a different assumption about growth rates, but the bottom line is that capacity is something that staff must monitor and plan for, especially if the State mandates new capacity definitions based upon flow.

Section 3: History of Efforts Related to West Steamboat Development

Over the last 25+ years, the City of Steamboat Springs has invested a substantial amount of time and money into wastewater infrastructure in an effort to make annexation in the west Steamboat area feasible.

In 1996, in conjunction with a CDOT Highway 40 project, the City installed the sewer main under the highway near the Slate Creek drainage, understanding that this main would one day serve development within the Brown Ranch property.

From 2001 to 2002, the City replaced and upgraded the sanitary sewer interceptor line that runs from the City to the Wastewater Treatment Plant. This project was a necessary upgrade to replace an older pipe and to upsize the pipe to convey flows from an ever-expanding population base. One of the considerations in selecting the pipe diameter was the eventual buildout of the west Steamboat area. Thus, the majority of the offsite sewer backbone is in place and ready for Brown Ranch development, though a few minor (by comparison) upgrades may be necessary.

In 2007, the City constructed a 15" diameter sewer trunk line from the interceptor, northward through the KOA Campground, to the west Steamboat property at Highway 40 where the highway crosses the Slate Creek drainage. The sewer main was sized to convey flows from the eastern half of the Brown Ranch property. The City's costs for this project totaled approximately \$220,000.

Section 4: Legal Issues

The City's wastewater treatment plant also serves the Mt. Werner Water and Sanitation District, the Steamboat II Metro District, the Tree Haus Metro District, and regional septage haulers. The contractual arrangement between the City and these other entities is codified in the Wastewater Special Connector's Agreement. Under this agreement, City Council has sole authority to set the terms and establish the rates for wastewater treatment service for all entities.

All wastewater treatment plants are regulated under a permit program called the National Pollutant Discharge Elimination System (NPDES). The Clean Water Act of 1972 created the NPDES and established it under the Environmental Protection Agency. The EPA in turn authorizes individual states to perform the administrative functions of the program, including the issuance and enforcement of discharge permits on a facility-specific basis. In Colorado, this responsibility falls under the Colorado Department of Public Health and Environment (CDPHE). Discharge permits are good for five years, after which they must be renewed. The intent within the NPDES, as established in the Clean Water Act, is to protect water by establishing uses, setting standards to protect those uses, and issuing permits that meet those standards. By design, discharge regulations become ever more stringent with each permit renewal in an effort to gradually make water bodies cleaner and healthier over time. This in turn drives a near-constant need to upgrade treatment plants to meet ever more stringent discharge requirements. The last major upgrade at Steamboat's plant, which came fully online in January of 2022, was a \$7M project that reduced the amount of ammonia in the effluent. Future regulatory upgrades on the horizon include metals reduction, temperature reduction, and nutrient reduction. Future upgrades and future capacity expansions must therefore be included within the rate studies that the City performs every three years so that tap fees and customer bills keep pace with the rising costs of operating treatment plants.

Section 5: Further Discussion on Decision Points

Near the beginning of this paper, staff offered the following items as major decisions that the community and the community's elected and appointed representatives need to make in relation to the Brown Ranch annexation proposal. This paper will conclude with focused discussion on each decision point.

What infrastructure improvements are necessary to serve the proposed annexation?

Onsite infrastructure includes the pipelines and lift stations necessary to serve future developments within the Brown Ranch boundary. The City's Municipal Code, Community Development Code, and the Standard Specifications for Water and Wastewater Utilities will govern the parameters of this infrastructure, which will be reviewed in conjunction with future development permit applications. Historically, the City of Steamboat Springs has required the developer to fund and construct all infrastructure necessary to serve proposed developments. If a different arrangement is desired for Brown Ranch, that needs to be identified in the Annexation Agreement. However, if a different arrangement is not desired for Brown Ranch, the Annexation Agreement can be silent to this issue, thus allowing the Municipal Code, the Community Development Code, and the associated standards and specifications to govern.

Though staff does not see a need to modify existing regulations pertaining to wastewater infrastructure development, staff would appreciate feedback on whether there is a desire to explore or modify existing regulations.

As for the offsite infrastructure, the City has already constructed the offsite infrastructure necessary to serve the eastern basin of Brown Ranch. Additional analysis by the applicant will be necessary to determine what offsite infrastructure is necessary to serve the western basin. Staff encourages the Annexation Committee to identify who is responsible for design and construction of the offsite infrastructure for the western basin in the Annexation Agreement.

The infrastructure to serve the western basin will either entail a conveyance through the Steamboat II Metro District, an alternative conveyance to the treatment plant, or a lift station to pump sewage into the eastern basin. Any conveyance through the Steamboat Metro District would be at the Metro District's sole discretion.

When will the treatment plant need to be expanded, what will it cost, and who should pay for it?

Assuming Steamboat and Mt. Werner continue to build out at historical rates, Brown Ranch delivers the first unit in 2026 and builds an average of 200 EQRs per year, design for capacity expansion would likely commence sometime around 2027, and construction would likely commence sometime around 2033, provided State mandates do not change.

From a conceptual level, it costs roughly \$12M to construct 1 million gallons-worth of treatment capacity.

As the unit treatment costs to serve Brown Ranch are commensurate with the unit costs to serve customers within all four districts, staff is starting with the assumption that tap fees in Brown Ranch will be commensurate with the rest of the City. If the Annexation Committee agrees with this approach, then the cost of treatment plant expansion will be borne by anyone who applies for a building permit and pays tap fees within all four districts. If the Annexation Committee believes a different approach is warranted, that needs to be identified within the Annexation Agreement.

Should annexation occur, our next rate study (slated for 2024) will include rate establishment to support financing for wastewater treatment plant expansion. The costs for expansion would then be reflected in the revised tap fees that would be equitable across all customer classes within the four districts. Depending upon the costs for expansion, the project may need to be funded by a loan from the Colorado Water Resources and Power Development Authority. Staff will explore every grant opportunity available, but the potential contribution of grants towards this project should be considered modest, bordering on negligible, at best.

Will monthly bills or tap fees change as a result of Brown Ranch?

Due to ever-increasing costs for service and ever-increasing mandates for treatment enhancements, monthly bills and tap fees are always increasing. As the applicant has committed to construct all onsite infrastructure in conformance with current City codes and specifications, and since the City has already funded and constructed all offsite infrastructure for the eastern basin of Brown Ranch, staff does not anticipate any negative impacts to monthly bills that would

be attributable to Brown Ranch. However, tap fees for treatment plant expansion, which would be borne by anyone who pulls a building permit and pays tap fees, may increase by an estimated \$2k over and above other increases over the next twenty years due to Brown Ranch if STR tax money is not used to help pay for plant expansion. This figure should be considered highly preliminary and will be refined during the next rate study.