



MURRAY
CITY COUNCIL

Council Meeting March 4, 2025



Murray City Municipal Council

City Council Meeting Notice

March 4, 2025

PUBLIC NOTICE IS HEREBY GIVEN that the Murray City Municipal Council will hold a City Council meeting beginning at 6:30 p.m. on Tuesday, March 4, 2025 in the Murray City Council Chambers located at Murray City Hall, 10 East 4800 South, Murray, Utah.

The public may view the Council Meeting via the live stream at www.murraycitylive.com or <https://www.facebook.com/Murraycityutah/>.

Meeting Agenda

6:30 p.m. **Council Meeting** – Council Chambers
Scott Goodman conducting.

Opening Ceremonies

Call to Order
Pledge of Allegiance

Approval of Minutes

Council Meeting – February 4, 2025

Citizen Comments

Comments will be limited to three minutes, step to the microphone, state your name and city of residence, and fill out the required form.

Special Recognition

None scheduled.

Consent Agenda

None scheduled.

Public Hearings

Staff, sponsor presentations and public comment will be given prior to Council action on the following matters.

1. Consider a resolution approving the October 2024 Murray City Water Master Plan. Aron Frisk presenting.
2. Consider a resolution adopting the December 2024 Water Impact Fee Facilities Plan and the January 2025 Water Impact Fee Analysis. Aron Frisk presenting.
3. Consider an ordinance amending Section 3.14.110 of the Murray City Municipal Code relating to Water System Impact Fees. Aron Frisk presenting.
4. Consider an ordinance amending Section 13.08.020 of the Murray City Municipal Code relating to Metered Water rates in the City. Aron Frisk presenting.
5. Consider an ordinance amending Section 13.08.080 of the Murray City Municipal Code relating

to the Minimum Size of Water Service Pipes. Aron Frisk presenting.

6. Consider an ordinance enacting Section 13.08.025 of the Murray City Municipal Code relating to a New Construction Water Meter and AMI Equipment Fee Schedule. Aron Frisk presenting.
7. Consider an ordinance amending Section 13.32.060 of the Murray City Municipal Code relating to Monthly Service Charges for Users of the City's Sewer System. Ben Ford presenting.
8. Consider a resolution declaring the property located at approximately 48 East 4800 South, Murray City, Salt Lake County, State of Utah, as surplus; and approving the contribution and conveyance of said property for less than appraised value based on findings pursuant to Section 10-8-2 of the Utah Code. Chad Wilkinson and Elvon Farrell presenting.

Business Items

None scheduled.

Mayor's Report and Questions

Adjournment

NOTICE

Supporting materials are available for inspection on the Murray City website at www.murray.utah.gov.

Special accommodations for the hearing or visually impaired will be made upon a request to the office of the Murray City Recorder (801-264-2663). We would appreciate notification two working days prior to the meeting. TTY is Relay Utah at #711.

Council Members may participate in the meeting via telephonic communication. If a Council Member does participate via telephonic communication, the Council Member will be on speaker phone. The speaker phone will be amplified so that the other Council Members and all other persons present in the Council Chambers will be able to hear all discussions.

On Friday, February 28, 2025, at 9:00 a.m., a copy of the foregoing notice was posted in conspicuous view in the front foyer of the Murray City Center, Murray, Utah. Copies of this notice were provided for the news media in the Office of the City Recorder. A copy of this notice was posted on Murray City's internet website www.murray.utah.gov and the state noticing website at <http://pmn.utah.gov>.



Jennifer Kennedy
Council Executive Director
Murray City Municipal Council



MURRAY
CITY COUNCIL

Call to Order

Pledge of Allegiance



MURRAY
CITY COUNCIL

Council Meeting Minutes

**MURRAY CITY MUNICIPAL COUNCIL
COUNCIL MEETING**

Minutes of Tuesday, February 4, 2025

Murray City Hall, 10 East 4800 South, Council Chambers, Murray, Utah 84107

Attendance:

Council Members:

Paul Pickett	District #1
Pam Cotter	District #2 – Council Chair
Scott Goodman	District #3
Diane Turner	District #4
Adam Hock	District #5 – Council Vice-Chair

Others:

Brett Hales	Mayor	Jennifer Kennedy	City Council Executive Director
Doug Hill	Chief Administrative Officer	Pattie Johnson	Council Administration
G.L. Critchfield	City Attorney	Joey Mittelman	Fire Chief
Brian Miller	Parks and Recreation	Phyllis Wall	Finance Department
Chad Wilkinson	CED Director	Rob White	IT Director
Kim Sorensen	Parks and Recreation Director	Russ Kakala	Public Works Director
Craig Burnett	Police Chief	Amanda Maudsley	Deputy Recorder
Zac Smallwood	Planning Manager	Brooke Smith	City Recorder
Isaac Zenger	IT	Brenda Moore	Finance Director
Citizens & Guests			

Call to Order: 6:30 p.m. – Council Member Cotter

Approval of Minutes: Council Meeting, January 7, 2025

MOTION: Mr. Hock moved to approve, and Mr. Pickett SECONDED the motion.

Voice vote taken, all “Ayes.” Approved 5-0

Special Presentation:

- **State of the City Address** – Mayor Hales delivered a speech on the State of the City.

Consent Agenda:

- **Confirmation of the Mayor’s appointment of Brian Miller to the Parks and Recreation Advisory Board for a term beginning December 30, 2024 through December 30, 2027.** Mayor Hales introduced Mr. Miller expressing confidence that he would be a great addition to the Parks and Recreation Advisory Board.

MOTION: Ms. Turner moved to approve the Consent Agenda. Mr. Hock SECONDED the motion.

Council Roll Call Vote:

Mr. Goodman	Aye
Ms. Turner	Aye
Mr. Hock	Aye
Mr. Pickett	Aye
Ms. Cotter	Aye
Motion passed:	5-0

Public Hearing:

- **Consider an ordinance amending Section 17-12-070 of the Murray City Municipal Code relating to**

compensation for Planning commission Members. Planning Manager Zac Smallwood explained that the proposed request would raise the compensation for Murray planning commissioners from \$40 to \$50 per meeting. A cost comparison sheet was provided to show compensation for other city planning commissions in the Salt Lake Valley. Mr. Smallwood reviewed findings to explain why the Murray Planning Commission and City staff recommended approval to the Murray City Council.

The public hearing was open for public comments. No comments were given, and the public hearing was closed.

MOTION: Mr. Pickett moved to approve the ordinance. Mr. Goodman SECONDED the motion.

Council Roll Call Vote:

Mr. Goodman	Aye
Ms. Turner	Aye
Mr. Hock	Aye
Mr. Pickett	Aye
Ms. Cotter	Aye
Motion passed:	5-0

Mayor's Report and Questions: Mayor Hales announced upcoming events and activities held in the City and reported that a recent small power outage was resolved quickly.

Adjournment: 6:57 p.m.

Pattie Johnson
Council Office Administrator III



MURRAY
CITY COUNCIL

Citizen Comments

Limited to three minutes, unless otherwise approved by Council



MURRAY
CITY COUNCIL

Public Hearings



MURRAY
CITY COUNCIL

Public Hearing #1



MURRAY

Public Works/Water Division

Water Master Plan - IFFP - IFA - Water Rate Study Review

Council Action Request

Council Meeting

Meeting Date: March 4, 2025

Department Director Russ Kakala Phone # 801-270-2404 Presenters Aron Frisk	Purpose of Proposal Adopt attached plans & studies. Amend or enact associated ordinances. Action Requested Adoption of Water Master Plan, Impact Fee Facility Plan, Impact Fee Analysis and the new Water Rates. Amending ordinances. Attachments Water Master Plan, IFFP, IFA, Water Rate Study, Amending Ordinances 13.08.080 & 13.08.020, Enacting a new Ordinance. Budget Impact Water Master Plan describes new Capital Improvement Projects for the water system. Rate Study describes how we can fund our operating and capital accounts. Description of this Item Water Master Plan - Evaluates the adequacy of existing water sources to meet projected Murray City water demands. Evaluates the water distribution system capacity to meet desired operating criteria under various demand conditions. Provides capital improvement projects required to meet or exceed desired operating criteria and correct deficiencies and failing infrastructure. Resolution to adopt. Impact Fee Facilities Plan - Identifies demands placed on City facilities by future development and evaluates how these demands will be met by the City. Outlines improvements that may be funded through impact fees. Resolution to adopt plan
Required Time for Presentation Is This Time Sensitive No Mayor's Approval  Date February 3, 2025	

Continued from Page 1:

Impact Fee Analysis - The IFFP forms the basis for the IFA. Represents the maximum impact fees Murray City may assess on new development. Resolution to adopt plan & amending Ordinance 13.14.110

Water Rate Study - All operating and capital expenses are first calculated, and then rates are structured to cover annual expenses, maintain sufficient debt service ratios, and to keep at least 180 days cash on hand in the water utility fund. We provide multiple different scenarios to fund our division. Amending ordinance 13.08.020 - Approve new rates to fund the water division. Section (D) of this ordinance is to disallow non-metered water for construction use. Users must sign up for service and make their point of use (connection) outside of the City's meter box. This will allow construction to have access to water, while allowing the city to meter and monitor the use.

Amending ordinance 13.08.080 - To allow multifamily residential units with no irrigation responsibilities to install 3/4" service pipe and meters. As of right now, our minimum service pipe and meter for new construction is 1".

Enacting ordinance 13.08.025 - This is to allow the City to assess a fee for meters and AMI equipment for new development. This fee is only the cost to the city to purchase this equipment. Currently we acquire new meters through our Meter operational account, which should be used to replace older meters for existing customers.

Murray City Corporation

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that on the 4th day of March 2025, at the hour of 6:30 p.m. of said day in the Council Chambers of Murray City Hall, 10 East 4800 South, Murray, Utah, the Murray City Municipal Council will hold and conduct a hearing on and pertaining to the consideration of adopting the October 2024 Murray City Water Master Plan.

DATED this 5th day of February 2025.



MURRAY CITY CORPORATION

A handwritten signature in blue ink, appearing to read "Brooke Smith", written over a horizontal line.

Brooke Smith
City Recorder

DATE OF PUBLICATION: February 21, 2025
PH25-13

1. Utah Public Notice Website
2. Murray City Website
3. Posted at Murray City Hall

RESOLUTION NO. 25-____

A RESOLUTION APPROVING THE OCTOBER 2024
MURRAY CITY WATER MASTER PLAN

WHEREAS, Murray City (the “City”) maintains a Water System Master Plan that includes a comprehensive study of the City’s water source, storage, treatment, and delivery systems to help guide future water utility designs; and

WHEREAS, the Water System Master Plan serves to evaluate the existing water system and provide recommendations regarding how the City should prepare for the future; and

WHEREAS, the City has contracted for the preparation of an update to the Master Water Plan dated October 2024; and

WHEREAS, a copy of the updated October 2024 Water Master Plan is available for public inspection at the Murray City Public Works Department, 4646 South 500 West, Murray Utah; and

WHEREAS, the Council has reviewed the October 2024 Water Master Plan and, after consideration, the Council is prepared to approve and adopt the October 2024 Water Master Plan;

NOW, THEREFORE, BE IT RESOLVED by the Murray City Municipal Council as follows:

1. It hereby adopts the Murray City October 2024 Water Master Plan, a copy of which is attached.
2. The Murray City October 2024 Master Plan shall be available for public inspection at the office of the Department of Public Services, 4646 South 500 West, Murray Utah.

DATED this 4th day of March, 2025

MURRAY CITY MUNICIPAL COUNCIL

Pam Cotter, Council Chair

ATTEST:

Brooke Smith, City Recorder



PREPARED FOR:

PREPARED BY:



WATER MASTER PLAN

October 2024

PREPARED FOR:



PREPARED BY:



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EXECUTIVE SUMMARY

INTRODUCTION

Murray City retained Bowen, Collins and Associates (BC&A) to prepare a water master plan to help plan for needed water system improvements in the City's current water system service area. Most of the master planning work was associated with the following two tasks:

- Evaluating the adequacy of existing water sources to meet projected Murray City water demands.
- Evaluating the water distribution system capacity to meet desired operating criteria under various water demand conditions (i.e., fire flows during peak day demand).

SUPPLY AND DEMAND

Per capita water demand in Murray City has historically declined as a result of proactive conservation efforts and high-density redevelopment. Continued conservation and redevelopment trends are expected to further reduce per capita demands. Table ES-1 summarizes existing and projected demands for the City.

Table ES-1
Water Demands for Existing and Future Development Conditions

	<i>Unit</i>	2023 (Existing)	2065
Total Water Use (Residential + Non-Residential)	<i>million gallons</i>	3,175	4,120
Residential Population		42,002	67,622
Average Day Demand (ADD)	<i>million gallons per day</i>	8.7	11.3
	<i>gallon per minute</i>	6,040	7,839
	<i>gallons per capita per day</i>	207	167
Peak Day Demand (PDD)	<i>million gallons per day</i>	22.0	26.2
	<i>gallon per minute</i>	15,244	18,197
	<i>gallons per capita per day</i>	523	387
Peak Hour Demand (PHD)	<i>million gallons per day</i>	31.0	36.95
	<i>gallon per minute</i>	21,495	25,657
	<i>gallons per capita per day</i>	737	546

Water for the water system in Murray City's service area is supplied by 8 springs and 19 wells. These sources currently have adequate capacity to meet the projected future demands assuming that all sources are operating. However, in planning for needed system water source capacity, it is important to consider the potential of mechanical failure, equipment maintenance, source contamination, as well as the potential for unforeseen changes in zoning that could include new large water users. To account for these possibilities, it is Murray City's goal to meet projected peak day water demand with a 20 percent water source reserve. Based on this planning criterion, Murray City has sufficient source capacity through buildout. However the following recommendations remain in place:

- **Conservation** – Murray City should continue developing and implementing conservation efforts. Money should be included in the annual water system budget to promote water conservation in an effort to meet conservation goals.

- **Well Maintenance Budget** – An annual Well Maintenance Budget should be maintained for use in a proactive well and pump maintenance program to keep pumps and motors in good operating condition and to keep wells operating in a hydraulically efficient manner. This program should significantly reduce unplanned failures.
- **Emergency Power** – Permanent emergency power should be added at the Whitmore and Hi-land Wells, because both wells serve as primary supply sources.
- **Well Supply Project** – A new well should be constructed to improve system redundancy and support peak day pressures in the southwest service area.

WATER DISTRIBUTION SYSTEM

A hydraulic model of Murray City's water distribution system was developed using Murray City pipe, source, production, and water meter sales data. The model was used to simulate several demand scenarios for existing and future development conditions. Model results were used to identify potential water distribution system improvements for the following conditions:

- Existing and Build Out Peak Day Demand
- Existing and Build Out Peak Hour Demand
- Existing and Build Out Peak Day Demand with Fire Flow

Peak Day Demand

Under Peak Day Demand for both existing and future conditions, Murray City's distribution system is capable of delivering water while maintaining a minimum operating pressure in the system of 50 psi (Murray City's desired pressure requirement).

Peak Hour Demand

During Peak Hour Demand conditions for existing and future conditions, the hydraulic model indicates that operating pressures in some parts of Murray drop below Murray City's desired 50 psi operating criterion. Pressures in the City have been simulated to drop to as low as 45 psi during peak hour demands, and they may drop to as low as 40 psi at buildout. However, operating pressures remain above the State of Utah minimum requirement of 30 psi. Pipe velocities above 7 fps can cause wear and tear on the pipes. The hydraulic model indicates that during both existing and future Peak Hour Demand conditions pipe velocities stay below 7 fps.

Pipe Condition

In addition to hydraulic model results, pipe condition information, collected and provided by Murray City personnel, was considered in identifying potential water distribution system improvements. Pipes with a history of waterline breaks or the potential for waterline breaks based on their age and material were identified and evaluated while developing the list of recommended water distribution system improvements. A corrosion study is recommended where problematic steel or ductile iron pipelines are difficult to replace.

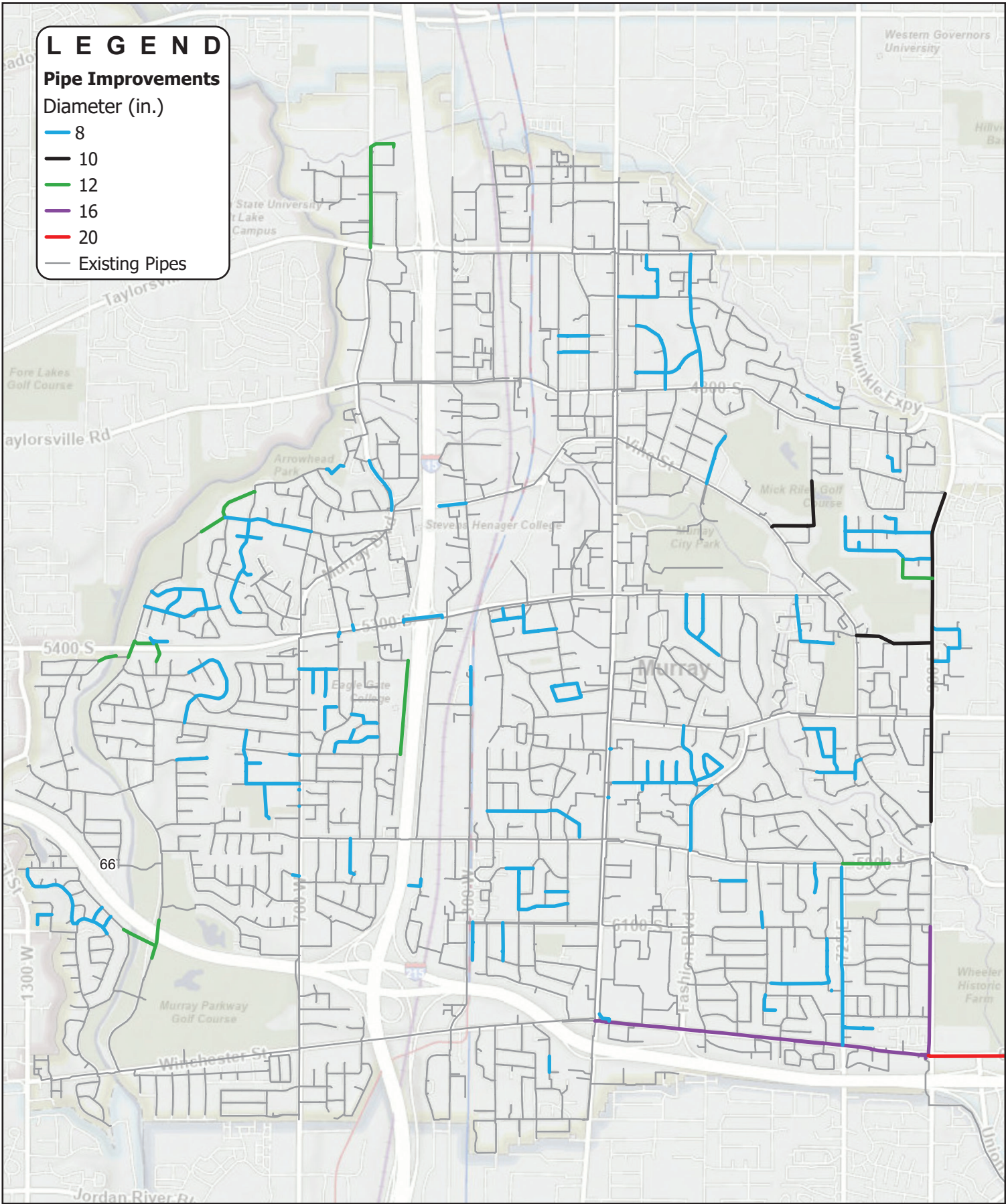
Booster Pumps

Murray City personnel have reported some concerns with booster pumps at the Reservoir 2 & 3 booster stations. These boosters may require replacement or rehabilitation.

Water Distribution System Improvements

Figures ES-1 through ES-3 show water distribution system improvements based on deficiencies identified in the model in the above scenarios. Figure ES-1 indicates the locations and sizes of pipe improvements. Figure ES-2 shows the deficiency justification or primary reason for the improvements. Figure ES-3 presents a prioritization of the recommended improvements based on input from City personnel. Because it is important to coordinate pipe construction projects with road reconstruction projects, the implementation of the prioritized pipeline improvement projects shown in Figure ES-3 may vary as funds become available for road projects.

- **Pipe Improvements** – It is recommended that Murray City implement pipe improvements as shown in Figures ES-1 through ES-3 to address hydraulic and condition deficiencies as funds become available.
- **Booster Pump Improvements** - Investigate and Rehabilitate Reservoir Well Boosters.



 BOWEN COLLINS & ASSOCIATES	SYSTEM IMPROVEMENTS PIPE SIZES		NORTH: 	SCALE: 0 1,500 3,000  Feet
	MURRAY CITY WATER SYSTEM MASTER PLAN			

LEGEND

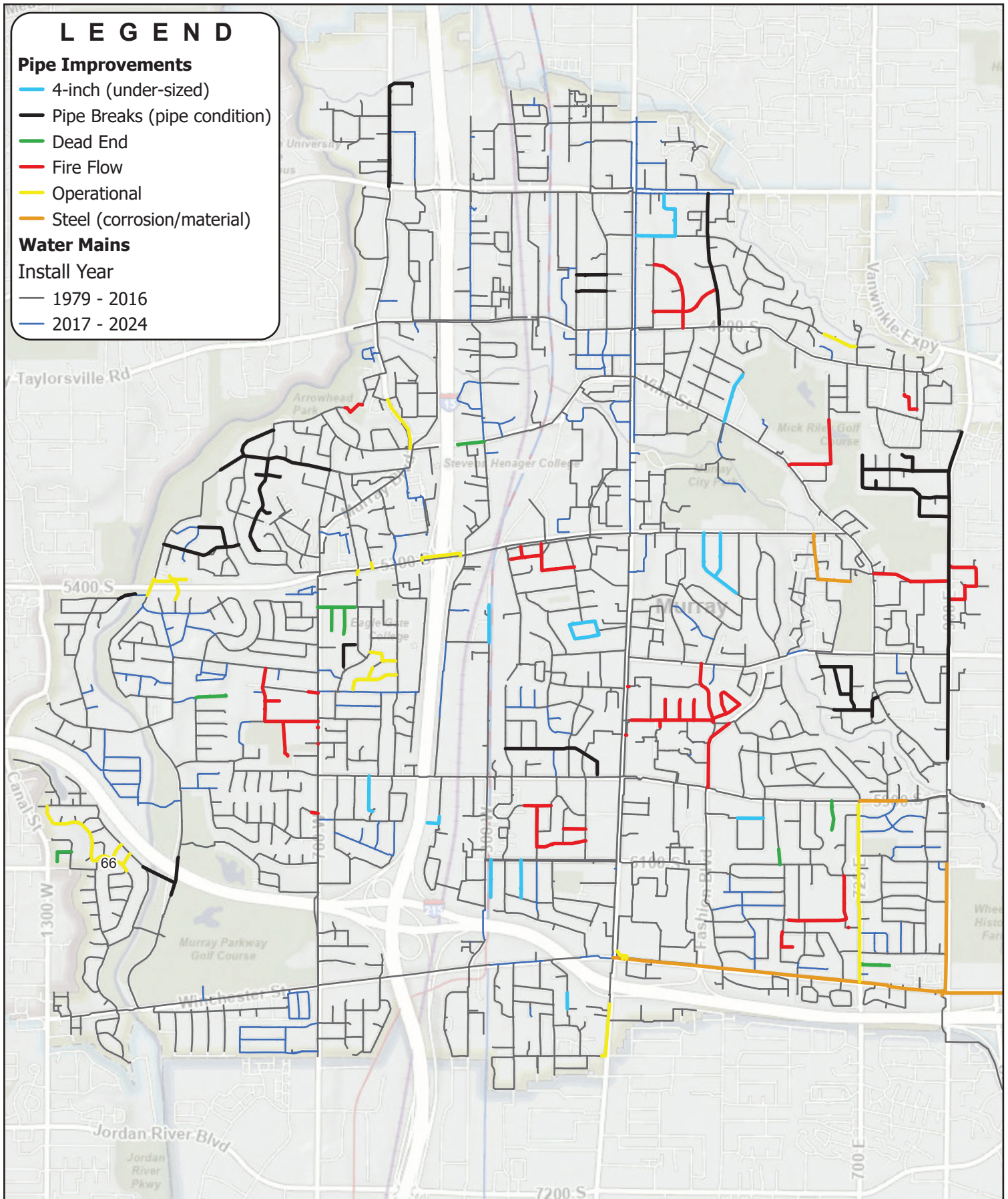
Pipe Improvements

- 4-inch (under-sized)
- Pipe Breaks (pipe condition)
- Dead End
- Fire Flow
- Operational
- Steel (corrosion/material)

Water Mains

Install Year

- 1979 - 2016
- 2017 - 2024



SYSTEM IMPROVEMENTS DEFICIENCY JUSTIFICATION

MURRAY CITY

WATER SYSTEM MASTER PLAN

NORTH:

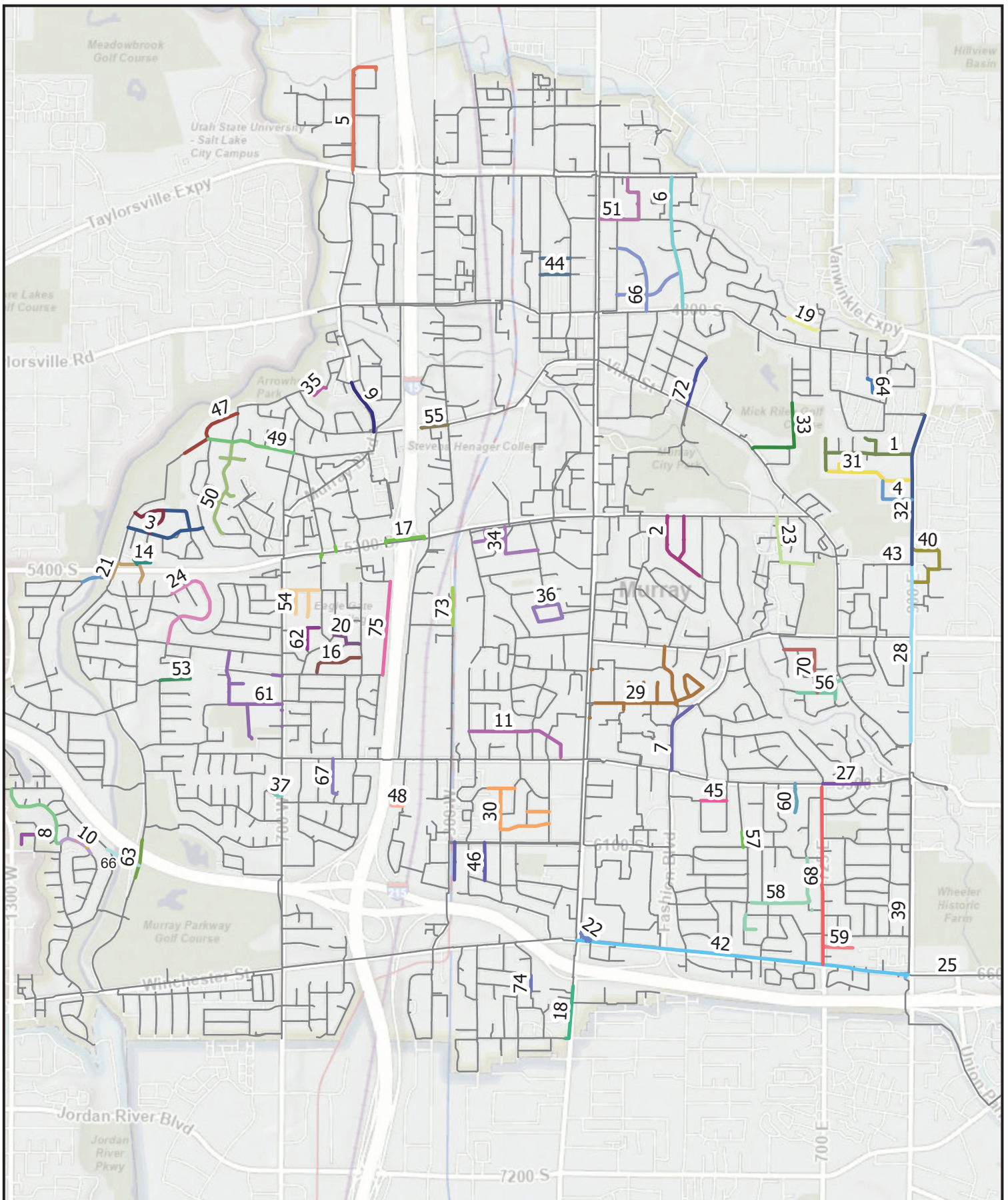


SCALE:



FIGURE NO.

ES-2



 BOWEN COLLINS & ASSOCIATES	SYSTEM IMPROVEMENTS IMPROVEMENT PRIORITY MURRAY CITY WATER SYSTEM MASTER PLAN	NORTH: 	SCALE: 0 1,500 3,000 Feet FIGURE NO. ES-3
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OPERATIONAL IMPROVEMENTS

Other recommendations that Murray City should consider improving their system operations include the following:

- **Fire Hydrant Coverage** - A cursory evaluation was performed using information in the City's GIS database to identify areas along City streets where spacing between fire hydrants may be farther than desirable. Figure 7-5 identifies water services in the City that are greater than 400 feet from an existing hydrant. These areas are shown in Figure 7-5 and indicate a possible need for additional fire hydrants. It is recommended that the information presented in Figure 7-5 be field verified and that Public Services personnel work closely with Fire Department personnel in resolving any deficiencies that may exist. Any undocumented Fire Hydrants should be added to Murray City's existing database.
- **Water Meters** - Murray City began a meter replacement program in 2010. This program should be maintained to replace all older meters so that no meter exceeds 25-years in operation. The use of old water meters usually results in inaccurate metering (underestimating actual water use). Replacing old, inaccurate water meters should increase water sales revenues through increased metering accuracy. In addition, new automated meter infrastructure technology can significantly reduce the labor costs associated with meter reading. The City should be completely transitioned to the new metering program in 2025.
- **Emergency Power** - While it would be ideal to have emergency power at all of the City's water sources, the City would like to add permanent emergency power for the Whitmore Wells and the Hi-land Well because both sources are primary sources that supply storage reservoirs.
- **Well Projects and Source Improvements** - As with most other system assets, wells can deteriorate over time and need rehabilitation or replacement. Two previous well rehabilitation studies identified replacement as the best long-term option for the 4500 South Well and Park Well respectively. The City should complete a comprehensive well sustainability study for all remaining wells in the City to determine future maintenance and replacement needs.

As peak day demands approach source capacity system redundancy is limited and low pressures are exacerbated. Murray should consider the following source improvements to increase source redundancy and system pressures:

1. **Develop New Well at Winchester and 1200 West** – A new well in this area would support proposed residential developments and a public park in the southwest corner of the system. Pressures in this area fall below the City's 50 psi target during peak day demands.
2. **Develop New Well at the Captiva Property** – A new well in this area would support residential development in the upper portion of the system. The aquifer in this area has historically maintained high capacity with little drawdown. However, the City is still determining water right eligibility for the proposed well.
3. **Redevelop Millrace Well** – Restore capacity at Millrace well by resolving sanding issues and increasing the downstream pipe capacity.

Since development in the southwest corner of the system is expected to come online within the next few years, the City should budget and plan to develop the new well at Winchester and 1200 West by 2026. This project is shown in Table 7-3. The City also plans to improve the McGhie Springs tunnel entrance and facilities against damage and deterioration.

- **Booster Pump Rehabilitation** - Murray City personnel have reported some concerns with booster pumps at the Reservoir 2 & 3 booster stations. These boosters may require replacement or rehabilitation.
- **Fluoride Improvements** - As part of this study, a fluoride model was created to assess the adequacy of fluoride in the City's water system. A technical memorandum documenting the model results is included in Appendix A. Based on the results of the fluoride model, there are multiple potential changes the City can make to the water system to improve fluoride inputs. The City's Millrace Well currently is one of the fluoride inputs into the City's water system. The fluoride study indicates that installing a new fluoride input at the 4500 South Well would benefit the City's fluoride distribution requirements.
- **Corrosion Study** - The City has a number of steel pipelines in the City in critical roads that are difficult to replace. The City would like to conduct a corrosion study in the City to evaluate ways to extend the life cycle of its steel pipelines and to identify problematic areas for corrosion around the City.
- **Storage Facilities** - Murray City should budget funds to regularly maintain all storage tanks and ultimately budget to replace the existing facilities as they reach the end of their service life. Table 7-2 lists the approximate replacement cost of Murray City's storage facilities. All five reservoirs are concrete with a life expectancy of 80 or more years and require regular inspection (about every 5-years) and maintenance. The structural integrity of Reservoir #2 (first constructed in 1954) was evaluated in 2005 and was determined to be in satisfactory condition. Reservoir #4 has recently been inspected and needs roof repairs. Murray City should budget funds to regularly maintain all storage tanks and ultimately budget to replace the existing facilities as they reach the end of their service life. Table 7-2 lists the approximate replacement cost of Murray City's storage facilities.
 1. **Reservoir 2 & 3 Siting Study** - Reservoirs 2 & 3 are relatively old storage reservoirs and will eventually need to be replaced. It is recommended that a siting study be conducted to identify the best location to replace these reservoirs.
 2. **Reservoir 4 Roof Repairs** - Reservoir 4's roof was evaluated in 2020, and recommendations were made to repair deficiencies. The City plans to complete repairs in 2024.

BUDGET RECOMMENDATIONS

Based on the recommendations listed above, it is recommended that Murray City allocate funds for system improvements as presented in Tables ES-2 and ES-3.

The recommended budgets included in Table ES-3 should be incorporated into a formal asset management program in the City. The asset management program should document all work performed on pipes, wells, pumps, and tanks and schedule work to be completed at least two years ahead. The City already documents improvements and maintenance to pipes effectively with the City's GIS database, but additional record keeping and scheduling of maintenance at wells, pumps, and tanks may be warranted to proactively prevent equipment deterioration and/or failure.

Table ES-2
One-time Water System Project and Study Costs

Project	Description	Year	Estimated Cost
PRV Improvements	Improve existing PRV vaults at 5770 S, 5900 s 900 E, 5900 S State Street by adding ventilation, telemetering, & sump pumps	2026	\$90,000
Hi-Land Backup Power	Backup power to supply Hi-Land Well in the event of a power failure	2026	\$315,000
Whitmore Backup Power	Backup power to supply Whitmore Well in the event of a power failure	2026	\$315,000
Water Rate Study	Study to determine adequate rates required to accommodate system improvements	2024	\$20,000
Corrosion Study	Study to determine which areas of Murray require additional corrosion protection	2025	\$118,000
Well Investigation Study	Study to determine which Wells are most suitable for rehabilitation based on age, water quality, etc.	2024	\$70,000
Well Rehabilitation	Rehabilitation of Wells identified from the Well Investigation Study	2026	\$315,000
Winchester and 1200 West Well Project	Construct a new well at Winchester and 1200 West	2026	\$4,000,000
McGhie Springs Design	Project to stabilize McGhie Spring entrances and facilities against damage and deterioration	2025	\$550,000
Power Generation Study	Feasibility study to investigate the potential of adding a co-generation facility(s) on the Murray City transmission mains	2025	\$39,000
Fluoride Addition at 45th South Well	Improve system wide fluoride concentration by installing fluoride injection system at the 45th South Well.	2026	\$25,000
Total			\$5,857,000

Table ES-3
Annual Water System Budget Recommendations

Type	Description	Estimated Cost
Pipe Replacement	Annual cost that should be budgeted for pipe replacement	\$3,100,000
Well Maintenance Program ¹	Annual cost that should be budgeted for maintaining Murray City Wells	\$205,000
Future Master Plan Updates	The annual cost that should be budgeted for master plan updates	\$16,000
Conservation Budget ¹	The annual cost of promoting conservation programs	\$63,000
Water Meter Replacement ³	The annual cost that should be budgeted for replacing old water meters.	\$151,000
Total²		\$3,535,000

¹ May need to be adjusted to meet Murray City goals.

² Should be adjusted annually for inflation.

³ The amount that should be dedicated to a sinking fund to replace meters after a life cycle of 25 years.

CHAPTER 1 INTRODUCTION

INTRODUCTION

The purpose of this study is to identify water system improvements that are needed to resolve operational or condition deficiencies in the Murray City water system based on updates or changes to the City's water system and/or general plan. Recommendations from this report will assist City officials in planning to meet future water system needs.

SCOPE OF SERVICES

The major tasks completed while conducting this study of the Murray City water system are identified below:

1. Collect and organize available data needed to develop an updated hydraulic computer model of the City's existing water distribution system.
2. Update estimates of water system demands for projected full build-out conditions in Murray City.
3. Identify existing and projected future water system deficiencies.
4. Evaluate alternative system improvements that would resolve identified water system deficiencies.
5. Identify recommended water system capital improvement projects and develop cost estimates for the recommended improvements.
6. Develop a water system capital improvements plan for budgeting and planning purposes.

Subsequent chapters of this report document the results of each of these tasks.

ADDITIONAL STUDY

This master plan report is a working document. Some of the recommendations included in this report are based on the assumption that development will occur in a certain manner. If assumed future growth or development patterns change significantly from those documented in this report, the recommended system improvements may need to be revised. Hence, this report and the associated recommended improvements should be updated every five to ten years.

CHAPTER 2 DEMAND PROJECTIONS

SERVICE AREA

Murray City's corporate boundaries include an area larger than the City's water system service area. As a result, projecting water demands requires identifying the service area's population and population growth. Figure 2-1 shows the existing Murray City corporate boundary, water system service boundary, and the City's general plan for land use. The Murray City water system service area serves approximately 80 percent of the City area. The Jordan Valley Water Conservancy District (JVWCD) supplies approximately 13 percent of the City area while Salt Lake City Public Utilities (SLCPUD) supplies the remaining 7 percent area. Taylorsville Bennion Improvement District serves an area less than 0.5 percent of the total Murray City area at the southwest portion of the City (near Winchester Dr and 1300 West). Murray City has no plans to expand its existing water service area to serve the Jordan Valley or Salt Lake water service areas in the future. Therefore, all future demand projections in this report are based on the population within the Murray City Water System Service Area.

POPULATION

Projections of water use demand are typically based on population growth. In this report population growth is determined using Traffic Analysis Zones (TAZ) from the Wasatch Front Regional Council (WFRC) and included in the City's Transportation Master Plan. TAZ projections consider both residential and non-residential growth. However, TAZ projections do not account for special growth areas. Murray City personnel have therefore adjusted the WFRC's TAZ projections to better match development and planning expectations and to extend projections to build out conditions (2065).

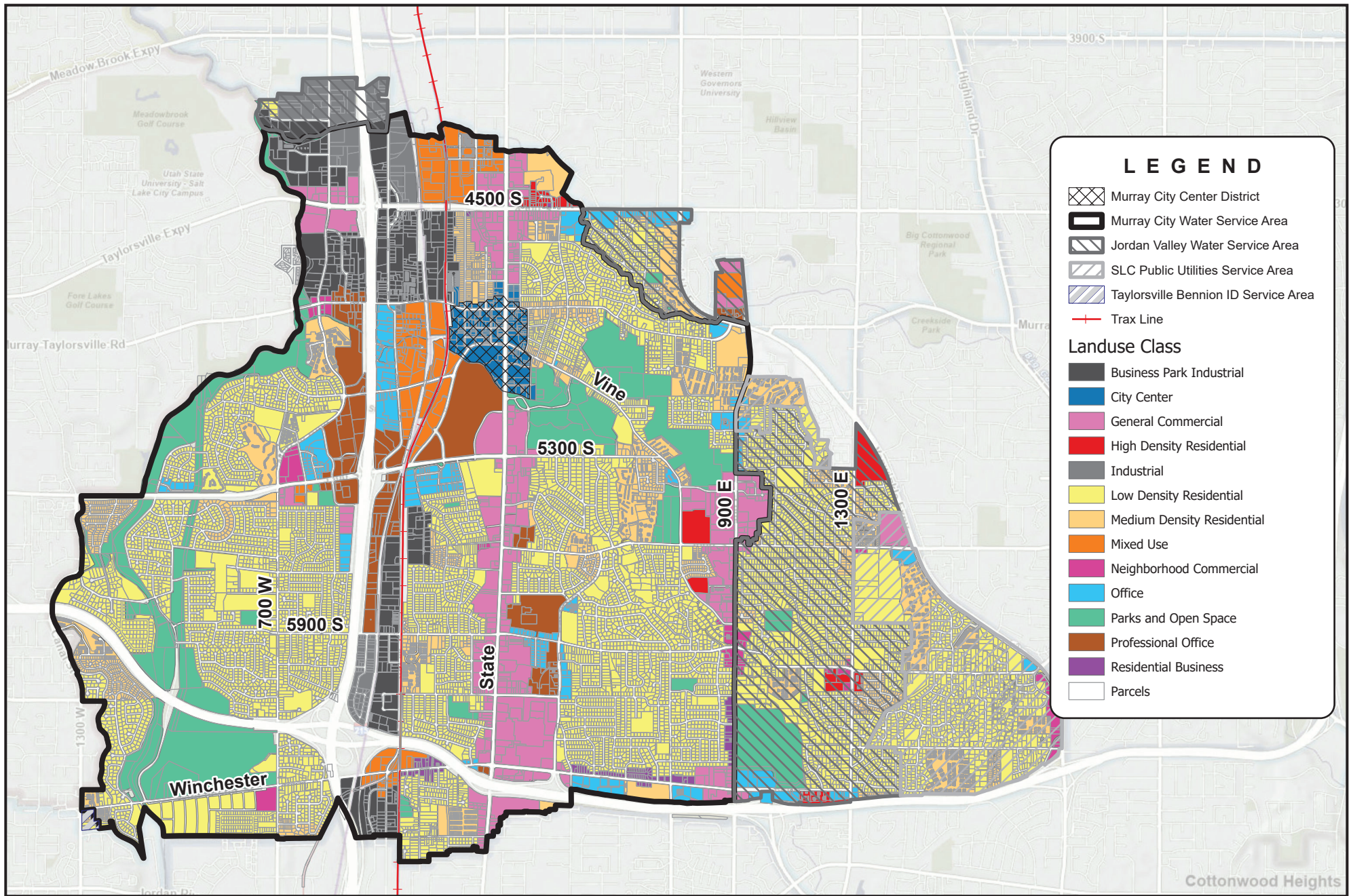
Traffic Analysis Zones

The WFRC develops Traffic Analysis Zones (TAZ) for transportation modeling. A TAZ is a relatively small geographic area primarily bound by major and minor road corridors that may or may not line up with City or service area boundaries. TAZ boundaries are established on a semi-arbitrary basis by the WFRC. The WFRC projects residential and non-residential populations within each TAZ to more precisely model traffic. TAZ population projections consider both residential and nonresidential growth. Non-residential populations include employees, retail, industrial, and other non-residents.

TAZ boundaries were used for this analysis for two reasons:

1. Because population projections have already been developed by the WFRC for each TAZ using census data. The projections are estimated in 5-year increments between 2019 and 2065
2. Because each TAZ is small enough to give an adequate distribution of population growth and density across the service area for use in modeling.

The TAZ areas used in this analysis are shown on Figure 2-2 along with the project growth in households between 2020 and buildout. Figure 2-3 shows the percentage of growth attributed to non-residential growth in the City between 2020 and buildout. If a TAZ area was only partially located within the study area boundary, the percentage inside the boundary was determined. The total population projection for the TAZ was then multiplied by this percentage to determine the portion of the TAZ projection within the study area boundary.



Residential Population

Residential customers in the Murray City water service area make up only a portion of the City's overall residential population. Based on 2010 census blocks (the smallest unit of census data), the residential population within the Murray City water service area was 34,269 persons or approximately 73.3 percent of the City-wide population.

Table 2-1 summarizes city-wide residential population growth for Murray City using the adjusted TAZ projections, the portion of population growth within the City's service area, and the rate of growth. Murray City planning personnel estimate an average growth rate of 1 percent for the next 10 years, followed by slow and steady growth until build out.

**Table 2-1
Estimated Murray City Population**

Year	Murray City Overall Population Projection ¹	Water Service Area Residential Population	Water Service Area Projected Growth Rate
2010	46,746 ²	34,269 ²	-
2015	49,250 ²	36,105 ²	1.05%
2020	50,637	38,340	1.21%
2025	54,904	42,927	2.29%
2030	57,540	46,969	1.82%
2035	60,241	51,011	1.66%
2040	62,941	55,053	1.54%
2045	69,011	59,095	1.43%
2050	75,080	63,137	1.33%
2055	77,090	64,632	0.47%
2060	79,100	66,127	0.46%
2065	81,110	67,622	0.45%

¹Population projections are for the City's corporate boundary (larger than Murray Water service area)

²Based on 2015 Water Master Plan.

An overall projection of population growth in Murray City is useful for an overall demand projection. However, higher resolution data identifies where and when customers will move to Murray City, which in turn allows us to accurately distribute water demand across the service area. The adjusted TAZ projections can be used to map the population density and growth rate distribution across the service area through 2065. Note Murray City planning personnel assume growth between 2050 and 2065 will primarily take place in the City Center District and other special growth areas.

Non-Residential Populations

The non-residential population in Murray City has been projected by the WFRC through 2050 for each TAZ within the City. The City's projections of additional growth above the WFRC are assumed to extend the buildout window through 2065. Table 2-2 summarizes the non-residential growth projections within Murray City and the Murray City Water Service Area.

Table 2-2
Estimated Water Service Area Residential and Non-Residential Population

Year	Water Service Area Non-Residential Population Projection	Water Service Area Residential Population Projection	Water Service Area Total Population Projection
2015	48,617	36,105	84,722
2020	54,287	38,340	92,627
2025	55,772	42,927	98,698
2030	57,257	45,239	102,496
2035	57,700	47,701	105,401
2040	58,143	50,163	108,306
2045	58,775	51,875	110,650
2050	59,407	53,587	112,995
2055	60,234	53,719	113,953
2060	61,062	53,850	114,912
2065	61,889	53,981	115,870

Values are based on the WFRC TAZ projections through the year 2050 and are extrapolated from 2050 to 2065 at a growth rate of 0.27% (non-residential), and 0.1% (residential).

Special Growth Areas.

Murray City's planning department have helped adjust the WFRC TAZ population projections to account for special growth areas and to extend projections to 2065 (WFRC projections end in 2050). A special growth area is an area where City personnel expect a higher build out population density than predicted by the WFRC.

The Murray City Center District (MCCD) and four mixed-use zones from approximately 4500 South to 5300 South, including the Fashion Place Mall and Wheeler Historic Park, are five such special growth areas that have significant potential for redevelopment. Pedestrian oriented design is encouraged in each area to increase residential and commercial densities. Special growth areas are expected to develop at densities greater than 10 equivalent residential units per acre and see a rise in employment.

The distribution of growth between now and buildout is shown in Figures 2-2 and 2-3. Note Figure 2-2 shows several TAZ areas near the MCCD with growth of more than 400 additional households, while Figure 2-3 shows employment in this area will increase by 18% to 200%.

HISTORIC WATER USE

Historic per capita water use fluctuates considerably from year to year based on seasonal variations in precipitation and temperatures. Figures 2-4 and 2-5 show the average day water demand for the Murray City water system from 2010 to 2021 plotted against various climate data.

Figure 2-4 shows the total annual precipitation and per capita average day demand (ADD), or the estimated volume of water used by one resident during a year divided by 365 days. As expected, in years with higher precipitation, the average day demand for the year decreases.

Figure 2-5 shows the annual per capita ADD with the total number of Cooling Degree Days (CDD) for each year. A CDD is a quantitative index designed to reflect the demand for energy needed to cool a home or business to a comfortable temperature. In essence, a CDD reflects the amount of energy to air condition homes or businesses on hot days. Figure 2-6 illustrates that in years with hotter summers, the average day demand for the year increases due to higher irrigation demands. Both 2021 and 2022 deviate from this trend due to drought mitigation efforts implemented by Murray City and throughout the State of Utah through various drought awareness programs.

Murray City has been proactively encouraging water conservation for many years through various methods including: water user rate re-structuring and rate incentives, water rebate programs on low flow fixtures, educational programs, as well as other efforts. Table 2-3 summarizes the total water production by the Murray City water system on an annual and per capita basis since 2010.

Table 2-3
Historic Annual Water Production

Year	Water Service Area Residential Population	Annual Water Production (acre-ft)	Annual Production Difference from 2015 (%)	ADD (gpcd)	Per Capita Difference from 2015 (%)
2010	34,269	9,281	-	242	-
2011	34,629	8,455	-	218	-
2012	34,992	10,127	-	258	-
2013	35,359	9,251	-	234	-
2014	35,730	8,874	-	222	-
2015	36,105	7,836	0%	194	0%
2016	36,483	9,442	20%	231	19%
2017	37,706	9,402	20%	223	15%
2018	38,929	9,839	26%	226	16%
2019	40,152	8,770	12%	195	1%
2020	40,614	10,460	33%	230	19%
2021	41,077	8,930	14%	194	0%
2022	41,539	8,512	9%	183	-6%

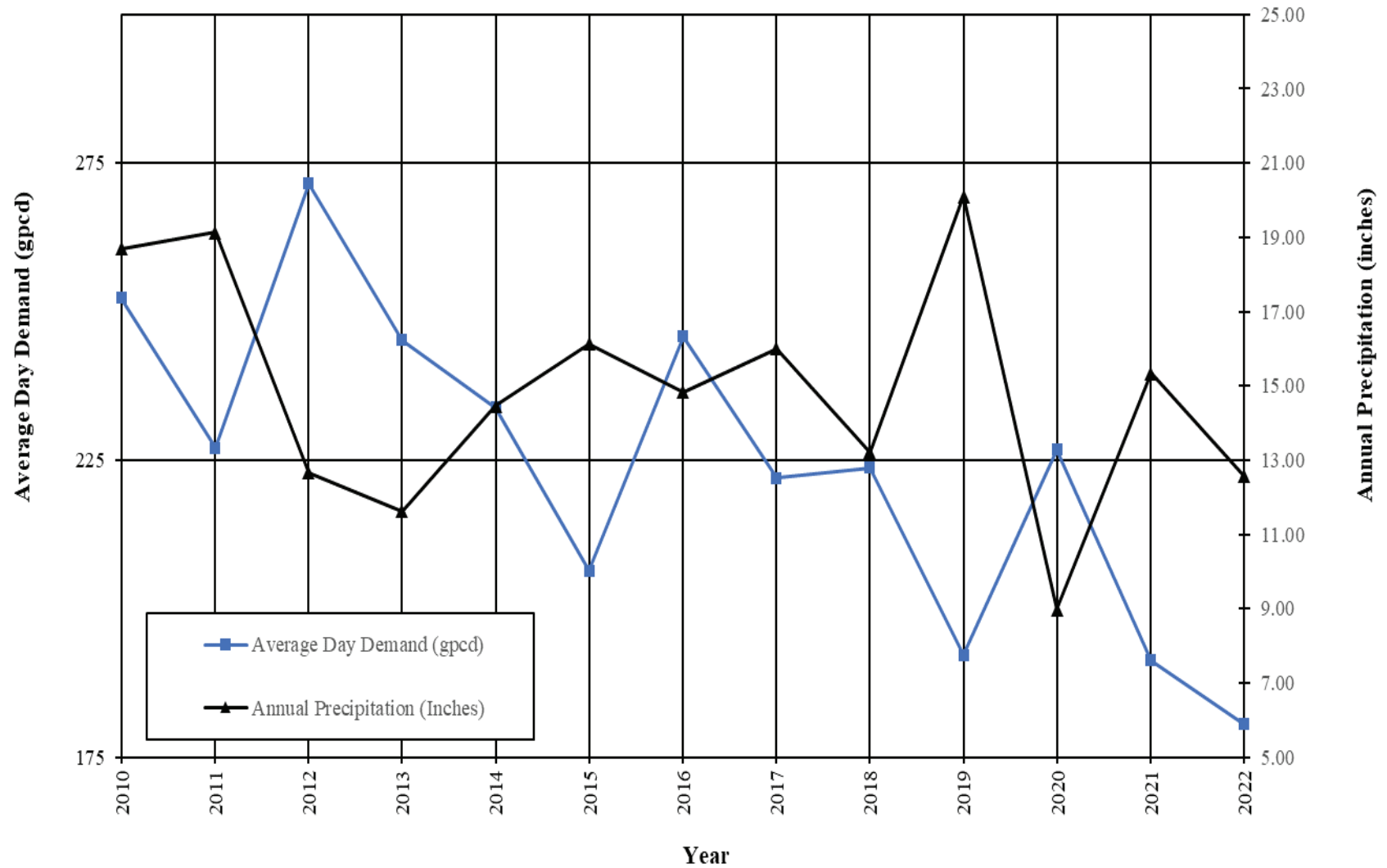


Figure 2-4
Average Day Demand and Annual Precipitation

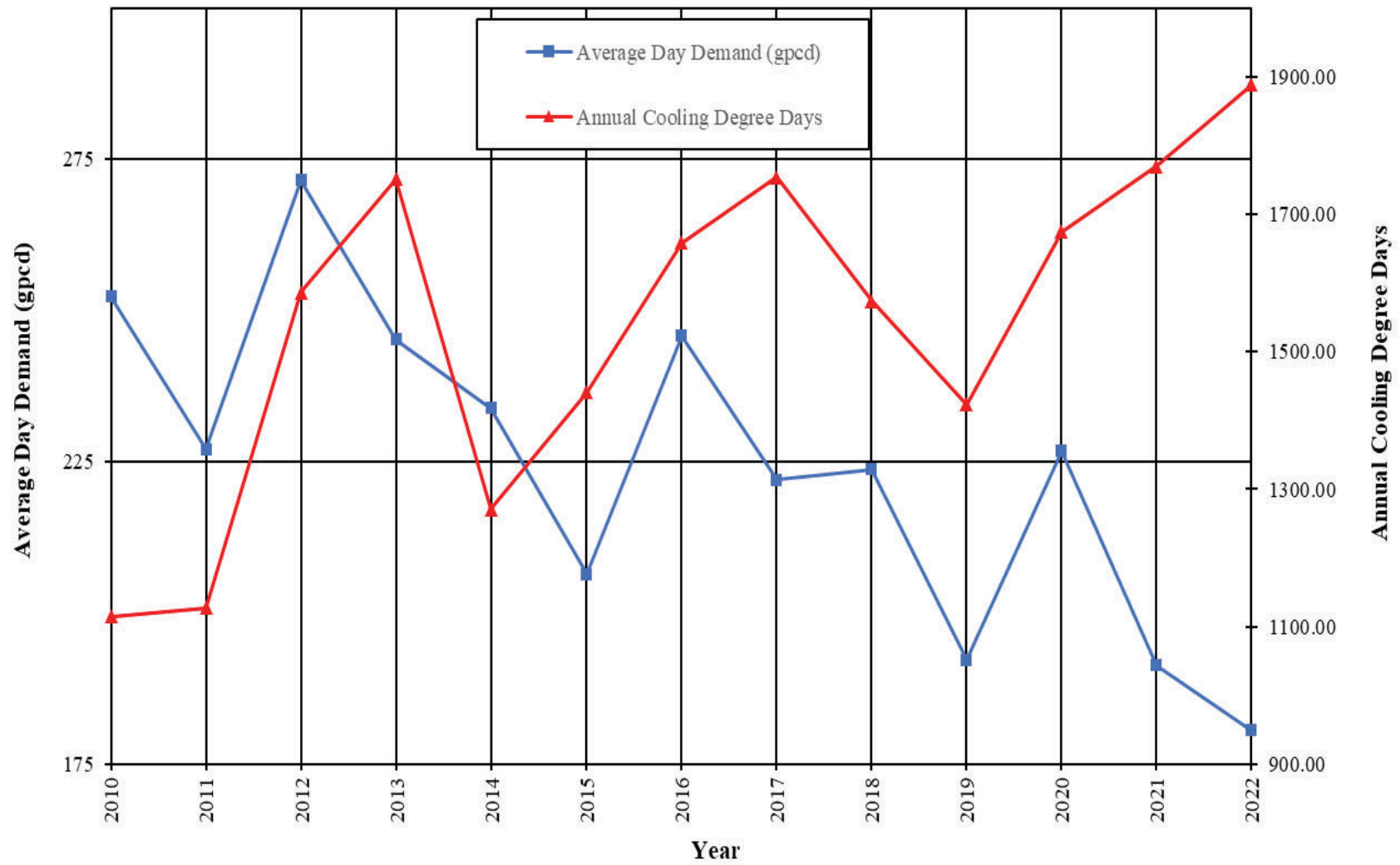


Figure 2-5
Average Day Demand and Cooling Degree Days

Based on data collected regarding conservation potential throughout the State, the State of Utah developed region specific conservation goals as part of the State's overall water conservation approach. Murray City would propose to meet the regional percent reduction goals as summarized in Table 2-5.

