

City Council Utility Committee

Meeting Agenda

Friday, January 18, 2019

COUNCIL CHAMBERS, CITY HALL, 2ND FLOOR

2:30 - 4:00 pm

- I. Call to Order
- II. Roll Call
- III. Approval of Agenda
- IV. Approval of Minutes from September 28 and November 9, 2018
- V. Public Comments on Items Not on the Agenda
- VI. Agenda Items and Date for Next Meeting
 - Advance Agenda & Meeting Dates
- VII. Update – Trash RFP
- VIII. Update – 2018 Utilities Projects
- IX. CWCB Grant
- X. Update – Water Resources
 - Water Supply Update
 - Windy Gap Firming Project Update
- XI. Upcoming Projects and Council Action
 - Louisville Pipeline Control Vault Construction – Feb 19th
 - Consulting Water Engineers Contract – Jan 22nd
 - Out of City Water Connection – Jan 22nd
 - SWSP Transmission Capacity Design – 1st QTR
 - SCWTP Building Upgrades – 1st QTR
 - SCWTP Disinfection Design and Construction – 1st QTR
 - Windy Gap Financing – Spring
- XII. Adjourn 4:00 pm

Attachments: 9-28-18 & 11-09-18 Draft Minutes

Advance Agenda

Utilities Projects Presentation

CWCB Grant Presentation

Supply Forecasts

Reuse Water Presentation

Golf Course Memo

Out of City Water Map Overview

**City Council
Utility Committee**
Draft - Meeting Minutes

Friday, September 28, 2018

SPRUCE CONFERENCE ROOM, CITY HALL, 1st FLOOR

- I. **Call to Order** – Mayor Muckle called the meeting to order at 2:35 pm.
- II. **Roll Call** was taken and the following members were present:

City Council: Mayor Muckle and Councilmember Stolzmann

Absent: Councilmember Keany

Staff Present: Mrs. Balsler, Mr. Kowar, Mr. Watson, Mr. Peterson, and Mrs. Golden

Public: none
- III. **Approval of Agenda:** Agenda approved as written.
- IV. **Approval of the Minutes:** The meeting minutes from May 11th were approved as written.
- V. **PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA:**

None
- VI. **Agenda Items and Date for Next Meeting**
 - Final 2019 Rates
 - 3rd Quarter Financial Review (2018)
 - Windy Gap
 - CIP Update
 - Project Tour (HBWTP)
 - Next meeting - Friday, November 9, 2018 at 2:30 p.m.

Discussion of items not on agenda.

Mayor Muckle asked about the possible ordinance changes related solid waste handling. Mr. Kowar stated that the City is modeling language similar to how Boulder County governs waste. The current plan is to advertise the contract hauling services RFP in November with a presentation to City Council around April 2019. Councilmember Stolzmann suggested a Utility Committee member should serve on the RFP selection committee. This opportunity will be provided to Councilmember Keany, with Mayor Muckle volunteering if Councilmember Keany was not available.

VII. 2019 Utility Rate Workshop

Mr. Kowar started the discussion by outlining the various rate projection iterations that have been completed and the desire to finalize this process in preparation for a recommendation. Councilmember Stolzmann asked for a walk through of the scenarios. Mr. Peterson explained the baseline is the rate model from last year that we used to adopt 2018 rates. Councilmember Stolzmann expressed a desire to have future baseline scenarios to represent the amended budget. Mr. Kowar commented that the scenarios are very dynamic and there is some difficulty in matching the other financial projections perfectly. Discussion continued about projections, percentages and expenditures.

Mr. Kowar went on to say the rate model matches the CIP that have been previously reviewed by Council and represents the Operational Budget that Council is currently reviewing. The major difference between the financial projections and the rate model are tied to more up to date revenues and expenditures as well as the delay in tap fees.

Councilmember Stolzmann sought clarification on why the budget plans for approximately 3-5% growth in operations increases and a rate increase is recommended at 0% for the water fund. This would indicate the reserve funds could be used for operations. Councilmember Stolzmann recommended that a rate minimum should be developed that would cover at least the increases in operational expenditures. Mayor Muckle was in favor of this recommendation. Mr. Peterson completed a quick calculation showing that the changes in operational costs in the water fund represent about at a 0.1% change in the overall rate. Mr. Kowar stated that additional detail will be added to the rate model, showing the portions related to operational and capital expenses. The Committee agreed to this approach.

Councilmember Stolzmann inquired to a large increase shown in the wastewater O&M budget for Wastewater Engineering. The total for this program is \$71,000 in 2018 and \$146,000 for 2019 and back to \$71,000 in 2020. Mr. Kowar explained this increase is tied to \$75,000 for additional sewer video inspection.

The discussion moved on to stormwater, where Mr. Kowar provide a summary of the various stormwater CIPs. The first project discussed, was the BNSF underpass. Mr. Kowar highlighted the percentage spilt between the stormwater

capital funds. Councilmember Stolzmann reminded the Committee, that Council gave direction to have the stormwater fund pay for only its fair share of this project. Based on this direction, Mr. Kowar stated that based on recent analysis that \$260,000 will be reallocated to the capital fund. The next project discussed was the street sweeper. Councilmember Stolzmann suggested a 100% allocation to the transportation fund as an option. The impacts of this reallocation were discussed and determined to be inappropriate. Mrs. Balsler offered a 50/50 split between the two funds. Several additional options were discussed, however there was some uncertainty on the available funds in the transportation account. Mr. Kowar summarized that staff will evaluate the different options and bring a recommendation forward to the October 4th City Council Meeting. The direction of the Committee would have the priority of the Fleet Replacement Fund cover all qualifying costs and default to funding from the stormwater program.

Mr. Kowar asked if the Committee had any unanswered questions. The Committee was satisfied with the discussion and had no further questions at this time. Mr. Kowar stated that staff would report back on October 4th and 16th.

VIII. Adjourn

The meeting was adjourned at 4:45 pm by Mayor Muckle and seconded by Councilmember Stolzmann.

City Council Utility Committee

Draft - Meeting Minutes

Friday, November 9, 2018

HOWARD BERRY WATER TREATMENT PLANT

I. Call to Order – Councilmember Keany called the meeting to order at 2:35 pm.

II. Roll Call was taken and the following members were present:

City Council: Councilmember Stolzmann, Councilmember Keany,
Councilmember Loo

Absent: Mayor Muckle

Staff Present: Mrs. Davis, Mr. Kowar, Mr. Peterson, and Mrs. Golden

Public: Mark and Wes with Republic Service

III. Approval of Agenda

Councilmember Stolzmann requested the agenda be moved around to talk about Trash RFP and CIP ahead of utility rates. All agreed to move item VIII. Trash RFP and IX. CIP Projects before VII. Utility Rates.

IV. Approval of the Minutes

The meeting minutes from September 22nd were approved as written the October minutes are tabled to the next meeting.

V. PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA

None

VI. Agenda Items and Date for Next Meeting

- Next meeting - Friday, January 11, 2019 at 2:30 p.m.
- Trash Bid Review
- Windy Gap

- CIP Update
- 4th Quarter Financial Review (2018)

VII. Trash RFP

Mr. Kowar discussed the Solid Waste RFP has been advertised and has received earlier feedback that a 5 year contract may limit responses. As a result, the RFP was modified to add an alternative 10 year option. Mr. Kowar introduced potential proposer, Republic Service represented by Mark. Mark commented that Republic was happy to see the changes that were made and said that contracts that are 5 years or less are less favorable to upfront capital costs. They like the 10 year option as its more cost effective and will generate more competitive responses. He stated he likes the way it is structured and that it is pretty straight forward and has a few questions that he'll submit by email in accordance with the RFP instructions. Councilmember Keany asked when the deadline for proposals was and Mr. Kowar said December 20th.

Councilmember Stolzmann questioned if any of the HOAs have contacted the City. Mr. Kowar stated that North End HOA did contact him and they are anticipated to join the City system with 300 homes. Another HOA that has reached out was Trail Ridge HOA that indicated they are not anticipating joining the City contract.

VIII. CIP Projects

Mr. Peterson provided an update on the WTP Improvements stating that the majority of the 102 projects at the two facilities are complete. Of the \$1.6 million budget, costs are at about \$1.2 million spent and another \$200,000 to spend which is in process now. Approximately \$184,000 is projected to return to the water fund. Of this amount, about \$100,000 was related to projects that were removed. As an example, the roof line item is planned to be repaired as part of the hail damage.

Councilmember Stolzmann requested information on how this CIP updated relates to the quarterly CIP Update. Mr. Peterson clarified the CIP portion is connected to the Howard Berry Water Plant and Sid Copeland Water Plant Upgrade budgets. Councilmember Stolzmann questioned if the rate model used for the recent budget, included this \$184,000. Mr. Peterson explained that this information wasn't available until after the budget process and therefore is not included. However, the working model does account for this reduction.

Councilmember Stolzmann inquired if there were other CIPs that have changed since the 3rd quarter report. Mr. Peterson detailed that this project was the only known project returning funds at this time. Several projects are still in process and will result in different numbers than the budget data provided in the 3rd quarter report.

Councilmember Stolzmann discussed the water line budget and sought clarification on why it is being carried forward. Mr. Kowar will verify with the project manager of this project, but understands that the contractor is working on punch

list items and final payment is anticipated in 2018. Any unspent funds will be going back to the water fund and a new budget is scheduled for 2019.

Mr. Kowar described the budget process is a complex snapshot whereas the rate model is more flexible and run on a closer to real time basis. Staff are constantly working with all the other project managers to make sure the rate model represents as up to date as possible while maintaining a level of conservatism. Staff strive to have the rate model always ahead of the budget process.

Councilmember Stolzmann requested further discussion on carry forward. Mr. Peterson explained that when the next year's model is created the CIP budgets and the starting fund balance numbers are reset to match final budget numbers from the previous year. Therefore, the carry forward is isolated at the end of the year between the yearly rate analyses minimizing this impact. Mrs. Golden provided additional background on the 3rd quarter report and what is presented to the Finance Committee.

Mr. Kowar went on to highlight another challenge of current process of procuring multiyear projects. Mr. Kowar asked what other potential projects could result in savings that has occurred after the budget process. Mr. Peterson stated that there are currently four additional projects: WWTP, Water and Sewer Lines and Pump Station that could result in excess funds returning to their respective funds. The savings will be shown in the presentation for the 2019 rates in March of 2019. Councilmember Stolzmann requested additional details to be included on how the budget numbers are reconciled. Councilmember Stolzmann thanked staff for working within budget and working hard to return funds.

IX. Rate Update

Mr. Peterson stated the 2019 rate presentation follows the same format as previous presentations and is a finalized version of what was present at the prior utility committee meeting in preparation for the budget.

Councilmember Stolzmann asked what the determined impact(s) would be to the stormwater fund by moving the street sweeper up to this year instead of next year. Mr. Peterson responded that there is no rate impact for the street sweeper going earlier. Mr. Peterson went on to explain that rates are being driven by capital expenses in 2018, 2019 and 2020, whereby rates were split evenly over 2019 and 2020. Therefore the timing of projects within this period have no impact on the split rate.

Mr. Kowar went on to discuss the debt service balances and referred to the presentation and asked if there were any changes needed. Councilmember Keany requested to add a slide representing a "Base Monthly Residential Bill" to show if somebody is just using strictly base rates on everything. Mr. Kowar provided direction to staff to include this addition.

Councilmember Stolzmann raised if a cost of service should be discussed in 2019. Mr. Peterson highlighted that a cost of service discussion is currently scheduled in May, 2019. Mr. Kowar went on to say staff has begun an internal review and is planning this work in-house. Depending on the complexity there is a possibility that outside consulting service maybe needed to supplement staff's work.

X. Water Resources/Water Supply Update

Mr. Peterson outlined the US drought monitoring attached illustrating the extreme drought conditions in the southwest corner of the state. The City's watershed is a slight to moderate drought area which is within the range of normal conditions and is similar to conditions in 2016. If dry conditions continue through the winter and snow pack levels do not improve drought water restrictions are a possibility for next year. Mr. Peterson cautioned that these results are early in the process as the snowiest months for Colorado are still to come in April and May. Councilmember Keany queried if the City should be considering winter restrictions. Mr. Peterson stated that storage levels are within normal levels and winter restrictions are not recommended.

Councilmember Loo inquired to when Windy Gap will come on line. Mr. Peterson explained that Windy Gap has a projected construction schedule of 4 years and current estimate are to start next year in 2019 and be complete in 2023. Filling the reservoir will depend on water availability at this time and flexibility during construction for preliminary filling. Mr. Peterson provide an update on the status of the other aspects of Windy Gap related to the construction. Mr. Kowar went on to say that Louisville has been very proactive in assembling various water rights over the years putting Louisville in a flexible position to respond to drought conditions in a variety of ways.

