MINNEHAHA CREEK
WATERSHED DISTRICT
QUALITY OF WATER, QUALITY OF LIFE

Meeting: Board of Managers
Meeting date: 11/5/2020
Agenda Item #: 11.2
Request for Board Action

Title:	Approval of Hopkins Local Water Management Plan
Resolution number:	20-084
Prepared by:	Name: Kate Moran Phone: 952-641-4520 kmoran@minnehahacreek.org
Reviewed by:	Becky Christopher, Policy Planning Manager Michael Hayman, Planning Manager
Recommended action:	Approval of City of Hopkins Local Water Management Plan
Schedule:	Date: N/A
Budget considerations:	Fund name and code: N/A
Past Board action:	Res # 09-078 Title: City of Hopkins Local Water Management Plan – Conditional Approval Res #11-055 Title: Approval of Local Water Management Plans with Outstanding MOUs Res # 18-004 Title: Approval and Adoption of MCWD Watershed Management Plan for the Implementation Period 2018-2027

Summary:

Background

MN Statutes § 103B.235 and MN Rules § 8410.0160 grant watershed districts the authority to review and approve local water management plans (LWMPs). Under this framework, watershed districts can assign responsibilities to local government units (LGUs) for carrying out implementation actions defined in the watershed plan. The LWMP is a required element of the LGU comprehensive land use management plan which LGU's were required to adopt by the end of 2018.

The Minnehaha Creek Watershed District (MCWD or District) adopted its new Watershed Management Plan (Plan) in January 2018. The Plan is rooted in the District's Balanced Urban Ecology policy (BUE) as the principal strategy to accomplish its mission. The BUE policy recognizes the inter-dependence of the natural and built environment and that both benefit through a holistic planning approach. The BUE policy emerged based on MCWD's collaborative work along the urbanized Minnehaha Creek corridor within the Cities of St. Louis Park and Hopkins, known as the Minnehaha Creek Greenway. The BUE policy establishes the guiding principles of focus in areas of highest resource needs, flexibility to respond to emerging opportunities as a result of land use change in real time, and pursuing clean water goals in partnership with our communities.

The Plan establishes the District as a regional water planning agency. The Plan provides rationale for subwatershed-based planning and prioritization by which to focus implementation efforts for the 2018-2027 Plan cycle. The District has prioritized the subwatersheds of Minnehaha Creek, Six Mile Creek-Halsted Bay and Painter Creek-Jennings Bay based on a combination of resource needs and opportunities for management of some of the State's most prized recreational natural resources of Lake Minnetonka and Minnehaha Creek – including the Minneapolis Chain of Lakes.

In addition to these focused planning and implementation efforts, the District's approach watershed-wide is to remain responsive to opportunities created by local land use change or partner initiatives. The District's responsive approach relies on early and effective coordination by the District's communities to help identify opportunities to integrate plans and investments. As opportunities arise, the District will evaluate them against the resource needs and priorities defined for each subwatershed in the District's Plan and determine the appropriate response. The District has a wide range of services it can mobilize to address resource needs and support partner efforts, including data collection and diagnostics, technical and planning assistance, permitting assistance, outreach, grant support, and capital projects.

Integration of land use and water planning is the primary focus of the LWMP requirements set forth in the District's Plan. To effectively integrate the goals of MCWD and its LGUs in a way that maximizes community benefits and effectively leverages public funds, the District has invited a partnership framework with its communities. In addition to the legally required elements of LWMPs, as defined in State statute and rules, the MCWD Plan requires communities to propose a coordination plan which describes how the LGU and MCWD will share information and work together to integrate land use and water planning. Specifically, the purpose of a MCWD/LGU coordination plan is to:

1. Establish a framework to be informed as to current LGU land use and infrastructure planning and enable early coordination of land use and water resources management
2. Foster LGU development regulation that integrates water resource protection before plans are fixed
3. Identify and capitalize on project opportunities for improved water resources outcomes while maximizing other public and private goals

As established in the District's Plan, MCWD will prioritize implementation efforts and resource deployment based on its established priorities and LGU commitment to coordination. This commitment is demonstrated through the coordination plan and its implementation by the LGU.

Hopkins LWMP Summary

The City of Hopkins (City) has submitted its LWMP for MCWD review and approval. District staff reviewed the LWMP and provided detailed comments regarding the goals and requirements of the District's Plan for consideration and incorporation into the LWMP.

The City is located entirely within Hennepin County and partially within the MCWD boundary (see attached figure). The City occupies approximately 2.2 square miles within the MCWD's Minnehaha Creek subwatershed and the remaining portion is part of the Nine Mile Creek Watershed District. The major receiving waterbody is Minnehaha Creek, which is impaired for fecal coliform bacteria, chloride, low dissolved oxygen, and fish and macroinvertebrate communities, and the City has been assigned a nutrient load reduction under the Minnehaha Creek/Lake Hiawatha Total Maximum Daily Load (TMDL) Study. The City has no major lakes and only several public water wetlands.

The District's Plan identified the Minnehaha Creek subwatershed as a priority subwatershed in which the District will focus its implementation efforts for the 2018-2027 plan cycle. The primary management strategies identified for this subwatershed are stormwater management, stream restoration, and restoration of wetlands and ecological corridors.

The City and MCWD have a history of partnership through the work in the Minnehaha Creek Greenway, including Cottageville Park. In September 2020, the City and MCWD agreed to explore further collaborative work through the adoption of the Cooperative Agreement for the Coordinated Planning, Improvements and Development for 325 Blake Road. The City worked with District staff to develop the attached Coordination Plan to further document a shared commitment by MCWD and the City to integrate land use and water planning through early coordination and continued collaboration. The Coordination Plan covers the following areas: annual meeting, partnership and project coordination, planning and regulatory coordination, MS4 reporting, and communications.

The City authorizes the District to continue to administer all of its water resource regulations. The MCWD will retain Local Government Unit status for the Wetland Conservation Act.

Recommendation:

Staff has verified that the LWMP meets the requirements of Minnesota Statutes §103B.235, Minnesota Rules 8410.0160, and the MCWD Watershed Management Plan and recommends approval.

Supporting documents:

1. Overview Figure of Hopkins
2. City of Hopkins and MCWD Coordination Plan
3. City of Hopkins LWMP

MINNEHAHA CREEK
WATERSHED DISTRICT
QUALITY OF WATER, QUALITY OF LIFE

RESOLUTION

Resolution number: 20-084

Title: Approval of Hopkins Local Water Management Plan

WHEREAS, on January 11, 2018, the MCWD adopted its Watershed Management Plan (WMP) pursuant to Minnesota Statutes §103B.231 and Minnesota Rules 8410, which describes how the MCWD will fulfill its responsibilities under the Metropolitan Surface Water Management Act for implementation over the period 2018-2027, and which is guided by the organizational strategy and approach defined through the Balanced Urban Ecology policy; and

WHEREAS, the Balanced Urban Ecology policy prioritizes partnership with the land use community to integrate policy, planning, and implementation in order to leverage the value created when built and natural systems are in harmony; and

WHEREAS, the Balanced Urban Ecology policy rests on the guiding principles of focusing in areas of highest resource needs, being flexible to respond to opportunities that arise through land use changes, and working in partnership to achieve the MCWD's goals; and

WHEREAS, on watershed district adoption of its WMP, cities and towns (local government units or LGUs) within the watershed must prepare local water management plans (LWMPs) that meet content requirements of Minnesota Statutes §103B.235, Minnesota Rules 8410.0160 and the WMP; and

WHEREAS, the LWMP is a primary tool to provide a framework for increased early coordination of land use and water planning through the coordination plan that is a required component of the LWMP and the content of which is described in the WMP, Appendix A; and

WHEREAS, the MCWD will prioritize implementation efforts and resource deployment based on its established priorities and LGU commitment to coordination as demonstrated through the coordination plan and its implementation by the LGU; and

WHEREAS, the City of Hopkins (City) has revised its LWMP and submitted it to the MCWD for review and approval; and

WHEREAS, MCWD staff reviewed the draft LWMP, provided detailed written comments on the LWMP, and thereafter worked with City staff to achieve the development of a proposed LWMP for consideration by the MCWD Board of Managers; and

WHEREAS, the Metropolitan Council has reviewed the LWMP and provided its written comments to the MCWD in a letter on October 26, 2018, and the MCWD has fully considered the comments; and

WHEREAS, the LWMP states that the City does not choose to exercise sole regulatory authority but, instead, wishes that the MCWD continue to exercise its regulatory authority, within the meaning of Minnesota Statutes §103B.211, subd. 1(a)(3); and

WHEREAS, the LWMP states that the City elects to have MCWD continue to act as the Local Government Unit responsible to implement the Minnesota Wetland Conservation Act; and

WHEREAS, the LWMP contains a coordination plan that meets the standards set forth in the MCWD WMP, Appendix A; and

WHEREAS, the MCWD has determined that the final revised LWMP meets the requirements of Minnesota Statutes § 103B.235, Minnesota Rules 8410.0160, and is consistent with the MCWD WMP including Appendix A, "Local Water Plan Requirements";

NOW, THEREFORE, BE IT RESOLVED, that the Minnehaha Creek Watershed District Board of Managers hereby approves the City of Hopkins Local Water Management Plan; and

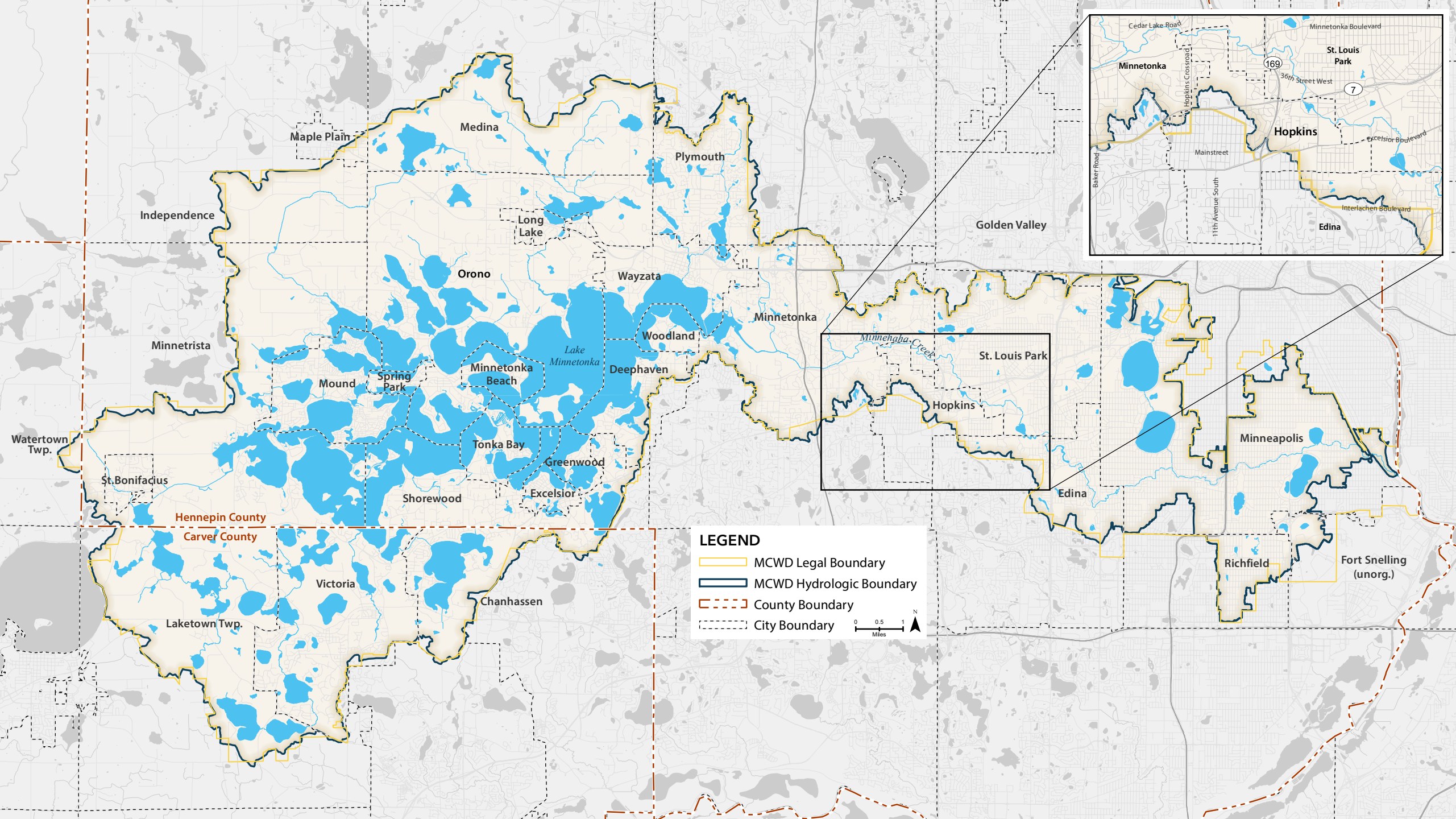
BE IT FURTHER RESOLVED, that the Board approves the associated coordination plan and adopts it on behalf of the MCWD; and

BE IT FINALY RESOLVED that the City is to adopt and implement its LWMP within 120 days, and to notify the MCWD within 30 days thereafter that it has done so.

Resolution Number 20- **084** was moved by Manager _____, seconded by Manager _____. Motion to adopt the resolution ___ ayes, ___ nays, ___abstentions. Date: 11/5/2020

_____ Date: _____

Secretary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Spring Park
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Greenwood
Excelsior
Shorewood
Watertown Twp.
St.Bonifacius
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Appendix C:

City of Hopkins Coordination Plan

City of Hopkins Coordination Plan

The *MCWD* Watershed Management Plan *(2018)* and *NMCWD Water Management Plan* (2017) both highlight the desire to more closely integrate land use planning and water resource management to capitalize on opportunities to improve water resources as development and redevelopment occurs. Given that land use planning lies primarily with the cities, achievement of this goal will require close coordination and partnership between the watershed districts (WDs) and cities.

To achieve the level of coordination and communication required to successfully capitalize on opportunities to improve water resources as part of land use planning, the city will strive to conduct the following activities:

- Participate in an annual meeting to review water resource plan implementation, to be coordinated by the WDs. Parties will discuss how the WDs can receive notice of and consult on land use, infrastructure, park and recreation, and capital improvement planning efforts.
- Transmit the annual NPDES MS4 report to WDs (mutual transmittal, if applicable).
- Notify the WDs of the following:
    - Updates to road and infrastructure implementation programs. The City annually produces a map of anticipated road reconstruction and road maintenance projects for the next five years.
    - Updates to park and recreation plans.
    - Institution and completion of small area plans, sketch plans (if submitted) for large projects, and other focused development or redevelopment actions.
    - Significant alterations within the City MS4 system (to maintain currency of the WD watershed-wide hydrology and hydraulics model).
    - Updates to the Capital Improvement Plan.
- Partnership or coordination as to public communications and education.

The WDs are asked to complete the following activities:

- District notice to the City regarding watershed management plan amendments and annual capital improvement program updates.

Annual Meeting

To capture CIP and budget planning, the annual meeting is planned to occur early in the second quarter. The annual meeting will involve a Planning Team that consists of the City Engineer, Assistant City Engineer and City Planner. The City welcomes and will accommodate requests from the WDs for additional meetings and communications that spur from the annual meeting. For elements the City and WDs identify for coordination, specific communication plans and schedules will be made. The Assistant City Engineer will facilitate communication among appropriate parties based on the scope of the item.

Conversations around water resources planning occur continuously throughout the year and are guided by this plan. It is common for various stakeholders across the community (public agencies, non-profit organizations, citizen groups, city departments, and private entities) to be involved in work that has prominent or nuanced water resources implications. Some of the challenges of coordinating water

resources planning includes the number of stakeholders involved, balancing funding priorities, community attitudes, and the fact that plans and projects are often owned by others (and may have different schedules, values, and service targets). Due to the dynamic nature of various concurrent activities and planning efforts, maps of anticipated road reconstruction, potential park improvements, capital infrastructure investment/reinvestment, priority water resources issues, and private development are not provided here, but will be prepared ahead of each annual meeting. Spatial analysis tools allow for these pieces of information to be integrated annually, efficiently incorporating the best available information.

Watershed District Coordination

The City will work closely with the NMCWD and MCWD to identify and implement water resource protection or improvement partnership projects. The City and WDs have a history of partnership. The past successes have largely been the result of strong working relationships that promote regular conversations. The City is eager to continue and expand cooperative work in the following areas;

- CIP and budget planning: The City's process for this is described in more detail in the Capital Improvement Plan, which is located on the City's website: http://www.hopkinsmn.com/468/Capital-Improvement-Plan
- Private development and redevelopment: It's common for large projects to go through a sketch plan review with City Council. The City will share known upcoming projects at the annual meeting and refer to the watersheds as part of the sketch plan review process on larger projects. As WD staff develop relationships with the community and economic development staff at the City, they can regularly and informally check in with the City to stay abreast of private development and redevelopment activity. The City will facilitate a coordination meeting with private developers and the WDs at the request of the WDs. For projects that do not go through a sketch plan process, the City will inform permit applicants of the potential need for a WD permit and, when one is required, will not issue a City permit until the WD permit application has been made.
- Public development and redevelopment: Because of the City's strong working relationship with the WDs, the City is continually seeking opportunities for coordination. This occurs through informal conversations as opportunities arise. Any future efforts including small area plans or other planning activity will be shared at the annual meeting.
- Operation and maintenance: The City will inform the WDs of illicit discharges in a timely manner and share a summary of the illicit discharge detection and elimination program at each annual meeting. Additionally, the City will share its MS4 inspection results at each annual meeting.
- Applicants will be informed that permits may be required from the WDs and provide them with the necessary information to contact WD staff.
- Education and engagement: The City will share its education and engagement calendar at each annual meeting. The City asks the WDs to continue to cross- promote and partner on events.

Project Partnerships

While some opportunities may be associated with development and redevelopment, other opportunities will be focused on land owned by the City. Figure SW-09 shows the city-owned parcels throughout the city. Upcoming opportunities for water resource management or improvement partnerships associated with City-owned park and property redevelopment include:

- Cottageville Park: Phase III Improvements
- Central Park: Park Improvements
- Development for 325 Blake Road

In 2010, the City and Minnehaha Creek Watershed District initiated a Cooperative Agreement (Agreement), known as the Cottageville Park Stormwater Management and Park Improvement Project. The purpose the Agreement was to address the Minnehaha Creek corridor, which had sustained damage to its water quality, channel stability, habitat and public use opportunities as the result of decades of urban development, urban stormwater discharges and adjacent urban uses. The goal was to advance social, economic and environmental goals within the Minnehaha Creek corridor. The Cottageville Park Stormwater Management and Park Improvement Project cooperative agreement and amendments are attached at the end of this plan.

In September 2020, the City and MCWD agreed to explore further collaborative work in the Minnehaha Creek corridor through the adoption of the Cooperative Agreement for the Coordinated Planning, Improvements and Development for 325 Blake Road. This agreement allows for the joint planning of a mixed use development on a portion of the MCWD-owned 325 Blake Road parcel and integration of the development with MCWD's concurrent capital project on the same site. MCWD's capital project includes regionalizing the treatment of approximately 270 acres of stormwater flowing into Minnehaha Creek, adding trails along the creek and connections to the regional trail system, an ecological restoration of the site, and open space amenities for use by the community. The MCWD's Cottageville Park Phase II Riparian Restoration project will also be completed as part of the overall project.

Development Review Process and Land Use Planning

The City utilizes its Development Review process to address stormwater management and ensure water resource protection within the City. Engineering staff review development and redevelopment proposals to ensure that the stormwater management policies and standards of the WRMP are met. Engineering staff also consult the City's Wellhead Protection Plan to ensure that development and redevelopment proposals are in line with the protective measures established for the City's sensitive groundwater resources.

Staff from the City's planning department review development and redevelopment proposals with the guidance of the City's long-range Comprehensive Plan and Zoning Ordinance. In addition to incorporating the policies and design standards of this WRMP, the *City of Hopkins Comprehensive Plan* includes policies, principles, and guidelines that integrate water resources protection and management with land use planning. Among these include the City's land use policy to "grow and develop in a sustainable manner that will protect its high quality natural environment, promote energy efficiency and conservation of natural resources" and to "maintain the current open space and wetlands acreage and seek to expand it whenever possible". The Comprehensive Plan encourages reductions in impervious surfaces and associated stormwater runoff from redevelopment sites and parking lot design that

promotes stormwater infiltration, and encourages protection and improvement of urban forests, which provides stormwater management benefits, among others.

Additionally, the Hopkins Comprehensive Plan includes procedures for planning, programming, and implementing transportation infrastructure, sewer and water infrastructure, and park, recreation, and natural area management. These plans coincide with the timing of the local comprehensive planning timeline and support the Transportation, Water Resources, and Parks & Trails elements of the comprehensive plan.

The City's zoning ordinance is used by staff in the planning department to guide development and redevelopment within the city. The zoning ordinance establishes required setbacks from naturally occurring lakes, ponds, and streams. In some cases, the buffer requirements of the watershed districts may be more stringent, upon which the watershed district requirements supersede. The City's zoning ordinance also addresses development within the floodplain districts of the city.

Station Area Plans outline the long-range vision for land use and development along the proposed Green Line LRT Extension. Station area planning is occurring on an ongoing basis around and within a ½ mile radius of the station locations at Blake Road, in Downtown Hopkins and at Shady Oak Road. The plans can be viewed at: http://www.hopkinsmn.com/162/Station-Area-Planning.

The City of Hopkins is basically fully developed; thus, land alteration activities are primarily of a redevelopment nature. As the city redevelops, the City utilizes the policies of the Hopkins Comprehensive Plan, the zoning ordinance, and this WRMP to encourage low-impact site design. The City also relies on implementation of the rules and regulations of the NMCWD and MCWD.

APPENDIX WR1: WATER RESOURCES MANAGEMENT PLAN

Cultivate Hopkins Comprehensive Plan

Contents

List of Tables

List of Figures

List of Appendices

Summary

The City of Hopkins (City) has developed this Water Resources Management Plan (WRMP) to meet regulatory requirements, and to plan for future alterations in the existing drainage system due to redevelopment activities. The City is completely developed with a mix of commercial, industrial, residential and open space uses. Redevelopment activities within the City are also occurring as the population of the surrounding area continues to grow.

The City has no lakes and only several public water wetlands that are identified on the Department of Natural Resources Protected Waters and Wetlands map. Portions of Minnehaha Creek meander through the City and it is the headwaters for Nine Mile Creek. The City is within the Minnehaha Creek Watershed District (MCWD) and the Nine Mile Creek Watershed District (NMCWD). All critical storm water flows and elevations within the City of Hopkins can be found within those comprehensive plans. The MCWD updated its Comprehensive Water Resources Management Plan in 2018, and the NMCWD updated its Water Management Plan in 2017. Minnesota Rules Part 8410.0160, Subpart 1 states:

- Each local water plan must, at a minimum, meet the requirements for local water management plans in Minnesota Statutes, Section 103B.235, except as provided by the watershed management organization plan under Part 8410.0105, Subpart 9.

The City of Hopkins will utilize this plan, the accompanying rules, and existing and new ordinances as the basis for managing wetlands, surface, storm, flood, and groundwater within the municipal boundary. The City will continue to work to ensure that its' goals and policies and development standards are consistent with both Watershed Districts as the plans and rules are revised.

1. Water Resource Management Related Agreements

The City of Hopkins will be assuming regulatory authority for land use development while recognizing the role of other local, state, and federal entities. Several entities will have administrative responsibilities within the planning area. For a local water management effort to be successful, each entity's commitment and role must be clearly understood.

The agencies currently having some level of administration responsibility include the City, MCWD, NMCWD, Minnesota Department of Natural Resources (MNDNR), Minnesota Pollution Control Agency (MPCA), the U.S. Army Corps of Engineers (USACE), the Minnesota Board of Water and Soil Resources (BWSR), and Hennepin County. It has been recognized that regulatory agencies can achieve common goals by joining together to combine already scarce financial and regulatory resources.

The City of Hopkins is required to meet the conditions of its National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit and to implement its' Storm Water Pollution Prevention Program (SWPPP). The City continues to actively engage the MPCA and others to keep its permit and implementation up to date regarding new technology and regulations.

2. Amendment Process

For the Plan to remain a dynamic, effective document, a system must be identified and available to update information and implement new ideas, methods, standards, management practices, and any other changes, which may affect the intent and/or results of the Plan. This Plan shall remain in effect, unless an amended Plan is adopted, not to exceed 10 years from the date of initial adoption. Any person or persons either residing or having business within the City can request amendment proposals at any time. The City itself may amend this Plan at any time if changes are required or if issues or opportunities arise that are not currently addressed. All amendments shall be in accordance with Minnesota Rules 8410.0160 Subp. 4 and Minnesota Statutes 103b.235 Subd. 5.

3. Physical Environment and Land Use

3.1. Land Use

Downtown Hopkins

The City of Hopkins lies in southeast Hennepin County. The City contains 2,760 acres of land and water resources within its corporate boundaries, and is bounded by the cities of Minnetonka, Edina, and St. Louis Park. The City is essentially fully developed.

Existing Land Use

Most of the existing land is residential, including both single family dwellings and multi-family units. There is a significant industrial area along the railroad tracks. Commercial development exists primarily along the major roadways, including Mainstreet, County Road 3, Blake Road, Shady Oak Road and some parts along Highway 7. In addition, there are several open areas which are occupied by parks, golf courses and wetlands. The existing land use as defined in the 2018 Comprehensive Plan is shown within the land use elements of the plan, see Figure B1.2 in Appendix B1: Land Use.

Future Land Use

The City of Hopkins is fully developed. The future land use as defined in the 2018 Comprehensive Plan is shown within the land use elements of the plan, see Figure B1.6 in Appendix B1: Land Use. The future land use changes will be a result of redevelopment activities. Future redevelopment activities should not have a significant impact on regional storm water conveyance systems provided existing development runoff rates are adhered to through the development of stormwater management improvements with the redevelopment. In the coming years, redevelopment will be the focus in Hopkins for growth, since only a very few undeveloped parcels of land remain. Redevelopment plans focus on several key opportunity areas in the city, namely the Green Line Extension station areas, including adjacent areas in Downtown Hopkins and the Blake Road Corridor. Currently the City has no acquisition plans for parkland. The only land acquisition plans forecasted would be for roadway or trail improvements that would require acquisition of right-of-way.

3.2. Shoreland

The City of Hopkins has not adopted a shoreland ordinance. At this time, the Minnesota Department of Natural Resources (MNDNR) does not require a shoreland ordinance, and we do not see the need to implement one in the near future.

3.3. Floodplain

The City participates in the National Flood Insurance Program (NFIP). The City administers a floodplain ordinance based upon the effective Flood Insurance Study (FIS) for the City of Hopkins (dated September 2, 2004). There are two flooding sources (Minnehaha Creek and Nine Mile Creek) shown in the FIS. The following link leads to the flood map panels for Hopkins: https://msc.fema.gov/portal/search?AddressQuery=hopkins%20mn#searchresultsanchor

Flooding in the City results from both summer rainstorms and spring snowmelt runoff. Nine Mile

Creek's headwaters begin in Hopkins, just north of Excelsior Boulevard. The land use adjacent to Nine Mile Creek in Hopkins is predominantly urban in nature. Natural drainage in the community is not well defined, and the City has constructed an extensive storm sewer system as a result. Nine Mile Creek is very responsive to short-duration, high-intensity rainstorms which rapidly flow from the highly impervious area through the constructed storm sewer system. Existing land cover from available LiDAR data is shown in **Figure SW-05.**

Minnehaha Creek crosses through the City along the far northern border and in the northeast corner. In the spring and early summer of 2014, the MCWD experienced a record amount of rainfall resulting in various flooding throughout the watershed. The district had a report prepared that summarized the flooding associated with this event. The Minnehaha Creek corridor through Hopkins did not experience any substantial flooding issues that were reported in the 2014 flood report.

Flood Insurance Rate Map Numbers 27053C033F, 27053C0341F and 27053C0342F show the base flood elevations for the floodway areas in zone AE for Minnehaha Creek and Nine Mile Creek within the City limits. Zone AE is an area where the base flood has been determined. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% (100-year) annual chance flood can be carried without substantial increases in flood heights. A majority of the City is in zone X, which is an area determined to be outside the 0.2 percent annual chance floodplain.

The City of Hopkins, MCWD and the NMCWD currently regulate development in the floodplains along Minnehaha Creek and Nine Mile Creek.

3.4. Permitting

The City of Hopkins reviews, approves and permits storm water management plans for land disturbing activities on projects that meet the City's ordinance requirements.

MCWD and the NMCWD have permitting authority for development and redevelopment projects that meet the District's rules requirements. District staff reviews development proposals and make recommendations consistent with their requirements for water quality, volume control, flooding, rate control, wetland protection, waterbody crossings and structures, streambank stabilization and erosion control.

Development and redevelopment projects in the city must meet the city's ordinances as well as the MCWD and NMCWD rules. The city defers its permitting authority over to the MCWD and NMCWD for projects that meet their rule thresholds. MCWD and NMCWD will continue to exercise regulatory authority in accordance with Minnesota Statue 103B.211, Subd. 1 (a) (3) (ii).

Table 3.1 lists the contacts at the city who are responsible for development review and their role in the process, depending on the type of development or project proposed. The City will notify private development applicants of their need to contact the appropriate watershed district when permits are applied for, if applicable.

Table 3.1: City Contact Information				
Name	**Title**	**Phone**	**Email**	**Coordination**
Nate Stanley	City Engineer	952-548-6356	nstanley@hopkinsmn.com	Public Improvements Projects
Eric Klingbeil	Assistant City Engineer	952-548-6357	eklingbeil@hopkinsmn.com	Public Improvements Projects
Jason Lindahl	City Planner	952-548-6342	jlindahl@hopkinsmn.com	Redevelopment & New Development
Kersten Elverum	Dir. of Economic Development & Planning	952-548-6340	kelverum@hopkinsmn.com	Redevelopment & New Development

4. Hydrologic Setting

4.1. Regional Climate

The climatology of Minnesota is described in the United States Geological Survey (USGS) Water-Supply Paper 2375 as follows:

Minnesota is affected by a variety of air masses. In winter, the weather is dominated by cold, dry, and polar continental air masses from northwestern Canada. In summer, the weather is dominated by dry, tropical continental air masses from the desert southwest or by warm, moist, tropical maritime air masses from the Gulf of Mexico. In spring and fall, the weather is transitional and is affected by alternating intrusions from these three air masses.

Almost 45 percent (about 12 inches) of Minnesota's annual precipitation is received from June through August, when moisture from the Gulf of Mexico is most available. Only 8 percent of the annual precipitation is received from December through February.

Cyclonic and convective storms are the two major types of storms that bring moisture into Minnesota. Cyclonic storms are large-scale, low-pressure systems associated with frontal systems that approach the State from the northwest or southwest. Cyclonic storms that approach from the northwest are common in winter and produce small quantities of precipitation. Cyclonic storms that approach from the southwest occur in the fall, winter, and spring and can bring substantial quantities of rain or snow by drawing moisture northward from the Gulf of Mexico. Cyclonic storms in combination with unstable conditions can produce severe weather and excessive precipitation.

In late spring and summer, thunderstorms are common. These small-scale convective storms typically form because of the presence of unstable, warm, tropical air near the surface and colder air above.

Floods in Minnesota are of two forms, large-scale floods in late winter and early spring, and small-scale flash floods in late spring and summer. Large-scale floods generally result from a combination of deep, late winter snowpack, frozen soil that prevents infiltration, rapid snowmelt due to an intrusion of tropical air, and widespread precipitation caused by cyclonic storms that approach the State from the southwest. Flash floods result from powerful, slow-moving thunderstorms.

Average annual values for various weather data components for the Hopkins area are listed below in **Table 4.1**: Average Annual Weather Data.

Table 4.1: Average Annual Weather Data

Weather Data	Value
Annual Normal Temperature	43°
Annual Normal Precipitation	29 inches
Annual Runoff Depth	4.7 inches
Storm Duration	6 hours
Storm Intensity	1.4 inches per hour
Time Between Storm Midpoints	89 hours

Additional description of the climate of the area is provided in the MCWD Water Resources Management Plan.

4.2. Major Watersheds

A northern and eastern portion of the city drains to Minnehaha Creek, while the southern portion of the city drains to Nine Mile Creek, both through natural drainage channels and a constructed storm sewer system.

The City of Hopkins was divided into four major watersheds called the Northern, Eastern, Central and Southern districts. These are discussed in more detail later in this report.

The Northern District is defined as the area in the City which drains to Minnehaha Creek upstream of Highway 7. The Eastern District is defined as the area which drains into Minnehaha Creek downstream of Highway 7. The Central District naturally drains to Nine Mile Creek upstream of the Chicago Northwestern Transportation (C.N.W.T.) railroad tracks. The Southern District drains to Nine Mile Creek downstream of the C.N.W.T. railroad tracks.

5. Surface Water Resources

Figure SW-04 shows a map of significant resources within the City of Hopkins.

5.1. Wetlands

The National Wetland Inventory Map shows the location of wetlands within the City of Hopkins (see **Figures SW-01 and SW-07**). In addition to these basins, there are several storm water detention basins within the City limits which provide some of the benefits of a natural wetland basin.

There are four Minnesota Department of Natural Resources (MNDNR) Protected Waters and Wetlands (MNDNR Nos. 27-717W, 27-719P. 27- 777P, and 27-779W) within the City. Part of MN/DNR No. 27-084P is located in the northern section of the City. This protected water is also located in the cities of St. Louis Park and Minnetonka.

5.2. Creeks

Minnehaha Creek

Minnehaha Creek is a direct tributary to the Mississippi River. Lake Minnetonka is the headwater for the creek. It is a MNDNR watercourse and flows east at the north end of Hopkins and southeast on the east side of the City.

Nine Mile Creek

The headwater of the north fork of Nine Mile Creek is at the southern edge of Excelsior Boulevard in the southwest portion of Hopkins. Nine Mile Creek flows southeast to the Minnesota River, and is a MNDNR protected watercourse.

Ditches

Much of the surface water is routed through an existing storm sewer system within the City of Hopkins. This includes a system of storm sewer pipes, ponds, ditches, and culverts.

General Drainage Patterns

The City of Hopkins lies within the MCWD and the NMCWD. The northern and eastern portions of the City drain to Minnehaha Creek, and the southern and central portions of the City drain to Nine Mile Creek. The City has been delineated into 61 subwatersheds, which are shown on **Figure SW-08**. The City of Hopkins has numerous points of discharge from and to the cities of Minnetonka, Edina, and St. Louis Park.

The City of Hopkins contains several land-locked areas. A land-locked area is one which will not drain naturally on the ground surface. An outlet for each of these areas should be considered to decrease the flooding potential. **Figure SW-06** shows the topography for the City of Hopkins.

5.3. Modeling & Studies

Hydrologic Modeling

MCWD and NMCWD have developed regional hydraulic modeling in Hopkins. The City has adopted these models by reference.

An Autodesk™ Storm and Sanitary Analysis (SSA) model has been created for specific projects within the City of Hopkins. The City created these models in the past decade that correspond to the annual street reconstruction projects and other miscellaneous projects the City has undertaken. The City does not currently have a model that encompasses the entire City limits.

Figure SW-10 shows the areas within the City that have been fully modeled and areas that have been partially modeled. There are two different types of models that have been created, the Rational Method and the SCS TR-20 hydrology method. The Rational Method is typically used to determine the peak rate of runoff for sizing storm sewer and the SCS TR-20 method is typically used to determine peak rates and volumes of runoff when ponding needs to be taken into account.

The rates and volumes of stormwater runoff have been shown for two locations within the City where the SCS TR-20 models have been developed (**Figure SW-10**). The City will continue to work towards completing an overall model as annual reconstruction projects occur. The existing storm sewer system is depicted in **Figure SW-02**.

For ease of organization in this report, the City has been broken into four drainage districts based on watershed drainage pattern. The boundaries of each district are depicted in **Figure SW-02** and generally bounded as:

1. Central District – area north of Excelsior Blvd, south of Hwy 7, and west of 5th Ave N
2. Northern District – Area north of Highway 7
3. Eastern District – All area east of Highway 169, but also including the Park Ridge and Hobby Acres neighborhoods
4. Southern District – Area south of Excelsior Blvd, west of Highway 169

Water Resource Studies

The following table is a list of important studies that have been completed in the City of Hopkins. For additional information, please see the listed studies and reports in **Table 5.3**: Summary of Water Resources Studies Feasibility.

Additional studies completed in the Minnehaha Creek and Nine Mile Creek Watersheds can be found at the districts web site:

Minnehaha Creek Watershed: https://www.minnehahacreek.org/project

Nine Mile Creek Watershed: https://www.ninemilecreek.org/resource-library/?rt=technical-reports

Table 5.3: Summary of Water Resources Studies, 2007 - 2018			
Study Name	**Study Type**	**Prepared By**	**Year**
MCWD H/H and Pollutant Loading Study	H & H Report	MCWD	2003
Functional Assessment of Wetlands (FAW)	Assessment & Inventory	MCWD	2003
2008 Minnetonka Mills Road Improvements	Feasibility Report	Bolton & Menk	2007
2009 Street & Utility Improvements (Park Ridge Neighborhood)	Feasibility Report	Bolton & Menk	2008
2011 Street & Utility Improvements (14th Ave N, 15th, Ave N, 16th Ave N)	Feasibility Study	Bolton & Menk	2010
2012 Street & Utility Improvements (Minnetonka Mills Rd, W of 5th Ave)	Feasibility Report	Bolton & Menk	2011
2013 Street & Utility Improvements (South Presidents Neighborhood)	Feasibility Report	Bolton & Menk	2012
13th Ave N Drainage Study	Letter Report & Figures	Bolton & Menk	2014
2016 Street & Utility Improvements (18th – 21st Ave N, 2nd – 4th St N)	Feasibility Report	Bolton & Menk	2015
2017 Street & Utility Improvements (Park Valley Neighborhood)	Feasibility Report	Bolton & Menk	2016
8th Avenue Artery Improvements	Volume Baking Agreement & Design	Bolton & Menk, NMCWD, City of Hopkins	2017
2018 Street & Utility Improvements (Lake St NE, Texas Ave, Cambridge, Oxford, Division)	Feasibility Report	Bolton & Menk	2017
2019 Street & Utility Improvements (Lake St NE, Tyler Ave, Cambridge St, Van Buren Ave, Hiawatha Ave, Oak Park Lane)	Feasibility Report	Bolton & Menk	2018

In the vast majority of studies noted above, the City evaluated the feasibility and cost effectiveness of drainage improvements, and implemented them through its annual pavement management projects. The 13th Ave N Drainage Study was commissioned in response to localized flooding following a severe rainfall event, however. At some point within the next decade, improvements to 13th Ave N may be reconsidered at the time of street and utility reconstruction.

13th Ave N Drainage Study

The 13th Ave N Drainage Study was completed by Bolton & Menk in early 2014 following heavy rain events in July, 2013 caused flash flooding along 13th Avenue N, south of 3rd Street N. The property at 238 13th Avenue N experienced some storm water inflows to their house. The land-locked low area in the backyard of this home also experienced unusually high-water levels. The study analyzed the storm water conveyance system through the bulk of the Central drainage district.

Analysis of the existing system concluded there would be surcharging of the system along 3rd St N during events as small as a 2-year storm. The study analyzed three alternatives with varying benefits and impacts. Essentially, the City's storm sewer system upstream of Maetzold Field is constrained (during a 10-year event) along 15th Ave N and along 13th Ave N to varying degrees. Improvements were considered to alleviate the excess flow in the storm sewer, which during surcharging will flow above ground along roadways. However, this would shift water to Maetzold Field.

Ultimately, some upsizing of storm sewer along 3rd St N was implemented in 2014. Some improvements were limited due to sanitary sewer and funding constraints. It is recommended this drainage study be revisited when 13th Ave N near 3rd Street is scoped for improvements in conjunction with the City's Pavement Management Plan.

8th Avenue Artery Volume Banking

In 2017 the City and NMCWD established a volume bank for stormwater management credits. These credits are intended for use in support of City projects and for sale to developers along or near the 8th Avenue corridor where those developers cannot easily achieve compliance with stormwater management requirements. The City maintains a spreadsheet which tracks volume credits created and expended.

6. Design Criteria

6.1. Design Storm

In 2013, the National Weather Service (NWS) released NOAA Atlas 14, Volume 8, which updated the 1961 TP-40 precipitation frequency estimates for Midwestern states. The 24-hour duration, TP-40 Type II rainfall distribution was previously used for overall subwatershed planning within the City of Hopkins. For future development purposes the Atlas 14 distribution MSE 3 rainfall depths will be used for quantifying stormwater runoff.

Table 6.1 shows the difference between the TP-40 and Atlas 14 24-hour rainfall amounts in Hopkins. This criterion is consistent with the MCWD Water Resources Management Plan, the NMCWD 509 Plan, and guidance from the NRCS.

Table 6.1: Rainfall Depths for a 24-hr Event

Precipitation Data Source	1-Year (inches)	2-Year (inches)	5-Year (inches)	10-Year (inches)	50-Year (inches)	100-Year (inches)
TP-40 Rainfall	2.3	2.7	3.5	4.1	5.3	5.9
Atlas 14 Rainfall Rainfall	2.50	2.87	3.59	4.29	6.38	7.46

Projects within the MCWD require stormwater rate control for the 1, 10 and 100-year storm events and volume control for 1 inch of runoff from a sites impervious surface. Projects within the NMCWD require stormwater rate control for the 2, 10 and 100-year storm events and volume control for 1.1 inches of runoff from regulated impervious surfaces.

6.2. Rain Gages

The City of Hopkins has a rain gauge on the public works building, which is owned and operated by NMCWD. There are other rain gages in the surrounding area that can be used to obtain rainfall data, such as the web based Community Collaborative Rain, Hail & Snow Network (CoCoRaHS); the Twin Cities National Weather Service Station in Chanhassen. The National Oceanic and Atmospheric Administration (NOAA) also has stations in the cities of Crystal, Golden Valley, Robbinsdale and Plymouth.

6.3. Storm Sewer Collection System

The minimum design storm for the future local collection system evaluation and design will be a 10-year return period event. Design of local storm sewer systems will generally be designed using the Rational Formula.

The choice of a design storm is largely an economic rather than a technical decision. The City should deliberately consider the level of service desired when it chooses the recurrence interval used in any construction project.

6.4. Other City Requirements

Any new construction of development has the potential of increasing runoff rates and volumes. The development or redevelopment of land must include facilities to provide water quality treatment and control runoff at existing or reduced rates.

Variances from plan standards will be allowed if computations that demonstrate no adverse upstream or downstream effects will result from the proposed system can be provided to the City Engineer.

7. Establishment of Goals and Policies

The primary goal of the City's Plan and associated Rules is to provide the framework for the management of all forms of surface water as development and redevelopment occurs within the City. This Plan provides clear guidance on how the City will manage surface water both in terms of quantity and quality. The goals and policies stated in this Plan are complimentary to the goals and policies stated in the CWRMP and VRWMP.

Resource education and increasing regulation of surface water at the State, County, and Federal levels necessitate that the City's surface water management goals evolve over time with increased awareness.

The goals and policies detailed in this Plan focus on future redevelopment as much as the existing infrastructure. The City only conducts plan reviews "as development occurs" as part of the preliminary plat submittal and approval process. This emphasis on future requirements ensures that future development augments the City's amenities rather than diminishes the complex environments that the City is located within.

