

**Westminster Discussion of Water and Wastewater Infrastructure
Special Study Session #2
Tuesday, October 20, 2020
Meeting Summary – FINAL**

ATTENDANCE

Council Members: Herb Atchison (Mayor), Anita Seitz (Mayor Pro Tem), David DeMott, Rich Seymour, Kathryn Skulley, Lindsey Smith, Jon Voelz.

Staff Presenter: Stephen Gay, Julie Koehler, Donald Tripp

Facilitation: Heather Bergman and Sam Haas

Additional staff and members of the public observed the meeting.

Julie Koehler	Talk with staff about sending out an informational/crib sheet to Council with the technical information presented during the sessions. Some Council members shared that the amount of information presented is a lot to process and it would be helpful to have a written reference guide.
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SETTING THE STAGE FOR DISCUSSION

- During the last meeting, Council members shared their interests regarding water and wastewater and discussed options for community engagement. At this meeting, Julie Koehler will continue her presentation on water and wastewater infrastructure, and Stephen Gay will share a presentation about the new meters. Heather Bergman will also share a refined presentation on community engagement options. The meeting on November 5 will focus on water costs and rates, and the November 17 meeting will focus on wastewater costs and rates.
- Members of the Westminster community have submitted questions and comments on a variety of topics that will be incorporated into the workshop presentations and discussion. These topics include meters, overall rates and comparisons to other areas, tier III rates and impacts to owners of large lots, billing periods, Public Works and Utilities (PWU) available financial resources (whether rate increases are needed), number of taps and how they affect rates, and impacts of hot weather on usage and rates.
- The interests that City Council members shared via chat at the last meeting were shared on the screen, and Council was encouraged to use these interests as a touchstone during future discussions about ideas. The best ideas will meet as many of the interests as possible.
- In these workshops, Council members are encouraged to use first names, assume good interactions, acknowledge the range of views, be optimistic, ask questions, disagree with civility, and be open and creative.

WATER AND WASTEWATER INFRASTRUCTURE PRESENTATION (CONTINUED)

Julie Koehler, Utilities Engineering Manager, presented an overview of water and wastewater infrastructure from a system perspective. The presentation was formatted to respond to the six questions identified by Council in the process proposal.

Question 3: what drives the decline in water and wastewater infrastructure? (Age? Use? Materials? location?)

- Factors that drive the degradation of water and wastewater infrastructure can be clustered into two groups: 1) Age/use: degradation of motors and moving parts; software becomes obsolete; parts become obsolete; infrastructure meets industry standard useful life; 2) materials/location: harsh duty environment; UV light degradation outdoors; corrosive soils.
- Water pipelines, reclaimed pipelines, and wastewater pipelines all have a standard useful life. Wastewater pipelines suffer from harsh duty environment because the sewage attacks interior linings of pipes. Reclaimed pipelines are often outdoors and suffer from UV rays. Sometimes there are metals in the soil that attack the metal in the pipe.
- Water meters have parts that become obsolete. Pumping stations (raw water, potable water, and sewage) all have motors and moveable parts, and there is an industry standard life for valves, electrical gear, and mechanical pumps. Lift stations are in a harsh duty environment. Raw water is hard on valves and pumping units. In terms of storage tanks, the City used to have steel storage tanks and are now moving to concrete storage tanks, which will have a longer useful life.
- Wastewater treatment facilities, raw water systems, water treatment and reclaimed facilities all have pumps, and electrical equipment. The treatment plants all require chemicals for treatment.

Comments and Questions about Question 3:

- One Council member requested a written summary/crib sheet of the information presented (separate from the meeting summary).
- It would be helpful to know the costs associated with any new technologies that address the concerns about degradation. The cadence with which the parts in the system need to be replaced is important.
- Some infrastructure is expensive to repair due to where it is (e.g., underground), because it requires tearing up streets and re-paving.

