CITY OF FLAGSTAFF
WATER COMMISSION
May 19, 2022
Virtual Meeting
SUMMARIZED MINUTES

MEMBERS PRESENT

X	Commissioner Kurt Riegelman	X	Commissioner Robert Dilday
X	Commissioner Joe Loverich		Commissioner John Nauman
X	Commissioner Malcolm Alter	X	Commissioner Ben Ruddell
X	Commissioner Don Bills		

COUNCILMEMBER & P&Z REP/ LIAISON TO THE CITY COUNCIL

X	Council Rep Miranda Sweet		P & Z Rep, Marie Jones

STAFF & OTHERS PRESENT

Andy Bertelsen	Marion Lee	Gary Miller
Erin Young	Jim Huchel	Bill Case
Lisa Deem	Steve Camp	Robert Bryant
Paul Turner	Ward Davis	Robert Vane
Chase McLeod		

I. CALL TO ORDER

Chair Kurt Riegelman called the meeting to order at 4:04 p.m.

II. APPROVAL OF MINUTES – April 21, 2022

Moved by Robert Dilday and seconded by Ben Ruddell to approve the meeting minutes of April 21, 2022. Motion carried unanimously.

III. PUBLIC PARTICIPATION

The following Public Participation were received via emails:

Hanna Griscom, Game & Fish – Supports the WaterSmart Grant Application for Drought Resiliency that is proposed by City of Flagstaff Water Resources.

Michele James, Friends of Flagstaff's Future – Does not support the WaterSmart Grant Application and said to consider the Stakeholder Committee's recommendation that advanced treatment of A+ water take place prior to all evaluated alternatives including aquifer recharge (indirect potable reuse). This recommendation was directly related to the concerns about the presence of Contaminants of Emerging Concerns (CECs) and per- and polyfluoroalkyl substances (PFAS) in reclaimed water.

Haley Paul – National Audubon Society – Supports the WaterSMART Grant Application for the implementation of an aquifer recharge and recovery program. Groundwater recharge projects can provide multiple benefits.

Paul Beier – Friends of the Rio de Flag – Supports the WaterSMART Grant Application for Drought Resiliency, which the City intends to submit to Bureau of Reclamation. This project would release reclaimed water into Sinclair Wash and Bow and Arrow Wash just west of Lone Tree Road.

(In person participation)

Robert Vane, Flagstaff Water Group – Does not support the WaterSmart Grant Application for Drought Resiliency. Five reasons: 1) The project is being proposed, when the Reclaimed master plan is incomplete. 2) Chemical contamination of Coconino aquifer 3) Project should not be pursued in direct contradiction with the replaced water stakeholder group conveyed by Water Services in 2020 and 2021. 4) The hydrogen geology of the percolation area is not well understood and is under investigation. 5) The proposal does not actually add any more water to the aquifer than occurs today. It only moves the injection point upstream. 6) This grant proposal requires 50% matching funds from the City. Money should be saved and applied to urgent water system, like the digesters, and not to build a stream.

IV. NEW BUSINESS

A. Spruce Wash Administration Floodplain Designation – Chase McLeod

Chase McLeod, Stormwater Project Manager presented details on a proposed Administrative Floodplain designation for Spruce Wash. A proposal is for an Administrative Floodplain overlay for Spruce Wash between Paradise Road and Route 66. The overlay is based off of the 2022 existing conditions hydrologic model created by JE Fuller for the County Flood Control District. The overlay will be based on the 3 inch rain event in 45 minutes roughly mirroring a 100 year design storm.

The purpose of the overlay will be to provide guidance for City building permits, development review, floodplain use permits, and private landowners for their individual flood mitigations. The administrative floodplain will be managed similar to a FEMA floodplain (Zone AE) with the following exceptions:

- The 50% development rule for FEMA floodplains will be waived.
- Mandatory NFIP flood insurance will be waived (but strongly recommended).
- Waivers for new development at 1 foot above BFE will be considered on a case-by-case basis.

The administrative floodplain overlay will be replaced by a formal FEMA CLOMR/LOMR once the watershed has restored or flood mitigation projects are completed. Alternatively, a new overlay may replace this map if future hydrological modeling and mapping are completed by the City or the County to reflect changes in flood risk.

B. Update on the Lift Station and Solids Project at Rio de Flag WWTP – Jim Huchel/Gary Miller Robert Bryant, Design Engineer

Jim Huchel, Wastewater Plant Manager, Gary Miller, WS Engineering Section Director and Robert Bryant, Design Engineer presented a powerpoint on the Rio de Flag Digester Project. This project is intended to increase the City's overall treatment capacity until the Wildcat Hill Reclamation Plant can be upgraded and expanded.