7.1. Goal 1: Stormwater Management

The purpose of this goal is to control flooding and minimize related public capital and maintenance expenditure necessary to control excessive volumes and rates of surface water runoff, in accordance with the MCWD and the NMCWD. Traditional surface water management deals with just one component of the hydrologic cycle; surface runoff. Large amounts of energy are directed towards alleviating significant negative impacts of surface runoff and flooding for the cultural, water, and natural resources.

The primary management strategy is shifting from detention in both existing natural and constructed basins, to Low Impact Development (LID) techniques and Green Infrastructure Techniques that emphasize reduction of runoff volume and on-site runoff control via infiltration or small volume storage to mimic predevelopment hydrology for more frequent rainfall events. This trend will help remedy the negative impact of stormwater runoff on water quality and downstream flooding. With increased value placed on natural wetlands, the number and extent to which wetlands can be used for detention is already in decline. The approach to sound water quantity management relates directly to water quality, wetland management, erosion control, and land development strategies. By comprehensively managing the quantity and quality of surface water runoff, the other goals of this Plan are more efficiently achieved.

Subject: Surface Water Runoff (Rate and Volume) Management.

Purpose: Control post-development stormwater runoff.

Goal: Control flooding, protect human life, protect public and private property, mimic existing runoff conditions, minimize related public capital and maintenance expenditure necessary to control excessive volumes and rates of surface water runoff from entering streams and wetlands in the watershed, and maintain or improve the downstream conveyance system.

7.1.1. Surface Water Quantity Policies

Policy 1.1: Utilize LID site design and alternative landscape techniques where applicable, along with conventional constructed on-site detention ponds for large, infrequent rainfall events. Pre-developed peak flow rates for the 1-yr, 10-yr, and 100-yr, 24-hour, storm events cannot be exceeded by new development in MCWD. Pre-developed peak flow rates for the 2-yr, 10-yr, and

100-yr, 24-hour, storm events cannot be exceeded by new development in NMCWD. These design techniques will be relied upon to help mimic pre-development hydrology and to control downstream flooding.

The NOAA Atlas 14 rainfall depths using a NRCS MSE 3 distribution shall be used for calculating peak flow rates.

Policy 1.2: The City will encourage and enforce volume reduction standards throughout the City and where site conditions are feasible. The City will strive to reduce or minimize impervious surface coverage where practical or feasible.

Policy 1.3: The City shall maintain and periodically inspect stormwater management facilities and structures to assure they function as originally designed according to the Storm Water Pollution Prevention Plan requirements. There are approximately 42 stormwater ponds in the City. A majority of these are privately owned stormwater ponds or facilities, See **Figure SW-08**. In the future, if private stormwater ponds or facilities are part of a development, the developer will be required to enter into a stormwater management agreement that lays out the owner's responsibilities for future costs of inspection, repair and maintenance of the stormwater pond or facilities.

7.2. Goal 2: Water Quality

The purpose of this goal is to achieve water quality standards in lakes, creeks, and wetlands consistent with the intended use and classification. Water quality is often directly related to the level of nutrients in the water body. While nutrients comprise only one category of substances that can affect water quality, nutrients, principally phosphorous, must be controlled to achieve the water quality goals of this Plan. Phosphorous is generally the limiting factor to plant growth. An increase in phosphorous will cause the plant species dominating the lakeshore, open water, or marsh to shift in favor those plants that can best take advantage of the increased supply of the nutrient.

Controlling nutrients through housekeeping practices are a way for City residents to make a difference. According to the Minneapolis Chain of Lakes Clean Water Partnership, many people do not realize that organic materials like leaves, grass clippings, fertilizers, pesticides, and pet waste can disrupt the fragile ecosystem of a lake or creek.

Subject: Water quality in lakes, rivers, creeks, and wetlands.

Purpose: To protect and enhance water quality.

Goal: Achieve water quality standards in lakes, creeks, and wetlands consistent with their intended use and established classification.

7.2.1. Water Quality Policies

Policy 2.1: Proposed developments must identify all reasonable steps taken to avoid water quality impacts. They must also mitigate unavoidable impacts with appropriate BMPs to prevent water quality in receiving waters from falling below established standards including TMDLs, and to meet City erosion control ordinance standards.

Policy 2.2: The City shall promote the reduction or minimization of hard surfaced areas, where applicable.

Policy 2.3: The City will balance protection of natural wetlands and utilization of constructed

wetlands to protect the water quality of other water resources (i.e., wetlands, lakes, creeks) based on MnRAM wetland classification.

Policy 2.4: It essential that the condition of water bodies in the Watershed included on the MPCA impaired waters 303(d) list be improved so that these waterbodies can be removed from that list.

Policy 2.5: Use of existing natural retention and detention areas for stormwater management to maintain or improve existing water quality will be achieved to the extent possible.

Policy 2.6: The City supports land use planning, policies and controls that maintain sustainable, high-quality surface water resources and ensure that development causes no adverse or cumulative impacts.

Policy 2.7: Adopt policies to appropriately apply the least amount of chlorides necessary for winter road maintenance to provide safe driving conditions.

Policy 2.8: The City will implement its MS4 SWPPP and work with NMCWD towards meeting the chloride reduction goals in the Nine Mile Creek Chloride TMDL, the water quality goals identified in the MCWD and NMCWD Water Management Plans and the *Twin Cities Metropolitan Area Chloride Total Maximum Daily Load Study (*MPCA, 2016).

Policy 2.9: The City of Hopkins is aware of NMCWD's chloride management education and training efforts, as well as the chloride-reduction requirement added to NMCWD's rules in 2018. The City intends to participate in implementation of chloride reduction BMPs established by the local watersheds.

7.3. Goal 3: Erosion Control

The purpose of this goal is to minimize soil erosion through increased education and enforcement, in accordance with the MCWD and NMCWD. Water quality problems are frequently linked to high phosphorus concentrations. Phosphorus is often transported to surface water through soil erosion but can also be transported to waters in a variety of other mechanisms. Nevertheless, erosion control is an important factor in the effort to improve surface water quality. Soil erosion and sediment deposition can also impact pond and drainage-way performance and create maintenance issues.

Ponds and drainage facilities may be impacted by erosion and sedimentation from a variety of sources including construction sites and winter street sanding. The coarse sediment accumulates in ditches and ponds where runoff velocities are low. When a sand delta appears at a storm sewer outfall that is a visible indication of the effectiveness of erosion and sediment control measures and road maintenance activities of the past winter. As the sediment builds up over time, it reduces the capacity of the drainage system and the pollutant removal capabilities of ponds by reducing storage volume below the outlet. This also reduces the infiltration rates for stormwater facilities.

Extending the life of facilities involves source control and elimination of the material that causes the problem. Regulatory actions will control a major portion of the sediment. Street maintenance and an effective sweeping program will also have a positive impact on sediment accumulation.

Subject: Erosion control.

Purpose: To control erosion and sedimentation.

Goal: Minimize soil erosion through increased education, enforcement and management of

stormwater.

7.3.1. Erosion Control Policies

Policy 3.1: Erosion and Sedimentation Control Plans shall be reviewed and enforced by the City for all grading activities. These plans shall conform to the general criteria set forth by the City's policies and applicable NPDES /SDS Permit (MPCA Permit MN R100001) requirements.

Policy 3.2: The City will implement its erosion control ordinance to control erosion and sediment to extend the effective life of water resource facilities and reduce pollutant loading to streams, lakes, and wetlands.

Policy 3.3: The City will develop proactive measures such as education, and recognition of erosion control efforts to prevent soil erosion and encourage responsible site development.

Policy 3.4: Construction site inspection by the City must be completed prior to commencing earthwork activities to ensure the proper BMPs are in place and operational.

Policy 3.5: Best management practices shall be used at all construction sites per the MPCA's MS4 general permit to discharge stormwater associated with construction activities.

Policy 3.6: The City will maximize the use of bioengineering approaches whenever possible for all slope stabilization and permanent erosion control projects.

7.4. Goal 4: Wetlands

The purpose of this goal is to maintain or increase the amount of wetland acreage, and increase the wetland functions and values within the City, in accordance with the MCWD and NMCWD rules. The watershed districts are the LGU for the Wetland Conservation Act (WCA). The City has not completed a Comprehensive Wetland Management Plan. The wetland inventory is based on the wetlands on the National Wetland Inventory (NWI), Minnesota Department of Natural Resources (MNDNR) and MCWD records, which may not include all of the wetlands and aquatic resources in the City. Field delineation, assessment of hydrology, identification of plant species, characterizations of soils, MnRAM assessment and restoration are generally completed and reviewed on an "as development occurs" basis. This approach places the financial burden for identification, delineation, and possible restoration on the land developer.

The policies below will be used to achieve the City's wetland goals. The strategies will apply to new development and redevelopment projects submitted to the City for review and approval. Any wetland habitat on property to be developed will be subject to the following management strategies, as well as the rules and requirements of the WCA and other City, State, and Federal regulations.

Proper implementation of wetland buffers during developments is paramount. Without proper implementation of buffers; creek and wetland water temperatures increase, sediment deposition increases, stream bank erosion and collapse are more severe, and riparian habitats are destroyed.

Subject: Wetland Management

Purpose: To utilize, protect, preserve, and enhance existing natural wetlands.

Goal: Maintain or increase the amount of wetland acreage, and increase the wetland functions and values within the City.

7.4.1. Wetland Policies

Policy 4.1: The MCWD and NMCWD shall administer wetland protection and mitigation as the LGU in accordance with the Minnesota WCA.

Policy 4.2: Pretreatment of runoff shall be provided for runoff directly discharged into a wetland.

Policy 4.3: The City may utilize the available technical resources of outside agencies, such as the Minnesota DNR, USACE, Scott SWCD, the Board of Water and Soil Resources and/or the MCWD and NMCWD, for review of private developments and City-proposed projects that may affect wetland resources.

Policy 4.4: A protective buffer strip of natural vegetation, at least 16.5 feet in width, must be retained around wetlands; or in accordance with the standards in the City's Engineering Design Guidelines, MCWD rules, and NMCWD rules.

Policy 4.5: Where feasible, the duration and magnitude of water level fluctuation in wetlands from stormwater runoff shall be minimized to prevent adverse habitat changes.

Policy 4.6: Replacement for unavoidable wetland impacts will be provided (if possible, within the same subwatershed), in accordance with the requirements of the MCWD, the NMCWD and the WCA.

7.5. Goal 5: Groundwater Management

The City's groundwater resources are identified in the City's Wellhead Protection Plan. The City's aquifers have been assigned a "Vulnerable" rating. This rating indicates "there is a hydraulic connection between surface waters and the aquifer serving the water supply system for the City".

The City of Hopkins Wellhead Protection Plan currently outlines requirements for continued groundwater protection and well management. The report is obtainable from the City.

Subject: Groundwater Management

Purpose: To protect groundwater quality and improve groundwater supplies through effective management.

Goal: Provide clean and safe drinking water for the City while managing increased development and population.

7.5.1. Groundwater Management Policies

Policy 5.1: Promote ongoing evaluation of land use impacts on groundwater quality and quantity.

Policy 5.2: Provide information to the public by revising and updating the City Wellhead Protection Plan as required by the Minnesota Department of Health.

Policy 5.3: Support identification and reduction of groundwater contamination from both point and non-point sources.

Policy 5.4: Promote water conservation efforts to reduce water use and conserve the City's groundwater resources.

Policy 5.5: Infiltration of stormwater and resulting groundwater recharge will be promoted where

feasible and if it does not pose a threat to groundwater quality.

Policy 5.6: The City will continue to implement its Wellhead Protection Plan.

7.6. Goal 6: Floodplain Management

The Minnehaha Creek and Nine Mile Creek corridors are shown on the Flood Insurance Rate Map (FIRM) for the City of Hopkins that are identified as Zone AE floodplains (see **Figure SW-01**). Base flood elevations have been determined for these floodplains. The City's ordinance will regulate development adjacent to the floodplain districts.

Moderate flood hazard areas, labeled Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood (100-year) and the 0.2-percent-annual-chance (or 500-year) flood. Unshaded Zone X areas are those areas determined to be outside the 100-year and 500-year floodplains.

These areas have been identified on the FIRM as areas of moderate or minimal hazard from the principal source of flood in the area. However, buildings in these zones could be flooded by severe, concentrated rainfall coupled with inadequate local drainage systems.

Subject: Floodplain Management

Purpose: To provide flood protection for people and property.

Goal: Manage and protect the floodplains from encroachment.

7.6.1. Floodplain Management Policies

Policy 6.1: Protect the natural function of a floodwater storage area in a floodplain from encroachment.

Policy 6.2: Work to maintain no net loss of floodplain storage.

Policy 6.3: Manage floodplains to maintain critical 100-year flood storage volumes.

Policy 6.4: Restrict construction of new structures to sites above flood prone areas.

Policy 6.5: Maximize upstream floodwater storage areas and require mitigation for any fill within a floodplain.

Policy 6.6: Prohibit stormwater runoff volume increases to landlocked areas due to development or redevelopment activity, unless analyzed, documented and acceptable by the City engineer.

Policy 6.7: Administer review and approval of development and redevelopment consistent with MCWD and NMCWD floodplain rules.

7.7. Goal 7: Public Participation, Information & Education

The purpose of this goal is to increase public participation and knowledge in management of the City's water resources, in accordance with the MWCD and the NMCWD. Public involvement is a strategy that recognizes people want to be involved in decisions that affect any facet of their life. It provides opportunities for the public to participate in the processes that lead to decision-making.

As part of the NPDES/SDS Phase II requirements the City was required to prepare a Surface Water Pollution Prevention Plan (SWPPP). There are two minimum control measures in the SWPPP that deal

with public education and participation. Measure number one is: Public Education and Outreach on Storm Water Impacts. Measure number two is: Public Participation and Involvement. To meet the permit requirements the City must educate its citizens on six minimum control measures in the SWPPP. The City must also hold at least one public meeting per year to address the annual report regarding the SWPPP to receive public input. The activities described in the SWPPP will be the guiding document that will be followed to increase public awareness of the storm water related issues.

The website is an alternative medium to provide municipal information to both City residents and those people who live outside of Hopkins. The following is a link to the City's storm water management website: http://www.hopkinsmn.com/446/Storm-Water-Management

The City will continue to distribute information on pertinent stormwater management issues via the City weekly newsletter "Connections". The newsletter will periodically promote opportunities for residents to participate in water resources management activities. The City will make an ongoing effort on both a City-wide and watershed level toward educating the public by distributing information to its residents on responsible practices they should employ to protect water resources within the community.

Subject: Enhancement of Public Participation, Information and Education

Purpose: Encourage active community involvement in water resources management.

Goal: Increase public participation and knowledge in management of the water resources of the community.

7.7.1. Public Involvement Policies

Policy 7.1: The City will use a public involvement process in resource management decision-making (i.e., the Park Board and the Planning and Zoning Commission).

Policy 7.2: The City will use a variety of media, including newsletters, and the City's Website, to inform the community about water resource issue programs including illicit discharges, storm water grants, fertilizers, etc.

Policy 7.3: The City will work with all available resources to increase public participation in water resources management.

Policy 7.4: The City will follow the best management practices outlined in the City's Storm Water Pollution Prevention Plan (SWPPP) that address public education and outreach and public participation/involvement. Educational goals and activities have been identified in the SWPPP to make the public more informed of the impact storm water discharges and pollutants have on receiving waters.

Policy 7.5: The City will hold an annual coordination meeting to review the City's Capital Improvement Program and/or potential development projects with MCWD. See the City of Hopkins Coordination Plan in Appendix C for further information.

Policy 7.6: The City's MS4 Annual Report will transmitted if required by the SWPPP or if requested by the MCWD or NMCWD.

Policy 7.7: The City will continue to engage the Watersheds in land use planning, where appropriate, and consider collaborative roles with the Watersheds in implementing programs and

capital improvements (see Table 9.4 and the City's CIP). Information will be coordinated consistent with the City's adopted zoning ordinance and all applicable regulations.

Policy 7.8: Upon receipt of redevelopment or development plans for City approval, the City will notify and share such plans with the MCWD or NMCWD as applicable, prior to such approvals being made by the City.

8. Assessment of Problems

An assessment was done of the water resource problems in Hopkins. These problems include both existing problems and potential problems. The existing problems are issues that currently exist in Hopkins from past natural events, development, or pollution. The potential problems are issues that may happen if actions are not taken to improve current issues or prevent new issues from arising. These problems are summarized below:

8.1. Surface Water Quantity

Any new construction has the potential of increasing runoff rates and volumes. The City should review stormwater concerns in its construction permitting process, as part of its MS4 program. The detail of each review can be related to the potential the project has to affect downstream areas.

Several types of modifications can affect the existing runoff conditions. Below is a list of some activities which could significantly affect flooding. Proposed construction which meets any of these conditions should be subject to a more detailed runoff analysis before it is approved:

a. The construction increases the amount of impervious area.

b. The construction changes any stormwater flow path (on surface or sewer).

c. The construction is within a local low area.

d. The construction reduces existing stormwater detention in any local low area.

e. The construction includes a land area of more than a few acres.

Climate change is increasing the intensity and frequency of storm events. Sizing of ponds and conveyance systems to current standards is critical to prevent the worsening of downstream flooding. Also, protecting existing surface overflow locations and elevations during redevelopment is vital.

8.2. Water Quality in Local Creeks, Lakes and Other Bodies of Water

Water quality can be affected by runoff, animals, and climate change, as well as a wide variety of other sources. One of the main designations of poor water quality in a body of water is if it is considered an impaired water. It will be a goal of the City to preserve the current quality of their water resources as well as improve them where applicable. The Environmental Protection Agency (EPA) requires that the Minnesota Pollution Control Agency (MPCA) have standards to assess the quality of Minnesota waters under the federal Clean Water Act (CWA). The MPCA declares that any body of water that does not meet one or more of the quality pollution control standards is considered to be an impaired body of water. The MPCA is responsible for protecting the bodies of water in Minnesota from pollutants and restoring impaired waters to a higher quality of water to preserve their beneficial uses. Under Section 303(d) of the CWA, states have to identify their impaired waters and submit a list every two years. Along with a published list of the impaired waters for the state, a Total Maximum Daily Load (TMDL) Study is also required for approval by the EPA.

Surface waters are assessed for several beneficial uses. The uses include aquatic life, drinking water and aquatic consumption (human health-based), aquatic consumption (wildlife-based), aquatic recreation, and limited value resource waters. The pollutants for each of these uses ranges widely. The pollutants assessed are low dissolved oxygen, pH, total suspended solids (TSS), temperature, trace metals, and bacteria, along with many others. The impaired waters in Hopkins and information about

each can be found in Table 8.2. An illustration of the locations of existing impaired waters in Hopkins is shown in **Figure SW-01**.

Impaired Waters

Total Maximum Daily Load (TMDL) represents the maximum amount of a pollutant that a water body can receive and still meet federal and state water quality standards. TMDL also refers to the process of allocating pollutant loadings among point and non-point sources.

Minnehaha Creek, from Grays Bay to the Mississippi River, was initially added to the list of 303d impaired waters in 2004. It is currently listed for impairments due to chloride, *E. coli,* aquatic macroinvertebrate bio assessments, fishes bioassessments, and dissolved oxygen.

Nine Mile Creek, from the headwaters to Metro Boulevard, was initially added to the list of 303d impaired waters in 2004 for fishes bioassessments as a stressor/pollutant.

The City has a waste load allocation of 170.5 pounds of total phosphorus (pounds per growing season) for Lake Hiawatha, per the Minnehaha Creek/Lake Hiawatha TMDL.

In the 2018 draft 303d impaired waters list (see Figure SW-03) the stressor/pollutant for aquatic macroinvertebrate bioassessments has been added. In 2002 Nine Mile creek was listed as impaired for turbidity from the headwaters to the Minnesota River, but has been delisted for this pollutant in 2010.

Minnehaha Creek and Nine Mile Creek are identified in the 2018 draft list of impaired waters for the following impairments:

Table 8.2: Impaired Waters List

Waterbody	Affected Designated Use	Pollutant or Stressor	Year Listed	TMDL Study Target Completion	TMDL Study Approved	Wasteload Allocation
Nine Mile Creek	Aquatic Life	Chloride	2004	---	2010	Categorical
	Aquatic Life	Fish Bioassessments	2004	2019	---	---
Minnehaha Creek	Aquatic Recreation	E. coli	2008	---	2014	Categorical
	Aquatic Life	Chloride	2008	---	2016	Categorical
	Aquatic Life	Fishes Bioassessments	2004	2025	---	---
	Aquatic Life	Aquatic Intervertebrate Bioassessments	2014	2025	---	---
	Aquatic Life	Dissolved Oxygen	2010	2025	---	---
Lake Hiawatha	Aquatic Recreation	Phosphorus	2002	---	2014	170.5 lbs.

To meet the wasteload allocations assigned to the City of Hopkins the City will continue to implement the BMPs outlined in their MS4 SWPPP permit. These activities include the following:

- Providing stormwater education to employees and the public.

- Providing water resource education materials to contractors, builders, developers, and the general public.
- Perform inspections according to the City's illicit discharge detection and elimination program.
- Require permitees to comply with regulatory requirements for post-construction BMP performance.
- Monitoring and maintenance of existing stormwater ponds and other BMPs to sustain nutrient removal effectiveness.
- For new development, require maintenance agreements with private owners of permanent BMPs.
- Continuance of the street sweeping program, which sweeps streets a minimum of two times per year.
- Annual inspection and cleaning of all structural pollution control devices.

The City looks forward to working with the MPCA, Minnehaha Creek and Nine Mile Creek Watershed Districts in the TMDL study planning process.

Minnesota Rules address the antidegradation requirements, which are equivalent with the Federal EPA antidegradation policy. Antidegradation requirements promote the protection of water quality that exceeds the minimum water quality standards relevant to a waterbody according to its designated use. The City of Hopkins was not a selected community that had to prepare a Nondegradation Report as per Appendix D of the 2006 MS4 Permit (MNR040000).

8.3. Erosion Control

Erosion Control is an area that the City has put forth considerable effort. With the adoption of the Erosion Control Ordinance in October 2008, the City has the regulatory mechanism in place to promote and enforce actions that reduce soil erosion and sedimentation.

8.4. Wetlands

The City's wetlands, in general, are affected by stormwater runoff discharged into the wetlands. The City recognizes the benefits of healthy wetlands and when projects are proposed in the vicinity of wetlands actions will be taken to treat water prior to discharge into existing wetlands.

8.5. Groundwater Management

A majority of the City is located within a Drinking Water Surface Management Area (DWSMA) which necessitates increased land use controls to protect groundwater-based drinking supplies from contamination. Potential sources of contaminants within 200 feet of the system's water sources are identified in the City's Wellhead Protection Plan (WHP).

The WHP provides an assessment of water use and land use issues, problems, opportunities the City can and has taken to support wellhead protection efforts. See Appendix B for further information.

While the City normally promotes infiltration as a stormwater best management practice, it may not be appropriate on all sites. The City's management of stormwater with regards to its impact on groundwater is guided by the City's Stormwater Pollution Prevention Plan, MS4 permit and ordinances.

8.6. Floodplain Management

The City will need to continue to address localized flooding areas to protect life and property and reduce the burden of maintaining the storm sewer system. The City requires all stormwater infrastructure, development and redevelopment projects to use updated Atlas 14 rainfall frequency data in their analysis and design process to account for the latest weather trends. Evaluating the existing drainage system as part of the annual street improvement program will be an essential element of the City's efforts to manage and reduce localized flooding.

8.7. Public Education

Continued public education regarding storm water related issues for residents, developers and City staff.

8.8. NPDES MS4 Permit

The City of Hopkins is a mandatory Municipal Separate Storm Sewer System (MS4) community and has obtained an MS4 permit from the MPCA. As a condition of the permit the City was required to prepare a SWPPP. The SWPPP identifies structural and non-structural controls that will be put into place to minimize negative impacts caused by stormwater discharges to the environment. Best management practices (BMPs) have been identified and are used to meet the six minimum control measure requirements of the permit.

A map was created of City owned property, see **Figure SW-09**. BMPs have been developed in the City's SWPPP that are designed to prevent or reduce the storm water impacts from these City owned sites. Practices that will help prevent pollution within the City's jurisdiction can be found in the City's

SWPPP, which is in Appendix A.

9. Implementation Program and Associated Costs

The overall implementation program includes a mixture of capital improvement projects, studies, ongoing maintenance, inspection, and other recommended management activities over the next 10 years. As with all improvements, there is a cost associated with prudent storm water management. The Stormwater Utility Fund (SUF) is used for expenses associated with maintaining and improving the City's stormwater system. It is anticipated that projects will be paid for using the SUF, the general fund and grants that may be obtained for special projects.

The City of Hopkins is a MS4 (Municipal Separated Storm Sewer System) community and is subject to those rules of the Minnesota Pollution Control Agency (MPCA). To accomplish the water resource goals created by this plan and in the MS4 SWPPP, the City will work with local and statewide agencies.

- The City will seek opportunities to incorporate runoff control, infiltration, and other best management practices into infrastructure and redevelopment projects as a means to improve stormwater management within a highly developed city.
- Use development review and approval process to ensure that minimum standards are met and explore achievement of higher standards through BMPs to achieve water resource goals.
- Work closely with MCWD and NMCWD for future TMDL studies affecting Minnehaha Creek and Nine Mile Creek.

Private development that consists of stormwater facilities to be maintained by the developer will be required to enter into a stormwater management agreement that spells out the maintenance requirements for the stormwater facility.

9.1. Ordinances and Official Controls

Ordinances have been established to prevent land disturbing activities from washing soil and sediment into public waters and protect natural resources. Table 9.1 summarizes the ordinances and controls the City utilizes to comply with their MS4 permit:

Table 9.1: Ordinance and Official Controls

Ordinance Number/Permit	Ordinance/Official Control
545.01	Zoning: Flood Plain District
546.04 Subd. 2	Storm Water Management Plan
546.06 Subd. 6	Site Erosion Control
546.06 Subd. 8	Design Standards – Stormwater detention facilities
546.03 Subd. 9	Wetlands, buffers
555.19 Subd. 2	Landscaping, Site Plan Review (Tree Preservation)
720.01	Storm Sewer Drainage Utility
725.01	Illicit Discharge and Connections

Table 9.1: Ordinance and Official Controls	
Ordinance Number/Permit	**Ordinance/Official Control**
MNR040000	MS4 SWPPP program

9.2. Financial Considerations

The cost of implementing the Water Resource Management Plan will be supported by several revenue sources. Table 9.2 includes several of the sources that will be used to implement the plan.

Table 9.2: Water Resource Management Plan Funding	
Potential Funding Source	**Revenue Produced**
City's Storm Sewer Utility Fee The City has implemented a storm sewer fee that charges home owners $5.00/month. The funds generated from this fee are used to finance the storm water management program. Commercial and multi-family residential property is charged on a per acre basis.	Approximately $810,000/year.
Special Assessments The idea behind this assessment method is that generally the benefited properties pay in relation to the benefits received. The benefit would be realized by an increase in market value of the property that resulted from the improvement.	Variable depending on the projects undertaken.
Grants State and Federal grants are available for surface water management and non-point source pollution. Grants can be a good way to help fund special projects that meet grant eligibility criteria, but are not a good finance source to depend upon for an annual income source.	Variable depending on the projects undertaken.
Land Development Fees As new development occurs, each building permit requires a total valuation fee per building.	Variable depending upon the amount of development that occurs on an annual basis.

9.3. Capital Improvement Program

The City of Hopkins is responsible for maintaining its stormwater system, including storm sewer pipes, ponds, and channels. The City implements a five-year Capital Improvement Program (CIP), which is updated annually, to meet the continuing need of public infrastructure maintenance and repair. The CIP is intended to serve as a planning tool and is therefore structured to present a meaningful, long-range perspective of the city's capital programming needs. The CIP is used as the implementation of the City's stormwater infrastructure needs. The following link provides a copy of the City's current Capital Improvement Program:

http://www.hopkinsmn.com/ArchiveCenter/ViewFile/Item/258

The CIP also provides the five-year forecast of major capital needs for the following City programs:

- Utilities Program
- Transportation Program
- Parks, Forestry and Pavilion Program
- General Public Buildings Program
- Economic Development Program

9.4. Implementation Priorities

Recommended projects, timing, cost and funding sources that are applicable in order to achieve the plan goals are summarized in implementation Table 9.4. The City will finance these goals either directly or by specific development related review and construction inspection budgets.

	Table 9.4: Proposed Implementation Program			
Priority	**Project Description**	**Timing**	**Estimated Cost**	**Funding Source**
Medium	Storm sewer reconstruction	Annual	$200,000	SUF
High	Storm sewer maintenance program to ensure the successful operation of the drainage system.	On-going	$15,000	SUF
High	Enforcement of the erosion and sedimentation control ordinance for new developments.	On-going, as development projects are submitted to the City for approval		Funding by developer's fees, building permits and fines collected for non-compliance.
High	High water elevations governing building finish floor elevations adjacent to ponding areas and floodplains to be established per this Plan, Rules, and Ordinance.	On-going, as development projects are submitted to the City for approval		Funding by developer's fees and building permits.
High	Inspect stormwater ponds (100% per permit cycle).	On-going	$2,000	SUF
High	Storm sewer pond maintenance & clean out.	On-going	$25,000	SUF
High	Inspect 20% of all outfalls 24" and larger.	On-going	$1,000	SUF
High	Inspect erosion control BMP's on all construction sites.	On-going	$10,000	Funding by developer's fees and building permits.
High	Street sweeping at 2 times per year.	On-going	$25,000	SMF
High	Continue active participation in the activities of the watershed districts located within the city.	On-going		SUF
High	On-going channel maintenance of Minnehaha Creek and Nine Mile Creek.	On-going	Varies	SUF/Cost Share Grants
Medium	Implement education program on stormwater education for City residents, staff and development community.	On-going	$2,500	SUF
High	Implement illicit discharge education, detection, and elimination tasks included in SWPPP.	On-going	$3,000	SUF
Medium	Work towards completing an overall City stormwater model.	On-going		SUF
Medium	Maintain city website with stormwater management issues.	On-going		SUF
High	Revise City ordinances as necessary to stay compliant with the latest NPDES and MS4 permits.	Every 5 years	$5,000	SUF
High	Continued implementation of the City's Wellhead Protection Program	On-going	$2,000	SUF
Medium	Update storm sewer system mapping in the City's GIS and other databases.	On-going	$5,000	SUF
High	Stormwater plan review for new development projects.	On-going	Varies	Development fees
Low	Review stormwater utility fee for sufficient operating funds.	Every 5 years	$5,000	SUF

GF = General Fund, SUF = Stormwater Utility Fund Note: Cost estimates are based upon present day dollar amounts, and do not account for inflation.

Figures

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2040 Comprehensive Plan

Hopkins, MN

Watershed District Drainage Areas

March, 2018

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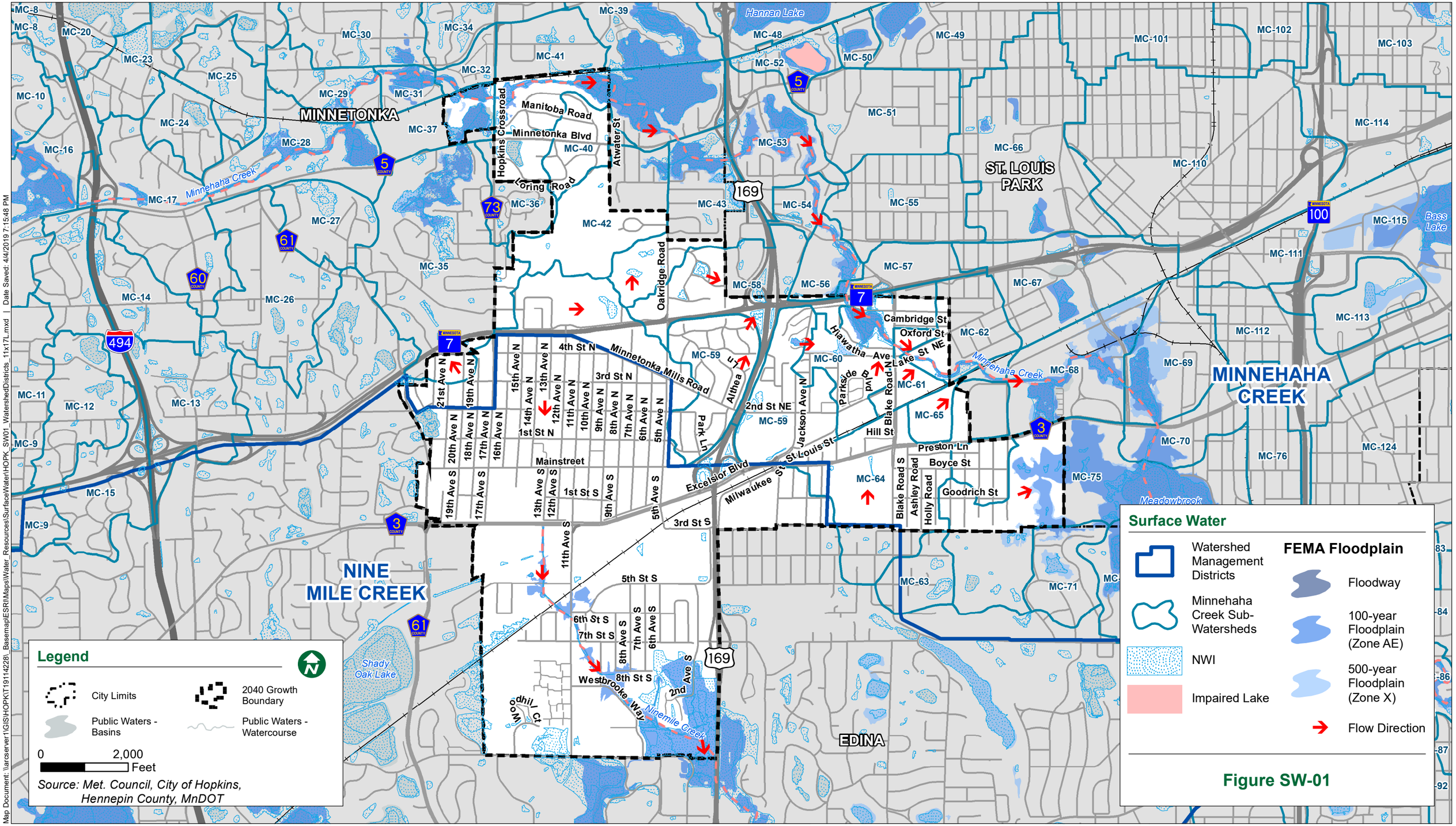

Legend

- City Limits
- 2040 Growth Boundary
- Public Waters - Basins
- Public Waters - Watercourse

0 2,000 Feet

Source: Met. Council, City of Hopkins, Hennepin County, MnDOT

Surface Water

- Watershed Management Districts
- Minnehaha Creek Sub-Watersheds
- NWI
- Impaired Lake

FEMA Floodplain

- Floodway
- 100-year Floodplain (Zone AE)
- 500-year Floodplain (Zone X)
- Flow Direction

Figure SW-01

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2040 Comprehensive Plan

Hopkins, MN

Major Drainage Districts & Storm Sewer Network

March, 2018

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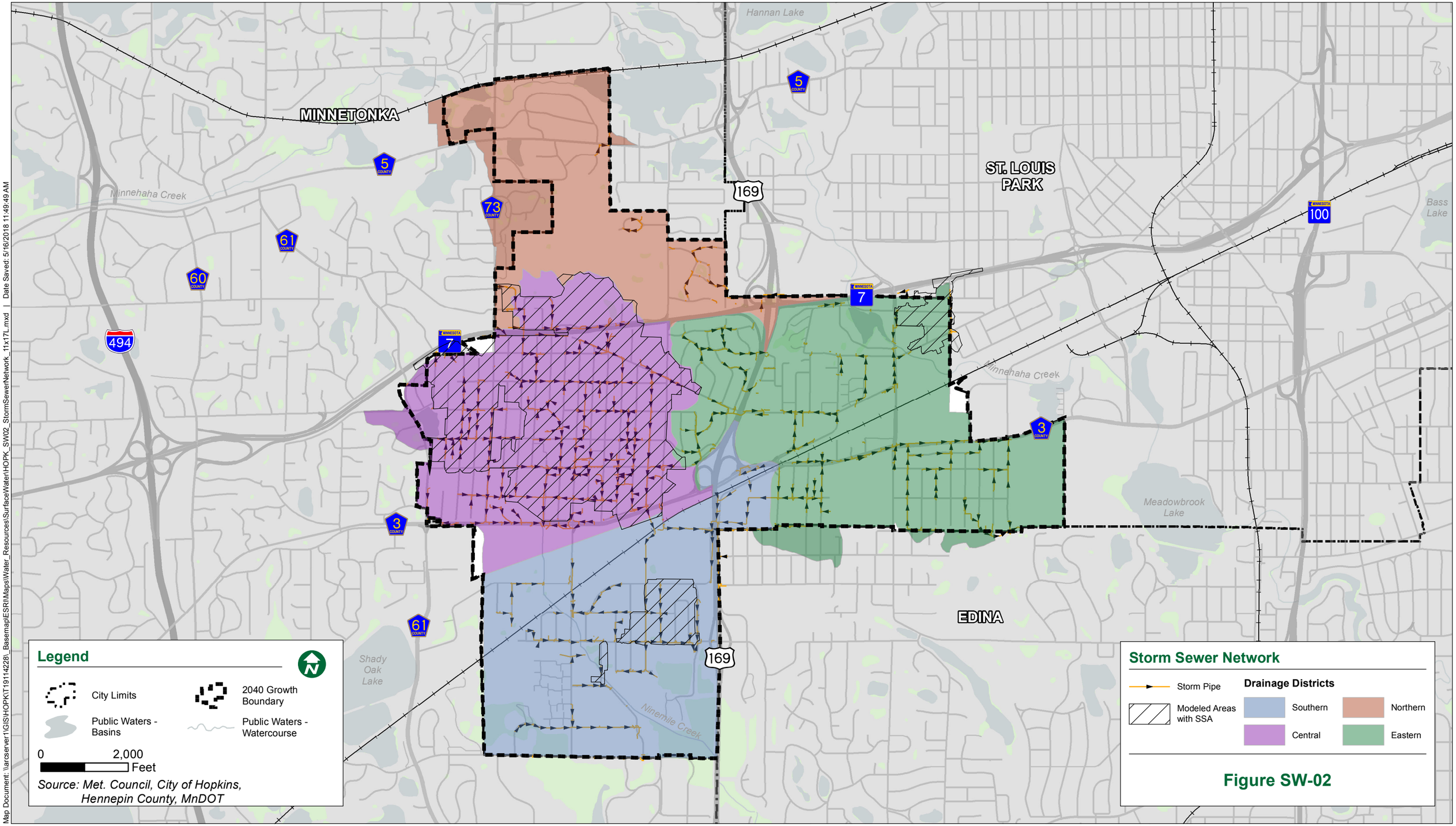

Legend

- City Limits
- 2040 Growth Boundary
- Public Waters - Basins
- Public Waters - Watercourse

0 2,000 Feet

Source: Met. Council, City of Hopkins, Hennepin County, MnDOT

Storm Sewer Network

- Storm Pipe
- Modeled Areas with SSA

Drainage Districts

- Southern
- Northern
- Central
- Eastern

Figure SW-02

Map Document: \\arcserver1\GIS\HOPKIT19114228_Basemap\ESRIMaps\Water_Resources\SurfaceWater\HOPK_SW02_StormSewerNetwork_11x17L.mxd | Date Saved: 5/16/2018 11:49:49 AM

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2040 Comprehensive Plan

Hopkins, MN

Impaired Waters and Contaminated Sites

March, 2018

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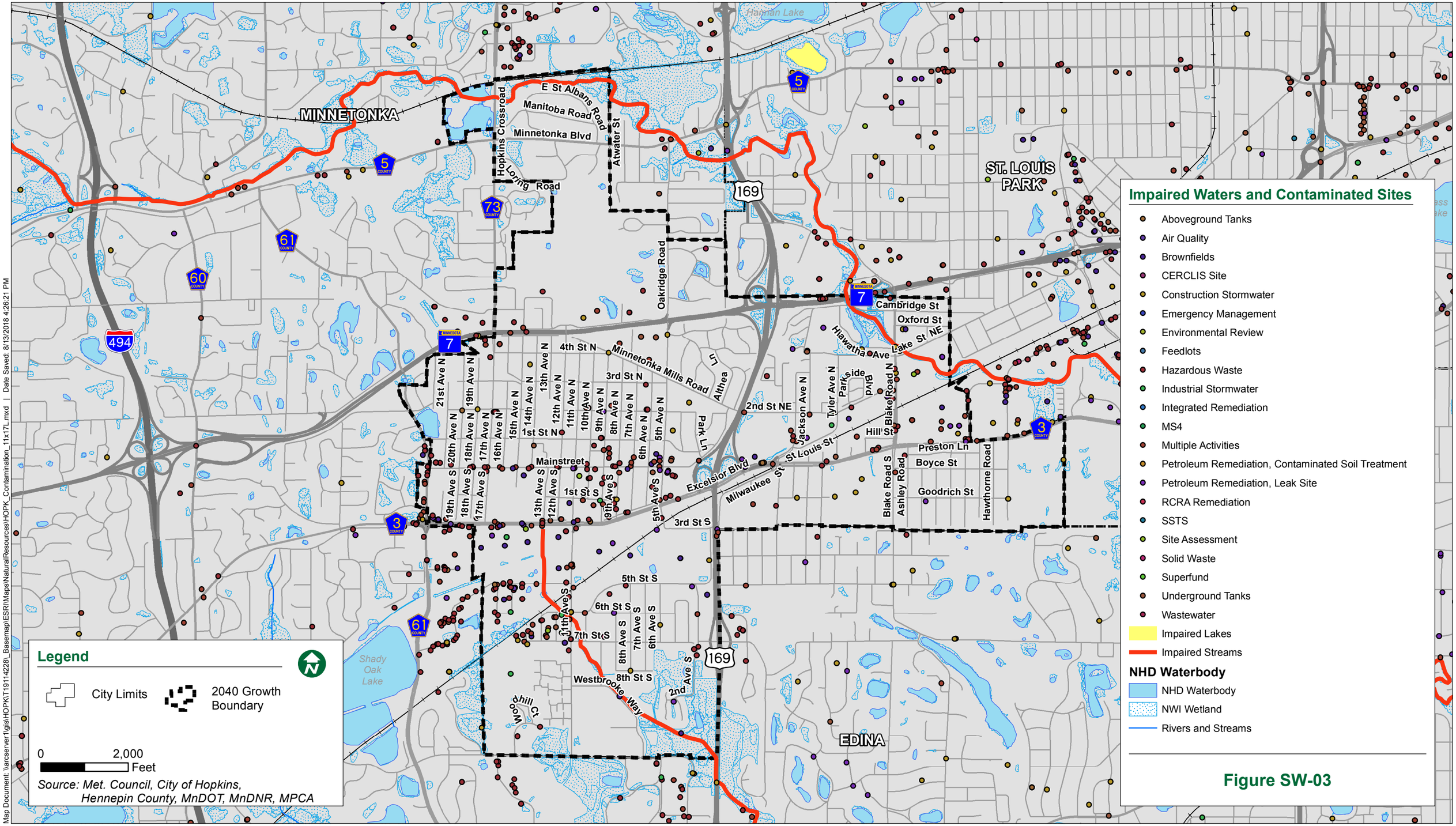