**Table 2-4
Conservation Goal with Milestones Through 2065**

Year	Salt Lake Region Conservation Goal (% Reduction)	Murray City Reduction Milestones/Targets (GPCD)
2015	0%	220 ¹ (Baseline)
2030	11%	196
2040	15%	187
2065	19%	178

¹The baseline is based on the City's approximate 10-year average average annual demand per capita per day. The 10-year average was used instead of the 2015 annual demand because 2015 was an unusually low water use year for the City.

The State of Utah's Regional water conservation goal is based primarily on total water demand divided by residential population. This is an imperfect measure of conservation, especially in cities with large non-residential or commercial populations because the non-residential water use is included in the "per capita" calculations. For the purpose of this master plan, it is estimated that Murray City will be able to reach and maintain the State of Utah conservation goal even in dry and warm water years.

Peaking Factors

In addition to considering the average day demand, other important water use parameters include peak day demand and peak instantaneous demand or peak hour demand. Typically, peak day demand and peak hour demands are related to the ADD with system-specific peaking factors based on historic water use data. Murray City has enough historic water use data to allow these factors to be estimated. These factors are illustrated in Figure 2-6 which shows Murray City's 15-minute demands based on water production numbers from July 17, 2020 (the day with the largest water demand in 2020). Figure 2-6 indicates that the largest demand for water in 2020 occurred in the early morning hours with the peak hour demand occurring between 4:00 a.m. and 5:00 a.m. This would suggest that the City's efforts to encourage irrigating between 6:00 p.m. and 6:00 a.m. as a means of conservation has been successful.

Table 2-6 presents historic water use data collected since 2013 as reported by Murray City annual reports. Where peak day demand data was available, peaking day and peak hour factors have been calculated.

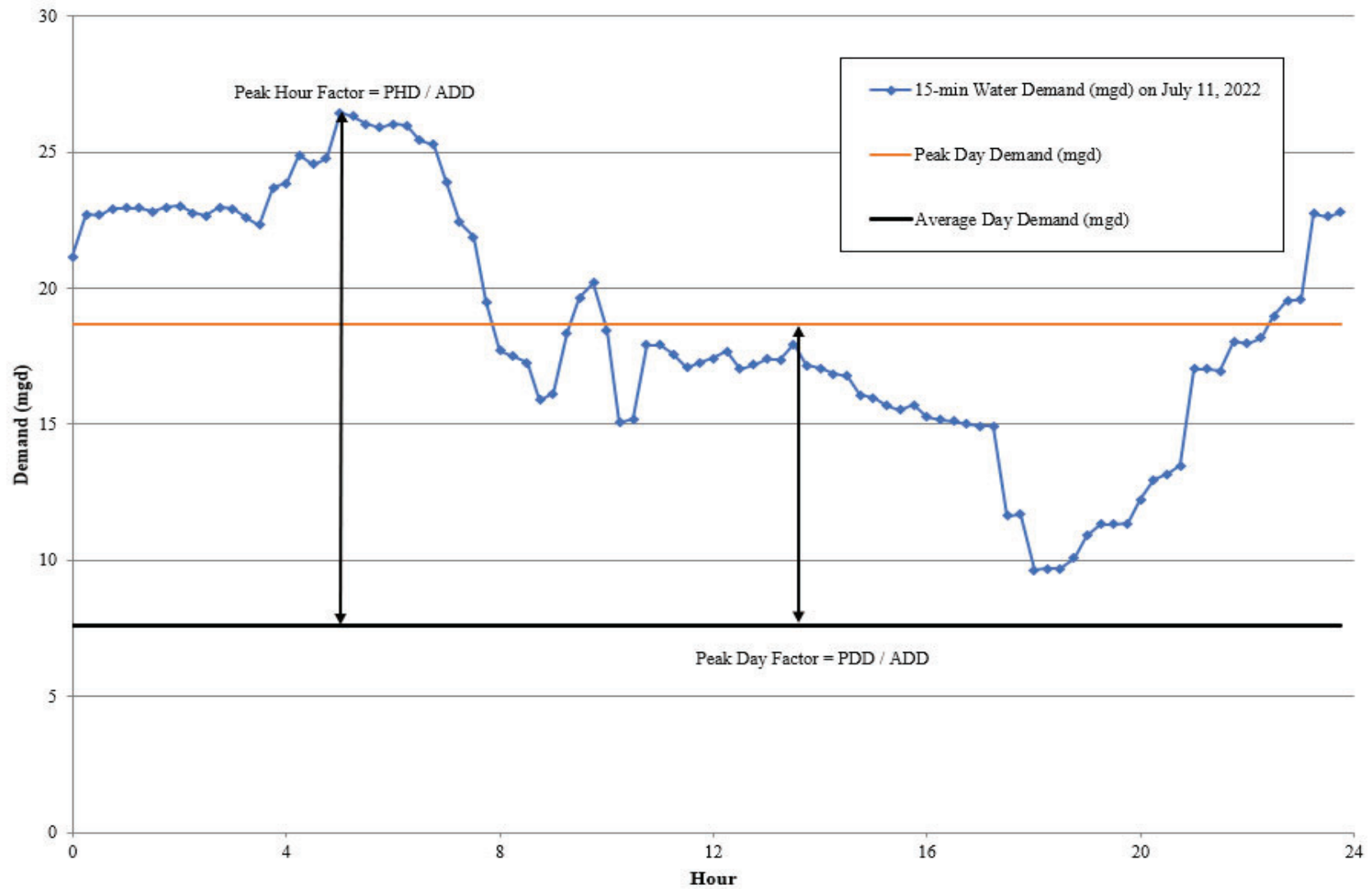


Figure 2-6
2022 Peak Day Demand

Table 2-5
Murray City Historic Water Use

	Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	10-Year Average
Total Water Use (Residential + Non-Residential)	<i>acre-feet</i>	9,712	9,359	8,348	10,046	9,438	9,884	8,807	10,507	8,966	8,552	9,362
	<i>mg</i>	3,165	3,050	2,720	3,273	3,075	3,221	2,870	3,424	2,922	2,787	3,051
Water Service Area Residential Population	<i>ppl</i>	35,359	35,730	36,105	36,483	37,706	38,929	40,152	40,614	41,077	41,539	38,369
Average Day Demand (ADD)	<i>mgd</i>	8.67	8.36	7.45	8.97	8.43	8.82	7.86	9.38	8.00	7.63	8.36
	<i>gpm</i>	6,021	5,802	5,175	6,228	5,851	6,127	5,460	6,514	5,559	5,302	5,804
	<i>gpcd¹</i>	245	234	206	246	223	227	196	231	195	184	219
Peak Month Average Day	<i>mgd</i>	17.4	18.6	15.5	18.0	18.6	18.9	18.2	18.8	15.8	15.5	17.5
Peak Day Demand (PDD)	<i>mgd</i>	16.5	20.5	17.1	21.3	22.4	21.0	21.0	20.1	17.6	18.7	19.6
	<i>gpm</i>	11,458	14,236	11,868	14,795	15,539	14,557	14,580	13,991	12,213	12,966	13,620
	<i>gpcd¹</i>	467	574	473	584	593	538	523	496	428	449	513

¹The gpcd values are calculated using the residential population only.

EXISTING AND FUTURE CONDITIONS

As Murray City continues to develop at higher densities through redevelopment, reductions in per capita demand are anticipated as a result of reduced per capita outdoor demand. This is because outdoor irrigated areas are not anticipated to increase significantly over time and may actually decrease. For the purpose of this master plan, it has been assumed that minor increases in outdoor demands will continue through 2025 and will plateau at approximately 17.6 mgd of peak day outdoor demand.

As housing densities increase within the Murray City Water service area, additional reductions in per capita use are anticipated as a result of reduced per capita outdoor demands and conservation.

- Figure 2-7 shows the projected annual demands in the Murray Water Service area through 2065 given indoor demands and outdoor demands. Outdoor demand projections are extrapolated from outdoor demands recorded in 2020 (a relatively dry and warm climate year without major conservation efforts) while accounting for future conservation.
- Figure 2-8 shows the projected peak day demands through 2065.

Outdoor conservations efforts alone are expected to reduce per capita demands by 19% to 178 gallons per capita per day between 2015 and 2065. During this time indoor demands increase. Therefore, additional indoor conservation would result in an even lower per capita demand. Table 2-7 summarizes the existing and future water demands given outdoor conservation efforts. Table 2-7 also calculates existing and future peak day and peak hour factors. Peak day and peak hour factors are expected to decrease in the future due to outdoor conservation efforts. Peak water demands typically occur in the summer due to high irrigation demand. If irrigation demands are reduced, because of outdoor conservation efforts, we can expect peaking factors to reduce in tandem.

Table 2-8 shows the per capita demand for residential and non-residential customers, and the State defined per capita demand using the State of Utah's calculation method.

- Residential per capita demand is calculated by dividing total residential demand by the residential population.
- Non-residential per capita demand is calculated by dividing total non-residential demand by the non-residential population. The non-residential population is based on the adjusted WFRC TAZ non-residential population estimates within the Murray City water service area.
- The State of Utah calculates per capita demand by dividing total water use (including residential and non-residential water use) by the residential population.

Each calculation method was included in Table 2-8 because only about half of Murray's total water use is used by residential connections.

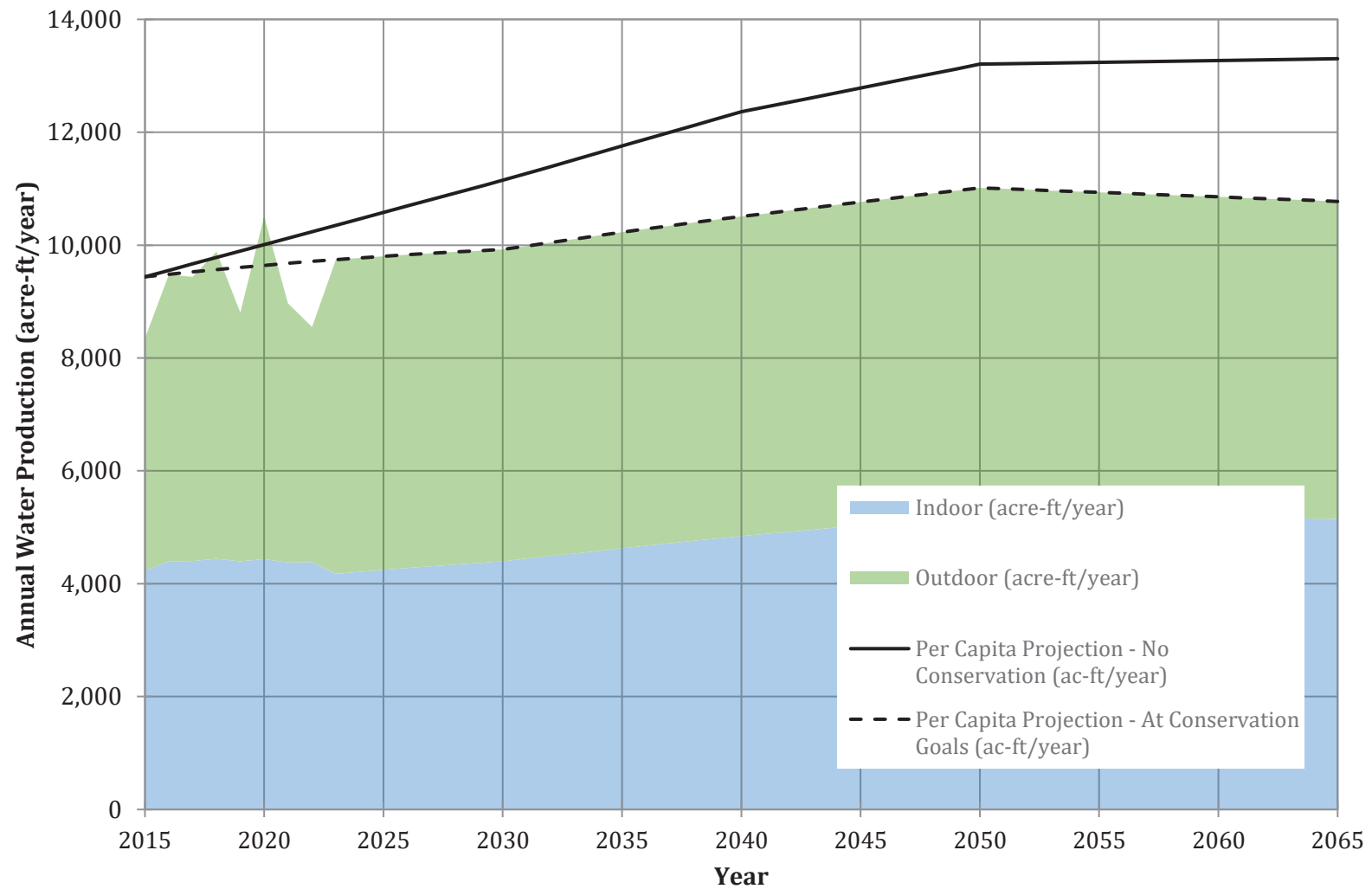


Figure 2-7: Projection of Annual Production Requirements

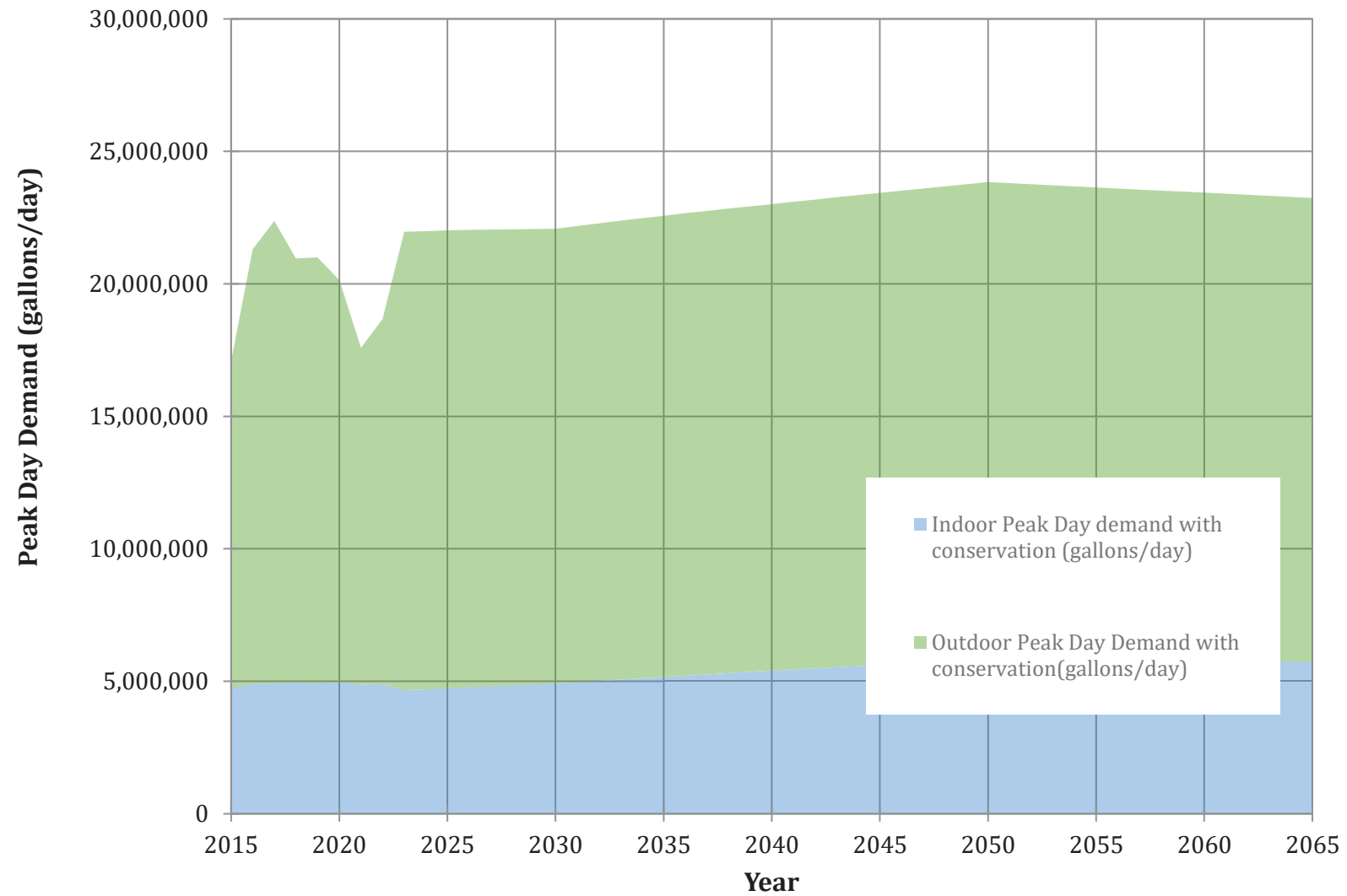


Figure 2-8: Projection of Water System Peak Day Demand

Table 2-6
Water Demands for Existing and Future Conditions

		2023 (Existing)	2065 (Build Out)
Total Water Use (Residential + Non-Residential)	<i>mg</i>	3,175	3,511
Residential Population		42,002	53,981
Average Day Demand (ADD)	<i>mgd</i>	8.7	9.62
	<i>gpm</i>	6,040	6,680
	<i>gpcd</i>	207	178
Peak Day Demand (PDD)	<i>mgd</i>	22.0	20.23
	<i>gpm</i>	15,251	14,051
	<i>gpcd</i>	523	375
Peak Hour Demand (PHD)	<i>mgd</i>	31.0	30.40
	<i>gpm</i>	21,504	21,111
	<i>gpcd</i>	737	563
Peak Day Factor		2.52	2.10
Peak Hour Factor		3,175	3.16

Table 2-7
2022 Water Demands for Residential and Non-Residential Use¹

Demand	Residential	Non-Residential
Average Day Demand (gpcd)	152	56
Indoor Demand (gpcd)	61	24
Peak Day Demand (gpcd)	328	122
Peaking Factor (PDD/ADD)	2.16	2.16
Indoor Peaking Factor	1.25	1.25
Peak Indoor Demand (gpcd)	76	30
Average Household Size	2.51	-
Peak Day Demand for Average Household (gpd)	823	-
Peak Day Demand for Average Household (gpd)	191	-

¹2022 data was used in this analysis because a breakdown of residential versus non-residential water use in 2023 was not yet available.

CHAPTER 3 EXISTING WATER SYSTEM

The purpose of this chapter is to summarize Murray City's existing water infrastructure and rights. Figure 3-1 shows the location of the City's wells, water storage tanks, pressure reducing valves, distribution piping, and approximate pressure zone boundaries. The figure includes two panels. The top panel shows the Murray City water service area, and the bottom panel shows the Murray City upper system which contains Murray City's largest storage tank along with several major water sources. Table 3-1 identifies the water supply sources and the associated water rights. Table 3-2 summarizes existing construction information associated with each well.

WATER RIGHTS AND SOURCES

The Murray City water system relies on well water as its predominant supply source producing about 84 percent of annual system water demand. McGhie Springs, located near the mouth of Little Cottonwood Canyon, makes up the remaining 16 percent of annual water production. An exchange agreement with Salt Lake City provides additional water supply in an emergency, up to 1%. The City also has a physical connection to the JWCD system. However, this connection has not been used since 1988 and is not considered part of the City's water system service area water supply. Note in recent years Murray City has combined some water rights to allow for more flexibility in moving rights to and from wells depending on production capacity and demands.

**Table 3-1
Murray City Water Rights**

Source Name	Location	Appropriated	
		cfs	mgd
Wells			
Powerhouse	155 West 4800 South	5.000	3.23
600 West	5300 South 600 West	2.490	1.61
500 East	5300 South 550 East	3.017	1.95
Howe	5600 South 900 East	1.500	0.97
300 West	5800 South 300 West	3.510	2.27
Grant	8 East 6100 South	3.000	1.94
Vine Street	986 Vine Street	2.389	1.54
700 West	700 West 6600 South	2.500	1.62
900 East	6600 South 900 East	2.017	1.30
Reservoir	1500 East 7000 South	4.600	2.97
Whitmore West	6860 South Courtland	5.000	3.23
Whitmore East	6862 South Eagle Ray Court	2.000	1.29
McGhie	3555 Big Cottonwood Road	3.750	2.42
360 West	360 West 4900 South	3.010	1.95

**Table 3-1
Murray City Water Rights
(Continued)**

Source Name	Location	Appropriated	
		cfs	mgd
Wells			
Millrace	558 East 4775 South	2.635	1.70
Park	330 East 5100 South	1.892	1.22
4500 South	300 West 4515 South	1.250	0.81
Monroc	6653 Benecia Drive	3.899	2.52
Hi-land	636 East Wood Oak Lane	1.250	0.81
Other Sources			
McGhie Springs	3555 Big Cottonwood Road	5.562	3.59
SLC Exchange		1.250	0.81
Germania Well (Irrigation)	Germania Park	0.5	0.03
TOTALS		62.071	39.79

Table 3-2
Murray City Water System Well Information

Name	Location	Casing Size (inches)	Hp	Depth of Casing (ft)	Date Drilled	Static Water Level (ft)	Pumping Water Level (ft)	Draw Down (ft)	Approx. Total Lift (ft)	Equipment Capacity (gpm)
Powerhouse	155 West 4800 South	16	250	609	1966	67	202	104	155	1750
600 West	5300 South 600 West	16	100	468	1960	32	121	143	170	850
500 East	5300 South 550 East	16	150	496	1961	Artesian	60	60	60	800
Howe Well	5650 South 941 East	20	200	770	2003	32	127	67	112	1050
300 West	5800 South 300 West	20	100	455	1971	51	143	100	143	700
Grant Park Well	6100 South 8 East	20	150	680	2003	85	158	48	125	2500
Vine Street	986 Vine Street	12	125	477	1954	46	153	116	140	1000
700 West	700 West 6600 South	14	125	391	1972	12	153	114	125	1000
900 East	6600 South 900 East	12	100	648	2021	93	125	192	433	850
Reservoir	1500 East 7000 South	16	125	570	1951	144	156	7	117	1400
Whitmore West	6860 South Courtland	16	500	544	1964	207	229	10	195	2200
Whitmore East	6862 South Eagle Ray Court	12	250	506	1963	204	229	17	188	1600
360 West	360 West 4900 South	16	150	540	1977	20	188	124	151	750
Millrace	558 East 4775 South	14	100	616	1975	Artesian	29	29	29	1150
Park	330 East 5100 South	16	150	601	2019	9	90	93	395	1500
4500 South	300 West 4515 South	16	250	955	2019	21	140	141	505	1200
Monroc	6653 Benecia Dr.	20	250	453	1964	295	322	16	311	1550
Hi-land	636 East Wood Oak Ln.	12	10	225	1966	12	28	9	14	750
McGhie Well ¹	3555 Big Cottonwood Road	20	200	790	2023	280	553	274	644	650
Germania Well (Irrigation)	Germania Park	16	--	520	1979	--	406	--	406	--

¹ Well is equipped with VFD with range between 400 and 900 gpm. Capacity is based on aquifer capacity at rated drawdown.

STORAGE AND PUMPING FACILITIES

The City has five water storage tanks or reservoirs with a combined storage capacity of 12 million gallons to provide operating and emergency storage. Table 3-3 summarizes information related to these facilities.

Table 3-3
Murray City Water System Storage Facilities

Name	Location	Capacity (MG)	Year Built	Base Elevation (ft)	Dimensions
Reservoir #2*	1500 East 7000 South	1.0	1954	4,452	13' Ht x 111' Dia
Reservoir #3*	1500 East 7000 South	2.0	1964	4,452	13' Ht x 156' Dia
Reservoir #4	2655 East 7000 South	5.0	1973	4,730	30' Ht x 170' Dia
Reservoir #5 – Hi-Land*	636 East Wood Oak Lane	2.0	1995	4,319	25' Ht x 120' Dia
Reservoir #6 – Grant Park*	8 East 6100 South	2.0	2003	4,324	16' Ht x 120' W x 140' L
Total		12.0			

*Reservoir source is a dedicated well

Only Reservoir #4 flows into the City system via gravity. Water from the other storage tanks is pumped into the water system via eight booster pumps at three locations, as summarized in Table 3-4.

**Table 3-4
Booster Pumps at Reservoirs**

Location	Discharge Pressure Zone	Horsepower	Capacity (gpm)
McGhie Well 3555 Big Cottonwood Road	Gravity to Zone 1 (Reservoir 4)	250	650 - 900
McGhie Spring – Booster 1		50	990
McGhie Spring – Booster 2		50	990
Combined capacity			1,980
Reservoirs 2 & 3			
1500 East 7000 South	Zone 2	50	1,200
1500 East 7000 South	Zone 2	50	1,200
Hi-land Tank			
636 East Wood Oak Lane	Zone 3	25	500
636 East Wood Oak Lane	Zone 3	40	750
636 East Wood Oak Lane	Zone 3	75	1,500
Grant Park Tank			
8 East 6100 South	Zone 3	50	800
8 East 6100 South	Zone 3	125	2,080
8 East 6100 South	Zone 3	150	2,500

The Grant Park Tank boosters, as well as many of the pumps at wells, are equipped with variable frequency drives (VFD) to maintain specified pressures as defined by the City. VFDs are able to do this by varying motor speed and related pumping rate depending on system demands. Pumps at other wells operate at a constant speed and maintain system pressures by turning on and off at specified pressures. Current pressure settings at Murray City wells and booster pump stations are listed in Table 3-5.

**Table 3-5
Well and Booster Pump Control Settings¹**

Location	Reported Settings			Observed Settings July 2020				
	VFD Setting (psi)	Pump On (psi)	Pump Off (psi)	VFD Setting (psi)	Pump On (psi)	Pump Off (psi)	Max Flow (gpm)	Average Running (gpm)
600 West	--	81	98	--	70	95	900	555
500 East	87	84	--	82	65	90	905	333
360 West ²	104	95	--	--	80	102	715	293
300 West	76	63	--	--	55	80	664	550
Vine Street	64	63	--	65	57	67	1,010	582
700 West	103	99	--	--	75	100	1,004	678
900 East ²	65	--	--	--	--	--	--	--
Howe Well	69	65	--	70	55	70	1,196	905
Germania Well (Irrigation)	--	--	--		60	85	973	732
Millrace	--	87	100	--	80	100	1,171	267
Park ²	94	87	105	--	--	--	--	--
Hi-land Booster 1 (500 gpm)	75	72	--	--	--	--	1,147	352
Hi-land Booster 2 (750 gpm)	--	68	--	--	--	--		
Hi-land Booster 3 (1,500 gpm)	81	60	--	--	--	--		
Hi-land Well (tank level in ft)		18'	23.5'	--	18'	23.5'	--	341
4500 S ²	104	95	115	--	--	--	--	--
Grant Park Booster	--	--	--	68	52	73	2,395	1,957
Grant Park Well (tank level in ft)	--	12'	16'	--	12'	16'	--	1,924
McGhie Well ⁷ (tank level in ft)	--	--	--	--	--	--	--	0
McGhie Springs ³ (lead/lag/standby wet well level)	9'	9'/10'/11'	8'/9'/10'	--	--	--	1,503	924
Power House	92	87	--	--	75	91	1,763	771
Reservoir Well (level in ft)	--	8'	12'	--	25'	29'	--	592
Reservoir Booster 1	--	--	--	--	110	127	751	606
Reservoir Booster 2	--	--	--	--	--	--	--	--
Whitmore East	--	--	--	--	--	--	1,342	575
Whitmore West	105	23'	27'	--	96	109	2,117	1,550
Monroc ^{2,4}	105	8'	30'	--	--	--	--	1,173

¹ Control settings for all pumps were not available during this study.

² Pump off during reporting period.

³ VFD set to pump at average flow rate of Spring which fluctuates seasonally.

⁴ Rocky Mountain Power supplied well is mostly controlled by operators and not level settings.

DISTRIBUTION FACILITIES

The Murray City water distribution system is divided into three pressure zones, which are referred to as the Pressure Zone 1, Pressure Zone 2, and Pressure Zone 3. The approximate pressure zone boundaries are shown in Figure 3-1. The elevations and approximate hydraulic grade line elevations of the major water system facilities are illustrated in Figure 3-2. Pressure Zone 1 has no system demands or services and includes the Whitmore Wells, Monroc Well, and McGhie Springs. Because of its location in the system, Reservoir 4 can only be supplied with water from these four sources.

Pressure Zone 2, which includes areas with elevations between 4,350 ft and 4,450 ft, contains two sources, the 900 East well and the Reservoir Well (near Reservoirs 2 and 3). Zone 2 is also connected to Zone 1 via two pressure reducing valves (PRVs).

Pressure Zone 3, which includes areas below elevation 4,350 ft. contains the majority of Murray City's well sources. Pressure Zone 3 is also supplied with water from Pressure Zones 2 and 1 via PRVs and associated distribution pipes. Table 3-6 lists the PRVs in the Murray City system and recommended PRV settings.

Table 3-6
Murray City Pressure Reducing Valve Setting Summary

No.	Location	Installation Year	Elev. (ft)	Setting (psi)	Setting (ft)	Dia (in)
Pressure Zone 1 to Pressure Zone 2						
1	1500 E. Fort Union Blvd.	2000	4,447	30	4,517	14
2	6400 S. 900 E.	1980	4,398	49	4,511	16
Pressure Zone 2 to Pressure Zone 3						
3	5900 S. 900 E.	2009	4,353	60 ¹	4,492	10
4	5770 S. Fashion Blvd.	1985	4,343	65 ¹	4,492	12
5	5900 S. State Street	2013	4,335	68 ¹	4,492	8
6	6400 S. State Street	1995	4,353	64 ¹	4,500	12

¹ recommended pressure setting

Table 3-7 lists the sizes and corresponding lengths of pipe in the Murray City water distribution system.

Figure 3-2
Hydraulic Model "Existing" Hydraulic Grade Line Settings

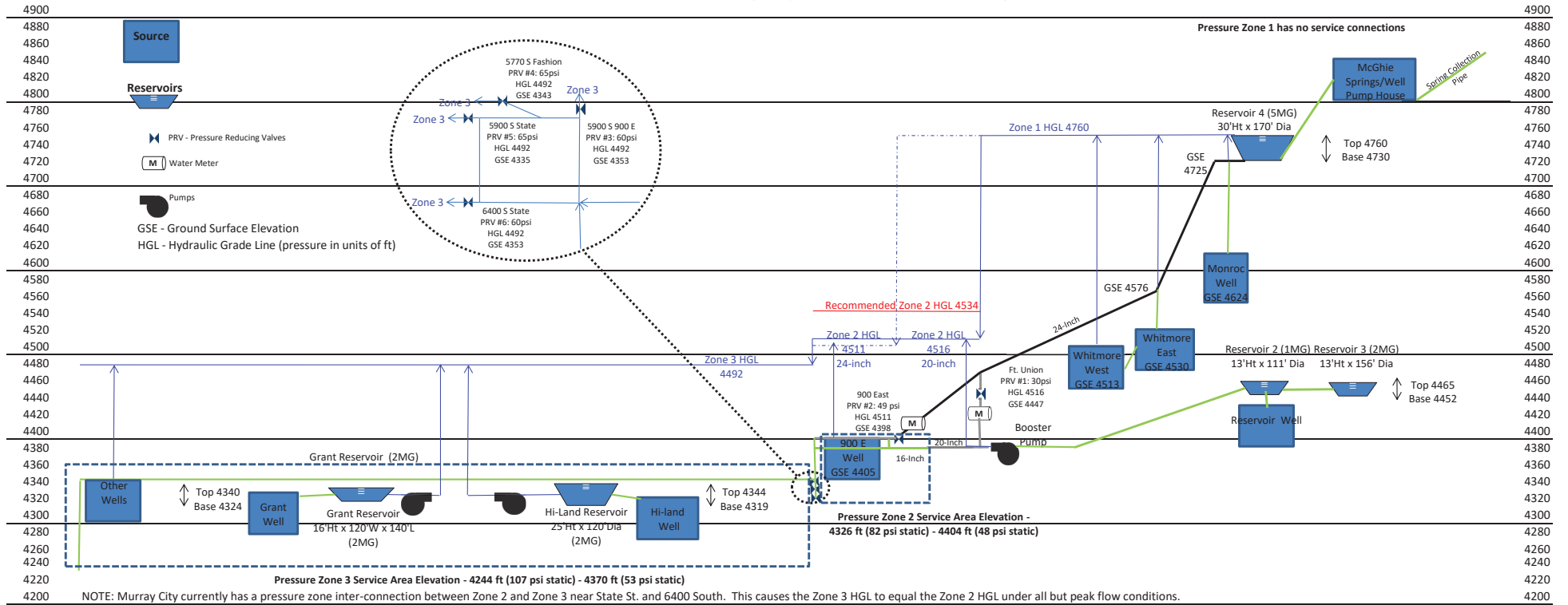


Table 3-7
Murray City Water Distribution System Pipe Lengths

Dia (in)	Length (ft)	Length (mi)	Percent of System
≤ 4	25,815	4.9	2.7%
6	288,868	54.7	30.7%
8	366,624	69.4	39.0%
10	62,020	11.7	6.6%
12	103,226	19.6	11.0%
14	47,475	9.0	5.0%
16	4,711	0.9	0.5%
18	1,777	0.3	0.2%
20	24,284	4.6	2.6%
24	15,692	3.0	1.7%
Total	940,493	178.1	100%

WATER PRODUCTION AND METERING

An important element of providing water to Murray City residents is the metering of total water sold and total water produced. Production numbers come from flow meters installed at wells or on major transmission pipes. Total water sale numbers come predominantly from residential and commercial water meter data. Figure 3-3 shows a graph comparing total water sold to total water produced at Murray City sources.

Although it is impossible to account for 100 percent of water loss, accurate accounting of water sales is important for charging required revenue and for identifying system improvement projects. Since 1994, Murray City has made significant improvements in metering water production and sales. Improvements between 1994 and 1998 can largely be attributed to installing meters at city parks and metering irrigation use. Improvements between 1999 and 2016 can largely be attributed to replacing malfunctioning or inaccurate meters within the service area. The average percentage of water sold to water produced over the last five years is approximately 91 percent compared to 87percent in 2010. Metering allows the City to identify where and when demands are highest in the City, which in turn makes it possible to resolve leaks and monitor conservation. This effort is important to ensure the City maintains or improves current conservation goals.

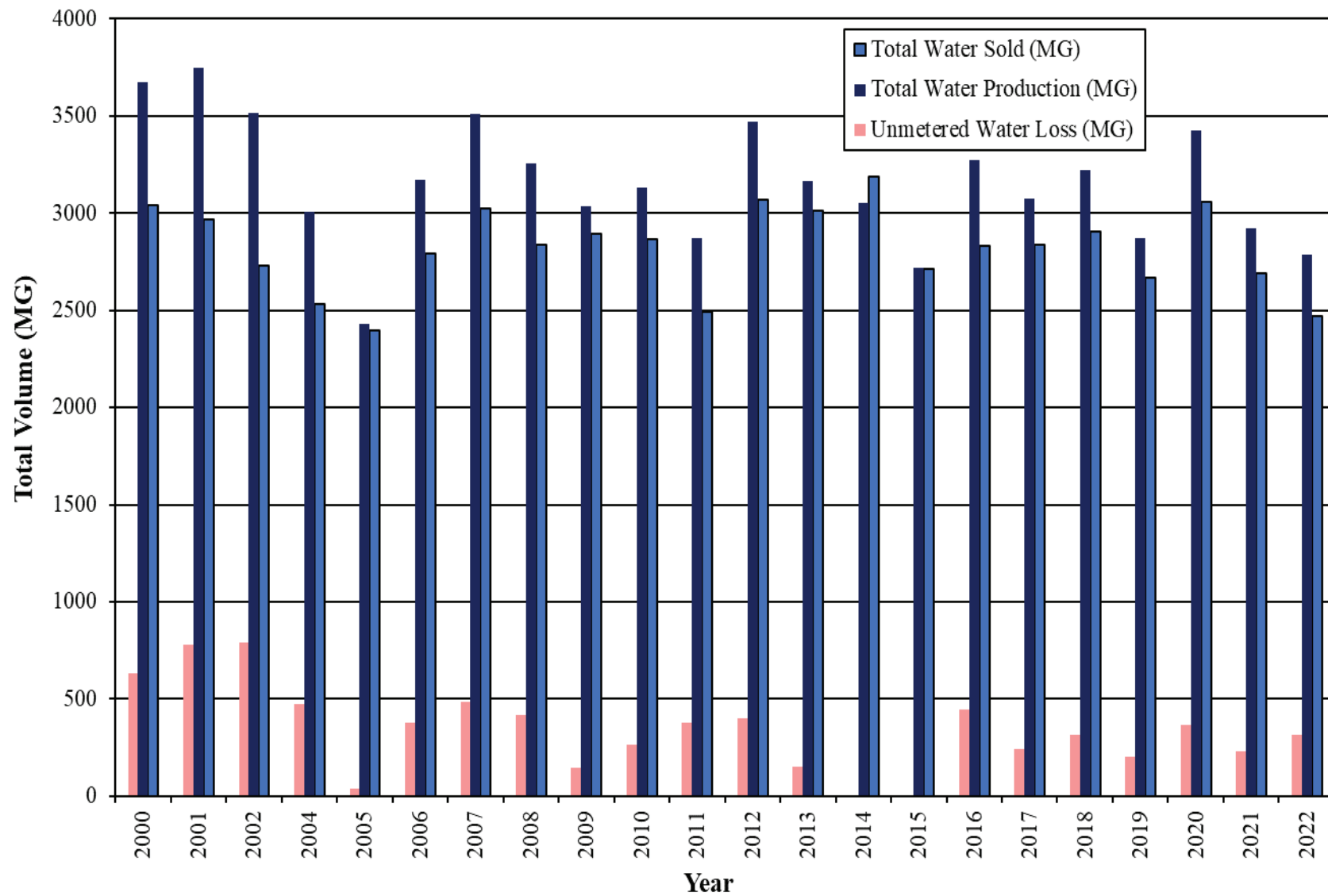


Figure 3-3 Proportion of Water Volume Sold to Volume Produced

CHAPTER 4 SUPPLY AND STORAGE EVALUATION

SOURCE CAPACITY

State of Utah Drinking Water regulations require that drinking water sources satisfy two criteria. First, sources must legally and physically meet the anticipated water demand on the peak day of demand. Second, the sources must be able to provide one year's supply, or the average annual demand. These guidelines should be met under worst case conditions, including drought periods.

Water for the water system in Murray City's service area is supplied by 8 springs and 19 wells. Each of these water sources is dependent on pumps and motors to deliver water to the water distribution system. It is important to consider the potential of mechanical failure, equipment maintenance, source contamination, as well as the potential for unforeseen changes in zoning that could include large new water users. To account for these possibilities, it is Murray City's goal to develop the capacity to meet peak day water system demands with a 30 percent reserve in its water source capacity.

Wells – Murray City uses 19 wells to meet service area demands. To calculate reliable well yield the maximum annual well production for each well since 2017 was identified and reduced by 20 percent. The 20 percent reduction accounts for potential mechanical failures, contamination, or other down time. The combined reliable well yield is 7,513 acre-feet/year.

McGhie Springs – Discharge from the eight McGhie Springs fluctuates depending on water year conditions (annual precipitation). Based on historic records since years, the average annual yield of the springs is 1,788 acre-feet. During drought years, the annual yield drops to around 1,315 acre-feet. McGhie Springs was rehabilitated in 2012 to protect the source from seismic damage due to deteriorating conditions.

Annual Supply

Murray's annual source supply is summarized in Table 4-1 for both dry and average water years.

**Table 4-1
Estimated Production – Murray City Dry and Average Water Years**

Supply Category	Estimated Production – Dry Year (acre-feet) ¹	Estimated Production – Average Year (acre-feet) ²
Wells	9,145	7,531
McGhie Springs	1,315	1,788
Total	10,460	9,319

¹ Dry year production was based on 2020 because 2020 was the most recent dry year without drought mitigation measures in place.

² Average production was based on 2017 through 2022.

The difference in total water supply during dry and average years is almost 500 acre-feet of water. Total estimated water supply during dry years will be used as Murray City's annual water supply capacity for planning purposes.

Figure 4-1 compares dry-year water production to projected annual water demands. For planning purposes, outdoor demand projections are based on dry/warm climate conditions similar to those

experienced in year 2020 (one of Murray City's highest water production years). Figure 4-1 also projects annual demands at existing per capita demands. Figure 4-1 indicates, without conservation, projected demands will closely match annual water supply starting around 2048. However, despite continuous growth in population and indoor demand, the City expects very little growth in outdoor demand. Some areas will potentially reduce irrigated area as the City redevelops at higher densities. Therefore, as Murray City grows, additional reductions in per capita demand are anticipated from reduced per capita outdoor demands. Murray City's existing conservation programs are also likely to lead to reductions in per capita indoor demand but may be more difficult to predict.

Peak Day Source Capacity

Peak day source capacity was evaluated in addition to annual supply capacity. Table 4-2 compares projected peak day demand (based on an estimated peaking factor) to Murray City's existing source pumping capacity. Based on Table 4-2 Murray City has adequate equipment capacity to accommodate peak day demands through build out as long as each source is operating at full capacity.

Based on the previously stated City goal to maintain a 30 percent water source reserve capacity for (projected) peak day demands, Murray City has just enough source redundancy to meet estimated peak day demands as shown in Table 4-2.

Table 4-2
Peak Day Supply and Demand Summary

Year	Peak Day Demand (mgd)	70% of Total Equipment Capacity ¹ (mgd)	Redundancy Excess (+) / Shortage (-) (mgd)
2023	22.0	23.2	+1.2
2065 (Buildout)	23.2	23.2	+0.0

¹ Based on total equipment capacity values provided by Murray City personnel.

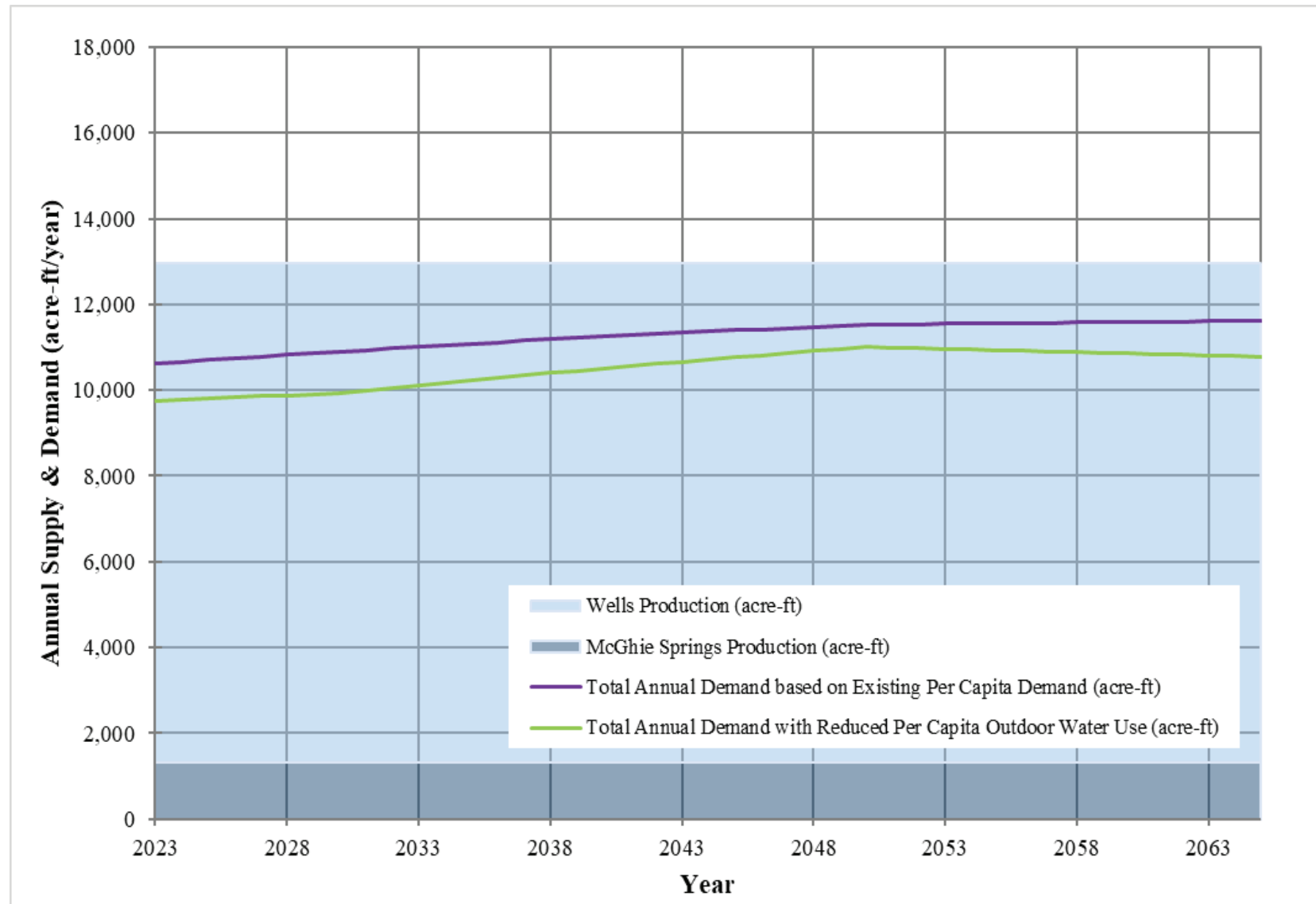


Figure 4-1: Estimated Murray Annual Dry Year Water Supply Capacity

Peak Hour Transmission/Boosting Capacity

Normally, peak instantaneous demands are partially met by utilizing equalization storage in storage tanks or reservoirs. However, only Reservoir #4 can meet peak instantaneous demands without the use of booster pumps. This reservoir and the other facilities located east of the Murray City service area are referred to as the Upper System. The Upper System facilities include:

- Reservoir #4 (Pressure Zone 1)
- McGhie Springs & Well (Pressure Zone 1)
- Monroc Well (Pressure Zone 1)
- Whitmore East Well & Whitmore West Well (Pressure Zone 1)
- Reservoir Well (Pressure Zone 2)
- Reservoirs 2 & 3 (Pressure Zone 2)

Water from the Upper System is conveyed to the Murray City water service area via two transmission mains as shown in the system schematic on Figure 3-2. The estimated capacities of the 24-inch and 16-inch transmission pipelines are based on a recommended maximum allowable flow velocity of 7 feet per second under peak hour demand conditions. The capacity of the Reservoir 2 & 3 booster is included as part of this transmission capacity.

The other 15 wells in Pressure Zones 2 and 3 can supply water to the system based on available pump capacities. The total production capacity was assumed to equal the total of well equipment capacities shown in Table 3-2 except for the Grant Park and Hi-Land wells. The booster pump capacities from the storage tanks associated with those two wells can exceed that of the wells during peak hour demands. The estimated booster pump capacities during peak hour demand for the Grant Park and Hi-Land tanks is 4,000 gpm and 2,000 gpm, respectively.

Table 4-3 compares projected peak hour demands to the combined transmission capacity out of the Upper System and the pumping capacities of Murray City's remaining wells. In 1997, observed peak hour water demand in Murray was approximately 26,000 gpm. Because of significant conservation of water in the City, peak hour demands in 2065 are anticipated to be less than 25,000 gpm. Based on Table 4-3, Murray City should have adequate transmission/pumping capacity to satisfy peak hour demands through buildout.

Table 4-3
Transmission/Pumping Capacity vs. Projected Peak Hour Demand

Year	Peak Hour Demand (gpm)	70% of Transmission/Boosting Capacity ¹ (gpm)	Redundancy Excess (+) / Shortage (-) (gpm)
2023	21,504	27,000	+5,496
2065 (Buildout)	22,753	27,000	+4,247

¹ Assumes a pumping capacity of 4,000 gpm at Grant and 2,000 gpm at Hi-land

STORAGE

There are three types of storage requirements addressed in State of Utah Drinking Water regulations: equalization storage, fire suppression storage, and emergency storage. Each is discussed in the following paragraphs.

Equalization Storage

Equalization storage is the storage required to meet demand fluctuations during periods of high water use. Equalization storage as a function of hourly demands is shown graphically in Figure 4-2. Figure 4-2 was developed using 15-minute production data in July 2020. Based on available data, the equalization volume requirement for Murray City was calculated to be approximately 18% of 24 hour peak day demand in 2022. For planning purposes, the recommended equalization volume will be calculated to be 25% of 24 hour peak day demand. This is the minimum volume required to meet fluctuations in daily demands in the City and does not necessarily account for storage desired by operators to reduce booster pump cycles or other power or water regulating needs. The estimated equalization storage is 5.2 MG for existing conditions and 5.8 MG for 2060 development conditions and 6.0 for full buildout development conditions.

Fire Suppression Storage

Fire suppression storage is the volume of water needed to provide a required fire flow for a specified period of time. In consultation with the Murray City Fire Department, the maximum fire suppression need for Murray City has been determined to be a fire flow of 8,000 gpm for a duration of four hours. The resulting minimum fire suppression storage volume requirement is 1.92 MG.

Emergency Storage

State guidelines for emergency storage state that the amount of emergency storage shall be based upon an assessment of risk and the desired degree of system dependability. Because the Murray City water system depends largely on wells and pumps, access to its primary water source (the aquifer) is limited by Murray City's pumping capacity. For this reason, the worst emergency scenario for Murray City supply is an extended city-wide power outage or equipment failure. For planning purposes, the City would like to maintain emergency storage equal to 6 hours of peak day demand or 25 percent of total peak day demands. This will provide a safety factor of 2.0 above required equalization requirements. Because fire storage requirements are relatively high in the City, the emergency storage requirement will incorporate fire suppression storage as part of emergency storage.

Adequate auxiliary power should be provided so that Murray City can meet indoor water demands during an extended city-wide power outage. This assumes that most outdoor irrigation systems would not operate during a power failure. Indoor water demands for Murray City are estimated to be approximately 4.7 MGD in 2023 and 5.7 MGD in 2065. Auxiliary power currently is currently available at McGhie Springs & Well, Grant Park Well, 45th South Well, Park Well, and the Reservoir Well. Table 4-4 lists the estimated dry year production capacities of each of these sources.