Councilmember Keany asked if the City should still be open to other water rights. Mr. Kowar responded that while staff are not aggressively pursuing water rights the City is active and able to acquire water rights that become available.

XI. Master Plan Review

Mr. Peterson outlined that the raw water long term CIPs are based on the recommendation contained within the approved master plan. Mr. Kowar stated this discussion was designed as a refresher and ensuring the current direction is still appropriate.

Councilmember Stolzmann asked about the any recent activities for reuse and raw water specifically related to the golf course. Mr. Kowar said there is a related internal memo that will be finalized and provided to the committee. Councilmember Stolzmann sought clarification about the City's return flow obligations. Mr. Peterson provide the background on how the City meets return flow associated with the City water rights.

Councilmember Stolzmann requested a review of the water rights in Marshall Lake. Mr. Peterson outlined that the City is the largest shareholder followed by Broomfield and Boulder County. Mr. Peterson stated that the City has a good relationship with FRICO as the owner and operator of Marshall Lake. Councilmember Stolzmann asked if dredging activities were performed at Marshall how would costs and benefits be distributed. Mr. Peterson stated that discussions are still ongoing with FRICO but it is typical that the benefits would be prorated proportional to funds invested.

Councilmember Stolzmann inquired about the note related to the constraints in operating the raw water pipeline and if these were resolved. Mr. Peterson explained that the solution is still in progress and is related to the intake control vault project that is currently under design and anticipated construction in early 2019.

Councilmember Stolzmann went on to ask about the chart that shows usage and wanted to know if 2012 would be considered a drought. Mr. Peterson answered yes 2012 along with 2002 and 2016 would be representative of drought years. Councilmember Stolzmann referred to the graph on climate change and questioned why increases demands are not shown in fall. Mr. Peterson explained the climate information was based on referenced work in the Front Range Vulnerability Study, which did not predict a significant change to prompt a change in demand in these months. Mr. Kowar went on to explain other models have shown higher impacts in the fall but varies at other times in the year. Staff will continue to monitoring the ongoing research in this area and update accordingly.

XII. Windy Gap

Mr. Peterson stated the financial rating for the joint financing was provided at an A+ two tiers below the AA rating projected. In addition, a new construction cost estimated is expected later this year. Lastly, with the delay in construction Northern is proposing a 4th Amendment to the 5th Agreement to keep funding going in 2019. Staff plans to bring this forward for approval in the next couple of months. Councilmember Keany asked if this will impact the rates. Mr. Peterson said this was a more shifting the timing of funds and would not increase the overall funding estimated.

XIII. Upcoming Projects

Mr. Peterson provide a brief update on upcoming Council approvals related to: SCWTP Tube Settlers Replacement, Louisville Pipeline Control Vault, Consulting Engineer Renewal, SWSP Transmission Design, SCWTP Building Upgrades, SCWTP disinfection design and Windy Gap Financing.

XIV. Adjourn

The meeting was adjourned at 4:00 pm. A tour of the Howard Berry Water Treatment Plant was held following the meeting.

Utility Committee Advanced Agenda

DATE	ISSUE
2019	
3/15	Water Supply Update (Begin Drought Strategy discussion if needed) Trash RFP Louisville Pipeline Report Water Loss Audit Report Windy Gap CIP Update Project Tour (SCWTP)
5/10	Preliminary 2020 Rates Draft Cost of Service Water Supply Update (Drought Strategy if needed) Windy Gap / Financing CIP Update Water Engineering Update 1 st Quarter Financial Review (2019)
7/19	Draft 2020 Rates Final Cost of Service Instream Flow Update Windy Gap / Financing CIP Update
9/13	Final 2020 Rates Multi-family/Commercial Recycling Windy Gap CIP Update 2 nd Quarter Financial Review (2019)
11/8	Windy Gap CIP Update 3 rd Quarter Financial Review (2019)

Annual Utilities Update

2018 Edition

Guiding Principles

- ▶ Mission Statement:
 - ▶ Sustain health by removing water's impurities
- ▶ Core Values:
 - ▶ Positivity first, dependable always, accomplishing data driven decisions
- ▶ Vision Statement:
 - ▶ Exceeding Industry Standards
 - ▶ Building community trust in the City's Utilities
 - ▶ Striving for continuous improvements
 - ▶ Meeting today's challenges and preparing for tomorrow's opportunities
 - ▶ This will be "The Louisville Way"

WWTP Update

- ▶ WEFTEC 2018
- ▶ 2019 Objectives
- ▶ Nitrogen and Phosphorus Balance

WEFTEC 2018

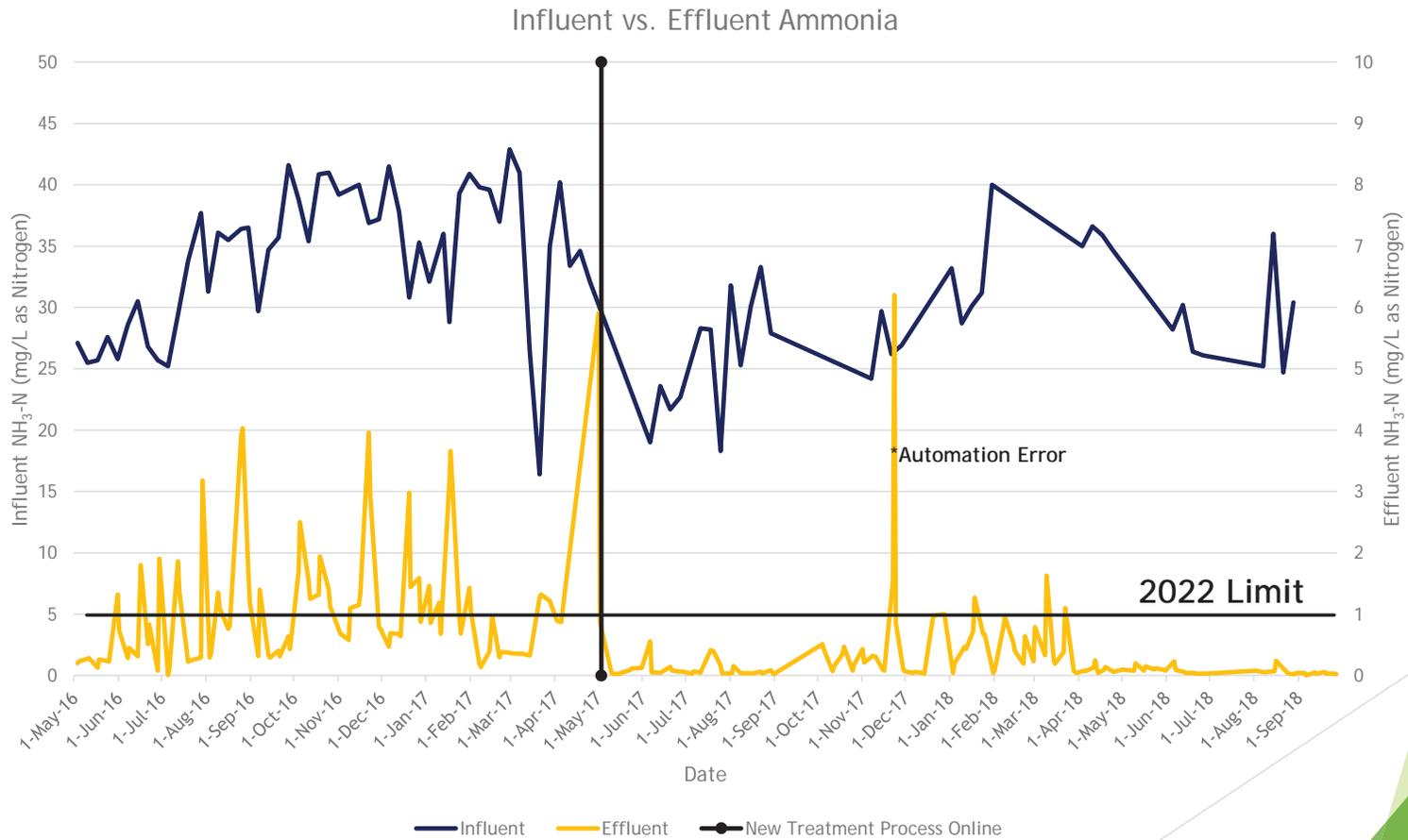
- ▶ Face to Face with Vendors
- ▶ New Technologies
- ▶ CIP Development
- ▶ Training Sessions
- ▶ Free Service Tech visit
- ▶ Different Viewpoints
- ▶ Inspiration



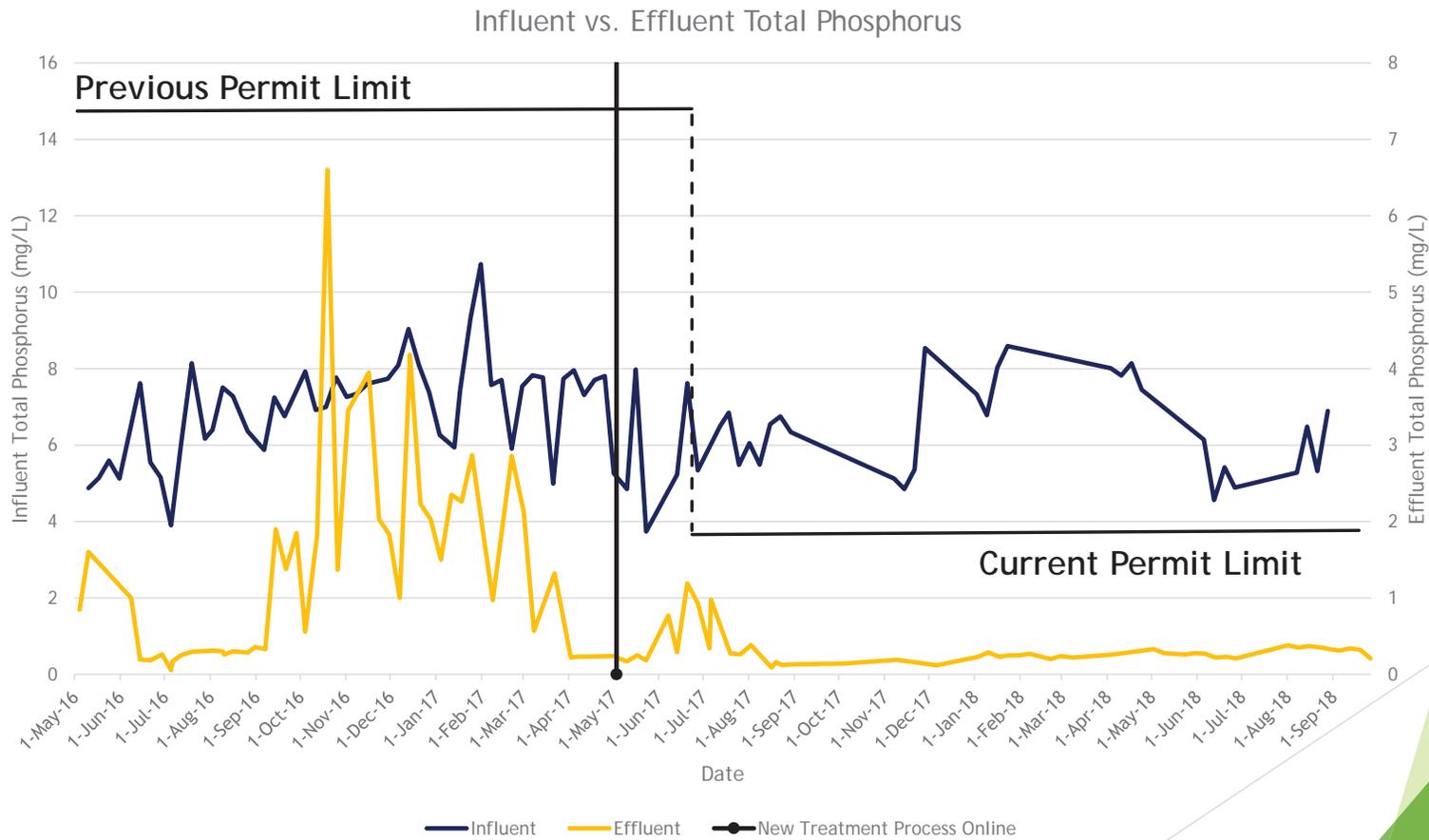
Objectives in 2019

- ▶ Lucy
 - ▶ Rollout in November
 - ▶ 10 hr/week
 - ▶ Rich / Marc
- ▶ PI Historian
 - ▶ Writing new tags
 - ▶ Pulling those to WIMS and Lucy
- ▶ SCADA
 - ▶ HMI updates
- ▶ Xcel Rebates
 - ▶ VFDs, Motors
- ▶ Successful 5-Day operation
 - ▶ How to pay on-call operator who uses the tablet to resolve issues?
- ▶ WIMS
 - ▶ 'Automated' Reporting
- ▶ NPDES Permit Authorized Editors
 - ▶ A Operators
- ▶ All Operators
 - ▶ A Operators
 - ▶ What is the standard?
 - ▶ Based on person or performance?

