

**CITY OF MILTON-FREEWATER, OREGON
WATER MANAGEMENT AND CONSERVATION PLAN**

PROGRESS UPDATE



JANUARY 2026

PUBLIC WORKS DEPARTMENT

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The City is required to maintain an OWRD-approved Water Management and Conservation Plan (WMCP) that documents its water system, establishes conservation measures, and identifies benchmarks to track progress over time. The WMCP is updated every 10 years, with a required 5-year progress update submitted to OWRD that summarizes implementation of conservation actions, evaluates progress toward benchmarks, and documents any changes in water use, system conditions, or planned strategies. This document is the City's 5-year progress update for the WMCP approved in February 2021.

SECTION 1 – FIVE-YEAR BENCHMARKS

This section satisfies the requirements of OAR 690-086-0120

1.1 CONSERVATION BENCHMARKS

OAR 690-086-0120(4)(a)

OAR 690-086-120(4)(a-f)¹ requires all water suppliers to establish 5-year benchmarks for implementing the following water management and conservation measures:

- ◆ Annual Water Audit
- ◆ System-wide Metering
- ◆ Meter Testing and Maintenance
- ◆ Unit-based Billing
- ◆ Leak Detection and Repair
- ◆ Public Education

ANNUAL WATER AUDIT

The City conducts an annual water audit. The current system uses a simple spreadsheet analysis. The City is migrating to the American Water Works Association (AWWA) Water Audit Software starting in 2026.

Five-Year Benchmarks: The City will continue to conduct annual water audits and summarize the results. In the next five years, the City will work to refine and improve its estimation of non-metered uses, including hydrant flushing, firefighting, street flushing, and others.

SYSTEM-WIDE METERING

The City is completely metered. In 2025, the City completed its migration to a new AMI system that uses cellular-based meter-reading equipment. Citizens can now monitor their water usage and detect leaks using a smartphone app.

Five-Year Benchmarks: The City will continue to require the installation of meters at all new connections.

METER TESTING AND MAINTENANCE

The City of Milton-Freewater created a meter testing and maintenance plan in August of 2023.

Five-Year Benchmarks: The City will continue to monitor its meters for irregular readings and repair/replace meters as necessary. The City will develop a written meter testing and maintenance program within five years.

¹ OAR 690-086 are the Oregon Administrative Rules for Water Management and Conservation Plans, which are required for Municipal Water Suppliers.

UNIT-BASED BILLING

The City has a monthly base rate based upon meter size and a consumption charge based on the quantity of water metered at the service connection (after 5,000 gallons).

Five-Year Benchmarks: The City will complete a rate study in the next five years to determine costs for each customer category. This will ensure each customer category is paying its fair share of system demand. The City will continue to bill customers based on the volume of water consumed, with pricing structures set to encourage conservation, especially during peak months.

LEAK DETECTION AND REPAIR

The City's leak detection and repair program includes detecting leaks in the City water system (on the City's side of meters) through above-ground inspections by City staff. In addition, reports by citizens are investigated.

Two-Year Benchmarks: The City will conduct a leak detection study within two years to identify potential factors for the loss and select actions to reduce system leakage below 10% within a five-year period.

Five-Year Benchmarks: The City will continue to conduct above-ground visual inspections for leaks and respond to reported leaks. The City will also continue to use the AMI meter system to identify continuous usage on the customer side of the meter and notify landowners to investigate for leaks. The City will conduct a leak detection study within two years to identify potential factors for the loss and select actions to reduce system leakage below 10%. If the system leakage does not reduce to below 10% within 5 years, the City will develop and implement a water loss control program consistent with AWWA standards.

PUBLIC EDUCATION

The City of Milton-Freewater currently has a public education program. Efforts have been made to educate water customers through pamphlets outlining simple methods to conserve water. These pamphlets are on the City's website and are displayed full-time at the Public Works Department, City Hall, and the Milton-Freewater Public Library.

Five-Year Benchmarks: In the next five years, the City will develop additional outreach materials, including information about the status of source water for the City, the City's treatment and distribution system, regional groundwater declines, and conservation opportunities.

Benchmark	Frequency	Comments
Annual Water Audit	Annual	Improve audit estimates for non-metered sources
System-wide metering	On-going	All new connections will be metered and replacement of malfunctioning meters as necessary.
Metering and Maintenance	Annual	The City will develop a written meter testing and maintenance program within five years.
Leak Detection and Repair	On-going	The City will conduct a leak detection study within in five years.
Rate Structure Based on Use	On-going	The City will conduct a rate study within five years.
Outreach	On-going	City will continue to develop outreach materials for the water system.

Exhibit 1.1 – Summary of conservation benchmarks for the City of Milton-Freewater.

Benchmark	Status / Action	Implementation Date	Anticipated Completion Date	Frequency
Measurement & Reporting	Compliant	N/A	N/A	Annual
Annual Water Audit	Compliant - Updating	N/A	N/A	Annual
Meter Testing & Maintenance Program				
Service & Calibrate Meters	10-Year Plan	Ongoing	Ongoing	10 Years
Meter Replacement Program	5-Year Plan	~2025	~2030	~20 Years
Leak Detection & Repair (Smart Meters)	Continuous	2010 & 2025	Ongoing	Ongoing
Rate Structure Based On Use	Compliant - Updating	N/A	N/A	Ongoing
Public Education Program				
Utility Pamphlets	Annual Plan	Ongoing	Ongoing	Annual
Newsletters	Annual	Ongoing	Ongoing	Annual
City Website	Continuous	N/A	Ongoing	Ongoing
High Consumption Monitoring	Continuous	2002	Ongoing	Ongoing

Exhibit 1.2 - A summary of the City of Milton-Freewater's Status / Action on the required Conservation Benchmarks.