Question 4: What drives the schedule for repairs, upgrades, replacement for infrastructure? (Age? Condition? Budget? Staff/Council prioritization?)

- Public Works and Utilities (PWU) relies on master plans that are written every ten years for most utility areas. Master plans lay out what each utility area has, what they ought to have, and how to get there. The plan feeds into scheduling for capital improvement projects and plans. PWU works within the City's two-year budget cycle and has made accommodations when asked to write a one-year plan. PWU is currently in the middle of the 2023-2024 Long Term Planning cycle.
- In 2017, PWU developed level of service goals for each utility area. PWU took into account perceptions of customer service expectations, regulatory requirements, and available resources. Combined, these components create a degree of reliability that is desired for utility assets.
- PWU made several assumptions about the level of service goals. PWU thinks customers want to turn on the tap for clean, safe, reliable drinking, and that they want environmentally compliant wastewater treatment. PWU thinks they want expedient commutes and limited service interruptions. PWU must meet state and federal requirements for drinking and wastewater and will face penalties if they are not in compliance.
- Rate-payer experience with relaxed level of service goals could include more frequent service interruptions, longer lasting service interruptions, increased inconvenience during

commutes due to pipeline breaks, and possible harm to the environment due to sewage spills.

- After PWU developed the asset database that lists assets with a value greater than \$20,000, they filter the database to create an unconstrained model. Unconstrained models are date driven, they use industry standard useful life, they consider age and condition, and the results show a cost of more than \$100 million per year in required costs. Sometime we say of the unconstrained model “if money grew on trees”. Since money does not grow on trees, we further filter the model to create the Constrained Model. The constrained model looks at the level of service, criticality, vulnerability, and risk of the assets in addition to age and condition. In the Constrained Model, PWU prioritizes assets and groups them into projects and is budget focused.

Comments and Questions about Question 4:

- The budget proposal received in 2019 and put into effect in 2019-2020 was a constrained model. Looking back, there are several levers that are more qualitative in nature (i.e., the level of service) that Council could have considered, and moving forward, there are aspects that Council could change. These include how far they would like to push to the end of useful life.
- The Gregory Hill storage tanks were run nearly to the point of failure, and PWU was concerned about the tanks when the site needed to get redone. PWU is also concerned about the North Ridge tanks. Pushing out further to the end of useful life can have serious consequences.

Question 5: What creates the need for new water and wastewater infrastructure?

- There are several items that create the need to replace water and wastewater infrastructure. These include the age and condition of the infrastructure, regulatory issues, environmental issues, contract issues, and capacity issues (both growth and non-growth related).
- Conversations about growth often require answering questions about whether there is enough water. The City evaluates development proposals on a case by case basis. Investment in raw water reservoirs is done for both growth and non-growth reasons because it relates to Colorado water law and rights. New infrastructure is often required for non-growth reasons. PWU has adopted a system-wide hydraulic modeling evaluation. The modeling sometimes reveals that existing developments, built over time, may create an offsite constraint that requires an offsite improvement (e.g., the Sheridan water line).
- In terms of regulations, Colorado Department of Public Health and Environment (CDPHE) regulates wastewater and water. Regulations are often linked to environmental issues, as many regulations try to protect the natural environment. New infrastructure is often required when there are changes in the environment that compromise water quality (e.g., fire in the watershed, compromised water quality in Stanley Lake). CDPHE recently issued a new permit to Westminster for its wastewater discharge. The permit requirements are stricter than the previous permit.
- Sometimes contracts require new infrastructure. Westminster has regional partnerships with ditch companies and with other municipalities, for example. We have shared infrastructure (canals and appurtenances, reservoirs, monitoring equipment) and contracts to dictate when infrastructure must be operated, maintained, or when new items must be constructed.