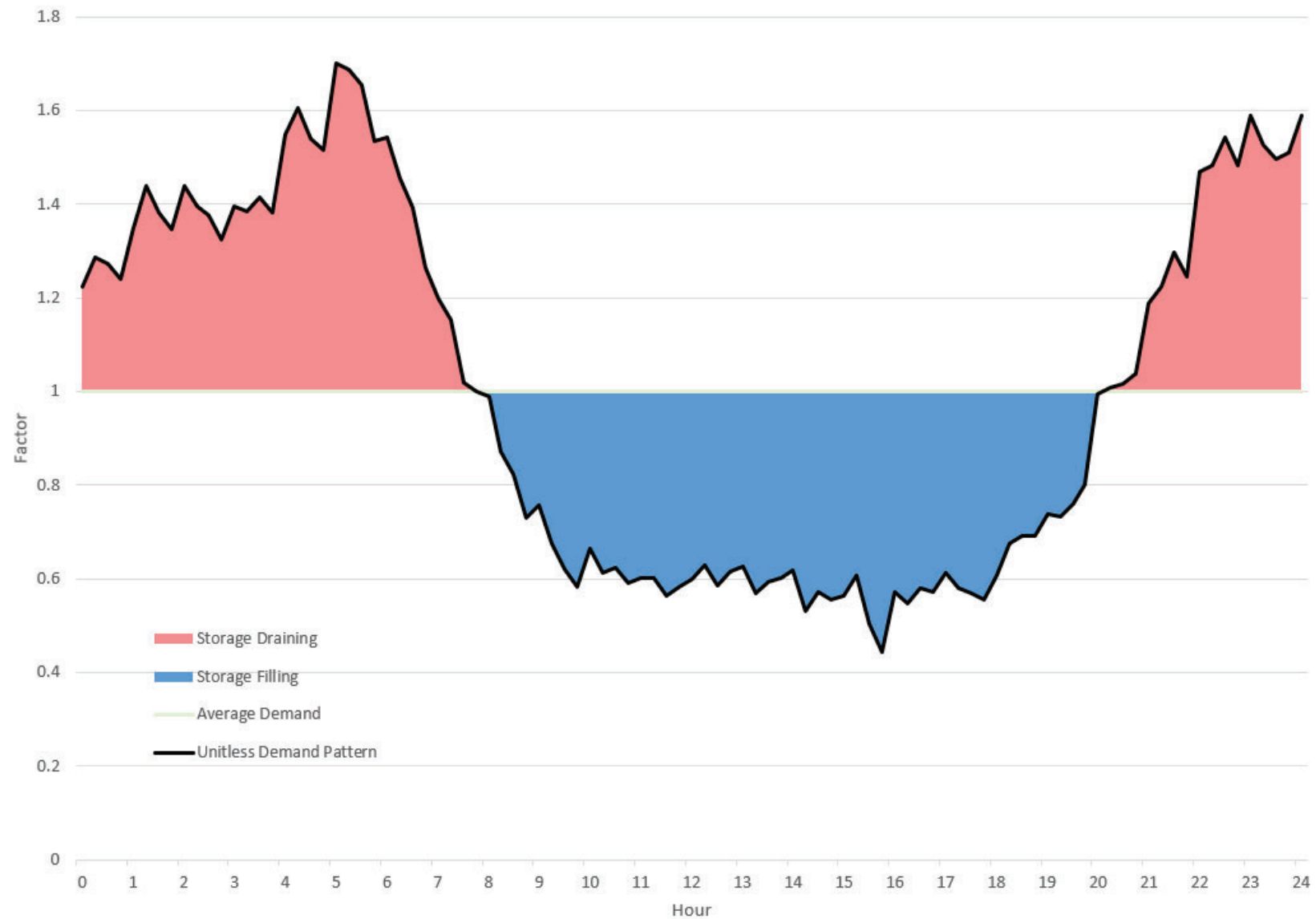


Figure 4-2: 2022 Peak Day Demand Pattern

Table 4-4
Murray City Auxiliary Power Source Capacity

Source	Capacity (MGD)
McGhie Well/Springs ¹	1.58
Grant Park Well	3.46
4500 South Well	1.73
Park Well	1.73
Reservoir Well	1.73
Total	10.23

Based on the amount of auxiliary power that Murray City has, there should be sufficient emergency production capacity to meet indoor demands in the event of a city-wide power failure. Most of this capacity is provided by Grant Park Well. However, it is recommended that additional auxiliary power be added at other key wells and reservoirs, including Whitmore and Hi-Land Wells, to provide redundancy.

Storage requirements in Murray City are summarized in Table 4-5 with total required and available storage.

Table 4-5
Murray City Storage Requirements

Type	2023 Storage (MG)	2065 Storage (MG)
Equalization	5.5	5.8
Fire Suppression	1.9	1.9
Emergency / Operational Storage	3.6	3.9
Required Storage	11.0	11.6
Available Storage	12.0	12.0
Excess (+)/Shortage (-)	+1.0	+0.4

CONCLUSIONS AND RECOMMENDATIONS

Annual Supply

If future annual demands in the City increased at existing per capita demand rates, it is anticipated that the City would need to acquire additional supply sources to meet long term demands. Based on the limited amount of developable area in Murray City, outdoor demands are anticipated to plateau within the next 10 to 15 years even as the total indoor demand continues to increase through redevelopment in the City. As a result, Murray City water demands are not anticipated to exceed available annual supplies within the City assuming there are no long-term failures of any sources in the City. However, to encourage a reduction in per capita demands, conservation practices such as the following are recommended:

- Conservation – Murray City should continue developing and implementing conservation efforts. The following methods could be considered:
 - Continue the EPA WaterSmart and “Slow the Flow” programs

- Continue outdoor watering time restrictions
 - Continue public matching grant programs to replace old fixtures.
- Conservation Budget – Murray City has a set conservation budget to implement conservation measures. The City should maintain the existing budget and adjust it as necessary to meet its conservation goals.

Peak Day Supply

Peak day demands are not expected to exceed 70 percent of existing equipment production capacity as the City approaches full buildout. As a result, there are limited improvements needed to meet peak day production capacity. The following improvements are recommended relative to peak day supply.

- Conservation – Continued conservation will help to mitigate capacity limitations as growth continues within the City.
- Data Collection Improvements – Continue monitoring static and dynamic water levels in wells and equip every well with a transducer to automate monitoring.
- Well Maintenance Budget – To maintain Murray City’s existing production capacity, it is important to develop a maintenance program to maintain each of its system wells at least every 7 years to prevent well capacity degradation and/or sudden pump failures. A draft well sustainability study was completed in 2012 with recommendations for improvements to wells. Note the 2012 study only covered a portion of their existing wells.

Storage

Murray City has adequate storage to provide equalization and fire flow storage. As a result, the City only needs to maintain adequate funding to provide for inspection, replacement, and renewal of existing reservoirs as they age.

Emergency Storage

Murray City has adequate auxiliary power at the Grant Park Well, McGhie Springs/Well, and the Reservoir Well to accommodate indoor demands during a power failure. To improve the City’s ability to respond to emergencies, it is recommended that the City consider adding backup power at the Hi-land Well and Whitmore Wells.

CHAPTER 5

HYDRAULIC MODEL DEVELOPMENT

WATER SYSTEM MODEL

The purpose of this chapter is to document the development of the City's culinary hydraulic water model and to document the results of the culinary distribution system evaluation based on hydraulic modeling.

Computer Modeling

A hydraulic computer model is a digital representation of physical features and characteristics of the water system, including sources, pipes, valves, storage tanks, and pumps. Key physical components of a water system are represented by a set of user-defined parameters that represent the characteristics of the system. The computer model utilizes the digital representation of physical system characteristics to mathematically simulate operating conditions of a water distribution system. Computer model output includes pressures at each node, flow rate for each pipe in the water system, and water surface levels in storage tanks.

There are several well-known computer programs for modeling water distribution systems. The City has used InfoWater (by AutoDesk) as its hydraulic modeling. InfoWater is compatible with ESRI's ArcGIS Pro geographic information system.

Murray City Data

The City's GIS Department compiled and provided extensive data on the City's water system. The provided data was used to update hydraulic model and included:

- **Pipeline Data** – Including location, diameters, lengths, materials, and ID numbers.
- **Demand Data** - From water meter and billing records for 2020.
- **Source Data** – Including source location, flow rates, and pressures.
- **Fire Flow Data** – Including hydrant locations and fire flow requirements.
- **City-Based Maps** - Including parcel, zoning, general plan land use.

Additional Data

Data provided by the City guided a majority of model set-up and calibration. Other sources, calculations, and assumptions were used to fill in remaining information required by the model. This included pipe roughness coefficients, elevation data, and future supply production and water demand.

Pipe roughness coefficients from the previous master plan were used for most pipes except those installed within the last 10 years. A Hazen-Williams coefficient of 140 was used for newer pipes under existing conditions. For future conditions, however, the pipe roughness was reduced to 110 to reflect pipe deterioration. This is a conservative assumption for future conditions. Roughness values were modified slightly as the model was calibrated.

Elevation data primarily comes from the Utah Geospatial Resource Center. The elevation data was transferred to the nodes using tools within the InfoWater software program, making the level of vertical accuracy plus or minus two feet at the system nodes. This is accurate enough for model calibration.

The hydraulic computer model developed for this study was developed to simulate extended period operating conditions based on controls provided by the City and demand patterns developed out of flow meter data provided by the City. Calibration conditions for existing conditions were based on flow data provided by Murray City. Calibration conditions for future conditions were based on estimated flows and capacities required to satisfy future demands.

Demand Distribution

Demand distribution is the process of estimating water demand at each individual node in the water system. The sum of the demands from all the nodes in the system is equal to the total system demand. The demand distribution allows the model to simulate various system operating conditions. The accuracy of the model depends in large part on how well the model's demand distribution matches the actual system's demand distribution.

Demand distribution data was developed using Murray City water meter and billing records for the year 2020 in conjunction with total water source production numbers to develop the 2023 average day demand. 2020 was used over more recent flow data because it was a higher planning value to modeling and planning for future demand as a result of more recent drought mitigation efforts of the City. Water meter data from July 2020 was assigned to the correct geographic location in the city using a meter-specific identification number and Murray City's GIS water meter database. The 2020 demands were adjusted to match peak day demands and then assigned to the nearest model node using GIS tools.

Water demands associated with future growth in the City were developed using traffic analysis zones (TAZ) developed from the City's transportation master plan with modifications based on recent City planning. Additional growth in both residential and non-residential populations for each TAZ was used to distribute the increase in water demand in the City. The water system operating conditions were then simulated for projected future development conditions.

Calibration

Calibration is the task of adjusting hydraulic model parameters so that model output results correlate with actual observed conditions in the water system. Calibration is an iterative process that is repeated until the model output results match field measurements to an acceptable level of accuracy. The level of accuracy is the difference between the model result value and measured field value, divided by the field value, expressed as a percentage. The level of accuracy is an indicator of how closely the model is simulating actual conditions in the system. For this study, the target level of accuracy for the model results was to be within 10 percent of observed conditions.

The field data used in the calibration of this model included:

- Peak day flow and pressure measurements at available sources
- Peak hour flow and pressure measurements at available sources
- Recent fire flow tests.

The worst-case low system operating pressure scenario is associated with fire flows, peak day demands, and peak hour demands. The model was calibrated based on available data collected in 2020 (including pressure measurements at wells scattered through the City).

Historically, there have been some inter-connections between pressure zones 2 and 3. It is understood that all known inter-connections have been identified and closed. Hazen-William

roughness coefficients were also adjusted in some areas to calibrate the model. Subsequent model simulations can thus be considered an accurate representation of the system during peak day and peak hour conditions. Table 5-1 shows the recorded field and model simulation results for various source locations throughout the system.

Table 5-1
Peak Day Recorded Pressures vs. Hydraulic Model Simulated Pressures

Well	Recorded Average Peak Day* Pressure (psi)	Model Peak Day Pressure (psi)	Difference Between Modeled and Recorded PDD Pressure %
600 W	81.9	82.45	0.67%
Hi-land	71.7	68.38	-4.63%
Howe	63.9	62.1	-2.82%
Powerhouse	85	82.78	-2.61%
500 E	80.5	81.31	1.01%
360 W	96.4	95.18	-1.27%
300 W	71.7	70.81	-1.24%
Vine	56.7	61.17	7.88%
700 W	85.7	82.68	-3.52%
Millrace	91.1	85.16	-6.52%
4500 S	99.2	95.72	-3.51%
Park	88.2	88.32	0.14%
900 E	51	51.44	0.86%
Grant	64.8	65.17	0.57%

*Data is from 2020.

The level of accuracy obtained for peak day pressures was on average 3 percent with a maximum of 7.88 percent (%) near the Vine Street Well. Model output for existing conditions was reviewed and verified for accuracy and reasonableness by City personnel.

Modeling Assumptions – The key assumptions made in developing the computer model were:

- The water system service area would remain constant (as identified in Chapter 2).
- Pipe hydraulic data, flow data, and pressure data provided by the City were accurate.
- The roughness coefficients of the pipes were consistent according to assumed age and materials.
- Water pipelines were four feet below the ground surface.

CHAPTER 6

DISTRIBUTION SYSTEM EVALUATION

The hydraulic model was used to simulate the following demand scenarios for existing water facilities:

- 2020 Development Conditions
 - Peak hour demand
 - Peak day demand with fire flows
- 2065 Development Conditions
 - Peak hour demand
 - Peak day demand with fire flows
 - City-wide power failure with fire flows.

Water demands for existing and future conditions are described in Chapter 2. The city-wide power failure scenario assumes that water demands are equal to approximately 50 percent of average day demands. During a city-wide power failure, the Grant Park well, McGhie Springs & Well, 45th South Well, Park Well, and the Reservoir Well are the only sources equipped with auxiliary power to supply Murray City indoor water demands. Any demands in excess of these source capacities during a city-wide power outage would draw water from Reservoir 4.

DESIRED MINIMUM OPERATING CRITERIA

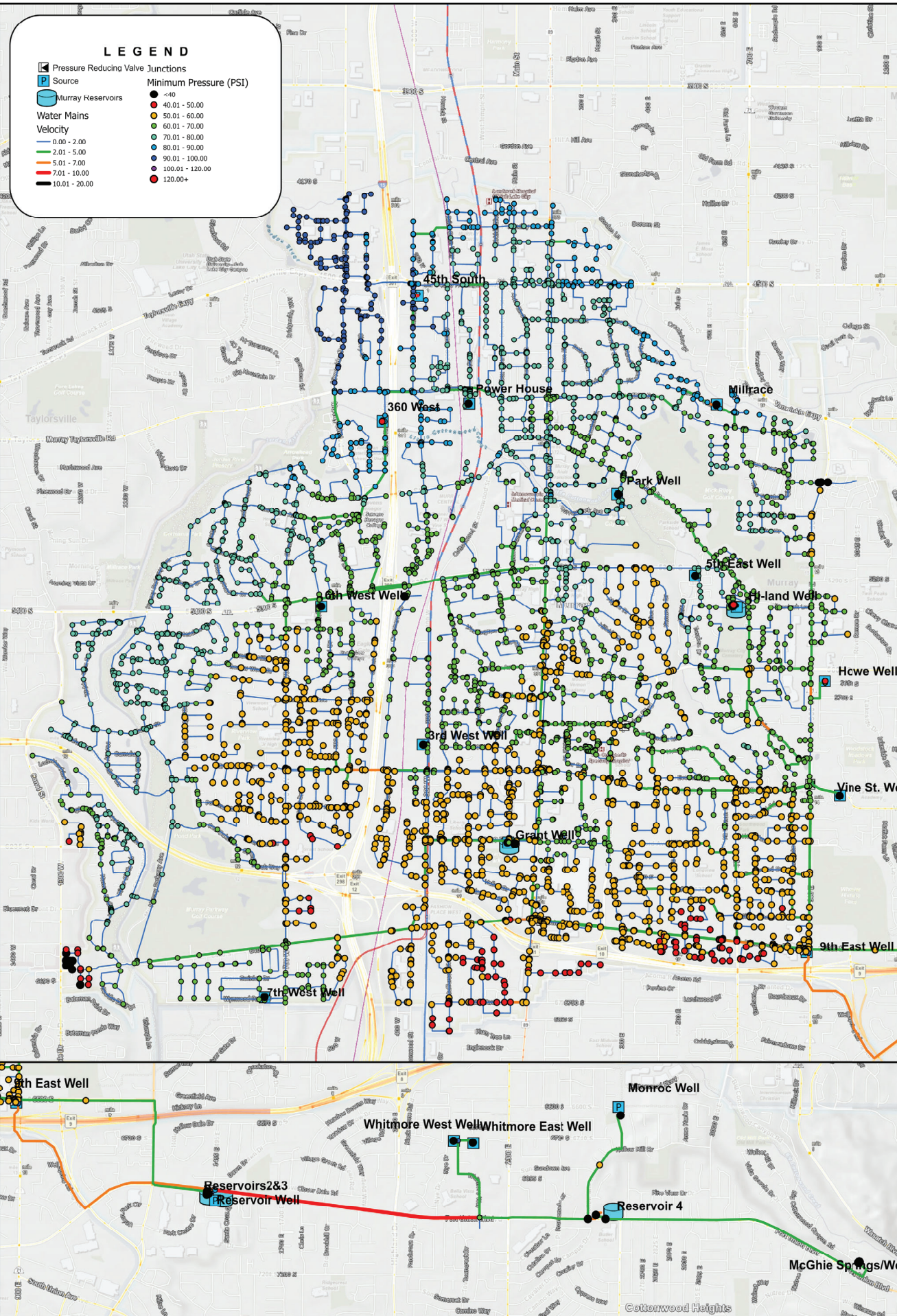
Regulations established by the State of Utah require that a water distribution system be able to maintain a minimum pressure of 40 pounds per square inch (psi) at all points within the system during peak day demands, 30 psi during peak instantaneous demands and 20 psi during peak day demands with fire flow. However, for the purposes of defining an operating deficiency for this study; the City has established the following desired minimum operating criteria for the City water system, which are more stringent than the State criteria:

- Operating pressure will not be less than 50 psi during peak hour demand with exceptions near 1300 West and Winchester Drive. Peak hour pressures at that location will not be less than 40 psi during peak hour demand.
- Operating pressure will not be less than 25 psi during peak day demand with fire flows anywhere in the system. Minimum fire flows shall be defined as 1,500 gpm.
- Flow velocity will not exceed 7 feet per second (fps) anywhere in the system under peak hour demands.

2020 DEVELOPMENT CONDITIONS

Peak Hour Demand

Figure 6-1 shows the model simulation results for peak hour demand under existing development conditions. Simulated operating pressures remain well above the State of Utah requirement of 30 psi during peak instantaneous demands. Simulated operating pressures drop below the desired 50 psi minimum threshold in two small areas at the south end of the City, on the east and west ends of Winchester Street during peak hour demands. The higher elevations in Pressure Zone 2 (closer to the 900 E PRV) and a couple of small areas west of I-15 are predicted to have operating pressures below 50 psi during the peak hour demand operating scenario.



Peak Day Demand with Fire Flow

Most of the Murray City water distribution system is capable of delivering a fire flow in excess of 1,500 gpm while maintaining a residual pressure of 25 psi. Figure 6-2 shows available fire flows at system nodes at 25 psi. The exceptions are mostly limited to areas that have 4-inch and 6-inch distribution pipes and long dead-end pipelines. High velocities through these smaller pipes at fire flows cause significant friction losses reducing available pressure for fire protection. The location of fire flow deficiencies is discussed in more detail below.

2065 DEVELOPMENT CONDITIONS

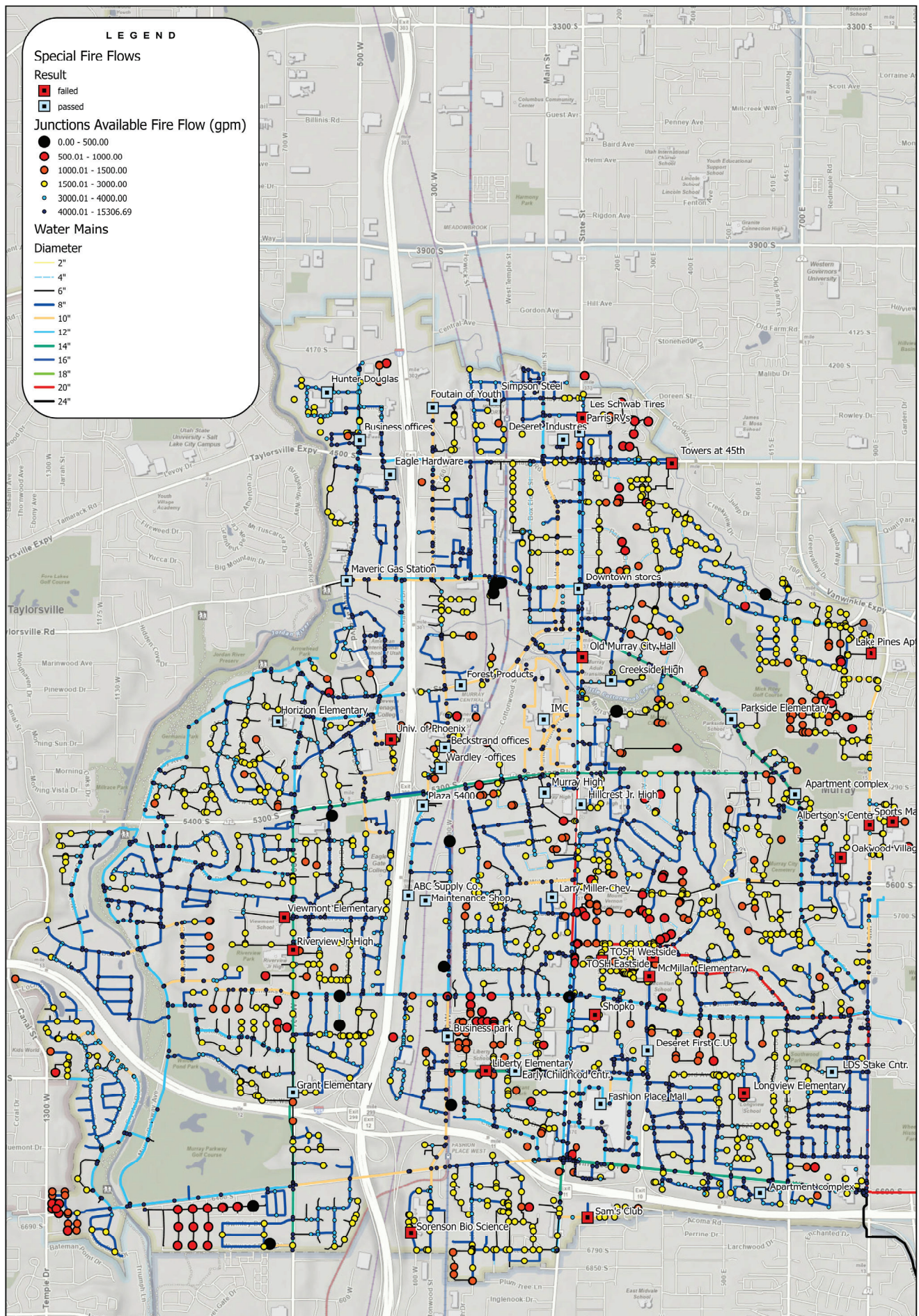
Peak Hour Demand

Figure 6-3 shows model simulation results for the existing distribution facilities under projected peak hour demands for full buildout conditions. The low pressures simulated for existing conditions as shown in Figure 6-1 generally become more severe. This is most apparent at the southeast area of the City near 900 East. The major cause of the pressure drops across the city are transmission losses within Pressure Zone 3.

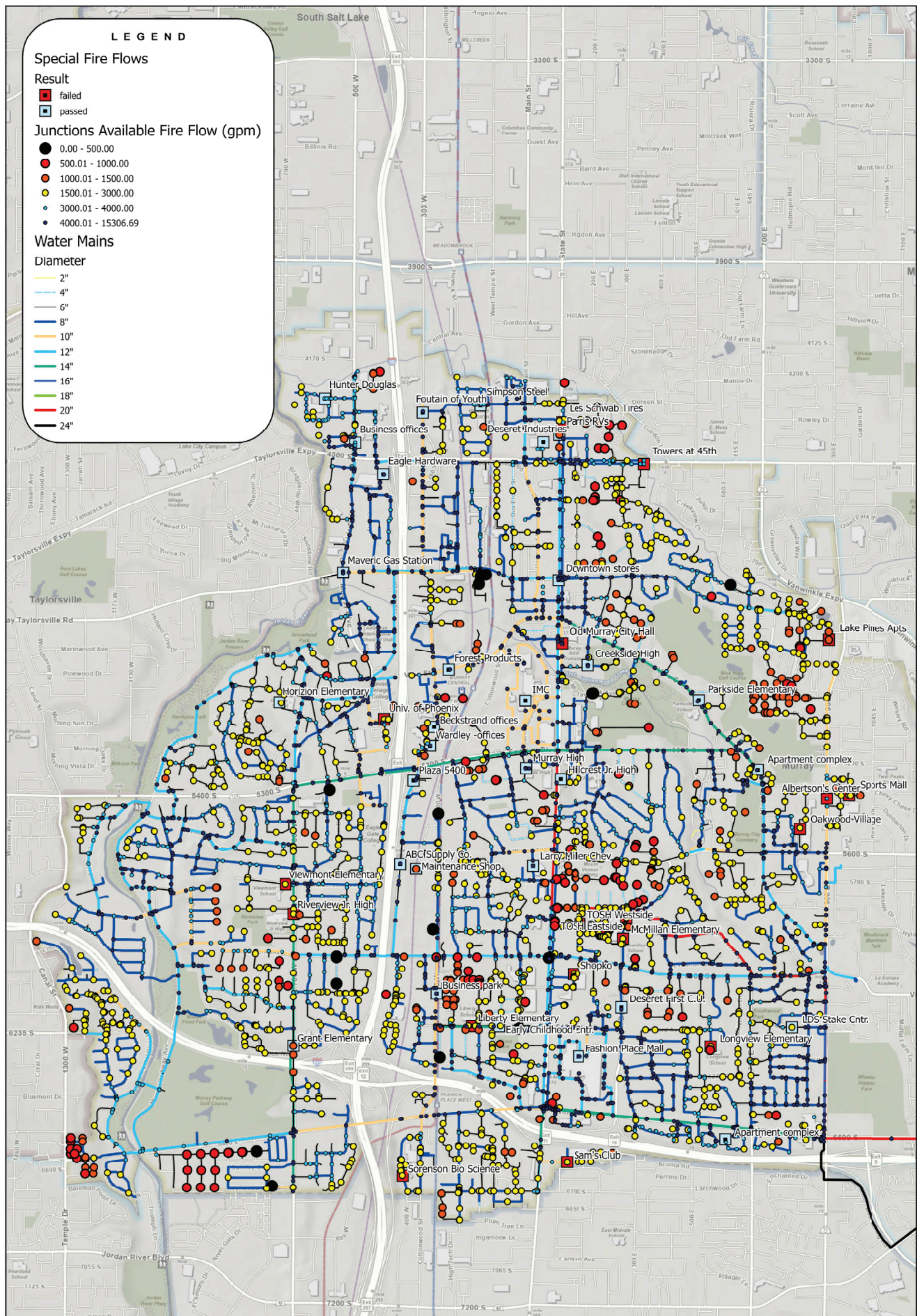
Peak Day Demand with Fire Flow

Figure 6-4 shows available fire flows for the existing distribution facilities using projected build out Peak Day Demands. Any flows less than 1,500 gpm represent fire flow deficiencies and are color coded orange, red, and black based on their severity. Many of the fire flow deficiencies shown in Figure 6-4 are the result of undersized pipes.

Special fire flow areas are also identified in Figure 6-4. These locations were identified by Murray City Fire Department personnel as areas of special concern with regards to fire flow. In some cases, it may be difficult for Murray City to resolve some fire flow deficiencies through capital improvement projects because under sized water lines are not in the public right-of-way. Table 6-1 summarizes results of fire flow simulations at the special fire flow areas identified by the fire department. The City fire department should evaluate fire flows at the locations of interest identified in Table 6-1 to determine if “required fire flow” assessments are accurate. This will allow the water department to budget and address deficiencies appropriately.







**Table 6-1
Summary of Fire Flow Model Output at Key Locations**

ID	Structure Name	Structure Type	Required Fire Flow (gpm)	Build Out Theoretical Flow for Main at 25 psi (gpm)	Status	Available Flow to Required Flow Ratio	Approximate Address
1	Security National Life Insurance Company	Com	7000	2,057	FAIL	0.29	5187 S ASCENSION WAY
2	Riverview Jr. High	School	6750	2,446	FAIL	0.36	751 W TRIPP LN
3	Lake Pines Apts (private)	Res High	3500	1,860	FAIL	0.53	4929 S LAKE PINES DR
4	Old Murray City Hall		4750	2,648	FAIL ¹	0.56	5025 S STATE ST
5	Viewmont Elementary	School	5000	2,828	FAIL	0.57	725 W ANDERSON AVE
6	Longview Elementary	School	4750	2,716	FAIL	0.57	6270 S 650 E
7	TOSH Eastside	Com	3500	2,173	FAIL	0.62	5770 S FASHION BLVD
8	McMillan Elementary	School	4750	3,050	FAIL	0.64	315 E 5900 S
9	Les Schwab Tires	Com	3500	2,362	FAIL	0.65	4340 S STATE ST
10	Towers at 45th	Com	3375	2,429	FAIL	0.72	310 E 4500 S
11	TOSH Westside	Hosp.	4000	3,088	FAIL	0.77	5848 S FASHION BLVD
12	Liberty Elementary	School	4000	3,141	FAIL	0.79	140 W 6100 S
13	Sports Mall	Com	3375	2,746	FAIL	0.81	952 E WOODOAK LN
14	9 th Street Marketplace	Com	6000	4,940	FAIL	0.82	5498 S 900 E
15	Sam's Club	Com	3500	3,190	FAIL	0.91	6525 S STATE ST
16	Shopko	Com	3000	2,771	FAIL	0.92	5959 S STATE ST
17	ABC Supply Co.	Com	2375	3,445 ²	PASS	0.93	5609 S COMMERCE DR
18	Sorenson Bio Science	Ind	2375	2,726	PASS	1.15	6655 S 400 W
19	Forest Products	Ind	5000	5,090	PASS	1.02	249 W VINE ST
20	Parris RVs	Com	3500	3,751	PASS	1.07	11 E 4500 S
21	LDS Stake Center	Rel	2500	2,693	PASS	1.08	817 E HOLLY AVE
22	Hunter Douglas		3375	3,714	PASS	1.10	4292 S 590 W
23	Wardley -offices	Com	5500	6,519	PASS	1.19	5295 S COMMERCE DR
24	Fountain of Youth	Ind	4000	4,770	PASS	1.19	4320 S COMMERCE DR

ID	Structure Name	Structure Type	Required Fire Flow (gpm)	Build Out Theoretical Flow for Main at 25 psi (gpm)	Status	Available Flow to Required Flow Ratio	Approximate Address
25	Horizon Elementary	School	2500	3,010	PASS	1.20	5180 S GLENDON ST
26	Business offices	Com	3000	3,731	PASS	1.24	4475 S 500 W
27	Early Childhood Cntr.	School	2000	2,580	PASS	1.29	58 W 6100 S
28	Grant Elementary	School	4000	5,195	PASS	1.30	6148 S 700 W
29	Maintenance Shop	City	2500	3,340	PASS	1.34	5604 S 300 W
30	Sports Authority	Com	2125	2,984	PASS	1.40	5540 S 900 E
31	Deseret Industries	Com	3000	4,316	PASS	1.44	11 E 4500 S
32	Maverik Gas Station	Com	4000	5,952	PASS	1.49	507 W 4800 S
33	Deseret First C.U.	Com	3000	4,696	PASS	1.57	6060 S FASHION BLVD
34	Eagle Hardware	Com	3500	5,480	PASS	1.57	469 W 4500 S
35	Fashion Place Mall	Com	4000	6,395	PASS	1.60	6191 S STATE ST
36	Beckstrand offices	Com	3000	4,816	PASS	1.61	5250 S COMMERCE DR
37	Hillcrest Jr. High	School	4000	6,464	PASS	1.62	126 E 5300 S
38	Simpson Steel	Ind	2500	4,084	PASS	1.63	111 W FIRECLAY AVE
39	Larry Miller Chev	Com	3000	5,540	PASS	1.85	5650 S STATE ST
40	IMC	Hospital	3875	7,215	PASS	1.86	5121 S COTTONWOOD ST
41	Parkside Elementary	School	4750	8,851	PASS	1.86	531 E VINE ST
42	Murray High	School	4000	7,700	PASS	1.93	5440 S STATE ST
43	Business park	Com/Ind	3000	6,123	PASS	2.04	6000 S 300 W
44	Creekside High	School	2000	4,611	PASS	2.31	147 E MYRTLE AVE
45	Apartment complex	Res High	3750	9,317	PASS	2.48	632 E WINCHESTER ST
46	Plaza 5400	Com	3500	9083	PASS	2.59	5305 S COMMERCE DR
47	Downtown stores	Com	3000	7,956	PASS	2.65	4816 S STATE ST
48	Apartment complex	Res High	3000	9,317	PASS	3.11	691 E VINE ST

¹Hydrants along Jones Ct (400 ft away) have adequate pressure and flow, but hydrants along State St are deficient. A new pipe should be installed along Arlington Avenue when the site is redeveloped.

²Value is based on field fire flow testing performed in February 2024 by Murray City water operators.

Source Failure Sensitivity

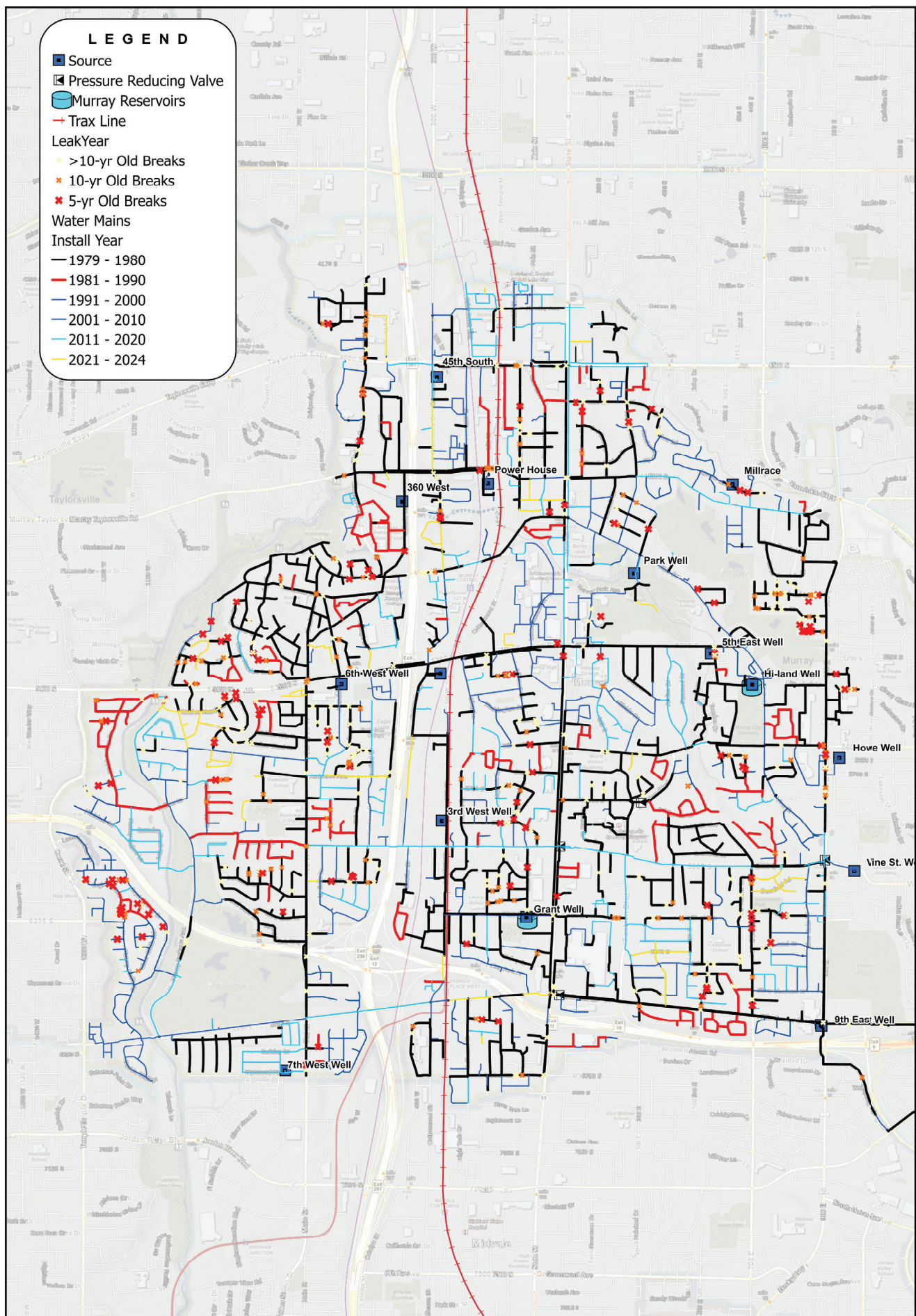
In addition to simulating peak day fire flow and peak hour demands in the model, it is also possible to simulate failure of various sources during peak or winter demand conditions. The following scenarios were simulated to determine where additional emergency preparedness or emergency facilities may be warranted:

- **Failure of Individual Sources** – Each of the sources in Murray’s water system was simulated as off one at a time under peak day and peak hour demand conditions to evaluate water system sensitivity to reduced production capacity. Most wells in the City’s distribution system can be out of production without a significant impact on pressures as long as other sources were available to offset the loss in production. The following sources were identified as having the most effect on the Murray water system:
 - **Grant Park Well / Booster** – During peak hour demand, pressures on the western end of the City decline significantly without use of the Grant Park Well and Boosters. The Grant Well is already equipped with emergency backup power. As a result, regular maintenance of mechanical equipment is the only other requirement needed for this source.
- **City Wide Power Failure** – In the event of a city-wide power failure, there would not be adequate emergency power to satisfy peak day demands without significant declines in pressure across the City. However, the available auxiliary power at the Grant Park Well, McGhie Springs, 45th South Well, Park Well, and the Reservoir Well would be capable of providing sufficient supply to satisfy indoor demands at buildout (10.2 mgd or 7,100 gpm) without a significant decrease in available pressure.

REPORTED DEFICIENCIES

Pipe Breaks

In addition to the pressure and velocity deficiencies identified by the computer model simulations, City personnel were consulted to identify problems and deficiencies related to the condition of pipes. Condition deficiencies included sections of old steel pipe, pipelines with recurring breaks and leaks, and pipelines and fire hydrants less than four inches in diameter. Figure 6-5 shows pipe break repair locations since the year 2000 along with pipe age across the City service area.



LEGEND

- Source
- Pressure Reducing Valve
- Murray Reservoirs
- Trax Line
- LeakYear
- >10-yr Old Breaks
- 10-yr Old Breaks
- 5-yr Old Breaks
- Water Mains
- Install Year
- 1979 - 1980
- 1981 - 1990
- 1991 - 2000
- 2001 - 2010
- 2011 - 2020
- 2021 - 2024

P:\Murray City\005-23-01 Water Master Plan\4.0 GIS\Murray Master Plan Figures 2023.aprx twinslow 2/27/2024

CHAPTER 7

RECOMMENDED SYSTEM IMPROVEMENTS

To effectively manage the City's water system assets, the approximate replacement cost of the City's existing water system was evaluated to estimate the costs per year that the City should allocate toward water system improvements.

PIPE REPLACEMENT COSTS

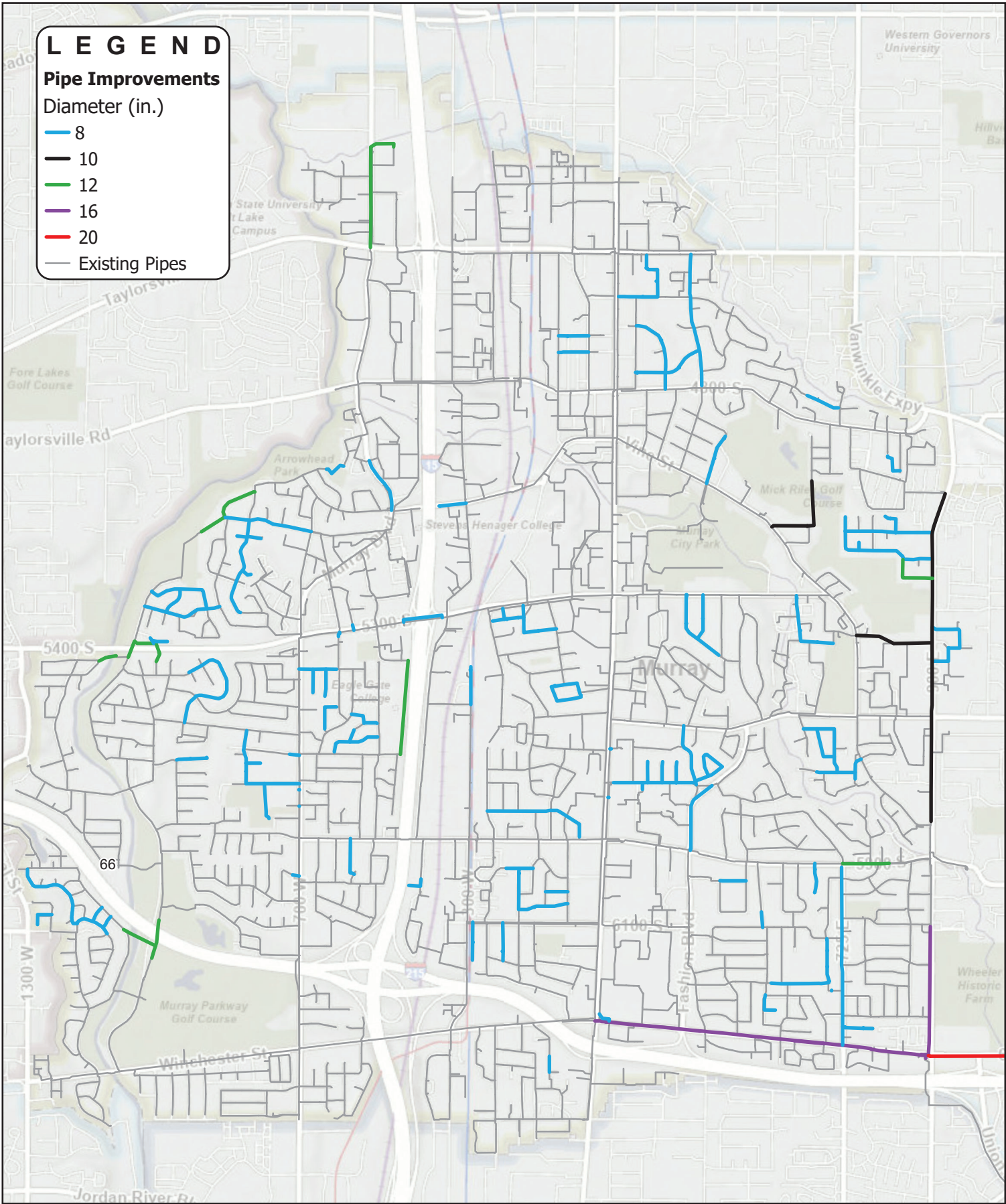
The estimated present-day value of Murray City's pipe distribution network is \$186 million (January 2024 dollars). Murray City has historically spent approximately \$2 million/year for pipe replacement. This is equivalent to 1 percent of Murray City's distribution pipe network. If Murray City continues to spend \$2 million/year for pipe replacements (increasing with inflation); Murray City should expect to replace the pipes in its water system distribution network every 100-years. The anticipated service life of a ductile iron water pipe in Murray is approximately 60 years. To replace the City's distribution network within 60 years, Murray City will need to spend at least \$3.1 million/year for pipe replacements (increasing with inflation).

PIPE IMPROVEMENTS

Figures 7-1 through 7-3 show the locations of the recommended pipeline improvement projects in the City public right-of-way. Figure 7-1 displays the diameter of proposed system improvements. Figure 7-2 identifies the deficiency that justifies the recommended improvement. Figure 7-3 shows each project color coded by its recommended priority. Table 7-1 lists recommended capital improvement projects in order of priority based on Murray City personnel input.

Aging Pipelines

Where the primary reason for replacement lists "pipe breaks", pipes with more than four breaks were given higher priority as required system improvements to prevent emergency repairs and/or water outages. Improvements were prioritized according to the number of recorded waterline breaks and average peak hour flow through the pipe. Pipes that had higher flows in the hydraulic model peak hour simulation were given higher priority because of the higher potential of street and property damage from a waterline break.



 BOWEN COLLINS & ASSOCIATES	SYSTEM IMPROVEMENTS PIPE SIZES MURRAY CITY WATER SYSTEM MASTER PLAN	NORTH: 	SCALE: 0 1,500 3,000 Feet  FIGURE NO. 7-1
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LEGEND

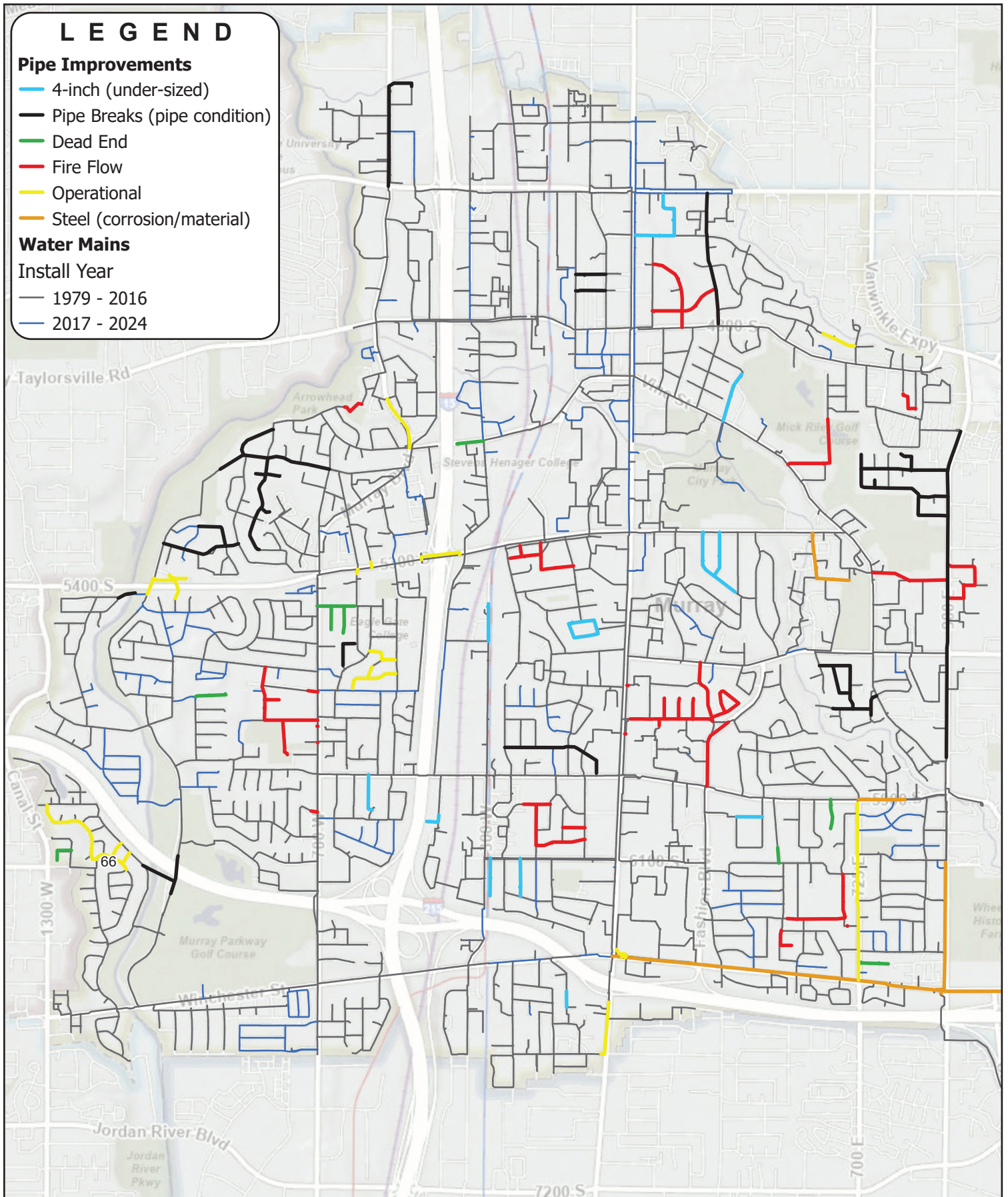
Pipe Improvements

- 4-inch (under-sized)
- Pipe Breaks (pipe condition)
- Dead End
- Fire Flow
- Operational
- Steel (corrosion/material)

Water Mains

Install Year

- 1979 - 2016
- 2017 - 2024



SYSTEM IMPROVEMENTS DEFICIENCY JUSTIFICATION

MURRAY CITY

WATER SYSTEM MASTER PLAN

NORTH:

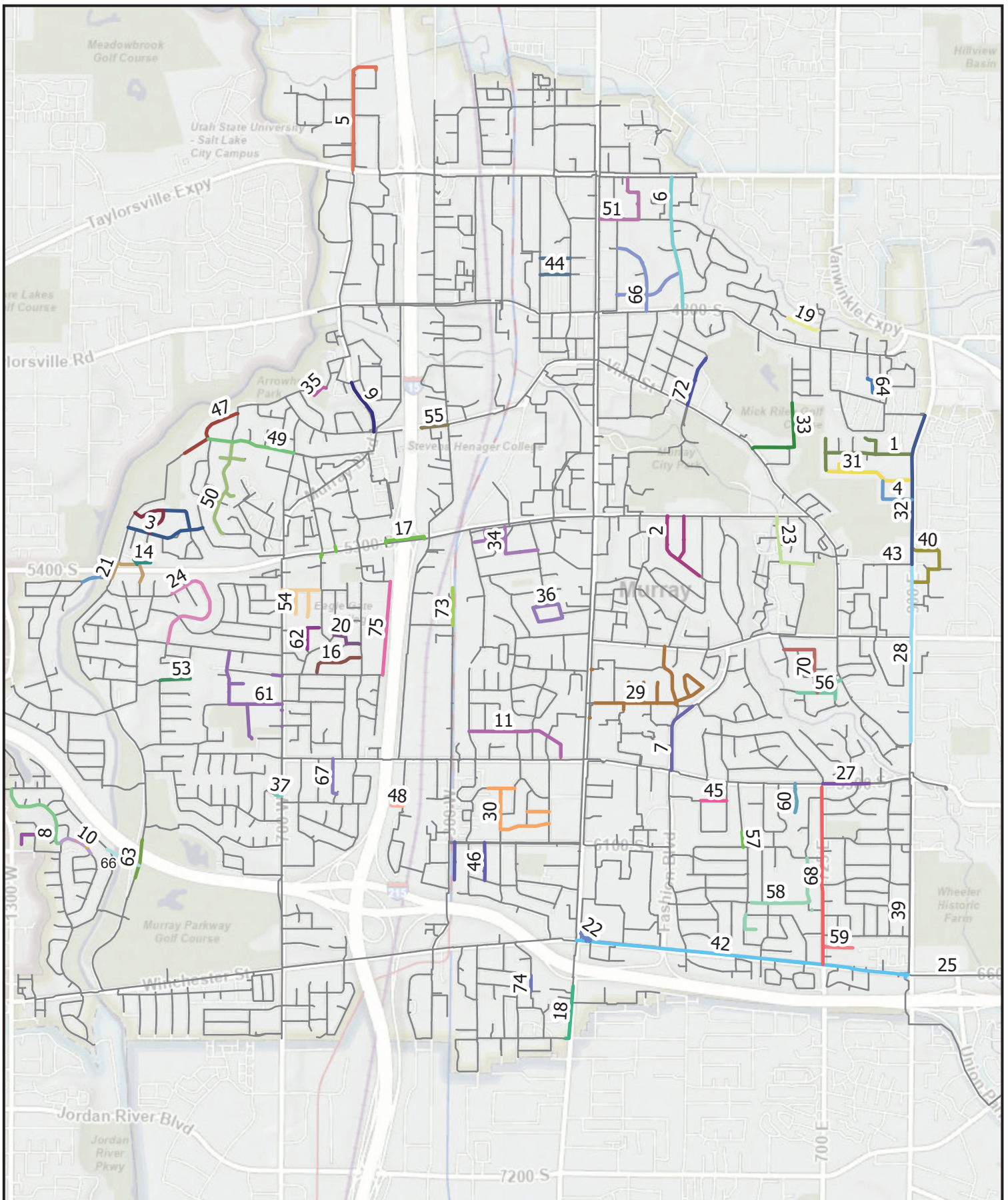


SCALE:



FIGURE NO.

7-2



SYSTEM IMPROVEMENTS IMPROVEMENT PRIORITY MURRAY CITY WATER SYSTEM MASTER PLAN

NORTH:



SCALE:



FIGURE NO.

