### **Water Supply Service Area Plan**

Reedsburg Utilities
Sauk County, Wisconsin
November 2025

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# Water Supply Service Area Plan Reedsburg Utilities

#### **TABLE OF CONTENTS**

		<u>Page</u>
EXECUTI	IVE SUMMARY	i
CHAPTE	R 1 – EXISTING WATER SYSTEM	2
1.1	Existing Water System	
1.2	Water Distribution System	4
1.2.1	Water Main	4
1.2.2	Water Services	
1.3	Sources of Supply	6
1.3.1	Well #3 (WDNR Unique Well No. BG943)	6
1.3.2	Well #4 (WDNR Unique Well No. BG944)	6
1.3.3	Well #6 (WDNR Unique Well No. CB345)	7
1.3.4	Well #7 (WDNR Unique Well No. RZ083)	7
1.3.5	Well #8 (WDNR Unique Well No. WP561)	
1.4	Water Quality and Treatment	
1.5	Storage Facilities	8
1.5.1	Reservoirs	8
1.5.2	Booster Stations	10
CHAPTE	R 2 – POPULATION AND WATER USAGE	11
2.1	Population	11
2.2	Water Use	12
2.2.1	Withdrawal By Source	12
2.2.2	System Wide Water Use	13
2.2.3	Water Use By Retail Classification	15
2.2.4	Largest Water Users	16
2.3	Water Use Projections	17
2.3.1	Planning Period	17
2.3.2	Population Based Demand Projectoins	17
2.3.3	Customer Classification Based Demand Projections	17
CHAPTE	R 3 – WATER SERVICE PLAN	21
3.1	Current Service Area	21
3.2	Current System Capacity	22
3.3	Future Design Conditions	
3.4	Source Water Options	25

3.4.1	Surface Water Intake	25
3.4.2	Purchase Water From Nearby Municipality	25
3.4.3	Groundwater Wells	25
3.5	Plan Consistency	25
3.5.1	2022-2042 City of Reedsburg Comprehensive Plan	25
3.5.2		
3.6	Public Participation	27
3.7	Plan Review Process	
3.8	Geological and Environmental Considerations	27
3.8.1		
3.8.2		
CHAPTE	ER 4 – SUMMARY AND RECOMMENDATIONS	30
4.1	Summary	30
4.2	Recommendations	
	LIST OF TABLES	
T 11 4		
	1 Water Main Inventory (2024 PSC Annual Report)	
Table 1-	3 Utility-owned Meter Inventory (2024 PSC Annual Report)	5
	6 Water Service Inventory (2024 PSC Annual Report)	
	1 City of Reedsburg Historic and Projected Population	
	3 System Wide Water Demand (2015-2024)	
Table 2-	4 Metered Customers by Classification (2015-2024)	16
	5 Largest Water User (2015-2024)	
	6 Water Use Projection by Population (2025-2040) 7 Historical Water Use by Customer Classification (2020-2024)	
	8 Customer Classification Projections (2025-2040)	
Table 2-	9 Current and Future Water Demand Projections based on Customer Classific	cation
(20) Table 2-	25-2040) 10 Current and Future Water Demand Projections based on Customer Classificatio	19 n and
	uding Non-revenue Water (2025-2040)	
	1 Current Water Demand for City of Reedsburg	
Table 3-	2 Current and Future Design Conditions	24
	LIST OF FIGURES	
Ciaura 4		0
	-1A Reedsburg Utility Existing Water Facilities1B Reedsburg Utility Existing Water Mains	
	-2 Water Main by Material Type	
Figure 1	-3 Static Pressure Map	9
	-4 Fire Flow Outputs	
	-1 Historic and Future Population 1970-2040 -2 Average and Maximum Day Demand (2015 – 2024)	

Figure 2-3 Water Use by Month (2020 – 2024)	15
Figure 2-4 Sales of Water by Customer Classification	
Figure 3-1 City of Reedsburg Municipal Boundary.	21
Figure 3-2 Water System Schematic	21
Figure 3-3 Projected Firm Well Pumping Times	24
Figure 3-5 City of Reedsburg Future Development Plan	
Figure 3-6 Zone of Contributions of Sauk County Wells in 2005	
Figure 3-7 Map of Mississippi and Great Lakes Basin in Wisconsin	

#### LIST OF APPENDICES

APPENDIX A WATER SYSTEM SCHEMATIC APPENDIX B MAPS APPENDIX C TOP 10 USERS (2015 – 2024)

#### **EXECUTIVE SUMMARY**

The Reedsburg Utility provides potable water to approximately 4,121 residential, commercial, industrial, and public authority customers within the City of Reedsburg corporate boundaries in addition to four residents in the Town of Reedsburg. The City of Reedsburg is located in Sauk County, approximately 40 miles northwest of Madison. The Utility's water system includes approximately 356,283 feet of distribution main, five active groundwater wells (Wells #3, #4, #6, #7, #8), and 4 storage reservoirs with a total capacity of 1,700,000 gallons. The water system consists of two pressure zones, the primary (low) pressure zone and the high-pressure zone;19<sup>th</sup> Street constitutes the general east/west boundary between the zones. A Supervisory Control and Data Acquisition (SCADA) system is utilized to control the operation of the wells and to monitor system operation.

The WDNR requires a Water Supply Service Area Plan for public water systems serving populations of 10,000 or more and drawing water from the waters of the state, NR 854.04(1). The Utility meets this definition and has an estimated 2025 population of 10,595. The purpose of this plan is to illustrate compliance with Section 281.348 of the Wisconsin Statutes and Chapter NR 854 as follows:

- Identify Utility Service Area.
- Take inventory of existing sources of water supply.
- Identify both existing and future population within the service area.
- Estimate water demands forecasts over the study period.
  - 15-year study period, design year of 2040.
- Identify options for the alternate water supply.
- Demonstrate the plan effectively utilizes existing infrastructure.
- Identify procedures for implementing and enforcing the plan.
- Illustrate the plan supports and is consistent with comprehensive plans for the service area.

#### **CHAPTER 1 – EXISTING WATER SYSTEM**

#### 1.1 EXISTING WATER SYSTEM

Reedsburg Utilities (Utility) provides water to residential, commercial, industrial, and public customers within the City of Reedsburg corporate boundaries in addition to four residents located in the Town of Reedsburg.

According to the 2024 PSC Annual Report, the water system includes 356,283 feet (67.5 miles) of water main, five active wells (Wells #3, #4, #6, #7, and #8), three ground storage reservoirs and one elevated water storage reservoir. The system operates with two distinct pressure zones. For the purposes of the report, the two zones will be referred to as the high-pressure zone (HPZ) and the low-pressure zone (LPZ). The zones are isolated from one another with a series of manually operated water valves that are closed. A booster station located on 19<sup>th</sup> street was originally utilized to maintain system pressure and fire flow in the HPZ. With the addition of Well #7 and a ground reservoir in the HPZ, the booster station is no longer utilized to transfer water from the LPZ to the HPZ. It primarily serves as a back-up in the event that Well #7 is offline.

Figure 1-1A is a map of the existing water system, showing the location of the five wells, the three ground reservoirs, the one elevated water storage reservoir, the booster station, and existing pressure zone boundary. Figure 1-1B is a map of existing water distribution mains locations of various sizes. Figure 1-1A and 1-1B can also be found in **Appendix B**.

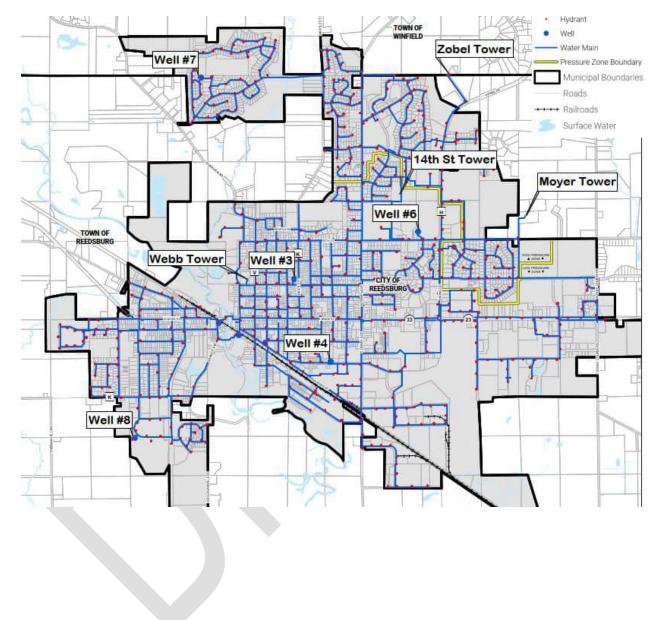
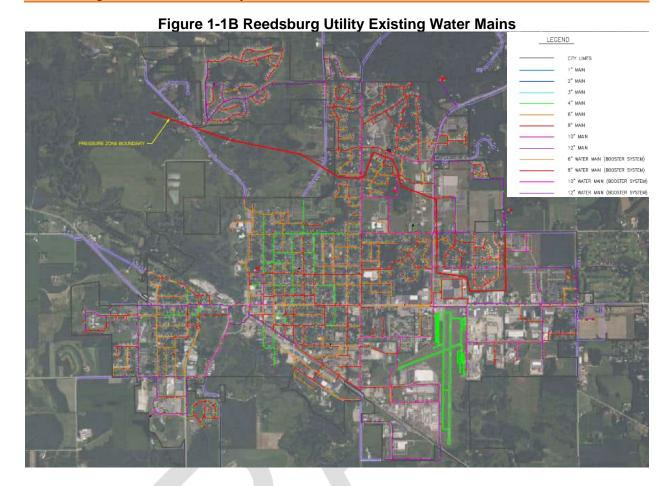


Figure 1-1A Reedsburg Utility Existing Water Facilities



#### 1.2 WATER DISTRIBUTION SYSTEM

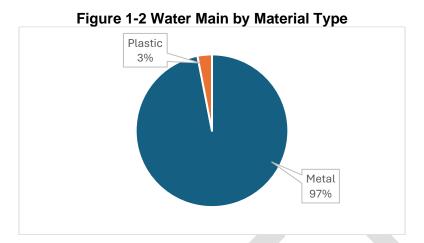
#### 1.2.1 WATER MAIN

The Utility's 2024 report to the Wisconsin Public Service Commission (2024 PSC Annual Report) includes the inventory of water main shown in Table 1-1.

