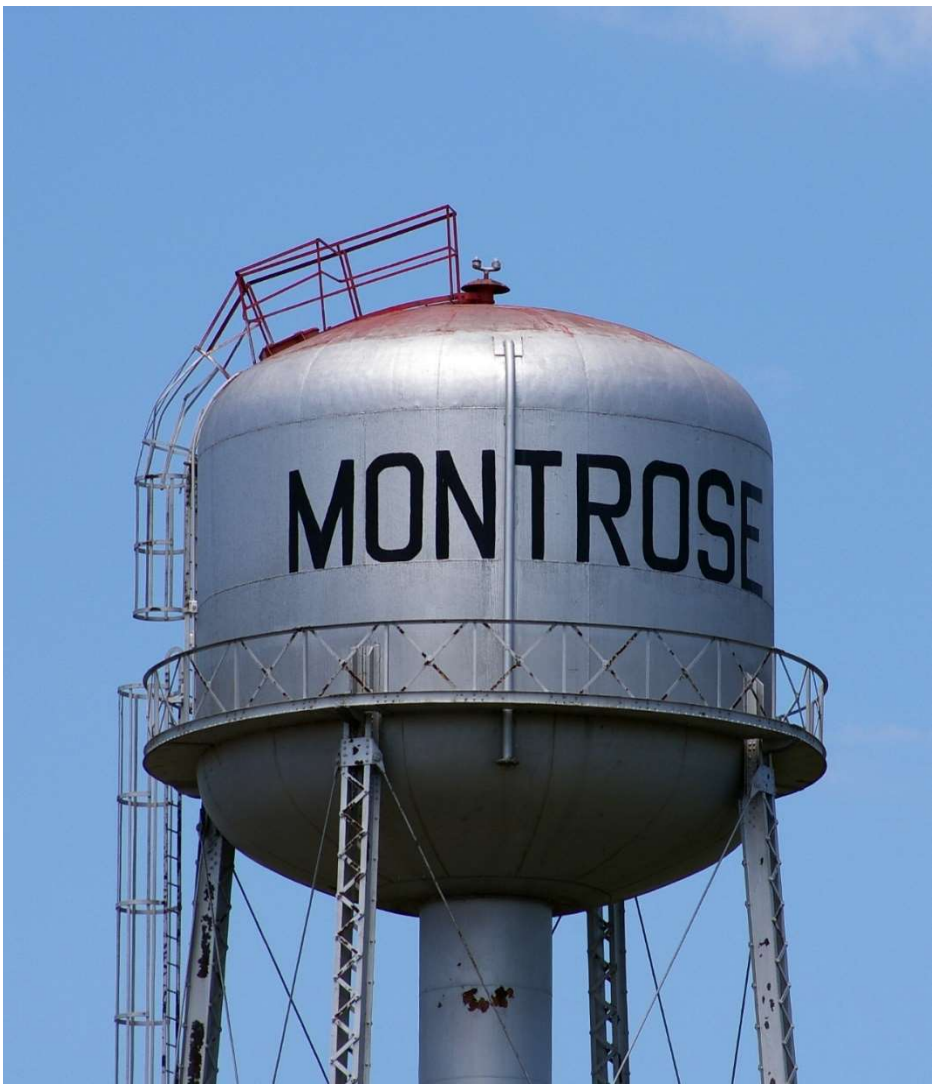
CITY OF MONTROSE WELLHEAD PROTECTION PLAN PART II



Potential Contaminant Source Management Strategy

February 2024 through February 2034

Forward

This document presents the wellhead protection plan (WHPP) for the city of Montrose that will help provide an adequate and safe drinking water supply for community residents. It contains the following components:

- Assessment of the data elements used to prepare the plan.
- Delineation of the wellhead protection areas.
- Delineation of the drinking water supply management areas.
- Assessments of well and drinking water supply management area vulnerability.
- Impact of land and water use changes on the public water supply wells.
- Issues, problems, and opportunities affecting the wells, well water, and the drinking water supply management area.
- Potential Contaminant Source Inventory and risk assessment
- Wellhead protection goals for this plan.
- Objectives and plan of action for achieving the wellhead protection goals.
- Evaluation program for assessing the effectiveness of this plan.
- Contingency strategy to address an interruption of the water supply.

Water Supply Wells Included in This Plan

Unique Number	Well Name or Number	Use/Status[1]
700302	City Well #4	P
700301	City Well #5	P
843402	City Well #6	P

[1]P = Primary Water Supply Well, E = Emergency Backup Well, S = Seasonal Well

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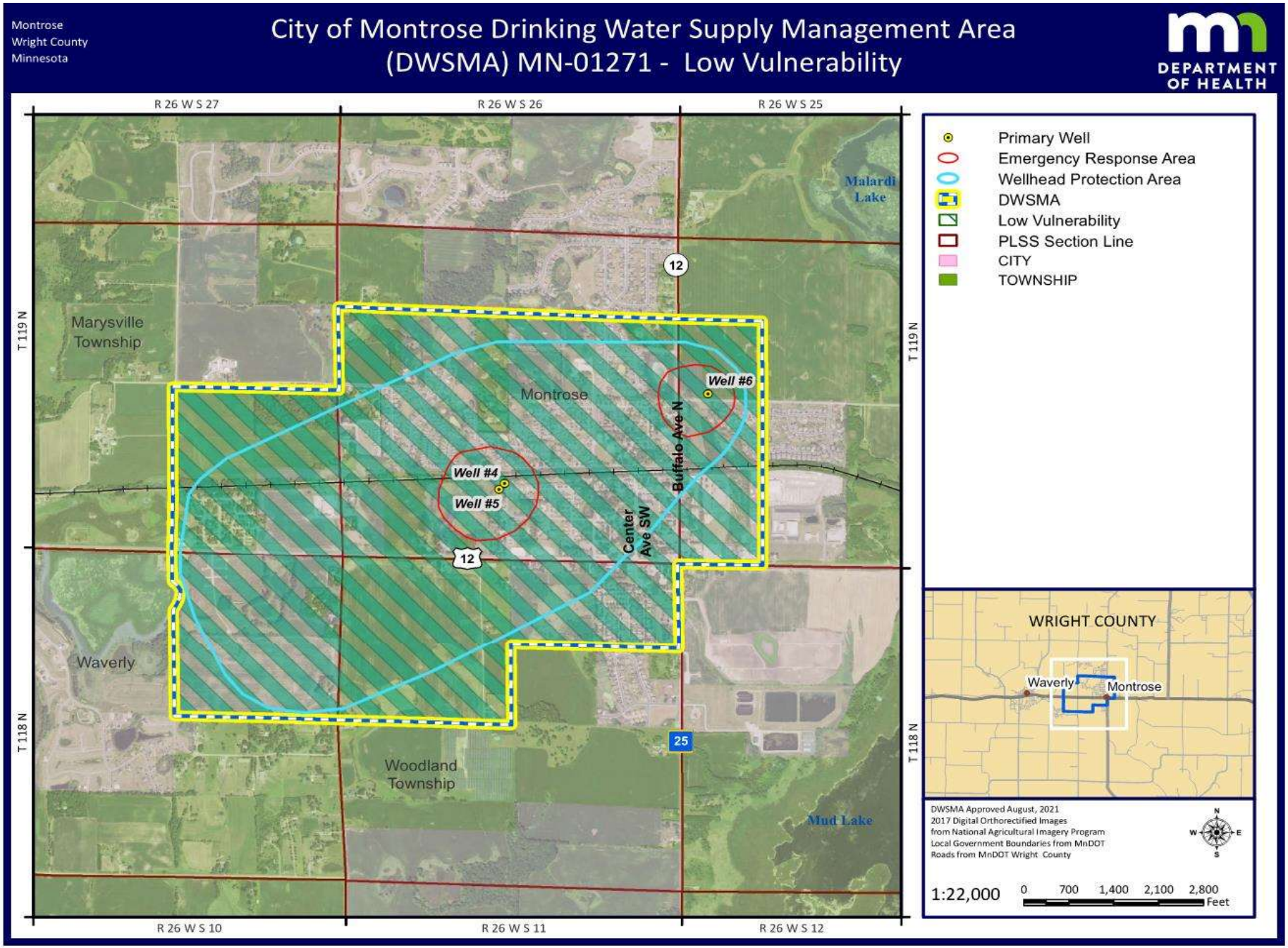
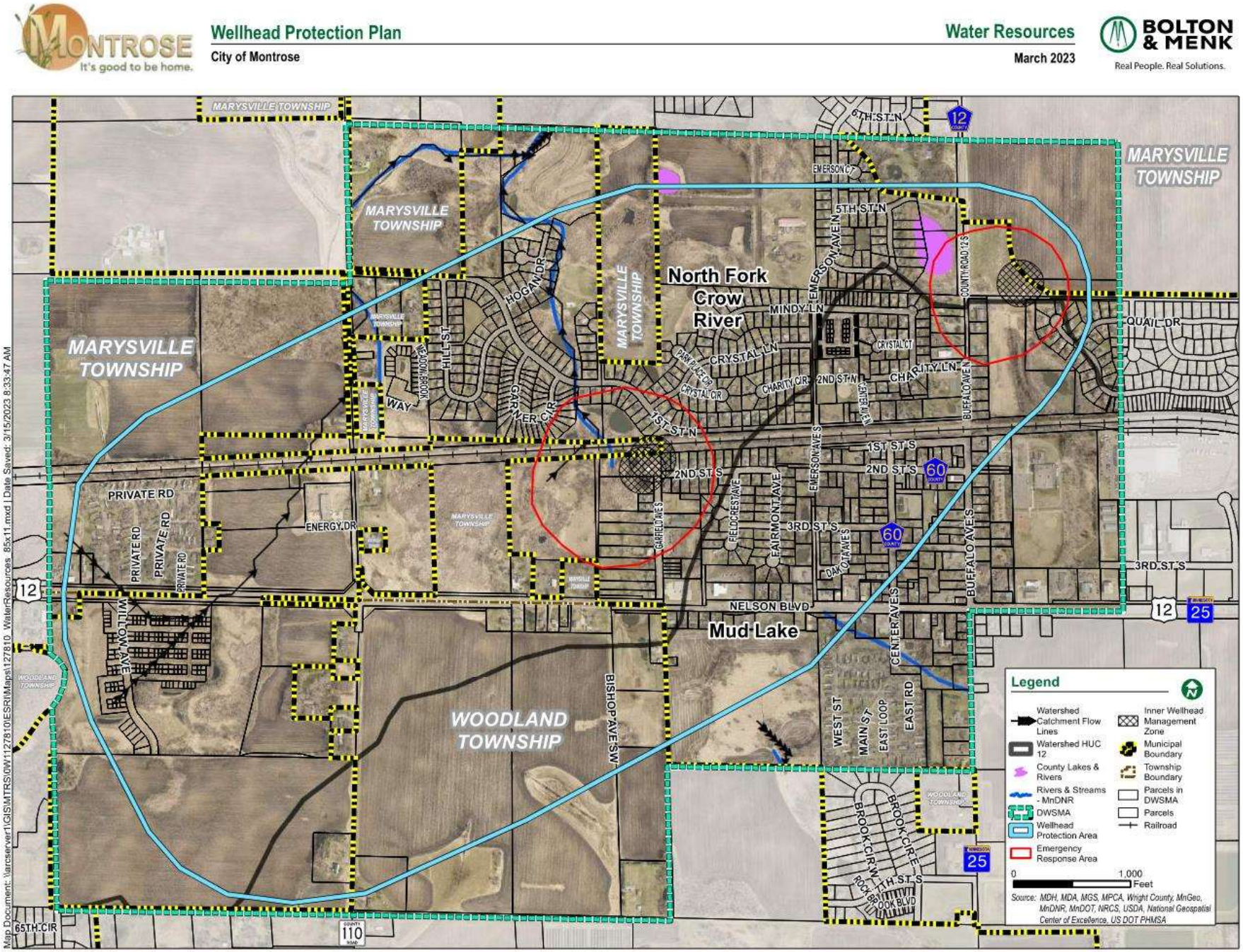