7-3

Table 7-1
Prioritization of Recommended Pipe Replacement Projects

Project Location	Project Priority ¹	Primary Reason for Replacement	Future Size (in)	Length (ft)	Pipe Unit Cost	Pipe Construction Costs	Surface or Other Special Construction Cost	Total Construction Cost (2024\$)	Engineering / Administrative Costs (15%)	Total Project Cost	Net Unit Cost	Approximate Year of Construction ³
Arrowhead Ln, 900 E to Caribbean Way	1	Aging	8	3,300	\$190	\$627,322	\$149,778	\$777,101	\$116,565	\$893,666	\$271	2024
Montrose & Alpine	2	4-inch	8	1,861	\$190	\$353,772	\$126,717	\$480,489	\$72,073	\$552,562	\$297	2024
Halycon Dr	3	Aging	8	1,539	\$190	\$292,560	\$104,831	\$397,391	\$59,609	\$457,000	\$297	2025
Harwood Ln to Pontiac	4	Aging	8	932	\$190	\$177,171	\$63,470	\$240,641	\$36,096	\$276,738	\$297	2025
4500 s from 500 W to North City Limits	5	Aging	12	1540	\$115	\$177,248	\$0	\$177,248	\$31,279	\$208,527	\$135	2025
Atwood, 4800 S to 4500 S	6	Aging	8	2,577	\$190	\$489,882	\$175,475	\$665,356	\$99,803	\$765,160	\$297	2025
Fashion Blvd, 59000 to 5770 S	7	FF	8	1440	\$190	\$273,741	\$23,720	\$297,461	\$44,619	\$342,080	\$238	2025
Eagle Nest Drive	8	Operational	8	1800	\$190	\$342,176	\$89,754	\$475,122	\$71,268	\$546,391	\$304	2025
Murray Blvd., Vine Street to Hunters Wood	9	Operational	8	1100	\$190	\$209,107	\$54,849	\$290,353	\$43,553	\$333,906	\$304	2025
El Cimarron Drive	10	Operational	8	800	\$190	\$152,078	\$39,891	\$211,166	\$31,675	\$242,840	\$304	2025
5878 S from Utahna Dr to 5900 S	11	Aging	8	2115	\$80	\$170,000	\$0	\$0	\$30,000	\$200,000	\$95	2026
Monticello Lane	12	Operational	8	280	\$190	\$53,227	\$13,962	\$73,908	\$11,086	\$84,994	\$304	2026
Rim Rock Lane	13	Operational	8	330	\$190	\$62,732	\$16,455	\$87,106	\$13,066	\$100,172	\$304	2026
Bellwood Lane	14	Operational	8	600	\$190	\$114,059	\$29,918	\$158,374	\$23,756	\$182,130	\$304	2026
Echo Drive	15	Operational	8	740	\$190	\$140,672	\$36,899	\$195,328	\$29,299	\$224,627	\$304	2026
Spacerama Drive	16	Operational	8	1400	\$190	\$266,137	\$69,808	\$369,540	\$55,431	\$424,971	\$304	2026
5300 South I-15	17	Operational	8	200	\$190	\$38,020	\$9,973	\$52,791	\$7,919	\$60,710	\$304	2026
State Street, 6500 S to 6790 S	18	Operational	6	1086	\$190	\$206,446	\$54,151	\$286,657	\$42,999	\$329,656	\$304	2026
Millrace Well Pipe Improvements	19	Operational	10	820	\$198	\$161,969	\$42,608	\$225,034	\$33,755	\$258,790	\$316	2026
Greenleaf Drive	20	Operational	8	375	\$190	\$71,287	\$18,699	\$98,984	\$14,848	\$113,831	\$304	2026
5400 S Murray Parkway Ave. Crossing	21	Operational	12	350	\$708	\$247,772	\$17,435	\$291,727	\$43,759	\$335,486	\$959	2026
State & Winchester PRV connection	22	Operational	16	406	\$233	\$94,666	\$569,474	\$664,140	\$99,621	\$763,761	\$1,881	2026
550 E, 5300 S to 5400 S	23	Steel	8	1,554	\$190	\$295,412	\$105,854	\$401,266	\$60,190	\$461,456	\$297	2026
Walden Meadows Dr & 3 Circles PRP	24	Aging	8	3,500	\$102	\$357,000	\$0	\$0	\$63,000	\$420,000	\$120	2027
Winchester 900 East to River Protection ²	25	Steel		1,498	\$19	\$28,284	\$0	\$28,284	\$4,243	\$32,526	\$22	2027
Winchester 900 East to River Replacement	26	Steel	20	1,498	\$261	\$391,554	\$697,526	\$1,089,079	\$163,362	\$1,252,441	\$836	2027
5900 S Steel Pipe	27	Steel	12	907	\$208	\$188,583	\$67,926	\$256,509	\$38,476	\$294,986	\$325	2027
900 E, Vine to Wood Oak Ln	28	Aging	10	3,461	\$198	\$683,629	\$695,230	\$1,378,858	\$206,829	\$1,585,687	\$458	2027
5770 S, State to Fashion	29	FF	8	4,645	\$190	\$883,072	\$288,559	\$1,171,631	\$175,745	\$1,347,376	\$290	2028
5965 S, 6025 S, 115 W	30	FF	8	2,743	\$190	\$521,438	\$186,798	\$708,236	\$106,235	\$814,472	\$297	2028
Pontiac Ln, 900 E to Caribbean Way	31	Aging	8	2,546	\$190	\$483,989	\$173,365	\$657,354	\$98,603	\$755,957	\$297	2028
900 E, Wood Oak to Three Fountains	32	Aging	10	2,952	\$198	\$583,089	\$592,889	\$1,175,978	\$176,397	\$1,352,375	\$458	2029
Mick Riley, Vine to Par Three Ln	33	FF	10	1,700	\$198	\$335,790	\$121,137	\$456,926	\$68,539	\$525,465	\$309	2029

Project Location	Project Priority ¹	Primary Reason for Replacement	Future Size (in)	Length (ft)	Pipe Unit Cost	Pipe Construction Costs	Surface or Other Special Construction Cost	Total Construction Cost (2024\$)	Engineering / Administrative Costs (15%)	Total Project Cost	Net Unit Cost	Approximate Year of Construction ³
Woodrow St	34	FF	8	1,999	\$190	\$380,005	\$136,127	\$516,132	\$77,420	\$593,552	\$297	2029
Murray Pkwy to Riverside Dr. Connection	35	FF	8	438	\$190	\$83,263	\$20,691	\$103,954	\$15,593	\$119,547	\$273	2029
Rose Circle	36	4-inch	8	1,578	\$190	\$299,974	\$107,485	\$407,460	\$61,119	\$468,578	\$297	2029
Roanoke Cir	37	FF	8	131	\$190	\$24,903	\$36,207	\$61,110	\$9,166	\$70,276	\$536	2029
900 E, Winchester to Holly Protection2	38	Steel		2,509	\$19	\$47,373	\$0	\$47,373	\$7,106	\$54,479	\$22	2030
900 E, Winchester to Holly	39	Steel	16	2,509	\$233	\$585,015	\$1,183,871	\$1,768,886	\$265,333	\$2,034,219	\$811	2030
Sports Mall	40	FF	8	1,686	\$190	\$320,505	\$150,085	\$470,590	\$70,589	\$541,179	\$321	2030
Winchester State to 900 E Protection2	41	Steel		7,336	\$19	\$138,514	\$0	\$138,514	\$20,777	\$159,291	\$22	2030
Winchester State to 900 E	42	Steel	16	7,336	\$233	\$1,710,511	\$3,461,019	\$5,171,530	\$775,730	\$5,947,260	\$811	2031
Woodoak Lane	43	FF	10	1,498	\$198	\$295,890	\$139,093	\$434,983	\$65,247	\$500,230	\$334	2032
Miller St	44	Aging	8	1,178	\$190	\$223,935	\$80,208	\$304,143	\$45,621	\$349,765	\$297	2032
Belview Ave & 400 E	45	4-inch	8	505	\$190	\$95,999	\$34,403	\$130,402	\$19,560	\$149,963	\$297	2032
Clay St	46	4-inch	8	1,511	\$190	\$287,238	\$102,873	\$390,111	\$58,517	\$448,628	\$297	2032
Germania, Clover Meadow to Parkway	47	Aging	12	1,428	\$208	\$296,909	\$106,928	\$403,837	\$60,575	\$464,412	\$325	2032
Wallin St & Stratler St	48	4-inch	8	365	\$190	\$69,386	\$24,845	\$94,231	\$14,135	\$108,366	\$297	2032
Germania, 700 W to Clover Meadow Dr	49	Aging	8	1,715	\$190	\$326,018	\$116,755	\$442,772	\$66,416	\$509,188	\$297	2032
Lucky Clover, Germania to Spring Clover	50	Aging	8	2,627	\$190	\$499,387	\$178,891	\$678,278	\$101,742	\$780,019	\$297	2032
4600 S 200 E	51	4-inch	8	1,801	\$190	\$342,366	\$160,259	\$502,625	\$75,394	\$578,018	\$321	2033
1280 W 6190 S	52	Dead End	8	466	\$190	\$88,586	\$31,748	\$120,334	\$18,050	\$138,384	\$297	2033
Chesterbrook CV	53	Dead End	8	616	\$190	\$117,100	\$41,936	\$159,036	\$23,855	\$182,891	\$297	2033
5465 S, 700 W to 555 W	54	Dead End	8	1,719	\$190	\$326,778	\$117,063	\$443,841	\$66,576	\$510,417	\$297	2033
Vine St, Commerce to Freeway	55	Dead End	8	534	\$190	\$101,512	\$36,344	\$137,856	\$20,678	\$158,535	\$297	2033
Eriksen Ln, Vine to Walnut Brook Dr	56	Aging	8	1,189	\$190	\$226,026	\$80,996	\$307,022	\$46,053	\$353,076	\$297	2033
Wilford Ave, 320 E to 550 E	57	Dead End	8	303	\$190	\$57,600	\$20,665	\$78,265	\$11,740	\$90,004	\$297	2033
Mt Vernon Dr	58	FF	8	2,531	\$190	\$481,137	\$172,337	\$653,474	\$98,021	\$751,495	\$297	2033
Labrum Ave 725 E	59	Dead End	8	614	\$190	\$116,720	\$41,801	\$158,521	\$23,778	\$182,299	\$297	2033
620 E, 5900 S to End of Cir	60	Dead End	8	586	\$190	\$111,397	\$39,918	\$151,315	\$22,697	\$174,012	\$297	2033
Viewmont Elementary Area	61	FF	8	3,294	\$190	\$626,182	\$224,285	\$850,467	\$127,570	\$978,038	\$297	2034
Goodway Dr	62	Aging	8	653	\$190	\$124,134	\$44,492	\$168,626	\$25,294	\$193,920	\$297	2034
I-215 to Golf Course	63	Aging	12	758	\$208	\$157,603	\$403,127	\$560,730	\$84,110	\$644,840	\$851	2034
Laura & Pinehill Dr	64	FF	8	500	\$190	\$95,049	\$54,932	\$149,981	\$22,497	\$172,478	\$345	2034
Jordan River at Golf Course	65	Aging	12	697	\$208	\$144,920	\$370,604	\$515,523	\$77,329	\$592,852	\$851	2034
Rainbow & Mountain View Dr	66	FF	8	2,974	\$190	\$565,351	\$451,258	\$1,016,609	\$152,491	\$1,169,100	\$393	2034
Wahlquist Ln	67	4-inch	8	751	\$190	\$142,763	\$82,495	\$225,259	\$33,789	\$259,047	\$345	2034
7th West, 53rd to Winchester, Move Services	68	Aging	--	8,000	\$30	\$241,682	\$0	\$241,682	\$36,252	\$277,935	\$35	2034

Project Location	Project Priority ¹	Primary Reason for Replacement	Future Size (in)	Length (ft)	Pipe Unit Cost	Pipe Construction Costs	Surface or Other Special Construction Cost	Total Construction Cost (2024\$)	Engineering / Administrative Costs (15%)	Total Project Cost	Net Unit Cost	Approximate Year of Construction ³
Sunberry Dr & Wildflower Ln	69	Aging	8	1,978	\$190	\$376,013	\$134,721	\$510,734	\$76,610	\$587,345	\$297	2034
5640 S, 575 E to Walnut Brook Dr	70	Aging	8	1,462	\$190	\$277,923	\$99,546	\$377,469	\$56,620	\$434,090	\$297	2034
625 E, 5640 S to 675 E	71	Aging	8	760	\$190	\$144,474	\$51,764	\$196,238	\$29,436	\$225,674	\$297	2034
Glen St, Vine to Edison	72	4-inch	8	1,021	\$190	\$194,090	\$69,548	\$263,637	\$39,546	\$303,183	\$297	2034
300 W & Anderson	73	4-inch	8	748	\$190	\$142,193	\$50,917	\$193,110	\$28,966	\$222,076	\$297	2034
Malstrom Ln	74	4-inch	8	312	\$190	\$59,310	\$21,245	\$80,556	\$12,083	\$92,639	\$297	2034
Green St. Anderson to 5420 South	75	FF	12	1590	\$208	\$330,592	\$79,282	\$409,874	\$61,481	\$471,355	\$296	2034

See Figure 7-3 for location and extent of projects

Costs for both protection and replacement of steel pipelines are shown. If a sacrificial anode study determines protection is feasible, this option will be selected over replacement.

Based on providing \$3 million/year for pipeline projects by 2020. It is also assumed steel pipelines in UDOT roads can be protected from corrosion rather than replaced.

Four-inch Pipelines and Hydrants

One of the primary causes of fire flow deficiencies in the Murray City water system are limited capacities of 4-inch pipelines and fire hydrants. These pipes should be replaced with larger pipelines. Although these pipelines cause fire flow deficiencies wherever they exist, some are more critical because of the number and size of homes and businesses affected.

Fire Flow Improvements

System improvements which list “fire flow” as the primary reason for the recommended pipe project could be caused by one or more the following deficiencies: undersized pipes, long dead-end pipes, and high fire demands for special buildings.

Steel Pipelines and Other Corroded Pipes

For steel pipelines, it is recommended the City consider a sacrificial anode system to extend the life of steel pipelines. The effectiveness of a sacrificial anode system is dependent on many factors, but could be a cost-effective method to extend the life of steel pipelines. This is especially important in UDOT controlled roadways where surface restoration costs and traffic control can add significantly to the cost of the project. The City should conduct a study to determine if a sacrificial anode system would be effective. If the sacrificial anode study determines a sacrificial anode system would be ineffective, the City should coordinate with UDOT to determine a schedule to replace steel pipelines in UDOT controlled roadways. It is also recommended that all older cast iron, steel, or ductile iron pipelines that have experienced multiple breaks and leaks be replaced as soon as budgets allow.

Transmission

Hydraulic model simulations under the peak hour demand scenarios indicate there will be several areas in the Murray City water service area where operating pressures will drop below the desired pressure of 50 psi. Pressures remain well above the minimum pressure required by the State of Utah (30 psi) for most of the city, even during future development conditions.

**Table 7-2
Estimated Storage Replacement Costs**

Name	Year Built	Capacity (MG)	Value (2024\$)
Reservoir #2	1954	1.0	\$3,500,00
Reservoir #3	1964	2.0	\$7,000,000
Reservoir #4	1973	5.0	\$12,500,00
Reservoir #5 – Hi-Land	1995	2.0	\$7,000,000
Reservoir #6 – Grant	2003	2.0	\$7,000,000
Total		12.0	\$37,00,000

Although Murray does not plan to replace any of its storage facilities in the near future, the City should allocate funds on an amortized basis for storage facility replacement. In addition, consideration should be given to a future day when the tanks will be replaced to ensure that the City owns property on or near the existing tank sites that can be used in constructing a replacement facility. For instance, it would likely require about 18 months to construct a 5-million-gallon tank to replace Reservoir #4. Because it may not be feasible to take Reservoir #4 out of service during the summer months, owning a nearby parcel where a new tank could be constructed while the existing tank remains in service may be critical to the success of such a project. Owning property that can be used to replace aging structures is a critical part of the planning for future system operations.

OTHER IMPROVEMENTS

Fire Hydrant Coverage

A cursory evaluation was performed using information in the City's GIS database to identify areas along City streets where spacing between fire hydrants may be farther than desirable. Figure 7-4 identifies water services in the City that are greater than 400 feet from an existing hydrant. These areas are shown in Figure 7-4 and indicate a possible need for additional fire hydrants. It is recommended that the information presented in Figure 7-4 be field verified and that Public Services personnel work closely with Fire Department personnel in resolving any deficiencies that may exist. Any undocumented Fire Hydrants should be added to Murray City's existing database.

Water Meters

Murray City began a meter replacement program in 2010. This program should be maintained to replace all older meters so that no meter exceeds 25-years in operation. The use of old water meters usually results in inaccurate metering (underestimating actual water use). Replacing old, inaccurate water meters should increase water sales revenues through increased metering accuracy. In addition, new automated meter infrastructure technology can significantly reduce the labor costs associated with meter reading. The City should be completely transitioned to the new metering program in 2025.

Emergency Power

While it would be ideal to have emergency power at all of the City's water sources, the City would like to add permanent emergency power for the Whitmore Wells and the Hi-land Well because both sources are primary sources that supply storage reservoirs.

Well Projects and Source Improvements

As with most other system assets, wells can deteriorate over time and need rehabilitation or replacement. Two previous well rehabilitation studies identified replacement as the best long-term option for the 4500 South Well and Park Well respectively. The City should complete a comprehensive well sustainability study for all remaining wells in the City to determine future maintenance and replacement needs.

As peak day demands approach source capacity system redundancy is limited and low pressures are exacerbated. Murray should consider the following source improvements to increase source redundancy and system pressures:

1. **Develop New Well at Winchester and 1200 West** – A new well in this area would support proposed residential developments and a public park in the southwest corner of the system. Pressures in this area fall below the City’s 50 psi target during peak day demands.
2. **Develop New Well at the Captiva Property** – A new well in this area would support residential development in the upper portion of the system. The aquifer in this area has historically maintained high capacity with little drawdown. However, the City is still determining water right eligibility for the proposed well.
3. **Redevelop Millrace Well** – Restore capacity at Millrace well by resolving sanding issues and increasing the downstream pipe capacity.

Since development in the southwest corner of the system is expected to come online within the next few years, the City should budget and plan to develop the new well at Winchester and 1200 West by 2026. This project is shown in Table 7-3. The City also plans to improve the McGhie Springs tunnel entrance and facilities against damage and deterioration.

Booster Pump Rehabilitation

Murray City personnel have reported some concerns with booster pumps at the Reservoir 2 & 3 booster stations. These boosters may require replacement or rehabilitation.

Fluoride Study

As part of this study, a fluoride model was created to assess fluoride concentrations across Murray City. A technical memorandum documenting the results and recommendations of this study is included in Appendix A. Based on the study the City should consider equipping the existing 45th South Well with a new fluoride booster within the next 10 years and adding fluoride boosters to the 6th West Well and Millrace Well when they are replaced.

Corrosion Study

The City has several steel pipelines in the City under critical roads that are difficult to replace. The City would like to conduct a corrosion study in the City to evaluate ways to extend the life cycle of its steel pipelines and to identify problematic areas for corrosion around the City.

Storage Facilities

Murray City should budget funds to regularly maintain all storage tanks and ultimately budget to replace the existing facilities as they reach the end of their service life. Table 7-2 lists the approximate replacement cost of Murray City’s storage facilities. All five reservoirs are concrete with a life expectancy of 80 or more years and require regular inspection (about every 5-years) and

maintenance. The structural integrity of Reservoir #2 (first constructed in 1954) was evaluated in 2005 and was determined to be in satisfactory condition. Reservoir #4 has recently been inspected and needs roof repairs. Murray City should budget funds to regularly maintain all storage tanks and ultimately budget to replace the existing facilities as they reach the end of their service life. Table 7-2 lists the approximate replacement cost of Murray City's storage facilities.

- **Reservoir 2 & 3 Siting Study** - Reservoirs 2 & 3 are relatively old storage reservoirs and will eventually need to be replaced. It is recommended that a siting study be conducted to identify the best location to replace these reservoirs.
- **Reservoir 4 Roof Repairs** - Reservoir 4's roof was evaluated in 2020, and recommendations were made to repair deficiencies. The City plans to complete repairs in 2024.

Additional Projects

Table 7-3 lists estimated costs for projects that are not directly associated with pipe replacement.

Table 7-3
One-time Project and System Study Costs

Project	Description	Year	Estimated Cost
PRV Improvements	Improve existing PRV vaults at 5770 S, 5900 s 900 E, 5900 S State Street by adding ventilation, telemetering, & sump pumps	2026	\$90,000
Hi-Land Backup Power	Backup power to supply Hi-Land Well in the event of a power failure	2026	\$315,000
Whitmore Backup Power	Backup power to supply Whitmore Well in the event of a power failure	2026	\$315,000
Water Rate Study	Study to determine adequate rates required to accommodate system improvements	2024	\$20,000
Corrosion Study	Study to determine which areas of Murray require additional corrosion protection	2025	\$118,000
Well Investigation Study	Study to determine which Wells are most suitable for rehabilitation based on age, water quality, etc.	2024	\$70,000
Well Rehabilitation	Rehabilitation of Wells identified from the Well Investigation Study	2026	\$315,000
Winchester and 1200 West Well Project	Construct a new well at Winchester and 1200 West	2026	\$4,000,000
McGhie Springs Design	Project to stabilize McGhie Spring entrances and facilities against damage and deterioration	2025	\$550,000
Power Generation Study	Feasibility study to investigate the potential of adding a co-generation facility(s) on the Murray City transmission mains	2025	\$39,000
Fluoride Addition at 45th South Well	Improve system wide fluoride concentration by installing fluoride injection system at the 45th South Well.	2026	\$25,000
Total			\$5,857,000

Table 7-4
Annual Water System Budget Recommendations

Type	Description	Estimated Cost
Pipe Replacement	Annual cost that should be budgeted for pipe replacement	\$3,100,000
Well Maintenance Program ¹	Annual cost that should be budgeted for maintaining Murray City Wells	\$205,000
Future Master Plan Updates	The annual cost that should be budgeted for master plan updates	\$16,000
Conservation Budget ¹	The annual cost of promoting conservation programs	\$63,000
Water Meter Replacement ³	The annual cost that should be budgeted for replacing old water meters.	\$151,000
Total²		\$3,535,000

¹ May need to be adjusted to meet Murray City goals.

² Should be adjusted annually for inflation.

³ The amount that should be dedicated to a sinking fund to replace meters after a life cycle of 25 years.

The recommended budgets included in Table 7-4 should be incorporated into a formal asset management program in the City. The asset management program should document all work performed on pipes, wells, pumps, and tanks and schedule work to be completed at least two years ahead. The City already documents improvements and maintenance to pipes effectively with the City's GIS database, but additional record keeping and scheduling of maintenance at wells, pumps, and tanks may be warranted to proactively prevent equipment deterioration and/or failure.

CONCLUSIONS

It is recommended that Murray City budget at least \$3.5 million per year in 2024 dollars to fund capital improvement projects and other programs as identified in Table 7-4. An additional \$5,857,000 (~\$1,171,400/year) should be budgeted over the next 5 years to pay for one-time study or project costs identified in Table 7-3 that are intended to increase source supply, maintain and protect supply sources, prevent operating problems, and improve operations. These budgets should be included as part of a formal asset management program in the City to improve record keeping and maintenance of the City's water system.

APPENDIX A

Fluoride Study





TECHNICAL MEMORANDUM

TO: Aaron Frisk
Murray City Public Works
4646 South 500 West
Murray, Utah 84123

COPIES: File

FROM: Andrew McKinnon P.E., Luise Winslow, EIT
Bowen, Collins and Associates
154 East 14075 South
Draper, Utah 84020

DATE: April 3, 2024

SUBJECT: Murray City Fluoride Levels

JOB NO.: 005-23-01

INTRODUCTION

Murray City has retained Bowen Collins and Associates (BC&A) to evaluate their system's existing fluoride levels and means to improve deficient fluoride concentrations. The purpose of this technical memorandum (TM) is to evaluate Murray City's fluoride concentrations during peak day demands. Fluoride concentrations were quantified based on input and data from Murray City personnel and Murray City's existing water model. The effect of adding more fluoride booster sites was also evaluated.

Background

Fluoride is an inert chemical that can occur naturally in groundwater or can be added by the water utility. The Salt Lake County Health Department requires water utilities within the County to maintain fluoride concentrations between 0.6 mg/L and 0.9 mg/L at the point of use. Murray City uses water from 19 groundwater wells and the McGhie Springs. Natural fluoride concentrations recorded at each of these sources is summarized in Table 1 along with available fluoride equipment.

Table 1
Natural Fluoride Concentrations

Source	State ID	Natural Fluoride (mg/L)	Flow Capacity (mgd)	Fluoride Equipment ¹
McGhie Springs	WS002	0.2	1.43	Boosted at Zone 2 ¹
Whitmore East Well	WS013	ND	2.09	Boosted at Zone 2 ¹
Whitmore West Well	WS012	0.2	3.46	Boosted at Zone 2 ¹
Power House Well	WS003	0.25	1.73	Equipped & Active
600 West Well	WS004	0.19	1.58	None
500 East Well	WS005	0.22	1.58	Equipped / Inactive
300 West Well	WS007	0.22	1.15	None
Vine Street Well	WS008	ND	1.58	Equipped & Active
700 West Well	WS009	0.15	1.30	Equipped & Active
900 East Well	WS010	0.3	1.08	None
Reservoir Well	WS011	0.2	1.73	Boosted at Zone 2 ¹
Millrace Well	WS015	0.173	1.22	Equipped / Inactive
Park Well	WS017	0.2	1.01	Space Available
360 West well	WS018	0.21	1.58	None
4500 South Well	WS019	0.34	0.86	Space Available
Hi-land Well	WS020	0.21	1.08	None
Monroc Well	WS021	0.2	2.66	Boosted at Zone 2 ¹
Grant Park Well / Booster ²	WS023	0.2	3.46	Equipped & Active
Howe Well	WS024	0.3	1.51	Equipped & Active
McGhie Well	WS025	ND	0.94	Boosted at Zone 2 ¹
Riverside/10th West ³	WS014	0.3	0.28	None
Total Zone 1 Fluoride Source Capacity (Boosted at Zone 2)			12.31	
Total Active Fluoride Source Capacity			21.89	
Total Fluoride Source Capacity			24.69	

¹Identified source is in Pressure Zone 1 (primarily a source and storage zone with no local demands) and fluoride is added to source water at the pressure reducing valves (PRV) between Pressure Zone 1 and Pressure Zone 2 using flow meters on transmission lines at each PRV.

² Fluoride equipment adds fluoride after the booster pump that boosts out of the Grant Reservoir.

³This well is not used to meet potable water demands.

In addition to the fluoride equipment available at Murray City wells, the City also has two fluoride boosters located near flow meters on the City's two main transmission lines from its largest storage reservoir (Reservoir 4) in Pressure Zone 1. Each fluoride booster pump supplements the source's natural fluoride levels and targets a total concentration of approximately 0.7 mg/L before it enters the distribution system.

WINTER FLUORIDE DISTRIBUTION

The City's winter demands are approximately 3.2 mgd on average and are primarily met by McGhie Springs and McGhie Well which can almost meet all indoor demands without any other supplemental wells. Flow from Zone 1 sources are distributed to the system through the 9th East PRV and the Reservoir 2 PRV that represents the pressure zone divide between Pressure Zone 1 and Pressure

Zone 2. Because the 9th East PRV and Reservoir PRV are active fluoride booster sites, fluoride concentrations throughout the City during the winter consistently meet County fluoride recommendations and no further analysis of winter fluoride concentration is needed.

SUMMER FLUORIDE DISTRIBUTION

During the summer, water demands exceed the capacity of Zone 1 sources and the City relies on peaking wells in the summer to meet higher irrigation demands. Although fluoride is added at some wells as identified in Table 1, water contributed from other wells without fluoride has the tendency to dilute fluoride concentrations in the area of their influence. The variability in fluoride concentrations during the summer, warrants a fluoride concentration analysis based on summer peak day demands.

Existing Conditions

BC&A modeled existing system wide fluoride concentrations using the following parameters:

- Existing peak day demand
- Initial fluoride concentrations are approximately 0.7 mg/L as would normally be present before irrigation season begins.
- Summer irrigation demands were simulated for 30 days and the “average” concentration of fluoride over those 30-days were assumed to be representative of peak summer demand conditions.
- Natural fluoride concentrations are added at wells as shown in Table 1 where no fluoride booster equipment is available.
- Fluoride boosters at the 9th East & Reservoir PRVs and at Howe Well, Vine Street Well, Power House Well and the 7th West Well each set to target a total concentration of 0.7 mg/L.

Model results are shown in Figures 1.1- 1.4. Based on the results of fluoride modeling, the following conclusions can be made:

1. Fluoride levels furthest away from Zone 1 have the lowest fluoride concentration levels. This is consistent with the idea that the area of influence of fluoride injection at the Zone 1 / Zone 2 boundary are diluted by the non-fluoridated wells in the City.
2. The lowest fluoride concentrations fall below the County recommended fluoride levels west of 300 West and toward the northwest end of the City in some locations.
3. The Millrace Well which normally doesn’t operate its existing fluoride injection equipment could benefit from operating the equipment under some conditions. The City has considered removing this equipment because
 - a. Fluoride sampling usually shows adequate fluoride in this area. This is also likely because the City hasn’t operated Millrace heavily in recent years. Under most conditions, that would likely be true. Only during the highest summer demands when Millrace is operating will fluoride levels in this area decline without any fluoride injection at Millrace.
 - b. Well production has significantly declined to the extent that the City plans to abandon the existing well and drill a new one nearby. When the City re-drills and re-equips the well, fluoride equipment will likely be needed due to the potential capacity and influence area of the well.

4. To stabilize daily fluoride fluctuations the model was run using peak day demands across 30 days. In this scenario all wells are required to meet the water demand. When all wells are pumped, fluoride concentrations from wells with fluoride boosters are diluted by wells without fluoride boosters. Under normal summer operations, the City does not rely on wells without fluoride boosters to the same extent. Results shown in Figures 1.1 -1.4 are therefore conservative and represent the lowest possible fluoride concentrations in Murray City.

IMPROVEMENT ALTERNATIVES

Based on the results shown in Figure 1.1- 1.4, there are several alternatives the City could consider for improvements:

1. **Do Nothing.** When City water demands are less than 12.3 mgd, fluoride injection at the Pressure Zone 1 to Pressure Zone 2 boundary will uniformly distribute fluoride to all water used within the City. This would suggest that during roughly 8 months of the year, fluoride levels in the City will be within Salt Lake County Health Department recommended ranges throughout the City. Fluoride dilution that occurs with higher demands as other non-fluoridated wells turn on primarily affects areas on the west side of the City and is likely only a concern during the highest demand period of the year (typically July or August). If Salt Lake County does not have any significant concerns with historic sampling that has shown occasional low fluoride levels in some parts of the City, it may not be necessary to make any changes to the City's water system. :
- **45th South Well** – The 4500 South Well was re-drilled and re-equipped in 2020 and has space to add fluoride equipment. The results of adding a fluoride booster set to target a total concentration of 0.7 mg/L at the 45th South Well is shown in Figure 1.1. Adding a fluoride booster at the 45th South Well alleviates most deficiencies north of Murray Taylorsville Road. Fluoride injection at this site resolves low fluoride levels for 494 residential water meters.
- **6th West Well** – The results of adding a fluoride booster set to target a total concentration of 0.7 mg/L at the 6th West Well are shown in Figure 1.2. Adding a fluoride booster at the 6th West Well reduces deficiencies west of 300 West and alleviates deficiencies south of 5300 South between Hollow Springs Drive and 700 West. Fluoride injection at this site resolves low Fluoride levels for 706 residential water meters.
- **3rd West Well** – The results of adding a fluoride booster set to target a total concentration of 0.7 mg/L at the 3rd West Well are shown in Figure 1.4. Adding a fluoride booster at the 3rd West Well reduces deficiencies west of 300 West and alleviates deficiencies north of the 3rd West Well between I-15 and 300 West. Fluoride injection at this site resolves low fluoride levels for 964 residential water meters.
- **Millrace Well** – The results of using existing fluoride equipment at the Millrace Well was not modeled as part of this study but can be visualized using Figures 1.1 and 1.2. Adding Fluoride at the Millrace Well could alleviate deficiencies north of Vine Street and east of State Street.

The estimated cost to add fluoride at the 4500 South Well would be relatively low because the well was constructed with space in mind for fluoride equipment. Estimated cost to add fluoride at 45th South would be approximately \$25,000. The cost to add fluoride equipment at either the 600 West Well or 300 West Well would be significantly higher because the existing wells were not constructed with space for Fluoride equipment. The estimated cost to add fluoride equipment at 3rd West or 6th West would be approximately \$100,000.

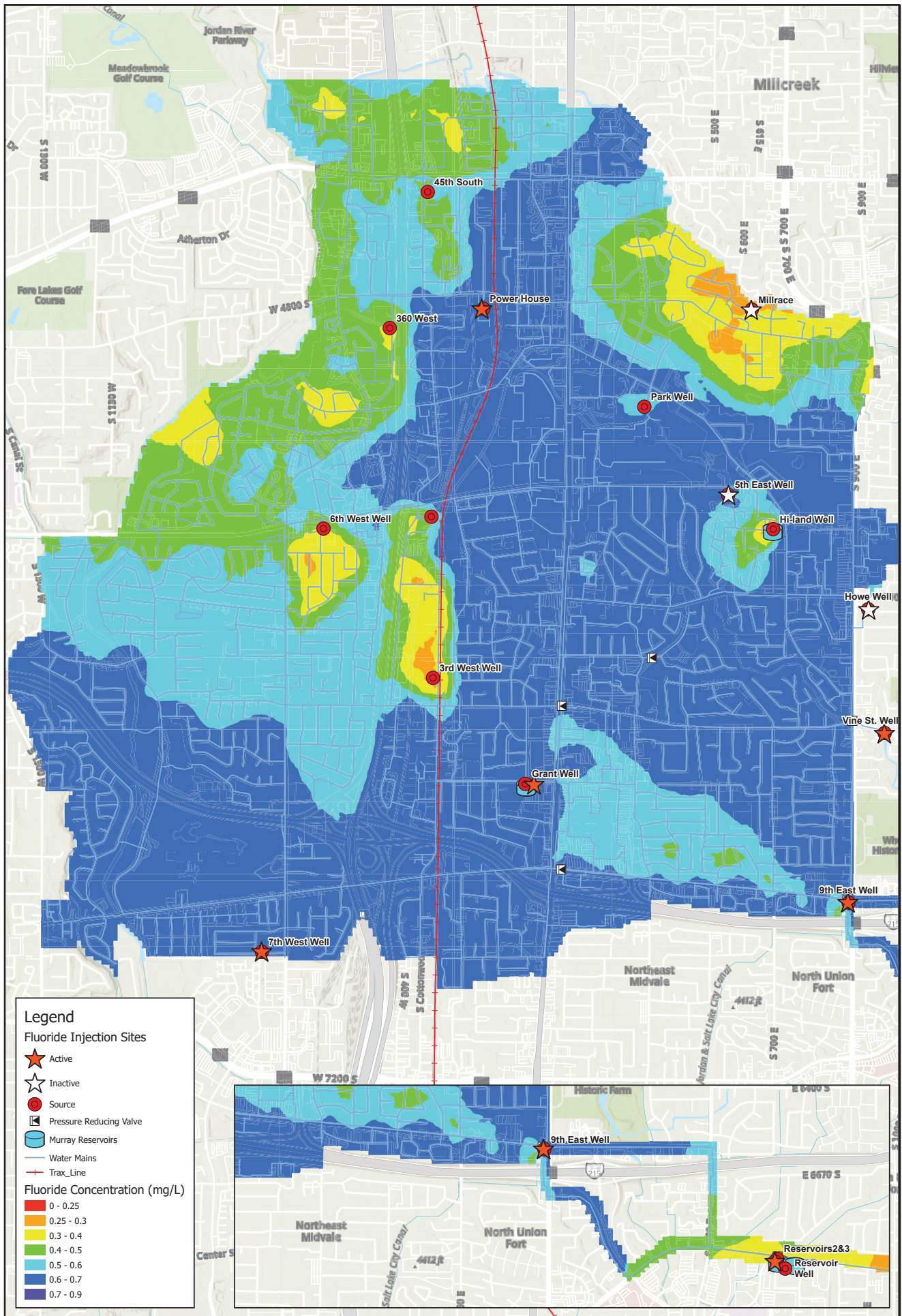
CONCLUSION

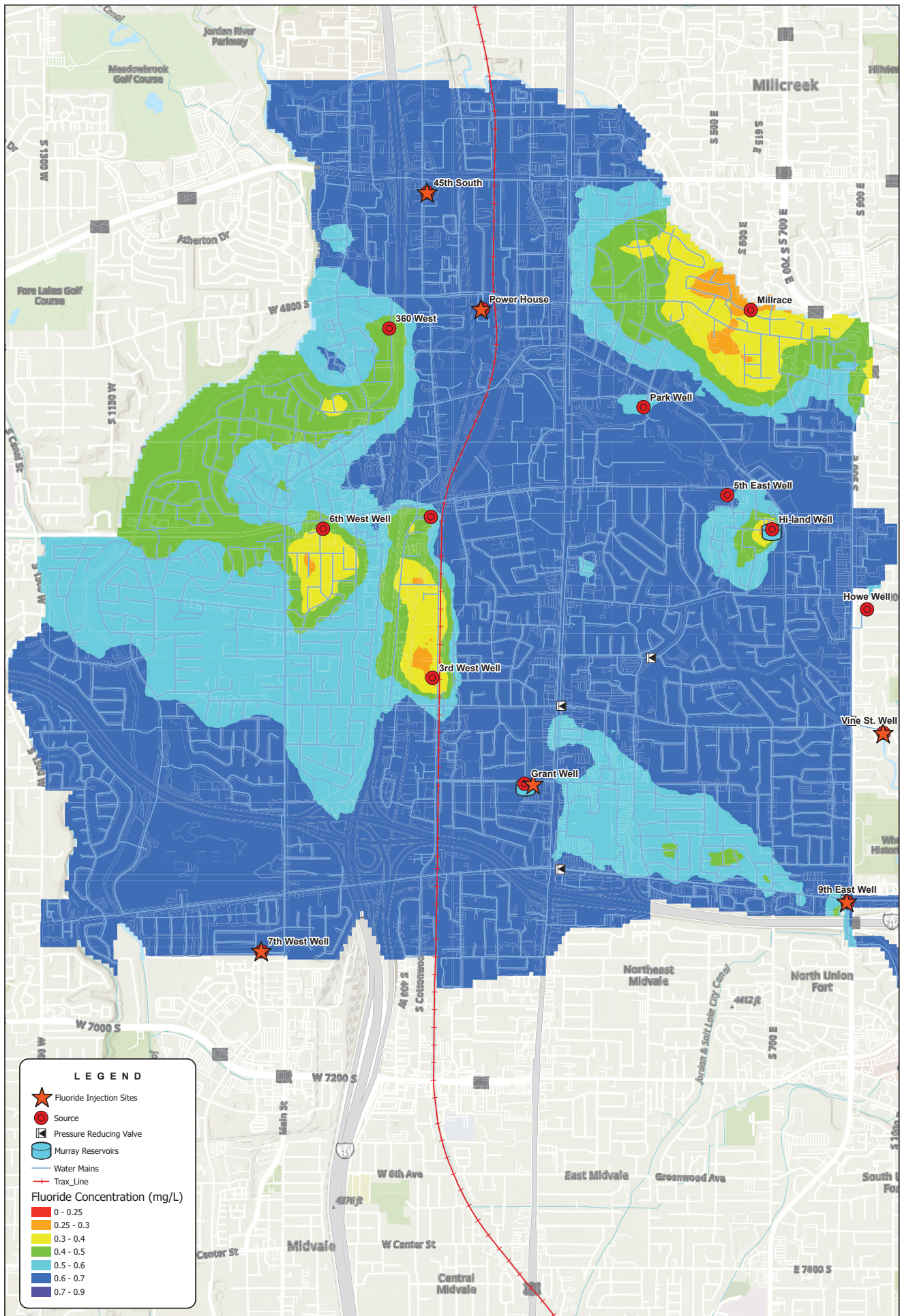
Because fluoride concentrations fall below the County minimum requirements in parts of Murray City's water distribution system during peak day demands, the City will need to add fluoride boosters to provide more uniform fluoride concentrations.

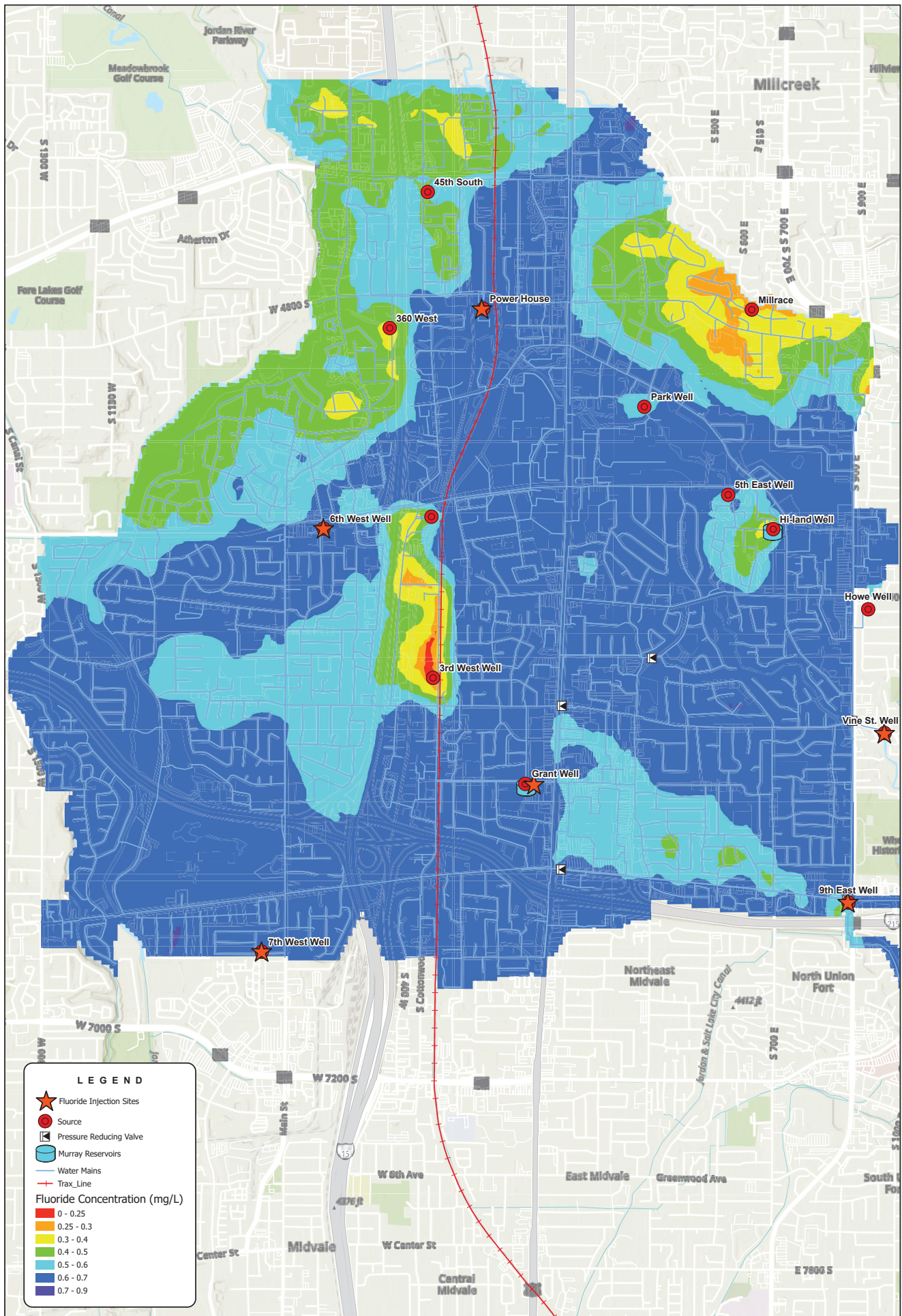
Based on the results of this study and input from Murray City water personnel, we recommend equipping the existing 45th South Well with a new fluoride booster within the next 10 years and adding fluoride boosters to the 6th West Well and Millrace Well when they are replaced. The project, justification, and approximate cost of each project is summarized in Table 2.

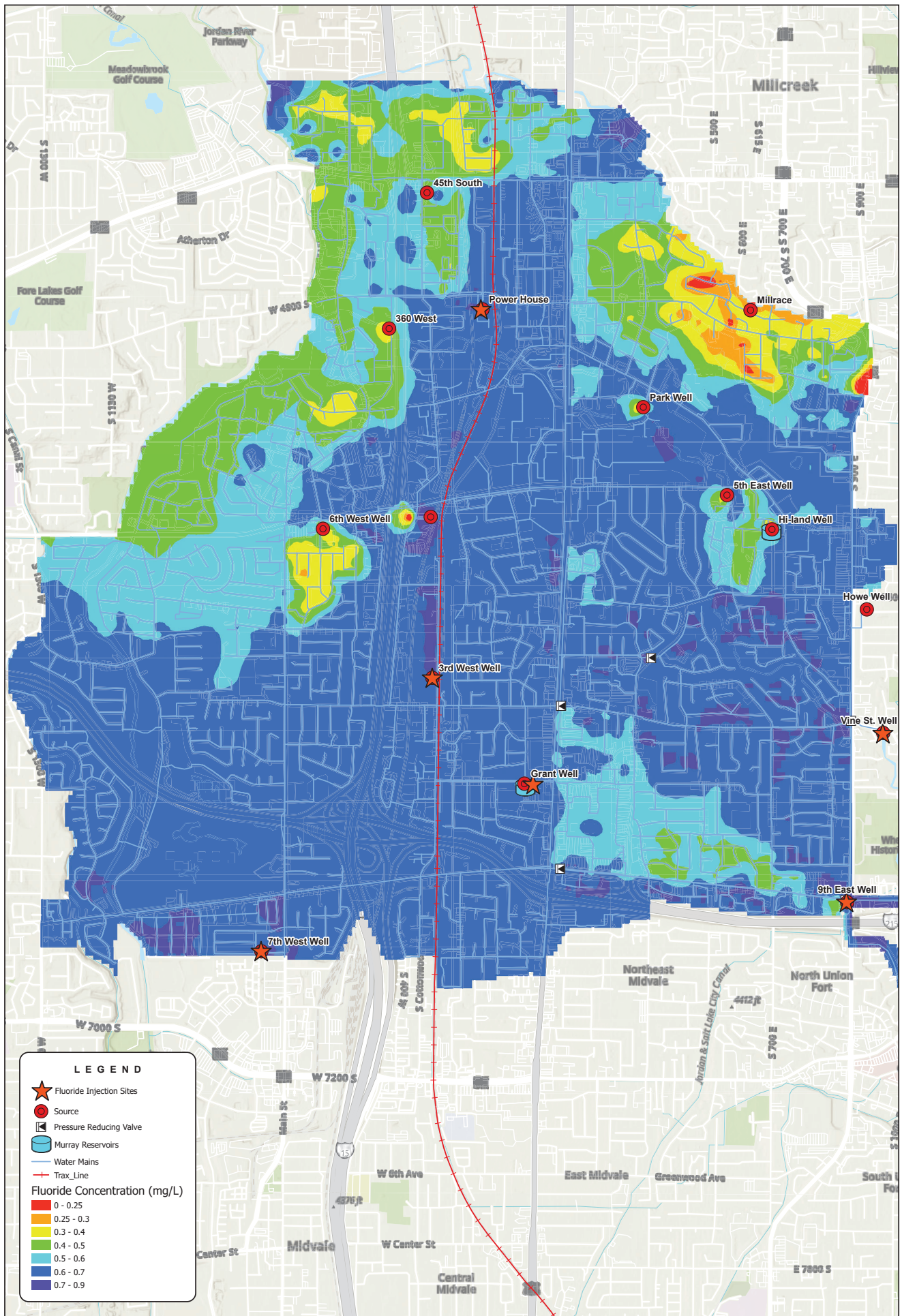
Table 2
Fluoride Improvement Projects

Project	Project Justification	Cost (2024 \$)
45 th South Well Fluoride Booster	Adding fluoride at the 45 th South Well is both cost effective and will improve fluoride concentrations for almost 500 existing residential customers. The City also expects to see significant high-density growth in the affected area within the next 10 years.	\$25,000
6 th West Well Fluoride Booster	Adding fluoride at the 6 th West Well will improve fluoride concentrations for over 700 existing residential customers. The City will have the opportunity to add fluoride at the well when the well is replaced due to age-related failures.	\$100,000
Millrace Well Fluoride Booster	The effect of adding fluoride at the Millrace Well was not evaluated as part of this study but given results shown in Figures 1.1 and 1.2 is expected to improve fluoride concentrations in a large part of Murray City. The City will have the opportunity to add fluoride at the well when the well is replaced due to low production.	\$100,000









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MURRAY
CITY COUNCIL

Public Hearing #2



MURRAY

Public Works/Water Division

Water Master Plan - IFFP - IFA - Water Rate Study Review

Council Action Request

Council Meeting

Meeting Date: March 4, 2025

Department Director Russ Kakala Phone # 801-270-2404 Presenters Aron Frisk Required Time for Presentation Is This Time Sensitive No Mayor's Approval  Date February 3, 2025	Purpose of Proposal Adopt attached plans & studies. Amend or enact associated ordinances. Action Requested Adoption of Water Master Plan, Impact Fee Facility Plan, Impact Fee Analysis and the new Water Rates. Amending ordinances. Attachments Water Master Plan, IFFP, IFA, Water Rate Study, Amending Ordinances 13.08.080 & 13.08.020, Enacting a new Ordinance. Budget Impact Water Master Plan describes new Capital Improvement Projects for the water system. Rate Study describes how we can fund our operating and capital accounts. Description of this Item Water Master Plan - Evaluates the adequacy of existing water sources to meet projected Murray City water demands. Evaluates the water distribution system capacity to meet desired operating criteria under various demand conditions. Provides capital improvement projects required to meet or exceed desired operating criteria and correct deficiencies and failing infrastructure. Resolution to adopt. Impact Fee Facilities Plan - Identifies demands placed on City facilities by future development and evaluates how these demands will be met by the City. Outlines improvements that may be funded through impact fees. Resolution to adopt plan
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Continued from Page 1:

Impact Fee Analysis - The IFFP forms the basis for the IFA. Represents the maximum impact fees Murray City may assess on new development. Resolution to adopt plan & amending Ordinance 13.14.110

Water Rate Study - All operating and capital expenses are first calculated, and then rates are structured to cover annual expenses, maintain sufficient debt service ratios, and to keep at least 180 days cash on hand in the water utility fund. We provide multiple different scenarios to fund our division. Amending ordinance 13.08.020 - Approve new rates to fund the water division. Section (D) of this ordinance is to disallow non-metered water for construction use. Users must sign up for service and make their point of use (connection) outside of the City's meter box. This will allow construction to have access to water, while allowing the city to meter and monitor the use.

Amending ordinance 13.08.080 - To allow multifamily residential units with no irrigation responsibilities to install 3/4" service pipe and meters. As of right now, our minimum service pipe and meter for new construction is 1".

Enacting ordinance 13.08.025 - This is to allow the City to assess a fee for meters and AMI equipment for new development. This fee is only the cost to the city to purchase this equipment. Currently we acquire new meters through our Meter operational account, which should be used to replace older meters for existing customers.

Murray City Corporation

NOTICE OF PUBLIC HEARING TO ADOPT AN UPDATED WATER IMPACT FEE FACILITIES PLAN AND IMPACT FEE ANALYSIS

NOTICE IS HEREBY GIVEN that on the 4th day of March, 2025, at the hour of 6:30 p.m. of said day in the Council Chambers of Murray City Center, 10 East 4800 South, Murray, Utah, and pursuant to Utah Code Ann. §§ 11-36a-502 and 11-36a-504, the City intends to adopt an updated impact fee facilities plan (IFFP) and impact fee analysis (IFA) with respect to the City's water service.

The geographic area that will be included in the IFFP and IFA is all areas within the boundary of the Murray City water service area.

The purpose of this hearing is to receive public comment concerning the proposed approval of the updated IFFP and IFA as described above. All interested persons are hereby invited to provide information for the City to consider in the process of preparing, adopting, and implementing or amending the referenced documents.

DATED this 5th day of February 2025.



MURRAY CITY CORPORATION

A handwritten signature in black ink, appearing to read "B. Smith", written over a horizontal line.

Brooke Smith
City Recorder

DATE OF PUBLICATION: February 21, 2025
PH25-11

Per UCA §§ 11-36a-502 and 10-9a-205

Mailed to Affected Entities
Posted to the City's website
Posted to the Utah Public Notice Website
Posted at Murray City Hall
Available at the Murray City Library

RESOLUTION NO. 25-_____

A RESOLUTION ADOPTING THE DECEMBER 2024 WATER IMPACT FEE FACILITIES PLAN AND THE JANUARY 2025 WATER IMPACT FEE ANALYSIS.

WHEREAS, Murray City (“City”) owns infrastructure to provide residents and businesses of the City with water services and the City is required to maintain, repair, and improve the water system infrastructure in order to continue to provide adequate water service; and

WHEREAS, the City recognizes the need to plan for increased demands on its water services as a result of growth, and the collection of impact fees allows the City to help pay for future growth; and

WHEREAS, the impact fees for the City’s water system were last updated in 2017, and the City, in anticipation of required infrastructure improvements, contracted for the preparation of an updated Water Impact Fee Facilities Plan dated December 2024 (“Water IFFP”) and Water Impact Fee Analysis dated January 2025 (“Water IFA”; and

WHEREAS, the City believes that the recommendations of the Water IFFP and Water IFA are necessary for the continued improvement of the City’s water service infrastructure; and

WHEREAS, on March 4, 2025, the City held a public hearing to receive public comment and input related to the Water IFFP and Water IFA; and

WHEREAS, the City, ten days prior to the public hearing, gave notice of the public hearing by (1) mailing notice to each “affected entity”; (2) posting notice on the City’s website; (3) Posted on the Utah Public Notice Website; and (4) Posted at Murray City Hall; and

WHEREAS, at least ten days prior to the public hearing, the City made a copy of the Water IFFP and Water IFA, along with a summary designed to be understood by a lay person, available to the public by placing a copy of the Water IFFP and Water IFA and the summary in the Public Works Department, in the City Recorder’s Office, and at the City Library;

NOW, THEREFORE, BE IT RESOLVED by the Murray City Municipal Council that:

1. The December 2024 Water Impact Fee Facilities Plan and January 2025 Water Impact Fee Analysis recommend improvements to the City’s water infrastructure that are in the best interest of the City, its residents, and businesses; and

2. It hereby approves and adopts the December 2024 Water Impact Fee Facilities Plan and January 2025 Water Impact Fee Analysis and the recommendations given therein.

PASSED, APPROVED AND ADOPTED by the Murray City Municipal Council
on this 4th day of March, 2025.