Impaired Waters and Contaminated Sites

- Aboveground Tanks
- Air Quality
- Brownfields
- CERCLIS Site
- Construction Stormwater
- Emergency Management
- Environmental Review
- Feedlots
- Hazardous Waste
- Industrial Stormwater
- Integrated Remediation
- MS4
- Multiple Activities
- Petroleum Remediation, Contaminated Soil Treatment
- Petroleum Remediation, Leak Site
- RCRA Remediation
- SSTS
- Site Assessment
- Solid Waste
- Superfund
- Underground Tanks
- Wastewater
- Impaired Lakes
- Impaired Streams

NHD Waterbody

- NHD Waterbody
- NWI Wetland
- Rivers and Streams

Legend

City Limits

2040 Growth Boundary

0 2,000 Feet

Source: Met. Council, City of Hopkins, Hennepin County, MnDOT, MnDNR, MPCA

Figure SW-03

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2040 Comprehensive Plan

Hopkins, MN

Ecologically Significant Resources

March, 2018

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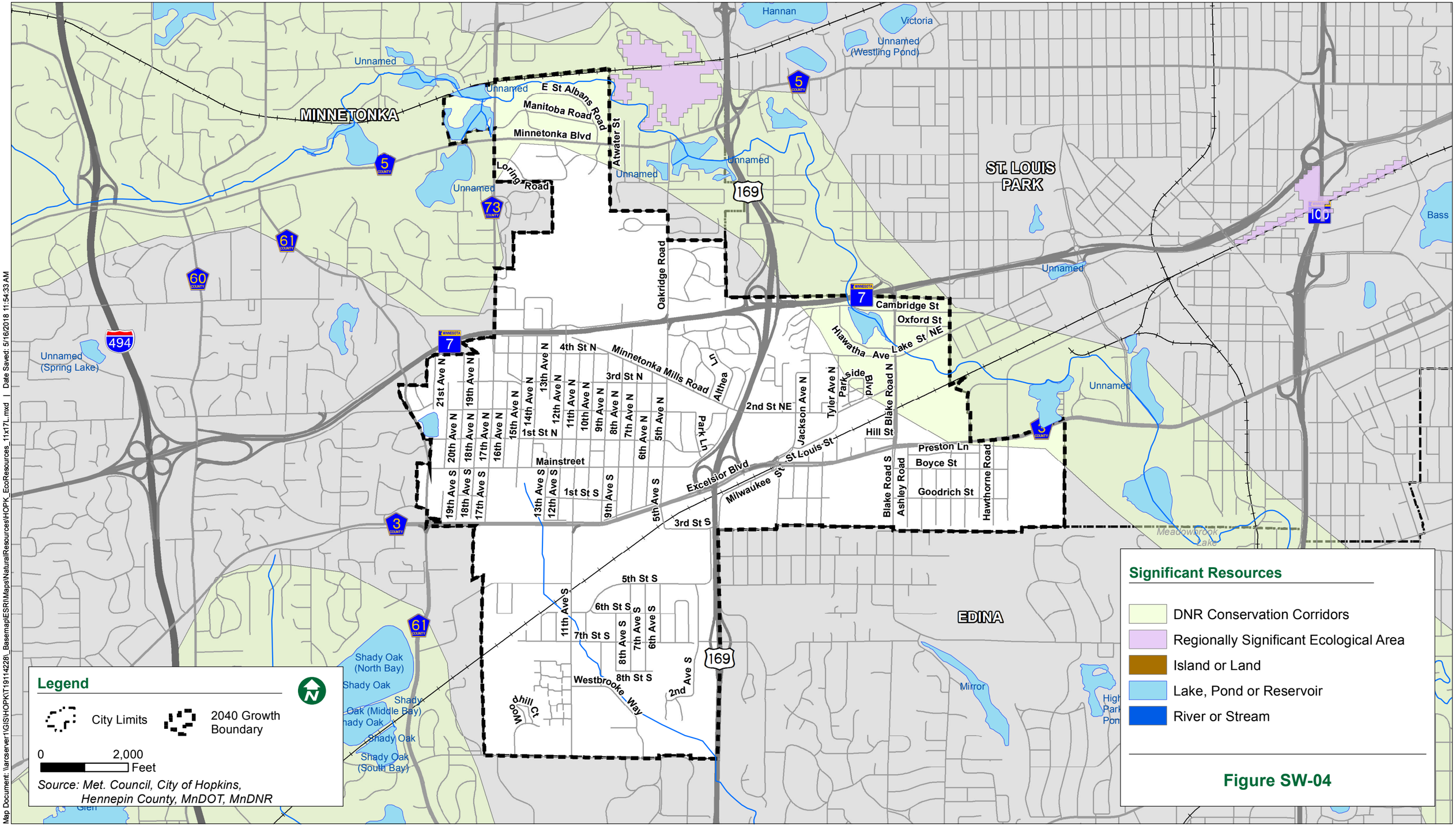

Legend

City Limits

2040 Growth Boundary

0 2,000 Feet

Source: Met. Council, City of Hopkins, Hennepin County, MnDOT, MnDNR

Significant Resources

- DNR Conservation Corridors
- Regionally Significant Ecological Area
- Island or Land
- Lake, Pond or Reservoir
- River or Stream

Figure SW-04

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2040 Comprehensive Plan

Hopkins, MN

Land Cover

March, 2018

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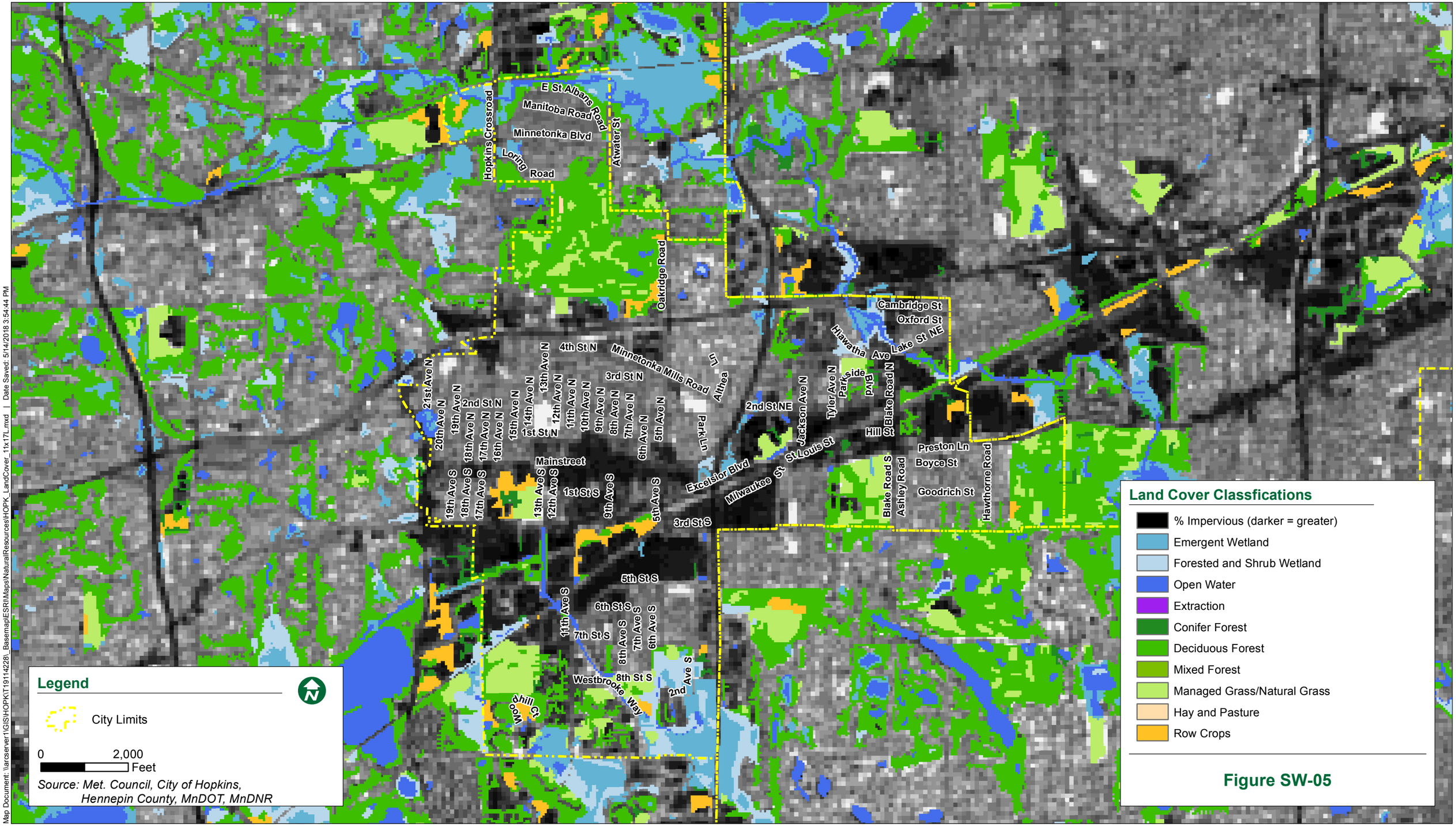

Figure SW-05

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2040 Comprehensive Plan

Hopkins, MN

Topography

March, 2018

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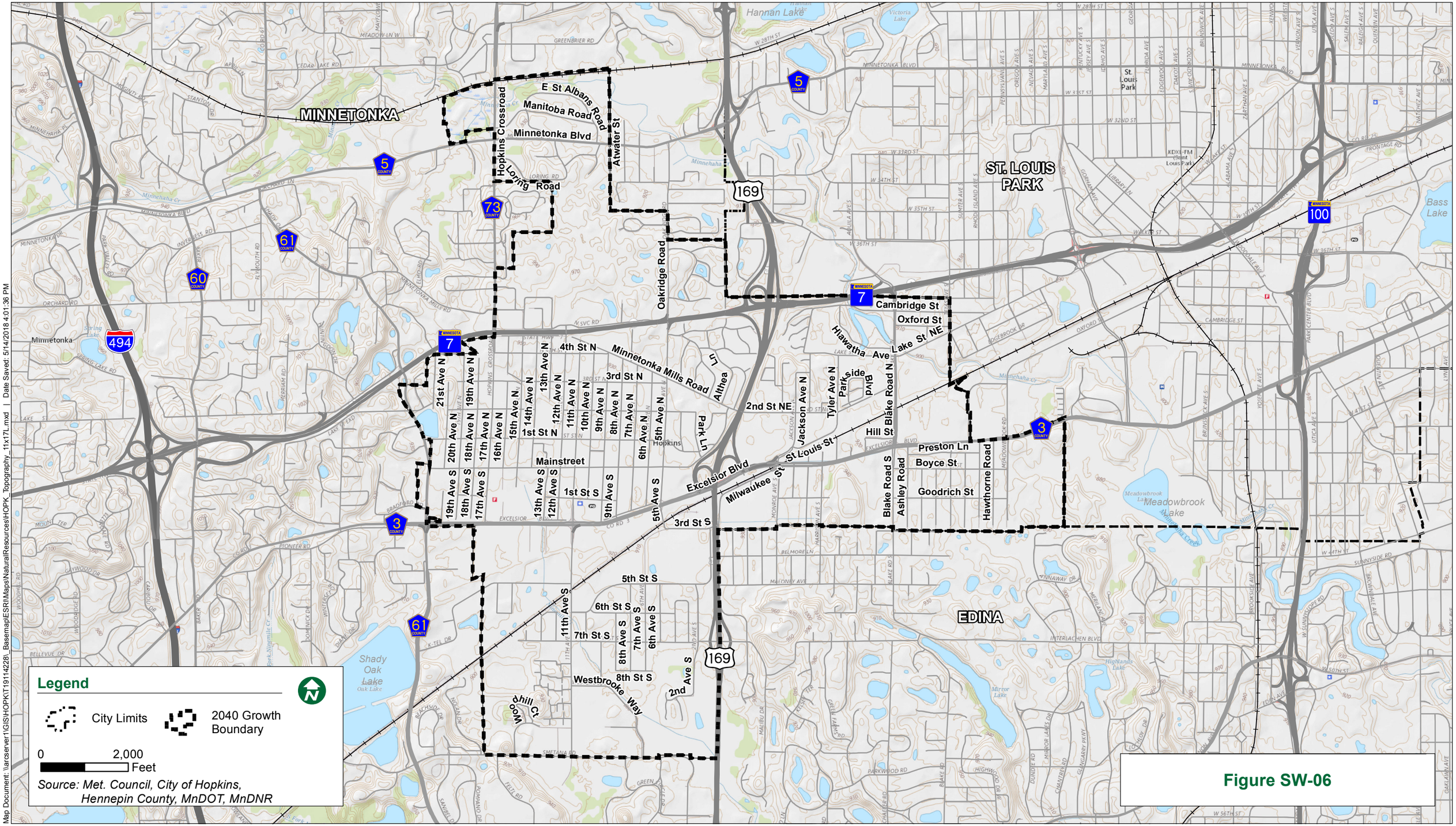


Legend

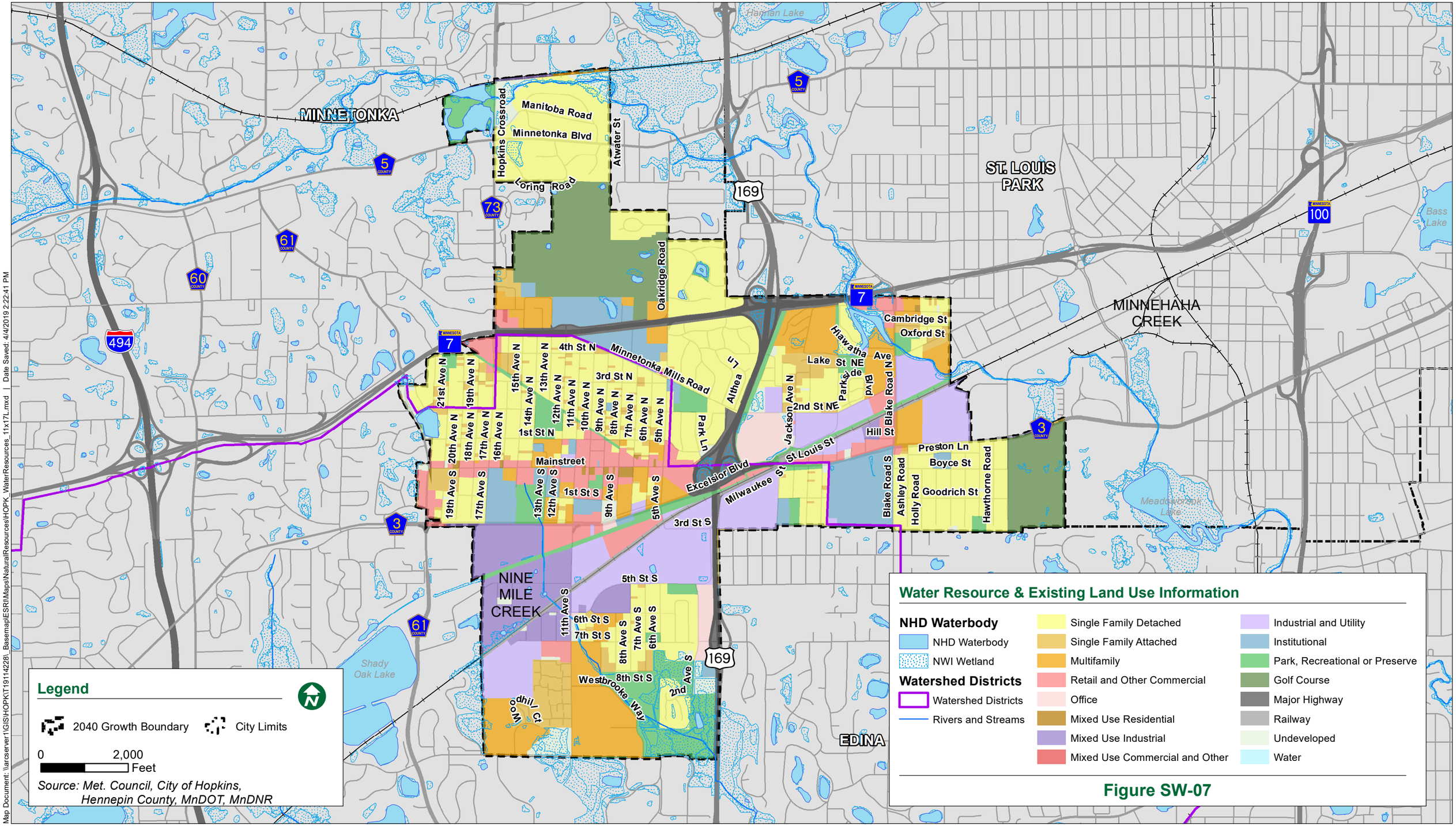
City Limits

2040 Growth Boundary

0 2,000 Feet

Source: Met. Council, City of Hopkins, Hennepin County, MnDOT, MnDNR

Figure SW-06



Legend

2040 Growth Boundary
City Limits

0 2,000 Feet

Source: Met. Council, City of Hopkins, Hennepin County, MnDOT, MnDNR

Water Resource & Existing Land Use Information

NHD Waterbody
- NHD Waterbody
- NWI Wetland

Watershed Districts
- Watershed Districts
- Rivers and Streams

- Single Family Detached
- Single Family Attached
- Multifamily
- Retail and Other Commercial
- Office
- Mixed Use Residential
- Mixed Use Industrial
- Mixed Use Commercial and Other
- Industrial and Utility
- Institutional
- Park, Recreational or Preserve
- Golf Course
- Major Highway
- Railway
- Undeveloped
- Water

Figure SW-07

Map Document: \\arcserver1\GIS\HOPKIT\19114228_Basemap\ESRIMaps\NaturalResources\HOPK_WaterResources_11x17L.mxd | Date Saved: 4/4/2019 2:22:41 PM

NPDES INVENTORY

PONDS, STRUCTUAL POLLUTION CONTROL DEVICES, OUTFALLS AND STORM SEWER SYSTEM

THE CITY OF

HOPKINS, MINNESOTA

HENNEPIN COUNTY

Ponds

Pond ID	Private/Public
P 1	Private
P 2	Private
P 3	Private
P 4	Private
P 5	Private
P 6	Public
P 7	Private
P 8	Public
P 9	Private
P 10	Private
P 11	Private
P 12	Private
P 13	Private
P 14	Private
P 15	Public
P 16	Private
P 17	Private
P 18	Private
P 19	Private
P 20	Private
P 21	Private
P 22	Public
P 23	Private
P 24	Private
P 25	Public
P 26	Private
P 27	Private
P 28	Private
P 29	Public
P 30	Private
P 31	Private
P 32	Private
P 33	Private
P 34	Public
P 35	Public
P 36	Private
P 37	Private
P 38	Private
P 39	Private
P 40	Private
P 41	Private
P 42	Private

Subwatersheds

Number	Subwatershed
N = Northern District	
1	NA
2	NB
3	NC
4	ND
5	NE
6	NF
7	NG
8	NH
9	NI
10	NK
11	NL
12	NM
C = Central District	
13	CA
14	CB
15	CC
16	CD
17	CE
18	CF
19	CG
20	CH
21	CI
22	CJ
23	CK

Number	Subwatershed
E = Eastern District	
24	EA
25	EB
26	EC
27	ED
28	EF
29	EG
30	EH
31	EI
32	EJ
33	EK
34	EL
35	EM
36	EN
37	EP
38	EQ
39	ER
40	ES
41	ET
42	EU
43	EV
44	EW
45	EX
46	EY
47	EZ
S = Southern District	
48	SA
49	SB
50	SC
51	SD
52	SE
53	SF
54	SG
55	SH
56	SI
57	SJ
58	SK
59	SL
60	SM
61	SN

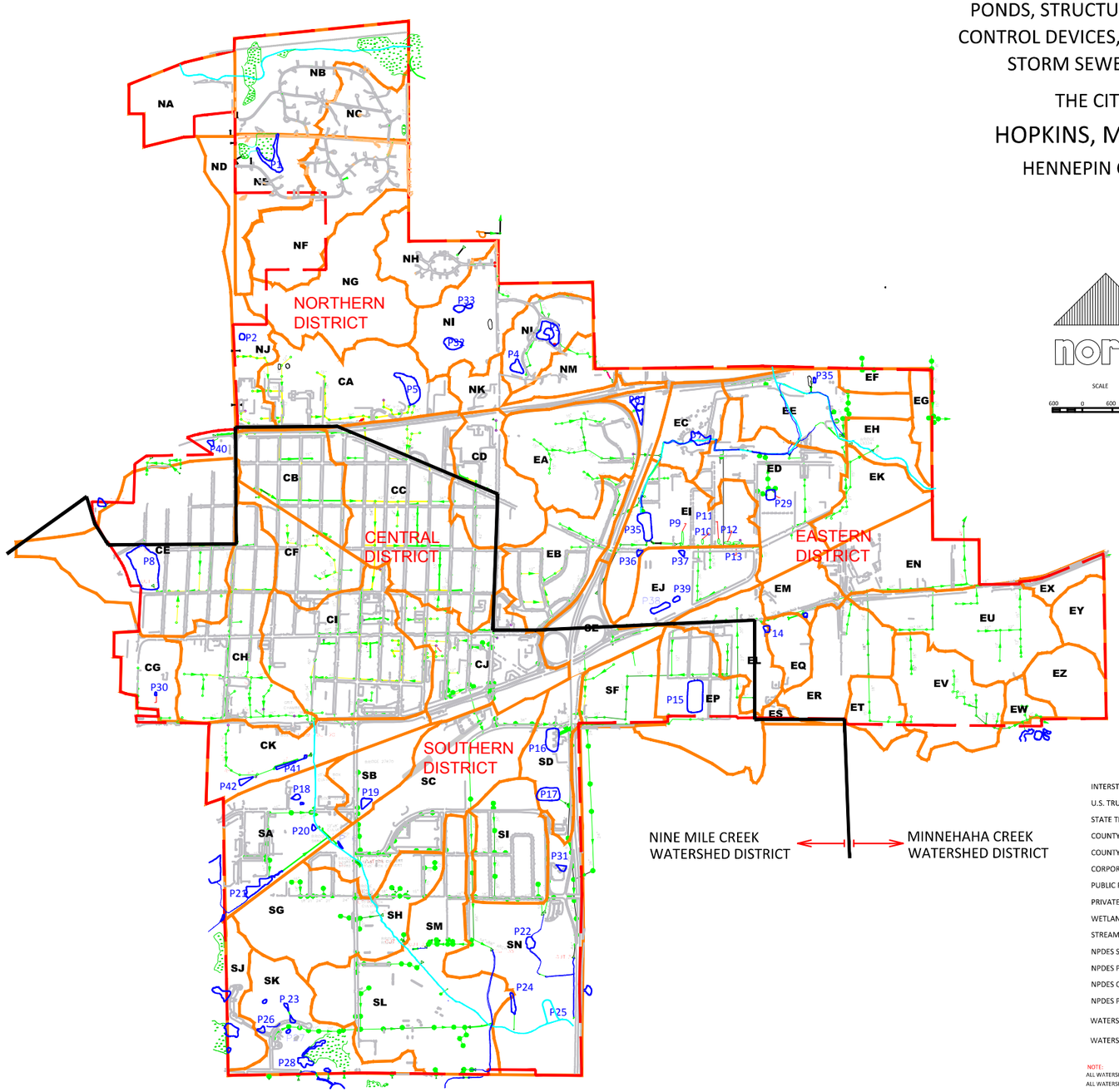


Figure SW-08

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2040 Comprehensive Plan

Hopkins, MN

City Owned Property

April 2019

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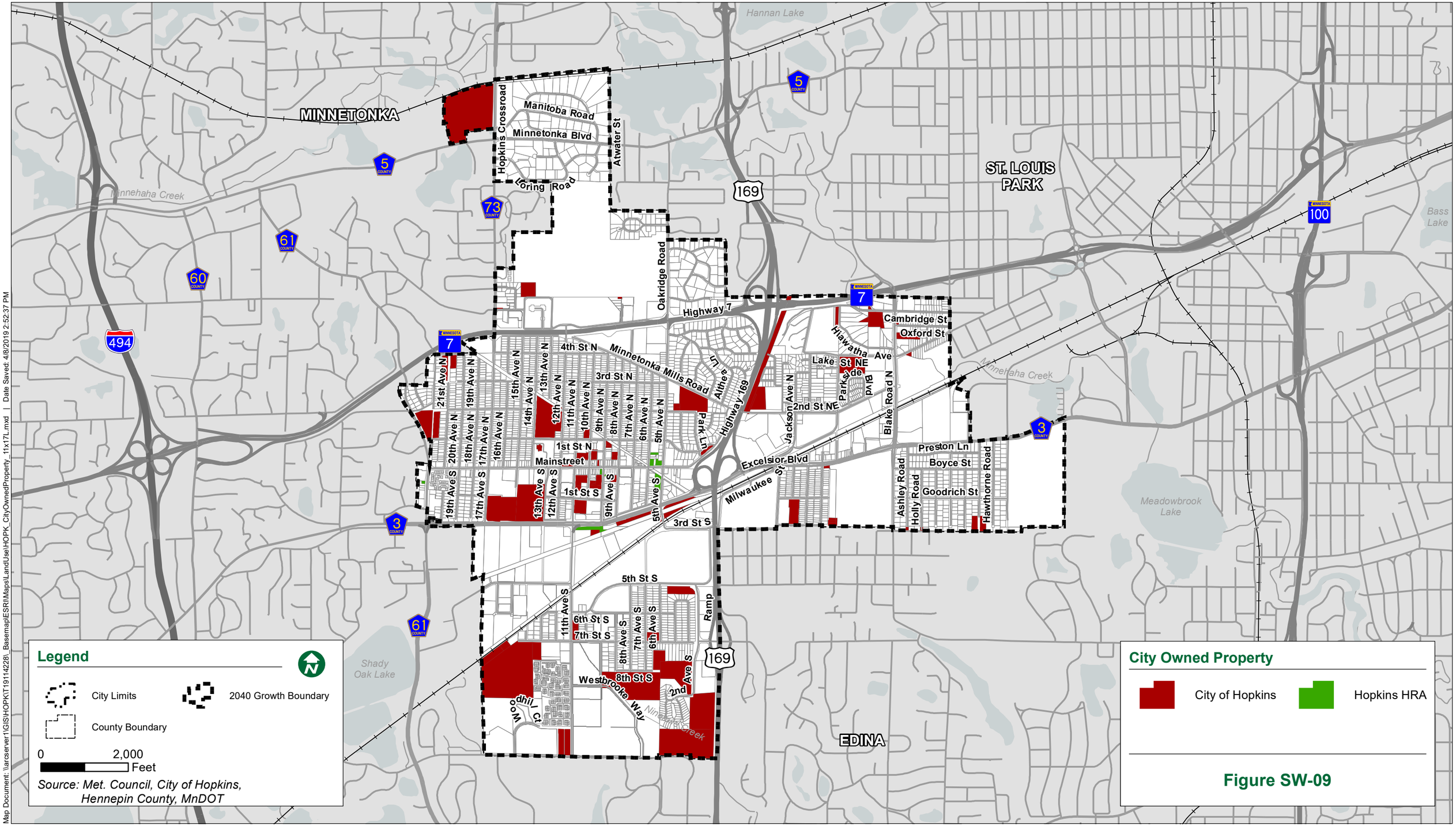


Legend

- City Limits
- 2040 Growth Boundary
- County Boundary

0 2,000 Feet

Source: Met. Council, City of Hopkins, Hennepin County, MnDOT

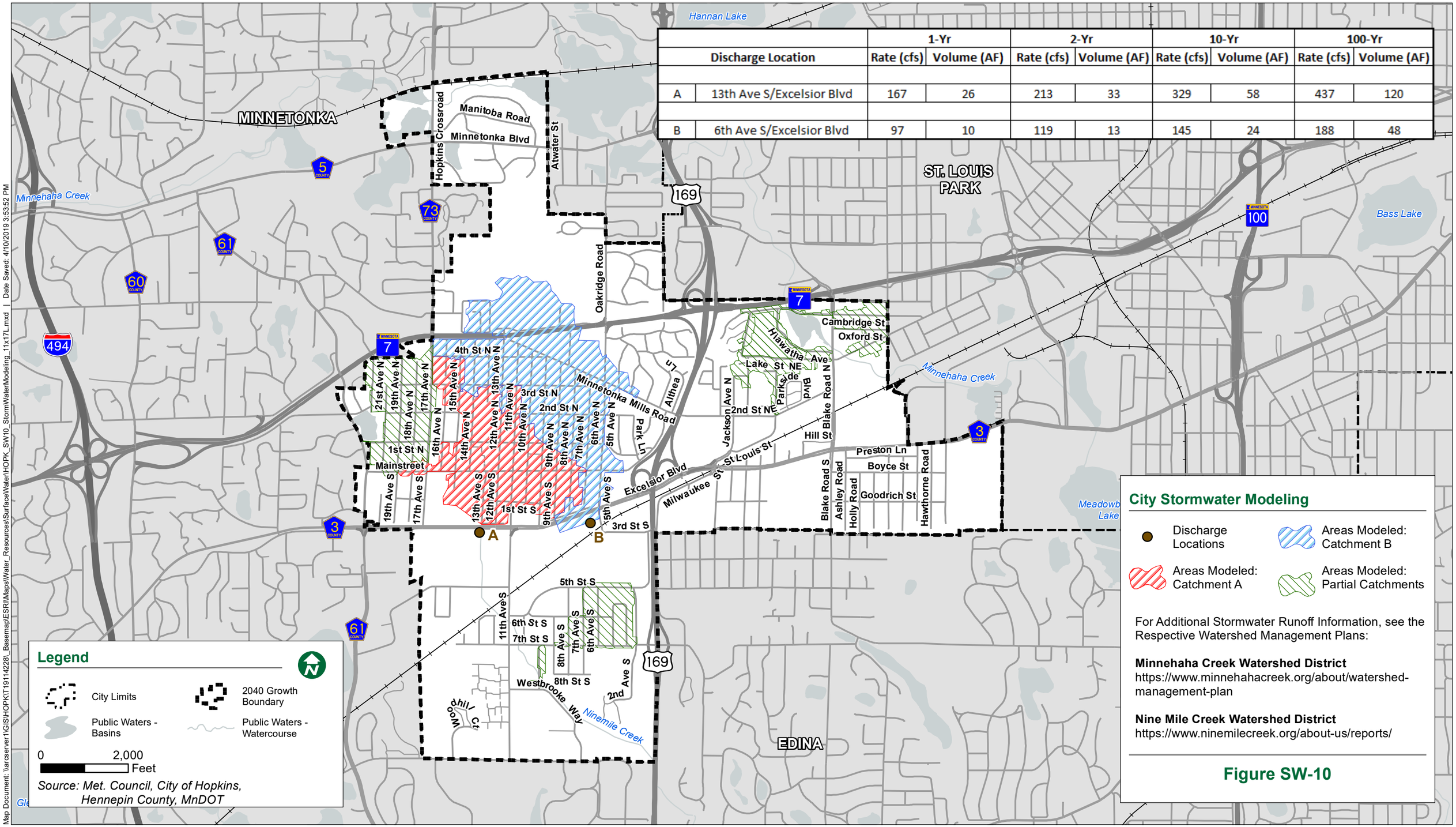
City Owned Property

- City of Hopkins
- Hopkins HRA

Figure SW-09

Map Document: \\arcserver1\GIS\HOPK\T19114228_BasemapESRI\Maps\LandUse\HOPK_CityOwnedProperty_11x17L.mxd | Date Saved: 4/8/2019 2:52:37 PM

Discharge Location		1-Yr		2-Yr		10-Yr		100-Yr	
		Rate (cfs)	Volume (AF)	Rate (cfs)	Volume (AF)	Rate (cfs)	Volume (AF)	Rate (cfs)	Volume (AF)
A	13th Ave S/Excelsior Blvd	167	26	213	33	329	58	437	120
B	6th Ave S/Excelsior Blvd	97	10	119	13	145	24	188	48



Legend

- City Limits
- 2040 Growth Boundary
- Public Waters - Basins
- Public Waters - Watercourse

0 2,000 Feet

Source: Met. Council, City of Hopkins, Hennepin County, MnDOT

City Stormwater Modeling

- Discharge Locations
- Areas Modeled: Catchment B
- Areas Modeled: Catchment A
- Areas Modeled: Partial Catchments

For Additional Stormwater Runoff Information, see the Respective Watershed Management Plans:

Minnehaha Creek Watershed District
https://www.minnehahacreek.org/about/watershed-management-plan

Nine Mile Creek Watershed District
https://www.ninemilecreek.org/about-us/reports/

Figure SW-10

Appendix A:

City of Hopkins Stormwater Pollution Prevention Plans (SWPPP)

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

MS4 SWPPP Application for Reauthorization

for the NPDES/SDS General Small Municipal Separate Storm Sewer System (MS4) Permit MNR040000 reissued with an effective date of August 1, 2013

Stormwater Pollution Prevention Program (SWPPP) Document

Doc Type: Permit Application

Instructions: This application is for authorization to discharge stormwater associated with Municipal Separate Storm Sewer Systems (MS4s) under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit Program. **No fee** is required with the submittal of this application. Please refer to "Example" for detailed instructions found on the Minnesota Pollution Control Agency (MPCA) MS4 website at http://www.pca.state.mn.us/ms4.

Submittal: This *MS4 SWPPP Application for Reauthorization* form must be submitted electronically via e-mail to the MPCA at ms4permitprogram.pca@state.mn.us from the person that is duly authorized to certify this form. All questions with an asterisk (*) are required fields. All applications will be returned if required fields are not completed.

Questions: Contact Claudia Hochstein at 651-757-2881 or claudia.hochstein@state.mn.us, Dan Miller at 651-757-2246 or daniel.miller@state.mn.us, or call toll-free at 800-657-3864.

General Contact Information (*Required fields)

MS4 Owner (with ownership or operational responsibility, or control of the MS4)

*MS4 permittee name: City of Hopkins *County: Hennepin
(city, county, municipality, government agency or other entity)

*Mailing address: 1010 First Street South

*City: Hopkins *State: MN *Zip code: 55343

*Phone (including area code): 952-548-6350 *E-mail: sstadler@hopkinsmn.com

MS4 General contact (with Stormwater Pollution Prevention Program [SWPPP] implementation responsibility)

*Last name: Stadler *First name: Steve
(department head, MS4 coordinator, consultant, etc.)

*Title: Public Works Director

*Mailing address: 1010 First Street South

*City: Hopkins *State: MN *Zip code: 55343

*Phone (including area code): 952-548-6350 *E-mail: sstadler@hopkinsmn.com

Preparer information (complete if SWPPP application is prepared by a party other than MS4 General contact)

Last name: Peters First name: Jeff
(department head, MS4 coordinator, consultant, etc.)

Title: WSB & Associates

Mailing address: 701 Xenia Ave South Suite 300

City: Minneapolis State: MN Zip code: 55416

Phone (including area code): (763) 287-7150 E-mail: jpeters@wsbeng.com

Verification

1. I seek to continue discharging stormwater associated with a small MS4 after the effective date of this Permit, and shall submit this *MS4 SWPPP Application for Reauthorization* form, in accordance with the schedule in Appendix A, Table 1, with the SWPPP document completed in accordance with the Permit (Part II.D.). ☒ Yes
2. I have read and understand the NPDES/SDS MS4 General Permit and certify that we intend to comply with all requirements of the Permit. ☒ Yes

Certification (All fields are required)

☒ Yes - *I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted.*

I certify that based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of civil and criminal penalties.

This certification is required by Minn. Stat. §§ 7001.0070 and 7001.0540. The authorized person with overall, MS4 legal responsibility must certify the application (principal executive officer or a ranking elected official).

By typing my name in the following box, I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing my application.

Name: Steve Stadler
(This document has been electronically signed)

Title: Public Works Director Date (mm/dd/yyyy): 12/30/2013

Mailing address: 1010 First Street South

City: Hopkins State: MN Zip code: 55343

Phone (including area code): 952-548-6350 E-mail: sstadler@hopkinsmn.com

***Note:** The application will not be processed without certification.*

Stormwater Pollution Prevention Program Document

I. Partnerships: (Part II.D.1)

A. List the **regulated small MS4(s)** with which you have established a partnership in order to satisfy one or more requirements of this Permit. Indicate which Minimum Control Measure (MCM) requirements or other program components that each partnership helps to accomplish (List all that apply). Check the box below if you currently have no established partnerships with other regulated MS4s. If you have more than five partnerships, hit the tab key after the last line to generate a new row.

☒ No partnerships with regulated small MS4s

Name and description of partnership	MCM/Other permit requirements involved
.	

B. If you have additional information that you would like to communicate about your partnerships with other regulated small MS4(s), provide it in the space below, or include an attachment to the SWPPP Document, with the following file naming convention: *MS4NameHere_Partnerships.*

The City doesn't currently have any written agreements with other MS4s for Partnerships. The City will continue to pursue other ways to incorporate program components with partners.

II. Description of Regulatory Mechanisms: (Part II.D.2)

Illicit discharges

A. Do you have a regulatory mechanism(s) that effectively prohibits non-stormwater discharges into your small MS4, except those non-stormwater discharges authorized under the Permit (Part III.D.3.b.)? ☒ Yes ☐ No

1. If **yes:**

   a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

   ☒ Ordinance ☐ Contract language
   ☐ Policy/Standards ☐ Permits
   ☐ Rules
   ☐ Other, explain: _____

   b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

   Citation:

   City Code: Section 725 - Illicit Discharge and Connections

   Direct link:

   http://www.hopkinsmn.com/weblink8/DocView.aspx?id=82938&searchid=10ff97a9-2dc5-420f-b51f-5079828ce53e&dbid=1

   ☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_IDDEreg.*

2. If **no:**

   Describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

   City Ordinance needs to be reviewed and evaluated. If changes are necessary they will be completed within 12 months of the date permit coverage is extended.

Construction site stormwater runoff control

A. Do you have a regulatory mechanism(s) that establishes requirements for erosion and sediment controls and waste controls? ☒ Yes ☐ No

1. If **yes:**

a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

☒ Ordinance ☐ Contract language
☐ Policy/Standards ☒ Permits
☒ Rules
☐ Other, explain: _____

b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

City Code: Section 546 - Zoning: Stormwater management

Direct link:

http://www.hopkinsmn.com/weblink8/DocView.aspx?id=78456&searchid=edeb0054-e06d-4311-9557-e2229712b134&dbid=1

☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_CSWreg*.

B. Is your regulatory mechanism at least as stringent as the MPCA general permit to Discharge Stormwater Associated with Construction Activity (as of the effective date of the MS4 Permit)? ☐ Yes ☒ No

If you answered **yes** to the above question, proceed to C.

If you answered **no** to either of the above permit requirements listed in A. or B., describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

The City's construction site stormwater runoff control regulatory mechnaism will be updated to be at least as strigent as the MPCA CSW permit. This effort will completed within 12 months of the date permit coverage is extended.

C. Answer **yes** or **no** to indicate whether your regulatory mechanism(s) requires owners and operators of construction activity to develop site plans that incorporate the following erosion and sediment controls and waste controls as described in the Permit (Part III.D.4.a.(1)-(8)), and as listed below:

1. Best Management Practices (BMPs) to minimize erosion. ☒ Yes ☐ No
2. BMPs to minimize the discharge of sediment and other pollutants. ☒ Yes ☐ No
3. BMPs for dewatering activities. ☒ Yes ☐ No
4. Site inspections and records of rainfall events ☒ Yes ☐ No
5. BMP maintenance ☒ Yes ☐ No
6. Management of solid and hazardous wastes on each project site. ☒ Yes ☐ No
7. Final stabilization upon the completion of construction activity, including the use of perennial vegetative cover on all exposed soils or other equivalent means. ☒ Yes ☐ No
8. Criteria for the use of temporary sediment basins. ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

Post-construction stormwater management

A. Do you have a regulatory mechanism(s) to address post-construction stormwater management activities? ☒ Yes ☐ No

1. If **yes:**

a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

☒ Ordinance ☒ Contract language
☒ Policy/Standards ☐ Permits
☐ Rules
☒ Other, explain: Watershed rules

b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

Maintenance agreements:

City Code: Section 546 - Zoning: Stormwater management

Direct link:

http://www.hopkinsmn.com/weblink8/DocView.aspx?id=78456&searchid=edeb0054-e06d-4311-9557-e2229712b134&dbid=1

☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_PostCSWreg.*

B. Answer **yes** or **no** below to indicate whether you have a regulatory mechanism(s) in place that meets the following requirements as described in the Permit (Part III.D.5.a.):

1. **Site plan review:** Requirements those owners and/or operators of construction activity submit site plans with post-construction stormwater management BMPs to the permittee for review and approval, prior to start of construction activity. ☒ Yes ☐ No

2. **Conditions for post construction stormwater management:** Requires the use of any combination of BMPs, with highest preference given to Green Infrastructure techniques and practices (e.g., infiltration, evapotranspiration, reuse/harvesting, conservation design, urban forestry, green roofs, etc.), necessary to meet the following conditions on the site of a construction activity to the Maximum Extent Practicable (MEP):

   a. For new development projects – no net increase from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No

      1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).
      2) Stormwater discharges of Total Suspended Solids (TSS).
      3) Stormwater discharges of Total Phosphorus (TP).

   b. For redevelopment projects – a net reduction from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No

      1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).
      2) Stormwater discharges of TSS.
      3) Stormwater discharges of TP.

3. **Stormwater management limitations and exceptions:**

   a. Limitations

      1) Prohibit the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) when the infiltration structural stormwater BMP will receive discharges from, or be constructed in areas: ☐ Yes ☒ No

         a) Where industrial facilities are not authorized to infiltrate industrial stormwater under an NPDES/SDS Industrial Stormwater Permit issued by the MPCA.
         b) Where vehicle fueling and maintenance occur.
         c) With less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
         d) Where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating stormwater.

      2) Restrict the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), without higher engineering review, sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater, when the infiltration device will be constructed in areas: ☐ Yes ☒ No

         a) With predominately Hydrologic Soil Group D (clay) soils.
         b) Within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features.
         c) Within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13.
         d) Where soil infiltration rates are more than 8.3 inches per hour.

      3) For linear projects where the lack of right-of-way precludes the installation of volume control practices that meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), the permittee's regulatory mechanism(s) may allow ☐ Yes ☒ No

exceptions as described in the Permit (Part III.D.5.a(3)(b)). The permittee's regulatory mechanism(s) shall ensure that a reasonable attempt be made to obtain right-of-way during the project planning process.