Nitrogen and Phosphorus Balance



Nitrogen and Phosphorus Balance



Vapex Pilot

- ▶ Assuming a 5' mat of FOG in the East and West corners of the Influent Zone
 - ▶ Initial Concerns
- ▶ \$2500 total cost
- ▶ Ozone Treatment
- ▶ January-March run time
- ▶ “Operator Initiative” Alternative
 - ▶ Aerate and mix
 - ▶ Time: 1 hour daily
 - ▶ Materials: ~\$1000
 - ▶ Chopper pump
 - ▶ Batch removal



6th Influent Lift Station Pump

- ▶ March-April
- ▶ Bypassing Influent Zone
 - ▶ Remove residual FOG
- ▶ If Vapex system works, install in May
 - ▶ CIP is for Influent Zone Mixers



2019 RMWEA Calendar



ECS Update - Overview

- ▶ Pretreatment

Industrial Pre-treatment

- ▶ EPA Inspection Preparation
 - ▶ Hired consultant for internal review
 - ▶ Evaluate Commercial Water Usage
 - ▶ Update Wastewater Survey Form
 - ▶ Summarize Enforcement Activities
- ▶ Local Limits Evaluation
 - ▶ Proposed Municipal Code Updates
 - ▶ SIU vs IU
 - ▶ SIU Permit Updates
 - ▶ Reduced SIU's from 5 to 3
- ▶ FOG
 - ▶ Obtained waste haulers contacts for expedited manifest procurement

Industrial Pretreatment Enforcement

▶ Successes

- ▶ Completed annual inspections
- ▶ Completed annual sampling
- ▶ “Most improved SIU”
- ▶ Maintained deterrent through surcharges

▶ Challenges

- ▶ Mn & Cu concentration concerns
- ▶ SUI NOV & CO Amendment

Wastewater Surcharge Revenue		
Quarter	SIU	Water Treatment
1	\$10,033.51	\$5,177.94
2	\$10,595.34	\$5,771.23
3	\$10,398.11	\$2,533.29
4	Pending	Pending
Total	\$31,026.96	\$13,482.46



WTP Update

- ▶ Plant Changes
- ▶ Operational updates
- ▶ 2019 Objectives



Plant Changes SCWTP

- ▶ Pump station
 - ▶ Improved pumping capacity
 - ▶ Additional PRV's - Zone downloading
 - ▶ New Mid-zone pumps
 - ▶ Updated Generator
 - ▶ VFD adjustments
 - ▶ Backwash interconnect
- ▶ SCADA improvements
 - ▶ Flow Pacing
 - ▶ Pump station controls
 - ▶ Backwash recycle VFD's
 - ▶ Screen creation and revision
- ▶ CDPHE Award Winner
 - ▶ Environmental Leadership



Plant Changes HBWTP

- ▶ Plate Settlers
 - ▶ Consistent turbidities
 - ▶ Ease of operation and maintenance
- ▶ Filter Media
 - ▶ Substantially longer run times
 - ▶ More efficient use of backwash water
 - ▶ 10 less backwashes



Sed Basin Turbidity			
Year	Min	Max	Average
2016	0.32	8.82	1.35
2017	0.2	7.43	1.48
2018	0.18	4.87	0.99

Filter Run Hours			
Year	Min	Max	Average
2016	21.1	76.9	51.6
2017	23.6	74.3	64.4
2018	25	139	73.6

Total Filter Backwash Usage			
Year	Gross Production MG	Backwash used MG	Backwash used %
2016	136	4.81	3.54
2017	346	13.798	3.99
2018	239	5.738	2.40

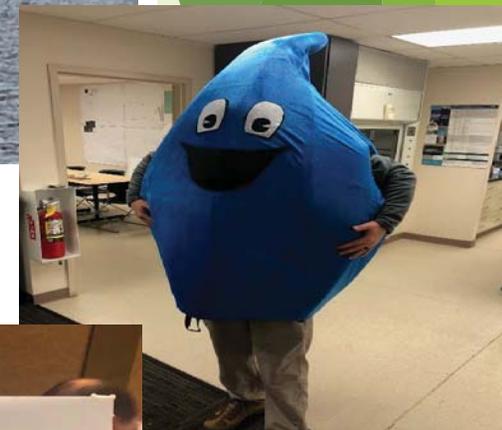
Plant Changes HBWTP

- ▶ Disinfection system
 - ▶ Miox self generation
 - ▶ Salt Vs. Gas
 - ▶ 0.8% solution
 - ▶ Redundant system
 - ▶ DeNora Dioxide generation
 - ▶ HCL Vs. Gas
 - ▶ No pumps
 - ▶ Evaluation
 - ▶ RMP revision
- ▶ Painting
- ▶ Mixer Replacement
 - ▶ Standardization of equipment
- ▶ HVAC upgrades



Operational Update

- ▶ New methods of Algae control
 - ▶ Barley Straw
 - ▶ In pipe injection
 - ▶ Reservoir profiler
 - ▶ Solar Bee
- ▶ Water Week Event
- ▶ UCMR sampling
- ▶ LT2 Completed
- ▶ LCR sampling - from 30 to 120
- ▶ 22 Customer samples
- ▶ Jar Testing
 - ▶ South Plant Startup
 - ▶ New Polymer testing
 - ▶ Future optimization



2019 Objectives

- ▶ Building improvements, Settlers, Disinfection, Lower Pond
- ▶ Optimization of processes, data collection
- ▶ Lucity, WIMS implementation
- ▶ UCMR - 2022
- ▶ LCR ?
- ▶ Water Week
- ▶ SOP Creation, Revision, Deletion
- ▶ Further development of staff



CIP Update

- ▶ 2018 Complete
- ▶ 2018 Carryover
- ▶ Water System Facility Plan
- ▶ 2019 Projects
- ▶ Ongoing Evaluation

2018 Completed CIPs

Completed Projects	Budget
Windy Gap Firing Project	\$283,800
SWSP Eastern Pump Station	\$10,670
Water Line Replacement	\$1,275,090
Water Rights Acquisition	\$318,400
SCWTP Pump Station	\$2,878,200
HBWTP HVAC Upgrades	\$155,610
Lateral Ditch Piping	\$50,000
WTP Instrumentation Upgrades	\$35,820
SCADA Master Plan	\$166,970
Pipeline Condition Assessment	\$168,860
Security Upgrades	\$33,140
Filter Media Replacement	\$138,410
Facilities Painting	\$105,579

Completed Projects	Budget
HBWTP Flash Mixer VFDs	\$7,880
Vehicle & Equip Replacement	\$32,390
Enterprise Resource Planning	\$4,140
PRV Replacement	\$30,840
Lucity	\$25,000
Fire Hydrant Painting	\$29,660
Utility Leak Detector	8,000
Wastewater Plant Upgrade	\$1,072,642
Lucity	\$25,000
CTC Lift Station Controls	\$20,000
Reuse System	\$32,150
Enterprise Resource Planning	\$4,140

2018 Carryover CIPs

Carry-Over Projects	Budget	Anticipated Completion (For 2019)
Replace Tube Settlers	\$1,218,390	1 st QTR
Water Plants Disinfection	\$564,520	4 th QTR
Howard Diversion	\$134,000	4 th QTR
System Water Loss Audit	\$42,000	1 st QTR
Watershed Protection Plan	\$10,000	1 st QTR
HBWTP Upgrades	\$399,130	1 st QTR
SCWTP Upgrades	\$480,640	1 st QTR
SBR Ditch Lining	\$84,000	3 rd /4 th QTR
SCWTP Lower Recycle Pond	\$52,000	3 rd QTR
Water Tank Maintenance	\$105,000	3 rd QTR
Raw Water Line Lowering	\$14,700	1 st QTR
Louisville Pipeline Flow Control	\$247,400	1 st QTR
WTP Boat and Trailer	\$25,000	1 st QTR
Hi Zone Water Loop	\$55,000	1 st QTR
Sewer Line Replacement	\$1,034,070	1 st QTR
Local Limits	\$25,000	2 nd QTR
Steel Ranch Lift Station	\$50,000	2 nd QTR

2019 CIPs

Water	Budget
NCWCD-Windy Gap Firming Project	\$2,500,000
NCWCD-SWSP Eastern Pump Station	\$92,500
Water Line Replacement	\$344,000
SWSP Transmission Capacity	\$129,000
SBR Ditch Lining	\$86,150
SCWTP Lower Recycle Pond	\$86,000
Vehicle & Equipment Replacement	\$159,000
SCWTP Building Upgrades	\$523,000
PRV Replacement	\$75,000
Fluoride Equipment Replacement	\$105,000
Excavation Shoring Box	\$9,000
Barricades and Trailer	\$5,000
Replacement Dump Truck	\$80,000
Utility Trailer	\$4,650
TOTAL	\$4,198,800

Wastewater	Budget
Sewer Utility Line Replacement	\$300,000
Reuse System Equipment Replacement	\$32,000
Vehicle & Equipment Replacement	\$62,000
Vibration Monitoring	\$40,000
Digester Control Improvements	\$100,000
Sanitary Sewer Maintenance Equipment	\$260,000
Influent Pump Addition	\$72,000
Asphalt Addition	\$50,000
Digester and Reuse Lighting Improvements	\$40,000
Aeration Basin and Reuse mixers	\$150,000
TSS Probes	\$45,000
Vac Dump Station	\$235,000
Excavation Shoring Box	\$3,000
Portable Lift Station Pump	\$50,000
Barricades and Trailer	\$5,000
Utility Trailer	\$4,650
TOTAL	\$1,448,650

Water System Facilities Plan (2012)

Project (by priority)	Status	Project (by priority)	Status
NWTP Chlorine Contact Tank (71)	Completed - 2016	Replace Tube Settlers – SCWTP (26)	Under Construction
3 MG Tank Rehab (63)	Completed - 2015	Backwash Backup – SCWTP (24)	Completed - 2018
Residual Handling – HBWTP (61)	Completed - 2015	NWTP Electrical Gear Update (24)	Completed - 2018
High Zone Pump Station (57)	Completed - 2018	96 th Ave Water Line (23)	Deleted
Residual Handling – SCWTP (55)	?	Storage Tank Mixers (23)	Deleted
HBWTP Expansion (51)	?	Filter Underdrains (23)	2023
Pipeline Diversion (49)	Completed - 2016	Watershed Protection Plan (22)	2019
Media Replacement – HBWTP (44)	Completed - 2018	Raw Water Pipeline Study (21)	Partial in 2018
Replace Tube Settlers – HBWTP (42)	Completed - 2018	Basin Rehab – SCWTP (19)	2019
Disinfection Study/Project (31)	2018 & 2019	Basin Covers – SCWTP (18)	Deleted
Southern Water Supply Line (30)	2019-2020	WQ Monitoring System (18)	Deleted
Louisville Lateral (29)	Designed, 2022	Marshall Lake Study (15)	2013 & 2020/2021
Basin Covers – HBWTP (28)	Deleted	Media Replacement – SCWTP (14)	2023
Basin Rehab – HBWTP (26)	Completed - 2018	Water Rights (11)	2018 & 2021-2026