**Table 1-1 Water Main Inventory (2024 PSC Annual Report)** 

Diameter (inches)	Length (feet)	%
1	129	0.04
3	110	0.03
4	19,278	5.4
6	92,614	26
8	121,379	34
10	48,627	13.6
12	74,146	20.8
TOTAL	356,283	100

Figure 1-2 depicts the breakdown of watermain by material type as noted in the 2024 PSC Annual Report.



#### 1.2.2 WATER SERVICES

According to the 2024 PSC Annual Report, the water system includes 3,445 water services of the sizes shown in Table 1-2. Existing water services less than or equal to 2" in diameter are copper. Services greater than 2" are reported as predominantly ductile iron or cast iron.

Table 1-2 Water Service Inventory (2024 PSC Annual Report)

Diameter (inches)	Quantity
3/4	1,324
1	1,797
1-1/4	8
1-1/2	67
2	86
3	3
4	25
6	83
8	42
10	8
12	2
TOTAL	3,445

According to the 2024 PSC Annual Report, the water system includes 4,594 utility-owned meters, with 4,072 meters in service and 522 meters in stock. The difference between the number of services and the number of meters is due to services providing water to more than one meter (e.g., at a duplex, apartment complex, or commercial buildings with multiple occupants). The number and sizes of meters are shown in Table 1-3 by user classification and size.

Table 1-3 Utility-owned Meter Inventory (2024 PSC Annual Report)

Meter Size (inches)	Residential	Multi-family Residential	Commercial	Industrial	Public Authority	In Stock
5/8	2,901	4	204	0	10	237
3/4	588	1	76	4	8	258
1	35	6	71	6	7	5
1-1/2	-	12	21	2	4	5
2	-	17	28	12	17	7
3	-	3	8	4	6	6
4	-	1	3	4	4	3
6	-	2	-	3	-	1
TOTAL	3,524	46	411	35	56	522

The 2024 PSC Annual Report also indicates that the water distribution system contains 643 fire hydrants and 1,218 system valves (does not include curb stop valves).

#### 1.3 SOURCES OF SUPPLY

The water system includes five active wells. Wells #3, #4, #6, #7, and #8, all of which pump directly to the distribution system. The five municipal wells are described below.

#### 1.3.1 WELL #3 (WDNR UNIQUE WELL No. BG943)

Well #3 is located on Myrtle Street in the low-pressure zone. Well #3 is a rock-walled well and was constructed in 1956 to an overall depth of 490 feet. The well is reported to have a 24-inch diameter drill hole from the surface to 25 feet, a 23-inch diameter drill hole from 25 feet to 48 feet, a 15-inch diameter drill hole from 48 to 160 feet, and 12-inch diameter drill hole from 160 feet to 490 feet. A 48-inch diameter casing pipe extends from the surface to a depth of 48 feet. The annular space between the casings and the drill hole is grouted with neat cement.

Well #3 is equipped with a vertical turbine well pump powered by a 75-horsepower electric motor. The well pumping rate for the pump is 1,030 gallons per minute (gpm), but the well is pumped at 950 gpm based on the most recent DNR Sanitary Survey.

#### 1.3.2 WELL #4 (WDNR UNIQUE WELL No. BG944)

Well #4 is located on Lucky Street in the low-pressure zone. Well #4 is a rock-walled well and was constructed in 1965 to an overall depth of 400 feet. The well is reported to have a 26-inch diameter drill hole from the surface to 20 feet, a 24-inch diameter drill hole from 20 feet to 50 feet and 17-inch diameter drill hole from 50 feet to 400 feet. An 18-inch diameter casing pipe extends from the surface to a depth of 50 feet. The annular space between the casings and the drill hole is grouted with neat cement.

Well #4 is equipped with a vertical turbine well pump powered by a 75-horsepower electric motor. According to the most recent DNR Sanitary Survey, Well #4 operates at a capacity of approximately 1,000 gpm.

#### 1.3.3 WELL #6 (WDNR UNIQUE WELL No. CB345)

Well #6 is located on Eighth Street in the low-pressure zone. Well #6 is a rock-walled well and was constructed in 1989 to an overall depth of 310 feet. The well is reported to have a 24-inch diameter drill hole from the surface to 18 feet, a 22-inch diameter drill hole from 18 feet to 135 feet and 17-inch diameter drill hole from 135 feet to 310 feet. An 18-inch diameter casing pipe extends from the surface to a depth of 135 feet. The annular space between the casings and the drill hole is grouted with neat cement.

Well #6 is equipped with a vertical turbine well pump powered by a 100-horsepower electric motor. The well pumping rate for the pump is 1,000 gpm.

#### 1.3.4 WELL #7 (WDNR UNIQUE WELL No. RZ083)

Well #7 is located along Sarah Rose Ln in the northwest part of the City in the high-pressure zone. Well #7 is a rock-walled well and was constructed in 2002 to an overall depth of 515 feet. The well is reported to have a 25-inch diameter drill hole from the surface to 18 feet, a 22-inch diameter drill hole from 18 feet to 198 feet and 17-inch diameter drill hole from 198 feet to 515 feet. An 18-inch diameter casing pipe extends from the surface to a depth of 198 feet. The annular space between the casings and the drill hole is grouted with neat cement.

Well #7 is equipped with a vertical turbine well pump powered by a 150-horsepower electric motor. The well pumping rate per the DNR Sanitary Survey is 600 gpm.

#### 1.3.5 WELL #8 (WDNR UNIQUE WELL No. WP561)

Well #8 is located along S. Albert Avenue in the southwest part of the City in the low-pressure zone. Well #8 is a rock-walled well and was constructed in 2010 to an overall depth of 500 feet. The well is reported to have a 24-inch diameter drill hole from the surface to 20 feet, 23-inch diameter drill hole from 20 feet to 252 feet, and 17-inch diameter drill hole from 252 feet to 500 feet. An 18-inch diameter casing pipe extends from the surface to a depth of 252 feet. The annular space between the casings and the drill hole is grouted with neat cement.

Well #8 is equipped with a vertical turbine well pump powered by a 125-horsepower electric motor. The well pumping rate for the pump is 1,200 gpm.

#### 1.4 WATER QUALITY AND TREATMENT

The Utility has historically had very good water quality. Liquid chemical treatment is injected at each wellhouse; chemical treatment includes chlorination for disinfection, the addition of polyphosphate for corrosion protection, and fluoridation for dental health.

Routine water samples are collected and analyzed in accordance with DNR requirements.. Common analytes of concern in groundwater include iron, manganese, and nitrates; Table 1-4 and Table 1-5 include the most recent results for each analyte from each well.

**Table 1-4 Water Quality at City Wells** 

Parameter	Unit	Well #3	Well #4	Well #6	Reg. Std	Note
Iron	mg/l	No Detect	No Detect	No Detect	0.300	Secondary
Manganese	mg/l	0.02	0.01	0.0005	0.050	Secondary
Nitrates	mg/l	3.45	4.45	3.05	10	Primary

**Table 1-5 Water Quality at City Wells** 

Parameter	Unit	Well #7	Well #8	Reg. Std	Note
Iron	mg/l	No Detect	No Detect	0.300	Secondary
Manganese	mg/l	0.0005	0.0004	0.050	Secondary
Nitrates	mg/l	4.7	3.35	10	Primary

The PFAS compound PFHxS was detected in Well #3 . Two PFAS samples were collected, one in 2022 and another in 2023. The reported concentrations of PFHxS were 2.3 ng/L and 1.81 ng/L, respectively. The proposed maximum contaminant level for PFHxS is 10 ng/L. Both samples collected at Well #3 fall below the proposed MCL.

Several PFAS compounds were detected in water from Well #7. Only one compound, PFHxS, exceeded 1 ng/L. (1.42 ng/L). The proposed MCL for PFHxS is 10 ng/L.

#### 1.5 STORAGE FACILITIES

#### 1.5.1 RESERVOIRS

The Utility operates one elevated water storage reservoir and three ground storage reservoirs. The 200,000-gallon elevated storage tank (referred to as the Webb Tower) exists in the LPZ and is located on 4<sup>th</sup> Street. Two 500,000-gallon ground storage reservoirs are also located in the LPZ; these include the Moyer Reservoir located north of 8<sup>th</sup> St and the 14<sup>th</sup> St Reservoir located east of Borland Ct. One ground reservoir exists in the HPZ; referred to as the Zobel Reservoir, this ground reservoir has a capacity of 500,000-gallons and is located north of Couty Highway H in the Northwest portion of the City. The location of the storage reservoirs are shown on Figure 1-1A.

All four of the storage reservoirs generally operate over a 10 vertical foot interval. In the LPZ, static pressures range from approximately 27 to 93 pounds per square inch (psi) when the towers are at the low operating level (approximately 10 feet below the overflow elevation). The static water pressure at any point in the distribution system is a function of the elevation at that location and the water level in the reservoirs. Approximately 16 residential houses have static pressures below the NR811 code minimum of 35 psi. The houses with low static pressures are located along Pineview Drive and Mary Avenue.

A map showing City-wide static pressures is included as Figure 1-3; this map was developed using WaterCAD computer modeling software (Bentley Systems). MSA maintains the Utility's water model which has been utilized on previous projects. Model assumptions include average day demand, no wells pumping, and the water level in the reservoirs is at the low operating level.