1.2 PROGRESS ON BENCHMARKS

OAR 690-086-0120(4)(a)

Five-year benchmarks are identified in Section 1.1 for each category.

ANNUAL WATER AUDIT

The City continues to conduct annual water audits, and the results are summarized in Section 2.2 below. The City is currently implementing the AWWA Water Audit Software for its 2026 annual water audit. This will include additional data collection by the water department to improve documentation on unmetered water uses within the system.

SYSTEM-WIDE METERING

The City is meeting this five-year benchmark by consistently requiring the installation of water meters for all new service connections. This policy is embedded in current development standards and utility practices, ensuring that any new connection is metered at the time of installation. As a result, the City continues to expand its metered system, supporting accurate accounting, conservation, and long-term water management goals.

METER TESTING AND MAINTENANCE

The City is meeting this benchmark by actively monitoring water meters for irregular or abnormal readings and by addressing identified issues through repairs or replacements as needed. City staff can view near-real-time water meter data via the Beacon cloud-based software, which tracks water use. In addition, water utility customers can monitor their water usage through the “Eye on Water” mobile app. Utility staff use meter data and customer reports to flag potential problems and take corrective action promptly. In addition, the City has completed a written meter testing and maintenance plan. Work on implementing the meter testing will start in 2026.

UNIT-BASED BILLING

The City is meeting this benchmark by continuing to bill customers based on the volume of water consumed, ensuring rates reflect actual use and promote efficient water management. In addition, the City is in the process of hiring a consulting firm to complete a comprehensive rate study. This study should be completed by the end of 2026.

LEAK DETECTION AND REPAIR

The City met the two-year benchmark by completing a system-wide leak detection study in spring 2022 to identify potential sources of water loss. Building on that effort, the City purchased dedicated leak detection equipment in spring 2024 to support ongoing monitoring and timely response. These actions position the City to implement targeted repairs and reduce system leakage.

Although the City has not yet reached the five-year system leakage goal of less than 10 percent, notable progress has been made, with leakage decreasing from 26.6 percent to 21.4 percent between 2020 and 2025. In response, the City will create and implement a formal water loss control program aligned with the AWWA M36 Water Audits and Loss Control Programs standard. This program will include annual AWWA software-based water audits (the City has already been performing these audits but will now switch to the AWWA Water Audit Software), enhance data accuracy for production and customer metering, and clearly differentiate between real and apparent losses to better target corrective measures. The City will also formalize proactive leak detection, prioritize pipe repair or replacement, continue above-ground inspections and rapid responses to reported leaks, and use the AMI system to identify ongoing customer-side usage and notify property owners. Collectively, these steps will establish a structured, industry-recognized framework to further reduce water loss and advance the system toward the long-term goal of achieving leakage below 10 percent.

PUBLIC EDUCATION

The City is meeting this five-year benchmark by planning and developing expanded public outreach materials focused on water supply and conservation. These materials provide clear information on the status of the City’s distribution systems, regional groundwater declines, and practical conservation opportunities for customers. By improving transparency and public

understanding, the City aims to encourage informed water use and long-term stewardship of local water resources.

The City is meeting this five-year benchmark by developing expanded public outreach materials focused on water supply and conservation, in partnership with local non-profit organizations. These collaborations help convey information on the status of the City's source water and distribution systems, regional groundwater declines, and available conservation opportunities to a broader audience. By leveraging trusted community partners, the City is improving public awareness and encouraging informed, long-term stewardship of local water resources.

SECTION 2 – WATER USE DATA AND ANALYSIS

This section satisfies the requirements of OAR 690-086-0120(4)(b)

2.1 WATER USE DATA

OAR 690-086-0120(4)(b)

TERMINOLOGY

Annual System Demand: Quantity of water produced by all water sources for municipal uses. This includes metered consumption, unmetered authorized uses (hydrant flushing, street operations, firefighting, etc.), water lost due to pipe leakage and system overflows (start-up discharging, reservoir overflow, etc.). This is measured with production meters at each water source.

Average Day Demand (ADD): Equals the total annual system demand divided by 365 (or 366 days for a leap year).

Maximum Day Demand (MDD): Equals the highest system demand that occurs on any single day during a calendar year (i.e., the day of the year when the most water is used).

Maximum Month Demand (MMD): Equals the highest total monthly demand of the calendar year. Similar to MDD, but the highest use month in a given year.

Peaking Factor: The ratio of Maximum Daily Demand to the Average Day Demand (MDD:ADD).

Peak Months: Refers to the months of May through September when water use is typically higher.

Non-Peak Months: Refers to the months of October through April when water use is typically lower.

ANNUAL DEMANDS

Exhibit 2.1 summarizes historical demands and peaking factors for the City's water municipal system for 2015-2024.

Exhibit 2.2 shows historic annual water demand, in Million Gallons (MG), for the City's Water Service Area from 2002-2024. Over the last 20 years, the City has reduced its annual water demand from 900 MG in the early 2000s to around 600-750 MG during the previous nine years. Annual water demand has averaged 660 MG for the last decade.

Exhibit 2.3 shows average day demand (ADD) and maximum day demand (MDD), in MG, over the last five years. Similar to annual water demand, the average day has remained relatively stable over the previous nine years. Maximum day demands have shown greater fluctuations due to annual extreme weather events.