MURRAY CITY MUNICIPAL COUNCIL

Pam Cotter, Council Chair

ATTEST:

Brooke Smith, City Recorder



PREPARED FOR:

PREPARED BY:



MURRAY
CITY UTAH



BOWEN COLLINS
& ASSOCIATES



WATER IMPACT FEE FACILITIES PLAN

November 2024

PREPARED FOR:



PREPARED BY:



EXECUTIVE SUMMARY

INTRODUCTION

Murray City has retained Bowen Collins & Associates (BC&A) to prepare an impact fee facility plan (IFFP) for its water distribution system. The purpose of an IFFP is to identify demands placed upon City facilities by future development and evaluate how these demands will be met by the City. The IFFP is also intended to outline the improvements, which may be funded through impact fees.

WHY IS AN IFFP NEEDED?

The IFFP provides a technical basis for assessing updated impact fees throughout the City. This document will address the future infrastructure needed to serve the City with regard to current land use planning. The existing and future capital projects documented in this IFFP will ensure that level of service standards are maintained for all existing and future residents who reside within the service area. Local governments must pay strict attention to the required elements of the Impact Fee Facilities Plan, which are enumerated in the Impact Fees Act.

PROJECTED FUTURE GROWTH

To evaluate future infrastructure needs, it is first necessary to project how demand for water will increase in the future. An equivalent residential unit (ERU) of peak day water demand was developed based on information provided by the Murray City Planning and Water Departments. Projected 10-year growth in ERUs and peak day demand was developed based on growth projections provided by the City as described in the City's water master plan.

Table ES-1
Projections of Future Growth

Year	Equivalent Residential Units (ERUs)	Peak Day Demand (mgd)	Peak Day Demand (gpm)
2024	21,795	21.99	15,272
2025	21,919	22.12	15,359
2030	22,352	22.55	15,662
2034	22,745	22.95	15,937
2035	22,843	23.05	16,006
2040	23,324	23.53	16,343
2045	23,814	24.03	16,686
2050	24,292	24.51	17,021
2055	24,366	24.59	17,073
2060	24,431	24.65	17,119
2065	24,488	24.71	17,158

The basis of an ERU for historical flow rates is summarized in Table ES-2. An equivalent residential unit in this case represents the average indoor and outdoor demand that is anticipated from a residential unit. For the purpose of impact fee calculations, it will also be valuable to consider the peak day demands of indoor residential units (IRU).

Table ES-2
Existing Demand per Equivalent Residential Unit

Item	Value for Existing Conditions
Population (Murray Water only)	42,464
Equivalent Residential Units (ERUs)	21,795
Average Day Demand (mgd)	17.4
Peak Day Demand (mgd)	22.0
Peak Hour Demand (mgd)	31.0
Flows per ERU	
Average Day Demand (gpd/ERU)	797
Peak Day Demand (gpd/ERU)	1,009
Peak Hour Demand (gpm/ERU)	1,423
Peak Day Indoor Demand (gpd/IRU)	249

LEVEL OF SERVICE

Level of service is defined in the Impact Fees Act as “the defined performance standard or unit of demand for each capital component of a public facility within a service area.” Performance standards are those standards that are used to design and evaluate the performance of facilities. While the Impact Fees Act includes “defined performance standard” as part of the level of service definition, this report will make a subtle distinction between performance standard and level of service. The performance standard will be considered the desired minimum level of performance for each component, while the existing level of service will be the actual current performance of the component and the proposed level of service will be the proposed actual performance of the component in the future. Summary values for each of these categories are contained in Table ES-3.

Table ES-3
Performance Standards and Existing Level of Service
for Various System Components

	Performance Standard	Existing Level of Service¹	Proposed Level of Service
Production Capacity			
Peak Day Production Capacity (gpd/ERU)	1,009	1,207	1,009
Peak Day Production Capacity (gpd/IRU)	249	298	249
Pumping Capacity			
Pumping Capacity (gpm/ERU)	0.99	1.29	0.99
Pumping Capacity (gpm/IRU)	0.24	0.32	0.24
Storage			
Storage (gallons/ERU)	504.5	550.6	504.5
Storage (gallons/IRU)	124.5	135.9	124.5
Transmission and Distribution			
Peak Hour Demand Pressure(psi)	50	40 ²	50
Minimum Available Fire Flow at 25 psi during Peak Day Demand (gpm)	1,500	500 ²	1,500
Peak Hour Velocity (ft/sec)	7	6.5	7

¹ Existing level of service represents level available, not necessarily level used. For example, the storage being used per ERU will be 504.5 gallons even though the amount available is 581 gallons.

² Because there are many pump stations and thousands of transmission and distribution components, the value given is for the worst case only. All other components have a higher level of service with the vast majority meeting the desired performance standard.

EXISTING CAPACITY AVAILABLE TO SERVE FUTURE GROWTH

All projected future growth will be met by available excess capacity in existing facilities. Defining existing system capacity in terms of a single number is difficult. To improve the accuracy of the analysis, the system was divided into three different components (production/treatment, storage, and transmission/pumping). Excess capacity in each component of the system is as follows:

Production

The City relies on a combination of groundwater water wells and the McGhee Springs to meet production requirements. In recent years Murray City improved the 4500 South Well, 360 East Well, and the Park Well to meet future demand and some existing demand. Most of the existing demand, however, is met by the City's older wells and springs. Table ES-4 summarizes the excess capacity of sources available for 10-year growth.

Table ES-4
Excess Production Capacity for Sources Supplying 10-Year Growth

Sources for 10-Year Growth	Percent to Existing	Percent to 10-Year Growth	Percent to Buildout
Pre-2018 Wells & Springs	100.0%	0.0%	0.0%
4500 South Well	55.0%	15.9%	29.1%
360 Well	55.0%	15.9%	29.1%
Park Well	55.0%	15.9%	29.1%

Pumping

The City owns and operates five storage reservoirs. The calculated percentage of existing capacity currently in use by existing development is 89 percent. Growth during the next 10 years is calculated to use an additional 3.9 percent, with the remaining 7.1 percent of existing storage to be used by growth beyond the 10-year planning window.

Storage

The City owns and operates five storage reservoirs. The calculated percentage of existing capacity currently in use by existing development is 89 percent. Growth during the next 10 years is calculated to use an additional 3.9 percent, with the remaining 7.1 percent of existing storage to be used by growth beyond the 10-year planning window.

Transmission

Use of transmission and pumping capacity was evaluated using the updated computer model of the City's conveyance system. The calculated percentage of existing capacity currently in use by existing development is 89 percent. Growth during the next 10 years is calculated to use an additional 3.9 percent, with the remaining 7.1 percent of existing capacity to be used by growth beyond the 10-year planning window.

REQUIRED SYSTEM IMPROVEMENTS

some improvement projects included in the master planning documents improve the level of service and increase conveyance capacity to support future growth. Because these projects benefit both existing and future users, they can be partially funded by future users through impact fees. These improvement projects, their calculated use, and the portion paid for by existing and future users is summarized in Table 6-1.

**Table ES-5
Capital Improvement Projects**

Project	Install Year	Estimated	Percent to Existing	Percent to 10-Year	Percent to Growth Beyond 10-Year	Cost to Existing	Cost to 10-Year	Cost to Growth Beyond 10-Year
5400 S Murray Parkway Ave. Crossing	2026	\$335,486	59.2%	14.4%	26.4%	\$198,748	\$48,237	\$88,502
State & Winchester PRV & Connection	2026	\$763,761	69.0%	10.9%	20.1%	\$526,833	\$83,580	\$153,348
Winchester and 1200 West Well Development	2028	\$4,000,000	55.0%	15.9%	29.1%	\$2,200,480	\$634,808	\$1,164,712
Corrosion Studies & Mitigation	2026	\$309,818	89.0%	3.9%	7.1%	\$275,757	\$12,016	\$22,046
Winchester 900 East to River Replacement	2027	\$1,252,441	98.9%	0.4%	0.7%	\$1,238,793	\$4,814	\$8,833
5900 S Steel Pipe	2027	\$294,986	77.6%	7.9%	14.5%	\$228,944	\$23,297	\$42,744
900 E Winchester to Holly	2030	\$2,034,219	99.9%	0.0%	0.1%	\$2,032,250	\$695	\$1,275
Winchester, State to 900 E	2030	\$5,947,260	83.5%	5.8%	10.7%	\$4,968,556	\$345,254	\$633,450
Total						\$11,670,360	\$1,152,701	\$2,114,910

SECTION 1 INTRODUCTION

Murray City has retained Bowen Collins & Associates (BC&A) to prepare impact fee facility plans (IFFPs) for the City's water system. The purpose of an IFFP is to identify demands placed upon City facilities by future development and evaluate how these demands will be met by the City. The IFFP is also intended to outline the improvements, which may be funded through impact fees.

Much of the analysis forming the basis of this IFFP has been taken from the City's Water Master Plan, also prepared by BC&A. The reader should refer to the water master plan for additional discussion of planning and evaluation methodology beyond what is contained in this report.

SERVICE AREA

The City's water system does not serve the entire corporate boundary of Murray City. As a result, the discussion of population growth and demand growth in Murray City is only pertinent to that portion of the City served by the Murray City water system. The boundary of the City's water system is identified in Figure 1.

IMPACT FEE FACILITY PLAN COMPONENTS

Requirements for the preparation of an IFFP are outlined in Title 11, Chapter 36a of the Utah code (the Impact Fees Act). Under these requirements, an IFFP shall accomplish the following for each facility:

1. Identify the existing level of service
2. Establish a proposed level of service
3. Identify excess capacity to accommodate future growth
4. Identify demands of new development
5. Identify the means by which demands from new development will be met
6. Consider the following additional issues
 - a. revenue sources to finance required system improvements
 - b. necessity of improvements to maintain the proposed level of service
 - c. need for facilities relative to planned locations of schools

The following sections of this report have been organized to address each of these requirements.

SECTION 2

EXISTING LEVEL OF SERVICE (11-36a-302(1)(a)(i))

Level of service is defined in the Impact Fees Act as “the defined performance standard or unit of demand for each capital component of a public facility within a service area”. This section discusses the level of service being currently provided to existing users.

UNIT OF DEMAND

It is necessary to define a unit of demand to evaluate the capacity used by both existing and future development. An equivalent residential unit (ERU) was developed based on information provided by the Murray City Planning and Water Departments. The existing number ERUs is based on peak day demand (as opposed to average day demand) because most water system facility sizes are based on this unit of demand. Table 2-1 shows the demand estimated for each ERU in the City.

Table 2-1
Existing Demand per Equivalent Residential Unit

Item	Value for Existing Conditions
Population (Murray Water only)	42,464
Equivalent Residential Units (ERUs)	21,795
Average Day Demand (mgd)	17.4
Peak Day Demand (mgd)	22.0
Peak Hour Demand (mgd)	31.0
Flows per ERU	
Average Day Demand (gpd/ERU)	797
Peak Day Demand (gpd/ERU)	1,009
Peak Hour Demand (gpm/ERU)	1,423
Peak Day Indoor Demand (gpd/ERU)	249

PERFORMANCE STANDARD

Performance standards are those standards that are used to design and evaluate the performance of facilities. While the Impact Fees Act includes “defined performance standard” as part of the level of service definition, this report will make a subtle distinction between performance standard and level of service. The performance standard will be considered the desired minimum level of performance for each component, while the existing level of service will be the actual current performance of the component. Thus, if the existing level of service is less than the performance standard it is a deficiency. If it is greater than the performance standard it may indicate excess capacity. This section discusses the existing performance standards for the City. A subsequent section will consider existing level of service relative to these standards.

To improve the accuracy of the analysis, this impact fee facilities plan has divided the system into four different components (production capacity, pumping capacity, storage, and transmission). Each of these components has its own set of performance standards:

Production Capacity

Water production must be adequate to satisfy demands on both an annual and peak day basis. Production of supplies must take into account seasonal limitations in supply availability and reductions in yield because of dry year conditions.

Pumping Capacity

Most of the City's peak hour demands are met using wells and booster pumps that draw from storage reservoirs. As a result, pump stations must be sized to meet peak hour demands within the City. There must be sufficient redundancy within the system that peak hour demand can be met with the failure of any one booster pump.

Storage

Three major criteria are generally considered when sizing storage facilities for a water distribution system: operational or equalization storage, fire flow storage, and emergency or standby storage.

1. **Operational/Equalization Storage:** Operational/equalization storage is the storage required to satisfy the difference between the maximum rate of supply and the rate of demand during peak conditions. Sources, major transmission pipelines, and pump stations are usually sized to convey peak day demands to optimize the capital costs of infrastructure. During peak hour demands, storage is needed to meet the difference in source/conveyance capacity and the increased peak instantaneous demands. Based on the historic usage, the equalization storage for culinary demands in the City was calculated to be 25 percent of average peak day demands (252.25 gallons/ERU).
2. **Fire Flow Storage:** Fire flow storage is the amount of water needed to combat fires occurring in the distribution system. Required fire flow storage is calculated based on the fire flow rate for structures in each area of the system multiplied by a specified duration as required by the fire authority or a fire suppression system engineer. The worst-case fire storage requirement in Murray City is 1.92 million gallons.
3. **Emergency Storage:** Emergency or standby storage is the storage needed to meet demands in the event of an unexpected emergency situation such as a line break, treatment plant failure, or other unexpected event. For Murray City, the City would like to provide emergency storage equal to 6 hours of peak day demand (or 25 percent of peak day demand). This will provide a safety factor of 2.0 above required equalization requirements. critical scenario appears to be providing water during a power outage during the peak day. Because fire storage requirement in Murray City are relatively high, the emergency storage includes fire storage in its calculations (does not duplicate fire storage).

Storage requirements are calculated for the system as a whole.

Transmission and Distribution

Based on input from Murray City staff, the following criteria were used as the performance standards for water distribution facilities:

1. The system was evaluated for existing conditions and projected conditions at buildout. Each demand scenario included model runs at both peak day and peak hour demand.
2. Under peak day demand, the system must be capable of maintaining constant levels at all system tanks and reservoirs.
3. Under peak hour demand, the system must be capable of limiting the maximum rate of draining in all system tanks and reservoirs to two times the tank or reservoir's size (e.g. - a 1 million gallon tank will drain at a rate of 2 mgd or less during the peak hour). This criterion limits the fluctuation of all tanks and reservoirs to 50 percent of their total volume during a peak day and ensures operational storage is adequate.
4. The system should be capable of maintaining 50 psi during peak hour demand. This is higher than State of Utah requirements which require minimum pressures of 40 psi during peak day demand and 30 psi during peak hour demands.
5. The system must be able to meet fire flow demands and still maintain greater than 25-psi residual pressure in the distribution system under peak day demand conditions. Fire flow demands were set at 1,500 gpm for residential areas, with higher custom fire flows for a few other large structures as established by the Murray City fire authorities.

EXISTING LEVEL OF SERVICE

The performance standard defines the level of service the City has established to satisfy City and/or State performance requirements. For Water, this standard has been based on the current Murray City Code and requirements of the State of Utah Division of Drinking Water.

EXISTING LEVEL OF SERVICE SUMMARY

Existing level of service has been divided into the same four components as identified for the system performance standard (production capacity, pumping capacity, storage, and transmission). Existing level of service values are summarized in Table 2-2 below. For comparison purposes, Table 2-2 also includes a summary of the existing performance standards.

Table 2-2
Performance Standards and Existing Level of Service
for Various System Components

	Performance Standard	Existing Level of Service¹
Production Capacity		
Peak Day Production Capacity (gpd/ERU)	1,009	1,206.7
Peak Day Production Capacity (gpd/IRU)	249	297.8
Pumping Capacity		
Pumping Capacity (gpm/ERU)	0.99	1.3
Pumping Capacity (gpm/IRU)	0.24	0.3
Storage		
Storage (gallons/ERU)	504.5	550.6
Storage (gallons/IRU)	124.5	135.9
Transmission and Distribution		
Peak Hour Demand Pressure(psi)	50	40 ²
Minimum Available Fire Flow at 25 psi during Peak Day Demand (gpm)	1,500	500 ²
Peak Hour Velocity (ft/sec)	7	6.5

¹ Existing level of service represents level available, not necessarily level used. For example, the storage being used per ERU will be 504.5 gallons even though the amount available is 581 gallons.

² Because there are many pump stations and thousands of transmission and distribution components, the value given is for the worst case only. All other components have a higher level of service with the vast majority meeting the desired performance standard.

In a few cases, the City's performance standard is higher than the existing level of service and indicates there is some deficiency in the existing system. In most cases, this is associated with limited locations in the existing system and excess capacity still may exist in other parts of the system. Excess capacity and curing of deficiencies will be discussed in subsequent sections of this report. Costs for projects to correct deficiencies that do not meet the required level of service will not be included as part of the impact fee as required by the Impact Fee Act.

SECTION 3

PROPOSED LEVEL OF SERVICE (11-36a-302(1)(a)(ii))

The proposed level of service is the performance standard used to evaluate system needs in the future. The Impact Fee Act indicates that the proposed level of service may:

1. diminish or equal the existing level of service; or
2. exceed the existing level of service if, independent of the use of impact fees, the City implements and maintains the means to increase the level of service for existing demand within six years of the date on which new growth is charged for the proposed level of service.

By definition, proposed future level of service will be equal to the performance standard. Table 3-1 summarizes the proposed performance standards and level of service.

Table 3-1
Performance Standards and Proposed Level of Service
for Various System Requirements

	Performance Standard	Proposed Level of Service
Production Capacity		
Peak Day Production Capacity (gpd/ERU)	1,009	1,009
Peak Day Production Capacity (gpd/IRU)	249	249
Pumping Capacity		
Pumping Capacity (gpd/ERU)	0.99	0.99
Pumping Capacity (gpm/IRU)	0.24	0.24
Storage		
Storage (gallons/ERU)	504.5	504.5
Storage (gallons/IRU)	124.5	124.5
Transmission and Distribution		
Peak Hour Demand Pressure(psi)	50	50
Minimum Available Fire Flow at 25 psi during Peak Day Demand (gpm)	1500	1500
Peak Hour Velocity (ft/sec)	7.0	7.0

The City will also be increasing the level of service for the City in terms of backup power for sources in limited locations.

SECTION 4

EXCESS CAPACITY TO ACCOMMODATE FUTURE GROWTH (11-36a-302(1)(a)(iii))

Projected future growth will be met through a combination of available excess capacity in existing facilities and construction of additional capacity in new facilities. Defining existing system capacity in terms of a single number is difficult. To improve the accuracy of the analysis, we have broken down excess capacity into the same four categories as defined for level of service (production, pumping, storage, and transmission) but have grouped transmission and pumping to facilitate evaluation. The purpose of this breakdown is to consider the available capacity for each component individually. Excess capacity in each component of the system is as follows:

Production

The City's Water Master Plan includes an analysis of available supply to service existing and projected demands. This analysis includes consideration of annual supply and peak production capacity. Existing sources within the City, which includes groundwater wells and springs, have more capacity than is needed for existing use. Table 4-1 summarizes the excess capacity of sources that will be used by future growth.

Table 4-1
Excess Production Capacity for Sources Supplying 10-Year Growth

Sources for 10-Year Growth	Equipment Capacity (mgd)	Existing Use (mgd)	10-Year Use (mgd)	Buildout Use (mgd)	Percent to Existing	Percent to 10-Year Growth	Percent to Buildout
Pre-2018 Wells & Springs	21.3	18.7	18.7	18.7	100%	0%	0%
4500 South Well	1.7	1.0	1.3	1.9	55.0%	15.9%	29.1%
360 Well	1.6	0.9	1.2	1.7	55.0%	15.9%	29.1%
Park Well	1.7	1.0	1.3	1.9	55.0%	15.9%	29.1%

The City's redundancy goal is to maintain the capacity of all of its existing wells with water rights. This equates to an approximate 30 percent buffer in well and equipment capacity to account for declines in well performance or equipment performance over time. The McGhee Springs capacity is limited to the minimum dry year production recorded in 2020. Additional information on water source production can be found in the water master plan documents.

Pumping

The City's peak hour demands are met through a combination of wells, storage tanks, and water from McGhee springs. The pumping capacity from each of these sources exceeds current peak hour demands. Table 4-2 summarizes the excess pumping capacity available to serve future growth.

Table 4-2
Excess Pumping Capacity Supplying 10-Year Growth

Sources for 10-Year Growth	Equipment Capacity (gpm)	Existing Use (gpm)	10-Year Use (gpm)	Buildout Use (gpm)	Percent to Existing	Percent to 10-Year Growth	Percent to Buildout
Existing Well and Booster Pumps	28,060	21,533	22,472	24,193	89.0%	3.9%	7.1%

The pumping capacity of individual wells or boosters was reduced by the downstream transmission capacity if pumping capacity exceeded transmission capacity. For example, the total pumping capacity at the Grant Park Tank exceeds 5,000 gpm, however the transmission capacity of the 14" pipe, immediately downstream of the pumps, is limited to 2,500 gpm at a maximum velocity of 7 fps. Total pumping capacity was further reduced by 2,500 gpm to ensure peak hour demands can be met with the failure of any one booster pump.

Storage

The City owns and operates several storage reservoirs. Available storage in the City's water system exceeds existing storage requirements. Table 4-2 summarizes the excess capacity available to serve future growth from the existing storage facilities.

Table 4-3
Excess Storage Capacity for 10-Year Growth

Storage for 10-Year Growth	Capacity (gallons)	Existing Use (gallons)	10-Year Use (gallons)	Buildout Use (gallons)	Percent to Existing	Percent to 10-Year Growth	Percent to Buildout
Existing Storage	12,000,000	10,995,822	11,474,946	12,354,018	89.0%	3.9%	7.1%

* storage includes equalization storage and the City's emergency storage requirement.

Transmission

Excess capacity in the City's distribution and transmission pipes is based on peak day culinary demand. Calculated use of the City's distribution and transmission pipes now and in the future is shown in Table 4-4.

Table 4-4
Percentage Use of Transmission/Pumping System by Existing and Future Users

Facility	Percent Use By Existing	Percent Available to 10-Year Growth	Percent Available to Growth Beyond 10-Years
Existing Culinary Conveyance System	91.5%	3.0%	5.5%

SECTION 5
DEMANDS PLACED ON FACILITIES
BY NEW DEVELOPMENT (11-36a-302(1)(a)(iv))

Growth and new development in Murray City is discussed in detail in the City's Water Master Plan. A summary of the projections for future growth is contained in the table below. Non-residential growth includes all non-residential uses such as business, churches, offices, retail, medical facilities, etc. For the purpose of the IFFP, projections in Table 5-1 start with 2017 ERUs and grow based on input from Murray City planning.

Table 5-1
Projections of Future Growth

Year	Equivalent Residential Units (ERUs)	Peak Day Demand (mgd)	Peak Day Demand (gpm)
2024	21,795	21.99	15,272
2025	21,919	22.12	15,359
2030	22,352	22.55	15,662
2034	22,745	22.95	15,937
2035	22,843	23.05	16,006
2040	23,324	23.53	16,343
2045	23,814	24.03	16,686
2050	24,292	24.51	17,021
2055	24,366	24.59	17,073
2060	24,431	24.65	17,119
2065	24,488	24.71	17,158

SECTION 6

INFRASTRUCTURE REQUIRED TO MEET DEMANDS OF NEW DEVELOPMENT (11-36a-302(1)(a)(v))

To satisfy the requirements of state law, demand placed upon existing system facilities by future development was projected using the process outlined below. These steps were completed as part of this plan's development.

1. **Existing Demand** – The demand of existing development was determined by measuring the current peak demands on facilities.
2. **Existing Capacity** – The capacities of the existing water system components were evaluated based on the level of service criteria defined by the City and a hydraulic model simulation of the City's water system.
3. **Existing Deficiencies** – Existing deficiencies in the system were looked for by comparing defined levels of service against calculated levels of service. Some deficiencies were identified in the Water system. Per impact fee requirements, projects or costs associated with eliminating existing deficiencies will not be recovered through impact fees.
4. **Future Demand** - The demand that future development will place on the system was estimated based on development projections as discussed in Section 5.
5. **Future Deficiencies** - Future deficiencies in the system were identified using the defined level of service and results from a hydraulic computer model.
6. **Recommended Improvements** – Needed system improvements were identified to meet demands associated with future development.

The steps listed above describe the “demands placed upon existing public facilities by new development activity at the proposed level of service; and... the means by which the political subdivision or private entity will meet those growth demands” (Section 11-36a-302(1)(a) of the Utah Code).

Most of the future improvements projects identified in the master planning documents are needed to maintain the existing level of service rather than to meet demands associated with future development. According to section 11-36a-302(3)) when projects are constructed to maintain the existing level of service, they cannot be funded by future users through impact fees but are instead funded by user rates.

However, some improvement projects included in the master planning documents improve the level of service and increase conveyance capacity to support future growth. Because these projects benefit both existing and future users, they can be partially funded by future users through impact fees. These improvement projects, their calculated use, and the portion paid for by existing and future users is summarized in Table 6-1.

**Table 6-1
Capital Improvement Projects**

Project	Install Year	Estimated	Percent to Existing	Percent to 10-Year	Percent to Growth Beyond 10-Year	Cost to Existing	Cost to 10-Year	Cost to Growth Beyond 10-Year
5400 S Murray Parkway Ave. Crossing	2026	\$335,486	59.2%	14.4%	26.4%	\$198,748	\$48,237	\$88,502
State & Winchester PRV & Connection	2026	\$763,761	69.0%	10.9%	20.1%	\$526,833	\$83,580	\$153,348
Winchester and 1200 West Well Development	2028	\$4,000,000	55.0%	15.9%	29.1%	\$2,200,480	\$634,808	\$1,164,712
Corrosion Studies & Mitigation	2026	\$309,818	89.0%	3.9%	7.1%	\$275,757	\$12,016	\$22,046
Winchester 900 East to River Replacement	2027	\$1,252,441	98.9%	0.4%	0.7%	\$1,238,793	\$4,814	\$8,833
5900 S Steel Pipe	2027	\$294,986	77.6%	7.9%	14.5%	\$228,944	\$23,297	\$42,744
900 E Winchester to Holly	2030	\$2,034,219	99.9%	0.0%	0.1%	\$2,032,250	\$695	\$1,275
Winchester, State to 900 E	2030	\$5,947,260	83.5%	5.8%	10.7%	\$4,968,556	\$345,254	\$633,450
Total						\$11,670,360	\$1,152,701	\$2,114,910

SECTION 7

ADDITIONAL CONSIDERATIONS

MANNER OF FINANCING (11-36a-302(2))

The City may fund the infrastructure identified in this IFFP through a combination of different revenue sources.

Federal and State Grants and Donations

Impact fees cannot reimburse costs funded or expected to be funded through federal grants and other funds that the City has received for capital improvements without an obligation to repay. Grants and donations are not currently contemplated in this analysis. If grants become available for constructing facilities, impact fees will need to be recalculated and an appropriate credit given. Any existing infrastructure funded through past grants will be removed from the system value during the impact fee analysis.

Bonds

None of the costs contained in this IFFP include the cost of bonding. The cost of bonding required to finance impact fee eligible improvements identified in the IFPP may be added to the calculation of the impact fee. This will be considered in the impact fee analysis.

Interfund Loans

Because infrastructure must generally be built ahead of growth, there often arises situations in which projects must be funded ahead of expected impact fee revenues. In some cases, the solution to this issue will be bonding. In others, funds from existing user rate revenue will be loaned to the impact fee fund to complete initial construction of the project and will be reimbursed later as impact fees are received. Consideration of potential interfund loans will be included in the impact fee analysis and should be considered in subsequent accounting of impact fee expenditures.

Impact Fees

It is recommended that impact fees be used to fund growth-related capital projects as they help to maintain the proposed level of service and prevent existing users from subsidizing the capital needs for new growth. Based on this IFFP, an impact fee analysis will be able to calculate a fair and legal fee that new growth should pay to fund the portion of the existing and new facilities that will benefit new development.

Developer Dedications and Exactions

Developer exactions are not the same as grants. Developer exactions may be considered in the inventory of current and future public safety infrastructure. If a developer constructs a facility or dedicates land within the development, the value of the dedication is credited against that particular developer's impact fee liability.

If the value of the dedication/exaction is less than the development's impact fee liability, the developer will owe the balance of the liability to the City. If the value of the improvements dedicated is worth more than the development's impact fee liability, the City must reimburse the difference to the developer from impact fee revenues collected from other developments.

It should be emphasized that the concept of impact fee credits pertains to system level improvements only. For project level improvement (i.e. projects not identified in the impact fee facilities plan), developers will be responsible for the construction of the improvements without credit against the impact fee.

No developer dedications have currently been identified for infrastructure associated with this plan.

NECESSITY OF IMPROVEMENTS TO MAINTAIN LEVEL OF SERVICE (11-36a-302(3))

According to State statute, impact fees cannot be used to correct deficiencies in the system and must be necessary to maintain the proposed level of service established for all users. Only those projects or portions of projects that are required to maintain the proposed level of service for future growth have been included in this IFFP. This will result in an equitable fee as future users will not be expected to fund any portion of the projects that will benefit existing residents.

SCHOOL RELATED INFRASTRUCTURE (11-36a-302(2))

As part of the noticing and data collection process for this plan, information was gathered regarding future school district and charter school development. Where the City is aware of the planned location of a school, required public facilities to serve the school have been included in the impact fee analysis.

NOTICING AND ADOPTION REQUIREMENTS (11-36a-502)

The Impact Fees Act requires that entities must publish a notice of intent to prepare or modify any IFFP. If an entity prepares an independent IFFP rather than include a capital facilities element in the general plan, the actual IFFP must be adopted by enactment. Before the IFFP can be adopted, a reasonable notice of the public hearing must be published in a local newspaper at least 10 days before the actual hearing. A copy of the proposed IFFP must be made available in each public library within the City during the 10-day noticing period for public review and inspection. Utah Code requires that the City must post a copy of the ordinance in at least three places. These places may include the City offices and the public libraries within the City's jurisdiction. Following the 10-day noticing period, a public hearing will be held, after which the City may adopt, amend and adopt, or reject the proposed IFFP.

SECTION 8

IMPACT FEE CERTIFICATION (11-36a-306(1))

This report has been prepared in accordance with Utah Code Title 11 Chapter 36a (the “Impact Fees Act”), which prescribes the laws pertaining to Utah municipal capital facilities plans and impact fee analyses. The accuracy of this report relies upon the planning, engineering, and other source data, which was provided by the City and their designees.

In accordance with Utah Code Annotated, 11-36a-306(1), Bowen Collins & Associates, makes the following certification:

I certify that this impact fee facility plan:

1. Includes only the cost of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. Does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. cost of qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. Complies in each relevant respect with the Impact Fees Act.

This certification is made with the following caveats:

1. All of the recommendations for implementations of the Impact Fee Facilities Plan (IFFP) made in the IFFP or in the impact fee analysis are followed in their entirety by the City.
2. If all or a portion of the IFFP or impact fee analysis is modified or amended, this certification is no longer valid.
3. All information provided in the preparation of this IFFP is assumed to be correct, complete and accurate. This includes information provided by the City and outside sources.



Andrew T. McKinnon, P.E.

Dated: November 8, 2024

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MURRAY CITY

Water Impact Fee Analysis
January 2025



ZIONS PUBLIC FINANCE, INC.

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EXECUTIVE SUMMARY

An impact fee is a one-time fee imposed on new development activity to mitigate the impact of new development on capital facilities. In conjunction with this Impact Fee Analysis (IFA), Bowen Collins & Associates prepared the Impact Fee Facilities Plan (IFFP) dated November 2024. The IFFP forms the basis for this IFA.

The recommended impact fee structure presented in this analysis has been prepared to satisfy the Impact Fees Act, Utah Code Ann. § 11-36a-101 et. seq., and represents the maximum impact fees Murray City (“City”) may assess. The City will be required to use revenue sources other than impact fees to fund any projects that constitute repair and replacement, cure any existing deficiencies, or increase the level of service for existing users.

Water Service Levels

The City is anticipated to grow by 950 Equivalent Residential Units (ERUs) between 2024 and 2034 – the timeframe of the IFFP analysis.¹

Water Service Levels

Level of service (LOS) defines the water capital facility demands that a typical ERU will require and should pay for with impact fees. The IFFP defines existing and proposed service levels as follows.

TABLE 1: WATER EXISTING AND PROPOSED SERVICE LEVELS

	Performance Standard	Existing Level of Service ¹	Proposed Level of Service
Production Capacity			
Peak Day Production Capacity (gpd/ERU)	1,009	1,207	1,009
Peak Day Production Capacity (gpd/IRU)	249	298	249
Pumping Capacity			
Pumping Capacity (gpm/ERU)	0.99	1.29	0.99
Pumping Capacity (gpm/IRU)	0.24	0.32	0.24
Storage			
Storage (gallons/ERU)	504.5	550.6	504.5
Storage (gallons/IRU)	124.5	135.9	124.5
Transmission and Distribution			
Peak Hour Demand Pressure(psi)	50	40 ²	50
Minimum Available Fire Flow at 25 psi during Peak Day Demand (gpm)	1,500	500 ²	1,500
Peak Hour Velocity (ft/sec)	7	6.5	7

Source: Water Impact Fee Facilities Plan, ES-3

1 – Existing level of service represents level available, not necessarily level used. For example, the storage being used per ERU will be 504.5 gallons even though the amount available is 581 gallons

¹ Murray City Water System Impact Fee Facilities Plan, p. ES-1.

Performance Standard	Existing Level of Service ¹	Proposed Level of Service
<i>2 – Because there are many pump stations and thousands of transmission and distribution components, the value given is for the worst case only. All other components have a higher level of service with the vast majority meeting the desired performance standard.</i>		

Water Service Area

There is one service area for water that encompasses the boundaries of Murray City.

Excess Capacity

According to the IFFP, there is existing excess capacity in its water system.

TABLE 2: EXISTING EXCESS CAPACITY IN WATER SYSTEM

Existing Excess Capacity	Amt to 10 Years	Total Actual Cost	Cost to 10 Year-Growth
Production	15.90%	\$5,114,970.18	\$813,280.26
Pumping	3.90%	\$39,600.00	\$1,544.40
Storage	3.90%	\$5,001,294.00	\$195,050.47
Supply	0.00%	\$392,403.00	\$0.00
Transmission	3.90%	\$31,026,048.05	\$1,210,015.87
Total		\$41,574,315.23	\$2,219,891.00

New Construction

Total new construction costs required by growth in new development over the next 10 years are projected to reach \$1,152,701.

Water System Impact Fee Calculation

The gross impact fee is \$3,800.04 for a ¾"-1" meter before credits are made for the portion of new projects that benefit existing development and for an outstanding bond.

TABLE 3: GROSS COST PER ERU BEFORE CREDITS

Summary of Gross Fee	Amount
Existing Excess Capacity	\$2,336.73
Interest Cost on Bonds	\$164.49
New Improvement Costs	\$1,213.37
Consultant Costs	\$85.45
Gross Cost per ERU Before Credits	\$3,800.04

Two credits must be made against the gross impact fee: 1) credits for the outstanding DEQ Series 2019 Water Revenue Bond; and 2) for the portion of new improvements that will benefit existing development. These credits are discussed in more detail in the body of this report.

Although the gross fee of \$3,800.04 remains constant year over year, the impact fee credits decline each year as fewer payment years remain on the outstanding bond and more ERUs (due to growth) are sharing costs and payments.

Depending on the type of development, fees can be charged on either an ERU, IRU (indoor residential unit) or peak day demand (calculated per gpm) basis.

TABLE 4: SUMMARY OF MAXIMUM IMPACT FEE, 2025-2034

Year	Gross Fee	Credit - New Improvements	Credit from Bonds	Maximum Fee per ERU	Maximum Fee per gpm	Maximum Fee per IRU
2025	\$3,800.04	(\$372.97)	(\$161.40)	\$3,265.68	\$2,288.24	\$805.88
2026	\$3,800.04	(\$338.37)	(\$158.35)	\$3,303.32	\$2,314.62	\$815.18
2027	\$3,800.04	(\$302.25)	(\$155.18)	\$3,342.60	\$2,342.14	\$824.86
2028	\$3,800.04	(\$264.54)	(\$151.89)	\$3,383.61	\$2,370.88	\$834.98
2029	\$3,800.04	(\$225.14)	(\$148.50)	\$3,426.40	\$2,400.86	\$845.54
2030	\$3,800.04	(\$183.99)	(\$144.97)	\$3,471.08	\$2,432.17	\$856.57
2031	\$3,800.04	(\$140.97)	(\$141.30)	\$3,517.77	\$2,464.88	\$868.09
2032	\$3,800.04	(\$96.04)	(\$137.49)	\$3,566.52	\$2,499.04	\$880.12
2033	\$3,800.04	(\$49.08)	(\$133.55)	\$3,617.40	\$2,534.70	\$892.68
2034	\$3,800.04	\$0.00	(\$129.47)	\$3,670.57	\$2,571.95	\$905.80

Single-family residential fees will be charged for one ERU (5/8" -1") on a per door basis.

Multi-family residential fees will be charged for indoor demand using indoor residential units (IRUs) on a per door basis. Outdoor costs for multi-family units will be charged based on irrigated acreage as defined by Table 5.

TABLE 5: WATER MAXIMUM IMPACT FEES PER IRRIGATED ACRE

Summary of Maximum Fee	Grass*	Waterwise*
2025	\$16,383.81	\$6,544.37
2026	\$16,572.65	\$6,619.80
2027	\$16,769.73	\$6,698.53
2028	\$16,975.47	\$6,780.71
2029	\$17,190.13	\$6,866.45
2030	\$17,414.33	\$6,956.00
2031	\$17,648.54	\$7,049.55
2032	\$17,893.11	\$7,147.25
2033	\$18,148.42	\$7,249.23
2034	\$18,415.15	\$7,355.77

*Based on 7.16 gpm/acre for grass and 2.86 gpm/acre for waterwise

Nonresidential impact fees may be calculated using a peak day demand estimate for the development or as calculated by multiplying the AWWA meter ratio and calculated demand per ERU. These calculations represent the maximum impact fee that may be charged.

Maximum impact fees by year for non-residential meters by meter size are shown in Table 6.

TABLE 6: NON-RESIDENTIAL MAXIMUM IMPACT FEES BY YEAR

Size of Meter (inch)	Maximum Allowable Impact Fee (By year)					
	2025	2026	2027	2028	2029	2030
1	\$8,164	\$8,258	\$8,357	\$8,459	\$8,566	\$8,678
2	\$16,328	\$16,517	\$16,713	\$16,918	\$17,132	\$17,355
2	\$26,125	\$26,427	\$26,741	\$27,069	\$27,411	\$27,769
3	\$57,149	\$57,808	\$58,496	\$59,213	\$59,962	\$60,744
4	\$97,970	\$99,100	\$100,278	\$101,508	\$102,792	\$104,133
6	\$204,105	\$206,457	\$208,913	\$211,476	\$214,150	\$216,943
8	\$293,911	\$297,299	\$300,834	\$304,525	\$308,376	\$312,398
10	\$473,523	\$478,981	\$484,677	\$490,623	\$496,827	\$503,307
12	\$702,120	\$710,213	\$718,659	\$727,476	\$736,675	\$746,283

CHAPTER 1: OVERVIEW OF THE WATER IMPACT FEES

Summary

An impact fee is intended to recover the City's costs of building water system capacity to serve new residential and non-residential development rather than passing these growth-related costs on to existing users through rates. The Utah Impact Fees Act allows only certain costs to be included in an impact fee so that only the fair cost of expansionary projects or existing unused capacity paid for by the City is assessed through an impact fee.

Costs to be Included in the Impact Fee

The impact fees proposed in this analysis are calculated based upon:

- The actual cost of existing excess capacity;
- New capital infrastructure that will serve new development; and
- Professional and planning expenses related to the construction of system improvements that will serve new development.

The costs that cannot be included in the impact fee are as follows:

- Costs for projects that cure system deficiencies;
- Costs for projects that increase the LOS above that which is currently provided;
- Operations and maintenance costs;
- Costs of facilities funded by grants or other funds that the City does not have to repay; and
- Costs of reconstruction of facilities that do not have capacity to serve new growth.

Utah Code Legal Requirements

Utah law requires that communities and special districts prepare an Impact Fee Analysis (IFA) before enacting an impact fee. Utah law also requires that communities/districts give notice of their intent to

prepare and adopt an IFA. This IFA follows all legal requirements as outlined below. The City has retained Zions Public Finance, Inc. (ZPFI) to prepare this Impact Fee Analysis in accordance with legal requirements.

Notice of Intent to Prepare Impact Fee Analysis

A local political subdivision must provide written notice of its intent to prepare an IFA before preparing the Plan (Utah Code §11-36a-503). This notice must be posted on the Utah Public Notice website. The City has complied with this noticing requirement for the IFA by posting notice.

Preparation of Impact Fee Analysis

Utah Code requires that each local political subdivision, before imposing an impact fee, prepare an impact fee analysis. (Utah Code 11-36a-304).

Section 11-36a-304 of the Utah Code outlines the requirements of an impact fee analysis which is required to:

- (1) An impact fee analysis shall:
 - (a) identify the anticipated impact on or consumption of any existing capacity of a public facility by the anticipated development activity;
 - (b) identify the anticipated impact on system improvements required by the anticipated development activity to maintain the established level of service for each public facility;
 - (c) demonstrate how the anticipated impacts described in Subsections (1)(a) and (b) are reasonably related to the anticipated development activity;
 - (d) estimate the proportionate share of:
 - (i) the costs for existing capacity that will be recouped; and
 - (ii) the costs of impacts on system improvements that are reasonably related to the new development activity; and
 - (e) identify how the impact fee was calculated.
- (2) In analyzing whether or not the proportionate share of the costs of public facilities are reasonably related to the new development activity, the local political subdivision or private entity, as the case may be, shall identify, if applicable:
 - (a) the cost of each existing public facility that has excess capacity to serve the anticipated development resulting from the new development activity;
 - (b) the cost of system improvements for each public facility;
 - (c) other than impact fees, the manner of financing for each public facility, such as user charges, special assessments, bonded indebtedness, general taxes, or federal grants;
 - (d) the relative extent to which development activity will contribute to financing the excess capacity of and system improvements for each existing public facility, by such means as user charges, special assessments, or payment from the proceeds of general taxes;

- (e) the relative extent to which development activity will contribute to the cost of existing public facilities and system improvements in the future;
- (f) the extent to which the development activity is entitled to a credit against impact fees because the development activity will dedicate system improvements or public facilities that will offset the demand for system improvements, inside or outside the proposed development;
- (g) extraordinary costs, if any, in servicing the newly-developed properties; and
- (h) the time-price differential inherent in fair comparisons of amounts paid at different times.

Certification of Impact Fee Analysis

Utah Code states that an Impact Fee Analysis shall include a written certification from the person or entity that prepares the Impact Fee Analysis. This certification is included at the conclusion of this analysis.

CHAPTER 2: IMPACT FROM GROWTH UPON THE CITY'S FACILITIES AND LEVEL OF SERVICE

Utah Code 11-36a-304(1)(a)

Projected Water Demands

Table 6 shows ERU growth projections which will place additional demand on the City's water system. The City's water system currently (year 2024) serves 21,795 equivalent residential units (ERUs) which will grow to an estimated 22,745 ERUs by 2034.

Water Service Area

ERUs within Murray City are projected to grow as follows:

TABLE 6: GROWTH IN DEMAND

Year	ERUs
2024	21,795
2025	21,919
2026	22,005
2027	22,091
2028	22,178
2029	22,265
2030	22,352
2031	22,450
2032	22,548
2033	22,646
2034	22,745
Growth in ERUs, 2024-2034	950

Source: Murray City Water Impact Fee Facilities Plan, p. ES-1

Existing and Proposed LOS Analysis

Level of service (LOS) defines the water capital facility demands that a typical ERU will require and should pay for with impact fees. The IFFP defines existing service levels as follows.

TABLE 7: EXISTING AND PROPOSED SERVICE LEVELS

	Performance Standard	Existing Level of Service ¹	Proposed Level of Service
Production Capacity			
Peak Day Production Capacity (gpd/ERU)	1,009	1,207	1,009
Peak Day Production Capacity (gpd/IRU)	249	298	249
Pumping Capacity			
Pumping Capacity (gpm/ERU)	0.99	1.29	0.99

	Performance Standard	Existing Level of Service ¹	Proposed Level of Service
Pumping Capacity (gpm/IRU)	0.24	0.32	0.24
Storage			
Storage (gallons/ERU)	504.5	550.6	504.5
Storage (gallons/IRU)	124.5	135.9	124.5
Transmission and Distribution			
Peak Hour Demand Pressure(psi)	50	40 ²	50
Minimum Available Fire Flow at 25 psi during Peak Day Demand (gpm)	1,500	500 ²	1,500
Peak Hour Velocity (ft/sec)	7	6.5	7

Source: Water Impact Fee Facilities Plan, ES-3

1 – Existing level of service represents level available, not necessarily level used. For example, the storage being used per ERU will be 504.5 gallons even though the amount available is 581 gallons

2 – Because there are many pump stations and thousands of transmission and distribution components, the value given is for the worst case only. All other components have a higher level of service with the vast majority meeting the desired performance standard.

The performance standard will be considered the desired minimum level of performance for each component, while the existing level of service will be the actual current performance of the component and the proposed level of service will be the proposed actual performance of the component in the future.²

CHAPTER 3: IMPACT ON CAPACITY FROM DEVELOPMENT ACTIVITY

Utah Code 11-36a-304(1)(b)(c)

Excess Capacity

The IFFP identifies existing, excess capacity in the four wells shown in Table 8.

TABLE 8: PRODUCTION EXCESS CAPACITY

Sources for 10-Year Growth	Percent to Existing	Percent to 10-Year Growth	Percent to Buildout
Pre-2018 Wells & Springs	100.00%	0.00%	0.00%
4500 South Well	55.00%	15.90%	29.10%
360 Well	55.00%	15.90%	29.10%
Park Well	55.00%	15.90%	29.10%
Source: IFFP, p. ES-4			

The IFFP also identifies existing excess capacity in the water pumping, storage and transmission systems.

² IFFP, p. ES-2

TABLE 9: PUMPING, STORAGE AND TRANSMISSION EXCESS CAPACITY

Description	Percent to Existing	Percent to 10-Year Growth	Percent to Buildout
Pumping	89.0%	3.9%	7.1%
Storage	89.0%	3.9%	7.1%
Transmission	89.0%	3.9%	7.1%
Source: IFFP, p. ES-4			

CHAPTER 4: SYSTEM IMPROVEMENTS REQUIRED FROM DEVELOPMENT ACTIVITY

Utah Code 11-36a-304(1)(b)(c)

The means by which the City will meet growth demands include constructing the following projects as set forth in the Impact Fee Facilities Plan. This will occur through requiring new development to pay for its fair share of existing excess capacity consumed over the next 10 years as well as paying for its fair share of new construction projects.

The cost of new capital facility construction projects that benefit new development over the next 10 years total \$1,152,701.

TABLE 10: NEW CONSTRUCTION IMPROVEMENTS

Project	Estimated Cost	Cost to Existing	Cost to 10-Year	Cost to Growth Beyond 10-Year
5400 S Murray Parkway Ave. Crossing	\$335,486	\$198,748	\$48,237	\$88,502
State & Winchester PRV & Connection	\$763,761	\$526,833	\$83,580	\$153,348
Winchester and 1200 West Well Development	\$4,000,000	\$2,200,480	\$634,808	\$1,164,712
Corrosion Mitigation Studies	\$309,818	\$275,757	\$12,016	\$22,046
Winchester 900 East to River Replacement	\$1,252,441	\$1,238,793	\$4,814	\$8,833
5900 S. Steel Pipe	\$294,986	\$228,944	\$23,297	\$42,744
900 E Winchester to Holly	\$2,034,219	\$2,032,250	\$695	\$1,275
Winchester, State to 900 E.	\$5,947,260	\$4,968,556	\$345,254	\$633,450
Total	\$14,937,971	\$11,670,361	\$1,152,701	\$2,114,910
Source: IFFP, p.6-1				

CHAPTER 5: PROPORTIONATE SHARE ANALYSIS

Maximum Legal Water Impact Fee per ERU

The Impact Fees Act requires the Impact Fee Analysis to estimate the proportionate share of the future and actual cost of existing system improvements that benefit new growth that can be recouped through impact fees. The impact fee for existing assets must be based on the actual costs (when excess capacity is available) while the fees for construction of new facilities can be based on reasonable future costs of the system.

Excess Capacity

The actual cost of existing, excess capacity is calculated by taking the proportionate share of capacity consumed by new development over the next 10 years and multiplying by the actual cost of those facilities as shown on the City's Asset List.

TABLE 11: EXCESS CAPACITY ALLOCATION

Existing Excess Capacity	Amount to 10 Years	Total Actual Cost	Cost to 10 Year-Growth
Production	15.90%	\$5,114,970.18	\$813,280.26
Pumping	3.90%	\$39,600.00	\$1,544.40
Storage	3.90%	\$5,001,294.00	\$195,050.47
Supply	0.00%	\$392,403.00	\$0.00
Transmission	3.90%	\$31,026,048.05	\$1,210,015.87
Total		\$41,574,315.23	\$2,219,891.00

TABLE 12: PROPORTIONATE SHARE ANALYSIS, EXCESS CAPACITY

Existing Excess Capacity	Amount
Cost to 10-Yr Growth	\$2,219,891.00
Growth in ERUs, 2024-2034	950
Cost per ERU	\$2,336.73

Because many of the existing assets are being financed with the Series 2019 DEQ bonds, which were issued for \$8,054,000, the proportionate share of interest costs on those bonds can be allocated to new development.

TABLE 13: PROPORTIONATE SHARE ANALYSIS, BOND INTEREST COST

DEQ Costs	Book Actual Cost	Interest	Total Cost	% to 10 Years	Interest Cost to 10 Years
4500 South Well	\$2,492,618	\$421,702	\$2,914,320	15.90%	\$67,050.63
Murray Park Well	\$2,284,553	\$386,502	\$2,671,054	15.90%	\$61,453.74
State Street 4500S to 5300S	\$4,207,972	\$711,906	\$4,919,878	3.90%	\$27,764.35
TOTAL	\$8,985,143	\$1,520,110	\$10,505,253		\$156,268.73

TABLE 14: PROPORTIONATE SHARE ANALYSIS, BOND INTEREST COST

Interest Cost on Bonds	
Interest Cost 10 Years	\$156,268.73
Growth in ERUs, 2024-2034	950
Cost per ERU	\$164.49

New Construction

Total new improvement costs attributable to new development over the next 10 years will reach \$1,152,701.

TABLE 15: PROPORTIONATE SHARE ANALYSIS, NEW IMPROVEMENTS

New Construction	Amount
Cost to New Development 10 Years	\$1,152,701
Growth in ERUs, 2024-2034	950
Cost per ERU	\$1,213.37

Consultant Costs

The Impact Fees Act allows for fees charged to include the reimbursement of consultant costs incurred in the preparation of the IFFP and IFA.

TABLE 16: PROPORTIONATE SHARE ANALYSIS – CONSULTANT COSTS

Consultant Costs	Amount
Consultant Costs	\$81,175
Growth in ERUs, 2024-2034	950
Cost per ERU	\$85.45

Impact Fee Fund Balance

Based on information provided by the City, there is no water impact fee fund balance.

Summary of Gross Fee Before Credits

TABLE 17: SUMMARY OF GROSS FEE BEFORE CREDITS

Summary of Gross Fee	
Existing Excess Capacity	\$2,336.73
Interest Cost on Bonds	\$164.49
New Improvement Costs	\$1,213.37
Consultant Costs	\$85.45
Gross Cost per ERU	\$3,800.04

Credits Against Impact Fees

Credits must be calculated for the outstanding Series 2019 DEQ bond. This is necessary so that new development does not pay twice – once through an impact fee and later through increased rates that cover future bond payments. The amount to be credited to existing development ranges between 55.0 percent and 89.0 percent, depending on the project, for a weighted average of 70.9 percent (\$7,450,648 / \$10,505,253).

TABLE 18: COST ALLOCATION TO EXISTING DEVELOPMENT

DEQ Costs	Book Actual Cost	Interest on Bond	Total Cost	Percent to be Credited for Existing	Amount to be Credited for Existing
4500 South Well	\$2,492,618	\$421,702	\$2,914,320	55.00%	\$1,602,876
Murray Park Well	\$2,284,553	\$386,502	\$2,671,054	55.00%	\$1,469,080
State Street 4500S to 5300S	\$4,207,972	\$711,906	\$4,919,878	89.00%	\$4,378,692
TOTAL	\$8,985,143	\$1,520,110	\$10,505,253		\$7,450,648

Credits are based on the net present value of the future remaining payments on the bond, discounted at 5 percent.

TABLE 19: CREDITS FROM OUTSTANDING BOND, DEQ SERIES 2019

Year	DEQ Total Bond Amt	Amt to Existing	ERUs	Cost per ERU	NPV*
2025	\$343,540	\$243,649	21,919	\$11.12	\$161.40
2026	\$343,910	\$243,912	22,005	\$11.08	\$158.35
2027	\$344,250	\$244,153	22,091	\$11.05	\$155.18
2028	\$343,560	\$243,663	22,178	\$10.99	\$151.89
2029	\$343,850	\$243,869	22,265	\$10.95	\$148.50
2030	\$344,110	\$244,053	22,352	\$10.92	\$144.97
2031	\$344,340	\$244,216	22,450	\$10.88	\$141.30
2032	\$343,540	\$243,649	22,548	\$10.81	\$137.49
2033	\$343,720	\$243,777	22,646	\$10.76	\$133.55
2034	\$343,870	\$243,883	22,745	\$10.72	\$129.47
2035	\$381,990	\$270,919	22,843	\$11.86	\$125.22
2036	\$382,700	\$271,423	22,938	\$11.83	\$119.62
2037	\$382,370	\$271,189	23,034	\$11.77	\$113.77
2038	\$382,010	\$270,933	23,130	\$11.71	\$107.68
2039	\$382,620	\$271,366	23,227	\$11.68	\$101.35
2040	\$382,190	\$271,061	23,324	\$11.62	\$94.74
2041	\$381,730	\$270,735	23,421	\$11.56	\$87.85
2042	\$382,240	\$271,096	23,519	\$11.53	\$80.69
2043	\$381,710	\$270,720	23,617	\$11.46	\$73.19
2044	\$382,150	\$271,033	23,715	\$11.43	\$65.39
2045	\$382,550	\$271,316	23,814	\$11.39	\$57.23
2046	\$381,910	\$270,862	23,909	\$11.33	\$48.70
2047	\$382,240	\$271,096	24,004	\$11.29	\$39.80
2048	\$382,530	\$271,302	24,100	\$11.26	\$30.50
2049	\$381,780	\$270,770	24,196	\$11.19	\$20.77
2050	\$381,780	\$270,770	24,292	\$11.15	\$10.62

*NPV = net present value discounted at 5 percent

Credits must also be made for the proportionate share of new projects that benefit existing development in order that new development is not charged twice. The proportionate share of new projects benefitting existing development is \$11,670,361 based on the IFFP and as shown in Table 10 previously. This cost is anticipated to be paid for with increased rates, spread over 10 years, and therefore new development must be credited so that it does not pay the full impact fee as well as higher rates.