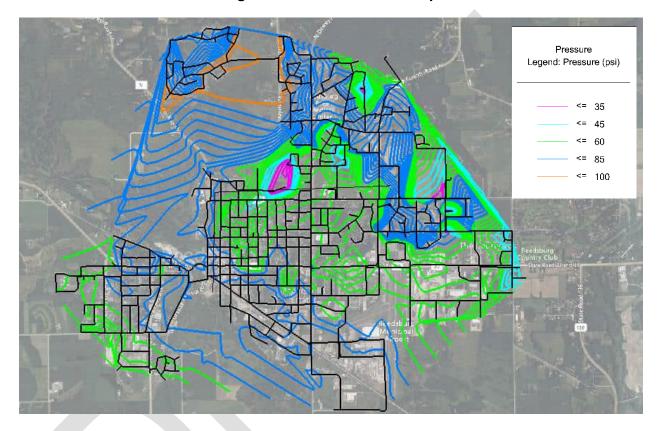
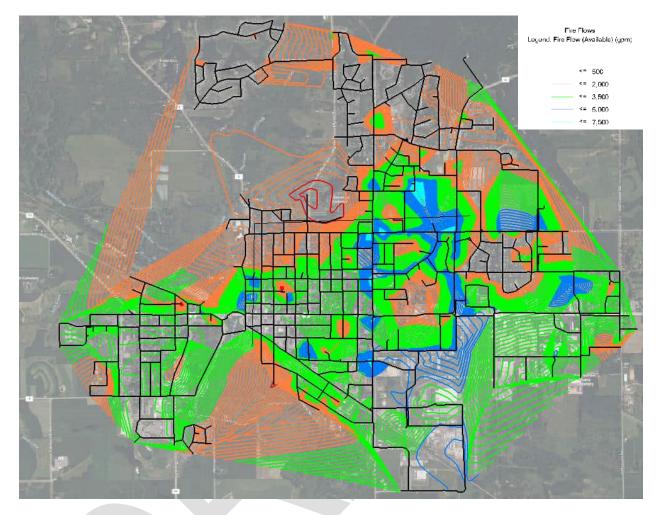


Figure 1-3 Static Pressure Map

Figure 1-4 shows the approximate fire flow rates available throughout the City The reported flows (gpm) represent the flow rate available to fight a fire at any location in the City while still maintaining the minimum 20 psi residual pressure required by Wisconsin Administrative Code NR 811. Figure 1-4 shows the vast majority of the water distribution system has an available fire flow of 2,000 to 5,000 gpm. The model indicates one area of low fire flow (<1,000 gpm) relative to the rest of the system; this area is Greenwood Cemetery which is located in the north central portion of the City. The available fire flow at this location is limited by the small diameter watermain (4-inch) serving this area.



**Figure 1-4 Fire Flow Outputs** 

#### 1.5.2 BOOSTER STATIONS

The Utility operates one booster station; the booster station is located on 19<sup>th</sup> street. The booster station is primary operated as a back-up; it can supply water from the LPZ to the HPZ in the event Well #7 is not operational. Three pumps are in the booster station with an additional standby pump. In an effort to maintain water quality in the HPZ, a Pressure Reducing Valve (PRV) located in the Booster Station is programmed to automatically open once per day to allow water to flow from the HPZ to the LPZ. If the booster station is utilized, the pumps typically run one at a time. Table 1-6below summarizes existing booster station pump capacities.

**Table 1-6 Water Service Inventory (2024 PSC Annual Report)** 

Pump ID#	Pumping Capacity (gpm)
1	600
2	600
3	500
4 (Standby)	600

#### **CHAPTER 2 – POPULATION AND WATER USAGE**

#### 2.1 POPULATION

The population growth in the City of Reedsburg averaged 1.27% per year between 1970 and 2024. Estimates of future population as developed by the University of Wisconsin Applied Population Laboratory for the Wisconsin Department of Administration (DOA) Demographic Services Center projects growth to continue for at least the next 15 years. The population projection estimates a design year (2040) population of 11,309, which represents an increase of approximately 0.72% per year. In addition to the population projection determined by the DOA, for the purpose of this report, population projections were estimated based on more recent growth trends (from 2015 to 2024). Through this methodology, the estimated population in 2040 was determined to be 11,902, which represents an increase of 1.19% per year compared to the 2024-estimated population. Table 2-1 shows the historic population for the City along with the projected population from the DOA and the projected population based on recent growth trends (2015 to 2024).

Table 2-1 City of Reedsburg Historic and Projected Population

Year	Population (DOA)	Increase	(% per year)	Population (based on recent growth trends)	Increase	(% per year)
1970	4,585	-	-	4,585	-	-
1980	5,038	453	0.99	5,038	453	0.99
1990	5,834	796	1.58	5,834	796	1.58
2000	7,827	1,993	3.42	7,827	1,993	3.42
2010	9,200	1,373	1.75	9,200	1,373	1.75
2020	9,984	784	0.85	9,984	784	0.85
2024	10,516	532	1.33	10,516	789	1.98
2030	10,661	145	0.23	10,992	476	0.75
2040	11,309	648	0.61	11,902	910	0.83
Overall: 2024 - 2040	-	793	0.72	-	1,386	1.19

The historic and future population projections for the City of Reedsburg are shown in Figure 2-1.

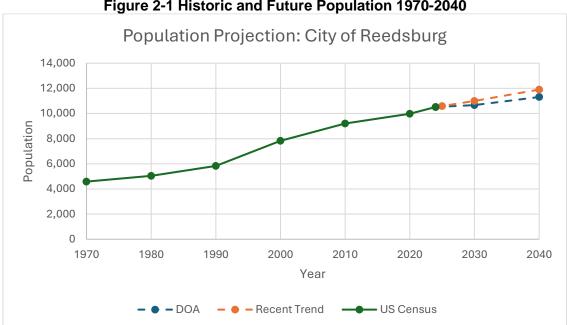


Figure 2-1 Historic and Future Population 1970-2040

#### 2.2 WATER USE

#### 2.2.1 WITHDRAWAL BY SOURCE

The Utility operates five active groundwater wells, with Well #3, #4, #6, and #8 pumping directly into the LPZ, and Well #7 pumping directly into the HPZ. Table 2-2 summarizes the historical average daily pumpage from each municipal well. As shown, Well #6 and Well #8 are the two highest producing wells.

**Table 2-2 Average Daily Withdrawal by Source** 

	Well #3 (BG943)	Well #4 (BG944)	Well #6 (CB345)	Well #7 (RZ083)	Well #8 (WP561)
Year	1,000 gal				
2015	105,100	102,900	201,100	107,730	190,200
2016	97,100	96,800	223,200	97,990	189,400
2017	92,600	93,600	215,400	96,510	181,500
2018	93,600	114,700	218,600	95,590	183,100
2019	98,600	103,400	211,100	98,280	180,400
2020	81,210	90,550	181,800	113,800	155,360
2021	118,710	89,966	212,160	107,640	184,660
2022	86,510	104,340	195,970	107,260	165,690
2023	106,690	113,850	193,550	112,750	144,630
2024	91,600	95,170	192,450	110,730	182,210
5-yr Avg	96,944	98,775	195,186	110,436	166,510
10-yr Avg	97,172	100,528	204,533	104,828	175,715
5-yr %	15%	15%	29%	17%	25%
10-yr %	14%	15%	30%	15%	26%

#### 2.2.2 SYSTEM WIDE WATER USE

Historical system wide water use for the past ten years is shown in Table 2-3. According to the 2024 PSC Annual Report, the average daily water pumped in 2024 was 1,842,000 gallons, or 1,279 gpm when applied evenly over a 24-hr day. The maximum day demand in 2024 was 3,100,000 gallons which was due to customer demand. The peak factor, which is the ratio of maximum day demand to average day demand, was 1.68 in 2024. Historical data indicate a relatively consistent peak factor over the past 5- and 10-year periods, with the average peak factor equal to 1.59 in both instances. The average percentage of water loss experienced by the system in the last five years is 3.2%, which is generally very good in comparison to Utilities of similar size.

Table 2-3 System Wide Water Demand (2015-2024)

Year	Ave. Day Pumped	Max. Day Pumped	Peaking	_	Water Loss
	gp	d	Factor	Demand	%
2015	1,943,000	3,280,000	1.69	Canning Factory Operation and Lawn Watering	4
2016	1,930,000	3,060,000	1.59	Factory Operations, lawn watering	3
2017	1,857,000	2,820,000	1.51	Hydrant Flushing	5
2018	1,927,000	3,240,000	1.68	Hydrant Flushing	3
2019	1,895,000	2,770,000	1.46	Hydrant Flushing	1
2020	1,720,000	2,880,000	1.67	Freezer Plant Usage	4
2021	1,948,000	3,057,000	1.56	Freezer Plant Usage	2
2022	1,808,000	2,650,000	1.47	Freezer Plant Usage	2
2023	1,840,000	2,910,000	1.58	Freezer Plant Usage	4
2024	1,842,000	3,100,000	1.68	Freezer Plant Usage	4
10-year Average	1,871,000 (1272 gpm)	2,919,000 (2027 gpm)	1.59	-	3.2
5-year Average	1,831,000 (1299 gpm)	2,977,000 (2067 gpm)	1.59	-	3.2

The average day and maximum day water demands over the past ten years are shown in Figure 2-2. Over the past 10 years, the highest maximum day demand – 3,280,000 gpd- occurred in 2015.

Figure 2-2 Average and Maximum Day Demand (2015 – 2024)

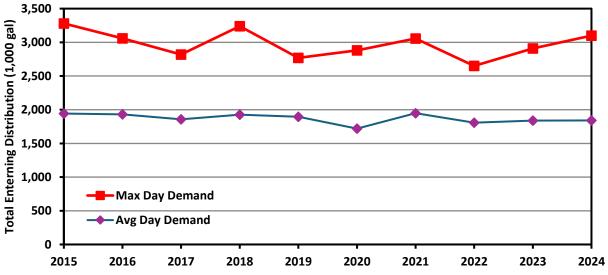


Figure 2-3 shows the average daily water demand by month for 2020 through 2024.. Average day demands during May through October generally exceeded the average annual demand while

average month demands during November through April were less than the annual average day demand. Higher water demands during warm weather months is likely associated with lawn irrigation, garden watering, car washing, etc.