Exhibit 2.4 shows monthly demand (in MG) over the last 9 years, with peak demand highlighted in red. Peak month demands range from ~40 MG to ~125 MG, and non-peak month demands range from about 25 MG to 55 MG. Non-peak-month demand has been stable over the last nine years, while peak-month demand has varied with annual temperature and precipitation.

Exhibit 2.1 - Water Service Area Historical Water Demand Data for 2015-2024, including Annual Demand, Average Day Demand, Maximum Day Demand, Maximum Month Demand, and Peaking Factor (Average Day Demand:Maximum Day Demand).

Year	Annual Demand (MG)	Average Day Demand (MGD)	Maximum Day Demand (MGD)	Maximum Month Demand (MGD)	Maximum Month Demand (MG)	Peaking Factor (MDD:ADD)
2015	648.6	1.78	3.70 (08/05/2015)	3.38	104.8	2.1
2016	630.2	1.72	3.80 (08/19/2016)	2.87	89.1	2.2
2017	648.3	1.78	4.69 (08/03/2017)	4.06	125.8	2.6
2018	618.5	1.69	3.44 (08/14/2018)	3.90	120.8	2.0
2019	600.8	1.65	3.21 (08/01/2019)	3.18	98.5	2.0
2020	687.5	1.88	4.76 (07/30/2020)	3.73	115.6	2.5
2021	746.4	2.04	4.97 (06/29/2021)	4.03	124.8	2.4
2022	641.3	1.76	4.29 (07/29/2022)	3.47	107.5	2.4
2023	679.9	1.86	4.47 (08/15/2023)	3.72	115.2	2.4
2024	703.3	1.93	4.40 (07/21/2024)	3.65	113.1	2.3
AVERAGE	660.5	1.8	4.2	3.6	111.5	2.3
HIGHEST	746.4	2.04	4.97	4.06	125.8	2.6

Exhibit 2.2 – City of Milton-Freewater Water Service Area Annual Demand in Million Gallons (MG), 2002-2024.

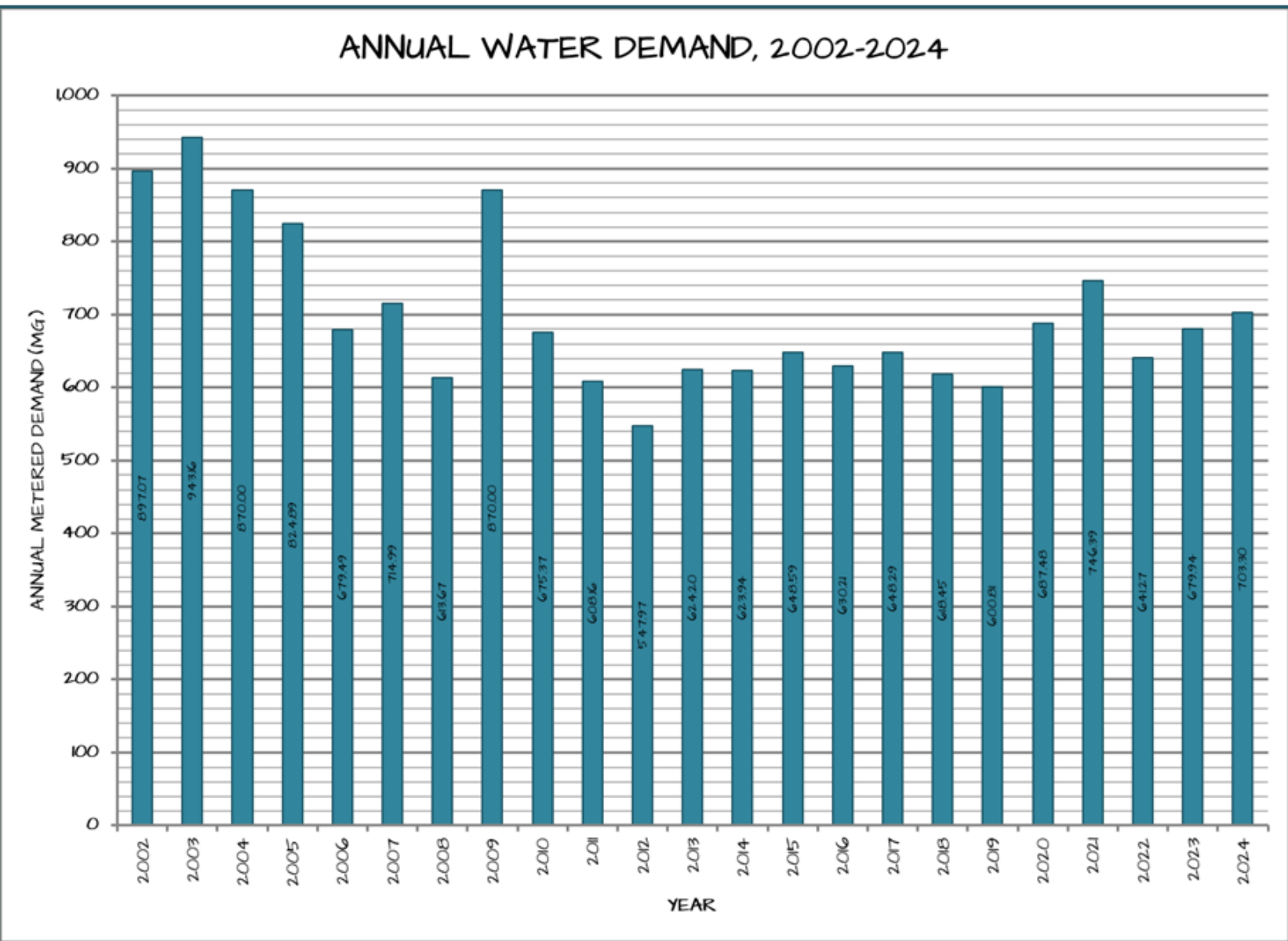


Exhibit 2.3 – Average day demand, in MGD, and maximum day demand, in MGD, for Milton-Freewater from 2015 to 2024.