Figure 2: Water Resources within the DWSMA



Chapter 1 - Introduction

1.1 Background

The Wellhead Protection Plan (WHPP) for the city of Montrose was prepared in cooperation with the Minnesota Department of Health (MDH) and Minnesota Rural Water Association (MRWA). It contains specific actions that the city will take to fulfill wellhead protection (WHP) requirements that are specified under Minnesota Rules, part 4720.5510 to 4720.5590. The support that Minnesota state agencies, federal agencies, Wright County, and others will provide is presented to identify their roles in protecting the city's drinking water supply. The plan is effective for 10 years after the approval date specified by MDH and the city is responsible for implementing its WHP plan of action, as described in **Table 13, "WHP Plan of Action."** Furthermore, the city will evaluate the status of plan implementation at least every two-and-one-half years to identify whether its WHPP is being implemented on schedule.

In the Part One of the city's WHPP, the delineation of the Wellhead Protection Area (WHPA), the Drinking Water Supply Management Area (DWSMA), vulnerability of the wells, and vulnerability status of the aquifer in which the City's wells are located were completed and approved by the MDH. Montrose's DWSMA was identified as *Low Vulnerability* in the Part One plan. This information can be found in **Appendix I.**

The city of Montrose is located in Wright County. The DWSMA is mainly comprised of residential within city limits and agricultural within Wright County. The DWSMA is shown in **Figure 1, "City of Montrose Drinking Water Supply Management Area."**

1.2 Plan Appendices

This document contains several references to appendices and attachments that support the technical information summarized in the main body of this plan. These include:

- **Appendix I** contains the first part of the plan, consisting of the delineation of the wellhead protection area (WHPA), the drinking water supply management area (DWSMA), and the vulnerability assessments for the public water supply wells and the DWSMA. This part of the plan is summarized in **Chapter 3**.
- **Appendix II** contains Part One and Part Two WHPP Scoping Documents.
- **Appendix III** contains the inventory of potential contamination sources. This inventory is discussed in **Chapter 4** in terms of assigning risk to the city's water supply and is also discussed in **Chapter 6**, relating to issues, problems or opportunities. It also contains a listing of parcels located within the DWSMA.
- **Appendix IV** contains the Inner Wellhead Management Zone (IWMZ) Potential Contaminant Sources. This information is discussed in **Chapter 4**.
- **Appendix V** contains the Future Land Use from the Montrose Comprehensive Plan.
- **Appendix VI** contains the Old Municipal Well report.
- **Appendix VII** contains the DNR Water Supply Plan approval letter. The entire plan is available at Montrose City Hall. This information is discussed in **Chapter 11**.
- **Appendix VIII** contains the Glossary of Terms.
- **Appendix IX** contains the Implementation Schedule.

Chapter 2 - Identification and Assessment of the Data Elements Used to Prepare the Plan

The data elements that are included in this plan were used to 1) delineate the WHPA and the DWSMA and to assess the DWSMA and well vulnerability and 2) document the need for the WHP measures that will be implemented to help protect the city's water supply from potential sources of contamination. The city met with representatives from MDH on two occasions to discuss data elements specified in Minnesota Rules, part 4720.5400, for preparing a WHP plan.

The first scoping meeting, held on April 8, 2021, addressed the data elements that were needed to support the delineation of the WHPA, the DWSMA, and the wells and DWSMA vulnerability assessments. The second scoping meeting, held on September 2, 2021, discussed the data elements required to 1) identify potential risks to the public water supply and 2) develop effective management strategies to protect the public water supply in relation to well and DWSMA vulnerability. The results of each meeting were communicated to the city by MDH through a formal scoping decision notice and are presented in **Appendix II**. Not all the data elements listed in the WHP rule had to be addressed in the WHP Part One because of the low vulnerability of the city's drinking water source.

The following data elements were reviewed by the WHP team and ranked for prioritization of plan implementation.

Water: The land area of the DWSMA is located within two HUC12 watershed areas: North Fork Crow River (HUC12: 070102040609) and Mud Lake (HUC12: 070102040607). As shown on **Figure 2, "Water Resources,"** the North Fork Crow River watershed area comprises over half of the land area within the DWSMA. The northern and western portions of the DWSMA are located within the North Fork Crow River watershed, and the southern and eastern portions of the DWSMA are located within the Mud Lake watershed area. Ultimately, both of these HUC12 watersheds drain to the North Fork Crow River and part of the Upper Mississippi River Basin.

A One Watershed, One Plan (1W1P) for the North Fork Crow River watershed was completed in 2018. The North Fork Crow River Water Planning Partnership (NFCRWPP) is an organization of six counties, six soil and water conservation districts, two watershed districts, and a joint powers board within southcentral Minnesota. Information about the NFCRWPP can be found at: https://www.nfcrwd.org/.

Land Use and Zoning are noted in **Figure 3, "2021 USDA Land Cover," Figure 4, "Zoning Map,"** and **Figure 5, "Future Land Use."**

Table 1, "Land Use in the Montrose DWSMA," depicts the land use within the DWSMA utilizing the USDA land cover data for 2021 and incorporating local knowledge of the area. Land use within the DWSMA is primarily comprised of a mix of crop land and developed land within the city limits. The DWSMA also contains grassland/pasture, wetlands, and tree cover. The majority of the DWSMA is located within the Montrose city limits, as well as portions of Marysville Township and Woodland Township in Wright County, Minnesota.