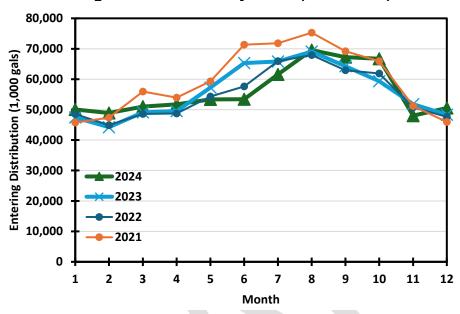


Figure 2-3 Water Use by Month (2020 – 2024)

#### 2.2.3 WATER USE BY RETAIL CLASSIFICATION

PSC Annual Reports include breakdown of water sales by customer classification. Customer classifications included residential, commercial, industrial, public authority, and multi-family residential. Figure 2-4 displays water sales by customer classification based on 2024 reported sales.

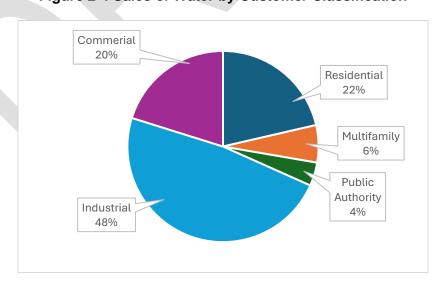


Figure 2-4 Sales of Water by Customer Classification

As shown, the largest water user classification is industrial at 48%, residential and multi-family residential account for approximately 28%, and commercial customers account for approximately 20% of total sales in 2024.

**Table 2-4** shows includes the number of customers per PSC user classification over the past 10 years.

Year Residential **Multi-Family** Commercial Industrial **Public Authority** 2015 3,047 46 378 36 46 2016 3,054 48 383 48 36 2017 3,069 46 378 36 47 2018 3,147 45 384 35 48 3,154 49 2019 48 386 35 2020 3,226 47 387 49 36 2021 3,303 46 405 35 51 2022 3,334 396 45 34 50 2023 3,445 45 397 35 56 2024 3,550 46 438 35 56 Avg. Annual 1.7% 1.7% 0.06% -0.3% 2.3% **Growth Rate** 

**Table 2-4 Metered Customers by Classification (2015-2024)** 

#### 2.2.4 LARGEST WATER USERS

The ten (10) largest water customers in Reedsburg in 2015-2024 are shown in **Appendix C.** Of the 10 listed largest users, historical water usage is generally consistent with slight fluctuation from year to year. The top water user, Grede Foundry (Grede), was listed as the annual top user from 2015 to 2024 with water usage twice the amount of the second largest water user. Grede water demand for each of the last ten years Is included in Table 2-5 below.

Year	Water Use (gal)	Water Use (GPD)
2015	180,673,247	494,995
2016	194,153,891	531,928
2017	164,182,442	449,815
2018	194,591,501	533,127
2019	194,797,216	533,691
2020	114,466,161	313,606
2021	193,046,774	528,895
2022	151,600,208	415,343
2023	158,807,688	435,090
2024	148,492,800	406,830
Average % of Total Water Pumped Per Year	22	%

Table 2-5 Largest Water User (2015-2024)

Grede water demand ranged from 17% to 29% of the total system-wide demand over the past ten years, with the ten-year average being 22%.

#### 2.3 WATER USE PROJECTIONS

#### 2.3.1 PLANNING PERIOD

A planning period of 15 years (from 2025 to 2040) was selected for this Water Supply Service Area Plan; deamnd projections will be based on a design year of 204. This range generally aligns with the City of Reedsburg's existing Comprehensive Plan (2024-2042).

#### 2.3.2 Population Based Demand Projections

Historical water use per capita (gpcd) can be extrapolated into the future periods for estimating future water demand.

Summary of Water Use per Capita (2020-2024):

- Average Population: 10,250
- Average Day Water Use: 1,831,000 gallons
- Water Use per day per capita (gpcd): 178.63 gallons

Using the population projection in Chapter 2.1, future water demand for average day and maximum day for the planning period can be determined. Max day demand is calculated by using the historical 5-year average peak factor multiplied by the average day demand. Table 2-6 shows the calculations of water demand by population.

**Average Day Demand Max Day Demand Population** Year (gpd) (gpm) (gpd) (gpm) 2024 (current) 10,516 1,831,000 2,977,000 1,262 2,067 2025 10,595 1,892,644 1,314 3,009,304 2,090 2030 1,963,501 3,121,967 10,992 1,364 2,168 2035 11,447 2,044,778 1,420 3,251,197 2,258 2040 11,902 2,126,054 1,476 3,380,426 2,348

Table 2-6 Water Use Projection by Population (2025-2040)

It should be noted that this estimation for future water demand is based on population growth alone; the estimation does not reflect future water demands if the City were to experience a higher rate of commercial and/or industrial development.

#### 2.3.3 Customer Classification Based Demand Projections

Water use projections based on customer classifications provide more accurate estimations based on past trends of development and growth as categoried by PSC Customer Classifications.

To project average water use in gallon per customer per day (gcpd) of each five-year increment in the planning period, the past five-year averages of the historical water usage and metered customers was used. This best represents the recent usage to predict the future usage. The water usage is shown in Table 2-7.

Table 2-7 Historical Water Use by Customer Classification (2020-2024)

Year	Residential 1000s Gal	Multi-Family 1000s Gal	Commercial 1000s Gal	Industrial 1000s Gal	Public Authority 1000s Gal
2020	132,535	33,400	117,360	295,205	17,647
2021	131,434	34,439	128,440	376,907	17,760
2022	130,219	35,401	128,516	322,842	19,511
2023	140,830	37,913	127,797	302,378	29,454
2024	135,446	40,016	127,688	304,864	25,166
5-Year Avg	134,093	36,234	125,960	320,439	21,908
Average Water Use Per Day/ Per Customer (Gal)	114	2,149	878	24,870	1,200

Table 2-7 also shows the average water use, in gpcd by each PSC customer classification. Projections of future number of customers can be estimated using the annual growth rate of each classification.

Using the annual growth rate of residentail and multi-family residential customers from 2015 to 2024, estimations for future customer volume in these classifications can be determined. A total of 4,664 residential and 46 multi-family customers was used. Based on 2024 population data, an estimate for people per household (residential and multi-family customer) can be approximated to be 2.93. This metric will serve as a comparison tool to project customer volume and projected population data found in Chapter 2.1. It should be noted, that based on this calculation methodology, the population estimate based on customer classification is more than the 2040 population estimate determined in Chapter 2.1 of this report.

Summary of Population/Customer Estimate:

- 2024 Population: 10,516
- 2024 Household: 3,596
- 2024 People per Household: 2.92
- 2040 Population Estimate (based on MSA trendline computation): 11,902
- 2040 Household Estimate: 4,710
- 2040 Population Estimate (based on people per household): 13,753

The number of commercial, public authority, and industrial customers does not necessarily correlate with the population changes in the City. Therefore, the number of these customers from the previous 10 years has been evaluated. Over the last 10 years, the maximum and minimum number of industrial customers only varied by one. For a conservative estimate, it is assumed that the number of industrial customers will stay the same. For public authority and commercial customers, estimation of customer projects was determined using the annual growth rate from 2015 to 2024, extrapolated to the design year 2040. Table 2-8 shows the calculations of water demand from customer classification.

**Table 2-8 Customer Classification Projections (2025-2040)** 

Year	Custom/Water Use	Residential	Multifamily	Commercial	Industrial	Public Authority
Current	No. of Customers	3,550	46	438	35	56
(2024)	Water Use (gpd)	371,085	109,633	349,830	835,244	68,948
2025	No. of Customers	3,611	46	445	35	57
2023	Avg. Water Use (gpd)	410,351	98,897	390,989	835,244	68,763
2030	No. of Customers	3,933	46	485	35	64
2030	Avg. Water Use (gpd)	446,876	98,897	425,582	835,244	77,005
2035	No. of Customers	4,283	46	528	35	72
2033	Avg. Water Use (gpd)	486,652	98,897	463,235	835,244	86,235
2040	No. of Customers	4,664	46	575	35	80
2040	Avg. Water Use (gpd)	529,969	98,897	504,219	835,244	96,572

By summing up the average water use for each estimated count of customer classifications, an estimation for future average and maximum day demands can be determined. Table 2-9 below shows the results of this calculation.

Table 2-9 Current and Future Water Demand Projections based on Customer Classification (2025-2040)

Year	Average Day Water Demand		Max Water D	
	gpd	gpm	gpd	gpm
5 Year Avg	1,831,000	1,262	2,977,000	2,067
2025	1,804,244	1,253	2,868,748	1,992
2030	1,883,886	1,308	2,995,379	2,080
2035	1,970,828	1,369	3,133,617	2,176
2040	2,065,750	1,435	3,284,543	2,281

It should be noted that this estimation of future water demand is based on historical trends in total sales (metered and unmetered) of water, and number of metered customers. The estimation does not take into account "non-revenue water pumped" and "total water loss as percentage of net water supplied". Non-revenue water includes all water that is metered or unmetered and not billed to customers. This water includes water used for freeze protection, unmetered flushing, fire protection, and leakage. Water loss is a subset of non-revenue water that is estimated to included pumped water unaccounted due to billing errors, unauthorized consumption, and leakage. In the past ten years, the average non-revenue water was reported as 4.6% of total water pumped. The past five years resulted in non-revenue water percentages of 4.8%. Percentage of water loss averages over the past five and ten years are both 3.2%, respectively.