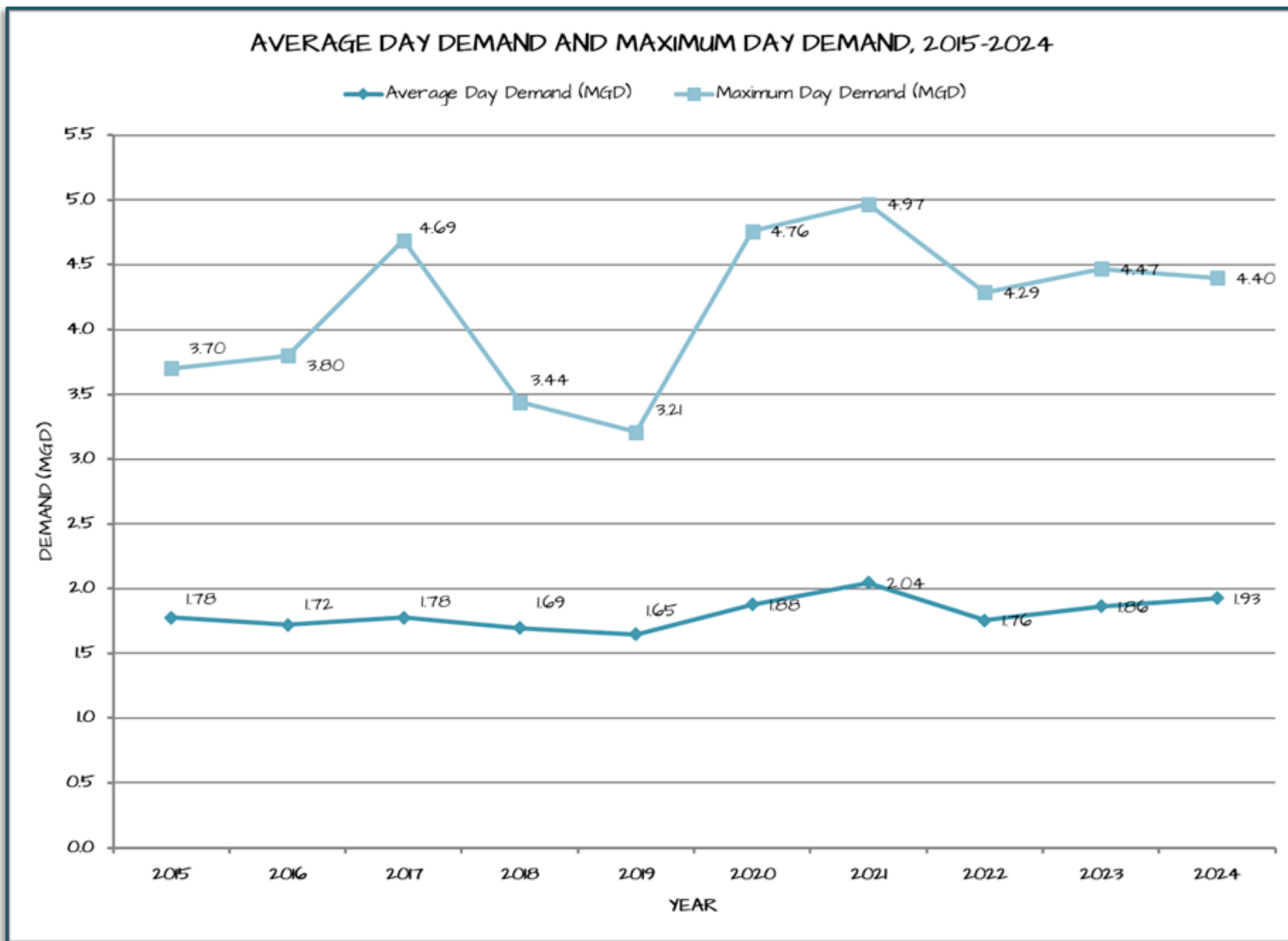
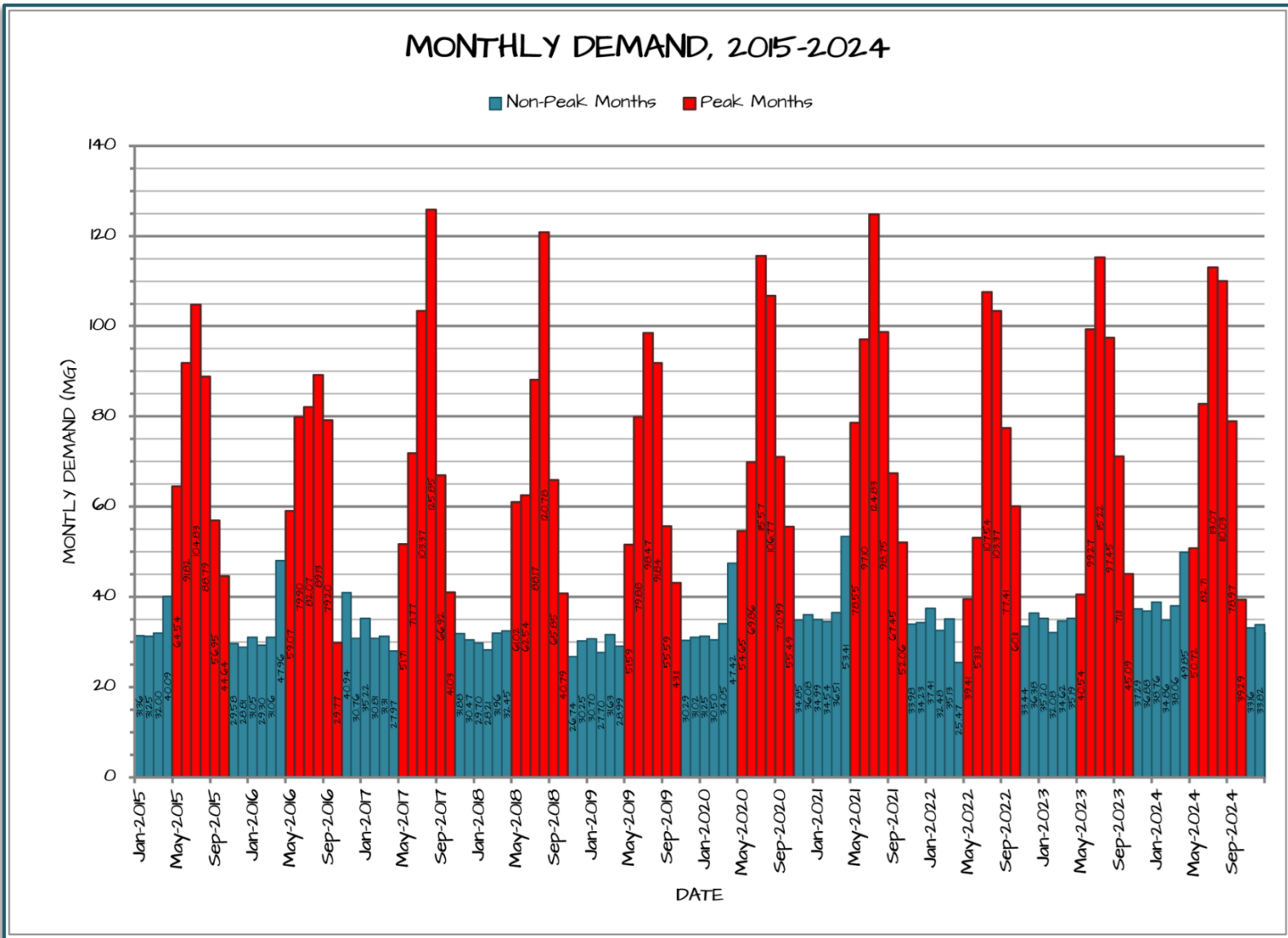