TABLE 20: CREDITS ON NEW CONSTRUCTION PROJECTS BENEFITTING EXISTING DEVELOPMENT

Year	Payment per Year	ERUs	Cost per ERU	NPV*
2025	\$1,167,036.10	21,919	\$53.24	\$372.97
2026	\$1,167,036.10	22,005	\$53.04	\$338.37
2027	\$1,167,036.10	22,091	\$52.83	\$302.25
2028	\$1,167,036.10	22,178	\$52.62	\$264.54
2029	\$1,167,036.10	22,265	\$52.42	\$225.14
2030	\$1,167,036.10	22,352	\$52.21	\$183.99
2031	\$1,167,036.10	22,450	\$51.98	\$140.97
2032	\$1,167,036.10	22,548	\$51.76	\$96.04
2033	\$1,167,036.10	22,646	\$51.53	\$49.08

*NPV = net present value discounted at 5 percent

These credits are then applied to the gross fee calculated to arrive at the maximum fee per ERU. Fees can be charged on either a ERU, IRU, or gpm basis.

TABLE 21: SUMMARY OF MAXIMUM IMPACT FEE, 2025-2034

Year	Gross Fee	Credit - New Improvements	Credit from Bonds	Maximum Fee per ERU	Maximum Fee per gpm	Maximum Fee per IRU
2025	\$3,800.04	(\$372.97)	(\$161.40)	\$3,265.68	\$2,288.24	\$805.88
2026	\$3,800.04	(\$338.37)	(\$158.35)	\$3,303.32	\$2,314.62	\$815.18
2027	\$3,800.04	(\$302.25)	(\$155.18)	\$3,342.60	\$2,342.14	\$824.86
2028	\$3,800.04	(\$264.54)	(\$151.89)	\$3,383.61	\$2,370.88	\$834.98
2029	\$3,800.04	(\$225.14)	(\$148.50)	\$3,426.40	\$2,400.86	\$845.54
2030	\$3,800.04	(\$183.99)	(\$144.97)	\$3,471.08	\$2,432.17	\$856.57
2031	\$3,800.04	(\$140.97)	(\$141.30)	\$3,517.77	\$2,464.88	\$868.09
2032	\$3,800.04	(\$96.04)	(\$137.49)	\$3,566.52	\$2,499.04	\$880.12
2033	\$3,800.04	(\$49.08)	(\$133.55)	\$3,617.40	\$2,534.70	\$892.68
2034	\$3,800.04	\$0.00	(\$129.47)	\$3,670.57	\$2,571.95	\$905.80

Single-family residential fees will be charged for one ERU on a per door basis.

Multi-family residential fees will be charged for indoor demand using indoor residential units (IRUs) on a per door basis. Outdoor costs for multi-family units will be charged based on irrigated acreage as defined by Table 22.

TABLE 22: WATER MAXIMUM IMPACT FEES PER IRRIGATED ACRE

Summary of Maximum Fee	Grass*	Waterwise*
2025	\$16,383.81	\$6,544.37
2026	\$16,572.65	\$6,619.80
2027	\$16,769.73	\$6,698.53
2028	\$16,975.47	\$6,780.71
2029	\$17,190.13	\$6,866.45
2030	\$17,414.33	\$6,956.00
2031	\$17,648.54	\$7,049.55
2032	\$17,893.11	\$7,147.25
2033	\$18,148.42	\$7,249.23
2034	\$18,415.15	\$7,355.77

*Based on 7.16 gpm/acre for grass and 2.86 gpm/acre for waterwise

Nonresidential impact fees will be calculated based on meter size as shown in Table 23. Nonresidential development will apply to any development that does not include a residential component. It will also apply to components of residential development that are not specifically tied to residential living units or landscaping (e.g. pools, recreation centers, club houses, etc.). Nonresidential fees will be based on AWWA meter capacity ratios and the equivalent capacity required for a typical ERU.

TABLE 23: NON-RESIDENTIAL MAXIMUM IMPACT FEES BY YEAR

Size of Meter (inch)	Maximum Allowable Impact Fee (By year)					
	2025	2026	2027	2028	2029	2030
1	\$8,164	\$8,258	\$8,357	\$8,459	\$8,566	\$8,678
2	\$16,328	\$16,517	\$16,713	\$16,918	\$17,132	\$17,355
2	\$26,125	\$26,427	\$26,741	\$27,069	\$27,411	\$27,769
3	\$57,149	\$57,808	\$58,496	\$59,213	\$59,962	\$60,744
4	\$97,970	\$99,100	\$100,278	\$101,508	\$102,792	\$104,133
6	\$204,105	\$206,457	\$208,913	\$211,476	\$214,150	\$216,943
8	\$293,911	\$297,299	\$300,834	\$304,525	\$308,376	\$312,398
10	\$473,523	\$478,981	\$484,677	\$490,623	\$496,827	\$503,307
12	\$702,120	\$710,213	\$718,659	\$727,476	\$736,675	\$746,283

MIXED USE

If a development is proposed consisting of both residential and non-residential use (e.g. retail stores at ground level with residential housing above, the impact fee will be calculated as follows:

- Step 1: Calculate the fee using the nonresidential schedule above based on the meter size to be used to serve the entire development.
- Step 2: Calculate the fee for the residential units and landscaping using the methodology outlined for multifamily above. Then add to the fee a charge for the nonresidential component of the development based on the estimated meter size that would be required if the nonresidential were to be developed on its own.
- Step 3: Take the larger of the two calculations. This is the final impact fee.

OTHER NONSTANDARD DEVELOPMENT TYPES

The categories above will be used in the administration of impact fees whenever possible. In the rare case that a development type cannot be represented by one of the categories above, the impact fee may be calculated by examining both average day and peak day water use. The corresponding equivalency will be based on the level of service definition for an ERU as contained in the IFFP. This equates to 797 gpd/ERU for average day use and 1,009 gpd/ERU for peak day use. Final equivalency will be based on the larger value of ERUs calculated for these two metrics.

CERTIFICATION

Zions Public Finance, Inc. certifies that the attached impact fee analysis:

1. includes only the cost of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities; or
 - b. cost for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
3. offset costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act.



MURRAY
CITY COUNCIL

Public Hearing #3



MURRAY

Public Works/Water Division

Water Master Plan - IFFP - IFA - Water Rate Study Review

Council Action Request

Council Meeting

Meeting Date: March 4 2025

Department Director Russ Kakala Phone # 801-270-2404 Presenters Aron Frisk Required Time for Presentation Is This Time Sensitive No Mayor's Approval  Date February 3, 2025	Purpose of Proposal Adopt attached plans & studies. Amend or enact associated ordinances. Action Requested Adoption of Water Master Plan, Impact Fee Facility Plan, Impact Fee Analysis and the new Water Rates. Amending ordinances. Attachments Water Master Plan, IFFP, IFA, Water Rate Study, Amending Ordinances 13.08.080 & 13.08.020, Enacting a new Ordinance. Budget Impact Water Master Plan describes new Capital Improvement Projects for the water system. Rate Study describes how we can fund our operating and capital accounts. Description of this Item Water Master Plan - Evaluates the adequacy of existing water sources to meet projected Murray City water demands. Evaluates the water distribution system capacity to meet desired operating criteria under various demand conditions. Provides capital improvement projects required to meet or exceed desired operating criteria and correct deficiencies and failing infrastructure. Resolution to adopt. Impact Fee Facilities Plan - Identifies demands placed on City facilities by future development and evaluates how these demands will be met by the City. Outlines improvements that may be funded through impact fees. Resolution to adopt plan
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Continued from Page 1:

Impact Fee Analysis - The IFFP forms the basis for the IFA. Represents the maximum impact fees Murray City may assess on new development. Resolution to adopt plan & amending Ordinance 13.14.110

Water Rate Study - All operating and capital expenses are first calculated, and then rates are structured to cover annual expenses, maintain sufficient debt service ratios, and to keep at least 180 days cash on hand in the water utility fund. We provide multiple different scenarios to fund our division. Amending ordinance 13.08.020 - Approve new rates to fund the water division. Section (D) of this ordinance is to disallow non-metered water for construction use. Users must sign up for service and make their point of use (connection) outside of the City's meter box. This will allow construction to have access to water, while allowing the city to meter and monitor the use.

Amending ordinance 13.08.080 - To allow multifamily residential units with no irrigation responsibilities to install 3/4" service pipe and meters. As of right now, our minimum service pipe and meter for new construction is 1".

Enacting ordinance 13.08.025 - This is to allow the City to assess a fee for meters and AMI equipment for new development. This fee is only the cost to the city to purchase this equipment. Currently we acquire new meters through our Meter operational account, which should be used to replace older meters for existing customers.

MURRAY CITY CORPORATION

NOTICE OF PUBLIC HEARING TO ADOPT AN ORDINANCE AMENDING SECTION 3.14.110 OF THE MURRAY CITY MUNICIPAL CODE RELATING TO AN INCREASE TO THE WATER SYSTEM IMPACT FEES

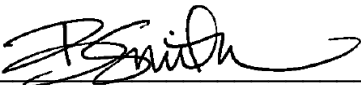
NOTICE IS HEREBY GIVEN that on the 4th Day of March, 2025, at the hour of 6:30 p.m., in the City Council Chambers of the Murray City Hall, 10 East 4800 South, Murray, Utah, the Murray City Municipal Council will hold and conduct a Public Hearing on and pertaining to text amendments to section 3.14.110 of the Murray City Municipal Code relating to changes to the water service impact fees.

The purpose of this hearing is to receive public comment concerning the proposed amendments as described above.

DATED this 5th day of February 2025.



MURRAY CITY CORPORATION



Brooke Smith
City Recorder

DATES OF POSTING: February 21, 2025
PH25-12

LOCATIONS OF POSTINGS – AT LEAST 10 CALENDAR DAYS BEFORE THE PUBLIC HEARING:

1. Mailed to Affected Entities
2. Utah Public Notice Website.
3. City's Official Website.
4. Posted at Murray City Hall

ORDINANCE NO. _____

AN ORDINANCE AMENDING SECTION 3.14.110 OF THE MURRAY CITY MUNICIPAL CODE RELATING TO WATER SYSTEM IMPACT FEES.

Section 1. Purpose. The purpose of this ordinance is to amend Section 3.14.110 of the Murray City Municipal Code relating to water system impact fees.

Section 2. Amendment to Section 3.14.110 of the Murray City Municipal Code. Section 3.14.110 of the Murray City Municipal Code shall be amended to read as follows:

3.14.110: SCHEDULE OF IMPACT FEES:

...

A. Water Impact Fee:

~~1. The water impact fee shall be based on the water meter size serving the property as follows:~~

Meter Size	Impact Fee
1.0"	\$ 3,027.20
1 1/2"	6,053.27
2.0"	9,685.46
3.0"	21,187.01
4.0"	36,321.88
6.0"	75,669.84
8.0"	108,964.52
10.0"	175,553.89
12.0"	231,515.30

~~2. Non-Standard Users Impact Fee Formula: After identifying the estimated average annual demand gallon consumption of a proposed development, multiply the average annual demand by impact fee of two cents (\$0.02) per gallon.~~

1. Water service impact fees can be charged on either an equivalent residential unit (ERU), indoor residential unit (IRU), or gallons per minute (GPM) basis based on the following schedule:

<u>Year</u>	<u>Maximum Fee per ERU</u>	<u>Maximum Fee per GPM</u>	<u>Maximum Fee per IRU</u>
<u>2025</u>	<u>\$3,265.68</u>	<u>\$2,288.24</u>	<u>\$805.88</u>

<u>2026</u>	<u>\$3,303.32</u>	<u>\$2,314.62</u>	<u>\$815.18</u>
<u>2027</u>	<u>\$3,342.60</u>	<u>\$2,342.12</u>	<u>\$824.86</u>
<u>2028</u>	<u>\$3,383.61</u>	<u>\$2,370.88</u>	<u>\$834.98</u>
<u>2029</u>	<u>\$3,426.40</u>	<u>\$2,400.86</u>	<u>\$845.54</u>
<u>2030</u>	<u>\$3,471.08</u>	<u>\$2,432.17</u>	<u>\$856.57</u>
<u>2031</u>	<u>\$3,517.77</u>	<u>\$2,464.88</u>	<u>\$868.09</u>
<u>2032</u>	<u>\$3,566.52</u>	<u>\$2,499.04</u>	<u>\$880.12</u>
<u>2033</u>	<u>\$3,617.40</u>	<u>\$2,534.70</u>	<u>\$892.68</u>
<u>2034</u>	<u>\$3,670.57</u>	<u>\$2,571.95</u>	<u>\$905.80</u>

2. Residential

- a. Single-family residential water impact fees will be charged for one (1) ERU on a per-door basis.
- b. Multi-family residential water impact fees will be charged for indoor demand using IRUs on a per-door basis. Outdoor costs for multi-family units will be charged based on irrigated acreage as defined in the following schedule:

<u>Water Service Maximum Impact Fee Per Irrigated Acre</u>		
<u>Year</u>	<u>Grass*</u>	<u>Waterwise</u>
<u>2025</u>	<u>\$16,383.81</u>	<u>\$6,544.37</u>
<u>2026</u>	<u>\$16,572.65</u>	<u>\$6,619.80</u>
<u>2027</u>	<u>\$16,769.73</u>	<u>\$6,698.53</u>
<u>2028</u>	<u>\$16,975.47</u>	<u>\$6,780.71</u>
<u>2029</u>	<u>\$17,190.13</u>	<u>\$6,866.45</u>
<u>2030</u>	<u>\$17,414.33</u>	<u>\$6,956.00</u>
<u>2031</u>	<u>\$17,648.54</u>	<u>\$7,049.55</u>
<u>2032</u>	<u>\$17,893.11</u>	<u>\$7,147.25</u>
<u>2033</u>	<u>\$18,148.42</u>	<u>\$7,249.23</u>
<u>2034</u>	<u>\$18,415.15</u>	<u>\$7,355.77</u>
<u>* Based on 7.16 gpm/acre for grass and 2.86 gpm/acre for waterwise</u>		

3. Nonresidential: Nonresidential impact fees will be calculated based on meter size as shown in the schedule below. Nonresidential development will apply to any development that does not include a residential component. It will also apply to components of residential developments that are not specifically tied to residential living units or landscaping (e.g. pools, reception centers, club houses, etc.). Nonresidential fees will be based on AWWA meter capacity ratios and the equivalent capacity required for a typical ERU.

<u>Nonresidential Maximum Impact Fees By Year</u>	
<u>Size of</u>	<u>Maximum Allowable Impact Fee (By Year)</u>

<u>Meter (inch)</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>
<u>1"</u>	<u>\$8,164</u>	<u>\$8,258</u>	<u>\$8,357</u>	<u>\$8,459</u>	<u>\$8,566</u>	<u>\$8,678</u>
<u>1.5"</u>	<u>\$16,328</u>	<u>\$16,517</u>	<u>\$16,713</u>	<u>\$16,918</u>	<u>\$17,132</u>	<u>\$17,355</u>
<u>2"</u>	<u>\$26,125</u>	<u>\$26,427</u>	<u>\$26,741</u>	<u>\$27,069</u>	<u>\$27,411</u>	<u>\$27,769</u>
<u>3"</u>	<u>\$57,149</u>	<u>\$57,808</u>	<u>\$58,496</u>	<u>\$59,213</u>	<u>\$59,962</u>	<u>\$60,744</u>
<u>4"</u>	<u>\$97,970</u>	<u>\$99,100</u>	<u>\$100,278</u>	<u>\$101,508</u>	<u>\$102,792</u>	<u>\$104,133</u>
<u>6"</u>	<u>\$204,105</u>	<u>\$206,457</u>	<u>\$208,913</u>	<u>\$211,476</u>	<u>\$214,150</u>	<u>\$216,943</u>
<u>8"</u>	<u>\$293,911</u>	<u>\$297,299</u>	<u>\$300,834</u>	<u>\$304,525</u>	<u>\$308,376</u>	<u>\$312,398</u>
<u>10"</u>	<u>\$473,523</u>	<u>\$478,981</u>	<u>\$484,677</u>	<u>\$490,623</u>	<u>\$496,827</u>	<u>\$503,307</u>
<u>12"</u>	<u>\$702,120</u>	<u>\$710,213</u>	<u>\$718,659</u>	<u>\$727,476</u>	<u>\$736,675</u>	<u>\$746,283</u>

4. Mixed Use: If a development is proposed consisting of both residential and nonresidential use (e.g. retail stores at ground level with residential housing above), the water service impact fee will be calculated as follows:

<u>Mixed Use Development Water Service Impact Fee Calculation</u>	
<u>Step 1</u>	<u>Calculate the fee using the nonresidential schedule above based on the meter size to be used to calculate the entire development.</u>
<u>Step 2</u>	<u>Calculate the fee for the residential units and landscaping using the methodology outlined for multifamily above. Then add to the fee a charge for the nonresidential component of the development based on the estimated meter size that would be required if the nonresidential were to be developed on its own.</u>
<u>Step 3</u>	<u>Take the larger of the two calculations. This is the final impact fee</u>

5. Other Nonstandard Development Types: The categories above will be used in the administration of water service impact fees whenever possible. In the rare case that a development type cannot be represented by one of the categories above, the impact fee may be calculated by examining both average day and peak day water use. The corresponding equivalency will be based on the level of service definition for an ERU which equates to 797 gpd/ERU for average day use and 1,009 gpd/ERU for peak day use. Final equivalency will be based on the larger value of ERUs calculated for these two metrics.

36. For purposes of the water impact fee, new development shall include remodeling, building enlargement, or any other construction or improvement which will place an increased burden on the City water system.

....

Section 3. Effective date. This Ordinance shall take effect upon first publication.

PASSED, APPROVED AND ADOPTED by the Murray City Municipal Council on this _____ day of _____, 2025.

MURRAY CITY MUNICIPAL COUNCIL

Pam Cotter, Chair

ATTEST:

Brooke Smith
City Recorder

Transmitted to the Office of the Mayor of Murray City on this ____ day of _____, 2025.

MAYOR'S ACTION: Approved

DATED this ____ day of _____, 2025

Brett A. Hales, Mayor

ATTEST:

Brooke Smith
City Recorder

CERTIFICATE OF PUBLICATION

I hereby certify that this Ordinance or a summary hereof was published according to law on the ____ day of _____, 2025.

Brooke Smith
City Recorder



MURRAY
CITY COUNCIL

Public Hearings # 4



MURRAY

Public Works/Water Division

Water Master Plan - IFFP - IFA - Water Rate Study Review

Council Action Request

Council Meeting

Meeting Date: March 4, 2025

Department Director Russ Kakala Phone # 801-270-2404 Presenters Aron Frisk Required Time for Presentation Is This Time Sensitive No Mayor's Approval  Date February 3, 2025	Purpose of Proposal Adopt attached plans & studies. Amend or enact associated ordinances. Action Requested Adoption of Water Master Plan, Impact Fee Facility Plan, Impact Fee Analysis and the new Water Rates. Amending ordinances. Attachments Water Master Plan, IFFP, IFA, Water Rate Study, Amending Ordinances 13.08.080 & 13.08.020, Enacting a new Ordinance. Budget Impact Water Master Plan describes new Capital Improvement Projects for the water system. Rate Study describes how we can fund our operating and capital accounts. Description of this Item Water Master Plan - Evaluates the adequacy of existing water sources to meet projected Murray City water demands. Evaluates the water distribution system capacity to meet desired operating criteria under various demand conditions. Provides capital improvement projects required to meet or exceed desired operating criteria and correct deficiencies and failing infrastructure. Resolution to adopt. Impact Fee Facilities Plan - Identifies demands placed on City facilities by future development and evaluates how these demands will be met by the City. Outlines improvements that may be funded through impact fees. Resolution to adopt plan
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Continued from Page 1:

Impact Fee Analysis - The IFFP forms the basis for the IFA. Represents the maximum impact fees Murray City may assess on new development. Resolution to adopt plan & amending Ordinance 13.14.110

Water Rate Study - All operating and capital expenses are first calculated, and then rates are structured to cover annual expenses, maintain sufficient debt service ratios, and to keep at least 180 days cash on hand in the water utility fund. We provide multiple different scenarios to fund our division. Amending ordinance 13.08.020 - Approve new rates to fund the water division. Section (D) of this ordinance is to disallow non-metered water for construction use. Users must sign up for service and make their point of use (connection) outside of the City's meter box. This will allow construction to have access to water, while allowing the city to meter and monitor the use.

Amending ordinance 13.08.080 - To allow multifamily residential units with no irrigation responsibilities to install 3/4" service pipe and meters. As of right now, our minimum service pipe and meter for new construction is 1".

Enacting ordinance 13.08.025 - This is to allow the City to assess a fee for meters and AMI equipment for new development. This fee is only the cost to the city to purchase this equipment. Currently we acquire new meters through our Meter operational account, which should be used to replace older meters for existing customers.

Murray City Corporation

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that on the 4th day of March 2025, at the hour of 6:30 p.m. of said day in the Council Chambers of Murray City Hall, 10 East 4800 South, Murray, Utah, the Murray City Municipal Council will hold and conduct a hearing to receive public comment concerning a proposed ordinance amending section 13.08.020 of the Murray City Code relating to metered water rates for the City.

DATED this 5th day of February 2025.



MURRAY CITY CORPORATION

A handwritten signature in black ink, appearing to read "B. Smith", written over a horizontal line.

Brooke Smith
City Recorder

DATE OF PUBLICATION: February 21, 2025
PH25-08

1. Utah Public Notice Website
2. Murray City Website
3. Posted at Murray City Hall

ORDINANCE NO. _____

OPTION #1

AN ORDINANCE AMENDING SECTION 13.08.020 OF THE MURRAY CITY MUNICIPAL CODE RELATING TO METERED WATER RATES THE CITY.

BE IT ENACTED BY THE MURRAY CITY MUNICIPAL COUNCIL:

Section 1. Purpose. The purpose of this ordinance is to amend Section 13.08.020 of the Murray City Municipal Code relating to the metered water rates for the City.

Section 2. Amendment to Section 13.08.020 of the Murray City Municipal Code. Section 13.08.020 of the Murray City Municipal Code shall be amended to read as follows:

13.08.020: METERED WATER RATES:

A. Minimum Charge: Minimum charge for water meters shall be as follows:

Monthly Base Rate By Meter Size	Effective First Billing Period April 2018	Effective First Billing Period March 2019	Effective First Billing Period March 2020	Effective First Billing Period March 2021	Effective First Billing Period March 2022
3/4" – 1"	\$ 10.00	\$ 10.60	\$ 11.24	\$ 11.91	\$ 12.51
1 1/2"	15.70	16.64	17.64	18.70	19.63
2"	22.54	23.89	25.32	26.84	28.19
3"	38.50	40.81	43.26	45.86	48.15
4"	61.30	64.98	68.88	73.01	76.66
6"	118.31	125.41	132.93	140.91	147.95
8"	186.73	197.93	209.81	222.39	233.51

Monthly Base Rate By Meter Size	Effective April 1, 2024	Effective April 1, 2025	Effective April 1, 2026	Effective April 1, 2027	Effective April 1, 2028
3/4" – 1"	\$12.51	\$15.01	\$18.01	\$19.82	\$20.81
1 1/2"	\$19.63	\$23.56	\$28.27	\$31.09	\$32.65
2"	\$28.19	\$33.83	\$40.59	\$44.65	\$46.89
3"	\$48.15	\$57.78	\$69.34	\$76.27	\$80.08
4"	\$76.66	\$91.99	\$110.39	\$121.43	\$127.50
6"	\$147.95	\$177.54	\$213.05	\$234.35	\$246.07

<u>8"</u>	<u>\$233.51</u>	<u>\$280.21</u>	<u>\$336.25</u>	<u>\$369.88</u>	<u>\$388.37</u>
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<u>Monthly Base Rate by Meter Size</u>	<u>Effective April 1, 2029</u>	<u>Effective April 1, 2030</u>
<u>3/4" – 1"</u>	<u>\$21.43</u>	<u>\$22.07</u>
<u>1 1/2"</u>	<u>\$33.63</u>	<u>\$34.64</u>
<u>2"</u>	<u>\$48.29</u>	<u>\$49.74</u>
<u>3"</u>	<u>\$82.49</u>	<u>\$84.96</u>
<u>4"</u>	<u>\$131.33</u>	<u>\$135.27</u>
<u>6"</u>	<u>\$253.45</u>	<u>\$261.06</u>
<u>8"</u>	<u>\$400.03</u>	<u>\$412.03</u>

B. Consumption Charges: In addition to the minimum service charge provided in subsection A of this section, tiered consumption charges for each hundred cubic feet of water supplied through meters are assessed as follows:

<u>3/4-Inch and 1-Inch</u>			<u>Effective First Billing Period April 2018</u>	<u>Effective First Billing Period March 2019</u>	<u>Effective First Billing Period March 2020</u>	<u>Effective First Billing Period March 2021</u>	<u>Effective First Billing Period March 2022</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>8</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>9</u>	<u>25</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>26</u>	<u>49</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>50</u>	<u>79</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>80</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>3/4" – 1" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>8</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$1.98</u>
<u>2</u>	<u>9</u>	<u>25</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>26</u>	<u>49</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>50</u>	<u>79</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>80</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>3/4" – 1" Meters</u>			<u>Effective April 1, 2029</u>	<u>Effective April 1, 2030</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>8</u>	<u>\$2.04</u>	<u>\$2.10</u>
<u>2</u>	<u>9</u>	<u>25</u>	<u>\$2.47</u>	<u>\$2.54</u>
<u>3</u>	<u>26</u>	<u>49</u>	<u>\$3.00</u>	<u>\$3.09</u>
<u>4</u>	<u>50</u>	<u>79</u>	<u>\$3.75</u>	<u>\$3.86</u>
<u>5</u>	<u>80</u>	<u>Above</u>	<u>\$5.36</u>	<u>\$5.52</u>

<u>1 1/2-Inch</u>			<u>Effective First Billing Period April 2018</u>	<u>Effective First Billing Period March 2019</u>	<u>Effective First Billing Period March 2020</u>	<u>Effective First Billing Period March 2021</u>	<u>Effective First Billing Period March 2022</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>32</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>33</u>	<u>100</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>101</u>	<u>196</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>197</u>	<u>316</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>317</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>1 1/2" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>32</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$1.98</u>
<u>2</u>	<u>33</u>	<u>100</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>101</u>	<u>196</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>197</u>	<u>316</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>317</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>3/4" – 1" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>32</u>	<u>\$2.04</u>	<u>\$2.10</u>
<u>2</u>	<u>33</u>	<u>100</u>	<u>\$2.47</u>	<u>\$2.54</u>
<u>3</u>	<u>101</u>	<u>196</u>	<u>\$3.00</u>	<u>\$3.09</u>
<u>4</u>	<u>197</u>	<u>316</u>	<u>\$3.75</u>	<u>\$3.86</u>
<u>5</u>	<u>317</u>	<u>Above</u>	<u>\$5.36</u>	<u>\$5.52</u>

2-Inch			Effective-First Billing-Period April 2018	Effective First Billing Period March 2019	Effective First Billing Period March 2020	Effective First Billing Period March 2021	Effective First Billing Period March 2022
Tier	Minimum ccf	Maximum ccf	Price-Per ccf				
1	-	64	\$0.95	\$1.01	\$1.07	\$1.13	\$1.19
2	65	200	1.15	1.22	1.29	1.37	1.44
3	201	392	1.40	1.48	1.57	1.67	1.75
4	393	632	1.75	1.86	1.97	2.08	2.19
5	633	Above	2.50	2.65	2.81	2.98	3.13

<u>2" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2024</u>	<u>Effective</u> <u>April 1,</u> <u>2025</u>	<u>Effective</u> <u>April 1,</u> <u>2026</u>	<u>Effective</u> <u>April 1,</u> <u>2027</u>	<u>Effective</u> <u>April 1,</u> <u>2028</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>64</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$1.98</u>
<u>2</u>	<u>65</u>	<u>200</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>201</u>	<u>392</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>393</u>	<u>632</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>633</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>2" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>64</u>	<u>\$2.04</u>	<u>\$2.10</u>
<u>2</u>	<u>65</u>	<u>200</u>	<u>\$2.47</u>	<u>\$2.54</u>
<u>3</u>	<u>201</u>	<u>392</u>	<u>\$3.00</u>	<u>\$3.09</u>
<u>4</u>	<u>393</u>	<u>632</u>	<u>\$3.75</u>	<u>\$3.86</u>
<u>5</u>	<u>633</u>	<u>Above</u>	<u>\$5.36</u>	<u>\$5.52</u>

<u>3-Inch</u>			<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>April</u> <u>2018</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2019</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2020</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2021</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2022</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price-Per ccf</u>				
<u>1</u>	<u>-</u>	<u>120</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>121</u>	<u>375</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>376</u>	<u>735</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>736</u>	<u>1,185</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>1,186</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>3" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2024</u>	<u>Effective</u> <u>April 1,</u> <u>2025</u>	<u>Effective</u> <u>April 1,</u> <u>2026</u>	<u>Effective</u> <u>April 1,</u> <u>2027</u>	<u>Effective</u> <u>April 1,</u> <u>2028</u>
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<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>120</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$1.98</u>
<u>2</u>	<u>121</u>	<u>375</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>376</u>	<u>735</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>736</u>	<u>1,185</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>1,186</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>3" Meters</u>			<u>Effective April 1, 2029</u>	<u>Effective April 1, 2030</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>120</u>	<u>\$2.04</u>	<u>\$2.10</u>
<u>2</u>	<u>121</u>	<u>375</u>	<u>\$2.47</u>	<u>\$2.54</u>
<u>3</u>	<u>376</u>	<u>735</u>	<u>\$3.00</u>	<u>\$3.09</u>
<u>4</u>	<u>736</u>	<u>1,185</u>	<u>\$3.75</u>	<u>\$3.86</u>
<u>5</u>	<u>1,186</u>	<u>Above</u>	<u>\$5.36</u>	<u>\$5.52</u>

<u>4-Inch</u>			<u>Effective First Billing Period April 2018</u>	<u>Effective First Billing Period March 2019</u>	<u>Effective First Billing Period March 2020</u>	<u>Effective First Billing Period March 2021</u>	<u>Effective First Billing Period March 2022</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>200</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>201</u>	<u>625</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>626</u>	<u>1,225</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>1,226</u>	<u>1,975</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>1,976</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>4" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
<u>Tier</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Price per ccf</u>				

	<u>ccf</u>	<u>ccf</u>					
<u>1</u>	<u>-</u>	<u>200</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$198</u>
<u>2</u>	<u>201</u>	<u>625</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>626</u>	<u>1,225</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>1,226</u>	<u>1,975</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>1,976</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>4" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>200</u>	<u>\$2.04</u>	<u>\$2.10</u>
<u>2</u>	<u>201</u>	<u>625</u>	<u>\$2.47</u>	<u>\$2.54</u>
<u>3</u>	<u>626</u>	<u>1,225</u>	<u>\$3.00</u>	<u>\$3.09</u>
<u>4</u>	<u>1,226</u>	<u>1,975</u>	<u>\$3.75</u>	<u>\$3.86</u>
<u>5</u>	<u>1,976</u>	<u>Above</u>	<u>\$5.36</u>	<u>\$5.52</u>

<u>6-Inch</u>			<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>April</u> <u>2018</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2019</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2020</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2021</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2022</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>400</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>401</u>	<u>1,250</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>1,251</u>	<u>2,450</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>2,451</u>	<u>3,950</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>3,951</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>6" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2024</u>	<u>Effective</u> <u>April 1,</u> <u>2025</u>	<u>Effective</u> <u>April 1,</u> <u>2026</u>	<u>Effective</u> <u>April 1,</u> <u>2027</u>	<u>Effective</u> <u>April 1,</u> <u>2028</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>400</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$198</u>

<u>2</u>	<u>401</u>	<u>1,250</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>1,251</u>	<u>2,450</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>2,451</u>	<u>3,950</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>3,951</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>6" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>400</u>	<u>\$2.04</u>	<u>\$2.10</u>
<u>2</u>	<u>401</u>	<u>1,250</u>	<u>\$2.47</u>	<u>\$2.54</u>
<u>3</u>	<u>1,251</u>	<u>2,450</u>	<u>\$3.00</u>	<u>\$3.09</u>
<u>4</u>	<u>2,451</u>	<u>3,950</u>	<u>\$3.75</u>	<u>\$3.86</u>
<u>5</u>	<u>3,951</u>	<u>Above</u>	<u>\$5.36</u>	<u>\$5.52</u>

<u>8-Inch</u>			<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>April</u> <u>2018</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2019</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2020</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2021</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2022</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>1,120</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>1,121</u>	<u>3,500</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>3,501</u>	<u>6,860</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>6,861</u>	<u>11,060</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>11,061</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>8" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2024</u>	<u>Effective</u> <u>April 1,</u> <u>2025</u>	<u>Effective</u> <u>April 1,</u> <u>2026</u>	<u>Effective</u> <u>April 1,</u> <u>2027</u>	<u>Effective</u> <u>April 1,</u> <u>2028</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>1,120</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$1.98</u>
<u>2</u>	<u>1,121</u>	<u>3,500</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>3,501</u>	<u>6,860</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>6,861</u>	<u>11,060</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>11,061</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>8" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>1,120</u>	<u>\$2.04</u>	<u>\$2.10</u>
<u>2</u>	<u>1,121</u>	<u>3,500</u>	<u>\$2.47</u>	<u>\$2.54</u>
<u>3</u>	<u>3,501</u>	<u>6,860</u>	<u>\$3.00</u>	<u>\$3.09</u>
<u>4</u>	<u>6,861</u>	<u>11,060</u>	<u>\$3.75</u>	<u>\$3.86</u>
<u>5</u>	<u>11,061</u>	<u>Above</u>	<u>\$5.36</u>	<u>\$5.52</u>

C. Modification: The City reserves the right to amend or modify the schedules provided in subsections A and B of this section.

D. New Construction: ~~A new construction water use fee, in an amount to be determined by the Mayor in a written policy, shall be assessed on all building permits for new construction on parcels without a permanent water connection. All new construction water users must sign up for water service before any water use is allowed for construction. The fee shall be paid together with building permit fees.~~ The City will allow a temporary metered connection, not to exceed one hundred eighty (180) days, which will allow the permittee to use water for construction related uses on the affected parcel. Contractors shall not make a connection inside of the meter box. Water may not be used for any purpose away from the affected parcel, such as dust suppression or construction work on another parcel. The City may terminate a temporary connection for the illegal use of water in violation of this subsection. (Ord. 18-05: Ord. 17-40)

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Section 3. Effective date. This Ordinance shall take effect upon first publication.

PASSED, APPROVED AND ADOPTED by the Murray City Municipal Council on this _____ day of _____, 2025.

MURRAY CITY MUNICIPAL COUNCIL

Pam Cotter, Council Chair

ATTEST:

Brooke Smith
City Recorder

Transmitted to the Office of the Mayor of Murray City on this ____ day of _____, 2025.

MAYOR'S ACTION: Approved

DATED this ____ day of _____, 2025

Brett A. Hales, Mayor

ATTEST:

Brooke Smith
City Recorder

CERTIFICATE OF PUBLICATION

I hereby certify that this Ordinance or a summary hereof was published according to law on the ____ day of _____, 2025.

Brooke Smith
City Recorder

ORDINANCE NO. _____

OPTION #2

AN ORDINANCE AMENDING SECTION 13.08.020 OF THE MURRAY CITY MUNICIPAL CODE RELATING TO METERED WATER RATES THE CITY.

BE IT ENACTED BY THE MURRAY CITY MUNICIPAL COUNCIL:

Section 1. Purpose. The purpose of this ordinance is to amend Section 13.08.020 of the Murray City Municipal Code relating to the metered water rates for the City.

Section 2. Amendment to Section 13.08.020 of the Murray City Municipal Code. Section 13.08.020 of the Murray City Municipal Code shall be amended to read as follows:

13.08.020: METERED WATER RATES:

A. Minimum Charge: Minimum charge for water meters shall be as follows:

Monthly Base Rate By Meter Size	Effective First Billing Period April 2018	Effective First Billing Period March 2019	Effective First Billing Period March 2020	Effective First Billing Period March 2021	Effective First Billing Period March 2022
3/4" – 1"	\$ 10.00	\$ 10.60	\$ 11.24	\$ 11.91	\$ 12.51
1 1/2"	15.70	16.64	17.64	18.70	19.63
2"	22.54	23.89	25.32	26.84	28.19
3"	38.50	40.81	43.26	45.86	48.15
4"	61.30	64.98	68.88	73.01	76.66
6"	118.31	125.41	132.93	140.91	147.95
8"	186.73	197.93	209.81	222.39	233.51

Monthly Base Rate By Meter Size	<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
3/4" – 1"	<u>\$12.51</u>	<u>\$13.76</u>	<u>\$15.14</u>	<u>\$16.65</u>	<u>\$17.48</u>
1 1/2"	<u>\$19.63</u>	<u>\$21.59</u>	<u>\$23.75</u>	<u>\$26.13</u>	<u>\$27.43</u>
2"	<u>\$28.19</u>	<u>\$31.01</u>	<u>\$34.11</u>	<u>\$37.52</u>	<u>\$39.40</u>
3"	<u>\$48.15</u>	<u>\$52.97</u>	<u>\$58.26</u>	<u>\$64.09</u>	<u>\$67.29</u>
4"	<u>\$76.66</u>	<u>\$84.33</u>	<u>\$92.76</u>	<u>\$102.03</u>	<u>\$107.14</u>
6"	<u>\$147.95</u>	<u>\$162.75</u>	<u>\$179.02</u>	<u>\$196.92</u>	<u>\$206.77</u>

<u>8"</u>	<u>\$233.51</u>	<u>\$256.86</u>	<u>\$282.55</u>	<u>\$310.80</u>	<u>\$326.34</u>
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<u>Monthly Base Rate by Meter Size</u>	<u>Effective April 1, 2029</u>	<u>Effective April 1, 2030</u>
<u>3/4" – 1"</u>	<u>\$18.01</u>	<u>\$18.05</u>
<u>1 1/2"</u>	<u>\$28.26</u>	<u>\$29.10</u>
<u>2"</u>	<u>\$40.58</u>	<u>\$41.80</u>
<u>3"</u>	<u>\$69.31</u>	<u>\$71.39</u>
<u>4"</u>	<u>\$110.35</u>	<u>\$113.66</u>
<u>6"</u>	<u>\$212.97</u>	<u>\$219.36</u>
<u>8"</u>	<u>\$336.13</u>	<u>\$346.22</u>

B. Consumption Charges: In addition to the minimum service charge provided in subsection A of this section, tiered consumption charges for each hundred cubic feet of water supplied through meters are assessed as follows:

<u>3/4-Inch and 1-Inch</u>			<u>Effective First Billing Period April 2018</u>	<u>Effective First Billing Period March 2019</u>	<u>Effective First Billing Period March 2020</u>	<u>Effective First Billing Period March 2021</u>	<u>Effective First Billing Period March 2022</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>8</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>9</u>	<u>25</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>26</u>	<u>49</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>50</u>	<u>79</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>80</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>3/4" – 1" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>8</u>	<u>\$1.19</u>	<u>\$1.31</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.66</u>
<u>2</u>	<u>9</u>	<u>25</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.74</u>	<u>\$1.92</u>	<u>\$2.01</u>
<u>3</u>	<u>26</u>	<u>49</u>	<u>\$1.75</u>	<u>\$1.93</u>	<u>\$2.12</u>	<u>\$2.33</u>	<u>\$2.45</u>
<u>4</u>	<u>50</u>	<u>79</u>	<u>\$2.19</u>	<u>\$2.41</u>	<u>\$2.65</u>	<u>\$2.91</u>	<u>\$3.06</u>
<u>5</u>	<u>80</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.44</u>	<u>\$3.79</u>	<u>\$4.17</u>	<u>\$4.37</u>

<u>3/4" – 1" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>8</u>	<u>\$1.71</u>	<u>\$1.76</u>
<u>2</u>	<u>9</u>	<u>25</u>	<u>\$2.07</u>	<u>\$2.14</u>
<u>3</u>	<u>26</u>	<u>49</u>	<u>\$2.52</u>	<u>\$2.59</u>
<u>4</u>	<u>50</u>	<u>79</u>	<u>\$3.15</u>	<u>\$3.25</u>
<u>5</u>	<u>80</u>	<u>Above</u>	<u>\$4.51</u>	<u>\$4.64</u>

<u>1 1/2-Inch</u>			<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>April</u> <u>2018</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2019</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2020</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2021</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2022</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>32</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>33</u>	<u>100</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>101</u>	<u>196</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>197</u>	<u>316</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>317</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>1 1/2" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2024</u>	<u>Effective</u> <u>April 1,</u> <u>2025</u>	<u>Effective</u> <u>April 1,</u> <u>2026</u>	<u>Effective</u> <u>April 1,</u> <u>2027</u>	<u>Effective</u> <u>April 1,</u> <u>2028</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>32</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.57</u>	<u>\$1.73</u>	<u>\$1.81</u>
<u>2</u>	<u>33</u>	<u>100</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.74</u>	<u>\$1.92</u>	<u>\$2.01</u>
<u>3</u>	<u>101</u>	<u>196</u>	<u>\$1.75</u>	<u>\$1.93</u>	<u>\$2.12</u>	<u>\$2.33</u>	<u>\$2.45</u>
<u>4</u>	<u>197</u>	<u>316</u>	<u>\$2.19</u>	<u>\$2.41</u>	<u>\$2.65</u>	<u>\$2.91</u>	<u>\$3.06</u>
<u>5</u>	<u>317</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.44</u>	<u>\$3.79</u>	<u>\$4.17</u>	<u>\$4.37</u>

<u>3/4" – 1" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>32</u>	<u>\$1.87</u>	<u>\$1.92</u>
<u>2</u>	<u>33</u>	<u>100</u>	<u>\$2.07</u>	<u>\$2.14</u>
<u>3</u>	<u>101</u>	<u>196</u>	<u>\$2.52</u>	<u>\$2.59</u>
<u>4</u>	<u>197</u>	<u>316</u>	<u>\$3.15</u>	<u>\$3.25</u>
<u>5</u>	<u>317</u>	<u>Above</u>	<u>\$4.51</u>	<u>\$4.64</u>

2-Inch			Effective-First Billing-Period April 2018	Effective First Billing Period March 2019	Effective First Billing Period March 2020	Effective First Billing Period March 2021	Effective First Billing Period March 2022
Tier	Minimum ccf	Maximum ccf	Price-Per ccf				
1	-	64	\$0.95	\$1.01	\$1.07	\$1.13	\$1.19
2	65	200	1.15	1.22	1.29	1.37	1.44
3	201	392	1.40	1.48	1.57	1.67	1.75
4	393	632	1.75	1.86	1.97	2.08	2.19
5	633	Above	2.50	2.65	2.81	2.98	3.13

<u>2" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>64</u>	<u>\$1.19</u>	<u>\$1.31</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.66</u>
<u>2</u>	<u>65</u>	<u>200</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.74</u>	<u>\$1.92</u>	<u>\$2.01</u>
<u>3</u>	<u>201</u>	<u>392</u>	<u>\$1.75</u>	<u>\$1.93</u>	<u>\$2.12</u>	<u>\$2.33</u>	<u>\$2.45</u>
<u>4</u>	<u>393</u>	<u>632</u>	<u>\$2.19</u>	<u>\$2.41</u>	<u>\$2.65</u>	<u>\$2.91</u>	<u>\$3.06</u>
<u>5</u>	<u>633</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.44</u>	<u>\$3.79</u>	<u>\$4.17</u>	<u>\$4.37</u>

<u>2" Meters</u>			<u>Effective April 1, 2029</u>	<u>Effective April 1, 2030</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>64</u>	<u>\$1.71</u>	<u>\$1.76</u>
<u>2</u>	<u>65</u>	<u>200</u>	<u>\$2.07</u>	<u>\$2.14</u>
<u>3</u>	<u>201</u>	<u>392</u>	<u>\$2.52</u>	<u>\$2.59</u>
<u>4</u>	<u>393</u>	<u>632</u>	<u>\$3.15</u>	<u>\$3.25</u>
<u>5</u>	<u>633</u>	<u>Above</u>	<u>\$4.51</u>	<u>\$4.64</u>

<u>3-Inch</u>			<u>Effective First Billing Period April 2018</u>	<u>Effective First Billing Period March 2019</u>	<u>Effective First Billing Period March 2020</u>	<u>Effective First Billing Period March 2021</u>	<u>Effective First Billing Period March 2022</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price-Per ccf</u>				
<u>1</u>	<u>-</u>	<u>120</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>121</u>	<u>375</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>376</u>	<u>735</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>736</u>	<u>1,185</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>1,186</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>3" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
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<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>120</u>	<u>\$1.19</u>	<u>\$1.31</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.66</u>
<u>2</u>	<u>121</u>	<u>375</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.74</u>	<u>\$1.92</u>	<u>\$2.01</u>
<u>3</u>	<u>376</u>	<u>735</u>	<u>\$1.75</u>	<u>\$1.93</u>	<u>\$2.12</u>	<u>\$2.33</u>	<u>\$2.45</u>
<u>4</u>	<u>736</u>	<u>1,185</u>	<u>\$2.19</u>	<u>\$2.41</u>	<u>\$2.65</u>	<u>\$2.91</u>	<u>\$3.06</u>
<u>5</u>	<u>1,186</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.44</u>	<u>\$3.79</u>	<u>\$4.17</u>	<u>\$4.37</u>

<u>3" Meters</u>			<u>Effective April 1, 2029</u>	<u>Effective April 1, 2030</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>120</u>	<u>\$1.71</u>	<u>\$1.76</u>
<u>2</u>	<u>121</u>	<u>375</u>	<u>\$2.07</u>	<u>\$2.14</u>
<u>3</u>	<u>376</u>	<u>735</u>	<u>\$2.52</u>	<u>\$2.59</u>
<u>4</u>	<u>736</u>	<u>1,185</u>	<u>\$3.15</u>	<u>\$3.25</u>
<u>5</u>	<u>1,186</u>	<u>Above</u>	<u>\$4.51</u>	<u>\$4.64</u>

<u>4-Inch</u>			<u>Effective First Billing Period April 2018</u>	<u>Effective First Billing Period March 2019</u>	<u>Effective First Billing Period March 2020</u>	<u>Effective First Billing Period March 2021</u>	<u>Effective First Billing Period March 2022</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>200</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>201</u>	<u>625</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>626</u>	<u>1,225</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>1,226</u>	<u>1,975</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>1,976</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>4" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
<u>Tier</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Price per ccf</u>				

	<u>ccf</u>	<u>ccf</u>					
<u>1</u>	<u>-</u>	<u>200</u>	<u>\$1.19</u>	<u>\$1.31</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.66</u>
<u>2</u>	<u>201</u>	<u>625</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.74</u>	<u>\$1.92</u>	<u>\$2.01</u>
<u>3</u>	<u>626</u>	<u>1,225</u>	<u>\$1.75</u>	<u>\$1.93</u>	<u>\$2.12</u>	<u>\$2.33</u>	<u>\$2.45</u>
<u>4</u>	<u>1,226</u>	<u>1,975</u>	<u>\$2.19</u>	<u>\$2.41</u>	<u>\$2.65</u>	<u>\$2.91</u>	<u>\$3.06</u>
<u>5</u>	<u>1,976</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.44</u>	<u>\$3.79</u>	<u>\$4.17</u>	<u>\$4.37</u>

<u>4" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>200</u>	<u>\$1.71</u>	<u>\$1.76</u>
<u>2</u>	<u>201</u>	<u>625</u>	<u>\$2.07</u>	<u>\$2.14</u>
<u>3</u>	<u>626</u>	<u>1,225</u>	<u>\$2.52</u>	<u>\$2.59</u>
<u>4</u>	<u>1,226</u>	<u>1,975</u>	<u>\$3.15</u>	<u>\$3.25</u>
<u>5</u>	<u>1,976</u>	<u>Above</u>	<u>\$4.51</u>	<u>\$4.64</u>

<u>6-Inch</u>			<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>April</u> <u>2018</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2019</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2020</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2021</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2022</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>400</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>401</u>	<u>1,250</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>1,251</u>	<u>2,450</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>2,451</u>	<u>3,950</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>3,951</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>6" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2024</u>	<u>Effective</u> <u>April 1,</u> <u>2025</u>	<u>Effective</u> <u>April 1,</u> <u>2026</u>	<u>Effective</u> <u>April 1,</u> <u>2027</u>	<u>Effective</u> <u>April 1,</u> <u>2028</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>400</u>	<u>\$1.19</u>	<u>\$1.31</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.66</u>

<u>2</u>	<u>401</u>	<u>1,250</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.74</u>	<u>\$1.92</u>	<u>\$2.01</u>
<u>3</u>	<u>1,251</u>	<u>2,450</u>	<u>\$1.75</u>	<u>\$1.93</u>	<u>\$2.12</u>	<u>\$2.33</u>	<u>\$2.45</u>
<u>4</u>	<u>2,451</u>	<u>3,950</u>	<u>\$2.19</u>	<u>\$2.41</u>	<u>\$2.65</u>	<u>\$2.91</u>	<u>\$3.06</u>
<u>5</u>	<u>3,951</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.44</u>	<u>\$3.79</u>	<u>\$4.17</u>	<u>\$4.37</u>

<u>6" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>400</u>	<u>\$1.71</u>	<u>\$1.76</u>
<u>2</u>	<u>401</u>	<u>1,250</u>	<u>\$2.07</u>	<u>\$2.14</u>
<u>3</u>	<u>1,251</u>	<u>2,450</u>	<u>\$2.52</u>	<u>\$2.59</u>
<u>4</u>	<u>2,451</u>	<u>3,950</u>	<u>\$3.15</u>	<u>\$3.25</u>
<u>5</u>	<u>3,951</u>	<u>Above</u>	<u>\$4.51</u>	<u>\$4.64</u>

<u>8-Inch</u>			<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>April</u> <u>2018</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2019</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2020</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2021</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2022</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>1,120</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>1,121</u>	<u>3,500</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>3,501</u>	<u>6,860</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>6,861</u>	<u>11,060</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>11,061</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>8" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>1,120</u>	<u>\$1.19</u>	<u>\$1.31</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.66</u>
<u>2</u>	<u>1,121</u>	<u>3,500</u>	<u>\$1.44</u>	<u>\$1.58</u>	<u>\$1.74</u>	<u>\$1.92</u>	<u>\$2.01</u>
<u>3</u>	<u>3,501</u>	<u>6,860</u>	<u>\$1.75</u>	<u>\$1.93</u>	<u>\$2.12</u>	<u>\$2.33</u>	<u>\$2.45</u>
<u>4</u>	<u>6,861</u>	<u>11,060</u>	<u>\$2.19</u>	<u>\$2.41</u>	<u>\$2.65</u>	<u>\$2.91</u>	<u>\$3.06</u>
<u>5</u>	<u>11,061</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.44</u>	<u>\$3.79</u>	<u>\$4.17</u>	<u>\$4.37</u>

<u>8" Meters</u>			<u>Effective April 1, 2029</u>	<u>Effective April 1, 2030</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>1,120</u>	<u>\$1.71</u>	<u>\$1.76</u>
<u>2</u>	<u>1,121</u>	<u>3,500</u>	<u>\$2.07</u>	<u>\$2.14</u>
<u>3</u>	<u>3,501</u>	<u>6,860</u>	<u>\$2.52</u>	<u>\$2.59</u>
<u>4</u>	<u>6,861</u>	<u>11,060</u>	<u>\$3.15</u>	<u>\$3.25</u>
<u>5</u>	<u>11,061</u>	<u>Above</u>	<u>\$4.51</u>	<u>\$4.64</u>

C. Modification: The City reserves the right to amend or modify the schedules provided in subsections A and B of this section.

D. New Construction: ~~A new construction water use fee, in an amount to be determined by the Mayor in a written policy, shall be assessed on all building permits for new construction on parcels without a permanent water connection. All new construction water users must sign up for water service before any water use is allowed for construction. The fee shall be paid together with building permit fees.~~ The City will allow a temporary metered connection, not to exceed one hundred eighty (180) days, which will allow the permittee to use water for construction related uses on the affected parcel. Contractors shall not make a connection inside of the meter box. Water may not be used for any purpose away from the affected parcel, such as dust suppression or construction work on another parcel. The City may terminate a temporary connection for the illegal use of water in violation of this subsection. (Ord. 18-05: Ord. 17-40)

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Section 3. Effective date. This Ordinance shall take effect upon first publication.

PASSED, APPROVED AND ADOPTED by the Murray City Municipal Council on this _____ day of _____, 2025.

MURRAY CITY MUNICIPAL COUNCIL

Pam Cotter, Council Chair

ATTEST:

Brooke Smith
City Recorder

Transmitted to the Office of the Mayor of Murray City on this ____ day of _____, 2025.