Comments and Questions about Question 5:

- Council discussed how much the cost of meeting regulations has and will be absorbed by resident rates and fees. The total inorganic nitrogen permit limit requires new infrastructure and PWU recently brought a design phase contract to City Council for approval. Construction will follow in 2021. PWU has been monitoring this regulation and planned for process changes at the wastewater facility. The permit limits for total inorganic nitrogen came more quickly than anticipated. The cost for this project is planned for and included in the 2021 budget.
- After the 2018 rate increases, many residents felt that they were subsidizing growth. It is important to discuss the primary drivers for the rate increase: was it due to the age and condition of the infrastructure, the desire to conserve, or was it a way to support the City's capacity for growth? This question will be discussed at the next meeting.

Question 6: what are the consequences if we delay some of the proposed near-term repairs or upgrade or replacements for infrastructure?

- Delay means that the repair/upgrade/replacement will cost more in the future. The City may need to pay a premium if the infrastructure fails, and the City will pay for damages if relevant. Delaying repairs, upgrades, or replacements will kick the can down the road for a future council or generation to sort out.
- In the infrastructure system, there can be both routine and unlikely failures. We define a routine failure, for example failure of a mechanical or electrical element, that typically takes less than a week to correct. We define an unlikely failure as simultaneous and multiple electrical or mechanical failures, that require more than a week to correct and result in long-term interruptions of service to water and or wastewater. The Utility does not design to assume unlikely failures.
- There is a continuum of worst- to best-case scenarios. With the lowest rates and fees, one could expect increased failures leading to illness, deaths, and legal actions. With slightly higher rates and fees, one could expect concurrent multiple failures (unlikely failures would become the norm, there would be decreases in the level of service, and the cost of operation and management would increase). With higher rates and fees, the City would have routine failures (it would meet levels of service generally, benefit from information based on industry standards, and would use a data-driven method to plan for infrastructure). With the highest level of rates, the City would have no failures. It could fund the unconstrained model, repair every asset according to the industry standard, and would need an increase in staff.

Comments and Questions about Question 6:

- While a delay for some proposed near-term repairs/upgrades/replacements may mean investing more money later, it may not. The example was given for the cost of gasoline and how that has increased and decreased over time.
- One Council member asked how the City could ever end up on the lowest end of the spectrum (with illnesses, deaths, etc.), if they were following regulatory standards. Infrastructure can fail suddenly, and if the City has to institute a boil water order, that could cause illness among vulnerable populations. For that time, the City would be out of compliance with standards. The slide was meant to show what the worst-case scenario could be, not to represent where the City has been. Currently, the City is experiencing routine failures.

- There have been times when the City has had breaks in the system that required them to notify CDPHE and create a plan to mitigate the break by repairing it. The City was still operating under the same guidelines but had a violation for that time.

COUNCIL TAKEAWAYS

Councilmembers shared their takeaways from the water and wastewater infrastructure presentation. Their discussion is summarized below.

- One Councilmember shared a memory of a tour of the Northwest Water Treatment Facility, and they remembered being told that the facility had originally been designed to be expanded but due to budget crunches it was not built for expansion. Because of that decision, it can now only handle indoor consumption. This council should try to make decisions that provide future councils as many options as possible while still not overburdening current residents. Staff confirmed that the facility only has indoor capacity, and the City's master plan indicates that building a new facility would be the best option.
- It is important that the City think beyond today and consider what will happen 20 to 50 years from now. Water is the City's most precious resource, and it is important that Council find ways to do the right thing for future generations while still managing affordable rates.
- There are always tradeoffs with decisions. Council will have to decide when to conserve costs and when to spread costs by using bonding so they can maintain generational equity.
- Several Councilmembers shared that these special study sessions have still not covered the points that are most important to residents. Moving forward, it will be important to discuss how the City got into the current predicament. If the City could share a list of items that got delayed and a list of violations that occurred, that would help. Specifically, what happened that led to such a drastic change in rates over the past six years? It is concerning that residents are increasingly making decisions to cut their water use for budget reasons.
- There are two concurrent issues being discussed at these meetings. One relates to the needs and tensions within the water system, the driving cost factors, and the condition of the utility. The other relates to how previous councils and PWU staff may have made bad decisions. At the last meeting, staff stated that previous generations were working with what they had, that there is now more complete information, and that the City has aged significantly in recent years. Council should focus on moving forward with the current information.