The Water Commission was previously presented the 5 yr capital plan for Water Services. In that presentation it was discussed the developing concerns of the City's ability to keep up with the current and future wastewater treatment demands. This concern was identified in the 2019 BioSolids Master Plan by Carollo. Within that plan Carollo had identified potential smaller projects that would provide some small additional capacity until the Wildcat Hill Reclamation Plant could be upsized for additional capacity. These projects were identified as Flow Diversion Option 1 and Flow Diversion Option 2.

With the help of Water Services GIS, we have been conducting flow measurements within the wastewater collection system to verify the ability to implement the options within the BioSolids Master Plan. In order to recognize the necessary benefits Engineering and Water Reclamation concluded that a flow diversion would be needed downstream of the Rio plant. Water Commission was presented, as part of the 5 yr Capital Plan, some of the details that were in development for a lift station to accomplish this.

Upon further investigation and analysis, Engineering and Water Reclamation have developed an alternative plan that we predict will provide the needed interim additional capacity, be more cost effective in the short and long term, and provide more long term benefits to the wastewater treatment system. As stated above this project proposes to provide solids treatment at the Rio De Flag plant.

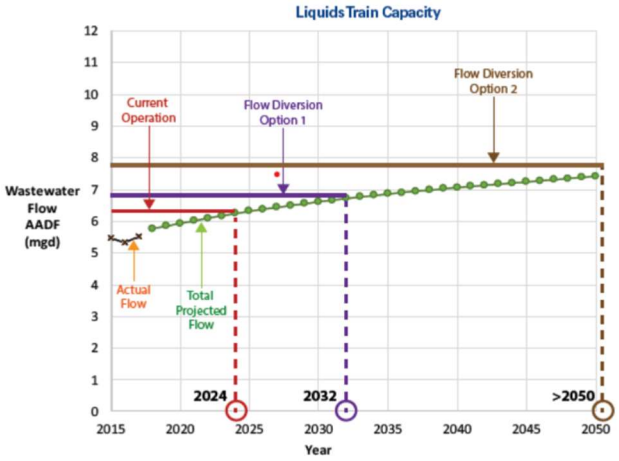
Engineering and Water Reclamation will present the analysis of the different project alternatives developed by Water Works Engineers, the benefits and challenges each provide, and the capital and long term costs.

Wastewater Fund- Budget Discussions

Critical Needs

- Wastewater Treatment Capacity
  - Solids Capacity
  - Liquid Capacity
- Redundancy
- Maintenance
- Aging Infrastructure Rehab

Projected Demands



Project Options:

Addressing the Wastewater Capacity Problem

- Choose Short-Term Measures to Support Long-Term Solutions
- Increase Capacity at Rio de Flag Water Reclamation Plant (Rio)

Short-Term Options:

1. Haul Liquid Waste from Rio to Wildcat for solids handling.
2. Install Digesters at Rio to process solids to Class B sludge, then haul to disposal site
3. Add an Alternate Liquids Treatment Process (SBR) at WCH to increase hydraulic capacity on a temporary basis

4. Add Solids thickening and dewatering process at Rio, then haul partially-treated sludge to landfill disposal site

Option	Description	Rio Capital Cost	WCH Digester	Total Capital	10 yr PW	20 yr PW	Annual O&M	WCH MGD Capacity	WCH Cap, $/mgd
1A	Haul Liquid Waste From RIO to WCH FLS - 1.5 mgd	$3,645,000	$16,000,000	$19,645,000	$7,874,000	$10,469,000	$547,560	1.7	$11,555,882
1B	Haul Liquid Waste From RIO to WCH FLS - 3.33 mgd	$7,290,000	$16,000,000	$23,290,000	$15,848,000	$21,102,000	$1,108,260	2.7	$8,625,926
2A	Digesters at RIO, thicken, de-water,haul to landfill - 1.5 mgd	$5,838,500	$8,000,000	$13,838,500	$13,093,000	$17,546,000	$939,405	1.7	$8,140,294
2B	Digesters at RIO, thicken, de-water, haul to landfill-3.33 mgd	$10,551,900	$8,000,000	$18,551,900	$24,782,000	$33,517,000	$1,842,770	2.7	$6,871,074
2C	Digesters at RIO, thicken, de-water, haul to WCH - 3.33 mgd	$10,551,833	$8,000,000	$18,551,833	$12,854,000	$14,267,000	$298,037	2.7	$6,871,049
3A	Nereda (2 mgd) at WCH	$11,460,000	$16,000,000	$27,460,000	$14,186,000	$15,859,000	$352,969	2	$13,730,000
3B	Nereda (4 mgd) at WCH	$20,670,000	$16,000,000	$36,670,000	$25,765,000	$28,892,000	$659,712	4	$9,167,500
4A	RIO Thicken, SHT, dewater and haul to landfill - 1.5 mgd	$2,411,400	$8,000,000	$10,411,400	$8,857,000	$12,814,000	$834,657	1.7	$6,124,353
4B	RIO Thicken, SHT, dewater and haul to landfill - 3.33 mgd	$4,222,800	$8,000,000	$12,222,800	$16,927,000	$24,726,000	$1,645,181	2.7	$4,526,963