Therefore, the projections based on customer classification trends alone are likely to estimate lower quantities of water that would need to be pumped to meet average and maximum day demands in the future. In order to accurately estimate the water demand of the source water (pumped volume) to meet future average and maximum day demands, the non-revenue water

will be added to values shown in Table 2-9 above. Table 2-10 summarizes these values based on the past five-year average of non-revenue water percentage equal to **4.8%**.

Table 2-10 Current and Future Water Demand Projections based on Customer Classification and including Non-revenue Water (2025-2040)

Year	Non-Revenue Water	Average Day Water Demand		Max Da Water Den	•
	gpd	gpd	gpm	gpd	gpm
2025	86,604	1,890,847	1,313	3,006,447	2,088
2030	90,427	1,974,312	1,371	3,139,156	2,180
2035	94,600	2,065,428	1,434	3,284,031	2,281
2040	99,156	2,164,906	1,503	3,442,201	2,390

Table 2-11 summarizes the results of the two methods used to estimate future demand.

**Table 2-11 Overview of 2040 Water Demand Projections** 

Calculation Type	Averaç Water D			
	gpd	gpm	gpd	gpm
Customer Classification	2,164,906	1,503	3,442,201	2,390
Population/Per Capita	2,126,054	1,476	3,316,645	2,303
Difference	38,852	27	125,556	87

Both projections, population/per capita and by customer classification yield similar values for future water demand. The difference in values for average day demand is 38,852 gpd and maximum day demand is 125,556 gpd. For the purpose of this report, the future projected demand estimated using customer classifications will be utilized.

#### **CHAPTER 3 – WATER SERVICE PLAN**

#### 3.1 CURRENT SERVICE AREA

The Utility currently serves all customers located within the municipal boundaries of the City of Reedsburg and four residences in the Town of Reedsburg. The City of Reedsburg is located in Sauk County, northwest of the Village of Baraboo, and southwest of the Village of Lake Delton. Figure 3-1 below shows the existing municipal boundaries of the City of Reedsburg.

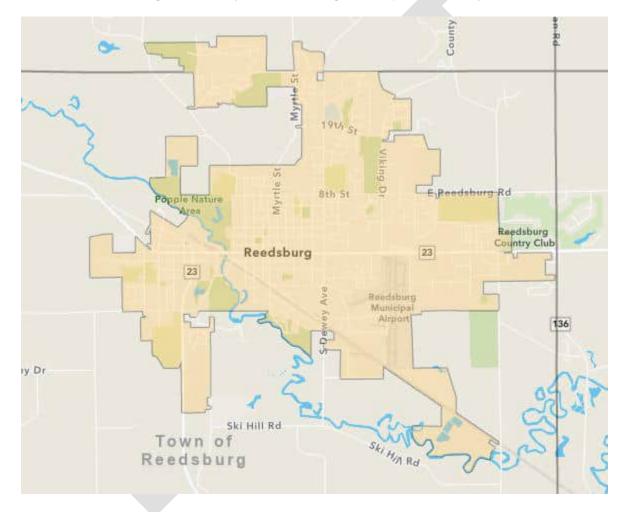
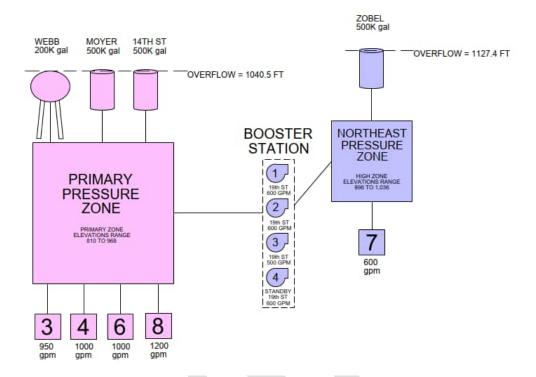


Figure 3-1 City of Reedsburg Municipal Boundary.

As stated in Chapter 1, the water system operates approximately 67.5 miles of water main, five groundwater wells, three ground storage reservoirs, and one elevated water storage reservoir. The system is separated into two pressure zones. Figures 1-1A and 1-1B show the existing water system and service area. **Appendix A** (also Figure 3-2) provides a schematic depiction of the existing water system.

Figure 3-2 Water System Schematic



#### 3.2 CURRENT SYSTEM CAPACITY

The five existing municipal wells provide a total capacity of 4,750 gpm; this is referred to as the 'all well capacity'. Firm well capacity is the cumulative capacity of the water supply sources assuming the largest source is out of service. With the largest well out of service, the DNR recommends that the remaining wells should be capable meeting the average day demand with no more than 12 hours/day of pumping and the maximum day demand with no more than 18 hours/day of pumping. Assuming Well #8 (the largest well) is out of service for maintenance or repair, the capacity of the remaining wells (firm well capacity) is 3,550 gpm.

The current system source water capacity is as follows:

- Well #3 (BG943) has a capacity of 950 gpm.
- Well #4 (BG944) has a capacity of 1,000 gpm.
- Well #6 (CB345) has a capacity of 1,000 gpm.
- Well #7 (RZ083) has a capacity of 600 gpm.
- Well #8 (WP561) has a capacity of 1,200 gpm.
- All Well Capacity (System): 4,750 gpm
- Firm Well Capacity (System): 3,550 gpm

Current water demand (five-year historical average) for average day and maximum day demand is summarized in Table 3-1 below.

Table 3-1 Current Water Demand for City of Reedsburg

Average Day Demand	Maximum Day Demand
Gal	Gal
1,831,000	2,977,000

To demonstrate the existing spare capacities for average and maximum day demands of the water system, the following equations from the Wis. Admin. Code § PSC 184.04(3)(b) were used:

- (1)  $SC_{maximum} = [FWC * (18 hours/24 hours)] (MD / (24*60)) = +595 gpm$ 
  - i. This equates to **14.0 hours** of pump runtime.
- (2)  $SC_{average} = [FWC * (12 hours/24 hours)] (AD / (24*60)) = +503 gpm$ 
  - This equates to 8.6 hours of pump runtime.

#### Where:

SC = spare capacity (gpm)

FWC = firm well (or source) capacity = 3,550 gpm

MD = maximum day demand = 2,977,000 gallons

AD = average day demand = 1,831,000 gallons

The Utility is meeting the current average and maximum day demand under firm well capacity (Well #8 out of service) conditions. It should be noted that the average day demand during the peak summer months in the last four years was 1,404 gpm, 1,439 gpm, 1,399 gpm, and 1,560 gpm, respectively. Therefore, if Well #8 was out of service for any reason during the peak summer month, the remaining wells would need to pump at least 9.8 hours per day to meet the average demand during this peak month.

#### 3.3 FUTURE DESIGN CONDITIONS

In Chapter 2, two methods for projecting water usage based on historical trends were used to estimate water demand every 5-year period of the planning range from 2025 to 2040. For analyzing system capacities, the customer classification method for demand projections was used for this purpose of this report due to more conservative demand projections over the next 15 years.

Table 3-2 summarizes the current and future design conditions for average and maximum day demand from 2025 to 2040.

**Table 3-2 Current and Future Design Conditions** 

Year	Average Day Demand (gal)	Maximum Day Demand (gal)
Current Conditions	1,831,000	2,977,000
2025	1,890,847	3,006,447
2030	1,974,312	3,139,156
2035	2,065,428	3,284,031
2040	2,164,906	3,442,201

By 2040, average day demand is projected to increase to approximately 2.16 MGD, an 18.2% increase from present day demands. Assuming peaking factor remains relatively constant over time, maximum day demand by 2040 will be approximately 3.44 MGD.

Figure 3-3 below shows anticipated future pumping times to meet projected future demands under firm well capacity. The 12-hour threshold (average day runtime of 12 hours) is shown as the blue horizontal line and the 18-hour pump runtime threshold (maximum day runtime of 18 hours) is shown as the orange horizontal line. It appears the current well network- under firm well capacity- will need to pump for 10.2 hours to meet 2040 average day demand and 16.2 hours to meet 2040 maximum day demand. In both scenarios, the estimated pump runtimes fall below the respective runtime thresholds set forth by the DNR. Based on this analysis, it appears the current well network is adequately sized to meet the projected demands through the design year 2040.

If the City continues to grow at the same rate beyond the design year 2040, the construction of a new municipal well will likely be needed by 2060.

18 16.2 15.4 14.7 14.1 14 12 10.2 9.7 9.3 8.9 Hours 10 8 6 4 2 0 2025 2030 2035 2040 Year ■ Average ■ Maximum

Figure 3-3 Projected Firm Well Pumping Times

#### 3.4 Source Water Options

In accordance with NR854 requirements, future water source options were considered. Future water source options include surface water intake and treatment, purchasing water from neighboring municipalities, or constructing groundwater well similar to the existing wells.

#### 3.4.1 SURFACE WATER INTAKE

The only surface water source that could be utilized for potable water is the Baraboo River. Treatment of surface water is extremely costly when compared to groundwater source treatment, therefore, this option was not further evaluated in detail.

#### 3.4.2 Purchase Water From Nearby Municipality

Based on the location of Reedsburg relative to neighboring communities, it is not feasible for the Utility to purchase water from nearby municipalities to meet future demands of the system. The two nearest municipal water utilities that may be capable of supplying Reedsburg are the Village of Lake Delton and City of Baraboo. Both Lake Delton and Baraboo are approximately 10 miles from the City limits.

#### 3.4.3 GROUNDWATER WELLS

The most logical option for additional source capacity consists of constructing additional groundwater wells to supply future demands.

It is anticipated that a future municipal well would be constructed to draw water from the Mt. Simon aquifer similar to the Utilities' existing wells. s. Based on existing well capacities, it is anticipated that a future well would be designed to produce approximately 1,000 gpm.

Based on the information provided above, it is recommended that the Utility pursue the development of an additional groundwater well when demand dictates the need.