Exhibit 2.4 - Monthly demand (in MG), for the City of Milton-Freewater, 2015 to 2024. Non-peak months are November to April, and peak months are May to October.



Source	2019		2020		2021		2022		2023		2024	
	Average Monthly Diversion (MG/Month)	Average Daily Diversion (MGD)	Average Monthly Diversion (MG/Month)	Average Daily Diversion (MGD)	Average Monthly Diversion (MG/Month)	Average Daily Diversion (MGD)	Average Monthly Diversion (MG/Month)	Average Daily Diversion (MGD)	Average Monthly Diversion (MG/Month)	Average Daily Diversion (MGD)	Average Monthly Diversion (MG/Month)	Average Daily Diversion (MGD)
Well 1 Cert. 12070	9.74	0.32	10.07	0.33	5.46	0.18	6.68	0.22	0.62	0.02	10.36	0.34
Well 2 Cert. 15548	8.92	0.29	10.89	0.36	11.43	0.38	10.98	0.36	13.96	0.46	9.78	0.32
Well 3 Cert. 16998	12.80	0.42	14.57	0.48	15.85	0.52	2.02	0.07	16.16	0.53	16.40	0.54
Well 4 Cert. 23532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Well 5 Cert. 23533	12.07	0.40	15.01	0.49	15.10	0.50	21.00	0.69	13.28	0.44	13.16	0.43
Well 6 Cert. 23519	5.57	0.18	6.00	0.20	6.53	0.21	9.81	0.32	5.63	0.19	5.92	0.19
Well 8 Cert. 41011 Permit G13488	0.96	0.03	0.75	0.02	7.83	0.26	2.95	0.10	7.02	0.23	2.99	0.10
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Well 9 Permit G12582	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Key Well Cert. 15551	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dry Creek Well Cert. 28482	1	0	2	0	1	0	1	0	1	0	1	0
Seven Hills Well Cert. 28272	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sub Station Well Cert. 41022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Walla Walla River Cert. 12920	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Walla Walla River Cert. 3285	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Walla Walla River Cert. 12919	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Walla Walla River Cert. 82171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SF Walla Walla River Cert. 15559	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Exhibit 2.5 – Average monthly and daily diversions under each water right held by the City of Milton-Freewater for municipal uses from 2019-2024.

2.2 ANNUAL WATER AUDIT

OAR 690-086-0120(4)(c)

The City conducts an annual water audit that calculates system water loss as the difference between annual water produced (i.e., water pumped from wells) and total annual metered (i.e., billed water usage) and unmetered consumption (i.e., hydrant flushing, firefighting, sewer jetting, etc). The City estimates unmetered water consumption for a number of activities. In addition, there may be undocumented, unmetered uses by Milton-Freewater Rural Fire for firefighting. The remaining, unaccounted water is the system's annual water loss. System loss can be due to leaking water mains, compromised pipe joints, service connections, valves, or other system deterioration. Exhibit 2.5 shows annual water loss from 2002 to 2024. Annual water loss has ranged from 7.6% to 26.6% over the last 18 years. In the previous five years, the average water loss has been 24.3%.