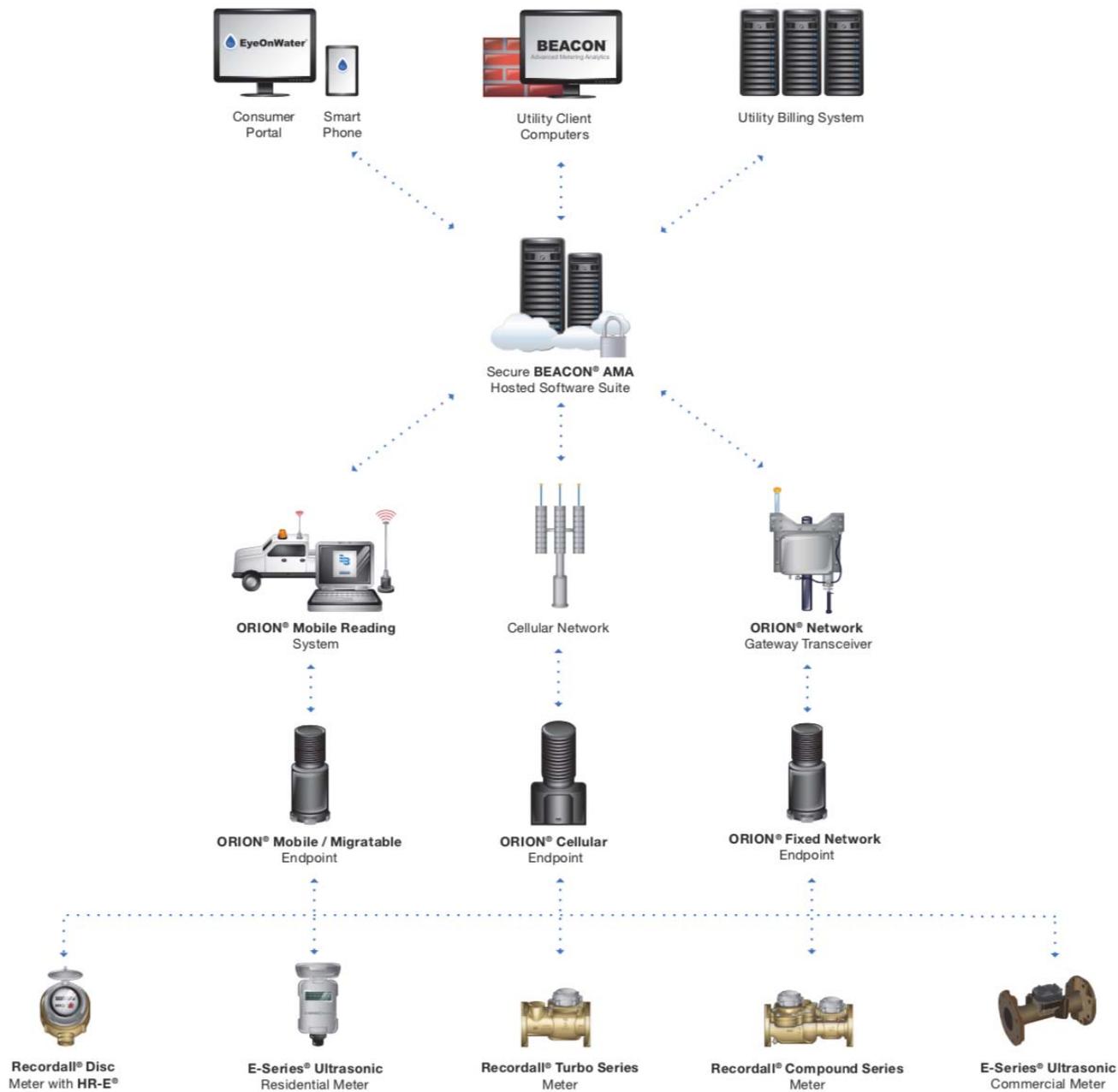
ONGOING EVALUATIONS

- ▶ Raw System
 - ▶ Pipeline
 - ▶ Marshall Lake Long Term Capital / Dredging
- ▶ Future Regulations
- ▶ Water Treatment System
 - ▶ SCWTP Residual Handling
 - ▶ HBWTP Expansion
 - ▶ Tank Repair
 - ▶ Lower Pond Evaluation
- ▶ Lift Stations
 - ▶ Master Plan
 - ▶ Conoco/Phillips

Metering Technology Vision and Grant Opportunity

January 18, 2019



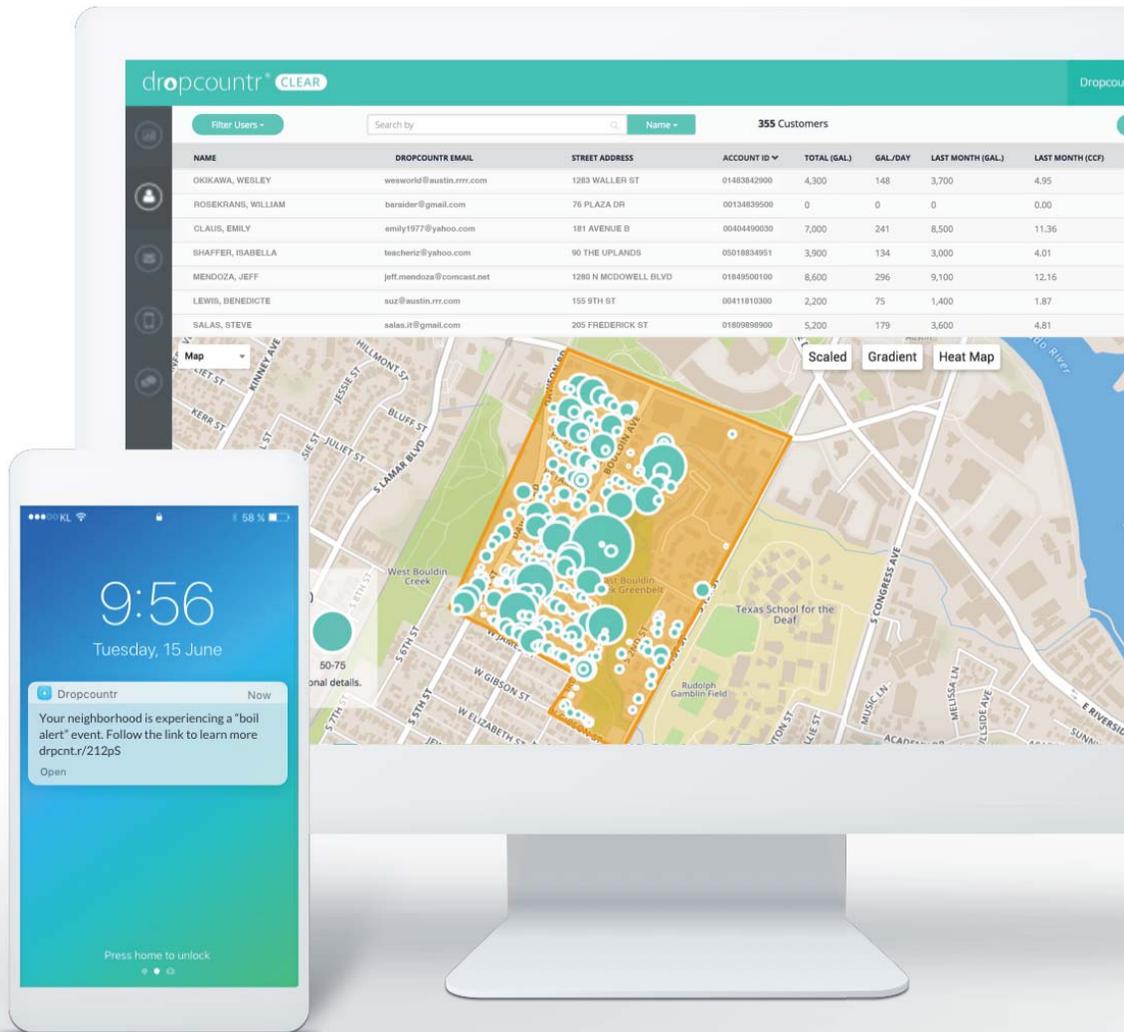


Badger Technology

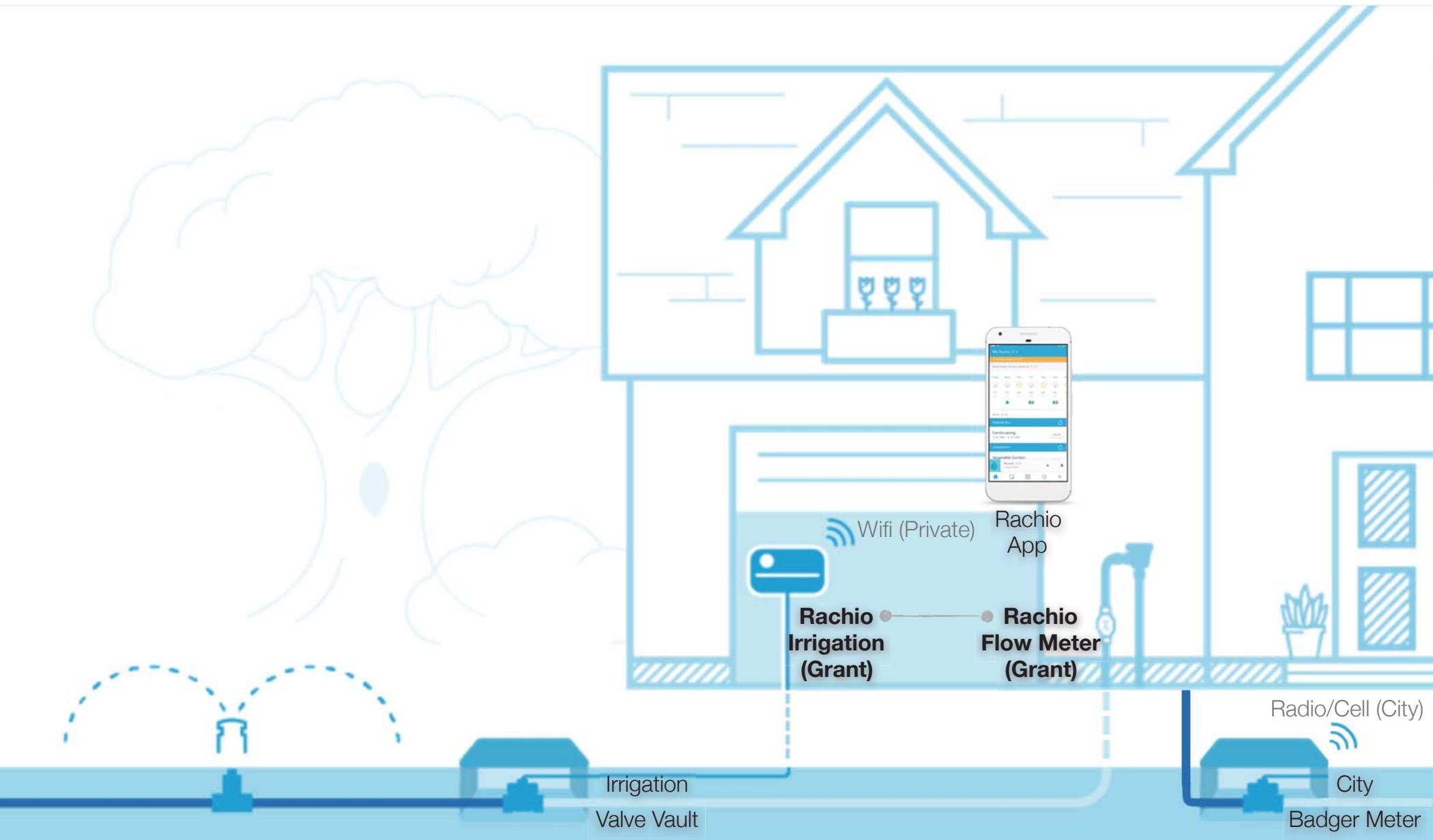
Metering Hardware, Utility Billing Dashboards and Resident App (100 meters w/ App)



Rachio Technology
Outdoor Irrigation System Controller and Resident App (200 Irrigation and Flow Sensor Units)