PRESENTATION ON NEW METERS

Stephen Gay, Utilities Operations Manager for the Westminster, presented a high-level review of past, current, and future issues related to water meters. He addressed questions regarding why the City has changed the meter system, how they identified the replacement system, and why they are confident in the meters' accuracy.

- In 2007-2008, the City replaced the small meter system. In 2016, that system reached the end of its useful life. In 2016-2018, the City did pilot programming, and in 2018-2019, the City competitively bid this project. In June 2019, City Council approved a resolution to replace small meters. In January 2020, the City started to put meters in the ground. It is expected that by February 2021, the replacement will be complete. In July 2021, PWU hopes to launch a customer portal, then hopefully they will evaluate the billing cycle and make adjustments.
- The meter system had exceeded its useful life and was failing. These failures triggered an evaluation in 2016. Most meter systems consist of batteries, a radio/communications device, and related software. For the existing meter system, the meters themselves were the most mechanical component. As systems age, batteries die, and radios fail. Systematic

failures triggered the evaluation, and PWU determined that the software was no longer supported by the manufacturer.

- The utilities operations team conducted pilot testing to evaluate meter system. The team evaluated five systems. From 2016-2018, this team pilot tested each of these systems, installing meters on residential and commercial services. The distribution of the pilot meters varied based on topography and communication considerations. The team also wanted to evaluate the quality of material and ease of installation. Therefore, the team installed meters in all parts of the system, new and old. The systems were tested in the field for six to eight months. The data collected informed the system specifications that were folded into the request for proposals. Systems were required to be accurate, reliable, well-constructed, have reasonable operations costs, and provide users with tools to monitor and manage their own water use. The five companies that participated in the pilot were invited to submit proposals. Two responded and one was disqualified because it failed to meet specifications. However, the team did evaluate their proposal fully, and it showed that there would be an ongoing cost for the communications component (\$350,000 per year, with annual increases built in over the 20-year life of the system). The selected meter solution did not have the same ongoing costs. As a result of the bidding process, Utility Metering Services (UMS) was selected.
- The meter replacement started in January 2020, and there are 27,568 homes complete as of October 13, 2020. The expected completion for small meter replacement is February 2021 (31,5000 total). The meters have been installed based on billing cycles to limit disruption and confusion.
- One of the most valuable features of the new meter is that it stores hourly read data. The old metering system required a metering technician to drive a route and collect data by sending out a signal from the vehicle (which consumed 80 hours of technician time per month). This system only captured the current reading, which was compared to the previous reading to calculate consumption. The hourly reading allows the user to see when consumption occurred and how much water was used. The user can use that to help optimize their water use. It also allows for the review of past consumption patterns, which can be used to make informed decisions related to water use. The new meter system will provide leak alerts within 24 hours once the customer portal is launched (the current system alerted customers 30-90 days after the leak was detected). The meters are more sensitive and can identify small leaks. The system has an expected useful life of 20 years (the current systems' useful life was ten years). It allows for software updates to be pushed remotely.
- PWU is aware of the legal troubles with Sensus meters. They had accuracy issues prior to 2017 that were caused by a change in materials and manufacturing processes. They reverted back to original materials and process to resolve the problems and have not had issues since then. All the meters being installed as part of this project are tested to an American Water Works Association (AWWA) standard of accuracy (which was published in 2018).
- To ensure accuracy, PWU relies on five data points. The first is that PWU knows that Sensus modified their system to correct the accuracy issues and that the meters have been tested to a 2018 AWWA accuracy standard. The manufacture self-certifies that they are compliant with national standards for health and safety and that their meters are tested using AWWA standard for testing. Beyond that, the manufacturer sends samples of meters to an independent lab, which verifies the compliance with standards (comparing results to the same AWWA standard). The City of Westminster conducts the same accuracy testing for meters provided to the City, using the same AWWA methodology. The City has found 100% accuracy and compliance with AWWA standards. When a customer has concerns, the City

has a meter technician bring the meter into the shop and allows the customer to observe a test. In all cases, City staff has seen 100% compliance with the AWWA accuracy standards.