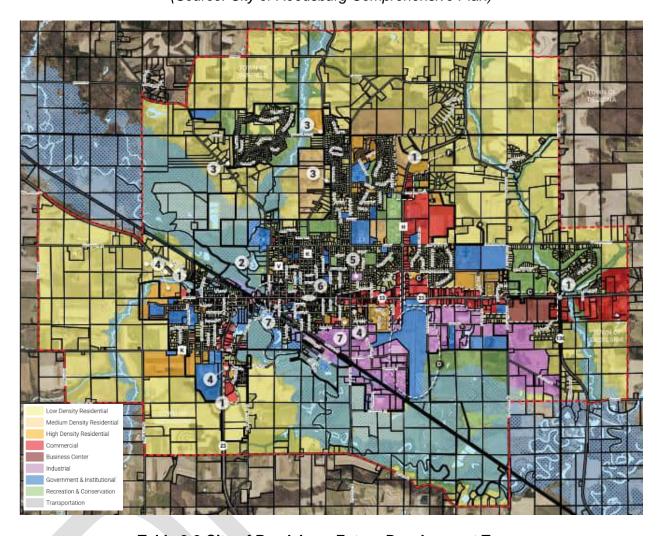
#### 3.5 PLAN CONSISTENCY

#### 3.5.1 2022-2042 CITY OF REEDSBURG COMPREHENSIVE PLAN

In the 2022-2042 City of Reedsburg Comprehensive Plan adopted by City Council in September of 2022, multiple impacts to future customer base, service area, and the water system were described.

In Chapter 1 Vision and Recommendations, future development was discussed and 6 potential development growth areas were identified. Figure 3-5 is a map showing the potential growth areas and Table 3-3 summarizes the type of potential development. The majority of the desired development consists of commercial development, with the potential for residential development found in the northeast portion of the City along with high density found in the center portion of the City.

Figure 3-5 City of Reedsburg Future Development Plan (Source: City of Reedsburg Comprehensive Plan)



**Table 3-3 City of Reedsburg Future Development Types** 

Label	Development Area	Zoning Type	
Α	Downtown Focus	Commercial	
В	Highway Commercial Redevelopment	Commercial	
С	East Gateway Commercial	Commercial, Government and Institutional,	
		and Business Center	
D	Industrial Transition	Government and Institutional and Industrial	
Е	Southwest Gateway	Commercial	
F	North Viking Gateway	Commercial and Residential	

In *Chapter 2 Issues and Opportunities*, based on the 2013 DOA population projections, it was estimated that the 2040 population of Reedsburg would reach a total population of 10,213. Based on recent DOA population estimates, this value has since increased to 11,309.

Chapter 4 Utilities of the Comprehensive plan also described future recommended improvements to the water system such as:

- "Loop 12" water main from Me Me Lane to Russell Ct.
- Loop 12" water main from Ridgeview Rd to Zobel Reservoir
- Loop water main Golf Course Rd to East side Industrial Park
- Loop water main K St. to Bindl Subdivision
- Loop water main Fawn Valley to Golf Course to Reedsburg Rd"

#### 3.5.2 PAST WATER REPORTS

In 2025, MSA Professional Services conducted a Westside Pressure Zone Evaluation. This report covered an approximate area of 55 acres on the southwestern portion of the City. The primary findings of the study found that if development were to expand in that direction, significant water infrastructure improvements would be required (booster station, water storage) to serve this area.

#### 3.6 PUBLIC PARTICIPATION

This section of the plan will be completed after the public hearing and period of written public comment to be conducted in October and November of 2025.

#### 3.7 PLAN REVIEW PROCESS

It is recommended that this plan be reviewed, and potentially modified, every 5 years throughout the planning period. During the review, it is recommended that the most recent PSC Annual Report data for water use and customer classification inventories are updated as well as available population information. If revisions are needed, the Utility will considering revising and submit the plan to the Department of Natural Resources per NR854.10.

#### 3.8 GEOLOGICAL AND ENVIRONMENTAL CONSIDERATIONS

#### 3.8.1 GEOLOGICAL

The bedrock geology of Sauk County consists of Precambrian age crystal-line rock overlain by successive units of younger Paleozoic age sandstone. Existing wells are all terminated in the Mt. Simon formation, a Cambrian, Elk Mound Group, lower bedrock formation. The Mount Simon Aquifer stretches across several states in the Midwest, including half of Wisconsin. This aquifer matrix is sandstone, and Reedsburg is set in a location of "good" groundwater recharge. The Eau Claire formation, a confining aquitard, is not present in near the Reedsburg area.

Figure 3-6 is a map created by Wisconsin Geological and Natural History Survey (WGNHS) in 2005 to show zone of contributions within Sauk County. The zone of contribution is the area of land near a well that provides water to the well. The light-grey areas represent a 5-year groundwater travel time and the dark-grey areas represent a 50-year groundwater travel time. Reedsburg Well #3, #4, #6, and #7 are shown on the (#8 was constructed after 2005 and therefore not shown). The zone of contribution for the Reedsburg wells generally do not overlap, which is

positive from a water supply standpoint. At the time when the development of a new well is warranted, the zone of contribution should be considered when evaluating possible well sites.

Figure 3-6 Zone of Contributions of Sauk County Wells in 2005 (Source: Wisconsin Geological and Natural History Survey)



#### 3.8.2 ENVIRONMENTAL

The development of future water facilities such as groundwater wells, water reservoirs, and watermain extensions shall be done so to minimize impacts to existing wetlands, endangered resources, surface waterways, and groundwater aquifers.

Wisconsin consists of two major water basins, the Mississippi and Great Lakes Basin. Figure 3-7 shows the basin divide. Generally, a municipal water system cannot draw water from one basin and discharge water to the other. The extent of Sauk County falls entirely in the Mississippi River Basin, therefore, this requirement does not impact the Utility.

Figure 3-7 Map of Mississippi and Great Lakes Basin in Wisconsin (Source: Wisconsin Department of Natural Resources)



#### **CHAPTER 4 – SUMMARY AND RECOMMENDATIONS**

#### 4.1 SUMMARY

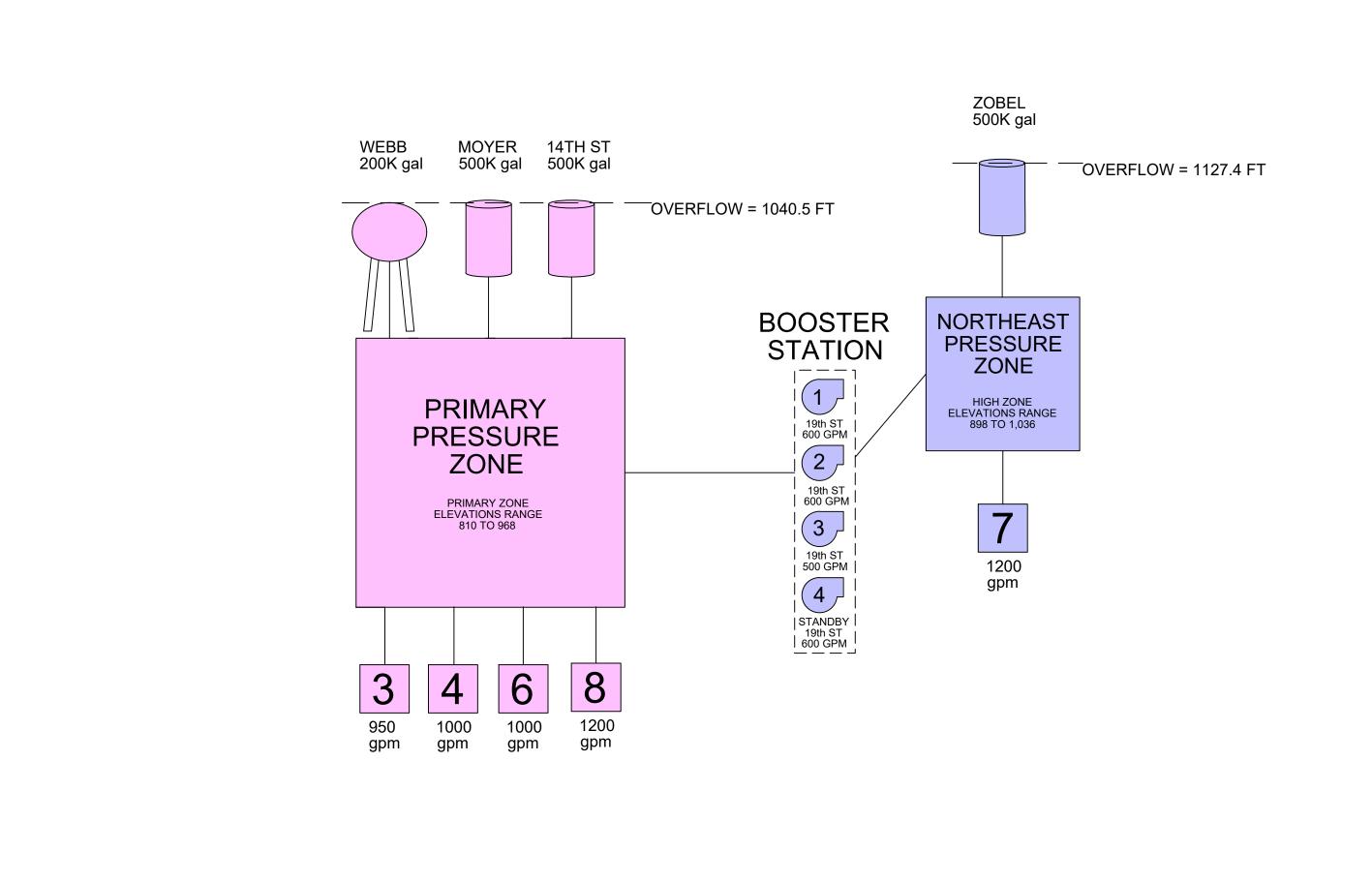
The City of Reedsburg has experienced consistent population growth projections included in this report estimate a 2040 population of 11,309 (DOA) and 11,902 (recent trends-method). Water demand has increased accordingly, with the 2024 average day demand at 1.84 MGD and maximum day demand at 3.1 MGD. By 2040, average day demand is estimated to reach 2.16 MGD and the maximum day demand is estimated to be 3.44 MGD. Based on the estimated pump runtimes in design year 2040, the existing well network is adequately sized to meet the project future demand.