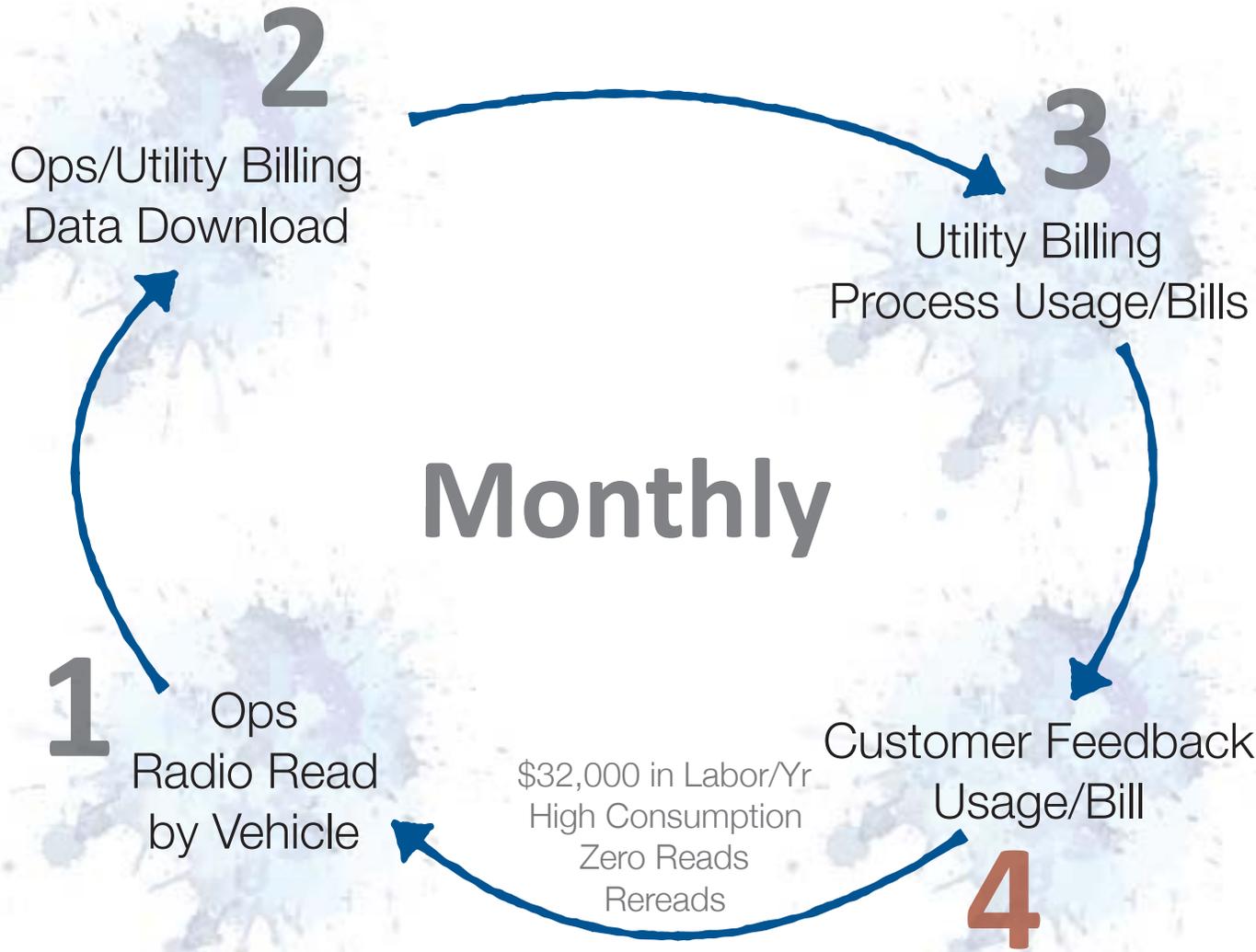


Dropcountr Technology
Resident App and Utility Billing Staff Dashboard (Every resident could use it)



How It Works at the Home

Badger and Rachio Technology



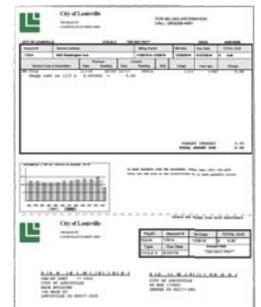
Current



Rachio



Digital PDF
Web Portal



Mail

How It **Currently Works**
at the City

Current Technology

Grant Pilot #1



Dropcounter/Rachio
Integration

Badger Pilot #2



Badger
Beacon

Cell Service
Sends Usage

1

2

Customer Feedback
Usage/Bill

Realtime

Utility Billing
Process Usage/Bills

3

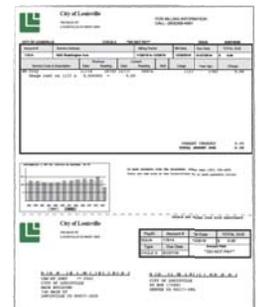
Current



Rachio



Digital PDF
Web Portal

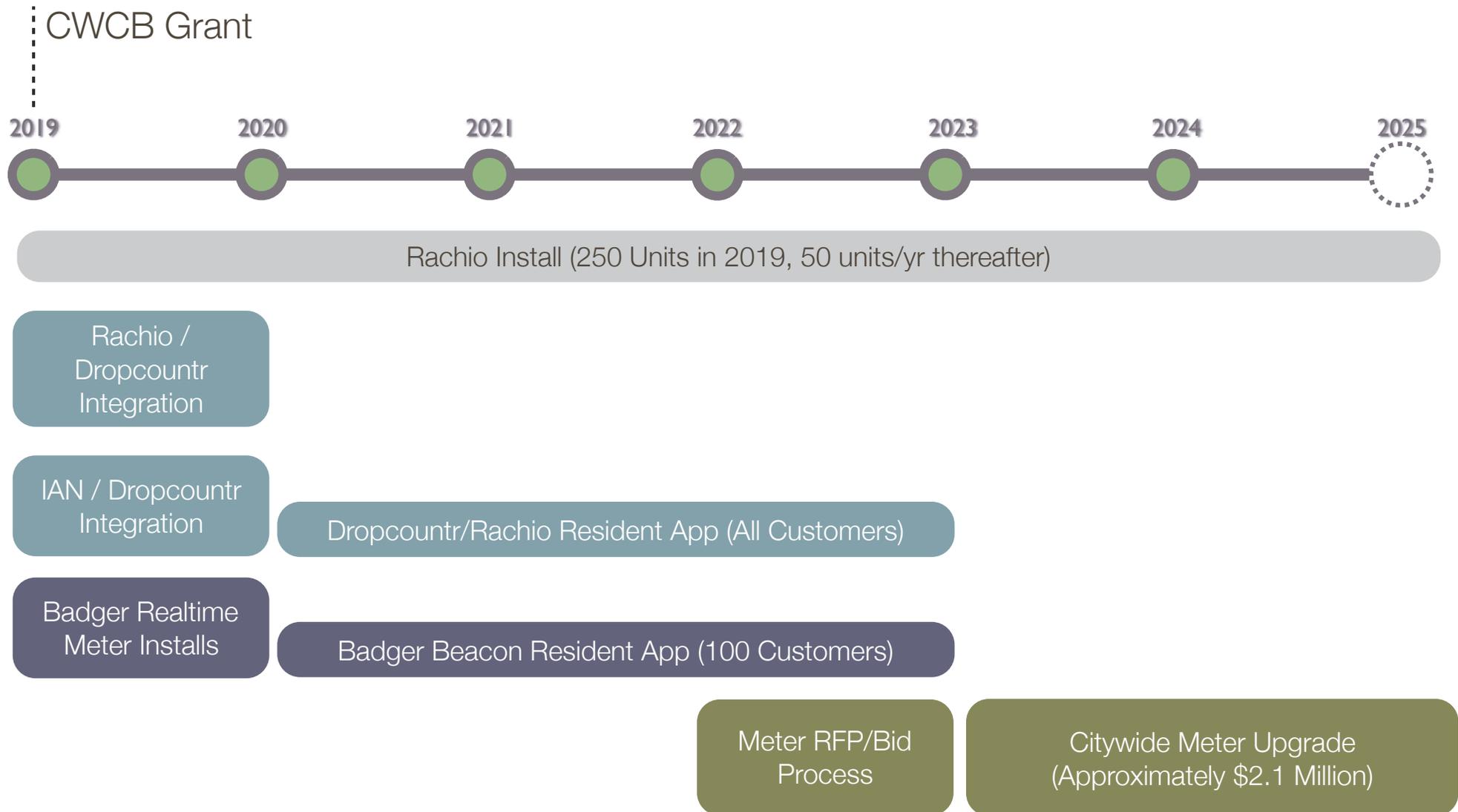


Mail

How It **Could Work**
at the City

Future Technology

Schedule of Technology Pilot and System Upgrade



5 Year Proposed Program Budget - **\$125,690**

1. Rachio/Dropcountr (Grant) - **\$115,350**

	Project Manager/IT Support	Project Manager/IT Support	Project Manager/IT Support	Project Manager/IT Support	Project Manager/IT Support	
City of Louisville Labor Costs (In-Kind Contribution)	\$ 150	\$ 150	\$ 150	\$ 150	\$ 150	
	Estimated Labor Hours (City of Louisville)					
Tasks	Year 1	Year 2	Year 3	Year 4	Year 5	Subtotal
Technology Integration, Testing and Deployment	24					\$ 3,600
Launch customer portal for Louisville water customers and Deploy Rachio meters	22					\$ 3,300
Ongoing support and program refinement	48	48	48	48	48	\$ 36,000
Total Labor Costs	\$ 14,100	\$ 7,200	\$ 7,200	\$ 7,200	\$ 7,200	\$ 42,900
Other Direct Costs	Dropcountr Costs					
Item:	Year 1	Year 2	Year 3	Year 4	Year 5	Subtotal
Task 1: Technology Integration, Testing, and Deployment	\$64,000					
Task 2: Launch Customer Portal for City's Water Customers	\$30,000					
Task 3: On-going Support and Program Refinement		\$30,000	\$30,000	\$30,000	\$30,000	\$120,000
Reporting and Printing	\$500	\$500	\$500	\$500	\$500	\$2,500
Dropcountr Travel Costs						
Lodging and Meals	\$500	\$500	\$500	\$500	\$500	\$2,500
Travel (Airfare and Car Rental)	\$500	\$500	\$500	\$500	\$500	\$2,500
Deploy Rachio Units	\$47,500	\$47,500				\$95,000
Total Other Direct Costs	\$143,000	\$79,000	\$31,500	\$31,500	\$31,500	\$ 316,500
Total Costs	\$ 143,000	\$ 79,000	\$ 31,500	\$ 31,500	\$ 31,500	\$ 316,500
Contribution	Year 1	Year 2	Year 3	Year 4	Year 5	Subtotal
Total City of Louisville Contribution	\$ 42,700	\$ 46,700	\$ 22,950	\$ 22,950	\$ 22,950	\$ 158,250
In-Kind	\$ 14,100	\$ 7,200	\$ 7,200	\$ 7,200	\$ 7,200	\$ 42,900
Cash	\$ 28,600	\$ 39,500	\$ 15,750	\$ 15,750	\$ 15,750	\$ 115,350
CWCB (Cash)	\$ 100,300	\$ 32,300	\$ 8,550	\$ 8,550	\$ 8,550	\$ 158,250

2. Badger Meter - **\$44,000**

\$38,000 One Time Setup, \$1,068/yr Cell Subscription

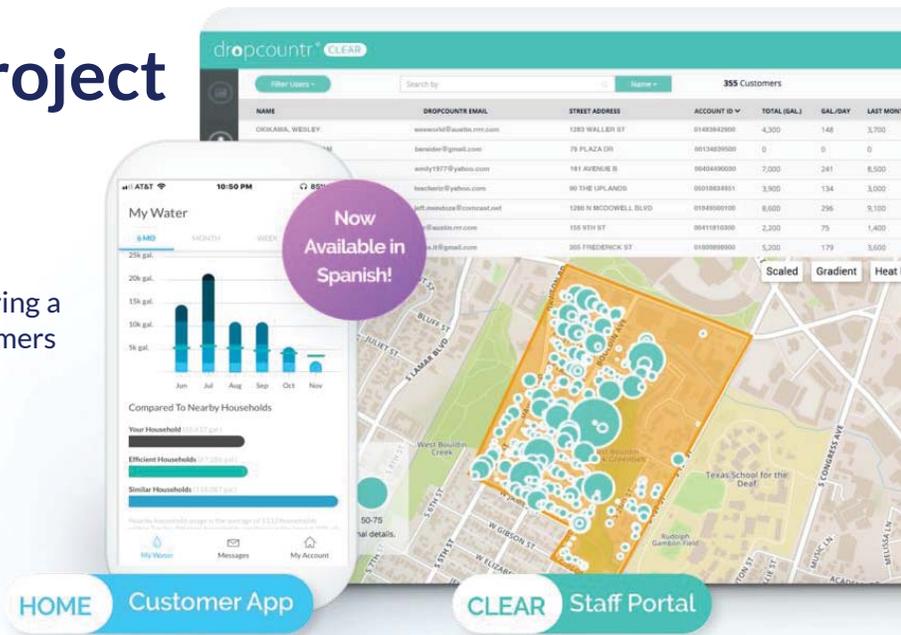
City of Louisville Dropcountr Pilot Project

June 2018 – May 2019

Background: The City of Louisville is considering a pilot program with Dropcountr to provide customers with a personal usage portal to promote water efficiency.

Program Cost: \$15,000 (includes software, customer surveys and water efficiency analysis)

What's included in the program?



Software

- **Dropcountr HOME – Customer Portal & Digital Reports**
Dropcountr’s customer portal is available for any Louisville customer on Android, iOS or web.
- **Dropcountr CLEAR – Staff Portal**
Dropcountr’s staff portal improves digital engagement, satisfaction & conservation efforts. Unlimited seats.

Support

- **Technical support – HOME & CLEAR**
Louisville staff and customers can expect 48-hour turn around on all questions.
- **Outreach Support**
Dropcountr’s staff will work with Louisville to drive customer adoption of the platform. This support will be provided throughout deployment at no additional cost.