MAYOR'S ACTION: Approved

DATED this ____ day of _____, 2025

Brett A. Hales, Mayor

ATTEST:

Brooke Smith
City Recorder

CERTIFICATE OF PUBLICATION

I hereby certify that this Ordinance or a summary hereof was published according to law on the ____ day of _____, 2025.

Brooke Smith
City Recorder

ORDINANCE NO. _____

OPTION #3

AN ORDINANCE AMENDING SECTION 13.08.020 OF THE MURRAY CITY MUNICIPAL CODE RELATING TO METERED WATER RATES THE CITY.

BE IT ENACTED BY THE MURRAY CITY MUNICIPAL COUNCIL:

Section 1. Purpose. The purpose of this ordinance is to amend Section 13.08.020 of the Murray City Municipal Code relating to the metered water rates for the City.

Section 2. Amendment to Section 13.08.020 of the Murray City Municipal Code. Section 13.08.020 of the Murray City Municipal Code shall be amended to read as follows:

13.08.020: METERED WATER RATES:

A. Minimum Charge: Minimum charge for water meters shall be as follows:

Monthly Base Rate By Meter Size	Effective First Billing Period April 2018	Effective First Billing Period March 2019	Effective First Billing Period March 2020	Effective First Billing Period March 2021	Effective First Billing Period March 2022
3/4" – 1"	\$ 10.00	\$ 10.60	\$ 11.24	\$ 11.91	\$ 12.51
1 1/2"	15.70	16.64	17.64	18.70	19.63
2"	22.54	23.89	25.32	26.84	28.19
3"	38.50	40.81	43.26	45.86	48.15
4"	61.30	64.98	68.88	73.01	76.66
6"	118.31	125.41	132.93	140.91	147.95
8"	186.73	197.93	209.81	222.39	233.51

Monthly Base Rate By Meter Size	<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
3/4" – 1"	<u>\$12.51</u>	<u>\$15.01</u>	<u>\$18.01</u>	<u>\$19.82</u>	<u>\$20.81</u>
1 1/2"	<u>\$19.63</u>	<u>\$23.56</u>	<u>\$28.27</u>	<u>\$31.09</u>	<u>\$32.65</u>
2"	<u>\$28.19</u>	<u>\$33.83</u>	<u>\$40.59</u>	<u>\$44.65</u>	<u>\$46.89</u>
3"	<u>\$48.15</u>	<u>\$57.78</u>	<u>\$69.34</u>	<u>\$76.27</u>	<u>\$80.08</u>
4"	<u>\$76.66</u>	<u>\$91.99</u>	<u>\$110.39</u>	<u>\$121.43</u>	<u>\$127.50</u>
6"	<u>\$147.95</u>	<u>\$177.54</u>	<u>\$213.05</u>	<u>\$234.35</u>	<u>\$246.07</u>

<u>8"</u>	<u>\$233.51</u>	<u>\$280.21</u>	<u>\$336.25</u>	<u>\$369.88</u>	<u>\$388.37</u>
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<u>Monthly Base Rate by Meter Size</u>	<u>Effective April 1, 2029</u>	<u>Effective April 1, 2030</u>
<u>3/4" – 1"</u>	<u>\$21.22</u>	<u>\$21.65</u>
<u>1 1/2"</u>	<u>\$33.30</u>	<u>\$33.97</u>
<u>2"</u>	<u>\$47.82</u>	<u>\$48.78</u>
<u>3"</u>	<u>\$81.68</u>	<u>\$83.32</u>
<u>4"</u>	<u>\$130.05</u>	<u>\$132.65</u>
<u>6"</u>	<u>\$250.99</u>	<u>\$256.01</u>
<u>8"</u>	<u>\$396.14</u>	<u>\$404.06</u>

B. Consumption Charges: In addition to the minimum service charge provided in subsection A of this section, tiered consumption charges for each hundred cubic feet of water supplied through meters are assessed as follows:

<u>3/4-Inch and 1-Inch</u>			<u>Effective First Billing Period April 2018</u>	<u>Effective First Billing Period March 2019</u>	<u>Effective First Billing Period March 2020</u>	<u>Effective First Billing Period March 2021</u>	<u>Effective First Billing Period March 2022</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>8</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>9</u>	<u>25</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>26</u>	<u>49</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>50</u>	<u>79</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>80</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>3/4" – 1" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>8</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$1.98</u>
<u>2</u>	<u>9</u>	<u>25</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>26</u>	<u>49</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>50</u>	<u>79</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>80</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>3/4" – 1" Meters</u>			<u>Effective April 1, 2029</u>	<u>Effective April 1, 2030</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>8</u>	<u>\$2.02</u>	<u>\$2.06</u>
<u>2</u>	<u>9</u>	<u>25</u>	<u>\$2.44</u>	<u>\$2.49</u>
<u>3</u>	<u>26</u>	<u>49</u>	<u>\$2.97</u>	<u>\$3.03</u>
<u>4</u>	<u>50</u>	<u>79</u>	<u>\$3.72</u>	<u>\$3.79</u>
<u>5</u>	<u>80</u>	<u>Above</u>	<u>\$5.65</u>	<u>\$5.76</u>

<u>1 1/2-Inch</u>			<u>Effective First Billing Period April 2018</u>	<u>Effective First Billing Period March 2019</u>	<u>Effective First Billing Period March 2020</u>	<u>Effective First Billing Period March 2021</u>	<u>Effective First Billing Period March 2022</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>32</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>33</u>	<u>100</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>101</u>	<u>196</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>197</u>	<u>316</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>317</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>1 1/2" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>32</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$1.98</u>
<u>2</u>	<u>33</u>	<u>100</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>101</u>	<u>196</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>197</u>	<u>316</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>317</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>3/4" – 1" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>32</u>	<u>\$2.02</u>	<u>\$2.06</u>
<u>2</u>	<u>33</u>	<u>100</u>	<u>\$2.44</u>	<u>\$2.49</u>
<u>3</u>	<u>101</u>	<u>196</u>	<u>\$2.97</u>	<u>\$3.03</u>
<u>4</u>	<u>197</u>	<u>316</u>	<u>\$3.72</u>	<u>\$3.79</u>
<u>5</u>	<u>317</u>	<u>Above</u>	<u>\$5.65</u>	<u>\$5.76</u>

2-Inch			Effective-First Billing-Period April 2018	Effective First Billing Period March 2019	Effective First Billing Period March 2020	Effective First Billing Period March 2021	Effective First Billing Period March 2022
Tier	Minimum ccf	Maximum ccf	Price-Per ccf				
1	-	64	\$0.95	\$1.01	\$1.07	\$1.13	\$1.19
2	65	200	1.15	1.22	1.29	1.37	1.44
3	201	392	1.40	1.48	1.57	1.67	1.75
4	393	632	1.75	1.86	1.97	2.08	2.19
5	633	Above	2.50	2.65	2.81	2.98	3.13

<u>2" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2024</u>	<u>Effective</u> <u>April 1,</u> <u>2025</u>	<u>Effective</u> <u>April 1,</u> <u>2026</u>	<u>Effective</u> <u>April 1,</u> <u>2027</u>	<u>Effective</u> <u>April 1,</u> <u>2028</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>64</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$1.98</u>
<u>2</u>	<u>65</u>	<u>200</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>201</u>	<u>392</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>393</u>	<u>632</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>633</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>2" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>64</u>	<u>\$2.02</u>	<u>\$2.06</u>
<u>2</u>	<u>65</u>	<u>200</u>	<u>\$2.44</u>	<u>\$2.49</u>
<u>3</u>	<u>201</u>	<u>392</u>	<u>\$2.97</u>	<u>\$3.03</u>
<u>4</u>	<u>393</u>	<u>632</u>	<u>\$3.72</u>	<u>\$3.79</u>
<u>5</u>	<u>633</u>	<u>Above</u>	<u>\$5.65</u>	<u>\$5.76</u>

<u>3-Inch</u>			<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>April</u> <u>2018</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2019</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2020</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2021</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2022</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price-Per ccf</u>				
<u>1</u>	<u>-</u>	<u>120</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>121</u>	<u>375</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>376</u>	<u>735</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>736</u>	<u>1,185</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>1,186</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>3" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2024</u>	<u>Effective</u> <u>April 1,</u> <u>2025</u>	<u>Effective</u> <u>April 1,</u> <u>2026</u>	<u>Effective</u> <u>April 1,</u> <u>2027</u>	<u>Effective</u> <u>April 1,</u> <u>2028</u>
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<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>120</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$1.98</u>
<u>2</u>	<u>121</u>	<u>375</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>376</u>	<u>735</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>736</u>	<u>1,185</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>1,186</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>3" Meters</u>			<u>Effective April 1, 2029</u>	<u>Effective April 1, 2030</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>120</u>	<u>\$2.02</u>	<u>\$2.06</u>
<u>2</u>	<u>121</u>	<u>375</u>	<u>\$2.44</u>	<u>\$2.49</u>
<u>3</u>	<u>376</u>	<u>735</u>	<u>\$2.97</u>	<u>\$3.03</u>
<u>4</u>	<u>736</u>	<u>1,185</u>	<u>\$3.72</u>	<u>\$3.79</u>
<u>5</u>	<u>1,186</u>	<u>Above</u>	<u>\$5.65</u>	<u>\$5.76</u>

<u>4-Inch</u>			<u>Effective First Billing Period April 2018</u>	<u>Effective First Billing Period March 2019</u>	<u>Effective First Billing Period March 2020</u>	<u>Effective First Billing Period March 2021</u>	<u>Effective First Billing Period March 2022</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>200</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>201</u>	<u>625</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>626</u>	<u>1,225</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>1,226</u>	<u>1,975</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>1,976</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>4" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
<u>Tier</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Price per ccf</u>				

	<u>ccf</u>	<u>ccf</u>					
<u>1</u>	<u>-</u>	<u>200</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$198</u>
<u>2</u>	<u>201</u>	<u>625</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>626</u>	<u>1,225</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>1,226</u>	<u>1,975</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>1,976</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>4" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>200</u>	<u>\$2.02</u>	<u>\$2.06</u>
<u>2</u>	<u>201</u>	<u>625</u>	<u>\$2.44</u>	<u>\$2.49</u>
<u>3</u>	<u>626</u>	<u>1,225</u>	<u>\$2.97</u>	<u>\$3.03</u>
<u>4</u>	<u>1,226</u>	<u>1,975</u>	<u>\$3.72</u>	<u>\$3.79</u>
<u>5</u>	<u>1,976</u>	<u>Above</u>	<u>\$5.65</u>	<u>\$5.76</u>

<u>6-Inch</u>			<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>April</u> <u>2018</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2019</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2020</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2021</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2022</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>400</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>401</u>	<u>1,250</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>1,251</u>	<u>2,450</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>2,451</u>	<u>3,950</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>3,951</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>6" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2024</u>	<u>Effective</u> <u>April 1,</u> <u>2025</u>	<u>Effective</u> <u>April 1,</u> <u>2026</u>	<u>Effective</u> <u>April 1,</u> <u>2027</u>	<u>Effective</u> <u>April 1,</u> <u>2028</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>400</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$198</u>

<u>2</u>	<u>401</u>	<u>1,250</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>1,251</u>	<u>2,450</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>2,451</u>	<u>3,950</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>3,951</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>6" Meters</u>			<u>Effective</u> <u>April 1,</u> <u>2029</u>	<u>Effective</u> <u>April 1,</u> <u>2030</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>400</u>	<u>\$2.02</u>	<u>\$2.06</u>
<u>2</u>	<u>401</u>	<u>1,250</u>	<u>\$2.44</u>	<u>\$2.49</u>
<u>3</u>	<u>1,251</u>	<u>2,450</u>	<u>\$2.97</u>	<u>\$3.03</u>
<u>4</u>	<u>2,451</u>	<u>3,950</u>	<u>\$3.72</u>	<u>\$3.79</u>
<u>5</u>	<u>3,951</u>	<u>Above</u>	<u>\$5.65</u>	<u>\$5.76</u>

<u>8-Inch</u>			<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>April</u> <u>2018</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2019</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2020</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2021</u>	<u>Effective</u> <u>First</u> <u>Billing</u> <u>Period</u> <u>March</u> <u>2022</u>
<u>Tier</u>	<u>Minimum</u> <u>ccf</u>	<u>Maximum</u> <u>ccf</u>	<u>Price Per ccf</u>				
<u>1</u>	<u>-</u>	<u>1,120</u>	<u>\$0.95</u>	<u>\$1.01</u>	<u>\$1.07</u>	<u>\$1.13</u>	<u>\$1.19</u>
<u>2</u>	<u>1,121</u>	<u>3,500</u>	<u>1.15</u>	<u>1.22</u>	<u>1.29</u>	<u>1.37</u>	<u>1.44</u>
<u>3</u>	<u>3,501</u>	<u>6,860</u>	<u>1.40</u>	<u>1.48</u>	<u>1.57</u>	<u>1.67</u>	<u>1.75</u>
<u>4</u>	<u>6,861</u>	<u>11,060</u>	<u>1.75</u>	<u>1.86</u>	<u>1.97</u>	<u>2.08</u>	<u>2.19</u>
<u>5</u>	<u>11,061</u>	<u>Above</u>	<u>2.50</u>	<u>2.65</u>	<u>2.81</u>	<u>2.98</u>	<u>3.13</u>

<u>8" Meters</u>			<u>Effective April 1, 2024</u>	<u>Effective April 1, 2025</u>	<u>Effective April 1, 2026</u>	<u>Effective April 1, 2027</u>	<u>Effective April 1, 2028</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>				
<u>1</u>	<u>-</u>	<u>1,120</u>	<u>\$1.19</u>	<u>\$1.43</u>	<u>\$1.71</u>	<u>\$1.88</u>	<u>\$198</u>
<u>2</u>	<u>1,121</u>	<u>3,500</u>	<u>\$1.44</u>	<u>\$1.73</u>	<u>\$2.07</u>	<u>\$2.28</u>	<u>\$2.40</u>
<u>3</u>	<u>3,501</u>	<u>6,860</u>	<u>\$1.75</u>	<u>\$2.10</u>	<u>\$2.52</u>	<u>\$2.77</u>	<u>\$2.91</u>
<u>4</u>	<u>6,861</u>	<u>11,060</u>	<u>\$2.19</u>	<u>\$2.63</u>	<u>\$3.15</u>	<u>\$3.47</u>	<u>\$3.64</u>
<u>5</u>	<u>11,061</u>	<u>Above</u>	<u>\$3.13</u>	<u>\$3.76</u>	<u>\$4.51</u>	<u>\$4.96</u>	<u>\$5.21</u>

<u>8" Meters</u>			<u>Effective April 1, 2029</u>	<u>Effective April 1, 2030</u>
<u>Tier</u>	<u>Minimum ccf</u>	<u>Maximum ccf</u>	<u>Price per ccf</u>	
<u>1</u>	<u>-</u>	<u>1,120</u>	<u>\$2.02</u>	<u>\$2.06</u>
<u>2</u>	<u>1,121</u>	<u>3,500</u>	<u>\$2.44</u>	<u>\$2.49</u>
<u>3</u>	<u>3,501</u>	<u>6,860</u>	<u>\$2.97</u>	<u>\$3.03</u>
<u>4</u>	<u>6,861</u>	<u>11,060</u>	<u>\$3.72</u>	<u>\$3.79</u>
<u>5</u>	<u>11,061</u>	<u>Above</u>	<u>\$5.65</u>	<u>\$5.76</u>

C. Modification: The City reserves the right to amend or modify the schedules provided in subsections A and B of this section.

D. New Construction: ~~A new construction water use fee, in an amount to be determined by the Mayor in a written policy, shall be assessed on all building permits for new construction on parcels without a permanent water connection. All new construction water users must sign up for water service before any water use is allowed for construction. The fee shall be paid together with building permit fees.~~ The City will allow a temporary metered connection, not to exceed one hundred eighty (180) days, which will allow the permittee to use water for construction related uses on the affected parcel. Contractors shall not make a connection inside of the meter box. Water may not be used for any purpose away from the affected parcel, such as dust suppression or construction work on another parcel. The City may terminate a temporary connection for the illegal use of water in violation of this subsection. (Ord. 18-05: Ord. 17-40)

....

Section 3. Effective date. This Ordinance shall take effect upon first publication.

PASSED, APPROVED AND ADOPTED by the Murray City Municipal Council on this _____ day of _____, 2025.

MURRAY CITY MUNICIPAL COUNCIL

Pam Cotter, Council Chair

ATTEST:

Brooke Smith
City Recorder

Transmitted to the Office of the Mayor of Murray City on this ____ day of _____, 2025.

MAYOR'S ACTION: Approved

DATED this ____ day of _____, 2025

Brett A. Hales, Mayor

ATTEST:

Brooke Smith
City Recorder

CERTIFICATE OF PUBLICATION

I hereby certify that this Ordinance or a summary hereof was published according to law on the ____ day of _____, 2025.

Brooke Smith
City Recorder



Murray City

Water Utility Rates

December 2024



ZIONS PUBLIC FINANCE, INC.



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Culinary Water Rates

Background and Approach

Rates must be designed to keep up with growth and inflationary costs and must be structured to serve customer needs fairly and equitably. As such, Murray City has two components to its water rates: 1) a base rate charged to all customers monthly; and 2) a flow (usage) rate tied to actual demands placed on the system.

The approach used in this analysis is commonly referred to as a “revenue sufficiency model.” All expenses (operating and capital) are first calculated, and then rates are structured to cover annual expenses, maintain sufficient debt service ratios, and to keep at least 180 days cash on hand in the water utility fund.

The following sections summarize the current conditions and anticipated growth of Murray City’s Water Fund. Additionally, two rate structure options are presented to highlight the need for changes with respect to water utility rates.

Summary

It is not sustainable for the City to keep its current rate structure. Under this scenario, assuming that all capital projects move forward as planned, the City would have negative cash on hand by FY2026 and would fall below its required debt service coverage ratio by FY2027.¹ If no rate increases are made and no additional bonds issued, the City would have to defer capital projects.

Option 1 is the preferred option because it allows the City to maintain at least 150 days cash on hand, meet its existing debt service coverage obligations and complete its capital projects. It requires the following rate increases, as well as the issuance of a \$6M bond in 2026. **All rate increases would take place on April 1 of that fiscal year.**

Option 1:

April 1, 2025 – 20%

April 1, 2026 - 20%

April 1, 2027 – 10%

April 1, 2028 – 5%

April 1, 2029 and thereafter – 3%

Option 2 offers lower rate increases initially but includes the issuance of two bonds – one for \$6M in 2026 and another bond for \$6 M in 2028. It would also require significant rate increases in 2029 (not shown in this analysis) in order to complete capital projects and meet debt obligations. **All rate increases would take place on April 1 of that fiscal year.**

Option 2:

April 1, 2025 – 10%

¹ Debt service coverage ratios are based on the ratio of net operating revenues (revenues less operating costs) to debt payments and do not include capital costs (other than those included in the debt payments).

April 1, 2026 - 10%
 April 1, 2027 – 10%
 April 1, 2028 – 5%
 April 1, 2029 – would require significant rate increase

Table 1 compares average monthly bills in FY2026, FY2028 and FY2030, after the rate changes have been instituted in that fiscal year, based on 3 approaches: “Do Nothing,” Option 1 and Option 2. The table assumes a base rate for the ¾”-1” category as well as usage of 8,000 gallons per month.

TABLE 1: COMPARISON OF IMPACTS TO TYPICAL HOUSEHOLD

Average bill	FY2026	FY2028	FY2030
Do Nothing			
Base Rate Bill	\$12.51	\$12.51	\$12.51
Usage Rate Bill	\$9.52	\$9.52	\$9.52
Total Monthly Bill	\$22.03	\$22.03	\$22.03
Option 1			
Base Rate Bill	\$18.01	\$20.81	\$22.07
Usage Rate Bill	\$13.68	\$15.84	\$16.80
Total Monthly Bill	\$31.69	\$36.65	\$38.87
Option 2			
Base Rate Bill	\$15.14	\$17.48	Large Rate Increase
Usage Rate Bill	\$11.52	\$13.28	Large Rate Increase
Total Monthly Bill	\$26.66	\$30.76	

Growth Projections

Growth in culinary water equivalent residential units (ERUs) is based on historical growth in the City as well as input from City staff.

TABLE 2: PROJECTED ERU GROWTH

Year	ERUs
2024	21,795
2025	21,919
2026	22,005
2027	22,091
2028	22,178
2029	22,265
2030	22,352
2031	22,450
2032	22,548
2033	22,646

Year	ERUs
2034	22,745
2035	22,843
2036	22,938
2037	23,034
2038	23,130
2039	23,227
2040	23,324
2041	23,421
2042	23,519
2043	23,617
2044	23,715
2045	23,814
2046	23,909
2047	24,004
2048	24,100
2049	24,196
2050	24,292

Source: Murray City Water Impact Fee Facilities Plan

Operating Expenses

Growth in operating expenses is generally projected at an average annual rate of 3-5 percent per year depending on the line item in the budget. Detailed operating expenses, with their growth rates, are shown in detail in Appendix A and were prepared in consultation with City staff.

Outstanding Debt

The City has outstanding debt on a Series 2019 DEQ Loan and a Series 2024 MBA Lease Revenue Bond. Revenues must be sufficient to cover the outstanding debt as well as operating expenses.

TABLE 3: EXISTING DEBT – ANNUAL PAYMENTS

Water Fund Existing Debt	2024	2025	2026	2027	2028	2029
2019 DEQ Loan	(\$80,540)	(\$80,540)	(\$343,540)	(\$343,910)	(\$344,250)	(\$343,560)
Series 2024 MBA Lease Revenue Bond		(\$398,362)	(\$398,125)	(\$388,438)	(\$398,711)	(\$398,984)
Series 2024 Annual Trustee Fee	(\$781)	(\$1,250)	(\$1,250)	(\$1,250)	(\$1,250)	(\$1,250)

Debt Service Coverage Ratios

Minimum debt service coverage ratios are generally assumed to be 1.25 which means that net revenues (after operating expenses have been accounted for) must be at least 1.25 times annual debt payments in each given year. This is a requirement of most bond covenants for outstanding

debt. The ratio would also need to be maintained if evaluating future options that may consider debt. Therefore, our model (with tables inserted later in this report) shows red when the debt service coverage ratio dips below 1.25; yellow when the ratio ranges between 1.25 and 1.50; and green when it exceeds 1.50.

Days Cash on Hand

Good management practices suggest that at least 180 days cash on hand should be maintained. If cash levels dip below 150 days, bond ratings are in danger of being lowered. Therefore, our model (with tables inserted later in this report), show red when days cash on hand dip below 150 days; yellow as a caution warning when days cash on hand is between 150 and 180 days; and green when days cash exceeds 180 days.

Capital Projects

The City plans substantial water capital projects, with some projects focusing on replacement and others addressing new growth.

TABLE 4: WATER CAPITAL PROJECTS

Project ID	Cost	Year
Halycon Dr	\$457,000	2025
Harwood Ln to Pontiac (820 E)	\$276,738	2025
4500 s from 500 W to North City Limits	\$208,527	2025
Fashion Blvd, 5900 to 5770 S	\$342,080	2025
Sunberry Dr & Wildflower Ln	\$587,345	2025
Arrowhead Lane, Caribbean Way, & Circles	\$893,666	2026
Murray Blvd., Vine Street to Hunters Wood	\$333,906	2026
State & Winchester PRV & connection	\$763,761	2026
5878 S	\$200,000	2026
Pontiac Ln, 900 E to Caribbean Way	\$483,989	2026
Atwood, 4800 S to 4500 S	\$765,160	2027
Echo Drive	\$224,627	2027
Spacerama Drive	\$424,971	2027
Mt Vernon Dr, Wilford to 6270 S	\$185,000	2027
1200 West Winchester Well Design	\$500,000	2027
Walden Meadows Dr & 3 Circles	\$420,000	2027
McGhie Springs Tunnel Improvements	\$550,000	2027
5465 S 700 W Crossover	\$65,000	2027
6295 S, 440 E to 560 E	\$165,000	2027
1200 West Winchester Well	\$3,500,000	2028
Montrose & Alpine	\$552,562	2028
Eagle Nest Drive	\$546,391	2028
El Cimarron Drive	\$242,840	2028
Monticello Lane	\$84,994	2028

Project ID	Cost	Year
Rim Rock Lane	\$100,172	2028
Hillside Dr, 5900 S to 5770 S	\$210,000	2028
5300 South I-15 Abandon & Crossing	\$300,000	2028
5900 S Steel Pipe	\$294,986	2028
Bellwood Lane	\$182,130	2029
State Street, 6500 S to 6790 S	\$329,656	2029
Woodrow St	\$593,552	2029
Murray Parkway to Riverside Dr. Connection	\$119,547	2029
Rose Circle	\$468,578	2029
900 E, Vine to Wood Oak Ln	\$1,585,687	2029
Millrace Well Pipe Improvements	\$258,790	2030
Greenleaf Drive	\$113,831	2030
5400 S Murray Parkway Ave. Crossing	\$335,486	2030
550 E, 5300 S to 5400 S	\$461,456	2030
Roanoke Cir	\$70,276	2030
900 E, Wood Oak to Three Fountains	\$1,352,375	2030
Goodway Dr	\$193,920	2030
5770 S, State to Fashion	\$1,347,376	2031
5965 S, 6025 S, 115 W	\$814,472	2031
Sports Mall	\$541,179	2031
Clay St	\$125,000	2031
Chesterbrook CV	\$182,891	2031
Woodoak Lane, 900 e to 820 E	\$200,230	2032
Lucky Clover, Germania to Spring Clover	\$780,019	2032
5640 S, 575 E to Walnut Brook Dr	\$434,090	2032
Malstrom Ln	\$92,639	2032
Rainbow & Mountain View Dr	\$1,169,100	2032
Miller St	\$349,765	2033
Mick Riley, Vine to Par Three Ln	\$525,465	2033
4600 S 200 E	\$578,018	2033
I-215 to Golf Course	\$644,840	2033
Wahlquist Ln	\$259,047	2033
7th West, 53rd to Winchester, Move Services	\$277,934	2033
Laura & Pinehill Dr	\$172,478	2033
Germania, 700 W to Clover Meadow Dr	\$509,188	2034
5465 S, 700 W to 555 W	\$510,417	2034
Vine St, Commerce to Freeway	\$158,535	2034
Germania, Clover Meadow to Parkway	\$464,412	2034
Labrum Ave 725 E	\$182,299	2034
Jordan River at Golf Course	\$592,852	2034
625 E, 5640 S to 675 E	\$225,674	2034
Glen St, Vine to Edison	\$303,183	2034

Project ID	Cost	Year
Wilford Ave, 320 E to 550 E	\$90,004	2035
Eriksen Ln, Vine to Walnut Brook Dr	\$353,076	2035
1280 W 6190 S	\$138,384	2035
620 E, 5900 S to End of Cir	\$174,012	2035
Wallin St & Stratler St	\$108,366	2035
Viewmont Elementary	\$978,038	2035
300 W & Anderson	\$222,076	2035
Belview Ave & 400 E	\$149,963	2035
Green Street, Anderson Ave to 5420 S	\$471,355	2035
Winchester 900 East to River Protection2	\$32,527	2036
Winchester 900 East to River Replacement	\$1,252,441	2036
900 E, Winchester to Holly Protection2	\$54,479	2036
900 E, Winchester to Holly	\$2,034,219	2036
Winchester, State to 900 E Protection2	\$159,291	2037
Winchester, State to 900 E	\$5,947,260	2037
TOTAL	\$43,350,593	

Rate Structuring

Current rates are structured as follows:

TABLE 5: CURRENT RATES

Category	Amount
Basic Rates	
3/4"-1"	\$12.51
1.5"	\$19.63
2"	\$28.19
3"	\$48.15
4"	\$76.66
6"	\$147.95
8"	\$233.51
Usage Rates	
3/4"-1" Meters	
Tier 1, 0-8 HCF	\$1.19
Tier 2, 9-25 HCF	\$1.44
Tier 3, 26-49 HCF	\$1.75
Tier 4, 50-79 HCF	\$2.19
Tier 5, 80-Above HCF	\$3.13
1.5" Meters	
Tier 1, 0-32 HCF	\$1.19
Tier 2, 33-100 HCF	\$1.44
Tier 3, 101-196 HCF	\$1.75

Category	Amount
Tier 4, 197-316 HCF	\$2.19
Tier 5, 317-Above HCF	\$3.13
2" Meters	
Tier 1, 0-64 HCF	\$1.19
Tier 2, 65-200 HCF	\$1.44
Tier 3, 201-392 HCF	\$1.75
Tier 4, 393-632 HCF	\$2.19
Tier 5, 633-Above HCF	\$3.13
3" Meters	
Tier 1, 0-120 HCF	\$1.19
Tier 2, 121-375 HCF	\$1.44
Tier 3, 376-735 HCF	\$1.75
Tier 4, 736-1185 HCF	\$2.19
Tier 5, 1186-Above HCF	\$3.13
4" Meters	
Tier 1, 0-200 HCF	\$1.19
Tier 2, 201-625 HCF	\$1.44
Tier 3, 626-1225 HCF	\$1.75
Tier 4, 1226-1975 HCF	\$2.19
Tier 5, 1976-Above HCF	\$3.13
6" Meters	
Tier 1, 0-400 HCF	\$1.19
Tier 2, 401-1250 HCF	\$1.44
Tier 3, 1251-2450 HCF	\$1.75
Tier 4, 2451-3950 HCF	\$2.19
Tier 5, 3951-Above HCF	\$3.13
8" Meters	
Tier 1, 0-1120 HCF	\$1.19
Tier 2, 1121-3500 HCF	\$1.44
Tier 3, 3501-6860 HCF	\$1.75
Tier 4, 6861-11060 HCF	\$2.19
Tier 5, 11061-Above HCF	\$3.13

Baseline Scenario

If rates are not increased from those shown in Table 5 above, and no new bonds are issued, the City will soon find itself in an unsustainable position. It will have to reduce the number of capital projects it can accomplish but will also have to raise rates by FY2027 just to cover its current debt obligations and keep its debt service ratio above 1.25.

TABLE 6: IMPACTS WITH NO RATE CHANGES OR BONDS ISSUED

	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Net Revenues before Debt Service	\$2,247,853	\$1,933,055	\$1,106,658	\$863,709	\$613,717	\$340,309	\$52,202
Capital Expenses	\$0	(\$1,927,841)	(\$2,838,249)	(\$3,605,735)	(\$6,563,905)	(\$3,801,434)	(\$3,326,790)
Debt Service Coverage Ratio	27.64	4.03	1.49	1.18	0.82	0.46	0.07
Days Cash on Hand - End of Year	190	145	(7)	(190)	(520)	(701)	(858)

Proposed Rates

Two rate structure options are presented in this section that will ensure revenue sufficiency and sustainability for the City.

Option 1

Increase rates as follows **with all rate increases taking effect on April 1 of each year:**

- 2025 – 20%
- 2026 - 20%
- 2027 – 10%
- 2028 – 5%
- 2029 and thereafter – 3%

Issue a \$6 million bond in 2026

Option 2

Increase rates as follows **with all rate increases taking effect on April 1 of each year:**

- 2025 – 10%
- 2026 - 10%
- 2027 – 10%
- 2028 – 5%
- 2029 – large rate increase necessary

Issue a \$6 million bond in 2026 and another \$6 million bond in 2028

Option 1

Option 1 allows for all planned capital projects to move forward as planned, keeps sufficient cash on cash to maintain bond ratings and meets debt service coverage obligations.

TABLE 7: OPTION 1 IMPACTS

	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Net Revenues before Debt Service	\$2,247,853	\$2,288,994	\$2,823,916	\$4,036,920	\$4,655,162	\$4,888,350	\$4,964,262

	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Capital Expenses	\$0	(\$1,927,841)	(\$2,838,249)	(\$3,605,735)	(\$6,563,905)	(\$3,801,434)	(\$3,326,790)
Debt Service Coverage Ratio	27.64	4.77	3.80	3.42	3.91	4.11	4.17
Days Cash on Hand - End of Year	190	167	427	364	197	183	195

TABLE 8: OPTION 1 RATES

	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
BASIC RATE ADJUSTMENT	0.0%	20.0%	20.0%	10.0%	5.0%	3.0%	3.0%
3/4"-1"	\$12.51	\$15.01	\$18.01	\$19.82	\$20.81	\$21.43	\$22.07
1.5"	\$19.63	\$23.56	\$28.27	\$31.09	\$32.65	\$33.63	\$34.64
2"	\$28.19	\$33.83	\$40.59	\$44.65	\$46.89	\$48.29	\$49.74
3"	\$48.15	\$57.78	\$69.34	\$76.27	\$80.08	\$82.49	\$84.96
4"	\$76.66	\$91.99	\$110.39	\$121.43	\$127.50	\$131.33	\$135.27
6"	\$147.95	\$177.54	\$213.05	\$234.35	\$246.07	\$253.45	\$261.06
8"	\$233.51	\$280.21	\$336.25	\$369.88	\$388.37	\$400.03	\$412.03
USAGE RATE ADJUSTMENT	0.0%	20.0%	20.0%	10.0%	5.0%	3.0%	3.0%
3/4"-1" Meters							
Tier 1, 0-8 HCF	\$1.19	\$1.43	\$1.71	\$1.88	\$1.98	\$2.04	\$2.10
Tier 2, 9-25 HCF	\$1.44	\$1.73	\$2.07	\$2.28	\$2.40	\$2.47	\$2.54
Tier 3, 26-49 HCF	\$1.75	\$2.10	\$2.52	\$2.77	\$2.91	\$3.00	\$3.09
Tier 4, 50-79 HCF	\$2.19	\$2.63	\$3.15	\$3.47	\$3.64	\$3.75	\$3.86
Tier 5, 80-Above HCF	\$3.13	\$3.76	\$4.51	\$4.96	\$5.21	\$5.36	\$5.52
1.5" Meters							
Tier 1, 0-32 HCF	\$1.19	\$1.43	\$1.71	\$1.88	\$1.98	\$2.04	\$2.10
Tier 2, 33-100 HCF	\$1.44	\$1.73	\$2.07	\$2.28	\$2.40	\$2.47	\$2.54
Tier 3, 101-196 HCF	\$1.75	\$2.10	\$2.52	\$2.77	\$2.91	\$3.00	\$3.09
Tier 4, 197-316 HCF	\$2.19	\$2.63	\$3.15	\$3.47	\$3.64	\$3.75	\$3.86
Tier 5, 317-Above HCF	\$3.13	\$3.76	\$4.51	\$4.96	\$5.21	\$5.36	\$5.52
2" Meters							
Tier 1, 0-64 HCF	\$1.19	\$1.43	\$1.71	\$1.88	\$1.98	\$2.04	\$2.10
Tier 2, 65-200 HCF	\$1.44	\$1.73	\$2.07	\$2.28	\$2.40	\$2.47	\$2.54
Tier 3, 201-392 HCF	\$1.75	\$2.10	\$2.52	\$2.77	\$2.91	\$3.00	\$3.09

	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Tier 4, 393-632 HCF	\$2.19	\$2.63	\$3.15	\$3.47	\$3.64	\$3.75	\$3.86
Tier 5, 633-Above HCF	\$3.13	\$3.76	\$4.51	\$4.96	\$5.21	\$5.36	\$5.52
3" Meters							
Tier 1, 0-120 HCF	\$1.19	\$1.43	\$1.71	\$1.88	\$1.98	\$2.04	\$2.10
Tier 2, 121-375 HCF	\$1.44	\$1.73	\$2.07	\$2.28	\$2.40	\$2.47	\$2.54
Tier 3, 376-735 HCF	\$1.75	\$2.10	\$2.52	\$2.77	\$2.91	\$3.00	\$3.09
Tier 4, 736-1185 HCF	\$2.19	\$2.63	\$3.15	\$3.47	\$3.64	\$3.75	\$3.86
Tier 5, 1186-Above HCF	\$3.13	\$3.76	\$4.51	\$4.96	\$5.21	\$5.36	\$5.52
4" Meters							
Tier 1, 0-200 HCF	\$1.19	\$1.43	\$1.71	\$1.88	\$1.98	\$2.04	\$2.10
Tier 2, 201-625 HCF	\$1.44	\$1.73	\$2.07	\$2.28	\$2.40	\$2.47	\$2.54
Tier 3, 626-1225 HCF	\$1.75	\$2.10	\$2.52	\$2.77	\$2.91	\$3.00	\$3.09
Tier 4, 1226-1975 HCF	\$2.19	\$2.63	\$3.15	\$3.47	\$3.64	\$3.75	\$3.86
Tier 5, 1976-Above HCF	\$3.13	\$3.76	\$4.51	\$4.96	\$5.21	\$5.36	\$5.52
6" Meters							
Tier 1, 0-400 HCF	\$1.19	\$1.43	\$1.71	\$1.88	\$1.98	\$2.04	\$2.10
Tier 2, 401-1250 HCF	\$1.44	\$1.73	\$2.07	\$2.28	\$2.40	\$2.47	\$2.54
Tier 3, 1251-2450 HCF	\$1.75	\$2.10	\$2.52	\$2.77	\$2.91	\$3.00	\$3.09
Tier 4, 2451-3950 HCF	\$2.19	\$2.63	\$3.15	\$3.47	\$3.64	\$3.75	\$3.86
Tier 5, 3951-Above HCF	\$3.13	\$3.76	\$4.51	\$4.96	\$5.21	\$5.36	\$5.52
8" Meters							
Tier 1, 0-1120 HCF	\$1.19	\$1.43	\$1.71	\$1.88	\$1.98	\$2.04	\$2.10
Tier 2, 1121-3500 HCF	\$1.44	\$1.73	\$2.07	\$2.28	\$2.40	\$2.47	\$2.54
Tier 3, 3501-6860 HCF	\$1.75	\$2.10	\$2.52	\$2.77	\$2.91	\$3.00	\$3.09
Tier 4, 6861-11060 HCF	\$2.19	\$2.63	\$3.15	\$3.47	\$3.64	\$3.75	\$3.86
Tier 5, 11061-Above HCF	\$3.13	\$3.76	\$4.51	\$4.96	\$5.21	\$5.36	\$5.52

Option 2

Option 2 offers smaller rate increases in the initial years, but requires two bonds to be issued - \$6 million in 2026 and another \$6 million in 2028. It would also require significant rate increases to be made in 2029.

TABLE 9: OPTION 2 IMPACTS

	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Net Revenues before Debt Service	\$2,247,853	\$2,111,024	\$1,948,835	\$2,465,192	\$2,939,187	\$3,086,949	\$3,100,039
Capital Expenses	\$0	(\$1,927,841)	(\$2,838,249)	(\$3,605,735)	(\$6,563,905)	(\$3,801,434)	(\$3,326,790)
Debt Service Coverage Ratio	27.64	4.40	2.62	2.09	2.47	1.88	1.89
Days Cash on Hand - End of Year	190	156	374	236	282	159	69

TABLE 10: OPTION 2 RATES

	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
BASIC RATE ADJUSTMENT	0.0%	10.0%	10.0%	10.0%	5.0%	3.0%	3.0%
3/4"-1"	\$12.51	\$13.76	\$15.14	\$16.65	\$17.48	\$18.01	\$18.55
1.5"	\$19.63	\$21.59	\$23.75	\$26.13	\$27.43	\$28.26	\$29.10
	10.0%	10.0%	10.0%	5.0%	3.0%	3.0%	
2"	\$28.19	\$31.01	\$34.11	\$37.52	\$39.40	\$40.58	\$41.80
3"	\$48.15	\$52.97	\$58.26	\$64.09	\$67.29	\$69.31	\$71.39
4"	\$76.66	\$84.33	\$92.76	\$102.03	\$107.14	\$110.35	\$113.66
6"	\$147.95	\$162.75	\$179.02	\$196.92	\$206.77	\$212.97	\$219.36
8"	\$233.51	\$256.86	\$282.55	\$310.80	\$326.34	\$336.13	\$346.22
USAGE RATE ADJUSTMENT	0.0%	10.0%	10.0%	10.0%	5.0%	3.0%	3.0%
3/4"-1" Meters							
Tier 1, 0-8 HCF	\$1.19	\$1.31	\$1.44	\$1.58	\$1.66	\$1.71	\$1.76
Tier 2, 9-25 HCF	\$1.44	\$1.58	\$1.74	\$1.92	\$2.01	\$2.07	\$2.14
Tier 3, 26-49 HCF	\$1.75	\$1.93	\$2.12	\$2.33	\$2.45	\$2.52	\$2.59
Tier 4, 50-79 HCF	\$2.19	\$2.41	\$2.65	\$2.91	\$3.06	\$3.15	\$3.25
Tier 5, 80-Above HCF	\$3.13	\$3.44	\$3.79	\$4.17	\$4.37	\$4.51	\$4.64
1.5" Meters							
Tier 1, 0-32 HCF	\$1.19	\$1.43	\$1.57	\$1.73	\$1.81	\$1.87	\$1.92
Tier 2, 33-100 HCF	\$1.44	\$1.58	\$1.74	\$1.92	\$2.01	\$2.07	\$2.14
Tier 3, 101-196 HCF	\$1.75	\$1.93	\$2.12	\$2.33	\$2.45	\$2.52	\$2.59
Tier 4, 197-316 HCF	\$2.19	\$2.41	\$2.65	\$2.91	\$3.06	\$3.15	\$3.25
Tier 5, 317-Above HCF	\$3.13	\$3.44	\$3.79	\$4.17	\$4.37	\$4.51	\$4.64
2" Meters							
Tier 1, 0-64 HCF	\$1.19	\$1.31	\$1.44	\$1.58	\$1.66	\$1.71	\$1.76
Tier 2, 65-200 HCF	\$1.44	\$1.58	\$1.74	\$1.92	\$2.01	\$2.07	\$2.14

	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Tier 3, 201-392 HCF	\$1.75	\$1.93	\$2.12	\$2.33	\$2.45	\$2.52	\$2.59
Tier 4, 393-632 HCF	\$2.19	\$2.41	\$2.65	\$2.91	\$3.06	\$3.15	\$3.25
Tier 5, 633-Above HCF	\$3.13	\$3.44	\$3.79	\$4.17	\$4.37	\$4.51	\$4.64
3" Meters							
Tier 1, 0-120 HCF	\$1.19	\$1.31	\$1.44	\$1.58	\$1.66	\$1.71	\$1.76
Tier 2, 121-375 HCF	\$1.44	\$1.58	\$1.74	\$1.92	\$2.01	\$2.07	\$2.14
Tier 3, 376-735 HCF	\$1.75	\$1.93	\$2.12	\$2.33	\$2.45	\$2.52	\$2.59
Tier 4, 736-1185 HCF	\$2.19	\$2.41	\$2.65	\$2.91	\$3.06	\$3.15	\$3.25
Tier 5, 1186-Above HCF	\$3.13	\$3.44	\$3.79	\$4.17	\$4.37	\$4.51	\$4.64
4" Meters							
Tier 1, 0-200 HCF	\$1.19	\$1.31	\$1.44	\$1.58	\$1.66	\$1.71	\$1.76
Tier 2, 201-625 HCF	\$1.44	\$1.58	\$1.74	\$1.92	\$2.01	\$2.07	\$2.14
Tier 3, 626-1225 HCF	\$1.75	\$1.93	\$2.12	\$2.33	\$2.45	\$2.52	\$2.59
Tier 4, 1226-1975 HCF	\$2.19	\$2.41	\$2.65	\$2.91	\$3.06	\$3.15	\$3.25
Tier 5, 1976-Above HCF	\$3.13	\$3.44	\$3.79	\$4.17	\$4.37	\$4.51	\$4.64
6" Meters							
Tier 1, 0-400 HCF	\$1.19	\$1.31	\$1.44	\$1.58	\$1.66	\$1.71	\$1.76
Tier 2, 401-1250 HCF	\$1.44	\$1.58	\$1.74	\$1.92	\$2.01	\$2.07	\$2.14
Tier 3, 1251-2450 HCF	\$1.75	\$1.93	\$2.12	\$2.33	\$2.45	\$2.52	\$2.59
Tier 4, 2451-3950 HCF	\$2.19	\$2.41	\$2.65	\$2.91	\$3.06	\$3.15	\$3.25
Tier 5, 3951-Above HCF	\$3.13	\$3.44	\$3.79	\$4.17	\$4.37	\$4.51	\$4.64
8" Meters							
Tier 1, 0-1120 HCF	\$1.19	\$1.31	\$1.44	\$1.58	\$1.66	\$1.71	\$1.76
Tier 2, 1121-3500 HCF	\$1.44	\$1.58	\$1.74	\$1.92	\$2.01	\$2.07	\$2.14
Tier 3, 3501-6860 HCF	\$1.75	\$1.93	\$2.12	\$2.33	\$2.45	\$2.52	\$2.59
Tier 4, 6861-11060 HCF	\$2.19	\$2.41	\$2.65	\$2.91	\$3.06	\$3.15	\$3.25
Tier 5, 11061-Above HCF	\$3.13	\$3.44	\$3.79	\$4.17	\$4.37	\$4.51	\$4.64

APPENDIX A													
Operating Expenses													
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	AAGR
WATER ADMINISTRATION													
Regular Employees	(\$319,815)	(\$325,219)	(\$341,480)	(\$358,554)	(\$376,482)	(\$395,306)	(\$415,071)	(\$435,825)	(\$457,616)	(\$480,497)	(\$504,521)	(\$529,747)	5.0%
Overtime	(\$706)	(\$3,000)	(\$3,150)	(\$3,308)	(\$3,473)	(\$3,647)	(\$3,829)	(\$4,020)	(\$4,221)	(\$4,432)	(\$4,654)	(\$4,887)	5.0%
Social Security	(\$24,319)	(\$25,309)	(\$26,574)	(\$27,903)	(\$29,298)	(\$30,763)	(\$32,301)	(\$33,916)	(\$35,612)	(\$37,393)	(\$39,263)	(\$41,226)	5.0%
Group Insurance	(\$51,744)	(\$54,010)	(\$56,711)	(\$59,546)	(\$62,523)	(\$65,649)	(\$68,932)	(\$72,379)	(\$75,997)	(\$79,797)	(\$83,787)	(\$87,977)	5.0%
Retirement	(\$69,979)	(\$69,765)	(\$73,253)	(\$76,916)	(\$80,762)	(\$84,800)	(\$89,040)	(\$93,492)	(\$98,166)	(\$103,075)	(\$108,228)	(\$113,640)	5.0%
Worker Comp	(\$2,280)	(\$1,731)	(\$1,818)	(\$1,908)	(\$2,004)	(\$2,104)	(\$2,209)	(\$2,320)	(\$2,436)	(\$2,557)	(\$2,685)	(\$2,820)	5.0%
Admin Fee - Wages	(\$636,041)	(\$727,792)	(\$764,182)	(\$802,391)	(\$842,510)	(\$884,636)	(\$928,868)	(\$975,311)	(\$1,024,076)	(\$1,075,280)	(\$1,129,044)	(\$1,185,496)	5.0%
YE Comp Abs Adj	\$0	\$0											
YE Pension Adj	\$0												
Unemployment	\$0	\$0											5.0%
Tuition Reimbursement	\$0	(\$2,500)	(\$2,625)	(\$2,756)	(\$2,894)	(\$3,039)	(\$3,191)	(\$3,350)	(\$3,518)	(\$3,694)	(\$3,878)	(\$4,072)	5.0%
Service Awards	(\$1,090)	(\$1,500)	(\$1,545)	(\$1,591)	(\$1,639)	(\$1,688)	(\$1,739)	(\$1,791)	(\$1,845)	(\$1,900)	(\$1,957)	(\$2,016)	3.0%
Car Allowance	(\$2,250)	(\$2,250)	(\$2,250)	(\$2,250)	(\$2,250)	(\$2,250)	(\$2,250)	(\$2,250)	(\$2,250)	(\$2,250)	(\$2,250)	(\$2,250)	0.0%
Retiree Insurance	(\$3,007)	(\$1,500)	(\$1,500)	(\$1,500)	(\$1,500)	(\$1,500)	(\$1,500)	(\$1,500)	(\$1,500)	(\$1,500)	(\$1,500)	(\$1,500)	0.0%
OPEB	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.0%
Books & Subscriptions	(\$175)	(\$1,000)	(\$1,030)	(\$1,061)	(\$1,093)	(\$1,126)	(\$1,159)	(\$1,194)	(\$1,230)	(\$1,267)	(\$1,305)	(\$1,344)	3.0%
Public Notices	(\$2,404)	(\$10,000)	(\$10,300)	(\$10,609)	(\$10,927)	(\$11,255)	(\$11,593)	(\$11,941)	(\$12,299)	(\$12,668)	(\$13,048)	(\$13,439)	3.0%
Travel & Learning	(\$18,601)	(\$22,000)	(\$23,340)	(\$24,040)	(\$24,761)	(\$25,504)	(\$26,269)	(\$27,057)	(\$27,869)	(\$28,705)	(\$29,566)	(\$30,453)	3.0%
Supplies	(\$5,375)	(\$7,000)	(\$7,210)	(\$7,426)	(\$7,649)	(\$7,879)	(\$8,115)	(\$8,358)	(\$8,609)	(\$8,867)	(\$9,133)	(\$9,407)	3.0%
Fuel	(\$43,662.82)	(\$45,000)	(\$46,350)	(\$47,741)	(\$49,173)	(\$50,648)	(\$52,167)	(\$53,732)	(\$55,344)	(\$57,005)	(\$58,715)	(\$60,476)	3.0%
Small Equipment	(\$10,045.43)	(\$10,000)	(\$10,300)	(\$10,609)	(\$10,927)	(\$11,255)	(\$11,593)	(\$11,941)	(\$12,299)	(\$12,668)	(\$13,048)	(\$13,439)	3.0%
Miscellaneous	\$0.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	3.0%
Equipment Maintenance	(\$45,590.58)	(\$32,000)	(\$32,960)	(\$33,949)	(\$34,967)	(\$36,016)	(\$37,097)	(\$38,210)	(\$39,356)	(\$40,537)	(\$41,753)	(\$43,005)	3.0%
Office Equipment Maintenance	(\$247.17)	(\$2,000)	(\$2,060)	(\$2,122)	(\$2,185)	(\$2,251)	(\$2,319)	(\$2,388)	(\$2,460)	(\$2,534)	(\$2,610)	(\$2,688)	3.0%
Vehicle Maintenance	(\$25,449.90)	(\$43,000)	(\$44,290)	(\$45,619)	(\$46,987)	(\$48,397)	(\$49,849)	(\$51,344)	(\$52,885)	(\$54,471)	(\$56,105)	(\$57,788)	3.0%
Software	\$0.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	3.0%
Water Rebate Programs	(\$25,622.69)	(\$30,000)	(\$30,900)	(\$31,827)	(\$32,782)	(\$33,765)	(\$34,778)	(\$35,822)	(\$36,896)	(\$38,003)	(\$39,143)	(\$40,317)	3.0%
Bad Debt	\$0.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	5.0%
Collections	\$0.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	5.0%
Credit Card Fees	(\$23,420.43)	(\$32,000)	(\$33,600)	(\$35,280)	(\$37,044)	(\$38,896)	(\$40,841)	(\$42,883)	(\$45,027)	(\$47,279)	(\$49,643)	(\$52,125)	5.0%
Professional Services	(\$158,494.83)	(\$182,000)	(\$191,100)	(\$200,655)	(\$210,688)	(\$221,222)	(\$232,283)	(\$243,897)	(\$256,092)	(\$268,897)	(\$282,342)	(\$296,459)	5.0%
Utilities	(\$17,237.20)	(\$18,000)	(\$18,540)	(\$19,096)	(\$19,669)	(\$20,259)	(\$20,867)	(\$21,493)	(\$22,138)	(\$22,802)	(\$23,486)	(\$24,190)	3.0%
Internet/Telephone	\$0.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.0%
Cell Phone	(\$21,572.72)	(\$20,000)	(\$21,000)	(\$22,050)	(\$23,153)	(\$24,310)	(\$25,526)	(\$26,802)	(\$28,142)	(\$29,549)	(\$31,027)	(\$32,578)	5.0%
Risk Assessment	(\$165,720.00)	(\$171,183)	(\$179,742)	(\$188,729)	(\$198,166)	(\$208,074)	(\$218,478)	(\$229,402)	(\$240,872)	(\$252,915)	(\$265,561)	(\$278,839)	5.0%
Fleet Assessment	(\$36,022.00)	(\$45,560)	(\$47,838)	(\$50,230)	(\$52,741)	(\$55,378)	(\$58,147)	(\$61,055)	(\$64,107)	(\$67,313)	(\$70,679)	(\$74,212)	5.0%
Admin Cost O*M	(\$239,173.00)	(\$242,597)	(\$254,727)	(\$267,463)	(\$280,836)	(\$294,878)	(\$309,622)	(\$325,103)	(\$341,358)	(\$358,426)	(\$376,348)	(\$395,165)	5.0%
Deposit to Reserve Account for 10 Yrs		(\$38,200)											
WATER OPERATIONS & MAINTENANCE													
Regular Employees	(\$1,067,151)	(\$1,154,657)	(\$1,212,390)	(\$1,273,009)	(\$1,336,660)	(\$1,403,493)	(\$1,473,667)	(\$1,547,351)	(\$1,624,718)	(\$1,705,954)	(\$1,791,252)	(\$1,880,815)	5.0%
Seasonal/Part-Time Employees	(\$2,610)	(\$20,000)	(\$21,000)	(\$22,050)	(\$23,153)	(\$24,310)	(\$25,526)	(\$26,802)	(\$28,142)	(\$29,549)	(\$31,027)	(\$32,578)	5.0%
Overtime	(\$68,312)	(\$95,000)	(\$99,750)	(\$104,738)	(\$109,974)	(\$115,473)	(\$121,247)	(\$127,309)	(\$133,675)	(\$140,358)	(\$147,376)	(\$154,745)	5.0%
Social Security	(\$84,464)	(\$97,726)	(\$102,612)	(\$107,743)	(\$113,130)	(\$118,787)	(\$124,726)	(\$130,962)	(\$137,510)	(\$144,386)	(\$151,605)	(\$159,185)	5.0%
Group Insurance	(\$206,901)	(\$233,130)	(\$244,787)	(\$257,026)	(\$269,877)	(\$283,371)	(\$297,540)	(\$312,416)	(\$328,037)	(\$344,439)	(\$361,661)	(\$379,744)	5.0%
Retirement	(\$239,895)	(\$253,902)	(\$266,597)	(\$279,927)	(\$293,923)	(\$308,619)	(\$324,050)	(\$340,253)	(\$357,266)	(\$375,129)	(\$393,885)	(\$413,580)	5.0%
Worker Comp	(\$11,130)	(\$11,686)	(\$12,270)	(\$12,884)	(\$13,528)	(\$14,204)	(\$14,915)	(\$15,660)	(\$16,443)	(\$17,266)	(\$18,129)	(\$19,035)	5.0%
Supplies	(\$27,035)	(\$25,000)	(\$26,250)	(\$27,563)	(\$28,941)	(\$30,388)	(\$31,907)	(\$33,502)	(\$35,178)	(\$36,936)	(\$38,783)	(\$40,722)	5.0%
Chlorine	(\$9,608)	(\$15,000)	(\$15,750)	(\$16,538)	(\$17,364)	(\$18,233)	(\$19,144)	(\$20,101)	(\$21,107)	(\$22,162)	(\$23,270)	(\$24,433)	5.0%
Fluoride	(\$43,520)	(\$40,000)	(\$42,000)	(\$44,100)	(\$46,305)	(\$48,620)	(\$51,051)	(\$53,604)	(\$56,284)	(\$59,098)	(\$62,053)	(\$65,156)	5.0%
Small Equipment	(\$20,829)	(\$25,000)	(\$26,250)	(\$27,563)	(\$28,941)	(\$30,388)	(\$31,907)	(\$33,502)	(\$35,178)	(\$36,936)	(\$38,783)	(\$40,722)	5.0%
New Meters	(\$80,000)	(\$80,000)	(\$84,000)	(\$88,200)	(\$92,610)	(\$97,241)	(\$102,103)	(\$107,208)	(\$112,568)	(\$118,196)	(\$124,106)	(\$130,312)	5.0%
Line Maintenance	(\$170,254)	(\$150,000)	(\$157,500)	(\$165,375)	(\$173,644)	(\$182,326)	(\$191,442)	(\$201,014)	(\$211,065)	(\$221,618)	(\$232,699)	(\$244,334)	5.0%
Wellhead Maintenance	(\$46,190)	(\$130,000)	(\$136,500)	(\$143,325)	(\$150,491)	(\$158,016)	(\$165,917)	(\$174,212)	(\$182,923)	(\$192,069)	(\$201,673)	(\$211,756)	5.0%
Service Line Maintenance	(\$28,285)	(\$35,000)	(\$36,750)	(\$38,588)	(\$40,517)	(\$42,543)	(\$44,670)	(\$46,903)	(\$49,249)	(\$51,711)	(\$54,296)	(\$57,011)	5.0%
Meter Maintenance	(\$15,635)	(\$15,000)	(\$15,750)	(\$16,538)	(\$17,364)	(\$18,233)	(\$19,144)	(\$20,101)	(\$21,107)	(\$22,162)	(\$23,270)	(\$24,433)	5.0%
Bldg. & Grounds Maint.	(\$58,613)	(\$60,000)	(\$61,800)	(\$63,654)	(\$65,564)	(\$67,531)	(\$69,556)	(\$71,643)	(\$73,792)	(\$76,006)	(\$78,286)	(\$80,635)	3.0%
Hydrant Maintenance	(\$5,626)	(\$35,000)	(\$36,750)	(\$38,588)	(\$40,517)	(\$42,543)	(\$44,670)	(\$46,903)	(\$49,249)	(\$51,711)	(\$54,296)	(\$57,011)	5.0%
Equipment Maintenance	(\$101,619)	(\$125,000)	(\$128,750)	(\$132,613)	(\$136,591)	(\$140,689)	(\$144,909)	(\$149,257)	(\$153,734)	(\$158,346)	(\$163,097)	(\$167,990)	3.0%
Software Support	(\$5,899)	(\$93,500)	(\$96,305)	(\$99,194)	(\$102,170)	(\$105,235)	(\$108,392)	(\$111,644)	(\$114,993)	(\$118,443)	(\$121,996)	(\$125,656)	3.0%
Professional Services	(\$35,884)	(\$65,000)	(\$66,950)	(\$68,959)	(\$71,027)	(\$73,158)	(\$75,353)	(\$77,613)	(\$79,942)	(\$82,340)	(\$84,810)	(\$87,355)	3.0%
Utilities	(\$397,060)	(\$400,000)	(\$412,000)	(\$427,091)	(\$443,660)	(\$461,710)	(\$477,621)	(\$493,710)	(\$506,708)	(\$521,909)	(\$537,567)	(\$553,700)	3.0%
Purchased Water	(\$6,480)	(\$10,000)	(\$10,500)	(\$11,025)	(\$11,576)	(\$12,155)	(\$12,763)	(\$13,401)	(\$14,071)	(\$14,775)	(\$15,513)	(\$16,289)	5.0%