Anaerobic Digestion RdFWRP Digester Complex

- History – Installed in 1993, No solids Treatment at Rio de Flag
- Why – Wildcat Hills organic loading is over the design limit, which in turn derates the Hydraulic capacity of the facility from 6.0 to 4.3 M.GD. This project will remove between 6 and 10 thousand pounds of organics off the system and restoring most if not all of Wildcat Hills hydraulic capacity.
- What – Solids treatment is at 88% of capacity at Wildcat Hill, we are building one new digester.
- Status – Waterworks Engineering is the Design Consultant.
- Energy improvement project more efficiently de-waters the solids.
- Supports Carbon Neutrality. This process can ultimately produce bio-solids for a Bio Char facility, potentially providing top cover for the landfill.

Robert Dilday commented that hauling is expensive no matter what and investing in areas where it is needed is great. Converting the product to something useful is good.

Gary Miller added that this project was not captured in the five year CIP plan for this budget season, so staff renamed the fund set aside for flow diversion.

Kurt Riegleman said to make the move to optimized for 10 years and look at a 10 year decision. The 10 year operational plan is most efficient because of operating plan or the operating cost are significantly less.

Don Bills asked if rate increases are included in the cost estimates shown. Robert Bryant indicated that only 5% was factored in.

Robert Dilday asked if staff looked at purchasing land for a dump site. Indicated that land might be cheaper. Jim Huchel said the dedicated land disposal (DLD) would be nice if Rio de Flag was close to Wildcat, but unfortunately that is not an option. In order to get the solids out and increase capacity at Wildcat to buy more time, hauling is the only way.

Water Reclamation is diligently pursuing design of this project. The Commission thanked staff for the Rio de Flag Digester Project and supports the current direction with changes identified.

C. WaterSMART Grant Application for Drought Resiliency – Erin Young

Erin Young, Water Resources Manager presented this item. The Water Resources Section of the Water Services Division is requesting a $1,500,000 to $2,500,000 grant from the Bureau of Reclamation to implement an aquifer recharge and recovery program. Should Water Services be awarded the grant, staff will be asking City Council for consent to receive the grant when awarded in March 2023.

Flagstaff has been discharging unused reclaimed water from the Rio de Flag Water Reclamation Plant (Rio WRP) since construction of the plant in the mid-1990's. The Rio WRP discharges unused water to the Rio de Flag wash at the I-40 wetlands, below Interstate 40. Discharge is authorized by the Arizona Department of Environmental Quality (ADEQ) through an Arizona Pollutant Discharge Elimination System (AZPDES) and Aquifer Protection Permits (APP). Reclaimed water discharged to a wash either mixes with exiting surface water, flows over land surface, or seeps through the soil, alluvium and rock and blends with existing groundwater in underground aquifers. A portion of the discharge to the Rio de Flag flows through the I-40 wetlands and overland for some distance, up to several miles downstream. Water ultimately seeps into the subsurface, with a portion recharging the shallow aquifer adjacent to the Rio de Flag or migrating downward to the deeper C-aquifer. The rate of recharge is probably on the order of days to weeks to years, depending on if water flow through the subsurface occurs through primary pore spaces between sand grains or intersects secondary pore spaces in cracks and fractures of consolidated rock.

The 2014 Utilities Integrated Master Plan Principles of Sound Water Management Water Policies Chapter approved by City Council in 2014 includes policy on aquifer recharge. Policy C6 on Recharge and Recovery states that recharge of the City's unused renewable water supplies is sustainable and resilient to the impacts of prolonged drought. Policy C6.1 suggests Flagstaff develop a Groundwater Recharge and Recovery program in compliance with applicable State laws. The purpose of the program is to optimize the management and use of the City's reclaimed water. Policy C6.2 defines two initiatives for development of local water recharge and recovery through a) developing, constructing, and permitting City-owned Underground Storage Facilities through the Arizona Department of Water Resources (ADWR), and b) capturing and recovering the stored reclaimed water through water supply wells located down-gradient and permitted as Recovery Wells through ADWR.