Benefits

- **Conservation:** the average Dropcountr user sees a 6-12% usage reduction
- **Transparency:** help Louisville customers understand their water usage and rates
- **Customer Satisfaction:** portals and engagement improve customer satisfaction and make customers more likely to agree with political leaders and professional water managers

Simple Setup (~4 weeks)

- Data formatting & ingestion (1-2 weeks)
- Review & training (1-2 weeks)
- Outreach & support (ongoing)
- Estimated total Louisville staff hours: 15

Case Study: Denver

Denver Water Targeted Messaging Project
Denver Water partnered with Dropcountr in 2017 to provide a customer portal and engagement services.

- 7.5% water savings achieved.
- An impressive 152 ac-ft was conserved at an estimated \$450/ac-ft price point.
- 30% of the pilot participants registered with Dropcountr
- 55% engaged with Dropcountr’s monthly reports

The DW AWWA presentation at the following link: bit.ly/denverdropcountrpilot

External Contacts

Kevin Reidy
Kevin.reidy@state.co.us

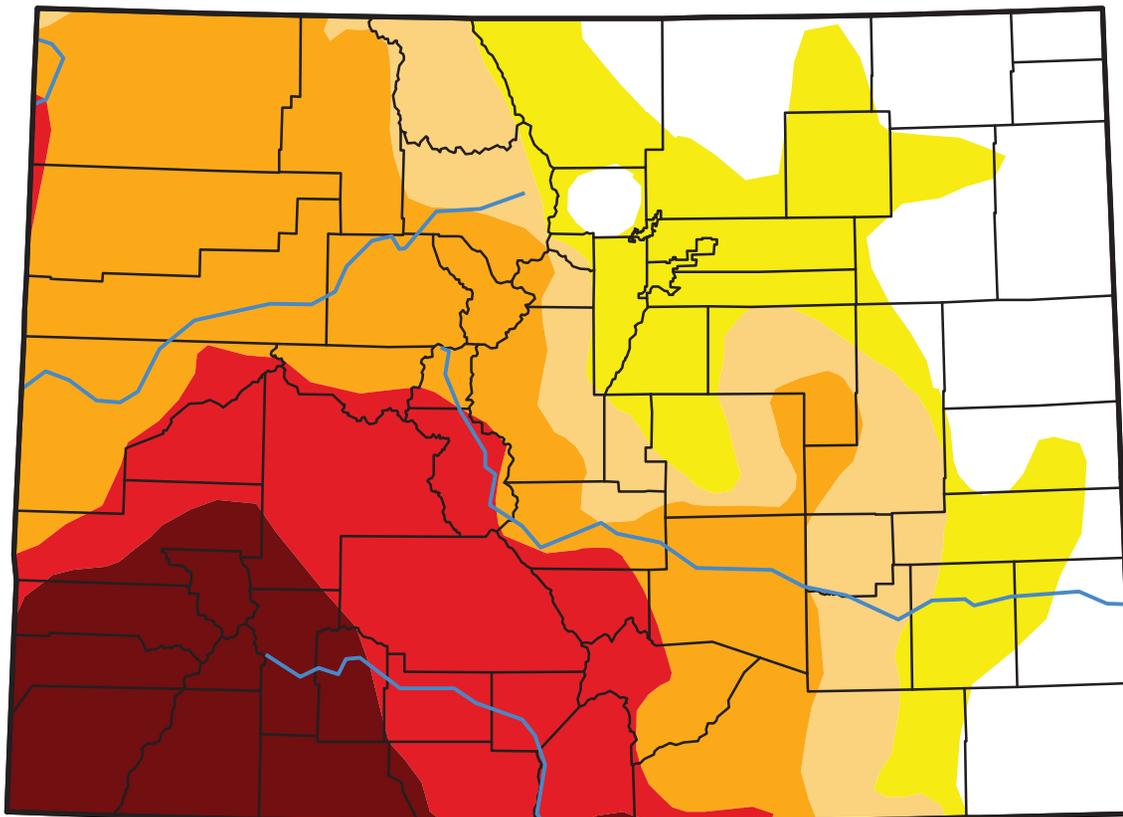
Ganesh Krishnamurthy, P.E.
ganesh@dropcountr.com | (626) 463-8244

U.S. Drought Monitor Colorado

January 1, 2019
(Released Thursday, Jan. 3, 2019)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	17.94	82.06	66.26	54.91	27.11	11.22
Last Week <i>12-25-2018</i>	15.88	84.12	66.26	54.91	27.11	11.22
3 Months Ago <i>10-02-2018</i>	14.19	85.81	72.30	64.41	48.47	16.21
Start of Calendar Year <i>01-01-2019</i>	17.94	82.06	66.26	54.91	27.11	11.22
Start of Water Year <i>09-25-2018</i>	14.19	85.81	72.30	64.41	48.47	16.21
One Year Ago <i>01-02-2018</i>	6.57	93.43	33.53	7.27	0.00	0.00



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

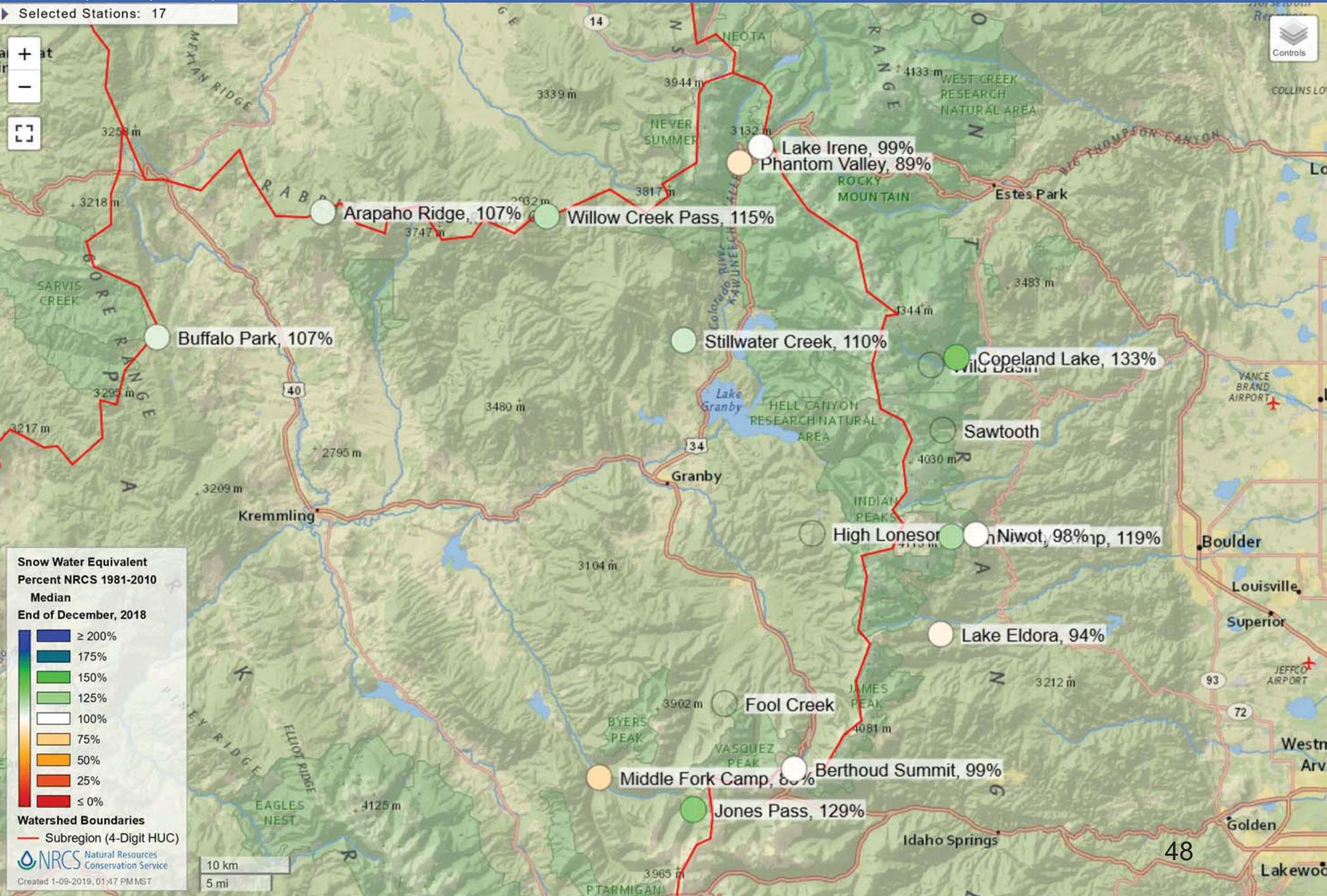
Author:

David Miskus
NOAA/NWS/NCEP/CPC





Selected Stations: 17



Snow Water Equivalent Percent NRCS 1981-2010 Median
End of December, 2018

Dark Blue	≥ 200%
Blue	175%
Light Blue	150%
Green	125%
Light Green	100%
Yellow	75%
Orange	50%
Red-Orange	25%
Red	≤ 0%

Watershed Boundaries
 — Subregion (4-Digit HUC)

NRCS Natural Resources Conservation Service
 Created 1-09-2019, 01:47 PM MST

10 km
5 mi

- Arapaho Ridge, 107%
- Willow Creek Pass, 115%
- Buffalo Park, 107%
- Stillwater Creek, 110%
- Copeland Lake, 133%
- High Lonesome, 119%
- Niwot, 98%
- Lake Eldora, 94%
- Fool Creek, 119%
- Berthoud Summit, 99%
- Middle Fork Camp, 80%
- Jones Pass, 129%
- Lake Irene, 99%
- Phantom Valley, 89%

Utility Committee Reclaim Water Review

January 18, 2019

What is Reclaim (Reuse)?

- Reclaimed water is defined as domestic wastewater that has received secondary treatment by a domestic wastewater treatment works and such additional treatment as to enable the wastewater to meet the standards for approved uses



Timeline

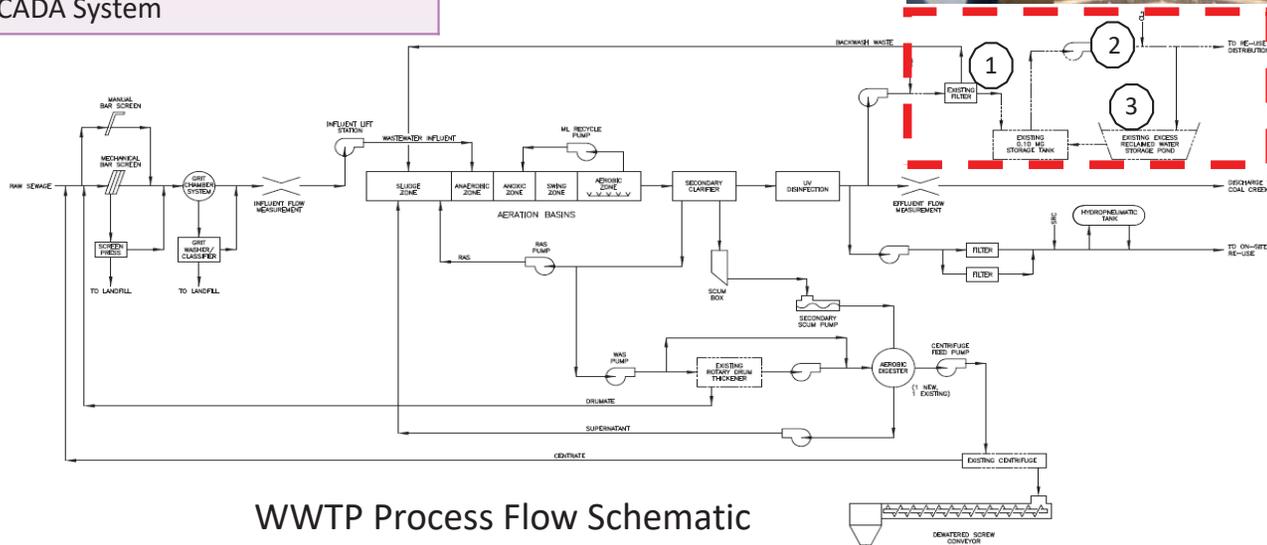
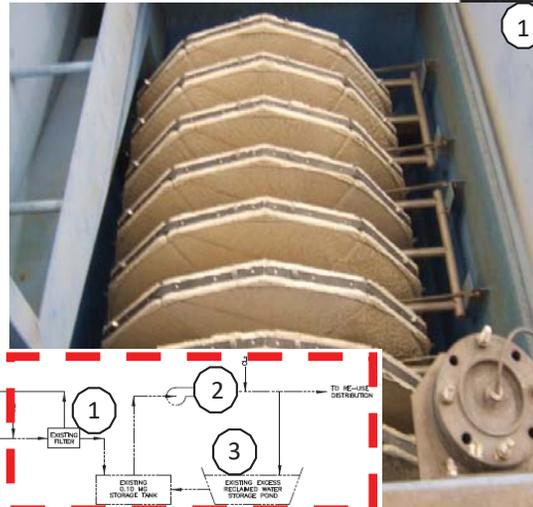
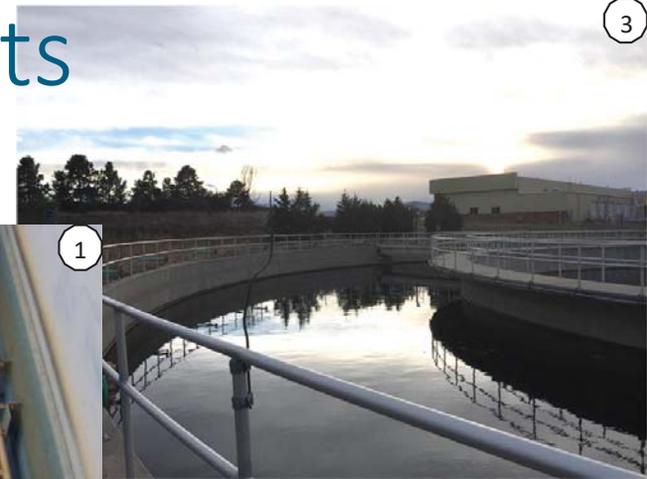
- 1986 – Reclaim used onsite
- 1998 – Reclaim to Sports Complex and Miner’s Field
- 2004 – Reclaim filter system and pipeline to CCGC
- 2005 – Reclaim connection to Community Park
- 2017 – Reclaim suspended for the summer as part of the WWTP Upgrade Project