Figure 3: 2021 USDA Land Cover

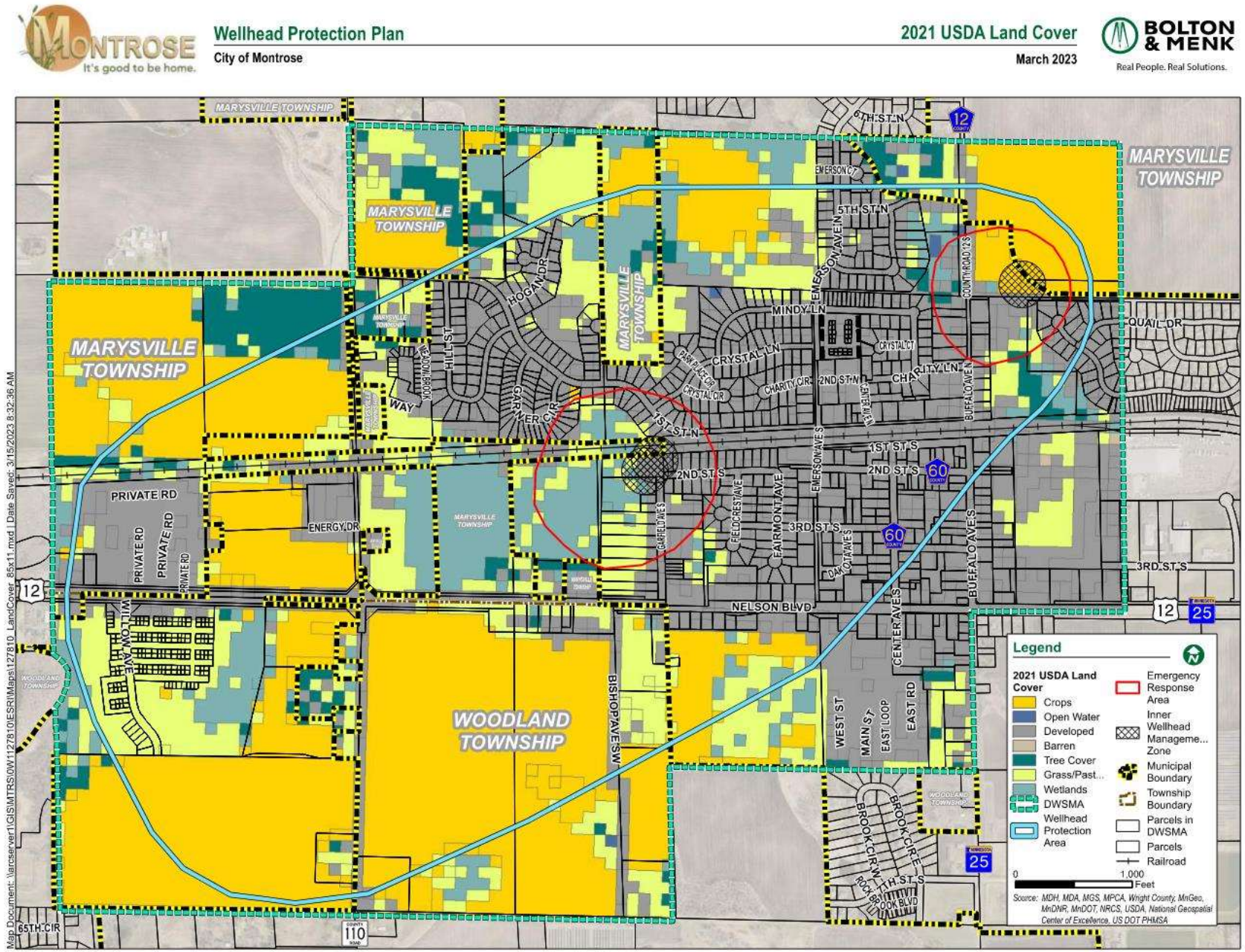


Table 1 – Land Use in the Montrose DWSMA

Land Class Category (USDA, 2021)	DWSMA Acres	DWSMA Percent
Developed	448.8	38.0%
Crops	357.7	30.3%
Grassland/Pasture	218.9	18.5%
Wetlands	105.3	8.9%
Tree Cover	48.1	4.1%
Open Water	1.3	0.1%
Barren	1.1	0.1%
Total	**1181.2**	**100.0%**

Table 2, "Zoning in the Montrose DWSMA," depicts zoning within the Montrose DWSMA, which consists of both the city of Montrose zoning districts and Wright County zoning districts. The DWSMA is primarily comprised of residential zoning districts, commercial and industrial districts, and agricultural lands. The portions of the DWSMA that are located outside the city limits are primarily zoned agricultural, unless otherwise indicated. Overlays within the DWSMA include: Shoreland District (156.0 acres), Highway District (30.2 acres) and Downtown District (36.1 acres) as identified on **Figure 4, "Zoning Map."**

Table 2 – Zoning in the Montrose DWSMA

Zoning Districts	DWSMA Acres	DWSMA Percent
Single Family Residential District (City of Montrose)	320.6	27.1%
Urban Reserve District (City of Montrose)	114.9	9.7%
Medium Density Residential District (City of Montrose)	95.2	8.1%
Residential Business (City of Montrose)	47.0	4.0%
Highway Business District (City of Montrose)	36.2	3.1%
Institutional District (City of Montrose)	35.3	3.0%
Single Family Manufactured Home Park District (City of Montrose)	21.4	1.8%
Light Industrial District (City of Montrose)	21.1	1.8%
Central Business District (City of Montrose)	8.0	0.7%
High Density Residential District (City of Montrose)	7.8	0.7%
Heavy Industrial District (City of Montrose)	3.0	0.3%
Agriculture (Wright County)	427.3	36.2%
Suburban Residential (Wright County)	9.7	0.8%
Commercial Recreation Shorelands (Wright County)	1.6	0.1%
Urban/Rural Transition (Wright County)	1.5	0.1%
Public rights of way (City and County)	30.6	2.6%
Total	**1181.2**	**100.0%**