4. **Mitigation provisions:** The permittee's regulatory mechanism(s) shall ensure that any stormwater discharges of TSS and/or TP not addressed on the site of the original construction activity are addressed through mitigation and, at a minimum, shall ensure the following requirements are met:

   a. Mitigation project areas are selected in the following order of preference: ☐ Yes ☒ No
      1) Locations that yield benefits to the same receiving water that receives runoff from the original construction activity.
      2) Locations within the same Minnesota Department of Natural Resource (DNR) catchment area as the original construction activity.
      3) Locations in the next adjacent DNR catchment area up-stream
      4) Locations anywhere within the permittee's jurisdiction.

   b. Mitigation projects must involve the creation of new structural stormwater BMPs or the retrofit of existing structural stormwater BMPs, or the use of a properly designed regional structural stormwater BMP. ☐ Yes ☒ No

   c. Routine maintenance of structural stormwater BMPs already required by this permit cannot be used to meet mitigation requirements of this part. ☐ Yes ☒ No

   d. Mitigation projects shall be completed within 24 months after the start of the original construction activity. ☐ Yes ☒ No

   e. The permittee shall determine, and document, who will be responsible for long-term maintenance on all mitigation projects of this part. ☐ Yes ☒ No

   f. If the permittee receives payment from the owner and/or operator of a construction activity for mitigation purposes in lieu of the owner or operator of that construction activity meeting the conditions for post-construction stormwater management in Part III.D.5.a(2), the permittee shall apply any such payment received to a public stormwater project, and all projects must be in compliance with Part III.D.5.a(4)(a)-(e). ☐ Yes ☒ No

5. **Long-term maintenance of structural stormwater BMPs:** The permittee's regulatory mechanism(s) shall provide for the establishment of legal mechanisms between the permittee and owners or operators responsible for the long-term maintenance of structural stormwater BMPs not owned or operated by the permittee, that have been implemented to meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)). This only includes structural stormwater BMPs constructed after the effective date of this permit and that are directly connected to the permittee's MS4, and that are in the permittee's jurisdiction. The legal mechanism shall include provisions that, at a minimum:

   a. Allow the permittee to conduct inspections of structural stormwater BMPs not owned or operated by the permittee, perform necessary maintenance, and assess costs for those structural stormwater BMPs when the permittee determines that the owner and/or operator of that structural stormwater BMP has not conducted maintenance. ☐ Yes ☒ No

   b. Include conditions that are designed to preserve the permittee's right to ensure maintenance responsibility, for structural stormwater BMPs not owned or operated by the permittee, when those responsibilities are legally transferred to another party. ☐ Yes ☒ No

   c. Include conditions that are designed to protect/preserve structural stormwater BMPs and site features that are implemented to comply with the Permit (Part III.D.5.a(2)). If site configurations or structural stormwater BMPs change, causing decreased structural stormwater BMP effectiveness, new or improved structural stormwater BMPs must be implemented to ensure the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) continue to be met. ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within twelve (12) months of the date permit coverage is extended, these permit requirements are met:

B.2. A review of those standards and the cities standards will be completed and changes if necessary will be made to city ordinances within 12 months of permit coverage being granted.

B.3.a.1: The City will amend the ordinance and/or City Design Standards to include prohibiting the use of infiltration techniques for post-construction stormwater management as described in the Permit (Part III.D.5.a(3)(a).1). The ordinance will be amended on the same schedule as the items in B.2.a and B.2.b.

B.3.a.2: The City will amend the ordinance and/or City Design Standards to include restricting the use of infiltration techniques for post-construction stormwater management as described in the Permit (Part III.D.5.a(3)(a).2). This will occur on the same schedule as the items above.

B.3.a.3: The City will amend the ordinance and/or City Design Standards to include the exceptions for linear projects as

described in the Permit (Part III.D.5.a(3)(b)). This will occur on the same schedule as the items above.

B.4.a.: The City will amend the ordinance and/or City Design Standards to include order of preference for selecting mitigation project areas as described in the Permit (Part III.D.5.a(4)(a)). This will occur on the same schedule as the items above.

B.4.b.: The City will amend the ordinance and/or City Design Standards to include requirements for the creation of mitigation projects as described in the Permit (Part III.D.5.a(4)(b)). This will occur on the same schedule as the items above.

B.4.c.: The City will amend the ordinance and/or City Design Standards to include the restriction from using routine maintenance of structural BMPs to meet the requirements for mitigation projects as described in the Permit (Part III.D.5.a(4)(c)). This will occur on the same schedule as the items above.

B.4.d.: The City will amend the ordinance and/or City Design Standards to include the requirement to complete mitigation projects within 24 months after the start of the original construction activity as described in the Permit (Part III.D.5.a(4)(d)). This will occur on the same schedule as the items above.

B.4.e.: The City will amend the ordinance and/or City Design Standards to include the requirement to determine, and document, who will be responsible for long-term maintenance on all mitigation projects as described in the Permit (Part III.D.5.a(4)(e)). This will occur on the same schedule as the items above.

B.4.f.: The City will amend the ordinance and/or City Design Standards to mandate that money received from an owner/operator of construction activity, in lieu of meeting the conditions for post-construction stormwater management, shall be used for a public stormwater project as described in the Permit (Part III.D.5.a(4)(f)). This will occur on the same schedule as the items above.

B.5.a.: The City will amend the ordinance and/or City Design Standards to include the requirement to allow the permittee to conduct inspections, perform maintenance, and assess maintenance cost of structural stormwater BMPs not owned or operated by the permittee as described in the Permit (Part III.D.5.a(5)(a)). This will occur on the same schedule as the items above.

B.5.b.: The City will amend the ordinance and/or City Design Standards to include conditions that require maintenance responsibility for structural stormwater BMPs through transfer of ownership as described in the Permit (Part III.D.5.a(5)(b)). This will occur on the same schedule as the items above.

B.5.c.: The City will amend the ordinance and/or City Design Standards to include conditions to address BMP modification in the future as described in the Permit (Part III.D.5.a(5)(c)). This will occur on the same schedule as the items above.

III. Enforcement Response Procedures (ERPs): (Part II.D.3)

A. Do you have existing ERPs that satisfy the requirements of the Permit (Part III.B.)? ☒ Yes ☐ No

1. If **yes**, attach them to this form as an electronic document, with the following file naming convention: *MS4NameHere_ERPs*.
2. If **no**, describe the tasks and corresponding schedules that will be taken to assure that, with twelve (12) months of the date permit coverage is extended, these permit requirements are met:

B. Describe your ERPs:

http://www.hopkinsmn.com/archives/pdf/code/section546-stormwatermanagement.pdf

546.08:

Penalty Any person firm or corporation violating any provision of this ordinance shall be fined notless

than five dollars no rmore than fivehundred dollars for each offence and a separate offense shall be deemed

committed on each day during or on which a violation occurs or continues

IV. Storm Sewer System Map and Inventory: (Part II.D.4.)

A. Describe how you manage your storm sewer system map and inventory:

New developments are required to provide electronic as-build data in accordance with the GIS Information Requirements located in the City Design Standard. The City GIS specialist updates and maintains all of the City's GIS Information.

B. Answer **yes** or **no** to indicate whether your storm sewer system map addresses the following requirements from the Permit (Part III.C.1.a-d), as listed below:

1. The permittee's entire small MS4 as a goal, but at a minimum, all pipes 12 inches or greater in diameter, including stormwater flow direction in those pipes. ☒ Yes ☐ No
2. Outfalls, including a unique identification (ID) number assigned by the permittee, and an associated geographic coordinate. ☒ Yes ☐ No
3. Structural stormwater BMPs that are part of the permittee's small MS4. ☒ Yes ☐ No
4. All receiving waters. ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

C. Answer **yes** or **no** to indicate whether you have completed the requirements of 2009 Minnesota Session Law, Ch. 172. Sec. 28: with the following inventories, according to the specifications of the Permit (Part III.C.2.a.-b.), including:

1. All ponds within the permittee's jurisdiction that are constructed and operated for purposes of water quality treatment, stormwater detention, and flood control, and that are used for the collection of stormwater via constructed conveyances. ☒ Yes ☐ No
2. All wetlands and lakes, within the permittee's jurisdiction, that collect stormwater via constructed conveyances. ☒ Yes ☐ No

D. Answer **yes** or **no** to indicate whether you have completed the following information for each feature inventoried.

1. A unique identification (ID) number assigned by the permittee. ☒ Yes ☐ No
2. A geographic coordinate. ☒ Yes ☐ No
3. Type of feature (e.g., pond, wetland, or lake). This may be determined by using best professional judgment. ☒ Yes ☐ No

If you have answered **yes** to all above requirements, and you have already submitted the Pond Inventory Form to the MPCA, then you do not need to resubmit the inventory form below.

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

E. Answer **yes** or **no** to indicate if you are attaching your pond, wetland and lake inventory to the MPCA on the form provided on the MPCA website at: http://www.pca.state.mn.us/ms4 , according to the specifications of Permit (Part III.C.2.b.(1)-(3)). Attach with the following file naming convention: *MS4NameHere_inventory*. ☐ Yes ☒ No

If you answered **no,** the inventory form must be submitted to the MPCA MS4 Permit Program within 12 months of the date permit coverage is extended.

V. Minimum Control Measures (MCMs) (Part II.D.5)

A. MCM1: Public education and outreach

1. The Permit requires that, within 12 months of the date permit coverage is extended, existing permittees revise their education and outreach program that focuses on illicit discharge recognition and reporting, as well as other specifically selected stormwater-related issue(s) of high priority to the permittee during this permit term. Describe your **current** educational program, including **any high-priority topics included**:

   The public education program has been developed to distribute educational materials to the community or conduct equivalent outreach activities. The BMPs identified will focus on the impact of storm water discharges on streams, rivers, and wetlands, and the steps that the public can take to reduce pollutants in storm water runoff.

2. List the categories of BMPs that address your public education and outreach program, including the distribution of educational materials and a program implementation plan. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the U.S. Environmental Protection Agency's (EPA) *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

   If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes

Education Activity Implementation Plan	*The City will provide stormwater education and outreach programs for residents within the City. The City will complete and outline of the education program and implementation schedule for the upcoming permit.*
City Web Page	*The City updates their web page by providing information on high priority storm water pollution prevention topics and effects of illicit discharge to City residents and business owners. The goal will be to add new material as it becomes available and record the number of website hits annually.*
City Newsletter	*City staff will develop then distribute stormwater related articles in the City newsletter. This goal will be met by distributing a minimum of two storm water related articles in the City newsletter each year.*
Coordination of Education Program	*The City will collaborate and coordinate the development and implementation of the City's educational activities schedule with the Minnehaha Creek Watershed District.*

BMP categories to be implemented	**Measurable goals and timeframes**

3. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Administration / Asst. City Engineer

B. MCM2: Public participation and involvement

1. The Permit (Part III.D.2.a.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement a public participation/involvement program to solicit public input on the SWPPP. Describe your current program:

   Under this minimum control measure, the City provides measures to receive public input and opinion on the adequacy of the SWPPP. This input can be received from public meetings, oral testimony, and written correspondence.

2. List the categories of BMPs that address your public participation/involvement program, including solicitation and documentation of public input on the SWPPP. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Comply with Public Notice Requirements	*Provide public notice of meeting to provide input on the SWPPP in accordance with City public hearing notification requirements.*
Annual Meeting	*Hold annual public meeting combined with City Council Meeting or other public participation/involvement event to solicit public input on the SWPPP.*
Consider Public Input	*The City will conduct a public meeting and host a web page on the City's Storm Water Pollution Prevention Program. City staff will respond to all public comments and statements received from the public meeting, and document any proposed changes to the SWPPP for final approval by City Engineer (if applicable). The goal of this BMP will be met by documenting all written and oral input into the record of decision and submitted in conjunction with the annual report to the MPCA.*

BMP categories to be implemented	**Measurable goals and timeframes**
Online Availability of Stormwater Pollution Prevention Program Document	*Provide an electronic document of Stormwater Pollution Prevention Program document online, to allow anytime, easier access to these documents.*

3. Do you have a process for receiving and documenting citizen input? ☒ Yes ☐ No

If you answered **no** to the above permit requirement, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

4. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Administration / Asst. City Engineer

C. MCM 3: Illicit discharge detection and elimination

1. The Permit (Part III.D.3.) requires that, within 12 months of the date permit coverage is extended, existing permittees revise their current program as necessary, and continue to implement and enforce a program to detect and eliminate illicit discharges into the small MS4. Describe your current program:

   The City has an ordinance that prohibits illicit discharges and connections. City Staff and public works employees are trained to look for any signs of an illicit discharge while on the job. ERPs guide what actions the City can take after an illicit discharge has been identified.

2. Does your Illicit Discharge Detection and Elimination Program meet the following requirements, as found in the Permit (Part III.D.3.c.-g.)?

   a. Incorporation of illicit discharge detection into all inspection and maintenance activities conducted under the Permit (Part III.D.6.e.-f.)Where feasible, illicit discharge inspections shall be conducted during dry-weather conditions (e.g., periods of 72 or more hours of no precipitation). ☒ Yes ☐ No

   b. Detecting and tracking the source of illicit discharges using visual inspections. The permittee may also include use of mobile cameras, collecting and analyzing water samples, and/or other detailed procedures that may be effective investigative tools. ☐ Yes ☒ No

   c. Training of all field staff, in accordance with the requirements of the Permit (Part III.D.6.g.(2)), in illicit discharge recognition (including conditions which could cause illicit discharges), and reporting illicit discharges for further investigation. ☒ Yes ☐ No

   d. Identification of priority areas likely to have illicit discharges, including at a minimum, evaluating land use associated with business/industrial activities, areas where illicit discharges have been identified in the past, and areas with storage of large quantities of significant materials that could result in an illicit discharge. ☐ Yes ☒ No

   e. Procedures for the timely response to known, suspected, and reported illicit discharges. ☒ Yes ☐ No

   f. Procedures for investigating, locating, and eliminating the source of illicit discharges. ☒ Yes ☐ No

   g. Procedures for responding to spills, including emergency response procedures to prevent spills from entering the small MS4. The procedures shall also include the immediate notification of the Minnesota Department of Public Safety Duty Officer, if the source of the illicit discharge is a spill or leak as defined in Minn. Stat. § 115.061. ☒ Yes ☐ No

   h. When the source of the illicit discharge is found, the permittee shall use the ERPs required by the Permit (Part III.B.) to eliminate the illicit discharge and require any needed corrective action(s). ☒ Yes ☐ No

   If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

   C.2.b.The City will incorporate procedures into the IDDE program for detecting and tracking the source of illicit discharges using visual inspections as described in the permit (Part III.D.3.d). Procedures will be in place within 12 months following the date permit coverage is extended..

   C.2.d.The City will incorporate procedures into the IDDE program for prioritization of areas likely to have illicit discharges as described in the permit (Part III.D.3.f). Procedures will be in place within 12 months following the date permit coverage is extended.

3. List the categories of BMPs that address your illicit discharge, detection and elimination program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

   If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Storm Sewer System Mapping	*The goal of this BMP will be met by annually updating changes to the City's storm sewer system map.*

Illicit Discharge Detection and Elimination (IDDE) and Enforcement Ordinance	*The City will review and update (as necessary) the City's ordinance to prohibit illicit and non-stormwater discharges into the City's storm sewer and surface/ground waters. The goal of this BMP will be met by reviewing existing city ordinances and implementing updates related to illicit/non-stormwater discharges (if necessary).*
Illicit Discharge Detection and Elimination (IDDE) Program	*The City will develop and implement a program to detect and reduce non-stormwater discharges, including illegal dumping. Procedures for detection may consist of visual inspections for non-stormwater discharges on City owned land and private property (as requested). Inspection frequency may be conducted concurrent with the outfall inspections and implementation schedule of the public works activities.* *The City will notify the MPCA state duty officer of any hazardous material spills or discharges (within 24 hours of receipt, if applicable, per NPDES Phase II requirements).*

BMP categories to be implemented	**Measurable goals and timeframes**
IDDE Program Updates	*Develop written procedures for illicit discharge inspections, investigations, and response actions. Develop a process to document information as described in the Permit (Part III.3.h) within 12 months following the date permit coverage is extended.*
Illicit Discharge Inspections	*In Year 1, the City will map out areas that are identified as high-priority outfalls and around high-risk establishments (fast food restaurants, dumpster, car washes, mechanics, and oil changes.) in years 2-5, the City will those integrate those sites into its annual inspection MS4 activities.*
Illicit Discharge Investigation	*As needed, City staff or a consultant will be used to televise a section of the sewer system, collect grab samples or perform other effective testing procedures to find illicit connection identified in the system.*

4. Do you have procedures for record-keeping within your Illicit Discharge Detection and Elimination (IDDE) program as specified within the Permit (Part III.D.3.h.)? ☒ Yes ☐ No

   If you answered **no**, indicate how you will develop procedures for record-keeping of your Illicit Discharge, Detection and Elimination Program, within 12 months of the date permit coverage is extended:

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Streets / Public Works Supervisor

D. MCM 4: Construction site stormwater runoff control

1. The Permit (Part III.D.4) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a construction site stormwater runoff control program. Describe your current program:

   The City requires review of construction site erosion and sediment control (ESC) plans before projects begin, and work with contractors to ensure appropriate and correct use of erosion and sediment control BMPs on sites. The building inspectionis department are primarly responsible for checking compliance with construction site ESC plans.

2. Does your program address the following BMPs for construction stormwater erosion and sediment control as required in the Permit (Part III.D.4.b.):

   a. Have you established written procedures for site plan reviews that you conduct prior to the start of construction activity? ☒ Yes ☐ No

   b. Does the site plan review procedure include notification to owners and operators proposing construction activity that they need to apply for and obtain coverage under the MPCA's general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001*? ☒ Yes ☐ No

   c. Does your program include written procedures for receipt and consideration of reports of noncompliance or other stormwater related information on construction activity submitted by the public to the permittee? ☒ Yes ☐ No

   d. Have you included written procedures for the following aspects of site inspections to determine compliance with your regulatory mechanism(s):

1) Does your program include procedures for identifying priority sites for inspection? ☐ Yes ☒ No

2) Does your program identify a frequency at which you will conduct construction site inspections? ☐ Yes ☒ No

3) Does your program identify the names of individual(s) or position titles of those responsible for conducting construction site inspections? ☐ Yes ☒ No

4) Does your program include a checklist or other written means to document construction site inspections when determining compliance? ☐ Yes ☒ No

e. Does your program document and retain construction project name, location, total acreage to be disturbed, and owner/operator information? ☒ Yes ☐ No

f. Does your program document stormwater-related comments and/or supporting information used to determine project approval or denial? ☒ Yes ☐ No

g. Does your program retain construction site inspection checklists or other written materials used to document site inspections? ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

D.2.d., City will develop written procedures for conducting site ESC inspections as described in the Permit (Part III.D.4.d). Procedures will be in place within 12 months following the date permit coverage is extended.

3. List the categories of BMPs that address your construction site stormwater runoff control program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Construction Site Stormwater Runoff Ordinance	*The City will annually review and update (as necessary) the City's erosion control ordinance.*
Construction Site Erosion and Sediment Control Inspections	*City staff will continue to implement and enforce the construction site inspection program for erosion control on construction sites one acre or larger.* *The goal of this BMP is to document the number of site inspections conducted annually.*
Waste Controls for Construction Site Operators	*The goal will be met by enforcing the NPDES Phase II permit requirements through the City's construction site inspection program.*
Construction Site Plan Review	*The City will require every applicant for a building permit, subdivision approval, or grading permit that disturbs one acre or more to submit a project specific stormwater management plan (if applicable). This goal will be met by only issuing City permits to applicants that have submitted project specific stormwater management plans (if applicable).*
Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance	*The City will establish a phone line and web page links for the public to report potential construction site erosion control and waste disposal infractions. The goal of this BMP will achieved by completing the timeline/implementation.*
Establishment of Procedures for Site Inspections and Enforcement	*The City will inspect construction sites for conformance to NPDES construction permit standards and applicable City standards. This goal will be met by enforcing the City's erosion control and waste disposal standards.*

BMP categories to be implemented	**Measurable goals and timeframes**
Permit Update	*Update the City Grading, Building, and ROW permits and Construction Site Stormwater Runoff ordinance to meet the new permit requirements within 12 months following the date permit coverage is extended.*
Prioritize Inspections	*The City will develop a process to determine the frequency for inspecting high priority inspection sites (e.g., near sensitive receiving waters, projects larger than 5 acres).*
Permit Application System	*Develop written procedures to improve tracking and archiving all*

	plan review and inspection documents within 12 months following the date permit coverage is extended.

4. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Asst. City Engineer / Public Works Director / Building inspection staff

E. MCM 5: Post-construction stormwater management

1. The Permit (Part III.D.5.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a post-construction stormwater management program. Describe your current program:

   The City has a surface water management ordinace to address storm water runoff from new development and redevelopment projects that disturb equal to or greater than one acre. This program insures that controls are in place that would prevent or minimize water quality impacts from development activities.

2. Have you established written procedures for site plan reviews that you will conduct prior to the start of construction activity? ☒ Yes ☐ No

3. Answer **yes** or **no** to indicate whether you have the following listed procedures for documentation of post-construction stormwater management according to the specifications of Permit (Part III.D.5.c.):

   a. Any supporting documentation that you use to determine compliance with the Permit (Part III.D.5.a), including the project name, location, owner and operator of the construction activity, any checklists used for conducting site plan reviews, and any calculations used to determine compliance? ☒ Yes ☐ No

   b. All supporting documentation associated with mitigation projects that you authorize? ☐ Yes ☒ No

   c. Payments received and used in accordance with Permit (Part III.D.5.a.(4)(f))? ☐ Yes ☒ No

   d. All legal mechanisms drafted in accordance with the Permit (Part III.D.5.a.(5)), including date(s) of the agreement(s) and names of all responsible parties involved? ☐ Yes ☒ No

   If you answered **no** to any of the above permit requirements, describe the steps that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

   E.3., The City will develop written procedures for documention of post-construciton stomwater management mitigation as described in the Permit (Part III.D.5.c.). Procedures will be in place within 12 months following the date permit coverage is extended.

4. List the categories of BMPs that address your post-construction stormwater management program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Site Plan Review Program	*The City will review and revise (if necessary, during the plan review process) permanent BMP designs and criteria for post-construction stormwater management associated with new development and redevelopment projects of one acre or more. The City will also actively look for non-structural opportunities where prudent and feasible. The goal of this BMP will be met if the City conducts plan reviews on new development and redevelopment projects of one acre or more.*
Surface Water Management Ordinance	*Completed ordinance defining standards, review procedures and enforcement response procedures for erosion and sediment control at construction sites, and post construction runoff from new development and redevelopment in 2007.*
Stormwater Management Plan	*Completed SWMP and ensured goals and policies were consistent with the NPDES General and Construction Permits.*

BMP categories to be implemented	**Measurable goals and timeframes**
Update ordinance to meet new permit requirements	*Complete Ordinance updates for post construction runoff from new development and redevelopment Within 12 months of extension of permit coverage.*

Document Pertinent Project Information	*Maintain all related documents pertaining to each new or redevelopment project in more user-friendly filing system for better records management. Implement within 12 months.*

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Asst City Engineer

F. MCM 6: Pollution prevention/good housekeeping for municipal operations

1. The Permit (Part III.D.6.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement an operations and maintenance program that prevents or reduces the discharge of pollutants from the permittee owned/operated facilities and operations to the small MS4. Describe your current program:

   The City currently inspects its structural pollution control devices on an annual basis and inspects all of its outfalls, sediment basins and ponds every 5 years. The City inspects stockpiles, storage and material handling areas at the maintenance yard for potential discharges and maintenance of BMPs. The City is evaluating the use of road salt for winter road maintenance activities to reduce chlorides entering surface waters. The City sweeps streets once in the fall after leaf drop and once in the spring to get snowmelt. Maintenance staff is trained annually on various topics related to pollution prevention during maintenance activities.

2. Do you have a facilities inventory as outlined in the Permit (Part III.D.6.a.)? ☐ Yes ☒ No

3. If you answered **no** to the above permit requirement in question 2, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

   F.3. The City will complete a facilities inventory as described in the Permit (Part III.D.6.a.). Inventory will be completed within 12 months following the date permit coverage is extended.

4. List the categories of BMPs that address your pollution prevention/good housekeeping for municipal operations program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. For an explanation of measurable goals, refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

   If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Street Sweeping	*The City will continue recording the frequency of streets that are swept, per sweeping occurrence.* *The goal of this BMP will be met if the City conducts two street sweeping occurrences per year.*
Strom Sewer Inspection Program	*Conduct one inspection of all City-owned ponds and outfalls prior to expiration date of this permit.* *Annual inspection of 100% of structural pollution control devices (Sumps, Water Quality Manholes, etc.).*
Inspection of All Exposed Stockpile, Storage and Material Handling Areas	*City staff will quarterly locate and inspect all exposed stockpiles and storage/material handling areas on City owned properties. All existing onsite BMP's will be inspected for conformance to NPDES Phase II permit requirements. Any identified erosion control issues will be corrected and documented per NPDES Phase II standards.*
Structural Stormwater BMP Maintenance Program	*Based on storm sewer inspection findings determine if repair, replacement, or maintenance measures are necessary to ensure structures proper function and treatment effectiveness. Document annually number or structures repaired or scheduled for maintenance.*
Recording, Reporting, and Retention of All Inspections and Responses to the Inspections	*The City will retain all records of inspection, maintenance, and corrective actions of the City's stormwater system. The goal of this BMP will be met if the City retains these records for a period of three years past the expiration of this permit.*

Evaluation of Inspection Frequency	*Evaluate inspection records and determine if inspection frequency needs to increase or decrease.*
Landscaping and Lawn Care Practices Review	*The City will continue to annually review its landscaping and lawn care practices and adjust its current methods if necessary.*
Road Salt Application Review	*The City will record the annual activities of the salt distribution program and adjust current practices as necessary.*
Evaluation of Proposed Storm Water Infiltration Projects for Impacts within Source Water Protection Areas	*1. The City will use the Minnesota Department of Health's document "Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas" (Draft-July 19, 2006) and other pertinent information as guidance in evaluating all infiltration projects within or adjacent to vulnerable DWSMA's.* *2. The City will prohibit the construction of the infiltration area or incorporate specific BMPs to reduce pollutants from infiltrating within vulnerable DWSMA's.* *3. The City will annually record the evaluation, denial, and implemented BMP's, of all proposed infiltration projects within and/or adjacent to vulnerable DWSMA's.*

BMP categories to be implemented	**Measurable goals and timeframes**
Park and Open Space Training Program	*Training focused on fertilizer application, pesticide/herbicide application, and mowing discharge.*
Fleet and Building Maintenance Training Program	*Training focused on automotive maintenance program (automotive inspections and washing), spill cleanup training, hazardous materials training, building leak prevention and inspection training.*
Stormwater Systems Maintenance Training Program	*Training focused on parking lot and street cleaning, storm drain systems cleaning, road salt materials management.*
Spill Prevention & Control Plans for Municipal Facilities	*Ensure that plans describing spill prevention and control procedures are consistent among all departments. Conduct annual spill prevention and response training sessions to all municipal employees. Distribute education materials to each municipal facility by the end of year 2.*
Facility Inventory	*Develop facilities inventory to include potential pollutants as each site. Create a map of all identified facilities.*
Pond Assessment Procedures & Schedule	*In year 1, develop procedures for determining TSS and TP treatment effectiveness of city owned ponds use for treatment of stormwater. Implement schedule in year 2-5.*

5. Does discharge from your MS4 affect a Source Water Protection Area (Permit Part III.D.6.c.)? ☒ Yes ☐ No

   a. If **no**, continue to 6.

   b. If **yes**, the Minnesota Department of Health (MDH) is in the process of mapping the following items. Maps are available at http://www.health.state.mn.us/divs/eh/water/swp/maps/index.htm. Is a map including the following items available for your MS4:

      1) Wells and source waters for drinking water supply management areas identified as vulnerable under Minn. R. 4720.5205, 4720.5210, and 4720.5330? ☒ Yes ☐ No

      2) Source water protection areas for surface intakes identified in the source water assessments conducted by or for the Minnesota Department of Health under the federal Safe Drinking Water Act, U.S.C. §§ 300j – 13? ☒ Yes ☐ No

   c. Have you developed and implemented BMPs to protect any of the above drinking water sources? ☒ Yes ☐ No

6. Have you developed procedures and a schedule for the purpose of determining the TSS and TP treatment effectiveness of all permittee owned/operated ponds constructed and used for the collection and treatment of stormwater, according to the Permit (Part III.D.6.d.)? ☐ Yes ☒ No

7. Do you have inspection procedures that meet the requirements of the Permit (Part III.D.6.e.(1)-(3)) for structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material ☐ Yes ☒ No

handling areas?

8. Have you developed and implemented a stormwater management training program commensurate with each employee's job duties that:

   a. Addresses the importance of protecting water quality? ☒ Yes ☐ No

   b. Covers the requirements of the permit relevant to the duties of the employee? ☐ Yes ☒ No

   c. Includes a schedule that establishes initial training for new and/or seasonal employees and recurring training intervals for existing employees to address changes in procedures, practices, techniques, or requirements? ☐ Yes ☒ No

9. Do you keep documentation of inspections, maintenance, and training as required by the Permit (Part III.D.6.h.(1)-(5))? ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements listed in **Questions 5 – 9**, then describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

F.6. The City will develop a procedure for assessing ponds to determine TSS and TP effectiveness as described in the Permit (Part III.D.6.d) This study will develop procedures for determining TSS and TP treatment effectiveness of city-owned ponds used for treatment of stormwater. A schedule will be implemented in years 2 thru 5.

F.7., The City will develop written procedures for inspection of structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material handling areas as described in the Permit (Part III.D.6.f.). Procedures will be in place within 12 months following the date permit coverage is extended.

F.8., The City will develop and implement a stormwater management training program commensurate with each employees job duties as described in the Permit (Part III.D.6.g.). Procedures will be in place within 12 months following the date permit coverage is extended.

F.9., The City will developwitten procedures to document inspections, mainenance, and training as described in the Permit (Part III.D.6.h.). Procedures will be in place within 12 months following the date permit coverage is extended.

10. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Asst. City Engineer / Public Works Supervisor

VI. Compliance Schedule for an Approved Total Maximum Daily Load (TMDL) with an Applicable Waste Load Allocation (WLA) (Part II.D.6.)

A. Do you have an approved TMDL with a Waste Load Allocation (WLA) prior to the effective date of the Permit? ☒ Yes ☐ No

   1. If **no**, continue to section VII.

   2. If **yes**, fill out and attach the MS4 Permit TMDL Attachment Spreadsheet with the following naming convention**:** *MS4NameHere_TMDL*.

      This form is found on the MPCA MS4 website: http://www.pca.state.mn.us/ms4.

VII. Alum or Ferric Chloride Phosphorus Treatment Systems (Part II.D.7.)

A. Do you own and/or operate any Alum or Ferric Chloride Phosphorus Treatment Systems which are regulated by this Permit (Part III.F.)? ☐ Yes ☒ No

   1. If **no**, this section requires no further information.

   2. If **yes**, you own and/or operate an Alum or Ferric Chloride Phosphorus Treatment System within your small MS4, then you must submit the Alum or Ferric Chloride Phosphorus Treatment Systems Form supplement to this document, with the following naming convention: *MS4NameHere_TreatmentSystem*.

      This form is found on the MPCA MS4 website: http://www.pca.state.mn.us/ms4.

VIII. Add any Additional Comments to Describe Your Program

TMDL Wasteload Allocation Excel Spreadsheet PART II.D.6.a.-e.

Copy and paste from the Master List MS4 TMDL Spreadsheet for your MS4 to the space below.

Attach this completed form with your SWPPP Document at the time of submittal. At a ***minimum,*** *provide all of the information "*" items (TMDL Project Name, Type of WLA, Numeric WLA, Unit, Flow Condition, and Pollutant of Concern).*

Permittee name	Preferred ID	TMDL project name*	Waterbody ID	Type of WLA*	Numeric WLA*	Unit*	Percent reduction	Flow condition*	Waterbody name	Pollutant of concern*	Date approved
Hopkins City	MS400024	Ninemile Creek: Impaired Biota, Turbidity & Chloride TMDL	07020012-518	Categorical	5,164	tons/day	62%		Nine Mile Creek	Chloride	11/29/2010

Compliance Schedule PART II.D.6.f.-g.

Is your MS4 currently meeting its WLA for any approved TMDLs? Go to: Table 1 Go to: Strategies... Go to: Table 2

☐ **NO** (Complete Table 1, Strategies for continued BMP implementation beyond the term of this permit, and Table 2 below)
☑ **YES** (Provide the following information below)

If YES, indicate the WLAs (may be grouped by TMDL Project) you believe are reasonably being met. For each WLA, list the implemented BMPs and provide a narrative strategy for the long-term continuation of meeting each WLA. PART II.D.6.g.(1)-(2)

Ninemile Creek: Impaired Biota, Turbidity & Chloride TMDL - The city is meeting its requirements of the TMDL by completing the following tasks on a regular basis:
1. The city provides stormwater education to employees and the public.
2. The city provides water resource education materials to contractors, builders, developers, and the general public.
3. The city performs inspections for the cities illicit discharge detection and elimination program.
4. The city references and makes permitees comply with watershed requirements for post-construction BMP performance.
5. The city continues to monitor and maintain the existing stormwater ponds and other BMPs to sustain removal effectiveness.
6. The city has established maintenance agreements with private owners of permanent BMPs.
7. The city has an established street sweeping program. It sweeps streets at a minimum of two times per year.
8. The city annually inspects and cleans all structural pollution control devices.

Table 1

Fill in the following table with your Interim Milestones, BMP IDs, and Implementation Dates. Replace "TMDL Project Name & Pollutant" Columns with each TMDL Project Name and the corresponding pollutant. Then put an "X" in the boxes for the TMDL that corresponds with each BMP. PART II.D.6.f.(1)-(2)

NOTE:
It is recommended to assign each Interim Milestone (BMP) a BMP ID. You will be required to report on the status of each Interim Milestone and include a BMP ID for all structural BMPs as part of the MS4 Annual Report (see Part III.E.), so including those ID numbers at the time of application may be useful in tracking implementation efforts. If a pond that will be included in the pond inventory (Part III.C.2.) is to be applied toward a WLA, use the same ID for both the pond inventory and TMDL tracking. Non-structural BMPs are not required to have an ID, but it may be useful to assign it an ID for internal MS4 recordkeeping.

MPCA recommends the Implementation Dates align with the submittal of MS4 Annual Reports. Dates selected may not reflect the actual date a BMP is implemented, but shall indicate a BMP will be implemented on that date or before for that reporting year.

Interim Milestone (Best Management Practice)	BMP ID	Implementation Date	TMDL Project Name & Pollutant1

Strategies for continued BMP implementation beyond the term of this permit. PART II.D.6.f.(3)

The City will continue to: Identify potential projects , Conduct a feasability study for proposed projects , Identify funding options for proposed projects and If feasable construct projects to help meet TMDL goals

Table 2
Target dates the applicable WLA(s) will be achieved. PART II.D.6.f.(4)

TMDL Project	Target Date to Achieve WLA

Appendix B:

City Wellhead Protection Plan

Wellhead Protection Plan Part 2

2017

Prepared for

City of Hopkins
1010 1st Street South | Hopkins, MN 55343

WSB project no.1474-220

Wellhead Protection Plan
Part 2
City of Hopkins, Minnesota

Table of Contents

PUBLIC WATER SUPPLY PROFILE

PUBLIC WATER SUPPLY

City of Hopkins
1010 1st Street S
Hopkins, MN 55343

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Fax: (952) 935-1834

WELLHEAD PROTECTION MANAGER

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Hopkins, MN 55343

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E-Mail: mollypl@wsbeng.com

GENERAL INFORMATION

Unique Well Number(s): 204573, 204068, 204570, and 112228
Size of Population Served by Municipal Water: 19,227
County: Hennepin County

PUBLIC WATER SUPPLY WELLS

Local Well Name	Unique Number	Type	Casing Depth (ft)	Well Depth (ft)	Date Constructed	Aquifer
Well No. 1	204573	Emergency	286	482	1905	OPCJ
Well No. 4	204068	Primary	410	548	1954	OPCJ
Well No. 5	204570	Primary	382	495	1967	OPCJ
Well No. 6	112228	Primary	354	545	1977	OPCJ

DOCUMENTATION LIST

Step	Date Performed
Part I Approval Notice Received from MDH	August 2016
Scoping 2 Meeting Held (4720.5349, subp. 1)	August 24, 2016
Scoping Decision Notice Received (4720.5340, subp. 2)	September 28, 2016
Remaining Portion of Plan Submitted to Local Government Units (LGUs) (4720.5350, subp. 1 & 2)	July 1, 2017
Review Considered (4720.5350, subp. 3)	July-September 2017
Public Hearing Conducted (4720.5350, subp. 4)	September 5, 2017
Remaining Portion WHP Plan Submitted (4720.5360, subp. 1)	September 15, 2017
Approved Review Notice Received	December 15, 2017

ACRONYM LIST

AST	Aboveground Storage Tank
BCWMC	Bassett Creek Watershed Management Commission
BMS	Brownfield Site
CCR	Consumer Confidence Report
CWI	County Well Index
DWSMA	Drinking Water Supply Management Area
ISTS	Individual Sewage Treatment System
IWMZ	Inner Wellhead Management Zone
LGU	Local Government Unit
MCWD	Minnehaha Creek Watershed District
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MGS	Minnesota Geological Survey
MnDNR	Minnesota Department of Natural Resources
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MRWA	Minnesota Rural Water Association
MS4	Municipal Separate Storm Sewer System
NMCWD	Nine Mile Creek Watershed District
NPDES	National Pollutant Discharge Elimination System
OPCJ	Prairie du Chien Group and Jordan Sandstone Aquifers
PCSI	Potential Contaminant Source Inventory
RCRA	Resource Conservation & Recovery Act Cleanup
RPBCWD	Riley Purgatory Bluff Creek Watershed District
UST	Underground Storage Tank
WHP	Wellhead Protection
WHPA	Wellhead Protection Area
WIMN	What's In My Neighborhood

EXECUTIVE SUMMARY

The Wellhead Protection Plan (the Plan) for the City of Hopkins (City) addresses the three municipal water supply wells used by the City (Wells No. 4, 5, and 6) and the associated source water aquifers (Prairie du Chien Aquifer and Jordan Aquifer – the aquifers from which the municipal wells pump water).

Part 1 of the Plan (**Appendix C**) was completed and approved in March of 2015 by Leggette, Brashears & Graham, Inc. Part 1 presented: the delineation of the Wellhead Protection Areas (WHPA); the drinking water supply management area (DWSMA); and the vulnerability assessments for the system's wells and aquifers within the DWSMA. The boundaries of the WHPA/DWSMA are shown in **Figure 1.** Water supply wells covered by this delineation and this Part 2 Plan Amendment are listed on page 4.

The *vulnerability assessment* for the aquifers within the DWSMA was performed using available information and indicates that the vulnerability of the aquifers used by the system varies from high to moderate. The results of the aquifer vulnerability assessment determined for the City what types of potential contamination sources must be managed within the DWSMA as determined by the Minnesota Department of Health (MDH):

- Low vulnerability areas – wells
- Moderate vulnerability areas – wells and tanks
- High vulnerability areas – all land uses and potential contaminant sources (including wells and tanks)

This document includes the following information:

- A review of data elements identified by the MDH as applicable to the DWSMA.
- Results of an inventory of potential contaminant sources within the DWSMA.
- Review of changes, issues, problems, and opportunities related to the public water supply and the identified potential contaminant sources.
- A discussion of potential contaminant source management strategies and the goals, objectives, and action plans associated with these management strategies.
- A review of the wellhead and source water protection evaluation program and the City's alternative water supply contingency strategy.

The goals and objectives of this Plan focus on: managing potential contaminant sources within the DWSMA; reducing the potential contaminant pathways to the source water aquifer that may be provided by private wells; and educating property owners and water supply users.

The City's WHP team has identified the following goals for implementation of this Plan:

Goal 1: The City will work to maintain or improve the current level of water quality so that the municipal water supply will continue to meet or exceed all applicable state and federal water quality standards.

Goal 2: The City will work to continue to supply sufficient water quantity for system users and emergency needs.

Goal 3: The City will provide and promote activities that protect the source water aquifer which provides water to the municipal system. This will include increased public education of the Wellhead and Source Water Protection Program and groundwater-related issues, as well as management of the identified potential contaminant sources and conveyance mechanisms within the DWSMA.

Goal 4: The City will continue to collect data to support future wellhead and source water protection efforts.

Implementation of these goals will be achieved through direct management efforts within the following areas to prevent future contamination of the aquifer and increase awareness of groundwater protection:

A. Well Management
B. Public Education
C. Storage Tank Management
D. Data Collection
E. Water Conservation
F. Land Use Planning and Zoning
G. Implementation
H. Evaluation

The effectiveness of the Plan must be evaluated to determine whether the implementation activities are consistent with the Plan's intent. Monitoring will be on-going and a written evaluation of the Plan and associated activities will be conducted every two and one-half years that the Plan is in effect.

CHAPTER ONE

DATA ELEMENTS AND ASSESSMENT (4720.5200)

I. REQUIRED DATA ELEMENTS

In accordance with Minnesota Rules Chapter 4720.5200, the following data elements are considered for evaluation in a WHP Plan. Those elements required for evaluation are determined by the MDH based on the Drinking Water Supply Management Area (DWSMA) vulnerability as described in the MDH Scoping 2 Decision letter received by the City on September 28, 2016.

A. Physical Data Elements

1. Precipitation

Due to a portion of the City's DWSMA (**Figure 1, Appendix B**) being classified as highly vulnerable, precipitation must be evaluated. **Table 1, Appendix A** shows the two nearest gauging station to the City. The station is located in New Hope and Chanhassen and is managed by the State Climatology Office. Each gauge has complete monthly data. The average precipitation in the City is approximately 34.97 inches annually, when considering data collected between 2010 and 2016.

2. Geology

A complete description of the geologic conditions in the WHPA is provided in Part 1 of this plan **(Appendix C)**. In summary, the geology in the DWSMA consists of Quaternary-age glacial and post-glacial deposits that are underlain by Ordovician and Cambrian-aged bedrock. Clay and sand deposits are predominant throughout the study area. Platteville and Glenwood formations make up the uppermost bedrock. These are underlain, in order of depth, by the St. Peter Sandstone, the Prairie du Chien Group, the Jordan Sandstone, the St. Lawrence Formation, the Tunnel City Group, the Wonewoc Sandstone, the Eau Claire Formation and the Mt. Simon Sandstone.

The City's production wells are within the Prairie du Chien Group and Jordan Sandstone. These two aquifers are referred to in this report as the Prairie du Chien and Jordan Aquifers. The St. Lawrence Formation, which lies below the Jordan, is a dolomitic siltstone and acts as a regional aquitard and confining layer. The presence of this aquitard directly below the Jordan Aquifer isolates the Jordan Aquifer and Prairie du Chien Aquifers from deeper bedrock aquifers.

3. Soil Conditions

Because of the high vulnerability classification of the DWSMA, soil conditions must be reviewed and considered. Much of the DWSMA is covered by unknown surfaces illustrated in **Figure 2, Appendix B**. Other soil coverage within the highly vulnerable portions of the DWSMA includes course-loamy and loam soils with moderate infiltration. The other highly vulnerable portion of the DWSMA is covered by sandy and loamy soils which tend to have a high infiltration rate. The area of the DWSMA with moderate vulnerability is covered in combination of course-loamy to fine-loamy soils.

Figure 3, Appendix B illustrates erodible lands. While most of the DWSMA is covered in non-highly erodible land, but there are also areas of potentially high and highly erodible soils. In addition, some of the potentially high erodible lands are in highly vulnerable portions of the DWSMA. Potential contaminant sources in the highly erodible areas, in particular those in the high vulnerability portions of the DWSMA, should be monitored more closely than those in other areas.

4. Water Resources

The bedrock source water aquifer used by the City's wells exhibits confined hydrogeologic conditions. For this reason there is not a direct hydrologic connection with the land surface or surface water. Soil characteristics and precipitation infiltration rates have not been evaluated or assessed in this plan due to the lack of a defined direct hydrogeologic connection between the land surface and the bedrock source water aquifer.