- If a customer still has concerns after testing the accuracy of their meter, the City will investigate. During a handful (five or less) cases, the City found that the new meter was improperly installed resulting in a leak, and in these cases the City ensures that the account is properly credited. With the new meter technology, PWU can walk through their hourly consumption history to identify increased use. The most common causes of increased use are leaky toilets, sprinkler settings, and indoor leaks. Depending on the analysis, PWU then directs/leads customers to resources. There is a new indoor leak investigation program, where the City purchases audits to make available to customers.
- In a given month, if the customer uses 6,251 gallons of water, the City only bill per 1,000 gallons used so would bill the customer for 6,000 gallons of use. The remaining 250 gallons is carried forward to the next billing cycle. If, in the next billing cycle, the customer uses 6,727 (total of 6,978), the City still bills 6,000 gallons and the remaining 978 is carried forward to the next billing cycle. If, in the next billing cycle, the customer uses 5,050 (total 6,028) the City bills 6,000 gallons and the remaining 28 is carried forward to the next cycle.

Clarifying Questions

Councilmembers asked clarifying questions about the new meters. Questions are indicated in italics, followed by the response in plain text.

With the increased technical capacity of the new meters, will that allow PWU to standardize the billing cycle so that everyone has a 30-day cycle?

Yes, the hope is to normalize that frequency. The technical barrier driving the billing cycle previously is no longer applicable with the new meters. It would be prudent for Council to wait to have a discussion about the billing cycle until the new system is fully integrated and the customer portal is launched (which will happen in May or June 2021).

Some customers have noted a significant spike during the first month of service after installation of the new meter, then it balances out. For one customer, it showed extreme use prior to the new meter. Is there anything that could occur during the installation process that would lead to a higher usage?

The old meters measure water use with a mechanical register inside the meter that can only move when water passes through it. They can under report usage over time, but the City has not seen any cases of a register turning over more than the usage going through it. PWU also checked the process of getting the final meter reading on the old meter before a new one is installed. Both the meter installer, UMS, and the utility billing team have multiple layers of quality control in place to make sure that the final reading is accurate. It is extremely unlikely that the installation process could cause a spike because of the quality control processes put in place by the meter installer and the utility billing team. In addition, photographs of the final meter reading are saved so that the City can double check its accuracy if a customer is concerned about their particular account.

Do the meters have a certain pressure limitation that they can tolerate, and are there fluctuations in pressure throughout the system? How do meters compensate for fluctuations?

The pressures are maintained through the pressure regulating valves.

Why does the City bill per thousand gallons? Can the City change that to bill for actual usage?

That could fit into Council's policy discussion.

Is the new leak program available to any resident or only to certain income-qualified residents?

It is similar to the City's irrigation program and is available to any resident who requests it.

CUSTOMER QUESTIONS SINCE LAST WORKSHOP

The following questions were submitted by residents via the Westminster website.

- Will there be a rate increase in 2022 to reflect 2021 revenues?
 - Policy questions for City Council will be discussed in December/January.
- Are new meters causing spikes in usage?
 - Stephen answered this question in his presentation.
- What was the 2019 actual revenue versus the 2019 budget? What is the budget projection for 2020?
 - This will be addressed at the November 5 meeting.
- Does staff provide annual actual revenue versus budget projection on a regular basis for consideration of rate changes?
 - Staff provides this information as part of annual budget conversations, and with monthly financial updates to City Council.
- Does City Council want to consider changing rates in response to revenues received above the budget?
 - Policy questions will be discussed in December/January.
- Are rate payers charged for repairs when contractors damage pipes?
 - No, they are required to make those repairs.
- Why are current customers bearing the brunt of paying for all of the current and future infrastructure projects?
 - This will be addressed at the November 5th meeting. It is also a policy question for City Council to discuss in December/January.