Figure 4: Zoning Map

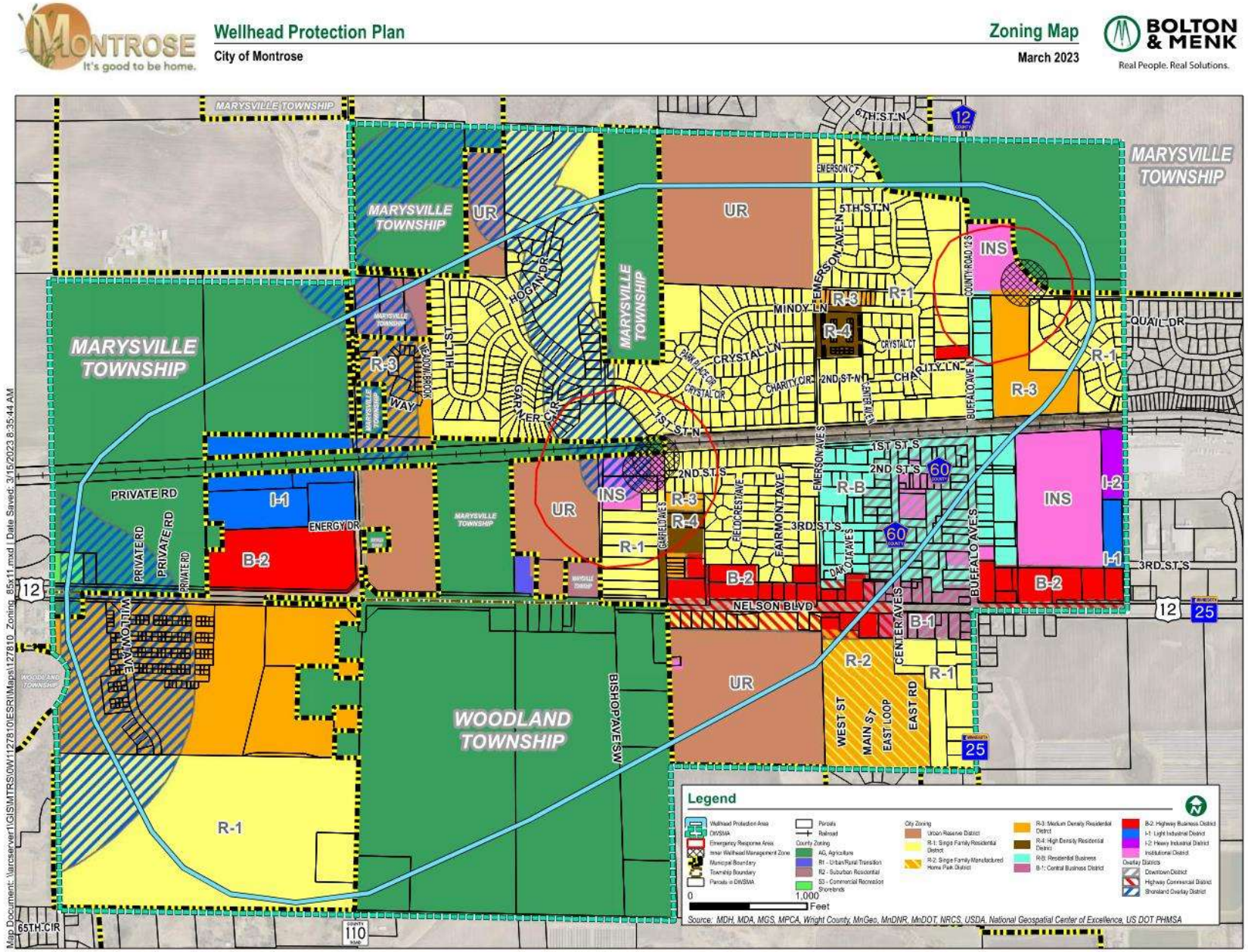


Figure 5, "Future Land Use," depicts planned future land use changes within the DWSMA. Presently identified *Agriculture* areas are anticipated to transition, through citizen-driven-petition annexation, to areas zoned *Residential* and *Commercial*. This will enable opportunities for the city to attract new businesses and industries. The portion of Montrose's 2040 Comprehensive Plan that discusses future land use within the DWSMA is included in **Appendix V**. The plan was completed in 2017 and is available online at: https://www.montrose-mn.com/index.asp?SEC=E3DEB9A1-39EC-4095-81A4-8A8D45EE52B3.

Table 3 – Future Land Use in the Montrose DWSMA

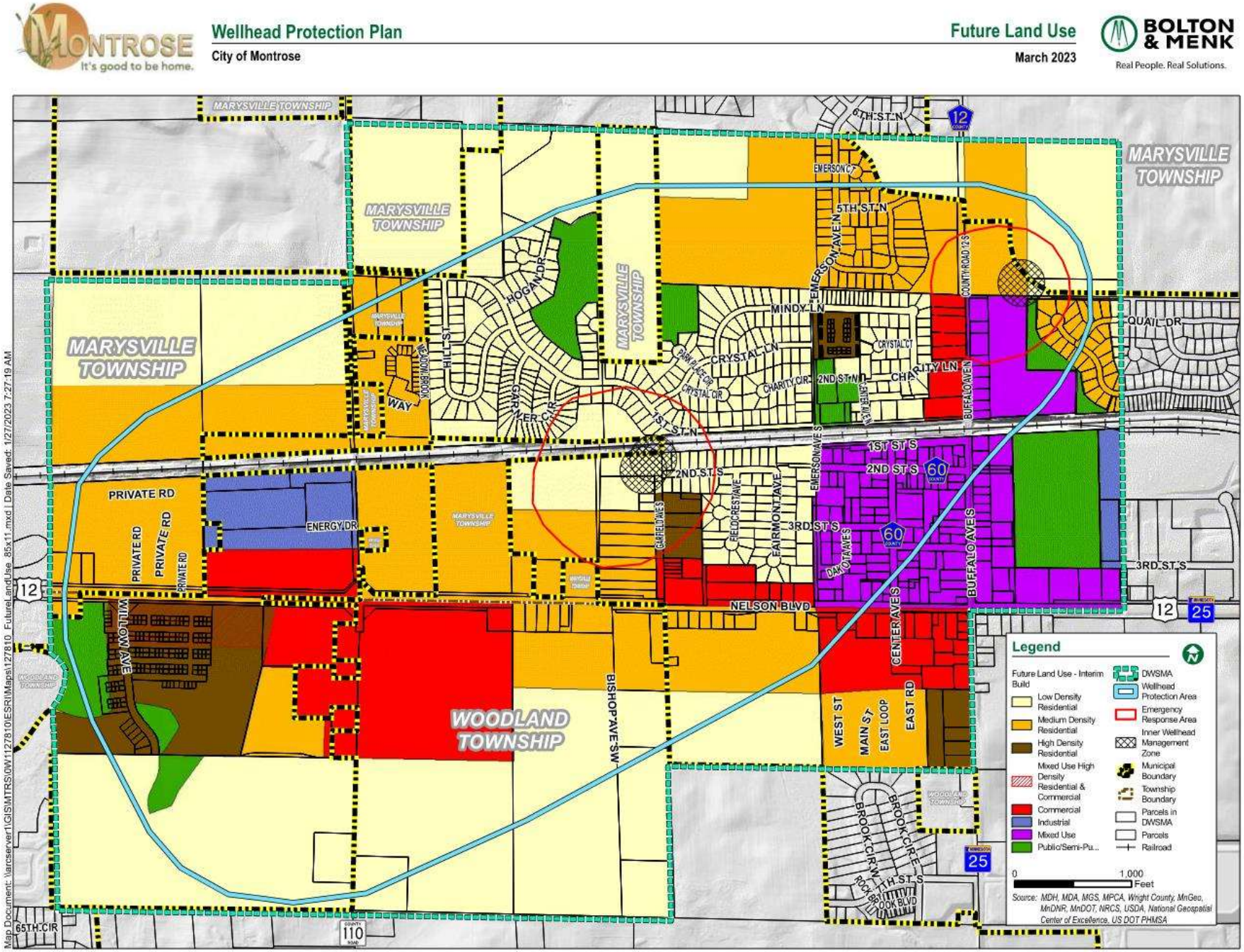
Land Class Category (USDA, 2021)	DWSMA Acres	DWSMA Percent
Low Density Residential	511.3	43.3%
Moderate Density Residential	334.3	28.3%
Commercial	110.4	9.3%
Mixed Use	80.1	6.8%
High Density Residential	54.6	4.6%
Public / Semi-Public	53.2	4.5%
Industrial	25.5	2.2%
Mixed Use High Density Residential	11.8	1.0%
Total	**1181.2**	**100.0%**

In 2011, Wright County completed a county-wide comprehensive land use plan that incorporated future land-use planning goals to guide future development within the county and along the US Highway 12 corridor. The plan is available online at: https://www.co.wright.mn.us/184/Wright-County-Land-Use-Plan.

As indicated in the Highway 12 Corridor plan, county policies that promote growth and development within cities while supporting agricultural and rural preservation, as well as the protection of the natural environment, continue to enjoy widespread support.

There are no significant annexation plans currently anticipated within the DWSMA.

Figure 5: Future Land Use



Geology: A geologic atlas of Wright County was updated in 2018. This study can be found at: https://files.dnr.state.mn.us/waters/groundwater_section/mapping/cga/c30_wright/wright_report.pdf.

Geologic data elements pertinent to the WHPA delineation and vulnerability status are included in Part One of this WHPP and were utilized in the delineation. Part One can be found in **Appendix I** and is on file with the MDH and the city of Montrose.

The city wells draw water from the Quaternary Buried Artesian Aquifer. This aquifer is comprised of sand and gravel buried beneath a layer of clay-rich sediment. These wells are between 161 feet deep and 175 feet deep. The clay-rich sediments that overlie the city's aquifer prevent water and contaminants from moving quickly from the land surface into the city's aquifer and implies a time of travel of decades or longer. The principal threats to this aquifer are unused-unsealed wells that penetrate through this clay layer. The aquifer is not vulnerable to activities on the surface due to a confining layer between the aquifer and the surface.

Groundwater Quantity: The city believes the current drinking water volume is adequate for the next ten years.

While the designed water supply capacity of the city's three public water supply wells is about 1,560,000 gallons per day, the average historical pumping rate is about 198,000 gallons per day with a historical peak pumping rate of approximately 455,000 gallons per day. Should demand increase over the next 10 years, the city may evaluate the potential for adding an additional public water supply well to the system. Historical annual pumping amounts for each of the wells located within the DWSMA are shown in **Table 4, "Annual Well Pumping Amounts (gallons per year)"** Well #2 was sealed in 2020 as Well #6 was brought into the system. While there was an overlap in these two wells during 2020, the total pumping amounts were comparable to other years.

Table 4 – Annual Well Pumping Amounts (gallons per year)

Year	Well 4	Well 5	Well 6 (installed in 2019)	TOTAL (By Year)
2018	21,379,000	27,255,000	N/A	72,287,000*
2019	19,935,000	23,856,000	N/A	68,356,000*
2020	34,698,000	33,495,000	5,950,130	79,570,130*
2021	18,044,000	33,515,000	28,699,325	80,258,325
2022	24,455,000	34,486,000	27,521,681	86,462,681
Average	**23,702,200**	**30,521,400**	**20,723,712**	**77,386,827**

*Annual total includes water pumped from Well #2, now sealed.