System Overview



Reclaim Components

3.3 miles of Pipe	
Filter Supply Pumps (2, 15 hp)	
Reuse Pumps (2, 40 hp)	2
Backwash Pumps (2, 3 hp)	
Flow Meters (5)	
Chemical Pumps (2, ¾ hp)	
Cloth Filter	1
Storage Tank (1.5M gallons)	3
Level Sensors (7)	
Actuated Valves (2)	
SCADA System	



WWTP Process Flow Schematic

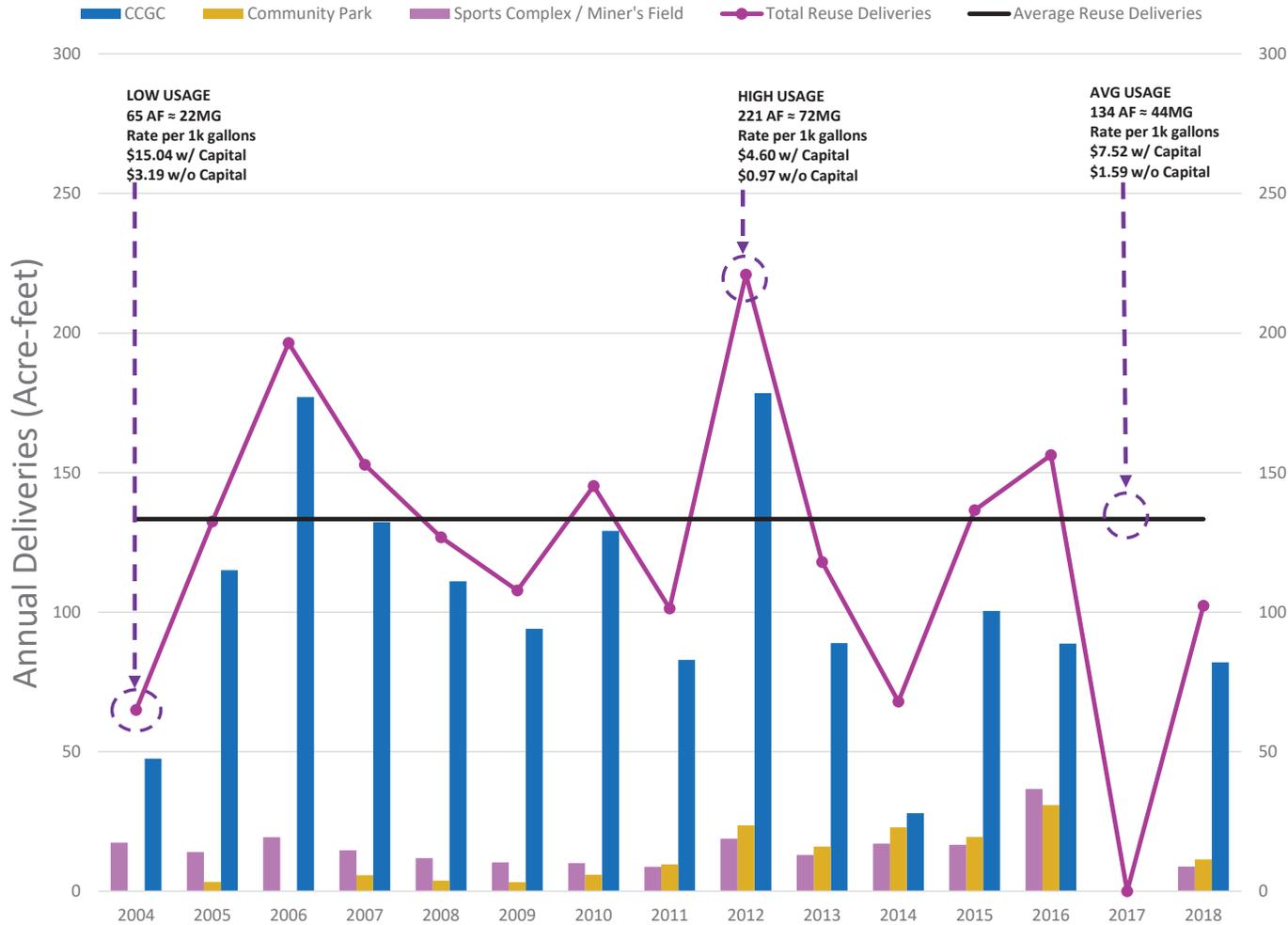
Reclaim Costs

O&M Costs		Capital Costs (amortized at 2% over life cycle)	
Personnel	\$29,500	Treatment (10 to 25 yrs.)	\$26,400
Energy	\$31,700	Tanks (100 yrs.)	\$108,700
Chemicals	\$5,500	Pipeline (100 yrs.)	\$125,900
Central Charges/Misc.	\$3,300		
Total O&M Costs	\$70,000	Total Capital Costs	\$261,000

Reclaim Rate Formula

$$\text{TOTAL COST} / \text{TOTAL VOLUME} = \text{RATE}$$

Reclaim Usage with Calculated Rates

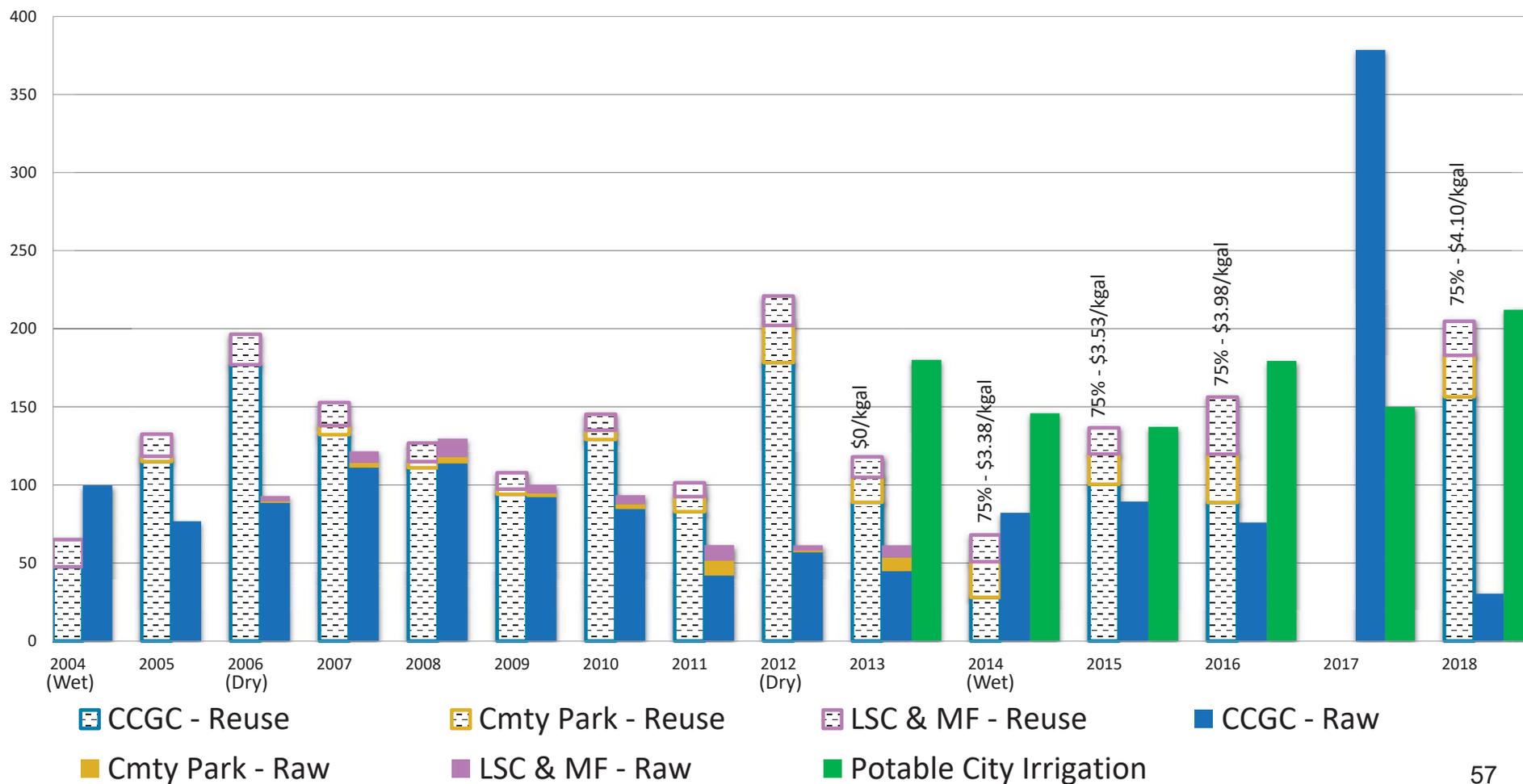


Basis	Rate per 1,000 gallons
High Usage	\$4.60
Avg Usage	\$7.52
Low Usage	\$15.04
75% Residential	\$4.10
75% Commercial	\$2.27
100% Residential	\$5.47
100% Commercial	\$3.02

Reclaim Water Rate

Category	w/ Capital	w/o Capital
O&M Costs	\$70,000	\$70,000
Capital Costs (amortized)	\$261,000	\$0
Total Costs	\$331,000	\$70,000
Billed Reuse Volume, gallons	72,000,000	72,000,000
Reclaim Water Rate per 1000 gallons	\$4.60	\$0.97

Reclaim and Raw Water



Projected Yearly Usage

Category	Reclaim	Raw	Total	Percentage
Average 2014 – 2018 (excluding 2017)				
Sports Complex/Miner's Field	23	0	23	11%
Community Park	24.9	0	24.9	12%
CCGC	93.4 (57%)	69.4 (43%)	162.8	77%
Total	141.4 (67%)	69.4 (33%)	210.8	
Wet Conditions (estimated)				
Sports Complex/Miner's Field	20	0	20	10%
Community Park	20	0	20	10%
CCGC	40 (25%)	120 (75%)	160	80%
Total	80 (40%)	120 (60%)	200	
Dry Conditions (estimated)				
Sports Complex/Miner's Field	27	0	27	12% - 27%
Community Park	29	0	29	13% - 29%
CCGC	44-144 (88% - 100%)	0-20 (0% - 12%)	44-164	44% - 75%
Total	100-200 (91% - 100%)	0-20 (0% - 9%)	100-220	

Alternative (raw water)

Ditches

- Availability

Coal Creek Water Rights

- Direct Flow
- Exchange

Marshall Lake Water Rights

- Via Cherry Street Pipeline
- Projected acquisition cost \$10,000 to \$15,000 per acre-foot or \$30-\$45 per 1,000 gallons
- Cost to Replace Potable Use (120 AF) = \$1,200,000 to \$1,800,000
- Cost to Replace All Use (220 AF) = \$2,200,000 to \$3,300,000



Memorandum

TO: City of Louisville, Public Works Department – Cory Peterson
City of Louisville, Coal Creek Golf Course – David Dean

FROM: Spronk Water Engineers, Inc.; Katryn Leone, P.E.

DATE: September 13, 2018

RE: Coal Creek Golf Course Irrigation Water

The purpose of this memo is to describe the water sources that can be used for irrigation at the City of Louisville's ("Louisville") Coal Creek Golf Course ("CCGC"), the general availability of the water sources, and the procedures for coordinating deliveries of irrigation water to the golf course.