B. Land Use Data Elements

1. Land Use

The DWSMA cross political boundaries as it extends from Hopkins to the eastern edge of Lake Minnetonka. It includes parts of the City of Minnetonka, the City of Woodland, the City of Wayzata, the City of Edina, and the City of St. Louis Park in addition to the City of Hopkins. As with most first and second ring suburbs, the land within the DWSMA is almost fully developed with small pockets of undeveloped land spread out (**Figure 4, Appendix B**). Single family residential makes up the majority of the land use but there are some other land uses. The southeast corner of the DWSMA is made up of downtown Hopkins and the adjacent industrial areas. Land use in this corner is mostly commercial and industrial. The northwest corner of the DWSMA includes Wayzata Bay and Grays Bay. Sections of Trunk Highway (TH) 7, TH 5, Interstate 494, U.S. Route (US) 12, and US 169 all run through DWSMA.

2. Public Utility Services

Public utilities were evaluated to determine their potential influence and impact on the City's drinking water supply. Storm sewers, sanitary sewers, public drainage systems, public water supply, and gas and oil pipelines were considered and are included in the Part 2 Plan.

Transportation Routes and Corridors

The major roadways through the DWSMA are Interstate Highway 494, Minnesota State Highway 7, Minnesota State Highway 5, U.S. Route 169, and U.S. Route 12. Two rail lines run through the DWSMA as well. The Burlington Northern Santa Fe Railroad runs east to west along in the northern portion of the DWSMA. The Canadian-Pacific Railway (formerly the SOO line) runs southeast to northwest through in the southeast corner of the DWSMA.

Storm Sewer System

The City of Hopkins, City of Minnetonka, and City of St. Louis Park storm sewer networks within the DWSMA are shown in **Figure 5, Appendix B**. The DWSMA is within four sub-watersheds: Basset Creek, Minnehaha Creek, Nine Mile Creek, and Riley-Purgatory Bluff Creek. The various storm sewer networks outlet into surrounding surface water bodies.

Sanitary Sewer System

Figure 6, Appendix B depicts the City of Hopkins, City of Minnetonka, and City of St. Louis Park sanitary sewers within the DWSMA. The majority of the DWSMA is within the Metropolitan Urban Service Area served by the Metro Council. The remaining portions are served by Individual Sewage Treatment Systems.

Public Water System

The watermain utilities within the DWSMA are shown in **Figure 7, Appendix B**. Most of the DWSMA's users are connected to the municipal water supply. The remaining portions are served by private wells.

Oil and Gas Pipelines

There is one pipeline in the DWSMA. A Centerpoint gas transmission pipeline starts in the middle of the DWSMA and runs southwest. A map of the gas transmission pipeline has not been included for security reasons. However, the location is known to emergency services and public works in the area.

3. Potential Contaminant Source Inventory

Land use is closely related to the potential contaminant source inventory (PCSI) for the DWSMA, as these contamination sites are typically related to the type and intensity of use of the property. A PCSI was completed within the DWSMA boundaries. Data was extracted from the existing databases—the Minnesota Pollution Control Agency's (MPCA) What's in My Neighborhood (WIMN), the Minnesota Department of Agriculture's (MDA) Priorities List and the County Well Index (CWI)— and then was verified by aerial photography.

Data points collected from the MPCA WIMN database were first properly located through aerial photography and additional research. The list of sites was reduced by assigning the vulnerability of the DWSMA to each data point and removing those sites that did not match the criteria for the vulnerability setting. Next, potential contaminant and material codes were added to the sites, and a table and map (**Table 2, Appendix A** and **Figure 8, Appendix B**) were produced to display the locations and types of potential contaminants throughout the DWSMA.

Data points were also collected from the CWI and the MDH Well and Old Municipal Well databases. Wells retrieved were included in all vulnerability types. **Figure 7, Appendix B** includes the location of the water distribution system. **Figure 9, Appendix B** includes public and private wells within the DWSMA. A table of wells, including unique numbers, use codes, and other pertinent information is attached in **Appendix A** as **Table 3.**

In addition, the MDH completed and provided survey results for the Inner Wellhead Management Zone (IWMZ) that surrounds each municipal well at a 200-foot-radius. Results of this survey remain as submitted by the MDH and are included in **Appendix D**.

Potential threats to the water supply were determined by analyzing the location of water supply wells, land use, potential contaminant sources, and the following findings are made:

- Public and Private Wells. There are 25 public and 512 private wells located within the DWSMA. Of the private wells, 506 are currently active and five are inactive. The status of the remaining one well is currently unknown.
- Leak Sites. There are currently 150 leaking underground storage tank (LUST) sites in the DWSMA, three of which are active.
- Storage Tanks. There are 161 UST sites and 14 aboveground storage tank (AST) sites in the DWSMA. Of the UST sites, 41 are active and all contain(ed) waste, fuel, gases, or oils. Of the AST sites, nine are active and all contain(ed) waste, chemicals, fuel, gases, or oils.
- Investigation/Cleanup Sites. There are 89 known investigation/cleanup sites, where 12 are active. There are 20 Petroleum Brownfield Sites (BMS) within the DWSMA, where one is active. There is one inactive Resource Conservation & Recovery Act Cleanup (RCRA) site and one active Superfund project.
- MDA Priority List. There are 14 sites listed on the MDA priorities list that is located within the DWSMA. Three of the site were small spills and investigations. Eleven of the sites were old emergency incidents. All sites have been closed out.
- IWMZ Results. Located within 200-feet of the municipal wells are buried sanitary sewer pipes, stormwater drain pipes, and a portable toilet.

The activities in **Chapter 5** of this Part 2 Plan outline management activities to address the results of the PCSI.

C. Water Quantity Data Elements

Based on the data available for the required data elements, present and future implications of the data elements are described below for the use of the wells, quality and quantity of water supplying the public water supply wells, and the land and groundwater uses in the DWSMA.

1. Surface Water Quantity

There are many ponds, lakes, streams and wetlands within Hopkins's DWSMA. To the City's knowledge, there are no known water-use conflicts within the DWSMA.

2. Groundwater Quantity

Groundwater quantity was analyzed as part of the WHP Plan Part 1 (**Appendix C**). From 2010 to 2014, the City pumped an average of 803 million gallons of water, less than the 1 billion gallons permitted for use. Summaries of the City's water appropriations are on file at the City. No substantial changes in water use were observed between 2010 and 2014. Maximum pumping volumes over the five year timeframe occurred in 2011, with an annual total of 820 million gallons. Pumping data is summarized in on file at the City. In addition to the four municipal wells, there were 11 high-capacity wells included in the Part 1 Plan model. The 11 wells are within two miles of the City's municipal wells. Eight of the wells are either City of Edina's or the City of Minnetonka's municipal/public supply wells. One is the City of St. Louis Park's pollution containment well. The other two wells are golf course irrigation wells. There are no known well interference problems or water-use conflicts with these or other users, to the City's knowledge.

D. Water Quality Data Elements

Based on the data available for the required data elements, present and future implications of the data elements are described below for the use of the wells, quality and quantity of water supplying the public water supply wells, and the land and groundwater uses in the DWSMA.

1. Surface Water Quality

Surface water quality is especially important in highly vulnerable areas of the DWSMA due to the potential direct hydraulic connections between surface water and the source water aquifer. Portions of Lake Minnetonka lie within the moderate DWSMA boundary indicating a direct connection between Lake Minnetonka and the source water aquifer are unlikely.

2. Groundwater Quality

Groundwater pumped from the Prairie Du Chien-Jordan aquifer by the municipal wells is currently free of pathogens and disease-causing organisms. In addition, the City of Hopkin's water supply currently meets state and federal water quality requirements. No contaminants were detected at levels that violated federal drinking standards. To comply with MDH rules, the City adds fluoride to the water and tests water daily. The City also adds chlorine to control taste and odor and to keep the water system bacterially clean. LPC-9 Corrosion Inhibitor is added to create a barrier inside the plumbing that reduces the transfer of the lead from the pipes into the drinking water systems. The City's Consumer Confidence Reports for 2013, 2014, and 2015 can be found in **Appendix E**.

II. ASSESSMENT OF DATA ELEMENTS

Based on the data available for the required data elements, present and future implications of the data elements are described below for the use of the wells, quality and quantity of water supplying the public water supply wells, and the land and groundwater uses in the DWSMA.

A. Use of the Well

The City currently operates three active water supply wells (Wells No. 3, 4, and 5) (**Figure 9, Appendix B**). Additional information about the City's water supply system in general is present in the City's Comprehensive Plan – The Plan for Public Facilities and Services. Well construction details, well logs, and pumping rates are included in the WHP Plan Part 1 (**Appendix C**) document.

B. Quality and Quantity of Water Supplying the Public Water Supply Well

Part 1 of the Plan outlines the vulnerability of the public supply wells based on DNR geologic sensitivity, casing integrity, casing depth, pumping rate, isolation distance from contaminants, and chemical and isotopic information. City Wells No. 3 through 5 were determined to be vulnerable.

In addition, tritium has been detected above 1 Tritium Unit. While tritium itself is non-toxic, it indicated a surface-groundwater connection. To more fully understand this connection as well as the transfer of contaminants to the water source, more specific information is required. A better understanding of the connection between City well water, surface water, and precipitation, can be achieved via stable isotope analysis. Localized hydraulic conductivity and observation well data can be used to better characterize the vertical hydraulic connection and gradient between the Prairie du Chien and Jordan Aquifers. Opportunities and objectives to achieve these initiatives are outlined in **Chapters 3** and **5** of this plan.

Significant changes in water quantity may occur over the life of this plan. The City regularly withdraws water below the amount appropriated by the Minnesota Department of Natural Resources (MnDNR). However, continued water conservation measures will help to maintain water use over the course of this Plan. It is not anticipated that physical, land-use, or water quality or quantity changes will greatly affect the water supplying the public water supply well.

C. The Land and Groundwater Uses in the Drinking Water Supply Management Area

Land use and development practices have potential to impact groundwater in several ways. Use and storage of toxic materials, usually found in industrial and commercial uses, have the potential to spill and enter the groundwater. It is critical to locate and document where these potential contaminants exist in order to monitor those uses, provide opportunities to educate the businesses, and consider policies regarding stricter monitoring of potential new land uses. The existing land uses and zoning maps can be found in **Figure 4** and **Figure 10, Appendix B**.

CHAPTER TWO

IMPACT OF CHANGES ON PUBLIC WATER SUPPLY WELLS (4720.5220)

In accordance with Minnesota Rules 4720.5220 a wellhead protection plan must identify and describe expected changes that may occur during the next ten years to:

1. The physical environment
2. Land use
3. Surface water
4. Groundwater

I. POTENTIAL CHANGES IDENTIFIED

Considering a 10-year life of the Plan, potential changes to the physical environment and land use were identified.

A. Physical Environment

There are no significant changes to the precipitation, geology, soils or water resources anticipated during the 10-year time frame of this plan within the DWSMA.

B. Land Use

The area comprising the DWSMA is largely fully developed, and the City is unaware of any significant land use or population changes planned within the DWSMA during the 10-year planning time frame. However, at the time of this plan development all municipalities in the Twin Cities metropolitan area are in the process of updating their comprehensive land use plans for the 2018 planning cycle. In the event that any major land use changes are identified within the DWSMA that might impact the groundwater supply, appropriate monitoring and protective measures should be taken into account in order to minimize the risk of contamination.

C. Surface Water

No significant changes in surface water are expected by the City in the next ten years.

D. Groundwater

It is unlikely that the City will need additional wells to meet demand in the next ten years.

II. IMPACT OF CHANGES

A. Changes Identified Above Influence of Existing Water and Land Government Programs and Regulations

The primary impacts associated with changes in physical, land use, and groundwater supply is the need to add infrastructure to accommodate increasing commercial and residential demand. In **Chapter 5**, a series of policies and programs are proposed to balance the growth increases with the infrastructure needs to mitigate the negative impact of growth and minimize potential sources of contamination to the DWSMA.

Federal and State Regulations
All tank operators and owners must comply with both federal and state regulations for USTs. At the federal level, tank operators and owners for USTs must comply with 40 CFR Part 280-282. At the state level, operators and owners must comply with Minnesota Rules, Chapter 7150. Enforcement of state and federal regulations is the responsibility of the MPCA. The existing federal and state regulations provide adequate controls to manage USTs within the DWSMA.

ASTs which store liquid substances that may pollute the waters of the state are regulated by Minnesota Rules, Chapter 7151, if the site capacity is less than one million gallons. AST regulations are also enforced by the MPCA. Existing regulations provide adequate controls to manage storage tanks within the DWSMA. In addition to the MPCA, the state and local fire marshal also regulate tanks.

Hennepin County Regulations
Hennepin County is an extremely urban county. As such, they leave most of the ordinance control to the cities that lie within the county. There are no pertinent ordinances in Hennepin County.

City of Hopkins
The City of Hopkins has ordinances in place regulating the water system, sanitary sewer system, storm sewer system, illicit discharge and connections, and erosion and sediment control. These ordinances are in place to protect groundwater and surface water resources from contamination. The City also has educational information available on its website related to proper disposal of yard waste, household hazardous waste, and planting rain gardens. The City has developed a Water Resources Management Plan to meet regulatory requirements and to plan for future alterations in the existing drainage system to do redevelopment activities. The plan is available on the City's website.

City of Minnetonka
A portion of the DWSMA lies within the City of Minnetonka. The City of Minnetonka has ordinances in place regarding the regulation of the water system, sanitary sewer system, storm sewer system, illicit discharge and connections, and erosion and sediment control. These ordinances are in place to protect groundwater and surface water resources from contamination. The City of Minnetonka's Water Resources Management Plan is also available for viewing online and is intended to provide proper management of surface water and groundwater by protecting, preserving, and using natural surface and groundwater systems.

City of St. Louis Park
A portion of the DWSMA lies within the City of St. Louis Park. The City of St. Louis Park has ordinances in place regulating the water system, sanitary sewer system, storm sewer system, illicit discharge and connections, and erosion and sediment control. These ordinances are in place to protect groundwater and surface water resources from contamination. The City of St. Louis Park also has a variety of links on its website related to storm water resources and education.

City of Wayzata
A portion of the DWSMA lies within the City of Wayzata. Wayzata has ordinances in place to address the water system, sewer system, storm water, and urban runoff pollution control, and erosion and sediment control. These ordinances are in place to protect groundwater and surface water resources from contamination. The City of Wayzata's Surface Water Management Plan is on its website and aims to provide clear guidance on how the City of Wayzata intends to manage its surface water.

City of Woodland
A portion of the DWSMA lies within the City of Woodland. Woodland has ordinances in place regulating the water system, sanitary sewer system, storm sewer system, illicit discharge and connections, and erosion and sediment control. These ordinances are in place to protect groundwater and surface water resources from contamination. The city also has educational information available on its website related to storm water management and protecting groundwater and surface water, including links to the Minnehaha Creek, MnDNR, and Lake Minnetonka Conservation District websites. The City of Woodland Surface Water Management plan, which is intended to provide the City of Woodland and its residents with direction concerning the administration and implementation of surface water management activities within the community, is also available for viewing on the City of Woodland's website.

City of Edina
A portion of the DWSMA lies within the City of Edina. The City of Edina has ordinances in place regarding the regulation of the water system, sanitary sewer system, storm sewer system, illicit discharge and connections, and erosion and sediment control. These ordinances are in place to protect groundwater and surface water resources from contamination. The City of Edina's Comprehensive Water Resource Management Plan serves as a guiding document for water resource management and addresses runoff management, flood control and clean creeks, ponds and wetlands. The Comprehensive Water Resource Management Plan is available for viewing on the City of Edina's website.

Minnehaha Creek Watershed District
A portion of the DWSMA falls under the jurisdiction of the Minnehaha Creek Watershed District (MCWD). The MCWD is a local unit of government responsible for managing and protecting the water resources in one of the largest and most heavily-used urban watersheds in Minnesota. The MCWD uses scientific research and monitoring, public education, grant programs, permitting, and collaborative initiatives with local governments, agencies and residents to protect the region's lakes, rivers, and streams. In 2007, the MCWD Board of Managers approved the Comprehensive Water Resources Management Plan, which serves as the guiding document for the organization for the period covering 2007-2017. Rules for development have been adopted that ensure protection of water and surrounding resources and serve to implement the goals and policies of the Comprehensive Water Resources Management Plan. The Minnehaha Creek Watershed District offers grants to residents and businesses in its watershed to construct rain gardens and install pervious pavement or other features that infiltrate storm water runoff into the ground.

Bassett Creek Watershed Management Commission
A portion of the DWSMA falls under the jurisdiction of the Bassett Creek Watershed Management Commission (BCWMC), which works with residents, organizations, and its member cities to protect and improve water resources like Bassett Creek and its tributaries, wetlands, ponds, and lakes such as Medicine, Wirth, Twin, Sweeney, Northwood, Turtle, Westwood, Parkers, and others. The BCWMC adopted its most current Watershed Management Plan in September of 2015 with the vision of "stewardship of water resources to protect and enhance our communities". Rules and standards regulating development have been adopted and are intended to carry out the goals and policies outlined in the Watershed Management Plan.

Nine Mile Creek Watershed District
A portion of the DWSMA falls under the jurisdiction of the Nine Mile Creek Watershed District (NMCWD), which is a public entity that works to protect and restore the water and natural resources in the land area draining to Nine Mile Creek. NMCWD has state authority to protect and manage water resources within the district. The Nine Mile Creek Watershed District Management Plan sets the vision, guidelines, and proposed tasks for managing surface water within the NMCWD. The NMCWD's current plan was adopted in 2007 and is required to be updated in 2017. Rules for development have been adopted that ensure protection of water and surrounding resources and serve to implement the goals and policies of the Nine Mile Creek Watershed District Management Plan. Grant funds are also available to residents, associations,

nonprofits, schools, businesses, and cities for projects that protect and improve water and natural resources within the district.

Riley Purgatory Bluff Creek Watershed District
The Riley Purgatory Bluff Creek Watershed District (RPBCWD) works with citizens, government bodies, and organizations to improve water quality and support the conservation ethic that has evolved over the districts 40-year history. The function of the district is to protect and manage the water resources within the district, which is approximately 50 square miles in surface area. The Riley Purgatory Bluff Creek Watershed District Management Plan was adopted in 2011 and lays out the RPBCWD's vision for the next ten years through various goals objectives and policies. The RPBCWD has developed rules for floodplain management and drainage alterations, erosion and sediment control, wetland and creek buffers, dredging and sediment removal, shoreline and streambank stabilization, waterbody crossings and structures, appropriation of public surface waters, appropriation of groundwater, and storm water management.

B. Administrative, Technical, and Financial Considerations

With existing cost-share programs and grant opportunities, the City will have resources available to regulate the public water supply's source water and implement the management strategies found herein. Funds to support ongoing wellhead and source water protection efforts will come from the City's water utility fund and MDH grants. Wellhead and source water protection activities will be evaluated on an annual basis, and any changes in the focus of the tasks will also be evaluated to determine if additional funding will be necessary to accommodate the changes.

The City intends to work in conjunction with Hennepin County, MCWD, BCWMC, NMCWD, and RPBCWD to protect the surface water and source water resources as much as possible when it is beneficial and logistically feasible.

CHAPTER THREE

ISSUES, PROBLEMS, AND OPPORTUNITIES (4720.5230)

Issues, problems, and opportunities in relation to the source water aquifer, groundwater quality, and DWSMA are discussed below.

I. WATER USE AND LAND USE ISSUES, PROBLEMS, AND OPPORTUNITIES

A. Source Water Aquifer

The Part 1 Plan (**Appendix C**) determined that the WHPA and corresponding DWSMA for the source aquifer range from low to high vulnerability, where high vulnerability areas are more likely to be affected by land use activities. An issue identified by MDH is uncertainty surrounding the hydraulic connection and gradient between the Prairie du Chien and Jordan Aquifers. Area-specific hydraulic conductivity data around City wells is also desired. As a result, the City has an opportunity to improve knowledge about the source water aquifer by assisting MDH in collecting data using observation wells. Specific objectives and related activities are included in **Chapter 5**.

Land use and zoning regulations can protect the quality of the aquifers by discouraging types of construction or activity that may cause contamination. Though the City of Hopkins is largely developed, and redevelopment is expected throughout the City. The City has a Comprehensive Plan in place that includes policies for managing development, allowable land uses, water supplies, and wells. Policies identified in the Comprehensive Plan will help protect the City's source water aquifer. Additionally, the City has land use and zoning ordinances in place that could be revised in the future if needed to address potential contaminant sites. The challenge to the City is that large portions of the DWSMA are located outside the City and outside their control. Cooperative participation in the management of the local aquifers to help assure sustainable water supplies for all users is a challenge and an opportunity.

B. Groundwater Quality

Currently, the groundwater pumped from the Prairie du Chien and Jordan Aquifers by the municipal wells is free of pathogens and disease-causing organisms. In addition, the City's water supply currently meets state and federal water quality requirements. To comply with MDH rules, the City adds fluoride to the water and tests water daily. The presence of Tritium in the City's wells is not a health risk but is an indication of the vulnerability of the aquifer. The City's Consumer Confidence Reports (CCR) for 2013-2015 can be found in **Appendix E**.

The City will continue to improve its groundwater model by collecting water samples from well water, surface water, and precipitation. Using the water collected, stable isotope analyses can be conducted to gain a more thorough understanding of the surface and groundwater mixture.

Well water quality sampling will need to continue so that possible contamination can be identified. There are numerous private wells located within the DWSMA that should continue to be tested regularly, as recommended by the MDH. Coordination with the City of Minnetonka, City of Woodland, City of Wayzata, City of St. Louis Park, City of Edina, MDH, MPCA, MnDNR, and Hennepin County to share and maintain information on wells and potential contaminants will be a challenge and an opportunity.

Education of landowners, especially those with private wells, septic systems, or other potential contaminant sources will be important in the control of contamination affecting the groundwater quality.

C. Drinking Water Supply Management Areas

Land uses found within the DWSMA include single and multi-family residential, parks and recreational space, commercial and industrial. Potential contaminant sources identified, particularly within the highly vulnerable portions of the DWSMA, should be monitored.

As previously mentioned, a concern for the City will be that it does not have legal capabilities to regulate activities within its DWSMA that are outside the City's boundaries. Some opportunities identified include:

- Working with the Cities of Minnetonka, Woodland, Wayzata, St. Louis Park, and Edina, as well as other government entities to share information and create policies that protect the aquifers.
- Tracking and updating the list of potential contaminant sources as new information becomes available.
- Educating landowners on proper well management and spill prevention.
- Routinely monitoring for land use and potential contaminant source changes within the Inner Wellhead Management Zone (IWMZ), a 200-foot-radius around the wells, in consideration of State Well Code requirements.
- Placing high priority on new and existing wells and potential contaminant sources identified in the IWMZ and One Year Time of Travel Area for the implementation of best management practices.

II. ASSESSMENT OF WATER USE AND LAND USE ISSUES, PROBLEMS, AND OPPORTUNITIES

A. Issues, Problems, and Opportunities Disclosed at Public Meetings and in Written Comments

At the beginning of the WHP amendment process, the City sent a notification to other Local Government Units (LGUs) of its intention to amend their wellhead and source water protection efforts. After approval by the MDH, the City sent copies of the results of the Part 1 Plan to LGUs. The City sent notification to LGUs of Part 2 of the Plan and will hold a public hearing before submittal to MDH. The City has not been informed of any issues, problems, or opportunities by the LGUs at this time. If any comments are received by the City, they will be listed here.

B. Issues, Problems, and Opportunities Related to the Data Elements

Part 1 and Part 2 of the Plan have utilized current local and regional information available for compiling and assessing data elements. At a minimum, this Plan will be revised or updated every 10 years as required by the WHP Rules and the most recent and accurate data will be utilized at that time. To support on-going wellhead protection efforts, the City will collect data on wells, water quality and land use within its DWSMA. Due to limited resources to independently collect the full range of data and recreate the necessary databases, the City will continue to mainly rely on databases maintained by the State and County agencies to obtain and verify data, as needed.

C. Issues, Problems, and Opportunities Related to Status & Adequacy of Official Controls, Plans, and Other Local, State, and Federal Programs

Numerous controls, plans and programs exist that may be used to achieve the WHP Plan goals are identified in this Part 2 Plan. State and LGUs currently enforce land use ordinances, zoning laws, sewer ordinances, well permits, and groundwater use appropriation permits. The City will continue to work with neighboring communities to ensure proper management of the portion of the DWSMA that extends into their respective municipality. It is anticipated that most local issues may be adequately addressed through these existing processes and adopting of best management practices.

No additional regulations are recommended to be imposed at this time. However, it is recommended that overall regional coordination of WHP efforts be initiated.

CHAPTER FOUR

WELLHEAD PROTECTION GOALS (4720.5240)

In accordance with Minnesota Rules 4720.5240 this section must address goals for present and future water use and land use to provide a framework for determining plan objectives and related actions.

Goals outlined in this part were selected based on the information gathered and compiled from the data elements, delineations of the WHPAs and DWSMAs, results of the vulnerability assessments, results of the PCSI, expected changes in land and water uses, identified issues, problems, and opportunities, and evaluation of this information.

The public water supply is considered to be moderately, highly, and very highly vulnerable. Therefore, the goals and objectives of this Plan will focus on managing potential contaminant sources within the DWSMA, reducing the potential contaminant pathways to the source water aquifer that may be provided by private wells, educating property owners and water supply users, and considering policies that control future siting of potential contaminants.

The City's WHP team has identified the following goals for implementation of this Plan:

Goal 1: The City will work to maintain or improve the current level of water quality so that the municipal water supply will continue to meet or exceed all applicable state and federal water quality standards.

Goal 2: The City will work to continue to supply sufficient water quantity for system users and emergency needs.

Goal 3: The City will provide and promote activities that protect the source water aquifer that provides water to the municipal system. This will include increased public awareness of the wellhead and source water protection program and groundwater-related issues, and management of the identified potential contaminant sources and conveyance mechanisms within the DWSMA.

Goal 4: The City will continue to collect data to support future wellhead and source water protection efforts.

CHAPTER FIVE

OBJECTIVES AND PLANS OF ACTION (4720.5250)

I. OBJECTIVES

Given the issues, problems, and opportunities discussed in **Chapter Three** and the goals stated in **Chapter Four**, the Plan delegates direct management efforts to the following areas to prevent future contamination of the aquifer and increase awareness of groundwater protection:

A. Well Management
B. Public Education
C. Storage Tank Management
D. Data Collection
E. Water Conservation
F. Planning and Zoning
G. Implementation
H. Evaluation

II. PLAN OF ACTION

A. Well Management

Objective A1: Take measures to promote proper sealing of abandoned, unused, unmaintained, or damaged wells.

Action A1.1: Make property owners aware of potential technical and financial resources that are available to assist them in securing grant funding for properly sealing wells.

Who:	City Staff
Cooperators:	Hennepin County
Time Frame:	Quarterly, beginning Year 1 and ending Year 10 following the adoption of this Plan.
Estimated Cost:	Varies
Goal Achieved:	Goal 3: Source water aquifer protection
How:	Use the City's website, newsletters, or direct mailings to make owners aware of well sealing cost-share programs. Provide information to realtors to pass along to property owners preparing to sell and during disclosure process.

Action A1.2: Seek funds when available and feasible to locate and/or seal wells.

Who:	City Staff
Cooperators:	Hennepin County, MDH, Consultant
Time Frame:	Ongoing throughout Years 1 – 10 of this Plan, when grant funding is available or wells are located.
Estimated Cost:	$1,000 (grant application); additional cost for sealing TBD
Goal Achieved:	Goal 3: Source water aquifer protection
How:	If wells are discovered on City owned property, grant funding shall be sought to properly seal the well.

Objective A2: Take measures to identify and inform properties with abandoned, unused, unmaintained, or damaged wells and potential cross connections between private wells and the City's water system.

Action A2: Identify and inform properties with potential supply cross connections or wells that pose a hazard to the public water supply.

Who:	City Staff or Consultant
Cooperators:	MDH, Hennepin County, City of Minnetonka, City of Woodland, City of Wayzata, City of St. Louis Park, City of Edina
Time Frame:	Years 1 – 2, following the implementation of this Plan.
Estimated Cost:	$5,000 per mailing
Goal Achieved:	Goal 1: Maintain or improve current water quality
How:	Provide residents information on lost wells when changing water meters. Ask residents for permission to check basement for wells during this process.

Objective A3: Educate the public about proper well management.

Action A3: Using public events, City's website, newsletter, or other direct mailings, provide information to the public on proper well management.

Who:	City Staff or Consultant
Cooperators:	MDH, Minnesota Rural Water Association (MRWA)
Time Frame:	Year 1 following the adoption of this Plan, updating biannually.
Estimated Cost:	Varies
Goal Achieved:	Goal 3: Promote activities to raise awareness
How:	Use the City's website, CCR, newsletter, or social media sites to provide education on proper well management by linking the MDH's Well Owner's Handbook.

Objective A4: Identify new high-capacity wells within the DWSMA.

Action A4: The City will work with MnDNR and MDH to address implications of high capacity well construction or appropriation permitting changes on the City's drinking water supply or DWSMA boundary.

Who:	City Staff, Consultant
Cooperators:	MnDNR, MDH
Time Frame:	Year 2 following the adoption of this Plan, or as needed.
Estimated Cost:	Varies
Goal Achieved:	Goal 2: Continue to supply sufficient water quantity for system users
How:	The MnDNR is currently sending out notices to interested parties before new large capacity well construction. If the City receives a notice, it will work with MnDNR and MDH to determined implications for the DWSMA or the vulnerability of the aquifer. If the changes result in a required amendment to this Plan, the City will seek grant funding for assistance.

Objective A5: Continue to monitor water quality and quantity from the City's to ensure high quality.

Action A5: Examine and review the annual water quantity and quality reports to identify changes in groundwater levels, aquifer hydraulics, and concentrations of constituents.

Who:	City Staff
Cooperators:	Consultant, MDH
Time Frame:	Monthly – groundwater levels; When available – quality reports.
Estimated Cost:	No additional cost – staff time
Goal Achieved:	Goal 1: Maintain or improve the current level of water quality; Goal 2: Continue to supply sufficient water quantity
How:	The City will continue to receive water quality reports, at which time the reports will be compared to previous years to evaluate trends or changes. Groundwater levels and quality shall be recorded monthly within the City's water supply wells. Staff will review annual water quality reports and provide summaries about changes over time. If new contaminant sources are found, the City will ensure wells meet isolation distance requirements.

Objective A6: Monitor the IWMZ areas for the addition of or changes to potential contaminant sources.

Action A6: City staff will review and update IWMZ survey form for all wells in cooperation with MDH to determine if there have been additions or changes to potential contaminant sources

Who:	City Staff
Cooperators:	MDH
Time Frame:	Every 5 years following the adoption of this Plan.
Estimated Cost:	None, MDH cost and City Staff time
Goal Achieved:	Goal 1: Work to maintain or improve current water quality
How:	If changes are made to the items identified in the IWMZ, the City will update with the approval of MDH to survey the IWMZ every five years. The City will notify property owners if any well setback distances are violated. Seek grant funding to cooperate with MDH to complete the next IWMZ survey.

Objective A7: Minimize the potential contaminant sources in order to reduce the DWSMA area.

Action A7: City staff will consider construction methods to exclude the upper portion of the Jordan Sandstone formation.

Who:	City Staff
Cooperators:	MDH
Time Frame:	As needed
Estimated Cost:	Variable
Goal Achieved:	Goal 1: Work to maintain or improve current water quality.
How:	If new City wells are proposed or existing wells require significant rehabilitation the city will consider construction methods to exclude the upper portion of the Jordan Sandstone formation.

B. Public Education

Objective B1: Develop a public support and understanding for the WHP planning through public events and the use of websites, newsletters, and handouts.

Action B1.1: Include information about WHP and groundwater protection in the City newsletter, perhaps in conjunction with the City's Municipal Separate Storm Sewer System (MS4) permitting requirements.

Who:	City Staff
Cooperators:	MDH
Time Frame:	Year 1 and Year 5 following the adoption of this Plan
Estimated Cost:	$5,000 each mailing/posting
Goal Achieved:	Goal 3: Make information available to promote wellhead and source water protection
How:	Identify and obtain existing educational materials available from MDH and MRWA. Write newsletter articles describing WHP and include contact information and website addresses for existing educational resources.

Action B1.2: Provide information about the WHP Plan and links to other WHP related resources on the City's website.

Who:	City Staff
Cooperators:	MDH
Time Frame:	Year 5 following the adoption of this Plan
Estimated Cost:	$1,000 each year of posting
Goal Achieved:	Goal 3: Make information available to promote wellhead and source water protection
How:	Provide a summary of WHP goals and implementation. Provide links to WHP related websites including MDH, MDA, and the Environmental Protection Agency (EPA).

Objective B2: Educate emergency management officials of the importance of spills/clean-up within the DWSMA due to its sensitivity.

Action B2: Send a summary memo to the Fire Department, County Emergency Manager, County Engineer, and Minnesota Department of Transportation (MnDOT) regarding the DWSMA location, sensitivity, and importance of spill cleanup within the management area.

Who:	City Staff
Cooperators:	MDH, Fire Department, MnDOT, Hennepin County
Time Frame:	Year 2 following the adoption of this Plan.
Estimated Cost:	$1,000
Goal Achieved:	Goal 3: Make information available to promote wellhead and source water protection.
How:	Develop a summary memo for transportation corridors with local emergency management officials on the DWSMA location and importance of spill cleanup within the management areas.

Objective B3: Provide information on preventing leaks and proper tank maintenance to tank owners in WHP areas.

Action B3: Send reminder notices to new and old tank owners about tank regulations and the importance of early leak detection.

Who:	City Staff
Cooperators:	MDH, Fire Department, MnDOT, Hennepin County
Time Frame:	Year 2 following the adoption of this Plan
Estimated Cost:	$2,000
Goal Achieved:	Goal 3: Make information available to promote wellhead and source water protection
How:	City can assist owners on methods to use to check for leaks and how to keep records by sending out information through mailings, City's website, social media, etc. The City could also require the use of certified contractors for installation and removal of unregulated USTs.

C. Storage Tank Management

Objective C1: Notify owners of storage tanks located within the DWSMA that the tank is in a source water protection area, and educate owners of properties containing the storage tanks of the importance of spill prevention.

Action C1: Update list of storage tank owners, contact each property owner, and make them aware of their placement within the City's DWSMA.

Who:	City Staff, consultant
Cooperators:	MDH, MPCA, Consultant
Time Frame:	Within Year 1 following the adoption of this Plan
Estimated Cost:	$1,500
Goal Achieved:	Goal 1: Maintain or improve the current level of water quality; Goal 3: Increase awareness of wellhead and source water protection
How:	Send mailings to the property owners notifying them about the DWSMA delineation and the importance of spill prevention. Provide contact numbers for the appropriate government agencies to each property owner. Provide tank owners information and resources to acquire the appropriate spill clean-up materials (sorbent materials, etc.) and have these located on site.

D. Data Collection

Objective D1: Continue to cooperate with and support future data collection efforts by other agencies.

Action D1: Provide data from additional pumping tests on City wells or other high capacity wells if funding is available to the agencies listed below. The City will also assist in the data collection efforts by other agencies when feasible.

Who:	City Staff
Cooperators:	MPCA, MnDNR, MDH, MRWA, RCWD, Minnesota Geological Survey (MGS)
Time Frame:	Ongoing throughout Years 1 – 10 of this Plan, when requested
Estimated Cost:	Varies
Goal Achieved:	Goal 4: Continue to collect data to support wellhead and source water protection
How:	Provide assistance to agencies as requested when reasonable and economical. As requested, the City will complete additional pumping tests on City wells or other high capacity wells if funded by the above agencies. If the City conducts pumping tests independently of this Plan, the results will be submitted to MDH. The City will allow regional and state agencies to access well water, surface water, precipitation and, if possible, water specifically from the Prairie du Chien aquifer near the City to conduct stable isotope analyses.

Objective D2: Conduct stable isotope tests on all public water supply wells, surface water and precipitation.

Action D2: The City will request that MDH conduct stable isotope testing once during the lifetime of this Plan.

Who:	City Staff
Cooperators:	MDH
Time Frame:	Year 7 following the adoption of this Plan
Estimated Cost:	City staff time
Goal Achieved:	Goal 1: Work to maintain or improve the current level of water quality; Goal 4: Continue to collect data to support future wellhead and water protection efforts
How:	The City will request that MDH conduct Tritium or other stable isotope testing on each public water supply well during the seventh year of this Plan.

Objective D3: Maintain up-to-date information about wells and potential contaminant sources within the DWSMA.

Action D3: In cooperation with existing state or local agencies and programs, maintain the database of wells, and storage tanks within the DWSMA that was developed as part of this Part 2 Plan.

Who:	City Staff
Cooperators:	Property owners, MDH, Consultant
Time Frame:	Ongoing throughout Years 1 – 10 of this Plan, as new information becomes available
Estimated Cost:	Varies
Goal Achieved:	Goal 4: Continue data collection to support future wellhead and source water protection
How:	A PCSI was performed as part of the development of this Plan. The database will be reviewed periodically and updated as information becomes available.

Objective D4: Continue to collect and maintain local geologic and hydrogeological data in order to improve and augment information and to provide additional data for future amendments to this plan.

Action D4.1: Monitor static and pumping levels in municipal wells.

Who:	City Staff
Cooperators:	MnDNR, Consultant
Time Frame:	Annually following the adoption of this Plan.
Estimated Cost:	Staff time
Goal Achieved:	Goal 4: Continue data collection to support future wellhead and source water protection.
How:	Conduct routine collection of groundwater levels in municipal wells, which will provide data for evaluation of groundwater elevation trends over time. This data can also be used to verify the groundwater flow field in the source water aquifer, while also evaluating if a cross connection between the Mississippi River and groundwater levels exists.

Action D4.2: Obtain more area-specific hydraulic conductivity data in the area of the City wells to reduce groundwater modeling uncertainty.

Who:	City Staff
Cooperators:	MnDNR, MGS, Consultant
Time Frame:	Year 6 following the adoption of this Plan
Estimated Cost:	Varies depending on request
Goal Achieved:	Goal 4: Continue data collection to support future wellhead and source water protection
How:	Conduct pumping test on City wells and/or other existing high capacity wells, if determined to be needed by the MDH area hydrologist and grant funding is available.

Action D4.3: Characterize the vertical hydraulic connection between the Prairie du Chien and Jordan aquifers.

Who:	City Staff
Cooperators:	MnDNR, MGS, Consultant
Time Frame:	Year 7 following the adoption of this Plan
Estimated Cost:	Varies depending on request
Goal Achieved:	Goal 4: Continue data collection to support future wellhead and source water protection
How:	If grant funding is available identify existing or new observation wells at strategic locations within the DWSMA.

E. Water Conservation

Objective E1: Implement a community-wide water conservation program.

Action E1.1: Update conservation measures included in various plans within the City.

Who:	City Staff
Cooperators:	Consultant, MDH
Time Frame:	Year 3 following the adoption of this plan
Estimated Cost:	$6,000
Goal Achieved:	Goal 2: Continue to supply sufficient water quantities to consumers
How:	Educate the public to encourage users to voluntarily incorporate water saving habits and tools into their lifestyles; improve the existing water system's operation and maintenance procedures, incorporate costs associated with water conservation programs; and ensure that all customers are paying for the water they use through audits, leak detection, and meter replacement or calibration as they occur or as needed.

Action E1.2: Implement water conservation measures and outreach.

Who:	City Staff
Cooperators:	Consultant, MDH
Time Frame:	Year 7 following the adoption of this plan
Estimated Cost:	$8,000
Goal Achieved:	Goal 2: Continue to supply sufficient water quantities to consumers
How:	Encourage the public to conserve water through a variety of tools. Have information and kits available at community events.

F. Planning and Zoning

Objective F1: Incorporate WHP initiatives into City Plans.

Action F1.1: The City will use this WHP Plan as a resource when updating its Comprehensive Plan, Local Water Management Plan, Water Supply Plan, normal zoning and planning review plans, and other relevant plans.

Who:	City Staff or consultant
Cooperators:	MnDNR, MDH, Consultant
Time Frame:	When other plans are revised
Estimated Cost:	Varies per plan
Goal Achieved:	Goal 3: Promote activities that protect the source water aquifer
How:	WHP initiatives will be addressed and incorporated into the City's various plan updates. Copies of this Plan will be distributed to City planning staff.

Action F1.2: Collaborate with other jurisdictions within the DWSMA to identify land use changes outside the City limits.

Who:	City Staff
Cooperators:	City of Minnetonka, City of Woodland, City of Wayzata, City of St. Louis Park, and City of Edina
Time Frame:	First year following the adoption of this plan
Estimated Cost:	$500
Goal Achieved:	Goal 4: Continue to collect data to support wellhead and source water protection
How:	Set up conference call as well as distribute copies of this Plan to other jurisdictions within the DWSMA. Review and comment on land use plans and activities outside city boundaries.

G. Implementation

Objective G1: Track and report completed WHP activities.

Action G1: Organize and file completed WHP activities in the City's WHP 3-ring binder.

Who:	City Staff
Cooperators:	Consultant
Time Frame:	Annually following the adoption of this Plan.
Estimated Cost:	$500 each year
Goal Achieved:	Goal 4: Continue to collect data to support wellhead and source water protection.
How:	Update WHP records of completed implementation activities within the WHP 3-ring binder.

H. Evaluation

Objective H1: Evaluate Plan

Action H1: Complete an evaluation report every 2.5 years.

Who:	City Staff
Cooperators:	Consultant
Time Frame:	Every 2.5 years following the adoption of this Plan
Estimated Cost:	$2,000 per evaluation
Goal Achieved:	Goal 1: Work to maintain or improve the current level of water quality; Goal 2: Work to continue to supply sufficient water quantity; Goal 3: Provide and promote activities that protect the source water aquifer.
How:	Prepare a written evaluation using the MDH WHP Program Evaluation form or a format selected by the City. Provide report to the MDH Source Water Protection Unit.

CHAPTER SIX

EVALUATION PROGRAM (4720.5270)

The success of the Plan must be evaluated in order to determine whether the implementation activities are accomplishing the intent of the Plan. Monitoring will be ongoing and a written evaluation of the Plan and associated activities will be conducted every two and a half years that the Plan is in effect. The evaluation activities will include the following items:

- Track the implementation of the goals, objectives, activities, and tasks discussed in **Chapter Five** of this Plan;
- Determine the effectiveness of specific management strategies regarding the protection of City's municipal water supply;
- Identify possible changes to these strategies which may improve their effectiveness; and
- Determine the adequacy of financial resources and staff availability to carry out the management strategies planned for each year.

The City will continue to coordinate with the MDH in the annual monitoring of the City's municipal water supply to determine if the management strategies presented in this Plan are having an impact on water quality. In addition, water quality problems that may still be occurring will be identified.

At the end of each evaluation period (every two and a half years) City staff will make a written report regarding progress in implementing the Plan, as well as an evaluation of the costs and benefits of the Plan activities. This report may be completed using the MDH Wellhead Protection Program Evaluation form. A copy of the report will be sent to the MDH Source Water Protection Unit in St. Paul. The City will also keep a copy of the report in its records. The intent of the evaluation is to compile a complete and comprehensive study of the implementation of the source management strategies for use when the City updates or revises this Plan. As required by the Wellhead Protection Rules, this Plan will be updated every ten years at a minimum.

CHAPTER SEVEN

ALTERNATIVE WATER SUPPLY CONTINGENCY STRATEGY (4720.5280)

A contingency plan is put into effect to establish, provide, and keep updated certain emergency response procedures and information for the public water supply, which may become vital in the event of a partial or total loss of public water supply services as a result of a natural disaster, chemical contamination, civil disorder, or human-caused disruption.