COMMUNITY ENGAGEMENT

Heather Bergman, Peak Facilitation Group, presented a refined proposal for community engagement. Council then discussed the ideas and agreed on next steps.

- There are four general principles for community engagement: 1) Ask for input on things that matter to the community; 2) Ask for input that can influence the outcome; 3) Ask for input in ways/places that are accessible and convenient for the community; 4) Ask for input at a time when it can be used to influence the outcome. Above all, do not ask for community input if you do not care, and do not ask about things that you are not willing to change in response to input.
- Heather proposed that City Council consider conducting two rounds of community engagement. The first round would start now and go through December. It would focus on community values and preferences (rates, tradeoffs, equity, etc.). Community input would inform Council discussions about ideas and options. There would be a pause in January for Council to develop option(s) based on information learned in the special study sessions and the first round of community engagement.
- After Council has developed options, the second round of community engagement would take place in January to early February. This round would collect community input on the options developed by council and use the information to revise options and narrow it down.
- There are many topics that the City could solicit community input on in terms of values and preferences. These include: level of service expectations, level of concern about long-term needs and future infrastructure, allocation of resources to current/future infrastructure, options for paying for future infrastructure needs, level of concern about rates/current bills, preferences/options for having people who use more water pay more (or not), considerations that should/should not be included in rates, prioritization of values (low bills, planning for future, conservation, etc.).

- Engagement methods could include:
 - Online surveys (English and Spanish): The survey would be posted on the City website, noticed in utility bills, and noticed through press releases.
 - Virtual focus groups where participants discuss survey questions: (English and Spanish): Reservations would be required, and there could be up to ten people per group. The City would hold at least five focus groups, and each would have one Council member observing.
 - Telephone poll (English and Spanish): It would require statistically valid survey responses and would likely equalize demographic representation.
- In-person, socially distant focus groups are also an option (either place-based or group-based). These could target outreach to underserved communities. Outreach could be done through Growing Home and other organizations.
- If Council wants to adopt this process, they should start the first round of community engagement now. Given the range of perspectives on Council, it would be helpful if a few representative Councilmembers met with staff to frame up the questions to ask the community.

Council Discussion

- In addition to a phone poll, the City should consider doing a postcard citizen survey. Council would like to know the difference in cost and effectiveness for these options and are open to doing both. Year-round indoor water users will have a different perspective than people who are tier 2 or 3. Sending postcard surveys could balance the demographic of people responding.
- Several Councilmembers expressed discomfort at the idea of a small, representative group of them framing and planning the community engagement. Because Council is so diverse, outcomes from a discussion among a few Councilmembers may not lead to buy-in among all members. Staff could add an additional meeting where an expert presents data and options for a phone survey.
- Some Council members shared that they did not want to rush the community conversations. It is important that there is a broad effort to engage as many residents as possible. Council members also emphasized the importance of asking informed and realistic questions of the community. Other Council members stressed the urgency of the situation; residents are upset, and it is important to collect their input. Hopefully, some of the immediacy and concerns will be addressed through education provided during these special study sessions.
- It would be helpful if staff gathered past data that represents institutional knowledge (a history of where staff has been and where they are now). Some Councilmembers would like to have a Q&A session with staff members who have a history of knowledge within the system.
- Council members shared a strong preference for in-person community engagement meetings, even if doing so required deferring the effort.
- **Next steps:** Council agreed to wait until after the presentation and discussion about water and wastewater rates to discuss and make decisions about community engagement efforts.