In addition to the wells used by the public water supplier, three other high-capacity wells were included in the Part I delineation to account for their pumping impacts on the capture areas for the public water supply wells. These wells are listed in **Table 5, "Other Permitted High-Capacity Wells."** The *12 Hi Mobile Home Park (MHP)* well is permitted for 12.9 million gallons per year, and the Waverly 1 and Waverly 2 wells are located outside of the DWSMA.

There are no significant impacts or interference with the city's public water supply from these high-capacity wells. Adding transducers to measure static water levels will assist the city in determining any adverse effects on the aquifer from the city's use. Aquifer testing was conducted on well #6 in 2019 to determine hydraulic conductivity of the aquifer near the wells. The MDH is reviewing these results and will utilize the data for the next amendment.

Any newly proposed high-capacity wells will be evaluated by the Minnesota Department of Natural Resources (MNDNR), the city and MDH to determine impact to the public water supply. If a new well is needed by the city, staff will work with the MDH to determine placement, pumping capacity, and mitigate for any potential impacts.

Table 5 – Other Permitted High-Capacity Wells

Unique #	Well Name	DNR Permit #	Aquifer	Use	Annual Volume of Water Pumped (millions of gallons)	Daily Volume (cubic meters)
218012	Waverly 1	1975-3023	QBAA	Municipal / Public Water Supply	10.414	108
182086	Waverly 2	1975-3023	QBAA	Municipal / Public Water Supply	9.932	103
258207	12 Hi MHP	1992-3191	QBAA	Public Water Supply	7.886	82

There are no known environmental boreholes in the DWSMA. There is one city-owned observation well (City Well #3) located within the DWSMA, which is used by MNDNR to record static water levels. Water level information for the city-owned observation well can be found at: https://www.dnr.state.mn.us/waters/cgm/site.html?id=218013.

Groundwater Quality: As indicated in Part One, water samples were collected from Well 4, Well 5, and Well 6, and analyzed for tritium, nitrate, chloride, and bromide. No tritium or nitrate was detected, and the groundwater age classification based on the tritium result is mostly premodern. This confirms the non-vulnerable nature of the wells. In addition, the chloride and bromide results confirm that the wells have not been impacted by land use activities.

Based on the city of Montrose Water System Study, the raw water quality meets all Environmental Protection Agency (EPA) primary water standards but exceeds the MDH health-based value for concentration of manganese (0.10 mg/L). Manganese is the main water quality contaminant of concern, as the manganese concentrations present as of February 2021 in Well 4 (1.070 mg/L), Well 5 (0.810 mg/L), and Well 6 (0.423 mg/L) are high. The EPA has a secondary maximum contaminant level (SMCL) guideline for manganese of 0.050 mg/L. The average concentration of manganese in all the city supply wells exceeds the EPA SMCL guideline. Manganese occurs naturally in rocks and soil across Minnesota and is often found in Minnesota

ground and surface water. According to MDH, while this naturally occurring element is needed to stay healthy, too much can be harmful.

For more information related to groundwater quality, please refer to Part One of this plan.

Chapter 3 - Delineation of the Wellhead Protection Area, Drinking Water Supply Management Area and Vulnerability Assessments

A detailed description of the process used for 1) delineating the WHPA and the DWSMA, and 2) preparing the vulnerability assessments of the city water supply wells and DWSMA is presented in **Appendix I**. This work was completed by John Woodside, Hydrologist, MDH Source Water Protection Unit.

3.1 WHPA and DWSMA Delineation

Figure 1, "City of Montrose Drinking Water Supply Management Area," shows the boundary of the WHPA and the DWSMA. The WHPA was delineated using computer simulations of groundwater movement to generate the underground capture zones for city Well 4 (Unique No. 700302), Well 5 (Unique No. 700301) and Well 6 (Unique No. 843402). The WHPA delineates the ten-year time-of-travel for groundwater toward the city wells.

The DWSMA is 1,181.2 acres total with 740.9 acres (62.7%) located within Montrose city limits and the remaining 440.3 acres (37.3%) located in Marysville and Woodland Townships, Wright County. The DWSMA boundary was designated using the following criteria:

- Center-lines of highways, streets, roads, or railroad rights-of-way
- Public Land Survey coordinates
- Properties or fence lines

3.2 Well Vulnerability Assessment

The construction and water quality obtained from each primary well used by the city of Montrose is included in the assessment of well vulnerability. The city has three primary wells screened in a sand and gravel aquifer that is buried beneath a layer of clay-rich sediment. These wells are considered non-vulnerable due to their clay-rich covering, and because none of the contaminants for which the Safe Drinking Water Act has established health-based standards has been found above maximum allowable levels in the city's water supply, nor are any present at one-half of those levels.

3.3 DWSMA Vulnerability Assessment

The low-vulnerability assessment assigned to the DWSMA was determined using geologic, soils, and groundwater chemistry information. This suggests that the clay-rich sediments that overlie the city's aquifer prevent water and contaminants from moving quickly from the land surface into the city's aquifer and implies a time of travel of decades or longer. The principal threats to this aquifer are unused-unsealed wells that penetrate through this clay layer, which are wells at 145 feet or greater in depth in the Montrose area.

Chapter 4 - Establishing Priorities and Assigning Risk to Potential Contamination Sources

The types of potential contamination sources that may exist within the DWSMA were derived from the information collected to satisfy the data element requirements (Chapter 2). The impact assigned to each data element as part of the assessment process was used to assess the types of potential contamination sources that may present a risk to the city's drinking water supply. The low vulnerability assessment for the DWSMA indicates that only unknown wells and wells greater than 145 feet in depth need to be considered. Other types of boreholes, excavations that may reach the aquifer, and certain types of EPA Class V Wells also require consideration.

4.1 Contaminants of Concern

None of the human-caused contaminants regulated under the federal Safe Drinking Water Act have been detected at levels indicating that any well itself serves to draw contaminants into the aquifer as a result of pumping.

4.2 Inventory Results and Risk Assessment

A description of the locations of potential contamination sources is presented in **Appendix III**. The MDH "County Well Index" (CWI), along with city employee knowledge, was utilized to locate wells. The city employees have a good working knowledge of the properties and their uses within the DWSMA. MDH provided a Class V Well Inventory for the DWSMA areas. Base maps, Land Use, Land Cover, and Zoning were derived from MDH, MNDNR, the MN Geologic Survey, Wright County, and the city of Montrose.

A summary of the results for the IWMZ is listed in **Table 6, "Potential Contamination Sources and Assigned Risk for the IWMZ." Table 7, "Potential Contamination Sources and Assigned Risk for the Rest of the DWSMA"** and **Figure 6, "PCSI Map,"** present these results for the remainder of the DWSMA. In addition to the public water supply wells, there is one high-capacity well and one back-up well at the 12-Hi MHP, nine known residential wells greater than or equal to 145-feet deep, a monitoring and test well, thirteen wells of unknown depth and well number that either exist or need further verification of sealing. There are fourteen wells that are less than 145-feet deep that were assessed and are not included in this inventory.

Class V injection wells are typically shallow disposal systems that are used to place a variety of fluids below the land surface. Examples of Class V injection wells include motor vehicle waste disposal wells, large capacity cesspools, storm water drainage wells, aquifer remediation wells and large capacity septic systems. Class V wells are a concern because, in some situations, they may pose a risk to underground sources of drinking water. There are no known Class V wells located within the DWSMA. Management of Class V injection wells will be addressed in the strategies of this plan.

The Potential Contaminant Source Inventory, along with parcels located within the DWSMA can be found in **Appendix III**. Unused, unsealed municipal or other wells identified in the Old Municipal Well Report will need to be addressed in implementation of this plan (**Appendix VI**).

Wells will be investigated and an attempt will be made by the city to mitigate the unknown wells, with assistance from MDH and Wright County.

The priority assigned to each type of potential contamination source addresses 1) the number inventoried, 2) its proximity to a city well, 3) the capability of local geologic conditions to absorb a contaminant, 4) the effectiveness of existing regulatory controls, 5) the time required for the city of Montrose to obtain cooperation from governmental agencies that regulate it, and 6) the administrative, legal, technical, and financial resources needed. A high (H) risk potential implies that the potential source type has the greatest likelihood to negatively impact the city's water supply and should receive highest priority for management. A low (L) risk potential implies that a lower priority for implementing management measures is assigned.