In 2009, the City completed its Water Emergency and Conservation Plan as part of its Comprehensive Plan update. As required, the plan was submitted to the MnDNR Waters-Water Permit Programs and the Metropolitan Council for review and approval. The plan has been adopted by the City and incorporated in the City's 2030 Comprehensive Plan. Copies of the Water Emergency and Conservation Plan and the 2030 Comprehensive Plan are available from the City.

APPENDIX A
Tables

Table 1: Precipitation

Month	Average Precipitation (2010 - 2015) [in]
January	0.66
February	1.21
March	1.38
April	3.47
May	5.17
June	5.46
July	5.09
August	4.14
September	2.77
October	2.18
November	1.67
December	1.77
Total	34.97

Data from Minnesota Climatology Working Group

http://www.dnr.state.mn.us/climate/historical/acis_stn_meta.html

Table 2 - Potential Contaminant Source Inventory

Figure ID	Parcel ID	Owner Name	Address	City	Zip Code	Activity	PCS Code	Material Code	Status	MPCA ID	Total	Vulnerability
1	2411722430236	KLODT DEVELOPMENT LLC	815 1st Ave S	Hopkins	55343	Petroleum Brownfield	PCS	BMS	I	4090	1	Moderate
2	211722230053	MORRIE'S PROPERTIES LLC	12550 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	A	2434	1	Moderate
3	2411722440055	SOO LINE RR	3rd Ave S & 3rd St S	Minneapolis	0	Leak Site	LUST	F000	I	4055	1	Moderate
4	2411722430186	JOCELYN M ANDRES	704-724 Main St & 15 - 8th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP16130	1	Moderate
5	1311722420245	OAKRIDGE MANOR (CO-OP)	3412 Oak Ridge Rd	Minnetonka	55305	Tank Site	UST	F000	A	18983	1	Moderate
6	1211722340101	Greenbier Condo	10531 Cedar Lake Rd	Minnetonka	55305	Tank Site	UST	F000	A	14321	6	Moderate
7	1211722340251	ELENA ALEX LUCHANSKAYA	10401 Cedar Lake Rd	Minnetonka	55305	Leak Site	LUST	F000	I	11686	1	Moderate
8	1211722420026	JOHN M HILBELINK	10301 Cedar Lake Rd	Minnetonka	55305	Tank Site	UST	F000	A	17266	1	Moderate
9	1511722140010	ST DAVID'S CENTER	3395 Plymouth Rd	Minnetonka	55305	Tank Site	UST	F000	I	3095	1	Moderate
10	1511722240031	Bollig & Sons Inc	11401 County Road 3	Minnetonka	55343	Tank Site	UST	F000	R	11119	7	Moderate
11	1511722410006	Minnetonka Mills Investors LLC	12924, 12934, & 12940 Minnetonka Bl	Minnetonka	55305	Voluntary Investigation & Cleanup	PCS	VIC	A	VP32790	1	Moderate
12	1511722410051	Kraig A Lungstrom	13008 Minnetonka Blvd	Minnetonka	55305	Leak Site	LUST	F000	I	1648	1	Moderate
13	1511722410062	Glenn Seutter	12908 Minnetonka Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	3034	1	Moderate
14	1511722420050	JOANN HAUGEN	13314 Invernes Rd	Minnetonka	55305	Leak Site	LUST	F000	I	14375	1	Moderate
15	1611722310015	City of Minnetonka	11522 Minnetonka Blvd	Minnetonka	55305	Voluntary Investigation & Cleanup	PCS	VIC	I	VP1490	1	Moderate
16	1611722330009	WILLIAM O MARUSKA	3739 Tonkawood Rd	Minnetonka	55345	Tank Site	UST	F000	I	19957	1	Moderate
17	1611722340002	MINCO REALTY PARTNERS LLC	15305 Minnetonka Blvd	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP12930	1	Moderate
18	1611722340002	MINCO REALTY PARTNERS LLC	15225 Minnetonka Boulevard	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP0075	1	Moderate
19	1611722410003	City of Minnetonka	14600 Minnetonka Blvd	Minnetonka	55345	Tank Site	UST	F000	R	2488	1	Moderate
20	1611722410003	City of Minnetonka	14550 Minnetonka Blvd	Minnetonka	55345	Tank Site	UST	F000	R	17258	1	Moderate
21	1611722420003	MINN CONF OF 7TH ADV	3500 Williston Rd	Minnetonka	55345	Leak Site	LUST	F000	A	19212	1	Moderate
22	1611722430010	A M MINNESOTA FUNDING CO INC	See location description	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	A	VP15280	1	Moderate
23	1611722430010	A M MINNESOTA FUNDING CO INC	See location description	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP0073	1	Moderate
24	1611722430011	CCI-B MINNETONKA LLC	15000 Minnetonka Industrial Blvd	Minnetonka	55345	Superfund Project	PCS	PLP	A	SR177	1	Moderate
25	1611722430011	CCI-B MINNETONKA LLC	See location description	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP0071	1	Moderate
26	1611722430011	Honeywell International Inc	15102 Minnetonka Industrial Rd	Minnetonka	55345	Tank Site	UST	C000	R	2365	3	Moderate
27	1611722430014	CREEKWOOD INVESTMENTS LLC	15115 Minnetonka Industrial Rd	Minnetonka	55345	Tank Site	AST	F000	A	55134	9	Moderate
28	1611722430014	CREEKWOOD INVESTMENTS LLC	See location description	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP0076	1	Moderate
29	1611722430014	CREEKWOOD INVESTMENTS LLC	15115 Minnetonka Boulevard	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP0072	1	Moderate
30	1611722430018	A M MINNESOTA FUNDING CO INC	See location description	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP22150	1	Moderate
31	1811721340011	BP	8900 Highway 7	St. Louis Park	55426	Tank Site	UST	F000	C	16033	1	Moderate
32	1811721430002	Bridgestone Firestone Inc	8530 W Highway 7	St. Louis Park	55426	Leak Site	LUST	F000	C	9466	1	Moderate
33	1811721430002	LINDSAY-KNOLLWOOD 2 LLC	8500 W 37th St	St. Louis Park	55426	Leak Site	LUST	F000	I	6174	1	Moderate
34	1811721430028	Kohl's Corp	8440 Highway 7	St. Louis Park	55426	Leak Site	LUST	F000	C	5726	1	Moderate
35	1811721430037	Mister Car Wash	8650 Highway 7	St. Louis Park	55426	Leak Site	LUST	F000	C	17776	1	Moderate
36	1911721120018	Metropolitan Council	1131 NE Lake St	Hopkins	55343	Leak Site	LUST	F000	C	1249	1	Moderate
37	1911721120023	HOLIDAY STATIONSTORES INC	530 Blake Rd N	Hopkins	55343	Leak Site	LUST	F000	C	17907	1	Moderate
38	1911721130008	SECOND STREET STATION LLC	1005 1015 1121 2nd St NE	Hopkins	55343	Tank Site	UST	F000	I	121742	2	Moderate
39	1911721210008	RAMSGATE APARTMENTS LLC	700 Cambridge St	Hopkins	55343	Leak Site	LUST	F000	I	8321	1	Moderate
40	1911721210008	RAMSGATE APARTMENTS LLC	725 NE Lake St	Hopkins	55343	Leak Site	LUST	F000	I	8323	1	Moderate
41	1911721210008	RAMSGATE APARTMENTS LLC	725 NE Lake St	Hopkins	55343	Tank Site	UST	F000	A	2206	6	Moderate
42	1911721210009	AUBURN LIMITED PARTNERSHIP	421 N Van Buren	Hopkins	55343	Leak Site	LUST	F000	I	8274	1	Moderate
43	1911721210009	AUBURN LIMITED PARTNERSHIP	421 S Van Buren	Hopkins	55343	Leak Site	LUST	F000	I	3619	1	Moderate
44	1911721240244	Alliant Integrated Defense Co LLC	600 2nd St NE	Hopkins	55343	Hazardous Waste	PCS	CERCL	I	MND001970334	1	Moderate
45	1911721240244	Northern States Power a MN Corp dba Xcel	600 2nd St NE	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP15660	1	Moderate
46	1911721310002	HENN CTY REGIONAL RR AUTH	SE Quadrant	Hopkins	55343	Tank Site	UST	F000	R	19272	1	Moderate
47	1911721310017	Precious Metal Plasters Inc	149 Jackson Ave N	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP8700	1	Moderate
48	1911721310058	HOPKINS MAINSTREET II LLC	802 Saint Louis St	Hopkins	55343	Leak Site	LUST	F000	I	3625	1	Moderate
49	1911721310058	HOPKINS MAINSTREET II LLC	802 Saint Louis St	Hopkins	55343	Tank Site	UST	F000	R	14374	1	Moderate
50	1911721310058	Citrus Systems Inc	125 Jackson Ave N	Hopkins	55343	Tank Site	AST	C000	C	125398	1	Moderate
51	1911721320033	COLFIN MIDWEST NNN INV LLC	See location description	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP21590	1	Moderate
52	1911721320033	COLFIN MIDWEST NNN INV LLC	8971 Excelsior Blvd	Hopkins	55343	Leak Site	LUST	F000	I	13426	1	Moderate
53	1911721320033	COLFIN MIDWEST NNN INV LLC	Highway 169 & Excelsior Blvd	Hopkins	55343	Leak Site	LUST	F000	I	13157	1	Moderate
54	1911721330027	SUPER VALU INC	101 Jefferson Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	A	VP32550	1	Moderate
55	1911721330027	SUPER VALU STORES INC	Highway 169 & Excelsior Blvd	Hopkins	55343	Leak Site	LUST	F000	I	8473	1	Moderate
56	1911721340140	ISD 270	125 Monroe Ave S	Hopkins	55343	Tank Site	UST	F000	R	3096	1	Moderate
57	2111722110075	DIANE BLAU/EUGENE DABROWSKI	3909 Williston Rd	Minnetonka	55345	Tank Site	UST	F000	R	14291	1	Moderate
58	2111722430035	Youngstedt Inc	15114 Highway 7	Minnetonka	55345	Leak Site	LUST	F000	C	7764	1	Moderate
59	2111722430055	Youngstedt Auto Service	14950 Highway 7	Minnetonka	55345	Leak Site	LUST	F000	C	8894	1	Moderate
60	2111722430066	Oasis Market	14820 Highway 7	Minnetonka	55345	Tank Site	UST	F000	R	2631	6	Moderate
61	2211722120009	ISD 270	3830 Baker Rd	Minnetonka	55305	Leak Site	LUST	F000	C	7434	1	Moderate
62	2211722430023	RB Broadway Development Group	4400 Baker Rd	Minnetonka	55343	Leak Site	LUST	F000	C	16933	1	Moderate
63	2311722110004	CROIX OIL COMPANY	3864 Hopkins Crossroads	Minnetonka	55305	Leak Site	LUST	F000	C	6565	1	Moderate
64	2311722110009	Hopkins Motors LLC/Town & Country Dodge	1710 Highway 7	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	C	VP23770	1	Moderate
65	2311722410102	RHONDA LEE BENGTSON	2011 Main St	Hopkins	55343	Tank Site	UST	F000	A	3197	1	Moderate
66	2311722410102	RHONDA LEE BENGTSON	2021 Mainstreet	Hopkins	55343	Leak Site	LUST	F000	I	2293	1	Moderate
67	2311722410135	1821 MAINSTREET LLC	1821 Main St	Hopkins	55343	Tank Site	UST	F000	R	3106	2	Moderate
68	2311722410157	Dale Feste Automotive Inc	1801 Main St	Hopkins	55343	Leak Site	LUST	F000	I	1638	1	Moderate
69	2311722430002	Conoco 23314	4548 Shady Oak Rd	Minnetonka	55343	Voluntary Investigation & Cleanup	PCS	F000	I	VP10130	1	Moderate
70	2311722430002	ERICKSON OIL PRODUCTS INC	4548 Shady Oak Rd	Minnetonka	55343	Leak Site	LUST	F000	I	11477	1	Moderate
71	2311722430003	LEANDER J & JULIA O MASON	4540 Shady Oak Rd	Minnetonka	55343	Voluntary Investigation & Cleanup	PCS	VIC	A	VP31610	1	Moderate
72	2311722430016	Dorholt Inc	20 Shady Oak Rd	Hopkins	55343	Petroleum Brownfield	PCS	BMS	I	4495	1	Moderate
73	2311722430017	Syndicate Sales	24 Shady Oak Rd	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	A	VP30880	1	Moderate
74	2311722430022	Mokabaka Development	108, 112, and 120 Shady Oak Rd	Hopkins	55343	Petroleum Brownfield	PCS	BMS	I	4498	1	Moderate
75	2311722440011	VIOLET D TWEED	11500 Excelsior Blvd	Minnetonka	55343	Petroleum Brownfield	PCS	BMS	I	3056	1	Moderate
76	2311722440036	Tbg Properties	1702 Main St	Hopkins	55343	Leak Site	LUST	F000	I	14951	1	Moderate
77	2311722440160	G P PATTERSON & S PATTERSON	11524 Excelsior Blvd	Minnetonka	55343	Leak Site	LUST	F000	I	13922	1	Moderate
78	2311722440160	G P PATTERSON & S PATTERSON	11500 Excelsior Blvd	Minnetonka	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP12110	1	Moderate
79	2411722120002	SELA INVESTMENTS LTD LLP	640 Oak Ridge Rd	Hopkins	55305	Tank Site	UST	F000	R	126165	1	Moderate
80	2411722120006	GETHSEMANE EV LTH CH HOPKINS	715 Minnetonka Mills Rd	Hopkins	55343	Tank Site	UST	F000	R	18149	2	Moderate
81	2411722120007	ROSEWOOD WEST	460 5th Ave N	Hopkins	55343	Tank Site	UST	F000	A	20001	1	Moderate
82	2411722120010	IND SCHOOL DIST NO 274	801 Minnetonka Mills Rd	Hopkins	55343	Tank Site	UST	F000	R	3087	1	Moderate
83	2411722120013	KOREAN EVANGELICAL UN METH C	717 Highway 7	Hopkins	55305	Leak Site	LUST	F000	I	3229	1	Moderate
84	2411722130004	Augustana HealthCare Center	615 Minnetonka Mills Rd	Hopkins	55343	Tank Site	UST	F000	R	2993	2	Moderate
85	2411722130089	CHURCH OF THE CROSS	201 9th Ave N	Hopkins	55343	Tank Site	UST	F000	R	125014	1	Moderate
86	2411722210033	ISD 270	1001 Highway 7	Hopkins	55305	Leak Site	LUST	F000	I	1035	1	Moderate
87	2411722220007	Troy Mathwig Development Co	1501 Highway 7	Hopkins	55305	Leak Site	LUST	F000	C	7039	1	Moderate
88	2411722220025	CITY CENTER VENTURES LLC	415 17th Ave N	Hopkins	55343	Leak Site	LUST	F000	I	17053	1	Moderate
89	2411722220025	Ray Johnson	415 17th Ave N	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP24041	1	Moderate
90	2411722220025	Ray Johnson	415 17th Ave N	Hopkins	55343	Tank Site	UST	F000	R	1807	1	Moderate
91	2411722220073	Crossroads Union 76	1675 Highway 7	Hopkins	55305	Leak Site	LUST	F000	I	12413	1	Moderate
92	2411722310059	J & L Tire And Auto	1201 Main St	Hopkins	55343	Tank Site	UST	F000	R	18877	1	Moderate
93	2411722310131	Qwest Corp dba CenturyLink QC	10 11th Ave N	Hopkins	55343	Tank Site	UST	F000	R	2831	1	Moderate
94	2411722310142	Metropolitan Corp	1100 Mainstreet	Hopkins	55343	Leak Site	LUST	F000	I	7191	1	Moderate
95	2411722310142	CITY OF HOPKINS	11th & Main	Hopkins	0	Leak Site	LUST	F000	I	14393	1	Moderate
96	2411722320056	Hopkins Auto Service	1701 Main St	Hopkins	55343	Tank Site	UST	F000	R	10182	6	Moderate
97	2411722320074	Unknown	CSAH 3 between 9th Ave	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP9860	1	Moderate
98	2411722320101	Jeffs Auto Service	1505 Mainstreet	Hopkins	55343	Tank Site	UST	F000	R	21319	2	Moderate
99	2411722320131	City of Hopkins	33 14th Ave N	Hopkins	55343	Tank Site	UST	F000	R	2285	1	Moderate
100	2411722330003	TWIN CITY DEVELOPMENT INC	1404-1432 Mainstreet	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP22270	1	Moderate
101	2411722330004	Hennepin County Transportation Dept	Excelsior Blvd	Hopkins	55343	Petroleum Brownfield	PCS	BMS	I	2811	1	Moderate
102	2411722330005	CITY OF HOPKINS	11001 Excelsior Blvd	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP2011	1	Moderate
103	2411722330005	CITY OF HOPKINS	11100 Excelsior Blvd	Hopkins	55343	Tank Site	UST	F000	R	2286	2	Moderate
104	2411722330012	ISD 270	1600 Main St	Hopkins	55343	Tank Site	UST	F000	A	3092	1	Moderate
105	2411722340003	Jiffy Lube	10410 Excelsior Blvd	Hopkins	55343	Tank Site	UST	F000	R	10185	3	Moderate

Figure ID	Parcel ID	Owner Name	Address	City	Zip Code	Activity	PCS Code	Material Code	Status	MPCA ID	Total	Vulnerability
106	2411722340004	HOPKINS AUTO MALL LLC	525 Excelsior Ave SW	Hopkins	55343	Tank Site	UST	F000	R	1748	6	Moderate
107	2411722340004	HOPKINS AUTO MALL LLC	10417 Excelsior Boulevard	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP10610	1	Moderate
108	2411722340006	UNITED STATES POSTAL SERVICE	910 1st S	Hopkins	55343	Leak Site	LUST	F000	I	4638	1	Moderate
109	2411722340045	Cemstone	70 10th Ave S	Hopkins	55343	Leak Site	LUST	F000	I	5914	1	Moderate
110	2411722340093	NOMA & POPS LLC	1300 2nd St S	Hopkins	55343	Tank Site	UST	F000	R	13064	1	Moderate
111	2411722340103	NIKI MOELLER/SCOTT M MOELLER	1144 7th St	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP2310	1	Moderate
112	2411722340105	J M CLASSON & W S CLASSON TR	1027 2nd St S	Hopkins	55343	Tank Site	UST	F000	R	11389	1	Moderate
113	2411722340105	Midwest Management Inc	1015 2nd St S	Hopkins	55434	Leak Site	LUST	F000	C	9032	1	Moderate
114	2411722340129	CITY OF HOPKINS	1010 1st St S	Hopkins	55343	Leak Site	LUST	F000	C	1143	1	Moderate
115	2411722410003	THE LUTHER COMPANY LLLP	499 Mainstreet	Hopkins	55343	Leak Site	LUST	F000	C	18951	1	Moderate
116	2411722410003	THE LUTHER COMPANY LLLP	314 Main St	Hopkins	55343	Tank Site	UST	F000	R	2271	5	Moderate
117	2411722410003	THE LUTHER COMPANY LLLP	36 5th Ave N	Hopkins	55343	Leak Site	LUST	F000	I	9782	1	Moderate
118	2411722420009	Hopkins Doran LLC	501 Mainstreet	Hopkins	55343	Leak Site	LUST	F000	C	19153	1	Moderate
119	2411722420017	HSG/REDEVE AUTH CITY HOPKINS	See location description	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP23061	1	Moderate
120	2411722420065	CITY OF HOPKINS	5th and Main St	Hopkins	55343	Petroleum Brownfield	PCS	BMS	I	3673	1	Moderate
121	2411722420074	Snyder Drug Inc - Corporate Office	15 9th Ave N	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	A	VP31470	1	Moderate
122	2411722420166	HSG & RDVLPT ATHY HOPKINS	See location description	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP23060	1	Moderate
123	2411722420166	HSG & RDVLPT ATHY HOPKINS	525 W Main St	Hopkins	55343	Petroleum Brownfield	PCS	BMS	I	4775	1	Moderate
124	2411722420172	myHealth for Teens and Young Adults	15 8th Ave S	Hopkins	55343	Tank Site	UST	F000	R	18150	1	Moderate
125	2411722420173	MARKETPLACE HOLDINGS INC	701 Mainstreet	Hopkins	55343	Leak Site	LUST	F000	C	11927	1	Moderate
126	2411722430143	E & E MAXWELL	5 S 6th Ave	Hopkins	55343	Tank Site	UST	F000	R	11383	3	Moderate
127	2411722430151	5501 BUILDING COMPANY	215 E Excelsior Blvd	Hopkins	55343	Leak Site	LUST	F000	I	574	1	Moderate
128	2411722430151	SUPERVALUE INC	215 E Excelsior Ave	Hopkins	55343	Leak Site	LUST	F000	C	9739	1	Moderate
129	2411722430151	Stonebridge Construction Inc.	611 & 701 Mainstreet	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP21691	1	Moderate
130	2411722430154	THE LUTHER COMPANY LLLP	704 & 706 Main St	Hopkins	55343	Leak Site	LUST	F000	I	14952	1	Moderate
131	2411722440003	WALSER REAL ESTATE LLLC	450 Main St	Hopkins	55343	Leak Site	LUST	F000	I	14421	1	Moderate
132	2411722440003	WALSER REAL ESTATE LLLC	426 Main St	Hopkins	55343	Tank Site	UST	F000	R	2135	1	Moderate
133	2411722440046	THE LUTHER COMPANY LLLP	201 3rd St S	Hopkins	55343	Tank Site	UST	F000	R	123275	1	Moderate
134	2411722440050	HENN COUNTY REGIONAL RR AUTH	250 5th Ave S	Hopkins	0	Voluntary Investigation & Cleanup	PCS	VIC	I	VP16160	1	Moderate
135	2411722440050	The Luther Co Ltd Partnership	250 5th Ave S	Hopkins	55434	Leak Site	LUST	F000	I	14893	1	Moderate
136	2511722110003	Hennepin County Property Services	320 Washington Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP9940	1	Moderate
137	2511722110003	Hennepin County Property Services	320 Washington Ave S	Hopkins	55343	Petroleum Brownfield	PCS	BMS	I	2814	1	Moderate
138	2511722110003	SUPERVALUE INC	509 2nd Ave S	Hopkins	55343	Leak Site	LUST	F000	I	605	1	Moderate
139	2511722120003	Hopkins Car Care Center Ltd	404 Main St	Hopkins	55343	Leak Site	LUST	F000	C	7700	1	Moderate
140	2511722120013	THE LUTHER COMPANY LTD PTRSH	btwn 5th Ave & 11th Ave S	Hopkins	0	Voluntary Investigation & Cleanup	PCS	VIC	I	VP16640	1	Moderate
141	2511722120013	THE LUTHER COMPANY LTD PTRSH	Excelsior Blvd	Hopkins	0	Leak Site	LUST	F000	I	229	1	Moderate
142	2511722130118	HINES REIT MPLS IND LLC	801 6th Ave S	Hopkins	55343	Leak Site	LUST	F000	I	4936	1	Moderate
143	2511722140125	2075 FORD PARKWAY LLC	601 2nd Ave S	Hopkins	55343	Tank Site	UST	F000	R	2015	2	Moderate
144	2511722140127	CREEK VALLEY PROPERTIES LLC	509 2nd Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	F000	I	VP3580	1	Moderate
145	2511722210005	UGORETS 410 LLC	410 11th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP11741	1	Moderate
146	2511722210005	Hopkins Eleventh Avenue LLC	410 11th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	F000	I	VP111740	1	Moderate
147	2511722210023	DUKE REALTY LTD PARTNERSHIP	401 11th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP6670	1	Moderate
148	2511722210023	Lathrop Spray Division	401 11th Ave S	Hopkins	55343	Leak Site	LUST	F000	I	9075	1	Moderate
149	2511722210023	Citrus Systems Inc	415 11th Ave S	Hopkins	55343	Tank Site	UST	C000	A	11929	1	Moderate
150	2511722210024	Holiday Companies Inc	300 11th Ave S	Hopkins	55343	Leak Site	LUST	F000	C	5093	1	Moderate
151	2511722210025	JUSTUS LUMBER CO	330 11th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP9720	1	Moderate
152	2511722220004	VENTURIAN PLACE LLC	1600 2nd St S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP2010	1	Moderate
153	2511722220005	HOPKINS TECH CANTER LLC	1620 S 2nd St	Hopkins	55343	Leak Site	LUST	F000	I	7950	1	Moderate
154	2511722220008	Thermotech Inc	1302 5th St S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP21771	1	Moderate
155	2511722220012	Unknown	1600 2nd St S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP1973	1	Moderate
156	2511722220012	STIELE & BAKKEN INVEST LLC	10921 Excelsior Blvd	Hopkins	55343	Tank Site	UST	F000	R	19422	2	Moderate
157	2511722220012	STIELE & BAKKEN INVEST LLC	1300 Excelsior Blvd	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP1972	1	Moderate
158	2511722230028	1321 7TH ST LLC	1321 7th St S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	A	VP30340	1	Moderate
159	2511722230029	Barber Construction Co Inc - Shop	635 14th Ave S	Hopkins	55343	Leak Site	LUST	F000	C	8459	1	Moderate
160	2511722230045	ARI	560 16th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP13090	1	Moderate
161	2511722230046	UMI REAL ESTATE INC	See location description	Hopkins	55305	Voluntary Investigation & Cleanup	PCS	VIC	I	VP22170	1	Moderate
162	2511722240027	Autotech Inc	1215 7th St S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	A	VP27860	1	Moderate
163	2511722240028	Etchit Inc	643 13th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP18391	1	Moderate
164	2511722240039	D&R REAL ESTATE INVMT GROUP	632 11th Ave S	Hopkins	55343	Tank Site	UST	F000	R	2167	1	Moderate
165	2511722240044	Murphy Oil Usa Inc	602 E Excelsior Blvd	Hopkins	55343	Leak Site	LUST	F000	I	3311	1	Moderate
166	2511722240077	TRJ Dry Cleaning dba Ivy Cleaners	612 11th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP21950	1	Moderate
167	2511722310699	RABIE YOUSFI	1120 7th St S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP13880	1	Moderate
168	2611722110001	HOPKINS TECH CENTER LLC	1620 S 2nd St	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP2070	1	Moderate
169	2611722110002	RADER FAMILY PARTNERSHIP LP	11303 Excelsior Blvd	Hopkins	55343	Tank Site	UST	F000	A	11121	6	Moderate
170	2611722110025	ROTH CORPORATION	11300 W 47th St	Minnetonka	55343	Petroleum Brownfield	PCS	BMS	I	3579	1	Moderate
171	2611722110026	THE SIERRA CORPORATION	11401 47th St W	Minnetonka	55343	Tank Site	AST	F000	A	54723	17	Moderate
172	2611722110031	Sierra Corp	11400 47th St W	Minnetonka	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP5570	1	Moderate
173	2611722110035	STONEYBROOK INVESTMENTS LLC	11421 W 47th St	Minnetonka	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP2930	1	Moderate
174	2611722140002	INTAGLIO PROP GROUP II LLC	11370 K Tel Dr	Minnetonka	55343	Tank Site	UST	F000	R	1533	1	Moderate
175	2611722140003	INTAGLIO PROP GRP II, LLC	11400 K Tel Dr	Minnetonka	55343	Leak Site	LUST	F000	I	5903	1	Moderate
176	2611722140013	NAPCO INTERNATIONAL INC	11545 Encore Circle	Minnetonka	0	Tank Site	AST	F000	R	19626	1	Moderate
177	2611722210064	FAITH PRESB CHURCH OF MTKA	12007 Excelsior Blvd	Minnetonka	55343	Leak Site	LUST	F000	I	4673	1	Moderate
178	211722310004	Carson Pirie Scott - Ridgedale	12441 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	8183	1	Moderate
179	211722320002	Sinclair Ridgedale Station	12415 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	18933	1	Moderate
180	211722320002	JC Penney Corp Inc	12421 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	A	15322	1	Moderate
181	211722320003	General Growth Properties Inc	12401 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	7839	1	Moderate
182	211722330001	Macy's North Division of Macy's Retail	12411 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	5894	1	Moderate
183	211722330001	Firestone	12425 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	6382	1	Moderate
184	211722330004	HENNEPIN COUNTY	1260 Ridgedale Dr	Minnetonka	55305	Tank Site	UST	F000	A	20790	1	Moderate
185	211722340006	SEARS ROEBUCK AND CO	124314 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	I	10150	1	Moderate
186	211722340006	SEARS ROEBUCK AND CO	12431 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	7049	1	Moderate
187	311722130052	D SEARS & E SEARS CO-TRSTES	13500 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	16357	1	Moderate
188	311722130053	Morries Minnetonka Ford	13400 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	6611	1	Moderate
189	311722140059	S & B HENDRICKSON	12812 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	696	1	Moderate
190	311722240002	Minnetonka Motor Car Sales Inc	13700 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	R	2435	3	Moderate
191	311722240004	D & M 55TH STREET LLC	13820 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	12633	1	Moderate
192	311722410011	RIDGEHAVEN MALL INC	13513 Ridgehaven Dr	Minnetonka	55305	Voluntary Investigation & Cleanup	PCS	VIC	I	VP9440	1	Moderate
193	411722130004	CARLSON REAL ESTATE CO	801 Carlson Pkwy	Minnetonka	55305	Petroleum Brownfield	PCS	BMS	I	3707	1	Moderate
194	411722240015	CLS PROPERTIES IV LLC	15320 Wayzata Blvd	Minnetonka	55391	Voluntary Investigation & Cleanup	PCS	VIC	A	VP27890	1	Moderate
195	411722240021	TWELVE OAKS LTD PTNRSHP	6001-1001 Twelve Oaks Center Dr	Wayzata	55391	Voluntary Investigation & Cleanup	PCS	VIC	A	VP29680	1	Moderate
196	411722420012	YUJIN HAN	1617 Liner Rd	Minnetonka	55391	Leak Site	LUST	F000	I	7525	1	Moderate
197	511722340005	ROBERT J KEITH JR	262 Bushaway Rd	Wayzata	55391	Leak Site	LUST	F000	A	17943	1	Moderate
198	511722340011	COUNTY OF HENNEPIN	500 Bushaway Rd	Wayzata	55391	Leak Site	LUST	F000	I	9365	1	Moderate
199	611722320023	BOATWORKS II LLC	294 Grove Ln	Wayzata	55391	Voluntary Investigation & Cleanup	PCS	VIC	I	VP14490	1	Moderate
200	611722320023	Wayzata Buy Management	294 E Grove Ln	Wayzata	55391	Leak Site	LUST	F000	C	8222	1	Moderate
201	811722110026	R P LARSON & A C LARSON	2030 Crosby Road	Minnetonka	55391	Leak Site	LUST	F000	I	8620	1	Moderate
202	811722230001	A M & D C MILLER	639 Bushaway Rd	Wayzata	55391	Leak Site	LUST	F000	I	9831	1	Moderate
203	811722340017	STATE OF MINNESOTA	2831 County Road 101 S	Minnetonka	55391	Leak Site	LUST	F000	I	14041	1	Moderate
204	811722340017	STATE OF MINNESOTA	2831 Highway 101	Wayzata	55391	Tank Site	AST	F000	A	20787	1	Moderate
205	811722420011	LESLYE F H PHILLIPS TRUSTEE	2602 Crosby Rd	Minnetonka	55391	Leak Site	LUST	F000	I	17853	1	Moderate
206	911722230005	CARGILL INC	2301 Crosby Rd	Minnetonka	55391	Leak Site	LUST	F000	I	5910	1	Moderate
207	911722240021	D E & K A KULICH	2460 Sheridan Hills Curve	Minnetonka	55391	Leak Site	LUST	F000	I	9724	1	Moderate
208	911722310006	GREENDALE ASSOCIATES LLC	15615 McGinty Road West	Wayzata	55391	Leak Site	LUST	F000	I	4250	1	Moderate
209	911722310006	GREENDALE ASSOCIATES LLC	15607 Mcginty Road	Minnetonka	55391	Leak Site	LUST	F000	I	5253	1	Moderate
210	911722320004	G C & N T JACKSON	15611 Mcginty Rd W	Minnetonka	55391	Leak Site	LUST	F000	I	5263	1	Moderate

Figure ID	Parcel ID	Owner Name	Address	City	Zip Code	Activity	PCS Code	Material Code	Status	MPCA ID	Total	Vulnerability
211	911722340002	GREENDALE ASSOCIATES LLC	15407 Mcginty Rd W	Wayzata	55391	Leak Site	LUST	F000	I	6599	1	Moderate
212	1111722110049	OMEGON INC	2000 Hopkins Crossroads	Minnetonka	55305	Leak Site	LUST	F000	I	5315	1	Moderate
213	1111722210061	Charles Berry	2001 Dwight Ln	Minnetonka	55305	Leak Site	LUST	F000	I	13427	1	Moderate
214	1111722240014	M C MYERS & G S MYERS	12117 Hilloway Rd	Minnetonka	55305	Leak Site	LUST	F000	I	17272	1	Moderate
215	1111722420022	STEPHEN L & NANCY G GORDON	2551 Mayflower Ave	Minnetonka	55305	Leak Site	LUST	F000	I	7397	1	Moderate
216	1111722440014	Hedberg & Sons Co	11303 W Cedar Lake Rd	Minnetonka	55305	Leak Site	LUST	F000	I	7273	1	Moderate
217	1211722240004	ISD 270	2400 Lindbergh Dr	Minnetonka	55305	Tank Site	UST	F000	A	3090	1	Moderate
218	1211722240006	ISD 270	10901 Hillside Ln	Minnetonka	55305	Leak Site	LUST	F000	I	7645	1	Moderate
219	1211722240006	SCHOOL DISTRICT NO 270	10700 Cedar Lake Rd	Minnetonka	55305	Tank Site	UST	F000	A	3089	1	Moderate
220	1211722330001	A JAMES SPIELMANN	2711 Hopkins Crossroad	Minnetonka	55305	Leak Site	LUST	F000	I	1890	1	Moderate
221	1211722330001	A JAMES SPIELMANN	Ceder Lake & Hopkins Crosswood	Minnetonka	55305	Voluntary Investigation & Cleanup	PCS	VIC	I	VP4300	1	Moderate
222	1211722330003	HOLIDAY STATIONSTORES INC	2801 Hopkins Crossroad	Minnetonka	55305	Leak Site	LUST	F000	I	8871	1	Moderate
223	1211722330006	ACKY-MINNETONKA LTD PRTSHP	2863 Hedberg Dr	Minnetonka	55305	Petroleum Brownfield	PCS	BMS	I	3071	1	Moderate
224	1211722420221	CEDAR RIDGE CONDO ASSOC	10201 Cedar Lake Rd	Minnetonka	0	Tank Site	UST	F000	R	15159	2	Moderate
225	1211722420221	CEDAR RIDGE CONDO ASSOC	10311 Cedar Lake Rd	Minnetonka	0	Leak Site	LUST	F000	I	8812	1	Moderate
226	1211722420223	SELA INVTMTS-CEDAR RIDGE LLC	10101 Cedar Lake Rd	Minnetonka	55305	Tank Site	UST	F000	I	15161	1	Moderate
227	1211722420223	SELA INVTMTS-CEDAR RIDGE LLC	10211 Cedar Lake Rd	Minnetonka	55305	Tank Site	UST	F000	A	17268	1	Moderate
228	1211722420224	Cedar Ridge Of Minnetonka Apts	10111 Cedar Lake Rd	Minnetonka	55305	Leak Site	LUST	F000	I	9861	1	Moderate
229	1311722140005	CITY OF MINNETONKA	10000 Minnetonka Blvd	Minnetonka	0	Leak Site	LUST	F000	I	566	1	Moderate
230	1311722140011	Boulevard Sinclair	9800 Minnetonka Blvd	Minnetonka	55305	Leak Site	LUST	F000	I	4273	1	Moderate
231	1311722220021	AGCO INC	2823 Hedberg Dr	Minnetonka	55305	Tank Site	UST	F000	R	1458	1	Moderate
232	1311722310002	OAK RIDGE COUNTRY CLUB	700 Oak Ridge Rd	Hopkins	55305	Leak Site	LUST	F000	I	12014	1	Moderate
233	1411722240005	GCC PROPERTY MANAGEMENT LLC	12201 Minnetonka Blvd	Minnetonka	55305	Tank Site	UST	F000	R	2772	7	Moderate
234	2711722110069	Carworks Auto Care Inc	13125 Excelsior Blvd	Minnetonka	55343	Leak Site	LUST	F000	I	4155	1	Moderate
235	2711722110076	BAUER CAPITAL CORPORATION	13118 Excelsior Blvd	Minnetonka	55343	Leak Site	LUST	F000	I	8205	1	Moderate
236	2411722430236	KLODT DEVELOPMENT LLC	815 1st Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	A	VP28110	1	Moderate
237	211722230053	MORRIE'S PROPERTIES LLC	12550 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	A	2434	3	Moderate
238	1511722240031	Bollig & Sons Inc	11401 County Road 3	Minnetonka	55343	Tank Site	UST	F000	A	11119	2	Moderate
239	1511722410006	Minnetonka Mills Investors LLC	12924, 12934, & 12940 Minnetonka Bl	Minnetonka	55305	Petroleum Brownfield	PCS	BMS	I	4822	1	Moderate
240	1511722410051	TONKA MILLS HOLDINGS LLC	13008 Minnetonka Blvd	Minnetonka	55305	Tank Site	UST	F000	A	2816	4	Moderate
241	1511722410051	TONKA MILLS HOLDINGS LLC	13008 Minnetonka Blvd	Minnetonka	55305	Tank Site	UST	F000	R	2816	9	Moderate
242	1511722410051	TONKA MILLS HOLDINGS LLC	13008 Minnetonka Blvd	Minnetonka	55305	Tank Site	UST	F000	C	2816	1	Moderate
243	1511722410062	Glenn Seutter	12908 Minnetonka Blvd	Minnetonka	55305	Tank Site	UST	F000	A	1827	3	Moderate
244	1511722410062	Glenn Seutter	12908 Minnetonka Blvd	Minnetonka	55305	Tank Site	UST	F000	A	1827	4	Moderate
245	1611722310015	City of Minnetonka	11522 Minnetonka Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	3736	1	Moderate
246	1611722310015	City of Minnetonka	11522 Minnetonka Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	10814	1	Moderate
247	1611722310015	City of Minnetonka	11522 Minnetonka Blvd	Minnetonka	55305	Tank Site	UST	F000	R	2491	5	Moderate
248	1611722310015	City of Minnetonka	11522 Minnetonka Blvd	Minnetonka	55305	Tank Site	AST	F000	A	2491	3	Moderate
249	1611722410003	City of Minnetonka	14550 Minnetonka Blvd	Minnetonka	55345	Tank Site	UST	F000	C	17258	1	Moderate
250	1611722420003	MINN CONF OF 7TH ADV	3500 Williston Rd	Minnetonka	55345	Tank Site	UST	F000	R	124191	1	Moderate
251	1611722430010	A M MINNESOTA FUNDING CO INC	See location description	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	A	VP15281	1	Moderate
252	1611722430011	Honeywell International Inc	15102 Minnetonka Industrial Rd	Minnetonka	55345	Tank Site	AST	F000	R	2365	2	Moderate
253	1811721340011	BP	8900 Highway 7	St. Louis Park	55426	Tank Site	UST	F000	R	2936	1	Moderate
254	1811721430002	LINDSAY-KNOLLWOOD 2 LLC	8530 W Highway 7	St. Louis Park	55426	Tank Site	UST	F000	R	19705	1	Moderate
255	1811721430028	Kohl's Corp	8440 Highway 7	St. Louis Park	55426	Leak Site	LUST	F000	C	7091	1	Moderate
256	1811721430028	Kohl's Corp	8440 Highway 7	St. Louis Park	55426	Tank Site	UST	F000	R	1667	1	Moderate
257	1811721430037	Mister Car Wash	8650 Highway 7	St. Louis Park	55426	Tank Site	UST	F000	R	12716	2	Moderate
258	1911721120018	Metropolitan Council	1131 NE Lake St	Hopkins	55343	Tank Site	UST	F000	R	3077	1	Moderate
259	1911721120023	HOLIDAY STATIONSTORES INC	530 Blake Rd N	Hopkins	55343	Leak Site	LUST	F000	C	2346	1	Moderate
260	1911721120023	HOLIDAY STATIONSTORES INC	530 Blake Rd N	Hopkins	55343	Tank Site	UST	F000	A	13823	5	Moderate
261	1911721120023	HOLIDAY STATIONSTORES INC	530 Blake Rd N	Hopkins	55343	Tank Site	UST	F000	A	13823	3	Moderate
262	1911721240244	Northern States Power a MN Corp dba Xcel	600 2nd St NE	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP15661	1	Moderate
263	1911721240244	Northern States Power a MN Corp dba Xcel	600 2nd St NE	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP15662	1	Moderate
264	1911721240244	Northern States Power a MN Corp dba Xcel	600 2nd St NE	Hopkins	55343	Tank Site	AST	F000	A	124933	1	Moderate
265	1911721310017	Precious Metal Platers Inc	149 Jackson Ave N	Hopkins	55343	Tank Site	UST	F000	R	2413	2	Moderate
266	2111722430035	Youngstedt Inc	15114 Highway 7	Minnetonka	55345	Tank Site	UST	F000	R	1997	7	Moderate
267	2111722430035	Youngstedt Inc	15114 Highway 7	Minnetonka	55345	Tank Site	UST	F000	A	1997	4	Moderate
268	2111722430066	Oasis Market	14820 Highway 7	Minnetonka	55345	Leak Site	LUST	F000	C	16089	1	Moderate
269	2111722430066	Oasis Market	14820 Highway 7	Minnetonka	55345	Leak Site	LUST	F000	C	570	1	Moderate
270	2111722430066	Oasis Market	14820 Highway 7	Minnetonka	55345	Leak Site	LUST	F000	C	9900	1	Moderate
271	2211722120009	ISD 270	3830 Baker Rd	Minnetonka	55305	Tank Site	UST	F000	R	3088	2	Moderate
272	2211722120009	ISD 270	3830 Baker Rd	Minnetonka	55305	Tank Site	UST	F000	A	3088	1	Moderate
273	2211722430023	RB Broadway Development Group	4400 Baker Rd	Minnetonka	55343	Tank Site	UST	F000	R	2539	4	Moderate
274	2311722110004	CROIX OIL COMPANY	3864 Hopkins Crossroads	Minnetonka	55305	Leak Site	LUST	F000	I	6565	1	Moderate
275	2311722110009	Hopkins Motors LLC/Town & Country Dodge	1710 Highway 7	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP23770	1	Moderate
276	2311722110009	Hopkins Motors LLC/Town & Country Dodge	1710 Highway 7	Hopkins	55343	Leak Site	LUST	F000	I	5740	1	Moderate
277	1611722430011	CCI-B MINNETONKA LLC	15000 Minnetonka Industrial Blvd	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP1362	1	Moderate
278	1611722430011	CCI-B MINNETONKA LLC	15000 Minnetonka Industrial Blvd	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP1361	1	Moderate
279	1611722430011	CCI-B MINNETONKA LLC	15000 Minnetonka Industrial Blvd	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP0070	1	Moderate
280	1611722430011	CCI-B MINNETONKA LLC	15000 Minnetonka Industrial Blvd	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP1360	1	Moderate
281	1911721240244	Alliant Integrated Defense Co LLC	600 2nd St NE	Hopkins	55343	Tank Site	UST	F000	R	3062	2	Moderate
282	1911721240244	Alliant Integrated Defense Co LLC	600 2nd St NE	Hopkins	55343	Tank Site	UST	F000	C	3062	2	Moderate
283	1911721330027	SUPER VALU INC	101 Jefferson Ave S	Hopkins	55343	Leak Site	LUST	F000	I	1124	1	Moderate
284	1911721330027	SUPER VALU INC	101 Jefferson Ave S	Hopkins	55343	Leak Site	LUST	F000	I	19656	1	Moderate
285	1911721330027	SUPER VALU INC	101 Jefferson Ave S	Hopkins	55343	Tank Site	UST	F000	R	2756	12	Moderate
286	1911721330027	SUPER VALU INC	101 Jefferson Ave S	Hopkins	55343	Tank Site	UST	F000	C	2756	3	Moderate
287	1911721330027	SUPER VALU INC	101 Jefferson Ave S	Hopkins	55343	Tank Site	UST	F000	A	2756	2	Moderate
288	1911721330027	SUPER VALU INC	101 Jefferson Ave S	Hopkins	55343	Tank Site	AST	F000	A	2756	3	Moderate
289	2311722410157	Dale Feste Automotive Inc	1801 Main St	Hopkins	55343	Tank Site	UST	F000	R	1555	4	Moderate
290	2311722430002	ERICKSON OIL PRODUCTS INC	4548 Shady Oak Rd	Minnetonka	55343	Leak Site	LUST	F000	I	290	1	Moderate
291	2311722430002	ERICKSON OIL PRODUCTS INC	4548 Shady Oak Rd	Minnetonka	55343	Tank Site	UST	F000	A	1754	4	Moderate
292	2311722430002	ERICKSON OIL PRODUCTS INC	4548 Shady Oak Rd	Minnetonka	55343	Tank Site	UST	F000	R	1754	8	Moderate
293	2311722430016	Dorholt Inc	20 Shady Oak Rd	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP30870	1	Moderate
294	1911721330027	SUPER VALU INC	101 Jefferson Ave S	Hopkins	55343	Petroleum Brownfield	PCS	BMS	C	4776	1	Moderate
295	1911721240244	Alliant Integrated Defense Co LLC	600 2nd St NE	Hopkins	55343	Leak Site	LUST	F000	I	236	1	Moderate
296	2311722430017	Syndicate Sales	24 Shady Oak Rd	Hopkins	55343	Petroleum Brownfield	PCS	BMS	I	4496	1	Moderate
297	2311722430022	Mokabaka Development	108, 112, and 120 Shady Oak Rd	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP30890	1	Moderate
298	2311722440011	VIOLET D TWEED	11500 Excelsior Blvd	Minnetonka	55343	Leak Site	LUST	F000	I	8961	1	Moderate
299	2311722440036	Tbg Properties	1702 Main St	Hopkins	55343	Tank Site	UST	F000	R	1868	2	Moderate
300	2411722120002	SELA INVESTMENTS LTD LLP	640 Oak Ridge Rd	Hopkins	55305	Tank Site	UST	F000	R	13376	1	Moderate
301	2411722120002	SELA INVESTMENTS LTD LLP	640 Oak Ridge Rd	Hopkins	55305	Tank Site	UST	F000	A	13376	1	Moderate
302	2411722120002	SELA INVESTMENTS LTD LLP	640 Oak Ridge Rd	Hopkins	55305	Leak Site	LUST	F000	C	2999	1	Moderate
303	2411722120010	IND SCHOOL DIST NO 274	801 Minnetonka Mills Rd	Hopkins	55343	Tank Site	UST	F000	A	3087	1	Moderate
304	2411722120013	KOREAN EVANGELICAL UN METH C	717 Highway 7	Hopkins	55305	Tank Site	UST	F000	R	14204	1	Moderate
305	2411722130004	Augustana HealthCare Center	615 Minnetonka Mills Rd	Hopkins	55343	Tank Site	UST	F000	A	2993	1	Moderate
306	2411722130089	CHURCH OF THE CROSS	201 9th Ave N	Hopkins	55343	Leak Site	LUST	F000	C	17521	1	Moderate
307	2411722210033	ISD 270	1001 Highway 7	Hopkins	55305	Leak Site	LUST	F000	I	2280	1	Moderate
308	2411722210033	ISD 270	1001 Highway 7	Hopkins	55305	Tank Site	UST	F000	R	3094	4	Moderate
309	2411722210033	ISD 270	1001 Highway 7	Hopkins	55305	Tank Site	UST	F000	A	3094	1	Moderate
310	2411722220007	Troy Mathwig Development Co	1501 Highway 7	Hopkins	55305	Tank Site	UST	F000	R	18459	2	Moderate
311	2411722220007	Troy Mathwig Development Co	1501 Highway 7	Hopkins	55305	Tank Site	UST	F000	C	18459	2	Moderate
312	2411722220025	CITY CENTER VENTURES LLC	415 17th Ave N	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP24042	1	Moderate
313	2411722220025	Ray Johnson	415 17th Ave N	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP24040	1	Moderate
314	2411722220073	Crossroads Union 76	1675 Highway 7	Hopkins	55305	Tank Site	UST	F000	R	3162	4	Moderate
315	2411722310059	J & L Tire And Auto	1201 Main St	Hopkins	55343	Leak Site	LUST	F000	I	7794	1	Moderate