Telephone	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	5.0%
Rent & Lease Payments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	5.0%
METERING SERVICES													
Regular Employees	(\$174,026)	(\$180,103)	(\$189,108)	(\$198,564)	(\$208,492)	(\$218,916)	(\$229,862)	(\$241,355)	(\$253,423)	(\$266,094)	(\$279,399)	(\$293,369)	5.0%
Seasonal/Part-Time Employees	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	5.0%
Overtime	(\$439)	(\$7,500)	(\$7,875)	(\$8,269)	(\$8,682)	(\$9,116)	(\$9,572)	(\$10,051)	(\$10,553)	(\$11,081)	(\$11,635)	(\$12,217)	5.0%
Social Security	(\$13,255)	(\$14,352)	(\$15,070)	(\$15,823)	(\$16,614)	(\$17,445)	(\$18,317)	(\$19,233)	(\$20,195)	(\$21,204)	(\$22,265)	(\$23,378)	5.0%
Group Insurance	(\$36,952)	(\$42,083)	(\$44,187)	(\$46,397)	(\$48,716)	(\$51,152)	(\$53,710)	(\$56,395)	(\$59,215)	(\$62,176)	(\$65,285)	(\$68,549)	5.0%
Retirement	(\$36,847)	(\$39,832)	(\$41,824)	(\$43,915)	(\$46,111)	(\$48,416)	(\$50,837)	(\$53,379)	(\$56,048)	(\$58,850)	(\$61,793)	(\$64,882)	5.0%
Worker Comp	(\$1,383)	(\$1,584)	(\$1,663)	(\$1,746)	(\$1,834)	(\$1,925)	(\$2,022)	(\$2,123)	(\$2,229)	(\$2,340)	(\$2,457)	(\$2,580)	5.0%
Shared Services Wages	\$131,450	(\$142,727)	(\$149,863)	(\$157,357)	(\$165,224)	(\$173,486)	(\$182,160)	(\$191,268)	(\$200,831)	(\$210,873)	(\$221,416)	(\$232,487)	5.0%
Uniform Allowance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	5.0%
Books & Subscriptions	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	5.0%
Travel & Training	(\$461)	(\$1,000)	(\$1,030)	(\$1,061)	(\$1,093)	(\$1,126)	(\$1,159)	(\$1,194)	(\$1,230)	(\$1,267)	(\$1,305)	(\$1,344)	3.0%
Supplies	(\$3,764)	(\$4,000)	(\$4,120)	(\$4,244)	(\$4,371)	(\$4,502)	(\$4,637)	(\$4,776)	(\$4,919)	(\$5,067)	(\$5,219)	(\$5,376)	3.0%
Fuel	(\$6,246)	(\$10,000)	(\$10,500)	(\$11,025)	(\$11,576)	(\$12,155)	(\$12,763)	(\$13,401)	(\$14,071)	(\$14,775)	(\$15,513)	(\$16,289)	5.0%
Small Equipment	(\$201)	(\$1,500)	(\$1,545)	(\$1,591)	(\$1,639)	(\$1,688)	(\$1,739)	(\$1,791)	(\$1,845)	(\$1,900)	(\$1,957)	(\$2,016)	3.0%
Miscellaneous	(\$50)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	3.0%
Equipment Maintenance	(\$3,447)	(\$5,000)	(\$5,250)	(\$5,513)	(\$5,788)	(\$6,078)	(\$6,381)	(\$6,700)	(\$7,036)	(\$7,387)	(\$7,757)	(\$8,144)	5.0%
Vehicle Maintenance	(\$2,633)	(\$5,000)	(\$5,250)	(\$5,513)	(\$5,788)	(\$6,078)	(\$6,381)	(\$6,700)	(\$7,036)	(\$7,387)	(\$7,757)	(\$8,144)	5.0%
Software Support	(\$6,423)	(\$10,000)	(\$10,500)	(\$11,025)	(\$11,576)	(\$12,155)	(\$12,763)	(\$13,401)	(\$14,071)	(\$14,775)	(\$15,513)	(\$16,289)	5.0%
Cell Phone	(\$1,658)	(\$2,500)	(\$2,575)	(\$2,652)	(\$2,732)	(\$2,814)	(\$2,898)	(\$2,985)	(\$3,075)	(\$3,167)	(\$3,262)	(\$3,360)	3.0%
Fleet Assessment	(\$5,688)	(\$5,943)	(\$6,240)	(\$6,552)	(\$6,880)	(\$7,224)	(\$7,585)	(\$7,964)	(\$8,362)	(\$8,781)	(\$9,220)	(\$9,681)	5.0%
Shared Services Ops	(\$15,375)	(\$22,472)	(\$23,596)	(\$24,775)	(\$26,014)	(\$27,315)	(\$28,681)	(\$30,115)	(\$31,620)	(\$33,201)	(\$34,861)	(\$36,605)	5.0%
OTHER													
General Fund Transfer	(\$553,590)	(\$60,306)	(\$658,483)	(\$727,621)	(\$794,240)	(\$833,711)	(\$862,751)	(\$892,783)	(\$923,842)	(\$955,962)	(\$989,178)	(\$1,023,527)	
TOTAL Operating Expenses	(\$5,414,031)	(\$5,891,619)	(\$6,721,584)	(\$7,073,626)	(\$7,436,691)	(\$7,786,810)	(\$8,141,393)	(\$8,512,587)	(\$8,901,189)	(\$9,308,030)	(\$9,733,985)	(\$10,179,970)	



MURRAY
CITY COUNCIL

Public Hearing # 5



MURRAY

Public Works/Water Division

Water Master Plan - IFFP - IFA - Water Rate Study Review

Council Action Request

Council Meeting

Meeting Date: March 4, 2025

Department Director Russ Kakala Phone # 801-270-2404 Presenters Aron Frisk Required Time for Presentation Is This Time Sensitive No Mayor's Approval  Date February 3, 2025	Purpose of Proposal Adopt attached plans & studies. Amend or enact associated ordinances. Action Requested Adoption of Water Master Plan, Impact Fee Facility Plan, Impact Fee Analysis and the new Water Rates. Amending ordinances. Attachments Water Master Plan, IFFP, IFA, Water Rate Study, Amending Ordinances 13.08.080 & 13.08.020, Enacting a new Ordinance. Budget Impact Water Master Plan describes new Capital Improvement Projects for the water system. Rate Study describes how we can fund our operating and capital accounts. Description of this Item Water Master Plan - Evaluates the adequacy of existing water sources to meet projected Murray City water demands. Evaluates the water distribution system capacity to meet desired operating criteria under various demand conditions. Provides capital improvement projects required to meet or exceed desired operating criteria and correct deficiencies and failing infrastructure. Resolution to adopt. Impact Fee Facilities Plan - Identifies demands placed on City facilities by future development and evaluates how these demands will be met by the City. Outlines improvements that may be funded through impact fees. Resolution to adopt plan
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Continued from Page 1:

Impact Fee Analysis - The IFFP forms the basis for the IFA. Represents the maximum impact fees Murray City may assess on new development. Resolution to adopt plan & amending Ordinance 13.14.110

Water Rate Study - All operating and capital expenses are first calculated, and then rates are structured to cover annual expenses, maintain sufficient debt service ratios, and to keep at least 180 days cash on hand in the water utility fund. We provide multiple different scenarios to fund our division. Amending ordinance 13.08.020 - Approve new rates to fund the water division. Section (D) of this ordinance is to disallow non-metered water for construction use. Users must sign up for service and make their point of use (connection) outside of the City's meter box. This will allow construction to have access to water, while allowing the city to meter and monitor the use.

Amending ordinance 13.08.080 - To allow multifamily residential units with no irrigation responsibilities to install 3/4" service pipe and meters. As of right now, our minimum service pipe and meter for new construction is 1".

Enacting ordinance 13.08.025 - This is to allow the City to assess a fee for meters and AMI equipment for new development. This fee is only the cost to the city to purchase this equipment. Currently we acquire new meters through our Meter operational account, which should be used to replace older meters for existing customers.

Murray City Corporation

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that on the 4th day of March 2025, at the hour of 6:30 p.m. of said day in the Council Chambers of Murray City Hall, 10 East 4800 South, Murray, Utah, the Murray City Municipal Council will hold and conduct a hearing to receive public comment concerning a proposed ordinance amending section 13.08.080 of the Murray City Code relating to the minimum size of water service pipes.

DATED this 5th day of February 2025.



MURRAY CITY CORPORATION

A handwritten signature in blue ink, appearing to read "B. Smith", written over a horizontal line.

Brooke Smith
City Recorder

DATE OF PUBLICATION: February 21, 2025
PH25-09

1. Utah Public Notice Website
2. Murray City Website
3. Posted at Murray City Hall

ORDINANCE NO. _____

AN ORDINANCE AMENDING SECTION 13.08.080 OF THE MURRAY CITY MUNICIPAL CODE RELATING TO THE MINIMUM SIZE OF WATER SERVICE PIPES.

BE IT ENACTED BY THE MURRAY CITY MUNICIPAL COUNCIL:

Section 1. Purpose. The purpose of this ordinance is to amend Section 13.08.080 of the Murray City Municipal Code relating to minimum size of water service pipes.

Section 2. Amendment to Section 13.08.080 of the Murray City Municipal Code. Section 13.08.080 of the Murray City Municipal Code shall be amended to read as follows:

13.08.080: SIZE OF WATER SERVICE PIPE:

~~No service pipe shall be smaller than one inch (1") in size or smaller than the pipe extending from the street main to the curb. (Ord. 17-40). The minimum allowable service pipe and meter shall be 1" for new single-family, commercial, industrial, and institutional uses. For multifamily residential units with no irrigation responsibilities, it is allowable to use ¾" pipe and meter for service size. If a ¾" service pipe exists on a property where single family redevelopment is taking place and the Public Works Director or designee determines that it meets the plumbing demands of the new construction, the ¾" service pipe may be reused.~~

Section 3. Effective date. This Ordinance shall take effect upon first publication.

PASSED, APPROVED AND ADOPTED by the Murray City Municipal Council on this _____ day of _____, 2025.

MURRAY CITY MUNICIPAL COUNCIL

Pam Cotter, Chair

ATTEST:

Brooke Smith
City Recorder

Transmitted to the Office of the Mayor of Murray City on this ____ day of _____, 2025.

MAYOR'S ACTION: Approved

DATED this ____ day of _____, 2025

Brett A. Hales, Mayor

ATTEST:

Brooke Smith
City Recorder

CERTIFICATE OF PUBLICATION

I hereby certify that this Ordinance or a summary hereof was published according to law on the ____ day of _____, 2025.

Brooke Smith
City Recorder



MURRAY
CITY COUNCIL

Public Hearing # 6



MURRAY

Public Works/Water Division

Water Master Plan - IFFP - IFA - Water Rate Study Review

Council Action Request

Council Meeting

Meeting Date: March 4, 2025

Department Director Russ Kakala Phone # 801-270-2404 Presenters Aron Frisk	Purpose of Proposal Adopt attached plans & studies. Amend or enact associated ordinances. Action Requested Adoption of Water Master Plan, Impact Fee Facility Plan, Impact Fee Analysis and the new Water Rates. Amending ordinances. Attachments Water Master Plan, IFFP, IFA, Water Rate Study, Amending Ordinances 13.08.080 & 13.08.020, Enacting a new Ordinance. Budget Impact Water Master Plan describes new Capital Improvement Projects for the water system. Rate Study describes how we can fund our operating and capital accounts. Description of this Item Water Master Plan - Evaluates the adequacy of existing water sources to meet projected Murray City water demands. Evaluates the water distribution system capacity to meet desired operating criteria under various demand conditions. Provides capital improvement projects required to meet or exceed desired operating criteria and correct deficiencies and failing infrastructure. Resolution to adopt. Impact Fee Facilities Plan - Identifies demands placed on City facilities by future development and evaluates how these demands will be met by the City. Outlines improvements that may be funded through impact fees. Resolution to adopt plan
Required Time for Presentation Is This Time Sensitive No Mayor's Approval  Date February 3, 2025	

Continued from Page 1:

Impact Fee Analysis - The IFFP forms the basis for the IFA. Represents the maximum impact fees Murray City may assess on new development. Resolution to adopt plan & amending Ordinance 13.14.110

Water Rate Study - All operating and capital expenses are first calculated, and then rates are structured to cover annual expenses, maintain sufficient debt service ratios, and to keep at least 180 days cash on hand in the water utility fund. We provide multiple different scenarios to fund our division. Amending ordinance 13.08.020 - Approve new rates to fund the water division. Section (D) of this ordinance is to disallow non-metered water for construction use. Users must sign up for service and make their point of use (connection) outside of the City's meter box. This will allow construction to have access to water, while allowing the city to meter and monitor the use.

Amending ordinance 13.08.080 - To allow multifamily residential units with no irrigation responsibilities to install 3/4" service pipe and meters. As of right now, our minimum service pipe and meter for new construction is 1".

Enacting ordinance 13.08.025 - This is to allow the City to assess a fee for meters and AMI equipment for new development. This fee is only the cost to the city to purchase this equipment. Currently we acquire new meters through our Meter operational account, which should be used to replace older meters for existing customers.

Murray City Corporation

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that on the 4th day of March 2025, at the hour of 6:30 p.m. of said day in the Council Chambers of Murray City Hall, 10 East 4800 South, Murray, Utah, the Murray City Municipal Council will hold and conduct a hearing to receive public comment concerning a proposed ordinance enacting section 13.08.025 of the Murray City Code relating to a new-construction water meter and AMI Equipment fee schedule.

DATED this 5th day of February 2025.



MURRAY CITY CORPORATION

A handwritten signature in blue ink, appearing to read "B. Smith", written over a horizontal line.

Brooke Smith
City Recorder

DATE OF PUBLICATION: February 21, 2025
PH25-10

1. Utah Public Notice Website
2. Murray City Website
3. Posted at Murray City Hall

ORDINANCE NO. _____

AN ORDINANCE ENACTING SECTION 13.08.025 OF THE MURRAY CITY MUNICIPAL CODE RELATING TO A NEW CONSTRUCTION WATER METER AND AMI EQUIPMENT FEE SCHEDULE.

BE IT ENACTED BY THE MURRAY CITY MUNICIPAL COUNCIL:

Section 1. Purpose. The purpose of this ordinance is to enact Section 13.08.025 of the Murray City Municipal Code relating to a new construction water meter and AMI equipment fee schedule.

Section 2. Enact to Section 13.08.025 of the Murray City Municipal Code. Section 13.08.025 of the Murray City Municipal Code shall read as follows:

13.08.025: NEW CONSTRUCTION WATER METER AND AMI EQUIPMENT FEE SCHEDULE:

All new-construction water users must purchase from the City new water meters and advanced metering infrastructure (AMI) equipment for their new construction projects that are compatible with the City's metering system. The purchase price for the new meters and AMI equipment shall only cover the City's costs of the initial purchase of the equipment. The City's Public Works Director shall establish and maintain an up-to-date fee schedule of the current market costs of the equipment as well as records of the City's costs to purchase the new equipment. A copy of the fee schedule shall be on file in the office of the Public Works Director.

Section 3. Effective date. This Ordinance shall take effect upon first publication.

PASSED, APPROVED AND ADOPTED by the Murray City Municipal Council on this _____ day of _____, 2025.

MURRAY CITY MUNICIPAL COUNCIL

Pam Cotter, Chair

ATTEST:

Brooke Smith
City Recorder

Transmitted to the Office of the Mayor of Murray City on this ____ day of _____, 2025.

MAYOR'S ACTION: Approved

DATED this ____ day of _____, 2025

Brett A. Hales, Mayor

ATTEST:

Brooke Smith
City Recorder

CERTIFICATE OF PUBLICATION

I hereby certify that this Ordinance or a summary hereof was published according to law on the ____ day of _____, 2025.

Brooke Smith
City Recorder



MURRAY
CITY COUNCIL

Public Hearing # 7



MURRAY

Public Works Department

Central Valley Fee

Council Action Request

Council Meeting

Meeting Date: March 4, 2025

Department Director Russ Kakala Phone # 801-270-2404 Presenters Ben Ford Required Time for Presentation 20 Minutes Is This Time Sensitive Yes Mayor's Approval  Date	Purpose of Proposal Adjustment of the Wastewater Central Valley Fee. Action Requested Feb. 18th council presentation ordinance adoption at March 4th council meeting. Attachments Power point slides and proposed ordinance are attached. Budget Impact This will provide additional revenue to the Wastewater Fund. Description of this Item Additional Central Valley bonding has placed an increased burden on the Wastewater Fund. Wastewater Fund Central Valley Fee was implemented in FY 2023 and originated at \$12. The fee currently is a \$11 monthly charge. If no changes are made the fee would be reduced to \$8 in FY 2026. We are proposing to increase the Central Valley Fee back to \$12 and keep it there for the future. In addition we are proposing a 3% year over year increase on the flow amount calculation of the sewer bill. This increase would raise the average residents bill approximately \$5 a month.
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Murray City Corporation

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that on the 4th day of March 2025, at the hour of 6:30 p.m. of said day in the Council Chambers of Murray City Hall, 10 East 4800 South, Murray, Utah, the Murray City Municipal Council will hold and conduct a hearing to receive public comment concerning a proposed ordinance amending section 13.32.060 of the Murray City Code relating to monthly service charges for users of the City's sewer system.

DATED this 5th day of February 2025.



MURRAY CITY CORPORATION

A handwritten signature in blue ink, appearing to read "B. Smith", written over a horizontal line.

Brooke Smith
City Recorder

DATE OF PUBLICATION: February 21, 2025
PH25-07

1. Utah Public Notice Website
2. Murray City Website
3. Posted at Murray City Hall

ORDINANCE NO. _____

AN ORDINANCE AMENDING SECTION 13.32.060 OF THE MURRAY CITY MUNICIPAL CODE RELATING TO MONTHLY SERVICE CHARGES FOR USERS OF THE CITY'S SEWER SYSTEM.

BE IT ENACTED BY THE MURRAY CITY MUNICIPAL COUNCIL:

Section 1. Purpose. The purpose of this ordinance is to amend Section 13.32.060 of the Murray City Municipal Code relating to monthly service charges for users of the City's Sewer System.

Section 2. Amendment to Section 13.32.060 of the Murray City Municipal Code. Section 13.32.060 of the Murray City Municipal Code shall be amended to read as follows:

13.32.060: SEWER SERVICE CHARGE:

....

B. The following service charge shall be imposed for regularly monthly service rendered to the users of the City's sewer system:

1. All users with a history of water usage shall be charged as follows:

	Base Rate	CVWRF Fee	Flow Rate Charge Per 100 Cubic Feet
November 1, 2021 - March 31, 2022	\$ 9.73	\$ 0.00	\$2.88
April 1, 2022 - March 31, 2023	<u>\$13.14</u>	<u>\$12.00</u>	<u>\$3.46</u>
April 1, 2023 - March 31, 2024	<u>\$16.42</u>	<u>\$12.00</u>	<u>\$3.56</u>
April 1, 2024 - March 31, 2025	<u>\$18.88</u>	<u>\$11.00</u>	<u>\$3.67</u>
April 1, 2025 - March 31, 2026	<u>\$19.83</u>	8.00 <u>\$12.00</u>	3.78 <u>\$3.89</u>
April 1, 2026 - March 31, 2027; and until otherwise amended	<u>\$20.82</u>	6.00 <u>\$12.00</u>	3.89 <u>\$4.00</u>
<u>April 1, 2027 – until otherwise amended</u>	<u>\$20.82</u>	<u>\$12.00</u>	<u>3% annual flow rate increase</u>

....

Section 3. Effective date. This Ordinance shall take effect upon first publication.

PASSED, APPROVED AND ADOPTED by the Murray City Municipal Council on this _____ day of _____, 2025.

MURRAY CITY MUNICIPAL COUNCIL

Pam Cotter, Chair

ATTEST:

Brooke Smith
City Recorder

Transmitted to the Office of the Mayor of Murray City on this _____ day of _____, 2025.

MAYOR'S ACTION: Approved

DATED this _____ day of _____, 2025

Brett A. Hales, Mayor

ATTEST:

Brooke Smith

City Recorder

CERTIFICATE OF PUBLICATION

I hereby certify that this Ordinance or a summary hereof was published according to law on the ____ day of _____, 2025.

Brooke Smith
City Recorder

Wastewater Division

CVWRF Fee Adjustment

Why are we here?

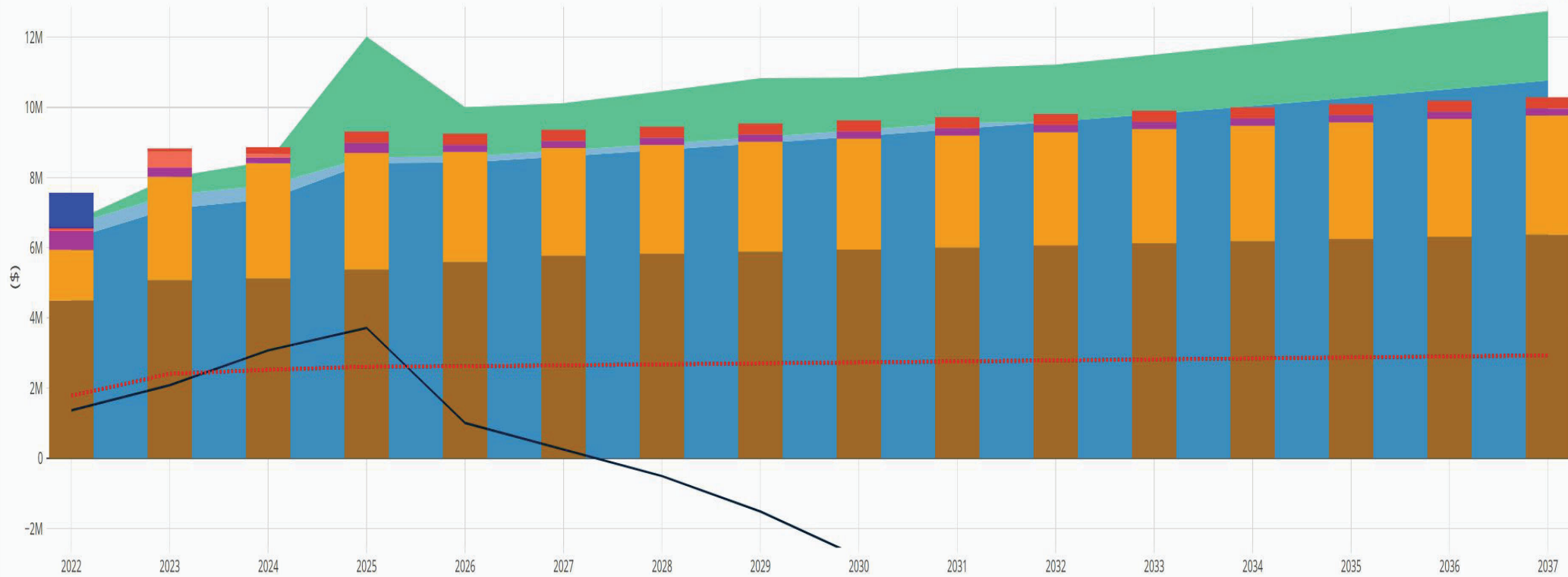
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- Central Valley Water Fee was implemented in FY2023 at \$12. Original cost estimate was \$250(M) actual estimated cost is \$400(M). This fee was intended to slowly decrease to keep the overall sewer rate stable with no major increase. This fee was implemented to help cover the costs to upgrade the plant to meet the new standards mandated by the Division of Water Quality.
 - If no changes are made CVWRF fee will be \$8 in FY2026.
 - November 2024 CVWRF issued one final bond for an additional \$87 Million to complete the plant upgrade projects.
 - Additional bond has placed an increased financial burden on the Wastewater fund.

LFM Dashboard

← Back Next →

Financial Model - Baseline - Fee increase as written

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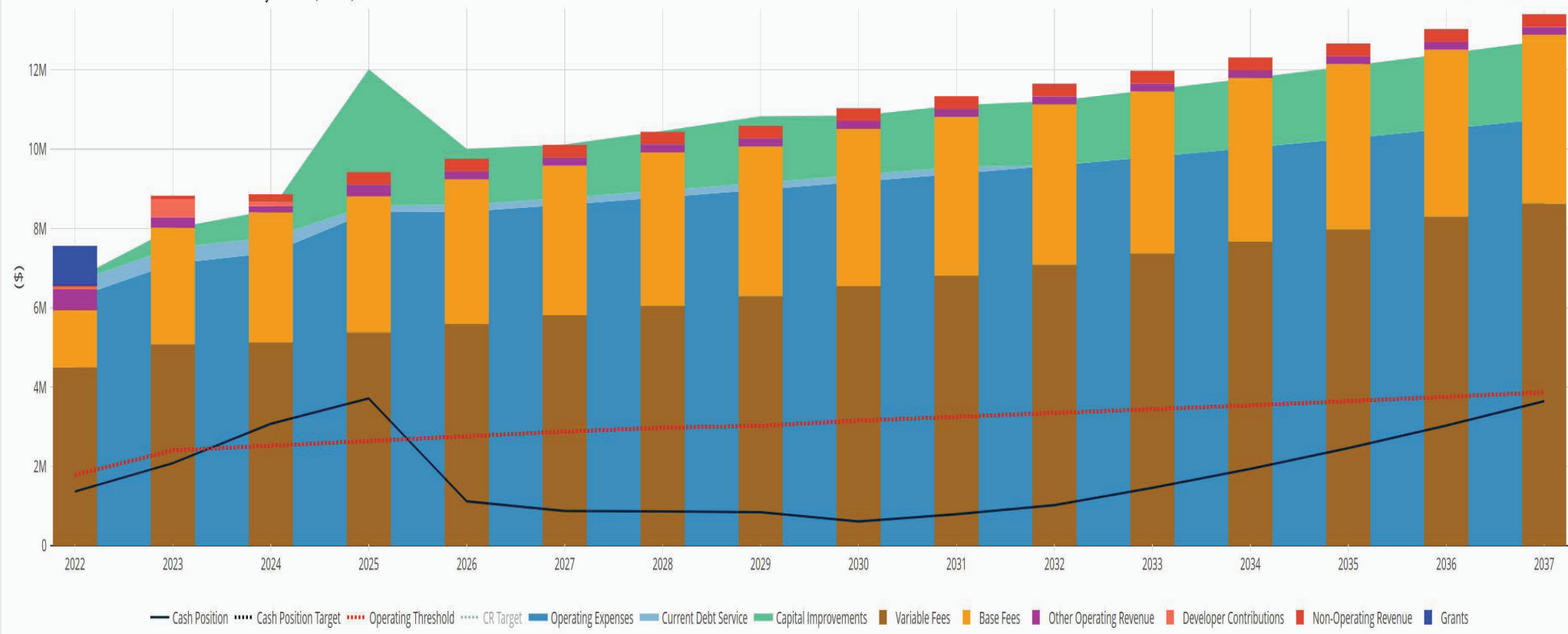


— Cash Position Cash Position Target Operating Threshold CR Target — Operating Expenses — Current Debt Service — Capital Improvements ■ Variable Fees ■ Base Fees ■ Other Operating Revenue ■ Developer Contributions ■ Non-Operating Revenue ■ Grants

LFM Dashboard

← Back Next →

Financial Model - Scenario 1: Fee Increase \$12 + Rate Adjustments (3% YoY)



Proposed Rate increase

-
- Proposing to increase the Central Valley Fee from the current \$11 back to \$12 permanently starting with the rate change in April 2025.
 - Proposing starting FY2026 to implement a 3% year over year increase to the flow rate that will be continuous each year. Total rate equals base rate, flow rate, plus CVWRF fee. This will raise the average sewer bill from approximately \$65 to \$70
 - 3% flow increase year over year. Discharge rate is based on winter water usage, so those who conserve water will pay less.
 - Small increase implemented now will stabilize the fund and potentially avoid any major rate increases in the future.
 - An update to the Wastewater Master Plan will be conducted in FY2026 which will provide additional information on future projects and if further adjustments to the Wastewater fee will be necessary.

Questions?



MURRAY
CITY COUNCIL

Public Hearing # 8



MURRAY

Community and Economic Development

10-8-1-2 Process & Surplus Consideration – 48 E 4800 S

Council Action Request

Council Meeting

Meeting Date: March 4, 2025

Department Director Chad Wilkinson Phone # 801-270-2427 Presenters Chad Wilkinson Elvon Farrell Required Time for Presentation 10 Minutes Is This Time Sensitive No Mayor's Approval  Date February 4, 2025	Purpose of Proposal Provide a brief overview of the 10-8-1-2 process and preliminary findings for the potential surplus of 48 East 4800 South. Action Requested Consideration of the surplus designation for 48 East 4800 South at the City Council meeting on March 4, 2025. Attachments None Budget Impact The surplus and disposal of the property may have financial implications based on the findings of the 10-8-1-2 analysis from ZPFI. Description of this Item Murray City is considering the designation of city-owned property at 48 East 4800 South as surplus and its potential conveyance to Rockworth Companies, LLC as part of a broader redevelopment effort. In compliance with Utah Code §10-8-1-2, the City has engaged Zions Bank Public Finance, Inc. (ZPFI) to analyze the net benefit of this transaction. This presentation will provide an overview of the statutory requirements for surplus property disposal, the purpose of the third-party analysis, and preliminary findings received to date. While no decision is being made at this meeting, this discussion will ensure that City Council remains informed ahead of the formal surplus consideration on March 4, 2025.
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Murray City Corporation

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that on the 4th day of March 2025, at the hour of 6:30 p.m. in the Council Chambers of the Murray City Hall, 10 East 4800 South, Murray, Utah, the Murray City Municipal Council will hold and conduct a hearing pertaining to considering:

(a) designating as surplus, property owned by Murray City located at 48 East 4800 South, Murray City, Salt Lake County, State of Utah ("Property"), containing approximately 0.75 acres; and

(b) the grant and conveyance of the Property to Rockworth Companies, LLC in furtherance of the development of the property.

The purpose of this hearing is to receive public comment concerning the proposed designation of the Property as surplus and concerning the grant and conveyance of the Property for below-market value as required by Section 10-8-2 of the Utah Code.

A study has been prepared by Zions Bank Public Finance, Inc., reflecting the net benefit received by Murray City for the grant and conveyance of the Property. A copy of this study is available for public inspection at the Murray City Hall located at 10 East 4800 South, Murray, Utah, in the Recorder's Office, Room 155 and in the Community and Economic Development Department Office, Room 260, during normal business hours.

This notice is being given in satisfaction of requirements of Section 10-8-2 of the Utah Code.

DATED this 11th day of February 2025.



MURRAY CITY CORPORATION

A handwritten signature in black ink, appearing to read "Brooke Smith", written over a horizontal line.

Brooke Smith
City Recorder

RESOLUTION NO. 25-__

A RESOLUTION DECLARING THE PROPERTY LOCATED AT APPROXIMATELY 48 EAST 4800 SOUTH, MURRAY CITY, SALT LAKE COUNTY, STATE OF UTAH, AS SURPLUS; AND APPROVING THE CONTRIBUTION AND CONVEYANCE OF SAID PROPERTY FOR LESS THAN APPRAISED VALUE BASED ON FINDINGS PURSUANT TO SECTION 10-8-2 OF THE UTAH CODE.

WHEREAS, Murray City owns a .75 acre parcel of real property located at approximately 48 East 4800 South, Murray City, Salt Lake County, State of Utah (the "Property") that is part of the 3.15 acres of real property commonly referred to as "Block One"; and

WHEREAS, the Property is being used as a temporary surface parking lot for City employees until the Property is redeveloped as part of the overall redevelopment project of a majority of Block One; and

WHEREAS, Rockworth Companies, LLC ("Developer") was selected to acquire and redevelop Block One, and the City and Developer acknowledge and agree that in order to make the redevelopment of Block One successful and economically viable, the City needs to contribute the Property to the Developer; and

WHEREAS, with the City's long-term plans to redevelop Block One, and with additional employee parking provided at City Hall, the surface parking lot Property was always intended to be temporary in anticipation of the Block One redevelopment, and thus the Property is surplus to the needs of the City; and

WHEREAS, the City wants to contribute and convey the Property with the intent of assisting in the redevelopment of Block One; and

WHEREAS, based on a "units per acre" valuation appraisal of the Block One properties obtained by the City, and considering the reduction in the maximum density allowed by the City to a density of 50 units per acre, the value of the Property is approximately, \$1,197,343; and

WHEREAS, under Section 10-8-2 of the Utah Code an appropriation of public resources must be supported by adequate consideration; and

WHEREAS, since the City will not be receiving the appraised value of the Property, it must comply with Section 10-8-2 of the Utah Code to ensure the net value received for the contribution of the Property is adequate consideration; and

WHEREAS, according to Section 10-8-2 of the Utah Code, the Murray City Municipal Council (the “Council”) must determine the net value received for any resources appropriated and establish the criteria for the determination; and

WHEREAS, prior to the notice of a public hearing to discuss the appropriation of public resources, a study shall be performed setting forth analysis and demonstrating the purpose for the appropriation and considering (a) what identified benefit the City will receive in return for any resources appropriated; (b) the City’s purpose for the appropriation, including an analysis of the way the appropriation will be used to enhance the safety, health, prosperity, moral well-being, peace, order, comfort, or convenience of the inhabitants of the City; (c) whether the appropriation is necessary and appropriate to accomplish the reasonable goals and objectives of the City in the area of economic development, job creation, affordable housing, blight elimination, job preservation, and any other public purpose; and

WHEREAS, a study was performed pursuant to Section 10-8-2 of the Utah Code by Zions Public Finance, Inc., (the “Study”) to determine the estimated net value to be received by the City for the contribution of the Property; and

WHEREAS, the Study was available for public inspection at least 14 days before the public hearing; and

WHEREAS, pursuant to Section 10-8-2 of the Utah Code, a public hearing was held on March 4, 2025, before the Council to consider the contribution and conveyance of the Property for less than the appraised value; and

WHEREAS, after receiving public input, reviewing the Study and considering other factors, the Council wants to make a determination regarding the contribution and conveyance of the Property for less than appraised value.

NOW, THEREFORE, be it resolved by the Murray City Municipal Council as follows:

1. That the property located at approximately 48 East 4800 South, Murray, Salt Lake County, Utah, and more particularly described in Exhibit A, attached hereto, be and the same is hereby declared as surplus.

2. The Study prepared by Zions Public Finance, Inc. is accepted in its entirety and incorporated as part of the record.

3. The Council finds that the following are legitimate public purposes the City wants to accomplish by redeveloping Block One including the Property:

- a. Facilitate the development and redevelopment of downtown Murray City.

- b. Reduce or eliminate blight, allow for mixed-use development containing commercial residential, retail, civic, and office uses, provide parking infrastructure to serve planned development.
- c. Allow for the assemblage of large lots, rather than small, piecemeal development; provide funds for a parking structure.
- d. Encourage development of vacant and underutilized parcels.
- e. Provide funds for mixed-use development to encourage a higher volume of extended-hour human activity, resulting in safer neighborhoods and communities.
- f. Increase the connectivity, walkability and access within and to the area.
- f. Create an attractive urban environment with diverse and complementary uses and promote the development of viable commercial, employment and activity centers to serve the community.

4. The Council finds that there is net value received for the contribution of the City Property for less than appraised value including the following:

- a. Increase real property tax revenues from new taxable assessed value of over \$44,000,000.00.
- b. Positive impact to the City's economy of approximately over \$2,000,000.00 per year in overall retail sales.
- c. Increase in housing stock of 150 units.
- d. Construction of 460 parking stalls at Block One.
- e. Constructed density below the zone maximum, consistent with community requests and sentiment.
- f. Enhanced vibrancy in Murray's downtown area with an activated Block One town center.

5. Based on its findings, the Council approves the contribution and conveyance of the Property for less than appraised value and determines that the requirements of Section 10-8-2 of the Utah Code have been met.

6. That the Council finds it to be in the City's best interest and in the best interest of the community to grant and convey the Property to the Developer in exchange for the Developer's covenants and commitments to improve the Property in the manner and by the times described in a development agreement.

7. The Mayor is hereby authorized to execute any and all documents necessary to effectuate this Resolution and to contribute and convey the Property to the Developer.

DATED this day of , 2025.

MURRAY CITY MUNICIPAL COUNCIL

Pam Cotter, Chair

ATTEST:

Brooke Smith
City Recorder

EXHIBIT A

LEGAL DESCRIPTION

(To Come)



Town Center Public Benefits Analysis



MURRAY

Murray City

February 2025



ZIONS PUBLIC FINANCE, INC.

Summary

Zions Public Finance, Inc. (ZPFI) has prepared a formal analysis (Study, Public Benefits Analysis) of the benefits received by Murray City (Murray, the City) in consideration for granting land (City Property) at approximately State Street and 4800 South to Rockworth Companies (Rockworth, the Developer), to facilitate construction of a new Murray town center. The development partner, Rockworth Companies, has proposed a mixed-use development with 150 housing units, 44,300 sq. ft. of commercial real estate, and 460 parking stalls of which 32 stalls would be provided directly for the use of the public. Given that much of the existing land uses consist of surface parking, this project will provide positive economic and fiscal impacts to Murray's town core, while also adding vibrancy to the area. Under Utah law, a formal analysis of the benefits received by the City in exchange for the benefit provided to the Developer is required. This is frequently called a "10-8-2 Analysis." Based on the following analysis ZPFI believes a below-market land grant to the Developer is an appropriate use of City resources.

Legal Framework

Municipalities may appropriate funds and resources for "corporate purposes only." Utah Code § 10-8-1-2(1)(a)(i). A corporate purpose is one that, "in the judgment of the municipal legislative body, provides for the safety, health, prosperity, moral well-being, peace, order, comfort, or convenience of the inhabitants of the city." Utah Code § 10-8-2(3).

Generally, the municipal legislative body establishes the criteria for a determination of corporate purpose. Utah Code § 10-8-2(3)(b)(i). But the value received is "measured on a project-by-project basis over the life of the project" and legislative body "may consider intangible benefits received by the municipality in determining net value received." Utah Code § 10-8-2(3)(a), (c). Notably, the determination of value received "shall be presumed valid unless it can be shown that the determination was arbitrary, capricious, or illegal." Utah Code § 10-8-2(3)(b)(ii).

Before the legislative body makes any decision to appropriate any funds or non-monetary assistance for a corporate purpose, the legislative body must hold a public hearing. If the entity receiving the benefit is a for-profit entity, then a Study that demonstrates the purpose for the appropriation must be undertaken and posted for review by the public at least 14 days before the public hearing. Utah Code § 10-8-1-2(3)(e). The following factors are to be considered in the Study:

- I. What identified benefit the municipality will receive in return for any money or resource appropriated;
- II. The municipality's purpose for the appropriation, including an analysis of the way the appropriation will be used to enhance the safety, health, prosperity, moral well-being, peace, order, comfort, convenience of the inhabitants of the municipality Utah Code § 10-8-2(3).; and
- III. Whether the appropriation is necessary and appropriate to accomplish the reasonable goals and objectives of the municipality in the area of economic development, job creation, affordable housing, blight elimination, job preservation, the preservation of historic structures and property, and any other public purpose. Utah Code § 10-8-2(3)(e)(i)-(iii).

This Study examines each of these factors below.

The resource that the City will appropriate is land at approximately State Street and 4800 South. This is a City-owned asset and this portion of the site to be granted has historically been used as surface parking. Precisely, this parcel is a part of Lot 2, Murray City Hall Subdivision, according to the Official Plat thereof recorded as Entry No. 14195458 in Book 2024P at Page 008 in the Office of the Salt Lake County Recorder amounting to 0.76 acres. Please see the full legal description of the parcel in the Appendix: Legal Asset Description section at the end of this document. The City recently conducted a land appraisal on the site that gave a dollar per square foot value based on the number of units per acre that can be built on the site. Based on the per unit value determined in the appraisal and the acreage of this parcel, this portion of the site has an indicated market value of \$1,211,000.

[illegible]

Terms of the Land Grant

Zions Public Finance, Inc. | February 2025

Analysis

After careful consideration of the required legal factors, entering into a below-market land grant for the City Property is a valid corporate purpose as ZPFI finds that the below-market grant, “provides for the safety, health, prosperity, moral well-being, peace, order, comfort or convenience of the inhabitants of the municipality.” Utah Code § 10-8-2(3).

Measured on a project-by-project basis, the useful life of the new assets will be constructed to stand at least 30 years and likely longer. Under a minimum 30-year timeframe of the project life, the present value of new tax revenues alone to the City is at least \$1,626,106 which establishes a minimum net benefit of \$428,763. However, this narrow lens does not encapsulate the entire benefit. Through a wider lens encompassed in Utah Code the City will appropriate \$1,211,000 of land value to unlock an estimated \$44,458,952 of new assessed value, an estimated \$2,175,844 in new gross taxable sales, the tax revenues mentioned above, and further positive non-monetary benefits that will be discussed below. Further, this City-owned parcel is a key component of the overall project vision and is therefore critical to unlocking the tangible and intangible project as a whole. By conducting this below-market grant, the City will allow for the construction of underground structured parking, new housing stock in the City’s core, an addition of long-term population that will visit new commercial offerings, and connectivity throughout the site that will be open to the public.

Upon review, the development of the City Property will bring multiple positive net public benefits to the City and are listed as follows:

- I. **Positive direct economic impact to the Murray City economy of approximately \$2,175,844 per year.** Due to new, improved, retail square footage in the Murray town core, ZPFI estimates that these improved uses will add the below new sales as indicated in Exhibit 2.

Exhibit 2: Direct Economic Impact

Direct Economic Impact			
Land Use	Net Improved Sq. Ft.	Average Annual Sales per Sq. Ft.	Total Annual New Sales
Retail	24,300	\$89.54	\$2,175,844

Source: ZPFI, Rockworth Companies as of February 2025.

- II. **Positive direct fiscal Impact to the City of approximately \$105,781 per year and positive direct fiscal impact to all taxing entities of approximately \$526,575 per year.** The development will add revenue for the City on an annual basis through new taxable sales as indicated above and new taxable assessed value of approximately \$44,458,952.

Exhibit 3: Total Fiscal Impact at Year 1

Total Fiscal Impact at Year 1			
Sales Tax	Rate	New Sales Tax for City	New Sales Tax Total for All Entities
Local Option	1.00%	\$21,758	\$21,758
City or Town Option	0.20%	\$4,352	\$4,352
State Sales and Use	4.85%		\$105,528
County Option	0.25%		\$5,440
Mass Transit	0.30%		\$6,528
Additional Mass Transit	0.25%		\$5,440
County Option Transportation	0.25%		\$5,440
Transportation Infrastructure	0.25%		\$5,440
Botanical, Cultural, Zoo	0.10%		\$2,176
Total Sales Tax	7.45%	\$26,110	\$162,100

Property Tax	Projected Market Value Year 1	Projected Assessed Value Year 1	New Property Tax for City (General Operations & Library)	New Property Tax Total for All Entities
Residential Component	\$49,095,718	\$27,002,645	\$48,389	\$221,368
Retail Component	\$11,158,654	\$11,158,654	\$19,996	\$91,479
Office Component	\$6,297,653	\$6,297,653	\$11,285	\$51,628
Total Property Tax	\$66,552,025	\$44,458,952	\$79,670	\$364,474

	City	All Entities
Total Fiscal Impact	\$105,781	\$526,575

Source: ZPFI, Rockworth Companies as of February 2025.

- III. **Additional housing stock of 150 units ranging in size from 614 to 1,163 square feet per unit.** Units will be either studios, one-bedroom one-bathroom, or two-bedroom two-bathroom types, within Murray City's downtown core.
- IV. **460 parking stalls in total with 32 parking stalls for direct public use, facilitating the overall development vision.** While the existing site supports parking, these enhanced stalls will be constructed via a mix of surface and structured parking and will unlock the other project benefits

that are discussed above and below. The parking structure will allow for the construction of new housing units, vibrant commercial spaces, and open areas and walkways through the site.

- V. **Constructed density below the zone maximum, in line with community requests and sentiment, reducing visual impacts through limited heights and density.** The developer has agreed to build a project vision that recognizes community feedback for the site and underutilizes the zone maximum, thereby reducing their potential cashflow options in order to balance the non-monetary interests of City residents with along with the positive economic impacts cited above.
- VI. **Enhanced vibrancy in Murray's historic core with an activated Town Center.** In addition to many of the tangible direct impacts cited above, the development will also serve to activate the Town Center area, drawing residents and visitors from other areas of the City to restaurants and retail experiences in the Town Center. This creates secondary benefits to other businesses within Murray's downtown through expanded visibility and foot traffic.

Next, as specified above, the purpose of the City's appropriation is to facilitate development of a new Town Center in Murray's historic core, which is consistent with [Murray City's General Plan Initiative #1: City Center District](#) (page 36). ZPFI finds that this development will provide housing, parking, and commercial assets that will enhance the well-being of Murray City residents through opportunities for more housing amenities, parking amenities near business, and additional business opportunities. The development will also add to the prosperity of the City through positive fiscal impacts that the City Council can allocate as part of its annual budget process. Additionally, convenience will be added for residents and visitors to Murray as additional restaurant and retail options will be available in downtown Murray as compared to today.

Finally, because the developer is agreeing to construct density lesser than what the zone or market conditions would otherwise support, ZPFI finds that this appropriation from the City is necessary to accomplish the reasonable goal of developing the site for the purposes of economic development, job creation, blight elimination, and the other public purposes cited above.

Conclusion

In conclusion, the proposed development of Murray's new town center by Rockworth Companies presents an appropriate case for a below-market land grant. The project aligns with requirements outlined in Utah Code § 10-8-2 and also aligns with Murray's General Plan goal of a vibrant City Center District. The City's below-market land grant is a critical step toward unlocking the project as it will allow for the construction of underground structured parking, new housing stock in the City's core, an additional mixed-use commercial space and open areas. Were this parcel not included in the project area, elements of the vision would be diminished or lost, thereby correspondingly reducing public benefits. By transforming a surface parking area into a vibrant mixed-use development, the City stands to gain substantial economic, fiscal, and intangible benefits, including new housing, commercial spaces, increased tax revenues, and increased vibrancy in Murray's historic core.

Additionally, the project promises to enhance the quality of life for Murray's residents by providing more housing options, improved parking facilities, and a reinvigorated town center that will attract visitors and boost local businesses. Rockworth Companies' commitment to constructing density below the zone maximum further demonstrates their consideration of community interests and visual impact concerns.

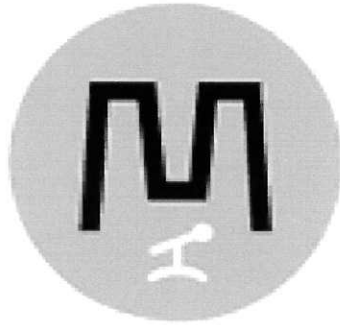
Overall, Zions Public Finance, Inc. finds that the below-market land grant to the Developer is an appropriate use of City resources, necessary to achieve the reasonable goals of economic development, job creation, and the other public purposes outlined in the analysis. The benefits to Murray City and its

residents justify this investment in the future of the town center.

Appendix: Legal Asset Description

A part of Lot 2, Murray City Hall Subdivision, according to the Official Plat thereof recorded as Entry No. 14195458 in Book 2024P at Page 008 in the Office of the Salt Lake County Recorder, located in the Northwest Quarter of Section 7, Township 2 South, Range 1 East, Salt Lake Base and Meridian, more particularly described as follows:

BEGINNING at a point on the easterly line of said Lot 2, located 507.82 feet North 88°07'26" East along the monument line of 4800 South Street and 33.00 feet South 01°52'34" East and 6.00 feet South 00°18'59" West from a Salt Lake County witness monument to the Northwest corner of said Section 7 (Note: Said witness monument is located South 07°16'26" West 314.32 feet from the Northwest corner of said Section 7), and running thence along said easterly line of Lot 2, South 00°18'59" West 264.40 feet; thence South 89°58'42" West 98.05 feet to a point of curvature with a 80.00 foot radius to the right; thence westerly 24.26 feet along the arc of said curve through a central angle of 17°22'22" (chord bears North 81°20'06" West 24.16 feet); thence North 72°38'55" West 16.14 feet to the westerly line of said Lot 2 and a point on a 360.50 foot radius non-tangent curve to the left; thence along said Lot 2 the following three (3) courses: 1) northerly 94.83 feet along the arc of said curve through a central angle of 15°04'20" (chord bears North 07°54'52" East 94.56 feet); thence 2) North 00°22'42" East 149.23 feet; thence 3) North 44°15'04" East 12.98 feet; thence North 88°07'26" East 115.80 feet to the POINT OF BEGINNING.



MURRAY
CITY COUNCIL

Mayor's Report And Questions



MURRAY
CITY COUNCIL

Adjournment