Table 6 - Potential Contamination Sources and Assigned Risk for the IWMZ

Potential Source Type	Total Well #4	Total Well #5	Total Well #6	Level of Risk
SS2-Sewage sump capacity 100 gal or more	**1**	**1**		**M**
SB1-Sewer, buried, approved materials, tested, serving 1-bldg, or 2 or less SF residences.	**3**	**2**	**1**	**L**
SB2-Sewer, buried, collector, municipal, serving a facility handling infectious pr pathological wastes, open jointed or unapproved materials.	**2**	**2**		**L**
SD1-Storm water drainpipe, 8' or > in diameter.	**2**	**2**		**L**
SM1-Storm water pond >5000 gal.	**4**	**4**		**L**
WEL-Operating well	**2**	**2**		**L**
GP1-Gravel pocket or French drain for clear water drainage only.	**1**	**1**	**1**	**L**
PT4-Petroleum tank or container, not buried, between 56 and 1100 gal.	**4**	**4**	**1**	**L**
PC1-Pollutant or contaminant that may drain into the soil.	**1**		**1**	**M**

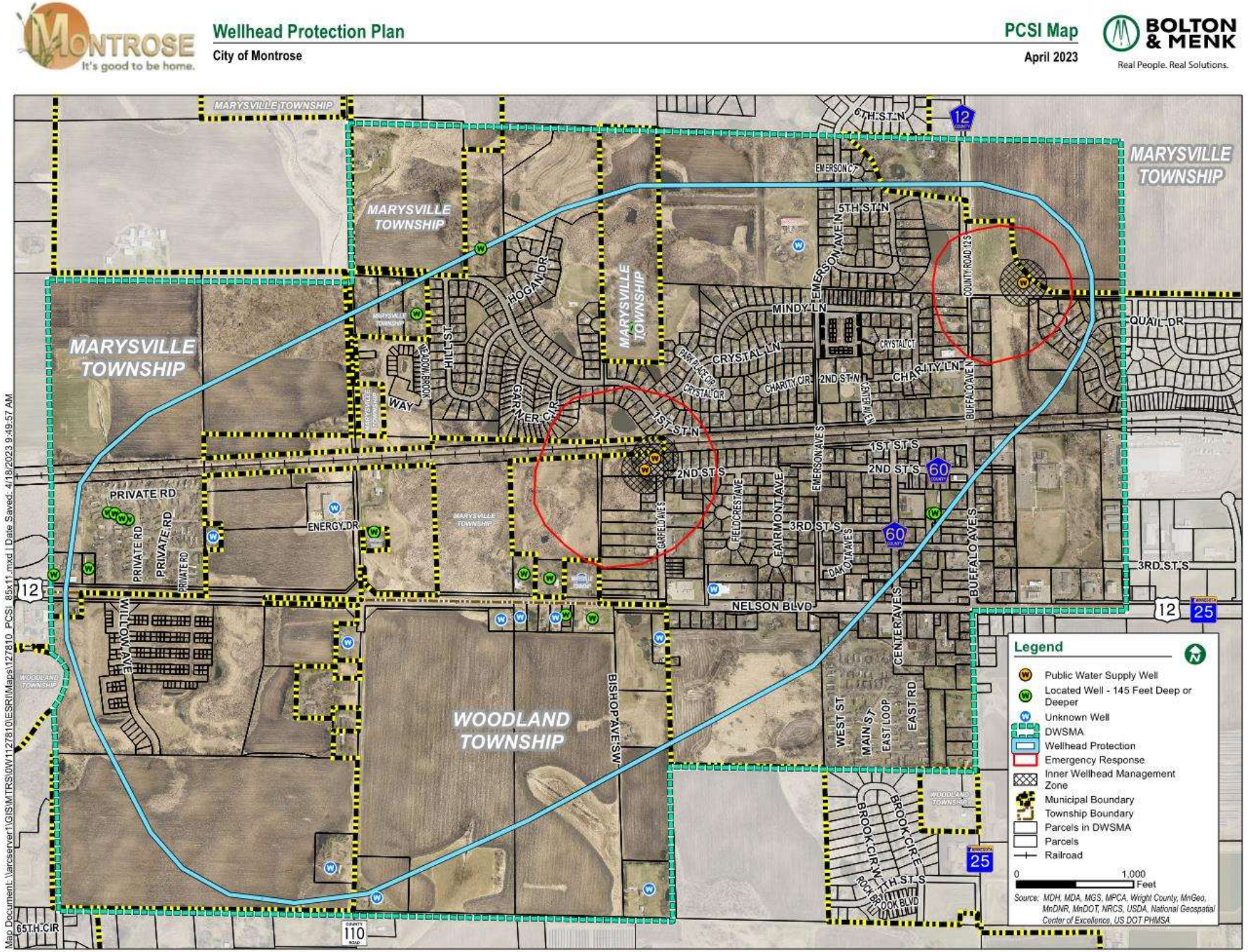
Strategies to address IWMZ issues will be included in the implementation section of this plan. This will also include a spill response plan for Wells 4 and 5, as their IWMZ overlaps with the railroad corridor.

Table 7 - Potential Contamination Sources and Assigned Risk for the Rest of the DWSMA

Potential Source Type	Total Number	Level of Risk
Public Water Supply Wells	3	L
Monitoring and Test Wells	2	L
Wells Greater Than 145-Feet Deep	14	H
Unlocated or Unverified Wells	13	H
Class V Wells	0	N/A

All wells will be addressed in the management strategies with emphasis on identification of and sealing unused and unsealed wells.

Figure 6: Potential Contaminant Source Inventory (PCSI) Map



Chapter 5 - Impact of Land and Water Use Changes on the Public Water Supply Wells

Anticipated changes to the physical environment, land use, surface water, and groundwater that may occur within the city of Montrose throughout the ten-year period that the WHP plan is in effect are outlined in **Table 8, "Expected Land and Water Use Changes."** The purpose of this exercise is to determine whether new potential sources of contamination may be introduced in the future, as well as to begin identifying future actions for mitigating these potential contamination sources.

Land and water use changes may introduce new contamination sources or result in changes to groundwater use and quality. The anticipated changes may occur within the jurisdictional authority of the city. These anticipated changes are described in relationship to a) the influence that existing governmental land and water programs and regulations may have on the anticipated change; and b) administrative, technical, and financial considerations of the city of Montrose and property owners within the DWSMA.

Table 8 - Expected Land and Water Use Changes

Expected Change	Impact of the Expected Change on the Source Water Aquifer	Influence of Existing Government Programs and Regulations on the Expected Change	Administrative, Technical, and Financial Considerations Due to the Expected Change
Physical Environment	No anticipated changes.	N/A	N/A
Land Use	Change from Agriculture to Residential and Commercial.	N/A	Land use and zoning changes driven by citizen petition and would require increased administrative review and oversight.
Surface Water	No anticipated changes.	N/A	N/A
Groundwater	With increased residential and commercial areas, anticipate increased usage of current public water and possible need for new well.	May need updated water appropriations permit (MNDNR) and possible water quality monitoring if a new well is installed.	Increase in administrative and financial obligations to monitor existing operations and possibly increase water supply infrastructure.

N/A = Not Applicable

Chapter 6 - Issues, Problems, and Opportunities

6.1 Identification of Issues, Problems and Opportunities

The city of Montrose has identified water and land use issues and problems and opportunities related to 1) the aquifer used by the city water supply wells, 2) the quality of the well water, or 3) land or water use within the DWSMA. The city assessed 1) input from public meetings and written comments it received, 2) the data elements identified by MDH during the scoping meetings, and 3) the status and adequacy of the city's official controls and plans on land and water uses, in addition to those of local, state, and federal government programs. The results of this effort are presented in the following table, which defines the nature and magnitude of contaminant source management issues in the city's DWSMA. Identifying issues, problems and opportunities, including resource needs, enables the city to 1) to make effective use of existing resources, 2) set meaningful priorities for source management and 3) solicit support for implementing specific source management strategies.

6.2 Comments Received

There have been several occasions for local governments, state agencies, and the general public to identify issues and comment on the city's WHPP. At the beginning of the planning process, local units of government were notified that the city was going to develop its WHPP and were given the opportunity to identify issues and comment. A public information meeting was held to review the results of the delineation of the wellhead protection area, DWSMA, and the vulnerability assessments. The meetings of the city's wellhead protection team were open to the public. The public information meeting and public hearing were held on July 10, 2023 - before the completed WHPP was sent to MDH for state agency review and approval.

While there were no issues identified at the local government, state agency and/or the public informational meeting, the wellhead protection team has identified the following issues:

Table 9- Issues, Problems, and Opportunities

Issue Identified	Impacted Feature	Problem Associated with the Identified Issue	Opportunity Associated with the Identified Issue	Adequacy of Existing Controls to Address the Issue
There are unknown, unused or unsealed wells located within the DWSMA.	• Aquifer • Well water quality • DWSMA	The city needs to assess if these wells present a threat to the aquifer based upon depth, construction, and state of repair.	The city will pursue 100% funding to seal unused and unsealed wells located within the DWSMA if they meet the priority criteria outlined in the PCSI or are unknown depth.	The city has the authority to limit well usage within city limits. The MDH has authority to require well sealing.