Staff began pursuing a permit through ADWR for an Underground Storage Facility for the Rio WRP discharge location in 2014. A pre-application meeting with ADWR resulted in much uncertainty in the City's ability to prove the volume of water recharged to the C aquifer. This was due to the amount of overland flow occurring for miles from the point of discharge and the presence of a shallow aquifer adjacent to the Rio de Flag. Since the hydrology and recharge volume would be more difficult to track per ADWR requirements given the distance and multiple tributaries entering the Rio de Flag, and homes in Coconino County that might be diverting flow from the Rio de Flag wash staff concluded a more formal recharge and recovery program needed to be developed. Since that time, Staff has completed several studies that point to two favorable locations along South Lone Tree Road for recharge projects, one at Sinclair wash and one at Bow and Arrow wash. Staff are working with ADWR to ensure Water Services has the hydrologic and hydrogeologic data necessary for an aquifer recharge program and to obtain an Underground Storage Facility Permit. One of the more relevant studies is the Aquifer Recharge Feasibility Study Infiltration Evaluation conducted by Natural Channel Design in 2020. This study is available on the City's website at https://www.flagstaff.az.gov/3848/Recharge-and-Recovery

Staff proposes to leverage funds in our Water CIP budget for the City's next groundwater well to construct two outfalls that would release water for aquifer recharge upstream of the proposed recovery

well location(s) including on Canyon Del Rio property. The project meets the following criteria in the drought resiliency grant:

- Brings Flagstaff in-line with how municipalities in the Active Management Areas manage their reclaimed water via aquifer recharge
- Builds long-term resilience to drought by putting unused reclaimed water back into the aquifer
- Reduces the need for emergency response actions if Upper Lake Mary goes dry
- Improves the ability of water managers to continue to deliver water during a drought
- Decreases vulnerabilities and costs of drought by giving water managers flexibility in times of low water supply
- Given there are no requirements for municipalities in rural Arizona to develop drought resiliency projects for their service areas, the project is beyond routine water management activities or activities required by state law for conservation and efficiency
- Proposed project meets a need identified in the City's Council-adopted Water Policies and City Code.

Currently, aquifer recharge of the groundwater system has been occurring unintentionally for decades with construction of the Rio WRP in the mid-1990s. Six groundwater production wells are located down-gradient of the Rio WRP, drilled after the Rio WRP was constructed. Water Services is working to formally permit these wells through ADWR with Recovery Well Permits related to the new Underground Storage Facility Permit.

In terms of the impact aquifer recharge will have on our groundwater system, staff expect to recharge about 800 to 1,000 acre feet per year in the first year. This volume will not impact the City's commitment under the Bow & Arrow Agreement with Arizona Game & Fish Department, which provides a weekly average 100 gallons per minute of flow to the I-40 Wetlands and to Picture Canyon. The proposed recharge volume is equal to 15%-25% of the total volume pumped from the aquifer each year. Additional water volume, on the order of 3,000 acre-feet per year, would be available from the Wildcat Hill WRP once additional upgrades are made to the reclaimed water distribution system.

Water management benefits of aquifer recharge include the flexibility of using the aquifer for storage, making seasonal variation in water availability a non-issue. Staff would recharge water when we have excess. Aquifer recharge does not preclude us from entering into any new reclaimed water agreements, however, reclaimed water is still limited in the dry spring and summer months due to high customer demand. Additionally, should a best and higher use be determined for unused reclaimed water in the future, the outfalls are a relatively low investment compared to the drought resiliency benefit. Should direct potable reuse or augmenting Upper Lake Mary with advanced treated water be the preference in the future, we are a minimum of 7 to 10 years before that supply would come online.

Drought-proofing the City's groundwater supply is a priority of Water Services and Flagstaff City Council. Guided by the Water Availability Strategies in City Code, the City's Community Water System Drought Plan on file with ADWR, and the Council-adopted Water Policies (2014), other City Plans also reference or support groundwater recharge as a necessary water management strategy, including the Regional Plan 2030 (2014) and Climate Action and Adaptation Plan (2018). One way to view sustainable yield from the C aquifer is to total the volume of natural recharge from rainfall, streamflow, or melting snow with artificial recharge from permitted water storage facilities and matching with the rate of withdrawal from groundwater production wells. A formal recharge and recovery program through ADWR provides a framework for the City to account for credits back to the aquifer.