	Gallons Produced	Gallons Sold	unmetered Use	Gallons Lost	Calculated Water Loss
2002	897,069,000	710,628,000	23,550,000	162,891,000	18.2%
2003	943,157,000	749,140,000	23,550,000	170,467,000	18.1%
2004	869,999,000	649,930,000	23,550,000	196,519,000	22.6%
2005	824,892,000	634,590,000	23,550,000	166,752,000	20.2%
2006	679,488,000	565,564,000	23,550,000	66,824,000	9.8%
2007	714,993,000	550,106,000	23,550,000	141,337,000	19.8%
2008	613,669,000	504,461,000	57,464,000	51,744,000	8.4%
2009	869,999,000	649,930,000	35,972,000	184,097,000	21.2%
2010	675,368,000	494,588,000	73,233,000	107,547,000	15.9%
2011	608,156,000	449,951,000	74,959,100	83,245,900	13.7%
2012	547,974,000	462,222,000	23,550,000	62,202,000	11.4%
2013	624,198,000	553,539,934	23,350,836	47,307,230	7.6%
2014	623,939,000	512,778,991	33,226,500	77,933,509	12.5%
2015	648,588,000	517,374,633	50,246,000	80,967,367	12.5%
2016	630,208,000	465,761,305	44,207,800	120,238,895	19.1%
2017	648,287,000	467,814,480	42,000,000	138,472,520	21.4%
2018	618,448,000	490,680,253	38,375,000	89,392,747	14.5%
2019	600,812,000	441,121,106	37,905,000	121,794,894	20.3%
2020	687,477,700	468,134,034	36,392,870	182,950,796	26.6%
2021	746,388,000	524,271,361	37,023,050	185,093,589	24.8%
2022	641,268,650	438,133,081	38,995,428	164,140,141	25.6%
2023	679,937,033	481,573,940	41,829,620	156,533,473	23.0%
2024	703,300,301	500,490,962	52,531,000	150,278,339	21.4%

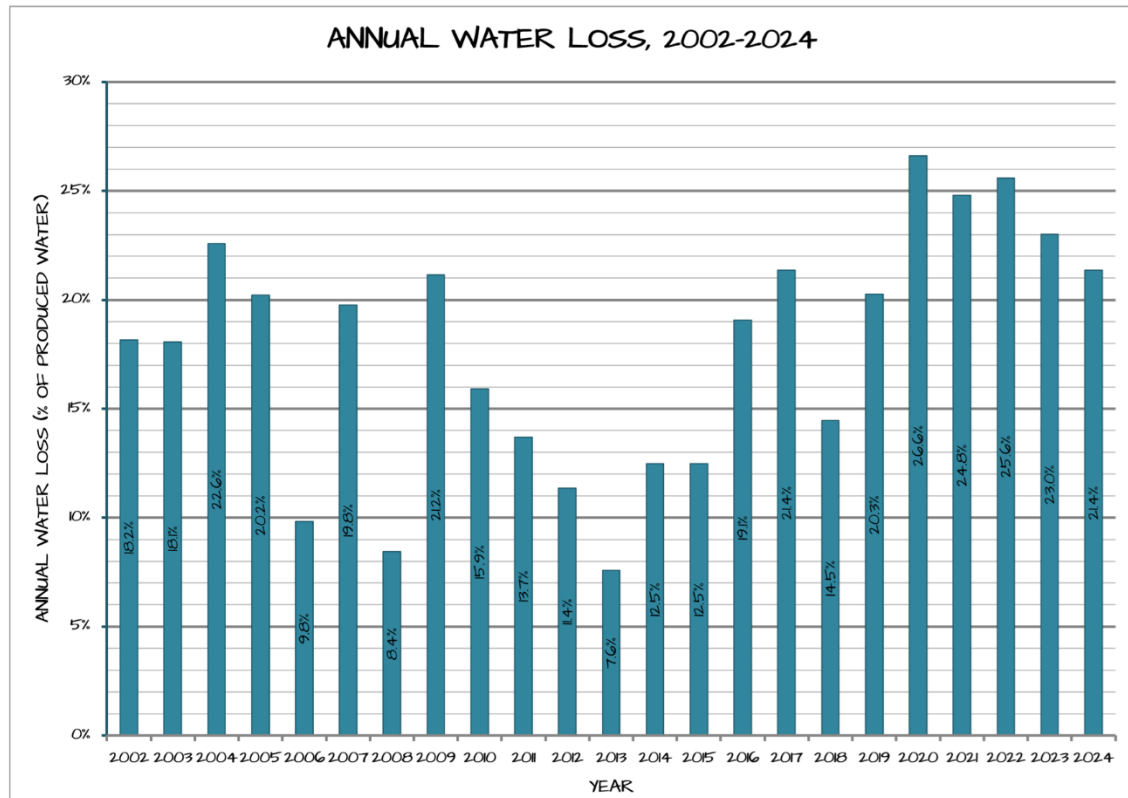


Exhibit 2.6 - Annual water loss for the City of Milton-Freewater's water system from 2002-2024. Annual loss values are a percentage of the total annual water produced from City wells. Unmetered uses include sewer jetting, hydrant flushing, system flushing, fire activities, bulk water sales, water main maintenance, street sweeping, and known leaks.