Issue Identified	Impacted Feature	Problem Associated with the Identified Issue	Opportunity Associated with the Identified Issue	Adequacy of Existing Controls to Address the Issue
Issues identified during IWMZ survey.	• Aquifer • Well water quality • DWSMA	The city needs to address any issues along the railroad corridor within the IWMZ areas of Well # 4 and 5.	The city will pursue funding to address potential concerns within the IWMZ.	The city owns or has access to the property within the IWMZ.
Location and reporting of new wells within two miles of city or one mile of DWSMA.	• Aquifer • Well water quality • DWSMA	MDH has limited information regarding wells in the public water supply aquifer.	The city can apply for grant funding to purchase handheld GPS units and coordinate with MDH to verify new well locations.	The city does not have authority over wells drilled within the area.
Water quality monitoring per MDH	• Aquifer • Well water quality • DWSMA	MDH requests monitoring of wells for next plan amendment.	The city will work with the MDH to establish and implement a monitoring plan in five years.	The city can complete the collection of samples for testing. Testing completed by MDH.
Old Municipal Wells	• Aquifer • Well water quality • DWSMA	There may be old municipal wells without location and/or sealing records.	The city will address wells identified in the survey and work with MDH to properly abandon.	The city does not have regulatory authority over wells. MDH regulates wells.
Lack of Educational materials	• Well water quality	The city does not have adequate education materials on their website.	The city can apply for MDH SWP grant funding to develop an area on their website to address wellhead protection.	The city currently has a website.
Assess security needs in and around public water supply wells (PWSW).	• Aquifer • Well water quality • DWSMA	The city may have inadequate security around PWSW.	The city can apply for MDH grant funding to assess and provide security measures	The city owns or has access to the property immediately adjacent to PWSW.
The city may have inadequate protection ordinances.	• Well water quality	The city needs to protect the drinking water aquifer.	The city can apply for MDH grant funding to assess and update ordinances if needed.	The city has regulatory authority over the utilities.

Issue Identified	Impacted Feature	Problem Associated with the Identified Issue	Opportunity Associated with the Identified Issue	Adequacy of Existing Controls to Address the Issue
There may be unknown Class V Wells located in the DWSMA.	• Aquifer • Well water quality • DWSMA	The city needs to report a suspected Class V Well to MDH.	The city will be aware of Class V Wells within the DWSMA.	The EPA has authority over Class V Wells in Minnesota.
The city may need assistance identifying need and location for a new public water supply well.	• Aquifer • DWSMA	The city needs to determine the trigger for new well drilling to augment current water supply capacity.	The city can request assistance from MDH and/or consultant to identify well site location and test well drilling.	MDH regulates wells and MNDNR regulates appropriations permitting.

It is difficult to foresee or plan for the future. The city of Montrose will use its planning and management capabilities within this plan to respond to any new/unknown source water protection issues that may impact the quality or quantity of its drinking water in the future.

Chapter 7 - Existing Authority and Support Provided by Local, State, and Federal Governments

In addition to its own controls, the city of Montrose will rely upon partnerships formed with local units of government, state agencies, and federal agencies with regulatory controls or resource management programs in place to help implement its WHPP. The level of support that a local, state, and federal agency can provide depends on its legal authority, as well as the resources available to local governments.

7.1 Existing Controls and Programs of the City of Montrose

The DWSMA is mostly located within the city limits of Montrose (62.7%) with 37.3% of the DWSMA acreage situated within Marysville and Woodland Townships, Wright County. **Table 10, "Controls and Programs of the City of Montrose,"** shows the legal controls and/or programs that the city has identified to support the management of potential contamination sources within the DWSMA.

Table 10 - Controls and Programs of the City of Montrose

Type of Control	Program Description
City Ordinances: • Zoning • Utility Regulations • Ordinance 32.10 – Well Management Authority	Zoning Permits City Water / Sewer hook-up Ordinance Well Sealing and prohibits cross-connections

7.2 Local Government Controls and Programs

Table 11 - Local Agency Controls and Programs

Government Unit	Name of Control/Program	Program Description
Marysville Township	None	N/A
Woodland Township	None	N/A
Wright County Planning & Zoning	Zoning Comprehensive Land Use Planning	Land use and zoning outside Montrose city limits
Wright County SWCD	Local Water Plan Wetland Conservation Act Cost-share Programs	Education Programs Wetlands Regulations Well sealing cost-share
North Fork Crow River Watershed District	Drainage One Watershed One Plan Cost-share Programs	Permits for projects that include movement of soil within the watershed. Septic system cost-share

7.3 State Agency and Federal Agency Support

MDH will serve as the contact for enlisting the support of other state agencies on a case-by-case basis regarding technical or regulatory support that may be applied to the management of potential contamination sources. Participation by other state agencies and the federal government is based on legal authority granted to them and resource availability. Furthermore, MDH 1) administers state regulations that affect specific potential sources of contamination and 2) can provide technical assistance to property owners to comply with these regulations.

Table 12 identifies the specific regulatory programs or technical assistance that state and federal agencies may provide to the city to support implementation of the WHPP. It is likely that other opportunities for assistance may be available over the 10-year period that the plan is in effect due to changes in legal authority or increases in funding granted to state and federal agencies. Therefore, the table references opportunities available when the city's WHPP was first approved by MDH in October 2023.

Table 12 - State and Federal Agency Controls and Programs

Government Unit	Type of Program	Program Description
MDH	State Well Code for Municipal Wells (Minnesota Rules, Chapter 4725)	MDH has authority over the construction of new municipal wells and the sealing of wells. MDH staff in the Well Management Program offer technical assistance for enforcing well construction codes, maintaining setback distances for certain contamination sources, and well sealing.
MDH	WHP	MDH has staff that will help the city identify technical or financial support that other governmental agencies can provide to assist with managing potential contamination sources.
DNR	Water appropriation permitting (Minnesota Rules, Chapter 6115)	DNR can require that anyone requesting an increase in existing permitted appropriations, or to pump groundwater, must address concerns regarding the impacts to drinking water if these concerns are included in a WHPP.
EPA	Class V Wells	The EPA has authority over Class V wells. Owners are required to notify the EPA.

7.4 Support Provided by Nonprofit Organizations

The Minnesota Rural Water Association (MRWA) may assist the city of Montrose with implementing its WHPP by providing 1) referenced education and outreach materials for landowners, 2) technical assistance for implementing the individual WHP action items listed in the plan, and 3) support to the city for assessing the results of plan implementation.

The North Fork Crow River Water Planning Partnership (NFCRWPP) is an organization of six counties, six soil and water conservation districts, two watershed districts, and a joint powers board within south-central Minnesota. The NFCRWPP joined together in 2016 to develop a comprehensive One Watershed, One Plan (1W1P), aimed at creating prioritized and targeted implementation strategies that result in measurable resource improvements. The NFCRWPP may assist the city with surface water quality and quantity monitoring, as well as implementation projects to improve storage capacity and mitigate land use activities.

Chapter 8 - Goals

Goals define the overall purpose for the WHPP, as well as the end points for implementing objectives and their corresponding actions. The WHP team identified the following goals after considering the impacts that 1) changing land and water uses have presented to drinking water quality over time and 2) future changes that need to be addressed to protect the community's drinking water:

- Maintain a safe and adequate drinking water supply for community residents; and
- Create public awareness and general knowledge about the importance of WHP for maintaining an adequate and safe drinking water supply.
- Collect data to support future WHP area delineations to improve DWSMA and PCSI accuracy.

Chapter 9 - Objectives and Plan of Action

Objectives provide the focus for ensuring that the goals of the WHPP are met and that priority is given to specific actions that support multiple outcomes of plan implementation.

Both the objectives and the wellhead protection measures (actions) that support them are based on assessing

1) the data elements (Chapter 2),

2) the potential contaminant source inventory (Chapter 4),

3) the impacts that changes in land and water use present (Chapter 5) and

4) issues, problems, and opportunities referenced to administrative, financial, and technical considerations (Chapter 6).

9.1 Objectives

The following objectives have been identified to support the goals of the WHPP for the city of Montrose:

1. Create public awareness and general knowledge about the importance of WHP for maintaining an adequate and safe drinking water supply;
2. Increase the knowledge base regarding quantity of water available – maintain adequate drinking water supply.
3. Gather updated information on potential contaminants.
4. Manage potential contaminants.
5. Ensure emergency preparedness.
6. Create awareness among LGUs about the importance of protection of the drinking water supply aquifer.
7. Maintain communications with the MDH and other agencies able to assist with implementation of this plan.
8. Collect additional data to substantiate information contained within this Plan, and to provide more detail for future Plan amendments.
9. Conduct regular evaluations of Plan implementation and effectiveness.

9.2 WHP Measures and Action Plan

Based upon the factors, the WHP team has identified WHP measures that will be implemented by the city over the 10-year period that its WHPP is in effect. The objective that each measure supports is noted as well as 1) the lead party and any cooperators, 2) the anticipated cost for implementing the measure and 3) the year or years in which it will be implemented.