Figure ID	Parcel ID	Owner Name	Address	City	Zip Code	Activity	PCS Code	Material Code	Status	MPCA ID	Total	Vulnerability
316	2411722310131	Qwest Corp dba CenturyLink QC	10 11th Ave N	Hopkins	55343	Leak Site	LUST	F000	I	13203	1	Moderate
317	2411722310131	Qwest Corp dba CenturyLink QC	10 11th Ave N	Hopkins	55343	Tank Site	UST	F000	A	2831	1	Moderate
318	2411722320131	City of Hopkins	33 14th Ave N	Hopkins	55343	Tank Site	UST	F000	R	15191	1	Moderate
319	2411722310142	Metropolitan Corp	1100 Mainstreet	Hopkins	55434	Tank Site	UST	F000	R	1894	5	Moderate
320	2411722330004	Hennepin County Transportation Dept	Excelsior Blvd	Hopkins	55343	Leak Site	LUST	F000	I	11574	1	Moderate
321	2411722330012	ISD 270	1600 Main St	Hopkins	55343	Leak Site	LUST	F000	I	1482	1	Moderate
322	2411722330012	ISD 270	1600 Main St	Hopkins	55343	Tank Site	UST	F000	R	3092	2	Moderate
323	2411722340045	Cemstone	70 10th Ave S	Hopkins	55343	Leak Site	LUST	F000	I	2427	1	Moderate
324	2411722410003	THE LUTHER COMPANY LLLP	499 Mainstreet	Hopkins	55343	Tank Site	UST	F000	R	2610	4	Moderate
325	2411722420009	Hopkins Doran LLC	501 Mainstreet	Hopkins	55343	Leak Site	LUST	F000	C	14780	1	Moderate
326	2411722420009	Hopkins Doran LLC	501 Mainstreet	Hopkins	55343	Petroleum Brownfield	PCS	BMS	A	4772	1	Moderate
327	2411722420009	Hopkins Doran LLC	501 Mainstreet	Hopkins	55343	Tank Site	UST	F000	R	1466	7	Moderate
328	2411722420166	HSG & RDVLPT ATHY HOPKINS	525 W Main St	Hopkins	55343	Leak Site	LUST	F000	A	19626	1	Moderate
329	2411722420166	HSG & RDVLPT ATHY HOPKINS	525 W Main St	Hopkins	55343	Leak Site	LUST	F000	C	5196	1	Moderate
330	2411722420166	HSG & RDVLPT ATHY HOPKINS	525 W Main St	Hopkins	55343	Tank Site	UST	F000	R	16310	3	Moderate
331	2411722420173	MARKETPLACE HOLDINGS INC	701 Mainstreet	Hopkins	55343	Leak Site	LUST	F000	C	18667	1	Moderate
332	2411722420173	MARKETPLACE HOLDINGS INC	701 Mainstreet	Hopkins	55343	Tank Site	UST	F000	R	2611	3	Moderate
333	2411722430151	SUPERVALUE INC	215 E Excelsior Ave	Hopkins	55343	Tank Site	UST	F000	R	1669	9	Moderate
334	2411722430151	SUPERVALUE INC	215 E Excelsior Ave	Hopkins	55343	Tank Site	UST	F000	C	1669	2	Moderate
335	2411722430151	Stonebridge Construction Inc.	611 & 701 Mainstreet	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP21690	1	Moderate
336	2411722440050	The Luther Co Ltd Partnership	250 5th Ave S	Hopkins	55434	Tank Site	UST	F000	R	11386	1	Moderate
337	2411722440050	The Luther Co Ltd Partnership	250 5th Ave S	Hopkins	55434	Tank Site	AST	F000	A	124041	4	Moderate
338	2511722110003	SUPERVALUE INC	See location description	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP9941	1	Moderate
339	2511722110003	Hennepin County Property Services	320 Washington Ave S	Hopkins	55343	Leak Site	LUST	F000	C	5521	1	Moderate
340	2511722110003	Hennepin County Property Services	320 Washington Ave S	Hopkins	55343	Leak Site	LUST	F000	C	6821	1	Moderate
341	2511722110003	Hennepin County Property Services	320 Washington Ave S	Hopkins	55343	Leak Site	LUST	F000	C	11591	1	Moderate
342	2511722110003	Hennepin County Property Services	320 Washington Ave S	Hopkins	55343	Tank Site	UST	F000	R	2041	10	Moderate
343	2511722110003	Hennepin County Property Services	320 Washington Ave S	Hopkins	55343	Tank Site	UST	F000	R	2041	8	Moderate
344	2511722120003	Hopkins Car Care Center Ltd	404 Main St	Hopkins	55343	Tank Site	UST	F000	R	2444	2	Moderate
345	2511722140125	2075 FORD PARKWAY LLC	601 2nd Ave S	Hopkins	55343	Tank Site	UST	F000	A	2015	1	Moderate
346	2511722140127	CREEK VALLEY PROPERTIES LLC	509 2nd Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	F000	I	VP3581	1	Moderate
347	2511722140127	CREEK VALLEY PROPERTIES LLC	509 2nd Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	F000	I	VP3582	1	Moderate
348	2511722210023	Citrus Systems Inc	415 11th Ave S	Hopkins	55343	Tank Site	UST	C000	R	11929	8	Moderate
349	2511722210024	Holiday Companies Inc	300 11th Ave S	Hopkins	55343	Leak Site	LUST	F000	C	5093	1	Moderate
350	2511722210024	Holiday Companies Inc	300 11th Ave S	Hopkins	55343	Tank Site	UST	F000	R	5093	5	Moderate
351	2511722210025	JUSTUS LUMBER CO	330 11th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP9721	1	Moderate
352	2511722210025	JUSTUS LUMBER CO	330 11th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP9722	1	Moderate
353	2511722220008	Thermotech Inc	1302 5th St S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP21770	1	Moderate
354	2511722230045	ARI	560 16th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP13091	1	Moderate
355	2511722230045	ARI	560 16th Ave S	Hopkins	55343	Tank Site	UST	C000	R	54356	8	Moderate
356	2511722240028	Etchit Inc	643 13th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP18390	1	Moderate
357	2511722240044	Murphy Oil Usa Inc	602 E Excelsior Blvd	Hopkins	55343	Tank Site	UST	F000	R	1763	7	Moderate
358	2611722110001	HOPKINS TECH CENTER LLC	1620 S 2nd St	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP2070A	1	Moderate
359	2611722110001	HOPKINS TECH CENTER LLC	1620 S 2nd St	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP2070B	1	Moderate
360	2611722110001	HOPKINS TECH CENTER LLC	1620 S 2nd St	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP2071	1	Moderate
361	2611722110035	STONEYBROOK INVESTMENTS LLC	11421 W 47th St	Minnetonka	55343	Leak Site	LUST	F000	I	3833	1	Moderate
362	211722310004	Carson Pirie Scott - Ridgedale	12441 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	R	1663	1	Moderate
363	211722320002	Sinclair Ridgedale Station	12415 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	8884	1	Moderate
364	211722320002	Sinclair Ridgedale Station	12415 Wayzata Blvd	Minnetonka	55305	Petroleum Brownfield	PCS	BMS	C	4289	1	Moderate
365	211722320002	Sinclair Ridgedale Station	12415 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	R	1470	4	Moderate
366	211722320003	General Growth Properties Inc	12401 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	7897	1	Moderate
367	211722320003	General Growth Properties Inc	12401 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	7783	1	Moderate
368	211722320003	General Growth Properties Inc	12401 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	7937	1	Moderate
369	211722320003	General Growth Properties Inc	12401 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	R	2784	5	Moderate
370	211722320003	General Growth Properties Inc	12401 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	C	2784	1	Moderate
371	211722330001	Macy's North Division of Macy's Retail	12411 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	R	2429	1	Moderate
372	211722330001	Firestone	12425 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	R	2880	1	Moderate
373	211722340006	SEARS ROEBUCK AND CO	12431 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	R	3204	1	Moderate
374	311722130052	D SEARS & E SEARS CO-TRSTES	13500 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	18138	1	Moderate
375	311722130052	D SEARS & E SEARS CO-TRSTES	13500 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	5154	1	Moderate
376	311722130052	D SEARS & E SEARS CO-TRSTES	13500 Wayzata Blvd	Minnetonka	55305	Voluntary Investigation & Cleanup	PCS	VIC	I	VP21470	1	Moderate
377	311722130052	D SEARS & E SEARS CO-TRSTES	13500 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	R	2130	3	Moderate
378	311722130053	Morries Minnetonka Ford	13400 Wayzata Blvd	Minnetonka	55305	Leak Site	LUST	F000	C	4657	1	Moderate
379	311722130053	Morries Minnetonka Ford	13400 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	R	11142	6	Moderate
380	311722130053	Morries Minnetonka Ford	13400 Wayzata Blvd	Minnetonka	55305	Tank Site	UST	F000	A	11142	2	Moderate
381	311722240004	D & M 55TH STREET LLC	13820 Wayzata Blvd	Minnetonka	55305	Petroleum Brownfield	PCS	BMS	I	3853	1	Moderate
382	411722240015	CLS PROPERTIES IV LLC	15320 Wayzata Blvd	Minnetonka	55391	Petroleum Brownfield	PCS	BMS	I	4051	1	Moderate
383	411722240021	TWELVE OAKS LTD PTNRSHP	6001-1001 Twelve Oaks Center Dr	Wayzata	55391	Petroleum Brownfield	PCS	BMS	I	4278	1	Moderate
384	611722320023	Wayzata Buy Management	294 E Grove Ln	Wayzata	55391	Leak Site	LUST	F000	C	8222	1	Moderate
385	2411722420074	Snyder Drug Inc - Corporate Office	15 9th Ave N	Hopkins	55343	Petroleum Brownfield	PCS	BMS	I	4624	1	Moderate
386	2411722420074	Snyder Drug Inc - Corporate Office	15 9th Ave N	Hopkins	55343	Leak Site	LUST	F000	C	19506	1	Moderate
387	2511722220012	Unknown	1600 2nd St S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP1970	1	Moderate
388	2511722220012	Unknown	1600 2nd St S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP1971	1	Moderate
389	2511722220012	Unknown	1600 2nd St S	Hopkins	55343	Leak Site	LUST	F000	C	1458	1	Moderate
390	2511722220012	Unknown	1600 2nd St S	Hopkins	55343	Tank Site	UST	F000	R	13355	2	Moderate
391	2511722220012	Unknown	1600 2nd St S	Hopkins	55343	Tank Site	UST	F000	A	13355	1	Moderate
392	2511722220012	Unknown	1600 2nd St S	Hopkins	55343	Tank Site	UST	F000	R	1618	1	Moderate
393	2511722230046	UMI REAL ESTATE INC	See location description	Hopkins	55305	Voluntary Investigation & Cleanup	PCS	VIC	I	VP22171	1	Moderate
394	2511722240077	TRJ Dry Cleaning dba Ivy Cleaners	612 11th Ave S	Hopkins	55343	Voluntary Investigation & Cleanup	PCS	VIC	I	VP21951	1	Moderate
395	911722230005	CARGILL INC	2301 Crosby Rd	Minnetonka	55391	Leak Site	LUST	F000	I	3998	1	Moderate
396	911722230005	CARGILL INC	2301 Crosby Rd	Minnetonka	55391	Tank Site	AST	F000	A	54834	1	Moderate
397	911722230005	CARGILL INC	2301 Crosby Rd	Minnetonka	55391	Tank Site	AST	F000	R	54834	1	Moderate
398	911722230005	CARGILL INC	2301 Crosby Rd	Minnetonka	55391	Tank Site	UST	F000	R	2486	1	Moderate
399	911722310006	GREENDALE ASSOCIATES LLC	15615 McGinty Road West	Wayzata	55391	Leak Site	LUST	F000	I	4251	1	Moderate
400	911722310006	GREENDALE ASSOCIATES LLC	15615 McGinty Road West	Wayzata	55391	Leak Site	LUST	F000	R	2484	5	Moderate
401	911722340002	GREENDALE ASSOCIATES LLC	15407 Mcginty Rd W	Wayzata	55391	Tank Site	UST	F000	R	2485	2	Moderate
402	911722340002	GREENDALE ASSOCIATES LLC	15407 Mcginty Rd W	Wayzata	55391	Tank Site	AST	F000	A	2485	2	Moderate
403	1111722110049	OMEGON INC	2000 Hopkins Crossroads	Minnetonka	55305	Tank Site	UST	F000	R	1867	2	Moderate
404	1111722210061	Charles Berry	2001 Dwight Ln	Minnetonka	55305	Tank Site	UST	F000	R	122241	2	Moderate
405	1111722440014	Hedberg & Sons Co	11303 W Cedar Lake Rd	Minnetonka	55305	Tank Site	UST	F000	R	1744	3	Moderate
406	1211722240004	ISD 270	2400 Lindbergh Dr	Minnetonka	55305	Tank Site	UST	F000	R	3090	3	Moderate
407	1211722240006	ISD 270	10901 Hillside Ln	Minnetonka	55305	Tank Site	UST	F000	A	3085	1	Moderate
408	1211722240006	ISD 270	10901 Hillside Ln	Minnetonka	55305	Tank Site	UST	F000	R	3085	1	Moderate
409	1211722240006	SCHOOL DISTRICT NO 270	10700 Cedar Lake Rd	Minnetonka	55305	Tank Site	UST	F000	R	3089	2	Moderate
410	1211722330001	A JAMES SPIELMANN	2711 Hopkins Crossroad	Minnetonka	55305	Leak Site	LUST	F000	I	13051	1	Moderate
411	1211722330001	A JAMES SPIELMANN	2711 Hopkins Crossroad	Minnetonka	55305	Tank Site	UST	F000	A	2924	6	Moderate
412	1211722330001	A JAMES SPIELMANN	2711 Hopkins Crossroad	Minnetonka	55305	Tank Site	UST	F000	R	2924	4	Moderate
413	1211722330003	HOLIDAY STATIONSTORES INC	2801 Hopkins Crossroad	Minnetonka	55305	Tank Site	UST	F000	A	2144	3	Moderate
414	1211722330003	HOLIDAY STATIONSTORES INC	2801 Hopkins Crossroad	Minnetonka	55305	Tank Site	UST	F000	R	2144	5	Moderate
415	1211722420221	CEDAR RIDGE CONDO ASSOC	10311 Cedar Lake Rd	Minnetonka	0	Tank Site	UST	F000	R	17267	1	Moderate
416	1211722420221	CEDAR RIDGE CONDO ASSOC	10311 Cedar Lake Rd	Minnetonka	0	Tank Site	UST	F000	A	17267	1	Moderate
417	1211722420224	Cedar Ridge Of Minnetonka Apts	10111 Cedar Lake Rd	Minnetonka	55305	Tank Site	UST	F000	R	15160	1	Moderate
418	1311722140005	CITY OF MINNETONKA	10000 Minnetonka Blvd	Minnetonka	0	Tank Site	UST	F000	R	2943	5	Moderate
419	1311722140011	Boulevard Sinclair	9800 Minnetonka Blvd	Minnetonka	55305	Leak Site	LUST	F000	I	8943	1	Moderate
420	1311722140011	Boulevard Sinclair	9800 Minnetonka Blvd	Minnetonka	55305	Leak Site	LUST	F000	I	15657	1	Moderate

Table 2 - Potential Contaminant Source Inventory

Figure ID	Parcel ID	Owner Name	Address	City	Zip Code	Activity	PCS Code	Material Code	Status	MPCA ID	Total	Vulnerability
421	1311722140011	Boulevard Sinclair	9800 Minnetonka Blvd	Minnetonka	55305	Tank Site	UST	F000	A	1472	5	Moderate
422	1311722140011	Boulevard Sinclair	9800 Minnetonka Blvd	Minnetonka	55305	Tank Site	UST	F000	R	1472	2	Moderate
423	1311722310002	OAK RIDGE COUNTRY CLUB	700 Oak Ridge Rd	Hopkins	55305	Tank Site	UST	F000	R	15497	2	Moderate
424	1311722310002	OAK RIDGE COUNTRY CLUB	700 Oak Ridge Rd	Hopkins	55305	Tank Site	UST	F000	A	15497	1	Moderate
425	2711722110069	Carworks Auto Care Inc	13125 Excelsior Blvd	Minnetonka	55343	Leak Site	LUST	F000	I	11403	1	Moderate
426	2711722110069	Carworks Auto Care Inc	13125 Excelsior Blvd	Minnetonka	55343	Tank Site	UST	F000	R	12450	3	Moderate
427	2711722110076	BAUER CAPITAL CORPORATION	13118 Excelsior Blvd	Minnetonka	55343	Tank Site	UST	F000	A	2453	3	Moderate
428	2311722110004	CROIX OIL COMPANY	3864 Hopkins Crossroads	Minnetonka	55305	Tank Site	UST	F000	R	1766	8	Moderate
429	2311722110009	Hopkins Motors LLC/Town & Country Dodge	1710 Highway 7	Hopkins	55343	Leak Site	LUST	F000	I	16693	1	Moderate
430	2311722110009	Hopkins Motors LLC/Town & Country Dodge	1710 Highway 7	Hopkins	55343	Tank Site	UST	F000	R	3157	1	Moderate
431	1211722340101	Greenbier Condo	10531 Cedar Lake Rd	Minnetonka	55305	Tank Site	UST	F000	R	14321	1	Moderate
432	1611722430014	CREEKWOOD INVESTMENTS LLC	15115 Minnetonka Boulevard	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP0074	1	Moderate
433	1611722430014	CREEKWOOD INVESTMENTS LLC	15115 Minnetonka Boulevard	Minnetonka	55345	Voluntary Investigation & Cleanup	PCS	VIC	I	VP0077	1	Moderate
434	1911721210008	RAMSGATE APARTMENTS LLC	725 NE Lake St	Hopkins	55343	Tank Site	UST	F000	R	2206	6	Moderate
435	2611722110002	RADER FAMILY PARTNERSHIP LP	11303 Excelsior Blvd	Hopkins	55343	Tank Site	UST	F000	R	11121	6	Moderate
436	2611722110026	THE SIERRA CORPORATION	11401 47th St W	Minnetonka	55343	Tank Site	AST	F000	R	54723	3	Moderate
437	811722340017	STATE OF MINNESOTA	2831 Highway 101	Wayzata	55391	Tank Site	UST	F000	R	20787	2	Moderate
438	1411722120007	CITY OF MINNETONKA	2138 Shadywood Rd	Wayzata	55305		SWMS	4346	I	SW162	<Null>	Moderate
439	1411722420029	CITY OF MINNETONKA	Highway 5 & Highway 37	Minneapolis	55305		SWMS	4346	I	SW105	1	Moderate

Figure ID	Unique Number	Well Name	Status Code	Use Code	Parcel ID	Address	City	Zip Code	Vulnerability	PCS Code
440	00204559	TARASCH, ROY	A	DO	2311722340006	SUNRISE LA	MINNETONKA	55343	Moderate	WEL
441	00242112	THERMOTECH NO.1	A	CO	2511722240149	5TH ST S	HOPKINS	55343	Moderate	WEL
442	00112228	HOPKINS 6	A	PC	2411722120032	ADDRESS UNASSIGNED	HOPKINS	0	Moderate	WEL
443	00204103		A	DO	1511722110021	PLYMOUTH RD	MINNETONKA	55305	Moderate	WEL
444	00204104	TYLER, H.	A	DO	1511722110029	APRIL LA	MINNETONKA	55305	Moderate	WEL
445	00223807	PALMER, JOHN	A	DO	1511722110031	APRIL LA	MINNETONKA	55305	Moderate	WEL
446	00204106	RASMUSSEN, ERICK	A	DO	1511722120005	ATWOOD DR	MINNETONKA	55305	Moderate	WEL
447	00204107	BURTON	A	DO	1511722130002	MCGINTY RD E	MINNETONKA	55305	Moderate	WEL
448	00204109	SCHULTZ, BILL	A	DO	1511722130039	MCGINTY RD E	MINNETONKA	55305	Moderate	WEL
449	W0000107	BURNELL COMM.CTR.	A	PS	1511722140010	PLYMOUTH RD	MINNETONKA	55305	Moderate	WEL
450	00204110	HANLEY, JAMES	A	DO	1511722140014	BURWELL DR	MINNETONKA	55305	Moderate	WEL
451	00204111	LEEKLY, RICHARD	A	DO	1511722210015	MCGINTY RD E	MINNETONKA	55305	Moderate	WEL
452	00272293	BEAN, JOHN B.	A	DO	1511722220025	HAZEL LA	MINNETONKA	55305	Moderate	WEL
453	00204112	SCHULTZ, WM. B.	A	DO	1511722240008	WENTWORTH TR	MINNETONKA	55305	Moderate	WEL
454	00204130	OSTROM + SONS	A	DO	1511722240011	ELDORADO TR E	MINNETONKA	55305	Moderate	WEL
455	00204113	LOSCHEIDER, P.	A	DO	1511722240026	WENTWORTH TR	MINNETONKA	55305	Moderate	WEL
456	00204108	OSTRUM, KENNETH	A	DO	1511722240033	ELDORADO TR E	MINNETONKA	55305	Moderate	WEL
457	00204115		A	DO	1511722310004	INVERNESS RD	MINNETONKA	55305	Moderate	WEL
458	00204116		A	DO	1511722310020	INVERNESS RD	MINNETONKA	55305	Moderate	WEL
459	00204114	CASPERS, PETER	A	DO	1511722310039	INVERNESS RD	MINNETONKA	55305	Moderate	WEL
460	00204122	JESSING	A	DO	1511722330008	SUNRISE DR E	MINNETONKA	55345	Moderate	WEL
461	00223746	GERSTNER, PHIL	A	DO	1511722330019	SUNRISE DR W	MINNETONKA	55345	Moderate	WEL
462	00204117	SPETZ + BERG	A	DO	1511722330039	CARDINAL RD	MINNETONKA	55345	Moderate	WEL
463	00204119		A	DO	1511722330040	CARDINAL RD	MINNETONKA	55345	Moderate	WEL
464	00204118	STOCKDILL, R. G.	A	DO	1511722330041	CARDINAL RD	MINNETONKA	55345	Moderate	WEL
465	00204120	REITEN, R. D.	A	DO	1511722330048	CARDINAL RD	MINNETONKA	55345	Moderate	WEL
466	00204121		A	DO	1511722330050	ORCHARD RD	MINNETONKA	55345	Moderate	WEL
467	00204123	OERTEL, FRITZ	A	DO	1511722340007	FAVORITE LA	MINNETONKA	55305	Moderate	WEL
468	00204125	OLSON, PAUL	A	DO	1511722340019	PARK VALLEY RD	MINNETONKA	55305	Moderate	WEL
469	00204127	ANDERSON, BRUCE	A	DO	1511722340026	PARK VALLEY RD	MINNETONKA	55305	Moderate	WEL
470	00204126	HODGES, JACK	A	DO	1511722340028	SUMMIT LA	MINNETONKA	55305	Moderate	WEL
471	00204128	QUAM, GEORGE	A	DO	1511722410015	MINNETONKA DR	MINNETONKA	55305	Moderate	WEL
472	00204131	WECKOFF, FRANK	A	DO	1511722410045	PLYMOUTH RD	MINNETONKA	55305	Moderate	WEL
473	00204129	OLSON, A. W.	A	DO	1511722410059	INVERNESS RD	MINNETONKA	55305	Moderate	WEL
474	00204132	JENSEN, HARRY	A	DO	1511722420014	INVERNESS RD	MINNETONKA	55305	Moderate	WEL
475	00204133	JENSEN, HARRY	A	DO	1511722420015	INVERNESS RD	MINNETONKA	55305	Moderate	WEL
476	00204135	GRUMMAR	A	DO	1511722430034	DAHLGREN RD	MINNETONKA	55305	Moderate	WEL
477	00204136	NOR-VIC CONSTRUCTION	A	DO	1511722430035	DAHLGREN RD	MINNETONKA	55305	Moderate	WEL
478	00204134	SMITH, PAUL HOWARD	A	DO	1511722430064	ORCHARD RD	MINNETONKA	55305	Moderate	WEL
479	00204137	BAER, LARRY	A	DO	1511722440028	FARMINGTON RD	MINNETONKA	55305	Moderate	WEL
480	00204139	CUNNINGHAM, GORDON	A	DO	1611722130012	TIMBERHILL RD	MINNETONKA	55345	Moderate	WEL
481	00114405	MOE, DR. JOHN	A	DO	1611722230001	MARTHA LA	MINNETONKA	55345	Moderate	WEL
482	00204141	WILTSE, RAY	A	DO	1611722320010	MARTHA LA	MINNETONKA	55345	Moderate	WEL
483	00204143	BETCHER	A	DO	1611722330010	ROBINWOOD DR	MINNETONKA	55345	Moderate	WEL
484	00204144	DAHLMEIR, JAMES	A	DO	1611722330013	ROBINWOOD DR	MINNETONKA	55345	Moderate	WEL
485	00223747		A	DO	1611722330020	DAY PL	MINNETONKA	55345	Moderate	WEL
486	W0000110	BENDELL, MIKE	A	DO	1611722340023	ROBINWOOD DR	MINNETONKA	55345	Moderate	WEL
487	00661402	MINNETONKA 16B	A	PC	1611722410001	MINNETONKA BLVD	MINNETONKA	55345	Moderate	WEL
488	00434327	MINNETONKA	A	DO	1611722410004	ADDRESS UNASSIGNED	MINNETONKA	0	Moderate	WEL
489	00580217	MW-11	A	MW	1611722410007	ADDRESS UNASSIGNED	MINNETONKA	0	Moderate	WEL
490	00204145	JUNIOR ACADEMY	A	UN	1611722420003	WILLISTON RD	MINNETONKA	55345	Moderate	WEL
491	00797092	MW-FS	A	MW	1611722430011	MINNETONKA INDUST RD	MINNETONKA	55345	Moderate	WEL
492	00797093	MW-FB	A	MW	1611722430011	MINNETONKA INDUST RD	MINNETONKA	55345	Moderate	WEL
493	00797091	MW-GS	A	MW	1611722430011	MINNETONKA INDUST RD	MINNETONKA	55345	Moderate	WEL
494	00717732	MW-B-D	A	MW	1611722430012	MINNETONKA INDUST RD	MINNETONKA	55345	Moderate	WEL
495	00734057	GCW-8	A	RM	1611722430012	MINNETONKA INDUST RD	MINNETONKA	55345	Moderate	WEL
496	00734052	GCW-3	A	RM	1611722430012	MINNETONKA INDUST RD	MINNETONKA	55345	Moderate	WEL
497	00717727	MW-B-S	A	MW	1611722430012	MINNETONKA INDUST RD	MINNETONKA	55345	Moderate	WEL
498	00717729	MW-D-S	A	MW	1611722430012	MINNETONKA INDUST RD	MINNETONKA	55345	Moderate	WEL
499	00717734	MW-D-D	A	MW	1611722430012	MINNETONKA INDUST RD	MINNETONKA	55345	Moderate	WEL
500	00204148	THOMAS MACHINE CO.	A	IN	1611722430015	MINNETONKA INDUST RD	MINNETONKA	55345	Moderate	WEL
501	00580219	MW-14	A	MW	1611722430015	MINNETONKA INDUST RD	MINNETONKA	55345	Moderate	WEL
502	00204146	HARVEY, BERT	A	DO	1611722430023	MINNETONKA BLVD	MINNETONKA	55345	Moderate	WEL
503	W0000012	LYON, BILL	A	DO	1711722110008	FAIRCHILD AVE	MINNETONKA	55391	Moderate	WEL
504	00204152	SCHULTZ, WM.	A	DO	1711722110014	TONKAHA DR	MINNETONKA	55391	Moderate	WEL
505	00272622	THOMPSON, HT	A	DO	1711722120003	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
506	00272621	THOMPSON, HERB	A	DO	1711722120004	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
507	00204155		A	DO	1711722120006	FAIRCHILD AVE	MINNETONKA	55391	Moderate	WEL
508	00203785	HERB THOMPSON CONST. CO.	A	DO	1711722120007	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
509	00204158	BORAN, BUD	A	DO	1711722120021	FAIRCHILD AVE	MINNETONKA	55391	Moderate	WEL
510	00204151	WRIGHT, RICHARD	A	DO	1711722120022	TONKAHA DR	MINNETONKA	55391	Moderate	WEL
511	00204150	MORRISON, RON	A	DO	1711722120023	TONKAHA DR	MINNETONKA	55391	Moderate	WEL
512	00204154	HAHN, LOWELL	A	DO	1711722120065	FAIRCHILD AVE	MINNETONKA	55391	Moderate	WEL
513	00204160		A	DO	1711722130010	LAKE SHORE BLVD	MINNETONKA	55391	Moderate	WEL
514	00204159	CHARLESTON, DON	A	DO	1711722130012	LAKE SHORE BLVD	MINNETONKA	55391	Moderate	WEL
515	00204161	ROBINSON, E. I.	A	DO	1711722130046	HIGHLAND AVE	MINNETONKA	55391	Moderate	WEL
516	00224801	RODGERS, GEORGE	A	DO	1711722140006	FAIRCHILD AVE	MINNETONKA	55391	Moderate	WEL
517	00204163	THOMPSON, HERB	A	DO	1711722210005	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
518	00272554	HERB THOMPSON & SON	A	DO	1711722210005	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
519	00204166	KVALE, BASIL	A	DO	1711722210012	COTTAGE GROVE AVE	MINNETONKA	55391	Moderate	WEL
520	00211955	SWANSON, OSCAR	A	DO	1711722210083	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
521	00204164	NELSON, WILLARD	A	DO	1711722210091	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
522	00204167	CAMANCHO, JANE	A	DO	1711722210121	COTTAGE GROVE AVE	MINNETONKA	55391	Moderate	WEL
523	00204174	CARMICHAEL, BRUCE	A	DO	1711722240059	PROSPECT PL	MINNETONKA	55391	Moderate	WEL

Figure ID	Unique Number	Well Name	Status Code	Use Code	Parcel ID	Address	City	Zip Code	Vulnerability	PCS Code
524	W0000120	THORKEN, LINDA	A	DO	1711722240064	LARCHMORE AVE	MINNETONKA	55391	Moderate	WEL
525	W0000122	ADAMS, DICK	A	DO	1711722410022	TONKAWOOD RD	MINNETONKA	55345	Moderate	WEL
526	00204194	KENNEDY, THOMAS P.	A	DO	1711722410024	TONKAWOOD RD	MINNETONKA	55345	Moderate	WEL
527	00204193	HAVERTY, PAT	A	DO	1711722410034	MINNETONKA BLVD	MINNETONKA	55345	Moderate	WEL
528	00204406	VAN BOCKLE	A	DO	1711722440002	THE STRAND	MINNETONKA	55345	Moderate	WEL
529	00204408	VAN BOCKLE	A	DO	1711722440003	THE STRAND	MINNETONKA	55345	Moderate	WEL
530	00204407	VAN BOCKLE	A	DO	1711722440004	THE STRAND	MINNETONKA	55345	Moderate	WEL
531	00204409	VAN BOCKLE	A	DO	1711722440006	THE STRAND	MINNETONKA	55345	Moderate	WEL
532	00204410	ROELOTS, KEN	A	DO	1711722440007	THE STRAND	MINNETONKA	55345	Moderate	WEL
533	00204411	VAN BOCKLE	A	DO	1711722440008	THE STRAND	MINNETONKA	55345	Moderate	WEL
534	00204405	ARCHIBALD, PETER	A	DO	1711722440035	TONKAWOOD RD	MINNETONKA	55345	Moderate	WEL
535	00274162	NASH, DAVID	A	UN	1711722440036	STEELE ST	MINNETONKA	55345	Moderate	WEL
536	00272313	BROOKSIDE BUILDERS	A	DO	1811721220014	GETTYSBURG AVE S	ST. LOUIS PARK	55426	Moderate	WEL
537	00203193	CALVARY BAPTIST CHURCH	A	PS	1811721220055	MINNETONKA BLVD	ST. LOUIS PARK	55426	Moderate	WEL
538	00203194	LONGABDUGH, GERALD	A	DO	1811721220062	MINNETONKA BLVD	ST. LOUIS PARK	55426	Moderate	WEL
539	00203195	HARADA, M.	A	DO	1811721230033	FLAG AVE S	ST. LOUIS PARK	55426	Moderate	WEL
540	00227917	P-31	A	OT	1811721340009	36TH ST W	ST. LOUIS PARK	55426	Moderate	WEL
541	00224064	CHRISTY, ALLEN	A	DO	1911721120006	HIAWATHA AVE	HOPKINS	55343	Moderate	WEL
542	00203197	GLASGOW	A	DO	1911721120013	HIAWATHA AVE	HOPKINS	55343	Moderate	WEL
543	00272297	BJORK, M. A.	A	DO	1911721120015	HIAWATHA AVE	HOPKINS	55343	Moderate	WEL
544	00272527	PETERSON, GORDON	A	DO	1911721120016	HIAWATHA AVE	HOPKINS	55343	Moderate	WEL
545	00203199	LINDMARK, R. C.	A	DO	1911721210006	CAMBRIDGE ST	HOPKINS	55343	Moderate	WEL
546	00203200	CAMPBELL, WALLY	A	DO	1911721240029	TYLER AVE N	HOPKINS	55343	Moderate	WEL
547	00203601	PITTS FILM SERVICE	A	CO	1911721310058	2ND ST N E	HOPKINS	55343	Moderate	WEL
548	00204458	WAHL, ED	A	DO	2011722110007	PINE ST	MINNETONKA	55345	Moderate	WEL
549	00204460	VAN BOCKLE	A	DO	2011722110009	PINE ST	MINNETONKA	55345	Moderate	WEL
550	00204461	CROWN CONST. CO.	A	DO	2011722110020	HIDDEN VALLEY RD	MINNETONKA	55345	Moderate	WEL
551	00272359	FENSKE, FRED	A	DO	2011722110037	TONKAWOOD RD	MINNETONKA	55345	Moderate	WEL
552	00204457	HANUS, GLADY	A	DO	2011722110039	TONKAWOOD RD	MINNETONKA	55345	Moderate	WEL
553	00204463	BRUCE CONSTRUCTION	A	DO	2011722140037	TONKAWOOD LA	MINNETONKA	55345	Moderate	WEL
554	00204462	VEITS, F. J.	A	DO	2011722140041	TONKAWOOD RD	MINNETONKA	55345	Moderate	WEL
555	00204465	HABERHAM, BOB	A	DO	2011722140049	LAKE ST EXTENSION	MINNETONKA	55345	Moderate	WEL
556	00204476	SAUTIER	A	DO	2111722110040	SPRING LAKE RD	MINNETONKA	55345	Moderate	WEL
557	00204475	NOYES, PAUL	A	DO	2111722140004	OAKWOOD RD	MINNETONKA	55345	Moderate	WEL
558	00204481	JOHNSON	A	DO	2111722140024	IDYLWOOD RD	MINNETONKA	55345	Moderate	WEL
559	00204482	JONES, MARK	A	DO	2111722140028	RED OAK RIDGE	MINNETONKA	55345	Moderate	WEL
560	00204485	JONES, MARK	A	DO	2111722140033	RED OAK RIDGE	MINNETONKA	55345	Moderate	WEL
561	00204487		A	DO	2111722140034	RED OAK RIDGE	MINNETONKA	55345	Moderate	WEL
562	00204483	JONES, MARK	A	DO	2111722140035	RED OAK RIDGE	MINNETONKA	55345	Moderate	WEL
563	00204484	GREINER, PETER	A	DO	2111722140036	RED OAK RIDGE	MINNETONKA	55345	Moderate	WEL
564	00204488	JOHNSON, HAROLD	A	DO	2111722140053	LENNELL DR	MINNETONKA	55345	Moderate	WEL
565	00204486	JOHNSON, HAROLD	A	DO	2111722140073	LENNELL DR	MINNETONKA	55345	Moderate	WEL
566	00204490	WOODROW	A	DO	2111722210015	MCKENZIE BLVD	MINNETONKA	55345	Moderate	WEL
567	00204489	GRAHDE, E. W.	A	DO	2111722220057	SUNSET RD	MINNETONKA	55345	Moderate	WEL
568	00204492	CARLSON, CURT	A	DO	2111722220058	SUNSET RD	MINNETONKA	55345	Moderate	WEL
569	00204493	CARLSON, ART	A	DO	2111722220060	SUNSET RD	MINNETONKA	55345	Moderate	WEL
570	00204494	FRA-TIM	A	DO	2111722220062	SUNSET RD	MINNETONKA	55345	Moderate	WEL
571	00204497	JENSON, HARRY	A	DO	2111722230012	LAKE ST EXTENSION	MINNETONKA	55345	Moderate	WEL
572	00204495	CLAPP, JACK	A	DO	2111722230034	LEXINGTON AVE	MINNETONKA	55345	Moderate	WEL
573	00204491	ERICKSON, PAUL	A	DO	2111722230061	TONKAWOOD RD	MINNETONKA	55345	Moderate	WEL
574	00204496	BERGMAN, RAY	A	DO	2111722230070	TONKAWOOD RD	MINNETONKA	55345	Moderate	WEL
575	00204506	POLLACK, WAYNE	A	DO	2111722240026	VICTORIA ST	MINNETONKA	55345	Moderate	WEL
576	00204504	BARRETT, JOHN P.	A	DO	2111722240029	VICTORIA ST	MINNETONKA	55345	Moderate	WEL
577	00204502	PAUL HOST	A	DO	2111722240040	SKYVIEW RD	MINNETONKA	55345	Moderate	WEL
578	00204498	HOST CONST. CO	A	DO	2111722240040	SKYVIEW RD	MINNETONKA	55345	Moderate	WEL
579	00204500	PAUL HOST	A	DO	2111722240041	SKYVIEW CIR	MINNETONKA	55345	Moderate	WEL
580	00204501	PAUL HOST	A	DO	2111722240043	SKYVIEW CIR	MINNETONKA	55345	Moderate	WEL
581	00204503	PAUL HOST	A	DO	2111722240044	SKYVIEW CIR	MINNETONKA	55345	Moderate	WEL
582	00204507	LAY, CHESTER	A	DO	2111722310011	VICTORIA ST	MINNETONKA	55345	Moderate	WEL
583	00204508	DELANEY, LEROY	A	DO	2111722310019	VICTORIA ST	MINNETONKA	55345	Moderate	WEL
584	00204510	JOHNSON, MILTON	A	DO	2111722310026	COURT RD	MINNETONKA	55345	Moderate	WEL
585	W0000123	SJADIN, CARL	A	DO	2111722310031	MANOR COURT RD	MINNETONKA	55345	Moderate	WEL
586	00204509	POWERS REALITY CO.	A	DO	2111722310032	COURT RD	MINNETONKA	55345	Moderate	WEL
587	00223772		A	DO	2111722410005	RICHARDS DR	MINNETONKA	55345	Moderate	WEL
588	00204516	SEIGEL, BILL	A	DO	2111722410025	WILLISTON RD	MINNETONKA	55345	Moderate	WEL
589	00204518	HAMEL	A	DO	2111722410038	WILDCREST RD	MINNETONKA	55345	Moderate	WEL
590	00204521	OTTESON, DENNIS	A	DO	2111722420003	EVELYN LA	MINNETONKA	55345	Moderate	WEL
591	00204520	BLAINES CONSTRUCTION	A	DO	2111722420004	EVELYN LA	MINNETONKA	55345	Moderate	WEL
592	00204522	DEARSTYNE	A	DO	2111722420027	EVELYN LA	MINNETONKA	55345	Moderate	WEL
593	00204523	JERGENS	A	DO	2111722430053	HIGHLAND RD	MINNETONKA	55345	Moderate	WEL
594	00272598	SMITH, HOWARD	A	DO	2111722440017	KARYL DR	MINNETONKA	55345	Moderate	WEL
595	00204517	OSTERBERG	A	DO	2111722440018	KARYL DR	MINNETONKA	55345	Moderate	WEL
596	00204519	STILLMAN	A	DO	2111722440024	KARYL DR	MINNETONKA	55345	Moderate	WEL
597	00204526	KRUSTOON, OSCAR	A	DO	2211722110005	DO LITTLE DR	MINNETONKA	55305	Moderate	WEL
598	00204527	PYHONEN, R. J.	A	DO	2211722110006	DO LITTLE DR	MINNETONKA	55305	Moderate	WEL
599	00204525	LARSONS	A	DO	2211722110075	DO LITTLE DR	MINNETONKA	55305	Moderate	WEL
600	00204528	JOHNSON, AXEL	A	DO	2211722140011	CASTLE VIEW CT	MINNETONKA	55305	Moderate	WEL
601	00204529	ANDERSON	A	DO	2211722140047	BAKER RD	MINNETONKA	55305	Moderate	WEL
602	00204530	VANEK, MEL	A	DO	2211722220018	WOODHAVEN RD	MINNETONKA	55345	Moderate	WEL
603	00204531	JOHNSON, AXEL	A	DO	2211722220033	WOODHAVEN RD	MINNETONKA	55345	Moderate	WEL
604	00204532	REEVES, G. B.	A	DO	2211722220054	HAVEN RD	MINNETONKA	55345	Moderate	WEL
605	00204533	JOHNSON, HAROLD	A	DO	2211722230039	LENNELL DR	MINNETONKA	55345	Moderate	WEL
606	00204536	BLOOM, JEROME	A	DO	2211722240013	SPRING LAKE RD	MINNETONKA	55345	Moderate	WEL
607	00204535	KENNEN, BERNARD A.	A	DO	2211722240030	SPRING LAKE RD	MINNETONKA	55345	Moderate	WEL