2.3 CUSTOMER CLASS ANALYSIS

OAR 690-086-0120(4)(d)

Year	Commercial	Industrial	Irrigation	Large Irrigation	Residential	Total
2016	712,69,530	56,481,830	-	670	338,009,275	465,761,305
2017	72,353,200	61,513,480	-	16,340	333,931,460	467,814,480
2018	77,025,628	59,631,019	-	2,150	354,021,456	490,680,253
2019	65,483,694	49,144,600	-	2,470	326,481,342	441,112,106
2020	63,241,191	48,860,420	-	1,080	356,031,343	468,134,034
2021	78,846,090	48,089,760	-	650	397,334,861	508,741,754
2022	55,176,763	61,090,089	-	780	321,865,449	438,133,081
2023	60,602,123	54,884,959	-	170	366,086,688	481,573,940
2024	61,668,128	59,744,903	-	55	379,077,876	500,490,962

Year	Commercial	Industrial	Irrigation	Large Irrigation	Residential	Total
2016	15.3%	12.1%	0.0%	0.0%	72.6%	465,761,305
2017	15.5%	13.1%	0.0%	0.0%	71.4%	467,814,480
2018	15.7%	12.2%	0.0%	0.0%	72.1%	490,680,253
2019	14.8%	11.1%	0.0%	0.0%	74.0%	441,112,106
2020	13.5%	10.4%	0.0%	0.0%	76.1%	468,134,034
2021	15.0%	9.2%	0.0%	0.0%	75.8%	508,741,754
2022	12.6%	13.9%	0.0%	0.0%	73.5%	438,133,081
2023	12.6%	11.4%	0.0%	0.0%	76.0%	481,573,940
2024	12.3%	11.9%	0.0%	0.0%	75.7%	500,490,962

Exhibit 2.7 – Comparison of quantities of gallons of water used and percent of total water production for each sector for 2016-2024.

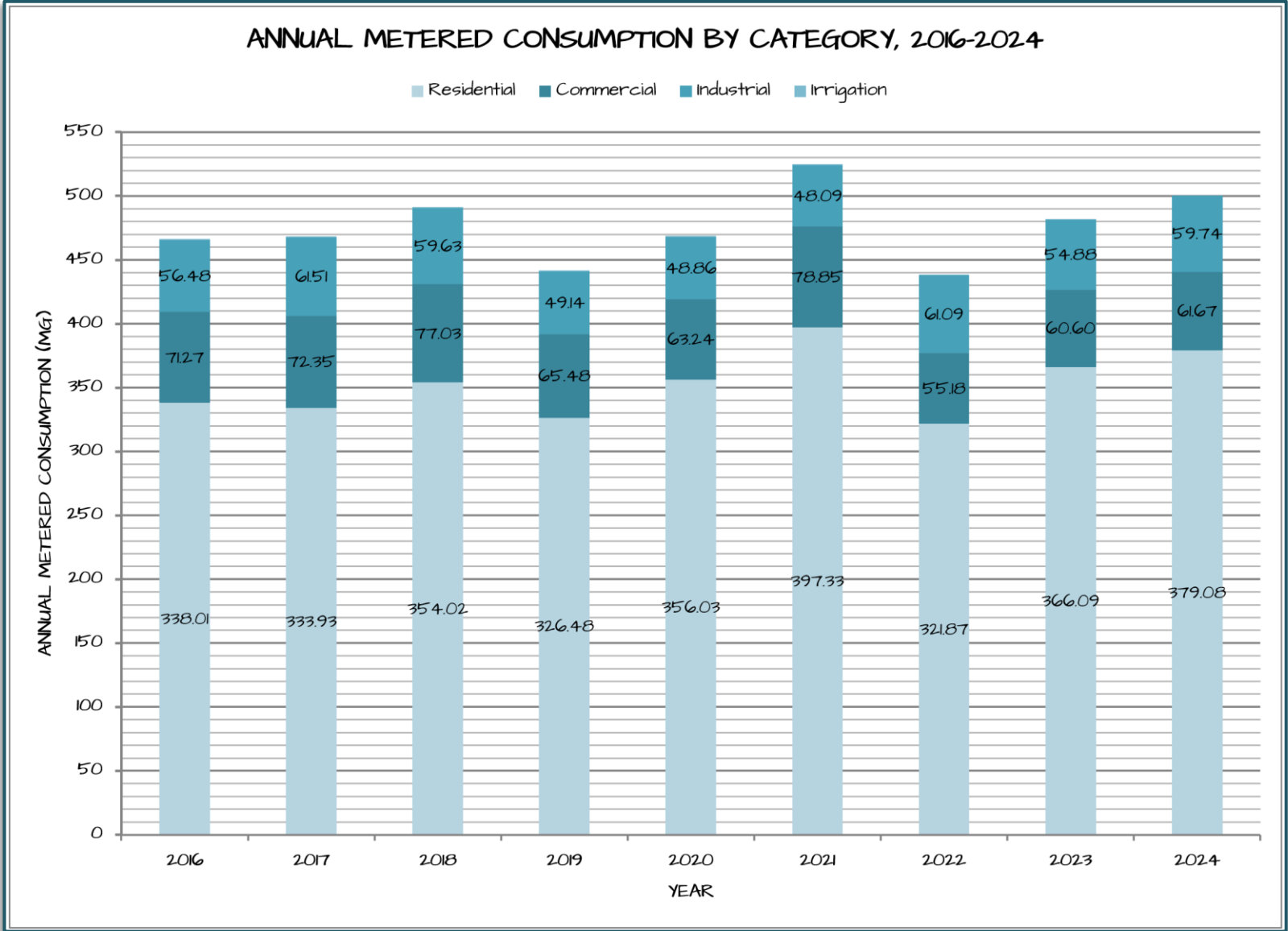
Service Category	Number of Accounts	Percent
Residential - Single Family	2029	83.0%
Residential - Multi-family	132	5.4%
Commercial	222	9.1%
Industrial	11	0.5%
Public/Government	41	1.7%
Irrigation	0	0.0%
Large Irrigation	0	0.0%
Motels/Assistant Living	9	0.4%
Total	2444	100.0%