#### 4.2 RECOMMENDATIONS

It is recommended that the Utility continue to monitor water demand over the planning period of this report. If actual water demand outpaces the water demand projected in this report, the Utility should re-evaluate pump runtimes to determine if the existing well network can meet the demand within the DNR recommended runtime thresholds.

As the City of Reedsburg continues to grow and water demand increases, the construction of an additional water source should be considered. Based on the findings of this report, it is estimated that an additional water source will likely be needed by 2060.

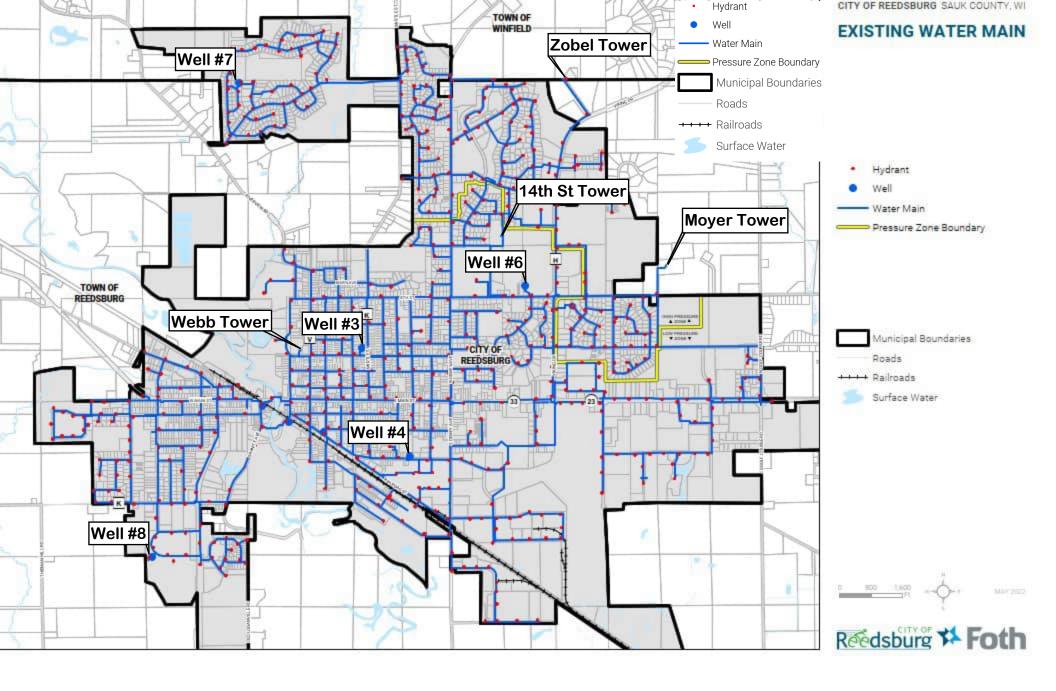
# APPENDIX A WATER SYSTEM SCHEMATIC

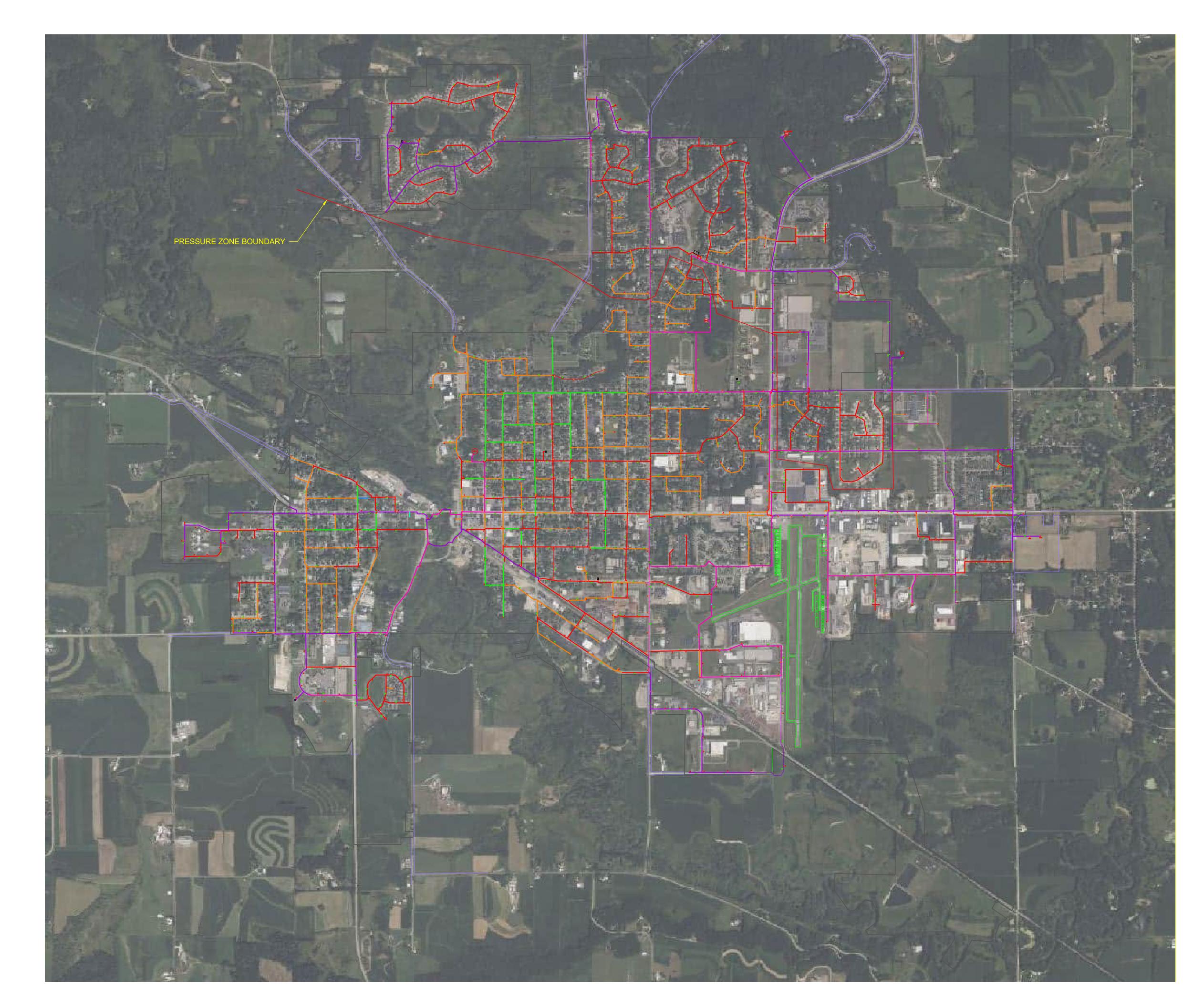


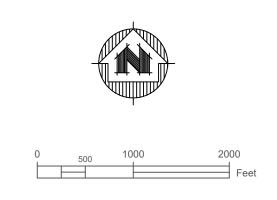
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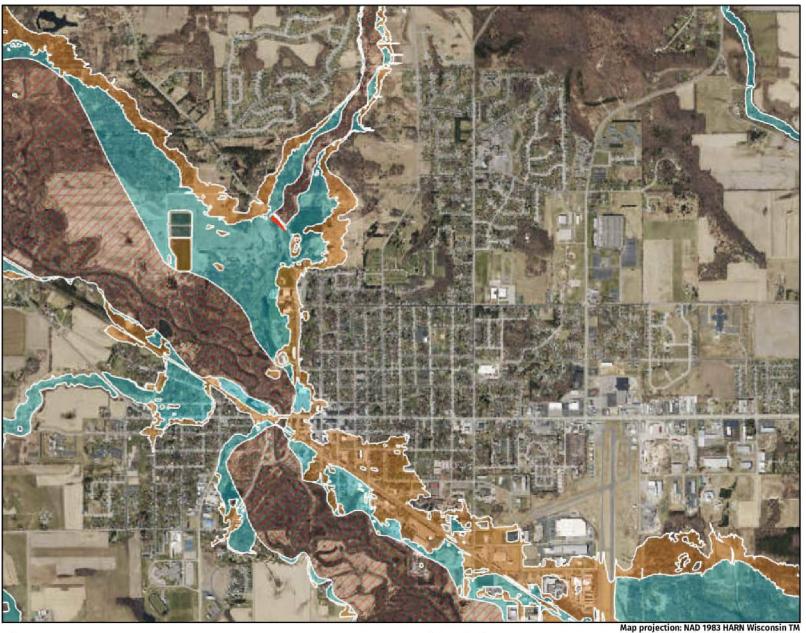


# CITY OF REEDSBURG WATER DISTRIBUTION SYSTEM

LEGEN	D_
	CITY LIMITS
	1" MAIN
	2" MAIN
	3" MAIN
	4" MAIN
	6" MAIN
	8" MAIN
	10" MAIN
	12" MAIN
	6" WATER MAIN (BOOSTER SYSTEM)
	8" WATER MAIN (BOOSTER SYSTEM)
	10" WATER MAIN (BOOSTER SYSTEM
	12" WATER MAIN (BOOSTER SYSTEM
	AIR RELIEF OR BLOW OFF
<del></del>	CHECK VALVE
	GATE VALVE
	HYDRANT
	WELL PUMP HOUSE
$\bigcirc$	RESERVOIR



## **Reedsburg Floodplain Map**



Legend: (some map layers may not be displayed)