Numerous advocacy groups, NAU scientists, and area agencies have expressed interest in seeing this project come to fruition, with co-benefits including environmental and riparian area enhancement, research opportunities, educational opportunities, and amenity benefits. The Watershed Alliance for

the Rio De Flag (WARF), for example, presented a Watershed Management Plan (WMP) to City Council on April 26, 2022. The WARF was seeking to enter into a Master Participating Agreement (MPA) with the City of Flagstaff as a formal agreement to cooperate on projects of mutual interest, such as to leverage funding opportunities. One project of many shared in WARF's presentation was a desire to see reclaimed water in Sinclair wash. While entering the MPA is a multi-step process, City Council did voice enthusiasm about WARF and impending cooperation on projects of mutual benefit. Additionally, given the WMP was funded through a Bureau of Reclamation WaterSMART Cooperative Watershed Management Program grant, the Drought Resiliency grant application will demonstrate a strong nexus with another Bureau of Reclamation funded project. Staff will seek formal letters of support from those who have expressed interest in the project, to include in the Drought Resiliency grant application.

Staff recognizes that water quality has been expressed as a concern by some citizens and organizations in Flagstaff. Flagstaff's reclaimed and potable water quality meets the highest standards set by EPA and ADEQ. In 2018, a City Manager's Expert Panel on Compounds of Emerging Concern concluded that no water quality indicators tested specifically by the panel suggest that Flagstaff should stop using reclaimed water as permitted by ADEQ. Flagstaff Water Services is committed to continued pursuance of additional treatment of its Class A+ water once critical upgrades to add redundancy and capacity are made to Flagstaff's aging water reclamation plants. Additional information on water quality, including sampling results of Flagstaff's drinking water sources for unregulated compounds can be found in the City's Consumer Confidence Reports available on the City's website at https://www.flagstaff.az.gov/98/Water-Quality.

Tucson Water's Santa Cruz River Heritage Project is an excellent correlation with the projects proposed to be funded through the Drought Resiliency grant application: https://www.tucsonaz.gov/water/wwe201908

Don Bills asked if recovery well means a water supply that puts water downgradient from recharge areas back into the City's water supply system. Given that location of that potential, some city wells have treatment capability on site to treat drinking water. Erin said all wells are chlorinated and the water quality exceeds Safe Drinking Water Act Quality.

Don said this is a subject that has a lot of concerns around the community and the potential for contaminants of emerging concern within the Rio. He asked if this is relevant to the grant. Erin indicated that grant requires to meet all Safe Drinking Water Act and any other. The water quality standards requirement must be in compliance with the aquifer quality and the reclaimed water quality.

Erin said the City of Flagstaff has gone above and beyond in sampling and build on the study mentioned from the 90s. Investigations were added of water quality around CECs and pharmaceuticals and such to the point where the City Manager's panel on compounds of emerging concerns (CEC) in 2013. In five or six years of scientific study concluded there is no reason for Flagstaff to seize using reclaimed water, as permitted by ADEQ.

Ward Davis, public comment. Ward said Flagstaff has such good water, so contamination is a concern and has been detected on occasions. The concern is contamination contaminating the aquifer and hope this plan includes some cleanup. To clean up water for drinking, means reduce the biological materials by millions of times. The Flagstaff Water Group would like for a moderate reduction of 95% to 99% removal considered in the plan.

Malcolm indicated he has concerns about CECs. Ben Ruddell said he will endorse it and knows staff put a lot of work into this proposal.

Staff requests that the Water Commission formally endorse Water Services' pursuit of this WaterSMART Drought Resiliency grant. This endorsement will be conveyed on the Grant Application and to City Council. Staff is pursuing to develop a formal aquifer recharge and recovery program and obtain the necessary permits consistent with State Law, City Code, and Water Policy.

Motion to endorse the Grant Application and for staff to pursue to develop a formal aquifer recharge and recovery program and obtain the necessary permits consistent with State Law, City Code, and Water policy. Vote in favor 5 to 1. Motion carried.

V. OLD BUSINESS - None

VI. INFORMATIONAL ITEMS TO/FROM THE CHAIR, COMMISSION OR STAFF

Andy Bertelsen, Water Services Director announced this will be his last meeting. As all organizations transition and seek the next level of leadership in the services we provide in local government, Andy said he's been granted the opportunity to serve Coconino County as a Deputy County Manager. Andy thanked the Water Commission for valued learning opportunities.

Robert Dilday requested for tours of the Water and Wastewater Plants. Jim Huchel said there is a tour planned for Thursday, May 26th and the Commission was invited.

VII. ADJOURNMENT

Meeting adjourned at 6:09 p.m.