Exhibit 2.8 - Number of City of Milton-Freewater water service connections by category, 2024.

Meter Size	Number of Services	Percent
5/8"	2024	80.4%
3/4"	117	4.6%
1"	255	10.1%
1 1/2"	55	2.2%
2"	40	1.6%
3"	9	0.4%
4"	11	0.4%
6"	6	0.2%
10"	1	0.04%
Total	2518	100.0%

Exhibit 2.9 - Number of City of Milton-Freewater water service connections by meter size, 2024.

Exhibit 2.10 – City of Milton-Freewater Annual Metered Consumption, in Million Gallons, by Category, 2016-2024. Government and other public uses are classified within the industrial category.



PERCENT ANNUAL METERED CONSUMPTION BY
CATEGORY, 2024

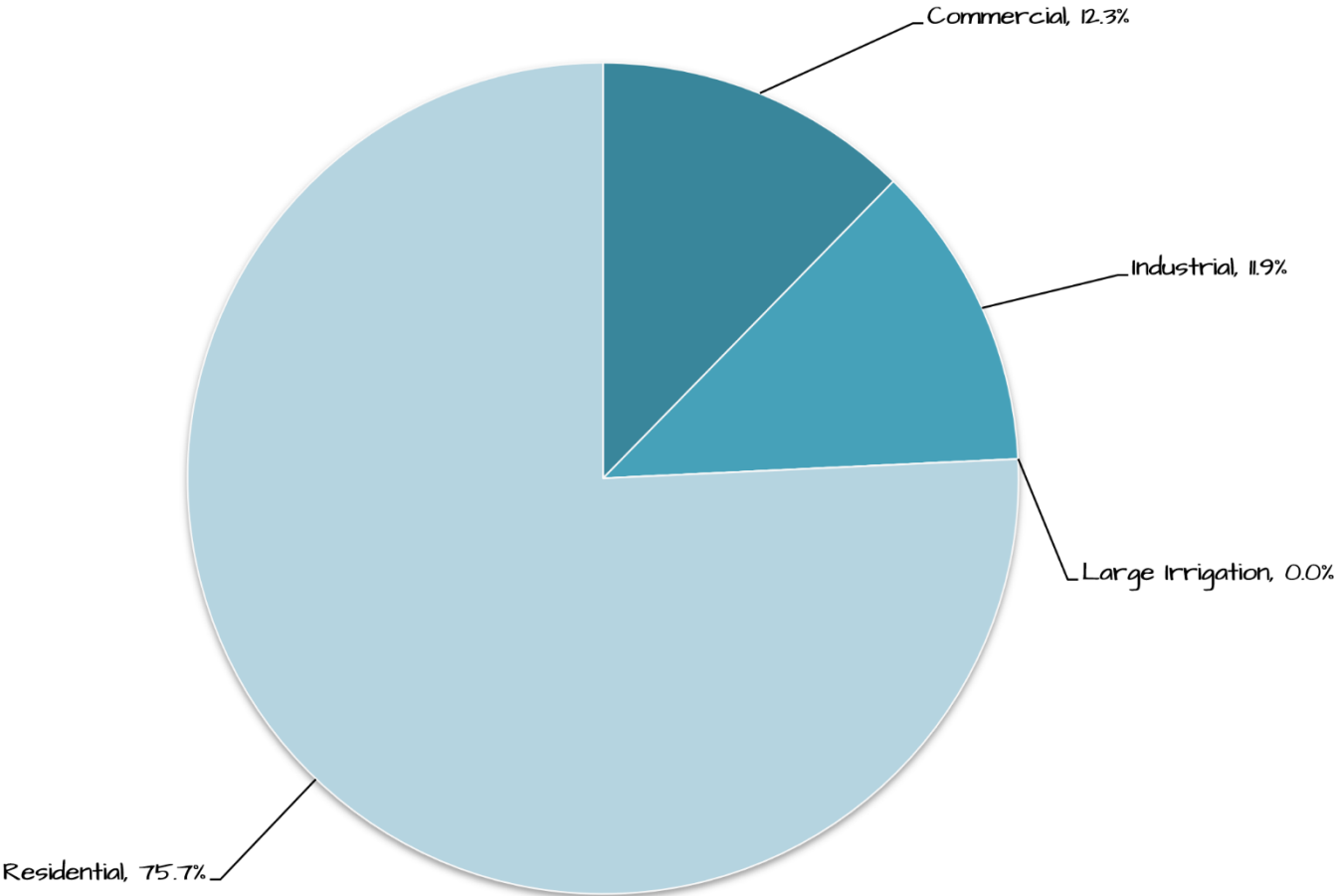


Exhibit 2.11 – City of Milton-Freewater annual metered consumption by category, 2024, in percentage of total produced water. Government and other public uses are classified within the industrial category.