There are several sources of water available for irrigation use at the CCGC: raw water diversions from Coal Creek ("Coal Creek Water Rights"), raw water deliveries from Marshall Lake ("Marshall Water"), Reclaim Water deliveries from the Louisville Wastewater Treatment Plant ("WWTP"), and Potable Water deliveries from the Louisville Water Treatment Plants ("WTP").

Coal Creek Water Rights

General Description:

The Coal Creek Water Rights allow diversions, when the water rights are in-priority, directly from Coal Creek within the CCGC. Louisville's Coal Creek Water Rights were decreed in Case No. 88CW172 and the include: 3 direct flow water rights, 7 water storage rights, and 2 exchange rights.

The direct flow and storage water rights can be diverted from Coal Creek via pipelines, stored in the CCGC Ponds, and used for irrigation at the CCGC. The 2 exchange water rights involve diverting water from Coal Creek via the pipelines while replacing a similar amount at a specified location downstream. All of the diversions from Coal Creek are subject to the water commissioner's approval. The Coal Creek Water Rights are further detailed in an attachment to this memo.

Availability:

All of the Coal Creek Water Rights have an appropriation date of September 20, 1988 which makes them fairly junior water rights. These water rights are typically in-priority during periods of higher stream flows such as spring runoff.

Delivery Coordination:

For delivery of Coal Creek Water, contact Cory Peterson and/or Katie Leone (Spronk Water Engineers).

Cory Peterson
303-335-4610
cpeterson@louisvilleco.gov

Katie Leone
303-861-9700
kleone@spronkwater.com

We will coordinate with the water commissioner for approval to begin diversions and will notify the CCGC staff with the approved diversion dates, amounts, and other specifics.

Detailed daily records of the diversion amounts, diversion locations, and diversion dates are required to be submitted for the City's water rights accounting. I will happy to work with CCGC staff to develop a water rights diversion spreadsheet and to coordinate reporting deadlines.

Marshall Water

General Description:

Marshall Lake is located west of Louisville between Highway 93 and US 36 and is owned by the Farmers Reservoir and Irrigation Company ("FRICO"). Louisville owns shares in Marshall Lake that are delivered to the City for municipal use either directly to the Howard Berry Water Treatment Plant or to the Louisville Lateral for delivery to other locations in the City including the CCGC. Louisville is issued a pro-rata portion of the total water stored in Marshall Lake based on its share ownership. Due to agreements with the Farmers Reservoir and Irrigation Company ("FRICO"), Louisville is also able to store other water rights in Marshall Lake during certain times of the year.

Availability:

Water storage season for Marshall Lake runs from November 1st to April 1st, annually. Deliveries of Marshall Water to the CCGC are typically available during the early irrigation season (March – May) and are governed by the City's overall water supply and demand outlook. If Marshall Lake does not fill in any given winter, water may not be available to the CCGC during the following irrigation season.

Delivery Coordination:

For delivery of Marshall Water, contact Cory Peterson.

Reclaim Water

General Description:

Louisville operates a Reclaim Water system that supplies tertiary treated wastewater for irrigation to the CCGC via a pipeline.

Availability:

Reclaim water is typically available during the irrigation season.

Delivery Coordination:

For delivery of Reclaim Water, contact the Louisville WWTP staff.

Potable Water

General Description:

The final water source available to the CCGC for irrigation is Potable Water delivered from Louisville's water treatment plants.

Availability:

Potable water can be made available to the CCGC at all times, except when Louisville is operating under Drought Management Plan Stages 3 or 4.

Delivery Coordination:

For delivery of Potable Water for irrigation, contact the Louisville WTP staff.

Irrigation Water Source Order of Use

The source and order of water use will depend on the water supply availability during the irrigation season. Below lists the order of use that CCGC should employ to maximize water availability for the irrigation season.

<i>Wet Water Year</i>	<i>Ave Water Year</i>	<i>Dry Water Year</i>
1. Coal Creek Water Rights (20 to 80 af ¹)	1. Coal Creek Water Rights (10 to 40 af)	1. Marshall Water (if available) (0 to 20 af)
2. Marshall Water (20 to 50 af)	2. Marshall Water (10 to 30 af)	2. Reclaim Water (100 to 200 af)
3. Reclaim Water (80 to 170 af)	3. Reclaim Water (120 to 190 af)	3. Potable Water (0 to 100 af)
	4. Potable Water (0 to 40 af)	

¹ Acre-feet

Prior to commencing irrigation at the CCGC, City staff will be able to provide an estimate of the type of water year expected during the coming year.

Annual Costs Estimates

Annual water use at the CCGC is projected to be 210 AF/yr. For each of the three scenarios above a projected budget range was developed. These ranges were calculated based on the current rates for reuse at \$4.10 per 1,000 gallons [75% of the residential (\$5.47 per 1,000 gallons)] and the highest use commercial irrigation rate for 1- ½ inch meter [\$1,243.35 for the first 200,000 gallons and \$9.23 per 1,000 gallons after]. Further, potable rates were disturbed proportional from April to September as a supplemental supply to the reuse water. The Coal Creek and Marshall Water has a nominal fee and was considered inconsequential for this analysis.

<i>Estimate</i>	<i>Wet Water Year</i>	<i>Ave Water Year</i>	<i>Dry Water Year</i>
Lower Range	\$107,000 (Reuse - 80 AF)	\$187,000 (Reuse - 140 AF)	\$254,000 (Reuse - 190 AF)
Higher Range	\$227,000 (Reuse - 170 AF)	\$317,000 (Reuse - 170 AF, Potable 40 AF)	\$444,000 (Reuse - 110 AF, Potable 100 AF)

Raw Water Replacement Costs

To replace the same annual water use projection of 210 AF/yr. An estimated rate of 2 AF/share was utilized to calculate that 105 shares are needed to supply the CCGC. With an average share cost (in the South Boulder Creek Basin) of \$25,000/share, the total cost would equal \$2.625 million. Spread over a 15 year period with 3% interest rate the annual cost is projected to be approximately \$222,000/yr. Annual ditch assessments would add another \$4,000 each year, for a total of \$226,000/yr. The replacement cost has a lower value than the low range for the Dry conditions and the high ranges for both the Avg and Dry scenarios. With higher probabilities that any given future year will be wet or average, this basic analysis would suggest that a replacement supply does not provide a clear advantage or disadvantage. Factors like: reliability, control, customer flexibility/tolerance, risk and resilience could shift this in either direction and would need further clarification before those effects could be incorporated.

Case No. 88CW172 Coal Creek Water Rights – Detail Information

The City has direct water rights at 3 pipelines:

Structure Name	Diversion Amount (cfs ²)	Priority Date	Description
CCGC Pipeline 1	2.0	9/20/1988	diverts from Coal Creek and runs to the CCGC Pond 9 located near Tee #1
CCGC Pipeline 2	2.0	9/20/1988	diverts from Coal Creek and runs to the CCGC Pond 8 located near Hole #6 and
CCGC Pipeline 3	2.0	9/20/1988	diverts from Coal Creek and runs to CCGC Pond 4 located near Hole #16

The City has storage water rights at 7 ponds:

Structure Name	Storage Amount (af)	Priority Date	Description
CCGC Pond 3	6.4	9/20/1988	can store water from urban runoff and seepage
CCGC Pond 4	2.8	9/20/1988	can store water diverted from Coal Creek through CCGC Pipeline 3
CCGC Pond 5	2.5	9/20/1988	can store water diverted from Coal Creek through CCGC Pipeline 2
CCGC Pond 6	2.5		
CCGC Pond 7	4.9		
CCGC Pond 8	6.4		
CCGC Pond 9	2.4	9/20/1988	can store water diverted from Coal Creek through CCGC Pipeline 1

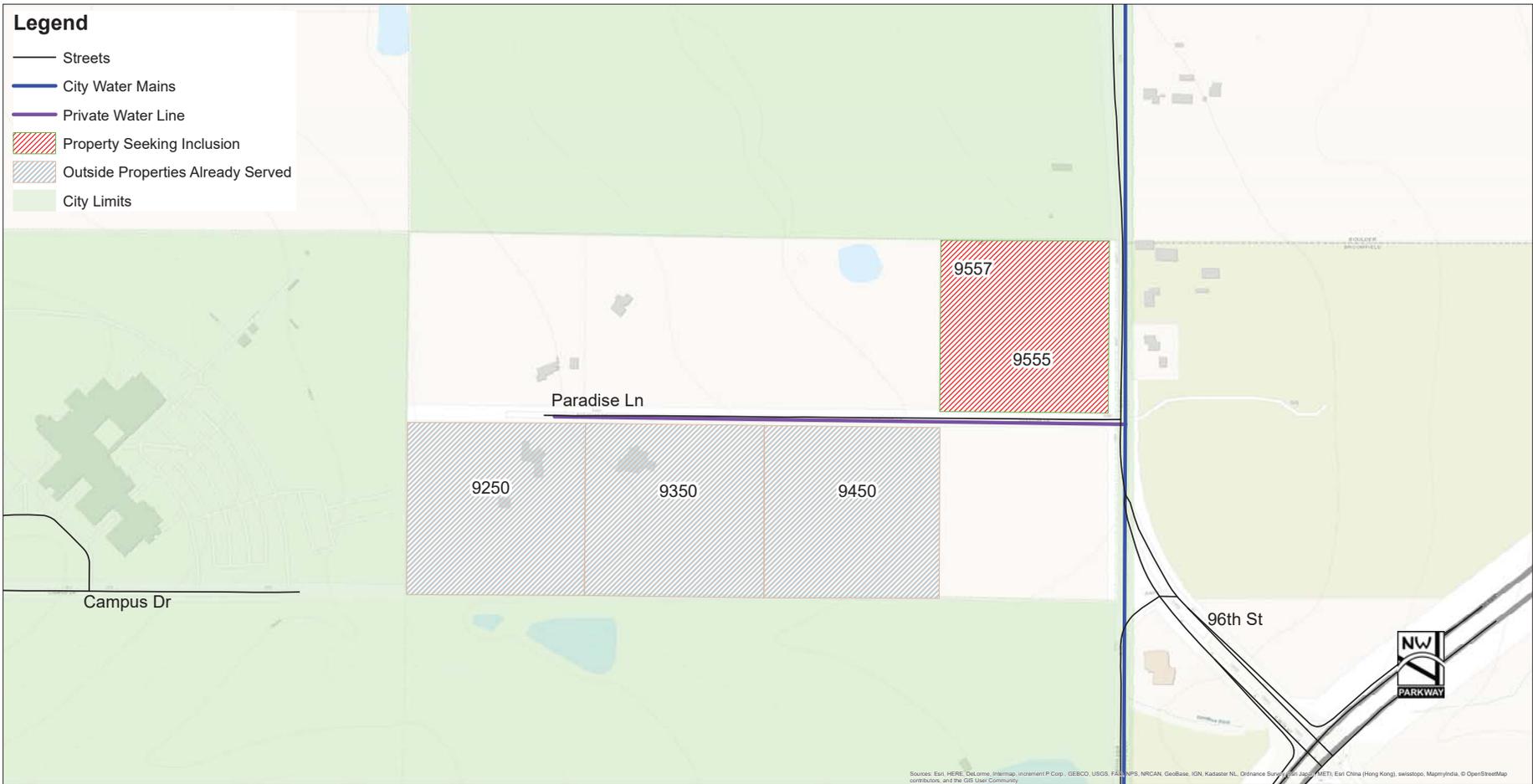
The City has 2 Exchange Rights:

Exchange Name	Exchange Amount	Exchange to Point	Exchange from Point	Description
Exchange No. 1	4.65 cfs	CCGC Pipelines 1, 2, 3, and CCGC Pond 3	Louisville WWTP	Exchange of Effluent from WWTP to Coal Creek Golf Course pending Water Commissioner Approval; limited to specific water rights in the City's Water Right Portfolio
Exchange No. 2	1.726 cfs and 319 af	CCGC Pipelines 1, 2, 3, and CCGC Pond 3	Confluence of Coal Creek and Boulder Creek	Exchange of the consumptive use portions of Louisville's Coal Ridge water rights to Coal Creek Golf Course pending Water Commissioner Approval; limited to specific water rights in the City's Water Right Portfolio

² Cubic feet per second

Legend

- Streets
- City Water Mains
- Private Water Line
- ▨ Property Seeking Inclusion
- ▨ Outside Properties Already Served
- City Limits



**CITY of
LOUISVILLE**

749 MAIN STREET
LOUISVILLE, CO 80027
(303) 666-6565

**2018
Paradise Lane Outside Water Service**