Flood Hazard Boundaries

Limit Lines

SFHA / Flood Zone Boundary

Flood Hazard Zones

1% Annual Chance Flood Hazard

1% Annual Chance Flood

Hazard

Regulatory Floodway

0.2% Annual Chance Flood

Latest Leaf Off Imagery

#### Notes:



#### Map: | 610 1,220 Meters

2,000

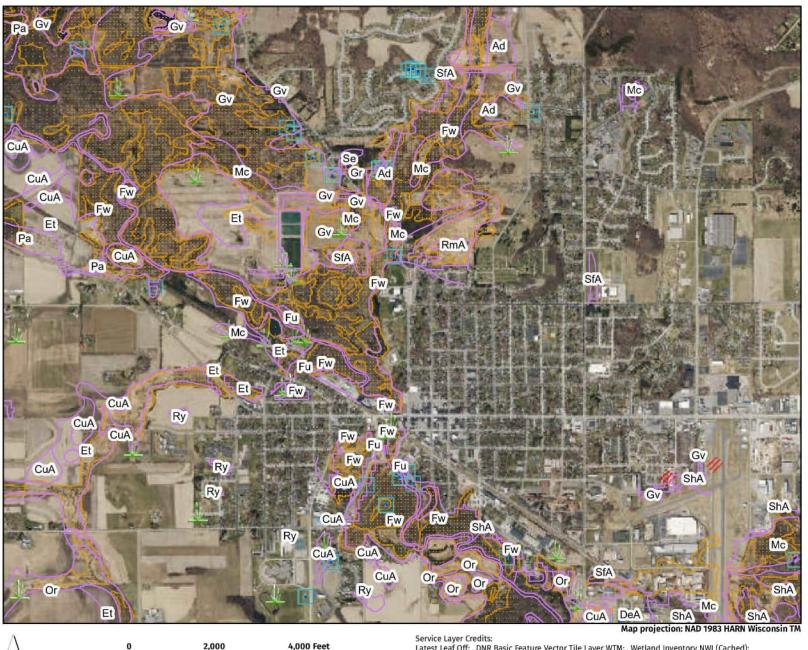
Service Layer Credits:
Digitial FEMA Floodplains (National Flood Hazard Layer)\*: , Latest Leaf Off: , DNR Basic Feature Vector Tile
Layer WTM:

#### This map is a product generated by a DNR web mapping application.

4,000 Feet



## **Reedsburg Wetland Map**



Legend: (some map layers may not be displayed)

Wetland Indicators

Wetland Class Points

Excavated pond



Wetland too small to delineate

Filled Points







Filled Areas



Latest Leaf Off Imagery

Notes:



#### This map is a product generated by a DNR web mapping application.

1,220 Meters

Latest Leaf Off: , DNR Basic Feature Vector Tile Layer WTM: , Wetland Inventory NWI (Cached):

# APPENDIX C TOP 10 USERS (2015 – 2024)



2015	Customer	Consumption (Cu Ft)
1	Grede	24,152,500
2	Saputo Greenway	6,466,000
3	Saputo USA	4,795,589
4	Lakeside Foods	4,008,500
5	Plateco	2,860,400
6	Primex	2,534,800
7	City of Reedsburg	1,671,123
8	Reedsburg Hardwoods	1,417,900
9	Courtyards MHC	1,098,300
10	DRM	640,100

2016	Customer	Consumption (Cu Ft)
1	Grede	25,954,600
2	Lakeside Foods	7,025,400
3	Saputo Greenway	6,982,000
4	Saputo USA	5,173,151
5	Plateco	2,967,900
6	Primex	1,937,300
7	City of Reedsburg	1,895,626
8	Reedsburg Hardwoods	1,504,300
9	Courtyards MHC	860,600
10	Cellox	740,300

2017	Customer	Consumption (Cu Ft)
1	Grede	21,948,000
2	Lakeside Foods	8,176,000
3	Saputo Greenway	6,512,000
4	Saputo USA	5,553,844
5	Plateco	3,004,600
6	Primex	2,273,100
7	City of Reedsburg	1,876,911
8	Reedsburg Hardwoods	1,521,100
9	Courtyards MHC	831,400
10	Cellox	692,400

2018	Customer	Consumption (Cu Ft)
1	Grede	26,013,100
2	Lakeside Foods	7,032,600
3	Saputo Greenway	6,514,000
4	Saputo USA	6,452,068
5	Plateco	2,786,500
6	Primex	2,782,400
7	City of Reedsburg	1,979,281
8	Reedsburg Hardwoods	1,545,300
9	Seats	988,800
10	Courtyards MHC	914,400

	_	
2019	Customer	Consumption (Cu Ft)
1	Grede	26,040,600
2	Lakeside Foods	7,628,100
3	Saputo Greenway	7,237,400
4	Saputo USA	6,960,009
5	Plateco	2,800,600
6	Primex	2,187,300
7	City of Reedsburg	1,742,959
8	Reedsburg Hardwoods	1,439,300
9	Courtyards MHC	943,332
10	RAMC	924,700

2020	Customer	Consumption (Cu Ft)
1	Grede	15,301,900
2	Lakeside Foods	9,254,800
3	Saputo Greenway	8,430,100
4	Saputo USA	6,212,001
5	Plateco	2,880,100
6	Primex	2,350,500
7	City of Reedsburg	1,575,718
8	Reedsburg Hardwoods	1,539,300
9	Maple Aire	963,600
10	Courtyards	911,900

2021	Customer	Consumption (Cu Ft)
1	Grede	25,806,600
2	Lakeside Foods	9,178,500
3	Saputo Greenway	9,076,500
4	Saputo USA	5,716,500
5	Plateco	3,878,600
6	Reedsburg Hardwoods	1,936,600
7	Primex	1,918,600
8	City of Reedsburg	1,492,311
9	Maple Aire	1,042,000
10	Courtyards MHC	991,100

2022	Customer	Consumption (Cu Ft)
1	Grede	20,266,000
2	Saputo Greenway	9,698,200
3	Lakeside Foods	7,783,300
4	Saputo USA	5,394,400
5	Plateco	4,155,700
6	Reedsburg Hardwoods	2,018,400
7	Primex	1,491,500
8	City of Reedsburg	1,437,219
9	Maple Aire	1,317,800
10	RAMC	898,100

2023	Customer	Consumption (Cu Ft)
1	Grede	21,229,500
2	Saputo Greenway	9,395,500
3	Lakeside Foods	8,370,800
4	Plateco	3,469,500
5	Reedsburg Hardwoods	2,445,900
6	Primex	1,750,500
7	Maple Aire	1,653,400
8	City of Reedsburg	1,605,842
9	RAMC	1,006,400
10	Reedsburg Schools	970,270

2024	Customer	Consumption (Cu Ft)
1	Grede	19,850,600
2	Saputo Greenway	9,403,700
3	Lakeside	6,736,500
4	Saputo USA	4,104,000
5	Plateco	3,784,400
6	Reedsburg Hardwoods	2,339,000
7	Primex	2,079,200
8	City of Reedsburg	1,727,287
9	Maple Aire	1,534,700
10	Courtyards MHC	1,101,000

	Grede	Cellox	Hardwoods	Greenway	Saputo	Plateco	Maple Aire	RAMC	Courtyards	City of Reedsburg	Schools	SEATS	PRIMEX	DRM	NOR-AM	Foremost	SCHCC	Viking	VTI	Zinga	Lakeside
2015	24,152,500	626,100	1,417,900	6,466,000	4,795,589	2,860,400	593,500	431,700	1,098,300	1,671,123	555,816	511,880	2,534,800	640,100		900	283,000	133,800	635,000	152,130	4,008,500
2016	25,954,600	740,300	1,504,300	6,982,000	5,173,151	2,967,900	621,900	380,100	860,600	1,895,626	592,144	659,740	1,937,300	471,400		817	282,000	180,400	485,900	226,400	7,025,400
2017	21,948,000	692,400	1,521,100	6,512,000	5,553,844	3,004,600	687,600	360,600	831,400	1,876,911	552,375	572,320	2,273,100	424,500		550	284,000	121,400	482,000	321,530	8,176,000
2018	26,013,100	380,800	1,545,300	6,514,000	6,452,068	2,786,500	756,900	862,400	914,400	1,979,281	480,871	988,800	2,782,400	355,800	71,000	700	296,000	124,200	411,400	82,770	7,032,600
2019	26,040,600	725,000	1,439,300	7,237,400	6,960,009	2,800,600	896,300	924,700	943,332	1,742,959	485,154	805,200	2,187,300	461,500	71,000	800	301,000	141,200	502,700	136,960	7,628,100
2020	15,301,900	882,300	1,539,300	8,430,100	6,212,001	2,880,100	963,600	845,500	911,900	1,575,718	404,850	696,800	2,350,500	402,600	81,000	1,100	258,000	132,500	381,000	100,530	9,254,800
2021	25,806,600	768,300	1,936,600	9,076,500	5,716,500	3,878,600	1,042,000	895,400	991,100	1,492,311	480,051	688,900	1,918,600	538,800	76,000	3,000	236,000	148,000	241,900	91,300	9,178,500
2022	20,266,000	839,100	2,018,400	9,698,200	5,394,400	4,155,700	1,317,800	898,100	828,200	1,437,219	490,230	710,800	1,491,500	554,000	76,000	5,700	207,000	169,800	306,100	83,100	7,783,300
2023	21,229,500	957,700	2,445,900	9,395,500	526,800	3,469,500	1,653,400	1,006,400	958,500	1,605,842	970,270	716,700	1,750,500	451,000	85,000	7,300	209,000	165,100	186,800	68,900	8,370,800
2024	19,850,600	905,300	2,339,000	9,403,700	4,104,000	3,784,400	1,534,700	946,500	1,101,000	1,727,287	550,910	642,000	2,079,200	432,900	118,000	3,400	263,500	165,400	239,800	112,500	6,736,500