The following categories are used to further clarify the focus that each WHP measure provides, in addition to helping organize the measures listed in the action plan:

- Data Collection
- IWMZ Management
- Land Use Management
- Potential Contamination Source Management
- Public Education and Outreach

- Reporting and Evaluation
- Water Use and Contingency Strategy

9.3 Establishing Priorities

WHP measures reflect the administrative, financial, and technical requirements needed to address the risk to water quality or quantity presented by each type of potential contamination source. Not all of these measures can be implemented at the same time, so the WHP team assigned a priority to each. Several factors must be considered when WHP action items are selected and prioritized (part 4720.5250, subpart 3):

- Contamination of the public water supply wells by substances that exceed federal drinking water standards.
- Quantifiable levels of contamination resulting from human activity.
- The location of potential contaminant sources relative to the wells.
- The number of each potential contaminant source identified and the nature of the potential contaminant associated with each source.
- The capability of geologic material to absorb a contaminant.
- The effectiveness of existing controls.
- The time needed to acquire cooperation from other agencies and cooperators.
- The resources needed, i.e., staff, money, time, legal, and technical resources.

The city of Montrose defines a priority for implementing a WHP measure as maintaining the quantity and high-quality drinking water they have come to expect. **Table 13, "WHP Plan of Action,"** lists each measure that will be implemented over the 10-year period that the city's WHPP is in effect, including the priority assigned to each measure.

Table 13 - WHP Plan of Action

MONITORING, DATA COLLECTION, AND ASSESSMENT:

Description	Objective	Priority	Cost	Responsible Party & Cooperators	Implementation Time Frame									
					2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Groundwater Quality & Quantity Monitoring WHP Measure #1: The city will contact the MDH Hydrologist to conduct water quality monitoring - during year 5. MDH to incur costs – the city will collect and ship samples.	**8**	**L**	Staff Time	Montrose MDH					X					
Aquifer Testing WHP Measure #2: If the city determines a new well is necessary and/or feasible, pending available funding and resources, they will work with MDH Hydro to determine a suitable site.	**2/8**	**L**	Staff Time	Montrose Consultant MDH Hydrologist	← If Needed →									
WHP Measure #3: Purchase and install transducers and software to monitor static water levels.	**2**	**M**	TBD	Montrose	← When Feasible →									
Well Inventory and Prioritization WHP Measure #4: Update the PCSI as data collected. Review the status of existing wells and add new wells identified in the DWSMA.	**3/8**	**H**	TBD	Montrose MDH	← On-Going →									
WHP Measure #5: Request verified list of newly constructed wells from MDH.	**2/8**	**L**	Staff Time	Montrose MDH						X	X			
Municipal Well Security Issues WHP Measure #6: Assess security needs and apply for funding as needed for physical security measures.	**5**	**H**	Staff Time	Montrose MDH	X	X								

WELL AND CONTAMINANT SOURCE MANAGEMENT:

Description	Objective	Priority	Cost	Responsible Party & Cooperators	Implementation Time Frame									
					2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
IWMZ WHP Measure #7: Apply for MDH Source Water Protection (SWP) grants to implement recommendations within sanitary survey and IWMZ.	**4**	**H**	TBD	Montrose MDH Consultant	← On-Going →									
WHP Measure #8: Call MDH to update the IWMZ inventory for all system wells during year 6.	**3/8**	**H**	Staff Time	Montrose MDH						X				
WHP Measure #9: Send letter to BNSF railroad to coordinate spill response plan for IWMZ within corridor.	**4/7**	**M**	Staff Time	Montrose	X									
WHP Measure #10: Monitor setbacks for new potential contaminant sources within the IWMZ.	**4**	**H**	Staff Time	Montrose MDH	← On-Going →									
Old Municipal Wells WHP Measure #11: Work with MDH or MRWA to identify wells located within the OMW report.	**4/7**	**H**	Staff Time	Montrose MDH MRWA		X	X							
WHP Measure #12: Apply for MDH Grant or Well Management funds to seal Old Municipal Wells.	**4**	**H**	TBD	Montrose MDH	← As Needed →									
Class V Wells WHP Measure #13: Notify MDH if Class V Well identified.	**3/7**	**L**	Staff Time	Montrose EPA MDH	← As Needed →									
Private Well Management WHP Measure #14: If a well is discovered within the DWSMA, apply for MDH funds to seal if well is either of unknown depth or ≥145-feet deep.	**4**	**H**	TBD	Montrose MDH Wright County	← As Needed →									
WHP Measure #15: Locate and verify unlocated or unknown wells within the DWSMA. If sealed, attempt to get sealing records from property owner.	**4**	**H**	Staff Time	Montrose MDH		X	X							

EDUCATION AND OUTREACH:

Description	Objective	Priority	Cost	Responsible Party & Cooperators	Implementation Time Frame									
					2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
WHP and Drinking Water Protection Education WHP Measure #16: Develop WHP web page on the city website, utilize social media. Include well management /unused wells, water conservation practices and sealing information. Obtain information from MRWA and/or MDH websites.	**1/4**	**M**	TBD	Montrose MDH MRWA SWCD NFCRWD	X	X								
WHP Measure #17: Provide well management and well sealing information at city hall. Request MDH/MRWA brochures and updated information.	**1/4**	**H**	Staff Time	Montrose MDH MRWA	← On-Going →									

LAND USE AND PLANNING:

Description	Objective	Priority	Cost	Responsible Party & Cooperators	Implementation Time Frame									
					2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
WHP Measure #18: Apply for MDH funding to update comprehensive plan and/or local ordinances with well management language for the protection of the drinking water supply aquifer if deemed necessary and/or feasible by the City.	**1/4**	**H**	TBD	Montrose MDH Consultant	← As Needed →									

WHP COORDINATION, REPORTING, AND EVALUATION:

Description	Objective	Priority	Cost	Responsible Party & Cooperators	Implementation Time Frame									
					2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
WHP Coordination WHP Measure # 19: Hold meeting with the WHP Team and local resource partners involved in plan implementation every 2.5-years to discuss WHP issues, past year's accomplishments and activities planned for the upcoming year.	**8/9**	**M**	Staff Time	Montrose		X		X			X		X	
Implementation Tracking and Reporting Activities WHP Measure # 20: Maintain a "WHP folder" that contains documentation of WHP activities you have completed and a date that it was done.	**8/9**	**H**	Staff Time	Montrose MDH	X	X	X	X	X	X	X	X	X	X
WHP Measure #21: Develop a spreadsheet that coincides with measures found in your plan to track and monitor plan implementation activities and completion dates.	**6/9**	**H**	Staff Time	Montrose	X									
WHP Program Evaluation Plan Reporting WHP Measure #22: Complete an evaluation report on completed WHP activities every 2.5 years.	**9**	**H**	Staff Time	Montrose MDH MRWA		X		X			X		X	
WHP Measure # 23: Summarize WHPP implementation efforts in a report to MDH in the 8th year.	**9**	**M**	Staff Time	Montrose								X		

9.4 Commitments from Cooperators

The agencies listed in **Table 14, "Cooperating Agencies List,"** have indicated they will support the city of Montrose with implementing the WHP measures in which they are identified.

Table 14 - Cooperating Agencies List

Agency	Measure
MDH	1-2, 4-8, 10-18, 20, 22
WRIGHT COUNTY	14
WRIGHT COUNTY SWCD	16
MRWA	11, 16-17, 22
NFCRWD /	16
EPA	13

Chapter 10 - Evaluation Program

Evaluation is used to support plan implementation and is required under Minnesota Rules, part 4720.5270, prior to amending the city's WHPP. Plan evaluation is specified under Objective 9 and provides the mechanism for determining whether WHP action items are achieving the intended result or whether they need to be modified to address changing administrative, technical, or financial resource conditions within the DWSMA. The city has identified the following procedures that it will use to evaluate the success with implementing its WHPP:

1. The WHP team will meet every two and one-half years to assess the status of the plan implementation and to identify issues that impact the implementation of action steps throughout the DWSMA;
2. The city will assess the results of each action item at the time of its regularly scheduled evaluations to determine whether the action items have accomplished its purpose or whether modification is needed.
3. The city will prepare a written report that documents how it has assessed plan implementation and the action items that were carried out. The report will be presented to MDH at the first scoping meeting held with the city to begin amending the WHPP.

Chapter 11 - Contingency Strategy

The DNR Water Emergency and Conservation Plan approval letter can be found in **Appendix VII** of this Plan. The purpose of this plan is to establish, provide and keep updated, certain emergency response procedures and information for the city of Montrose which may become vital in the event of a partial or total loss of public water supply services as a result of natural disaster, chemical contamination, or civil disorder of human-caused disruptions.