Figure ID	Unique Number	Well Name	Status Code	Use Code	Parcel ID	Address	City	Zip Code	Vulnerability	PCS Code
608	00791996		A	DO	2211722240044	SPRING LAKE RD	MINNETONKA	55345	Moderate	WEL
609	00272428	JOHNSON, DON B.	A	DO	2211722330005	QUIGLEY RD	MINNETONKA	55345	Moderate	WEL
610	00208011	MINNETONKA 1	A	MU	2211722340030	ELLERDALE RD	MINNETONKA	55345	Moderate	WEL
611	00204538	CITY OF MINNETONKA	A	IN	2211722430023	BAKER RD	MINNETONKA	55343	Moderate	WEL
612	00160021	MINNETONKA 14A	A	PC	2211722430023	BAKER RD	MINNETONKA	55343	Moderate	WEL
613	00204539	BETZ, MAURICE	A	DO	2211722440005	SHADY DALE RD	MINNETONKA	55343	Moderate	WEL
614	00204540	OLSEN, DON	A	DO	2211722440019	GREENWOOD RD	MINNETONKA	55343	Moderate	WEL
615	00204541		A	DO	2311722110043	MINNETONKA MILLS RD	MINNETONKA	55305	Moderate	WEL
616	00204542	KNOTT	A	DO	2311722120003	COTTAGE LA	MINNETONKA	55305	Moderate	WEL
617	00223879	WILLIE, GERALD C.	A	DO	2311722130043	21ST AVE N	HOPKINS	55343	Moderate	WEL
618	00204544	LEVINE, CLARENCE	A	DO	2311722210009	WILLMATT HILL	MINNETONKA	55305	Moderate	WEL
619	00204543	PARKER	A	DO	2311722210020	WILLMATT HILL	MINNETONKA	55305	Moderate	WEL
620	00204545	JOHNSON, AXEL	A	DO	2311722210038	HUNTINGDON DR	MINNETONKA	55305	Moderate	WEL
621	00204546	ANDERSON, CLIFF	A	DO	2311722220009	HUNTINGDON DR	MINNETONKA	55305	Moderate	WEL
622	00204547	OLSON, ROGER	A	DO	2311722230008	MERRIAM RD	MINNETONKA	55305	Moderate	WEL
623	00204548		A	DO	2311722230020	MERRIAM RD	MINNETONKA	55305	Moderate	WEL
624	00204550	JOHNSON, AXEL	A	DO	2311722240040	HUNTINGDON DR	MINNETONKA	55305	Moderate	WEL
625	00204554	CHAS, ALEXANDER	A	DO	2311722320023	BRIARWOOD CT	MINNETONKA	55343	Moderate	WEL
626	00204552	BYLAND, DICK	A	DO	2311722320027	BRIARWOOD DR	MINNETONKA	55343	Moderate	WEL
627	00204553	GAMBILL, ROBERT	A	DO	2311722320028	BRIARWOOD DR	MINNETONKA	55343	Moderate	WEL
628	00204551	OLSON, DON	A	DO	2311722330006	BRIARWOOD DR	MINNETONKA	55343	Moderate	WEL
629	00204558	OLSON, DON	A	DO	2311722330007	BRIARWOOD DR	MINNETONKA	55343	Moderate	WEL
630	00204557		A	DO	2311722330008	BRIARWOOD DR	MINNETONKA	55343	Moderate	WEL
631	00204567	CARLSON, ARTHER	A	DO	2311722420005	LAKE ST EXTENSION	MINNETONKA	55343	Moderate	WEL
632	00204568	CONOCO	A	CO	2311722430002	SHADY OAK RD	MINNETONKA	55343	Moderate	WEL
633	00224075	PORT, O.	A	DO	2311722440018	SHADY OAK RD	HOPKINS	55343	Moderate	WEL
634	00204569	PINES TRAILER COURT	A	PS	2311722440118	ADDRESS UNASSIGNED	HOPKINS	0	Moderate	WEL
635	00204570	HOPKINS 5	A	PC	2411722210033	STATE HWY NO 7	HOPKINS	55305	Moderate	WEL
636	00507134	MW-3	A	MW	2411722210033	STATE HWY NO 7	HOPKINS	55305	Moderate	WEL
637	00224059	J.H. KILEGORE LUMBER CO.	A	CO	2411722220025	17TH AVE N	HOPKINS	55343	Moderate	WEL
638	00204571	HOPKINS THEATER	A	CO	2411722410003	MAINSTREET	HOPKINS	55343	Moderate	WEL
639	00223878	REINSTRA, WALTER	A	DO	2411722430235	7TH AVE S	HOPKINS	55343	Moderate	WEL
640	00204573	HOPKINS 1	A	PC	2511722210026	EXCELSIOR BLVD	HOPKINS	55343	Moderate	WEL
641	00599638	MW-11	A	MW	2511722220005	EXCELSIOR BLVD	HOPKINS	55343	Moderate	WEL
642	00224060		A	DO	2511722220008	5TH ST S	HOPKINS	55343	Moderate	WEL
643	00227132	THERMOTEC 2	A	CO	2511722230061	5TH ST S	HOPKINS	55343	Moderate	WEL
644	00505002	GETSCH, TOM	A	DO	2611722120002	PIONEER RD	MINNETONKA	55343	Moderate	WEL
645	00204578	BATTS, DAVE	A	DO	2611722130022	SHADY OAK LA	MINNETONKA	55343	Moderate	WEL
646	00204577	FERNICKS, BERNIE	A	DO	2611722130028	SHADY OAK LA	MINNETONKA	55343	Moderate	WEL
647	00204579	SORENSON, C. L.	A	DO	2611722130031	SHADY OAK RD	MINNETONKA	55343	Moderate	WEL
648	00204576	MICHL	A	DO	2611722130033	SHADY OAK RD	MINNETONKA	55343	Moderate	WEL
649	00224058		A	DO	2611722130034	SHADY OAK RD	MINNETONKA	55343	Moderate	WEL
650	00204580	PARENTEASE, ART	A	DO	2611722140009	ENCORE CIR	MINNETONKA	55343	Moderate	WEL
651	00204581	ALASBIR	A	DO	2611722210018	WINTERSET DR	MINNETONKA	55343	Moderate	WEL
652	00204582	SANDON, ROY F.	A	DO	2611722220006	PIONEER RD	MINNETONKA	55343	Moderate	WEL
653	00204583	MARK Z. JONES CO.	A	DO	2611722220009	VALLEY RD	MINNETONKA	55343	Moderate	WEL
654	00204584	MILLER	A	DO	2611722220034	MERILEE DR	MINNETONKA	55343	Moderate	WEL
655	00203735	CARROTHERS CONSTRUCTION	A	DO	411722330032	WHITE PINE DR	MINNETONKA	55391	Moderate	WEL
656	00203738	MEEHAN, MIKE	A	DO	411722340009	HOLDRIDGE DR	MINNETONKA	55391	Moderate	WEL
657	00203737	HARVEY, RALPH	A	DO	411722340013	HOLDRIDGE DR	MINNETONKA	55391	Moderate	WEL
658	00203739	GRADOUS, FRED	A	DO	411722340015	HOLDRIDGE DR	MINNETONKA	55391	Moderate	WEL
659	00203743		A	DO	411722340028	HOLDRIDGE RD	MINNETONKA	55391	Moderate	WEL
660	00203744		A	DO	411722340030	HOLDRIDGE RD	MINNETONKA	55391	Moderate	WEL
661	00203741		A	DO	411722340036	HOLDRIDGE DR	MINNETONKA	55391	Moderate	WEL
662	00203759	FIELDS, JOHN	A	DO	511722340027	BUSHAWAY RD	WAYZATA	55391	Moderate	WEL
663	00272603	STARR, WILLIAM	A	DO	711721330008	28TH ST W	ST. LOUIS PARK	55426	Moderate	WEL
664	00660570	MASSIE, JOHN	A	DO	711722310005	MARSHLAND RD	WOODLAND	55391	Moderate	WEL
665	00718314		A	DO	711722310012	MAPLEWOOD CIR E	WOODLAND	55391	Moderate	WEL
666	00239942	YOUNG, SUMNER B.	A	DO	711722310026	MAPLEWOOD CIR E	WOODLAND	55391	Moderate	WEL
667	00157836	KIENKE, BRUCE	A	DO	711722310031	MARSHLAND RD	WOODLAND	55391	Moderate	WEL
668	00478387	THORPE, A. SKIDMORE	A	DO	711722310034	CEDAR POINT DR	WOODLAND	55391	Moderate	WEL
669	00204436	KINGMAN, HENRY	A	DO	711722310035	MAPLEWOOD CIR E	WOODLAND	55391	Moderate	WEL
670	00420513	DURR, KEN	A	DO	711722310039	CEDAR RIDGE RD	WOODLAND	55391	Moderate	WEL
671	00692506		A	DO	711722310040	CEDAR POINT DR	WOODLAND	55391	Moderate	WEL
672	00419449	GAILLARD, CHARLES	A	DO	711722320023	CEDAR RIDGE RD	WOODLAND	55391	Moderate	WEL
673	00711471	MORRISON, JOHN	A	DO	711722320025	CEDAR RIDGE RD	WOODLAND	55391	Moderate	WEL
674	00742374	MACHALEC, GARY	A	DO	711722330029	GALE RD	WOODLAND	55391	Moderate	WEL
675	00114368	STINCHFIELD, JOHN	A	DO	711722430013	BREEZY HEIGHTS RD	WOODLAND	55391	Moderate	WEL
676	00756059	BASSETT, PATRICK & ANDREA	A	DO	711722430021	WOOLSEY LA	WOODLAND	55391	Moderate	WEL
677	00591540	FRENCH, GINA	A	DO	711722430023	WOOLSEY LA	WOODLAND	55391	Moderate	WEL
678	00623564	JOHNSON, MYLES	A	DO	711722430025	BREEZY HEIGHTS RD	WOODLAND	55391	Moderate	WEL
679	00162019	GLEESON, FRANK	A	DO	711722430027	BREEZY POINT RD	WOODLAND	55391	Moderate	WEL
680	00760649		A	DO	711722430027	BREEZY POINT RD	WOODLAND	55391	Moderate	WEL
681	00596672		A	DO	711722440002	BREEZY POINT RD	WOODLAND	55391	Moderate	WEL
682	00233123	METHODIST LAKESIDE ASSEM	A	PC	711722440158	ADDRESS UNASSIGNED	WOODLAND	0	Moderate	WEL
683	00203771	HAGEN	A	DO	811722110004	MCGINTY RD W	MINNETONKA	55391	Moderate	WEL
684	00203772		A	DO	811722110017	MCGINTY RD W	MINNETONKA	55391	Moderate	WEL
685	00203770	CAMPION-PETERSON CONST.	A	DO	811722110018	ICE CIRCLE DR	MINNETONKA	55391	Moderate	WEL
686	00100191	LABELLE	A	DO	811722110023	ADELINE LA	MINNETONKA	55391	Moderate	WEL
687	00100208	JOHNSON, HERBERT T. JR.	A	DO	811722110026	CROSBY RD	MINNETONKA	55391	Moderate	WEL
688	00203775	KLINK, STAN	A	DO	811722140008	CROSBY RD	MINNETONKA	55391	Moderate	WEL
689	00203774	GARCO CONST.	A	DO	811722140017	CROSBY RD	MINNETONKA	55391	Moderate	WEL
690	00203777	BROWN, PHILLIP G.	A	DO	811722330005	CO RD NO 101	MINNETONKA	55391	Moderate	WEL
691	00203778	KALKES, J.W.	A	DO	811722330006	CO RD NO 101	MINNETONKA	55391	Moderate	WEL

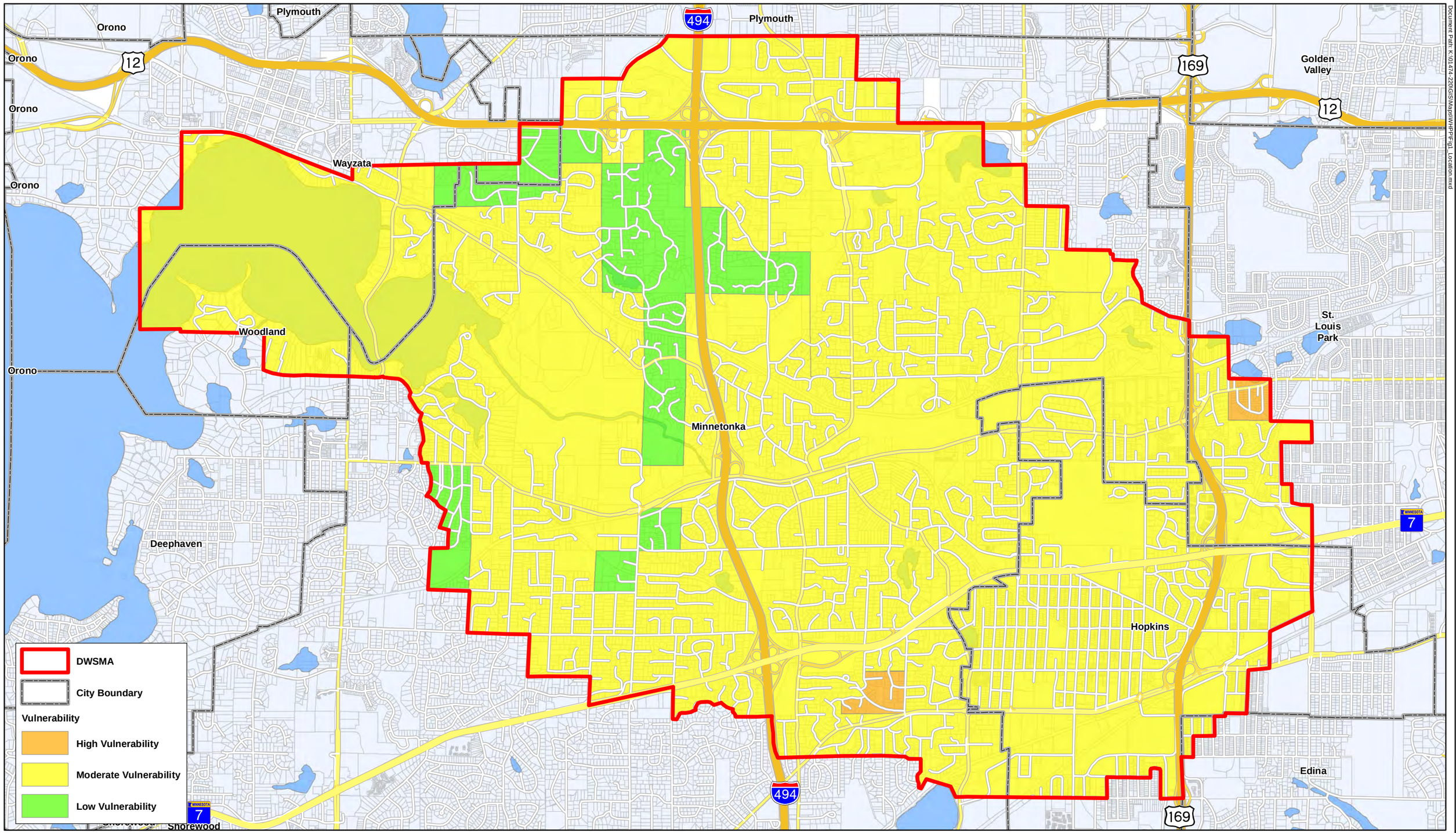
Figure ID	Unique Number	Well Name	Status Code	Use Code	Parcel ID	Address	City	Zip Code	Vulnerability	PCS Code
692	00223813	THOMPSON, HERB	A	DO	811722340001	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
693	00223815		A	DO	811722340002	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
694	00272623	H T THOMPSON	A	DO	811722340002	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
695	00203776	GRAYS BAY RESORT	A	CO	811722340017	CO RD NO 101	MINNETONKA	55391	Moderate	WEL
696	00203780	WANGBERG, FRED W.	A	DO	811722410014	CROSBY RD	MINNETONKA	55391	Moderate	WEL
697	00203779	BRINK, ROBERT	A	DO	811722410014	CROSBY RD	MINNETONKA	55391	Moderate	WEL
698	00203787	HERBERT THOMPSON + SON	A	DO	811722430009	MEADOWBROOK LA	MINNETONKA	55391	Moderate	WEL
699	00203788	HERB THOMPSON + SON	A	DO	811722430010	MEADOWBROOK LA	MINNETONKA	55391	Moderate	WEL
700	00203791	LOKENSGARD	A	DO	811722430017	MEADOWBROOK LA	MINNETONKA	55391	Moderate	WEL
701	00203786	HERB THOMPSON + SON	A	DO	811722430018	FAIRCHILD AVE	MINNETONKA	55391	Moderate	WEL
702	00203790	CLASEN, H. G.	A	DO	811722430020	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
703	00203784	LANDSTROM, DON	A	DO	811722430021	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
704	00223814	HARRIS, WALLACE L.	A	DO	811722430023	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
705	W0000111	RAY ANDERSON CONSTR	A	CO	811722430024	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
706	00272620	THOMPSON, HERB	A	DO	811722430034	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
707	00203783		A	DO	811722430035	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
708	00223812	VAN BOCKLE	A	DO	811722440004	MEADOWBROOK LA	MINNETONKA	55391	Moderate	WEL
709	00223811		A	DO	811722440004	MEADOWBROOK LA	MINNETONKA	55391	Moderate	WEL
710	00203794	ECKSTROM, ED	A	DO	911722210008	POST RD	MINNETONKA	55391	Moderate	WEL
711	00223785		A	DO	911722210020	SHERIDAN HILLS RD	MINNETONKA	55391	Moderate	WEL
712	00223787		A	DO	911722210021	SHERIDAN HILLS RD	MINNETONKA	55391	Moderate	WEL
713	00223786		A	DO	911722210022	SHERIDAN HILLS RD	MINNETONKA	55391	Moderate	WEL
714	00203795	ADAMS CONST. CO.	A	DO	911722210024	SHERIDAN HILLS RD	MINNETONKA	55391	Moderate	WEL
715	00256806		I		911722220068	ADDRESS UNASSIGNED	MINNETONKA	0	Moderate	WEL
716	00255880	CARGILL, INC.	A	IR	911722230005	CROSBY RD	MINNETONKA	55391	Moderate	WEL
717	203796	SMESTAD + ENGQUIST	A	DO	911722240009	SHERIDAN HILLS RD	MINNETONKA	55391	Moderate	WEL
718	00203797	EXSTROM, ED	A	DO	911722240011	SHERIDAN HILLS CUR	MINNETONKA	55391	Moderate	WEL
719	00203798	DAHL	A	DO	911722240012	SHERIDAN HILLS CUR	MINNETONKA	55391	Moderate	WEL
720	00203800	FRA-TIM	A	DO	911722240014	SHERIDAN HILLS CUR	MINNETONKA	55391	Moderate	WEL
721	00204002	REIRERSON, DON	A	DO	911722240015	SHERIDAN HILLS CUR	MINNETONKA	55391	Moderate	WEL
722	00204001	FRA-TIM	A	DO	911722240024	SHERIDAN HILLS CUR	MINNETONKA	55391	Moderate	WEL
723	00203789	LINDGREN, JOHN	A	DO	911722240029	SHERIDAN HILLS CUR	MINNETONKA	55391	Moderate	WEL
724	00255722	CARGILL LAKE OFFICE WELL	I	DO	911722330004	MCGINTY RD W	MINNETONKA	55391	Moderate	WEL
725	00223810		A	DO	911722430011	MCGINTY RD W	MINNETONKA	55391	Moderate	WEL
726	00204003	KAYONEN, HUGO	A	DO	911722430046	MCGINTY RD W	MINNETONKA	55391	Moderate	WEL
727	00204011	UNDERSTAD	A	DO	1011722340014	GREEN BRIAR DR	MINNETONKA	55305	Moderate	WEL
728	00204009	SIEGEL, WILLIAM	A	DO	1011722340035	COYOTE CT	MINNETONKA	55305	Moderate	WEL
729	00204053	MARTIN, J.V.	A	DO	1211722320087	CEDAR BEND	MINNETONKA	55305	Moderate	WEL
730	00208012	MINNETONKA 6A	A	PC	1211722340002	GREENBRIER RD	MINNETONKA	55305	Moderate	WEL
731	00204054	MINNETONKA 6	A	PC	1211722340002	GREENBRIER RD	MINNETONKA	55305	Moderate	WEL
732	00204061	CRONEST, DAVID	A	DO	1311722130008	MINNETONKA BLVD	MINNETONKA	55305	Moderate	WEL
733	00224062	JOHNSON & PETERSON	A	DO	1311722130026	BIRCH PL	MINNETONKA	55305	Moderate	WEL
734	00204060		A	DO	1311722130030	BIRCH PL	MINNETONKA	55305	Moderate	WEL
735	00204059	NORBERG, CARL	A	DO	1311722130040	MINNETONKA BLVD	MINNETONKA	55305	Moderate	WEL
736	00204062	ZIMMERMAN, C. M.	A	DO	1311722130045	MINNETONKA BLVD	MINNETONKA	55305	Moderate	WEL
737	00204063	GOODYEAR STORE	A	DO	1311722140071	ADDRESS UNASSIGNED	MINNETONKA	0	Moderate	WEL
738	00204064	CASH, J.P.	I	DO	1311722220007	ST ALBANS RD W	HOPKINS	55305	Moderate	WEL
739	00204065	CORDALIS, JAMES	A	DO	1311722220008	ST ALBANS RD E	HOPKINS	55305	Moderate	WEL
740	00224061	BOCK, ALLAN C.	A	DO	1311722230019	LORING RD	HOPKINS	55305	Moderate	WEL
741	00247225	MURSCH, JERGAN	I	DO	1311722230026	HOPKINS CROSSROAD	HOPKINS	55305	Moderate	WEL
742	00204066	MOE, DR. JOHN	A	DO	1311722230040	WEBSTER PL	HOPKINS	55305	Moderate	WEL
743	00204067	LESLIE, JOHN	A	DO	1311722240006	MANITOBA RD	HOPKINS	55305	Moderate	WEL
744	W0020155		U		1311722240022	MILL RD	HOPKINS	55305	Moderate	WEL
745	00595761	OAK RIDGE COUNTRY CLUB 2	A	IR	1311722310002	OAKRIDGE RD	HOPKINS	55305	Moderate	WEL
746	00272744	OAK RIDGE COUNTRY CLUB	A	IR	1311722310002	OAKRIDGE RD	HOPKINS	55305	Moderate	WEL
747	00224100	OAK RIDGE GOLF	A	DO	1311722320065	FAIRWAY LA	MINNETONKA	55305	Moderate	WEL
748	00204068	HOPKINS 4	A	PC	1311722330003	ELMO PARK SERVICE RD	HOPKINS	55305	Moderate	WEL
749	00204070	MCNULTY CONST. CO.	A	DO	1311722410010	ANN LA	MINNETONKA	55305	Moderate	WEL
750	00224063	ZORAZIL, AL	A	DO	1311722410012	ANN LA	MINNETONKA	55305	Moderate	WEL
751	00204071	NAN	A	DO	1311722420053	34TH CIR W	MINNETONKA	55305	Moderate	WEL
752	00204073	BRONSTIEN, S.	A	DO	1311722440005	VALLEY WAY	HOPKINS	55305	Moderate	WEL
753	00204057	ALDERSONS, PETER	A	DO	1411722120002	CEDAR LAKE RD	MINNETONKA	55305	Moderate	WEL
754	00204074	SKOGSMO, ART	A	DO	1411722120042	CEDAR CROSSING	MINNETONKA	55305	Moderate	WEL
755	00204075	KAMINSKI	A	DO	1411722130041	HONEYWOOD LA	MINNETONKA	55305	Moderate	WEL
756	00204076	EIDE, CLINTON	A	DO	1411722140001	MINNETONKA BLVD	MINNETONKA	55305	Moderate	WEL
757	00204080	LAUERMAN, BOB	A	DO	1411722140010	HOPKINS CROSSROAD	MINNETONKA	55305	Moderate	WEL
758	00204078	HALTER	A	DO	1411722140013	MINNETONKA BLVD	MINNETONKA	55305	Moderate	WEL
759	00223808	SEWANDOWSKI, RONALD	A	DO	1411722220036	CREEK RD W	MINNETONKA	55305	Moderate	WEL
760	00204081	J. + G. CONST. CO.	A	DO	1411722230003	BURWELL DR	MINNETONKA	55305	Moderate	WEL
761	00204082	POLLOCK, RICHARD	A	DO	1411722230012	MINNETONKA BLVD	MINNETONKA	55305	Moderate	WEL
762	00223809		A	DO	1411722310047	ARBOR LA	MINNETONKA	55305	Moderate	WEL
763	00272854	KAUFMANN	A	DO	1411722320017	ORCHARD LA	MINNETONKA	55305	Moderate	WEL
764	00204083	HARRY JENSEN CONST.	A	DO	1411722320026	SHADY OAK RD	MINNETONKA	55305	Moderate	WEL
765	00204084	JENSEN, HARRY	A	DO	1411722320027	SHADY OAK RD	MINNETONKA	55305	Moderate	WEL
766	00204085	KOCK, STAN	A	DO	1411722320033	SHADY OAK RD	MINNETONKA	55305	Moderate	WEL
767	00204086	AMKRIEN, LUTHER	A	DO	1411722330008	SHADY OAK RD	MINNETONKA	55305	Moderate	WEL
768	00204088	LAM, HAUSER	A	DO	1411722330027	PLYMOUTH RD	MINNETONKA	55305	Moderate	WEL
769	00204090	DELANEY, LEROY	A	DO	1411722340011	MINNETONKA MILLS RD	MINNETONKA	55305	Moderate	WEL
770	00204089	ANDERSON, PAUL F.	A	DO	1411722340013	ARBOR LA	MINNETONKA	55305	Moderate	WEL
771	00204091	BATTS, DAVE	A	DO	1411722410061	FARM LA	MINNETONKA	55305	Moderate	WEL
772	00204092	HALL, WILLIAM B.	A	DO	1411722410062	FARM LA	MINNETONKA	55305	Moderate	WEL
773	00204093	BATTS, DAVE	A	DO	1411722410063	FARM LA	MINNETONKA	55305	Moderate	WEL
774	00204095	HAMILTON, DALE	A	DO	1411722430018	PHEASANT LA	MINNETONKA	55305	Moderate	WEL
775	00195524	ANDERSON, BRAD	A	DO	1411722430063	PRESTIGE LA	MINNETONKA	55305	Moderate	WEL

Figure ID	Unique Number	Well Name	Status Code	Use Code	Parcel ID	Address	City	Zip Code	Vulnerability	PCS Code
776	00204098	BATTS, DAVE	A	DO	1411722440001	OAKVALE RD N	MINNETONKA	55305	Moderate	WEL
777	00204100	BATTS, DAVE	A	DO	1411722440002	OAKVALE RD N	MINNETONKA	55305	Moderate	WEL
778	00204099	BATTS, DAVID	A	DO	1411722440003	OAKVALE RD N	MINNETONKA	55305	Moderate	WEL
779	00204102	BATTS, DAVE	A	DO	1411722440036	OAKVALE RD S	MINNETONKA	55305	Moderate	WEL
780	00204094		A	DO	1411722440041	ROYZELLE LA	MINNETONKA	55305	Moderate	WEL
781	00204097		A	DO	1411722440058	ROYZELLE LA	MINNETONKA	55305	Moderate	WEL
782	00204096	JOHNSON, AXEL	A	DO	1411722440086	ROBINWOOD CIR	MINNETONKA	55305	Moderate	WEL
783	00272557	RITCHIE, ROBERT S.	A	DO	1511722120034	SURRY LA	MINNETONKA	55305	Moderate	WEL
784	00204124	PEHAN, LEROY	A	DO	1511722340001	SUMMIT LA	MINNETONKA	55305	Moderate	WEL
785	00204157	BORAN, BUD	A	DO	1711722120020	MEADOWBROOK LA	MINNETONKA	55391	Moderate	WEL
786	00276380	FOTY, JOHN	A	DO	1711722210028	EDGEWOOD AVE	MINNETONKA	55391	Moderate	WEL
787	00272548	CARRELL, JOHN	A	DO	1911721120004	HIAWATHA AVE	HOPKINS	55343	Moderate	WEL
788	00272382	C. HAFT (CARL WHITE)	A	DO	1911721120020	HIAWATHA AVE	HOPKINS	55343	Moderate	WEL
789	00272581	SHIMA, ISABELLE	A	DO	1911721240104	TYLER AVE N	HOPKINS	55343	Moderate	WEL
790	00204459	VAN BOCKEL	A	DO	2011722110013	AVONDALE ST	MINNETONKA	55345	Moderate	WEL
791	00204480	PASQUARETTE	A	DO	2111722130059	WILLISTON RD	MINNETONKA	55345	Moderate	WEL
792	00204534	JOHNSON, AXEL	A	DO	2211722230014	OAKWOOD RD EXTENSION	MINNETONKA	55345	Moderate	WEL
793	00458079	NAEGLE OUTDOOR ADVERTISI	A	DO	2311722130057	WYNDHAM HILL DR	MINNETONKA	55343	Moderate	WEL
794	00204549	FUFFORD, GEORGE	A	DO	2311722210017	AUBURN DR	MINNETONKA	55305	Moderate	WEL
795	00203742		A	DO	411722340026	HOLDRIDGE DR	MINNETONKA	55391	Moderate	WEL
796	00162099	KYTONEN, MILFRED	A	DO	711722430011	BREEZY HEIGHTS RD	WOODLAND	55391	Moderate	WEL
797	00272678	THOMPSON, HERB	A	DO	811722340003	GRAYS BAY BLVD	MINNETONKA	55391	Moderate	WEL
798	00203799	FRA-TIM	A	DO	911722240027	SHERIDAN HILLS CUR	MINNETONKA	55391	Moderate	WEL
799	00276378	AAKER, LAWRENCE	A	DO	1311722240025	FLETCHER PL	HOPKINS	55305	Moderate	WEL
800	00272825	GREENBERG, LOUIS	A	DO	1311722440015	COTTAGE DOWNS	HOPKINS	55305	Moderate	WEL
801	00276377	WYNN, BILL	A	DO	1411722140015	HOPKINS CROSSROAD	MINNETONKA	55305	Moderate	WEL
802	00204087	REINKING, B. F.	A	DO	1411722330047	SHADY OAK RD	MINNETONKA	55305	Moderate	WEL
803	00204149	MINNETONKA ATHLETIC CLUB	A	CO	1611722440076	MINNETONKA DR	MINNETONKA	55345	Low	WEL
804	00204478	JOHNSON & PETERSON	A	DO	2111722120031	WALKER PL	MINNETONKA	55345	Low	WEL
805	00204479	CURTISS, PAUL	A	DO	2111722120037	WILLISTON RD	MINNETONKA	55345	Low	WEL
806	00204477	DEVEAU BUS CO.	A	CO	2111722120043	DEVEAU PL	MINNETONKA	55345	Low	WEL
807	00204035	JANESEL, ERIC	A	DO	1711722310007	MEADOW LA	MINNETONKA	55345	Low	WEL
808	00204198	VAN BOCKLE	A	DO	1711722420032	ELMWOOD PL	MINNETONKA	55345	Low	WEL
809	00249991	KELLING, GORDON	I	DO	1711722420034	ELMWOOD PL	MINNETONKA	55345	Low	WEL
810	00204199	VAN BOCKLE	A	DO	1711722420035	FAIRLAWN DR	MINNETONKA	55345	Low	WEL
811	00204196	VAN BOCKLE	A	DO	1711722420061	FAIRLAWN DR	MINNETONKA	55345	Low	WEL
812	00204195	HILL, DAVE	A	DO	1711722420091	MEADOW LA	MINNETONKA	55345	Low	WEL
813	00204200		A	DO	1711722420100	ELMWOOD PL	MINNETONKA	55345	Low	WEL
814	00204401	SMITH, DONALD	A	DO	1711722430045	ADDRESS UNASSIGNED	MINNETONKA	0	Low	WEL
815	00204402	YBUSO, GARY	A	DO	1711722430054	ELMWOOD PL	MINNETONKA	55345	Low	WEL
816	00203672	GREVICH, MEL	A	DO	211722230030	WAYZATA BLVD	MINNETONKA	55305	Moderate	WEL
817	00203673		A	DO	211722230051	WAYZATA BLVD	MINNETONKA	55305	Moderate	WEL
818	00203671	HAGGESETH	A	DO	211722240031	MARION LA W	MINNETONKA	55305	Moderate	WEL
819	00272663	ZAHAND, RENE	A	DO	211722440011	TIMBERLINE SPUR	MINNETONKA	55305	Moderate	WEL
820	00203676	LOSCHIEDER, P.	A	DO	211722440017	TIMBERLINE RD	MINNETONKA	55305	Moderate	WEL
821	00272371	FOX FARM WELL - GIBSON FARM	A		211722440034	TIMBERLINE RD	MINNETONKA	55305	Moderate	WEL
822	00223793		A	DO	311722110012	SUNSET DR S	MINNETONKA	55305	Moderate	WEL
823	00203681	BUSHWELL, GARY	A	DO	311722110041	MILBERT RD	MINNETONKA	55305	Moderate	WEL
824	00203683	KOSKA, JAMES	A	DO	311722120006	PLYMOUTH RD	MINNETONKA	55305	Moderate	WEL
825	00203686	HADFIELD, HARRIET	A	DO	311722120023	PLYMOUTH RD	MINNETONKA	55305	Moderate	WEL
826	00203684	LICHT, RAYMOND	A	DO	311722120046	WINDYHILL RD	MINNETONKA	55305	Moderate	WEL
827	00203688	NESLUND, RICHARD	A	DO	311722130052	WAYZATA BLVD	MINNETONKA	55305	Moderate	WEL
828	00203692	HEDTKE, OTTO	A	DO	311722140005	MARION LA W	MINNETONKA	55305	Moderate	WEL
829	00223792		A	DO	311722140008	FAIRFIELD RD	MINNETONKA	55305	Moderate	WEL
830	00203690	TOWNROE, E. B.	A	DO	311722140038	SUNNYVIEW LA	MINNETONKA	55305	Moderate	WEL
831	00203689	JOHNSON, CHARLES	A	DO	311722140042	FAIRFIELD RD	MINNETONKA	55305	Moderate	WEL
832	00203685	GRADY	A	DO	311722210022	KENMAR CIR	MINNETONKA	55305	Moderate	WEL
833	00203694	STANDARD OIL CO.	A	CO	311722240003	WAYZATA BLVD	MINNETONKA	55305	Moderate	WEL
834	00223968	BELL HOTEL	A	CO	311722240003	WAYZATA BLVD	MINNETONKA	55305	Moderate	WEL
835	00203693		A	DO	311722240018	KNOLLWAY DR N	MINNETONKA	55305	Moderate	WEL
836	00223969	GREEN GABLE MOTEL	A	CO	311722310023	RIDGEDALE DR	MINNETONKA	55305	Moderate	WEL
837	00203695		A	DO	311722310026	FAIRFIELD RD S	MINNETONKA	55305	Moderate	WEL
838	00223791		A	DO	311722320005	LAUREL RD	MINNETONKA	55305	Moderate	WEL
839	00203700		A	DO	311722320009	WHITE BIRCH RD	MINNETONKA	55305	Moderate	WEL
840	00203706		A	DO	311722320010	WHITE BIRCH RD	MINNETONKA	55305	Moderate	WEL
841	00203705		A	DO	311722320013	WHITE BIRCH RD	MINNETONKA	55305	Moderate	WEL
842	00203697		A	DO	311722320015	WHITE BIRCH RD	MINNETONKA	55305	Moderate	WEL
843	00203701		A	DO	311722320019	LAUREL RD	MINNETONKA	55305	Moderate	WEL
844	00203699		A	DO	311722320020	LAUREL RD	MINNETONKA	55305	Moderate	WEL
845	00203702		A	DO	311722320022	WHITE BIRCH RD	MINNETONKA	55305	Moderate	WEL
846	00203707		A	DO	311722320022	WHITE BIRCH RD	MINNETONKA	55305	Moderate	WEL
847	00203703		A	DO	311722320023	WHITE BIRCH RD	MINNETONKA	55305	Moderate	WEL
848	00203704		A	DO	311722320024	WHITE BIRCH RD	MINNETONKA	55305	Moderate	WEL
849	00203708	LUNDGREN BROS.	A	DO	311722330003	OAKLAND RD	MINNETONKA	55305	Moderate	WEL
850	00203710	HUGHES BROS.	A	DO	311722330004	OAKLAND RD	MINNETONKA	55305	Moderate	WEL
851	00203712	LENHART, A. A.	A	DO	311722330010	OAKLAND RD	MINNETONKA	55305	Moderate	WEL
852	00203713	ANDERSON, LOWELL A.	A	DO	311722340013	FAIRFIELD RD S	MINNETONKA	55305	Moderate	WEL
853	00203715	CHURCH	A	DO	311722420005	ESSEX RD	MINNETONKA	55305	Moderate	WEL
854	00203714	WHITLEY	A	DO	311722420007	JEFFRY WAY	MINNETONKA	55305	Moderate	WEL
855	00203717	MINNETONKA 12	A	PC	311722420009	JEFFRY WAY	MINNETONKA	55305	Moderate	WEL
856	00191939	MINNETONKA 12A	A	PC	311722420023	RIDGEDALE DR	MINNETONKA	55305	Moderate	WEL
857	00203721	LAURIE, JIM	A	DO	311722430011	LARKIN DR	MINNETONKA	55305	Moderate	WEL
858	00203719	LUNDSTROM CONST. CO.	A	DO	311722430030	ESSEX RD	MINNETONKA	55305	Moderate	WEL
859	00203720	EDWALL, ROBERT	A	DO	311722430034	LARKIN DR	MINNETONKA	55305	Moderate	WEL

Figure ID	Unique Number	Well Name	Status Code	Use Code	Parcel ID	Address	City	Zip Code	Vulnerability	PCS Code
860	W0000118	IMPERIAL DEVELOPERS	A	CO	311722440036	PLYMOUTH RD	MINNETONKA	55305	Moderate	WEL
861	00203749	WESTMAN, CARL	A	DO	411722420012	LINNER RD	MINNETONKA	55391	Moderate	WEL
862	00223806	MICHALIK, MICHAEL	A	DO	1011722140002	PLYMOUTH RD	MINNETONKA	55305	Moderate	WEL
863	00223788		A	DO	1011722210052	OAKLAND RD	MINNETONKA	55305	Moderate	WEL
864	00204010		A	DO	1011722440010	MURIEL RD	MINNETONKA	55305	Moderate	WEL
865	00204013	OLSON	A	DO	1011722440022	MARCH CIR	MINNETONKA	55305	Moderate	WEL
866	00204012	OERTEL CONSTRUCTION	A	DO	1011722440032	JUNE TER	MINNETONKA	55305	Moderate	WEL
867	00204014	WAGNER, LOUIS	A	DO	1111722110008	OAK RIDGE LA W	MINNETONKA	55305	Moderate	WEL
868	00439711	MARTINSON, RALPH	A	DO	1111722110017	PARK RIDGE DR W	MINNETONKA	55305	Moderate	WEL
869	00204017	HUTTNER, LESLIE	A	DO	1111722110029	LAKEVIEW LA W	MINNETONKA	55305	Moderate	WEL
870	00204016	DRAKE, G. A.	A	DO	1111722110032	LAKEVIEW LA W	MINNETONKA	55305	Moderate	WEL
871	00204015	KOLSRUID, WALLY	A	DO	1111722110037	LIVE OAK DR	MINNETONKA	55305	Moderate	WEL
872	00223801		A	DO	1111722110039	PARK RIDGE DR W	MINNETONKA	55305	Moderate	WEL
873	00204018	HIETANAN, W.	A	DO	1111722110044	PARK RIDGE DR W	MINNETONKA	55305	Moderate	WEL
874	00204019	HONEY	A	DO	1111722120008	LIVE OAK DR	MINNETONKA	55305	Moderate	WEL
875	00223802	WILSON, V. E.	A	DO	1111722120011	PARK RIDGE DR W	MINNETONKA	55305	Moderate	WEL
876	00204020	SODERLUND	A	DO	1111722120026	LIVE OAK DR	MINNETONKA	55305	Moderate	WEL
877	00204021	DOOLEY, ED	A	DO	1111722130007	FETTERLY LA	MINNETONKA	55305	Moderate	WEL
878	00204022	KUALEY, PAUL	A	DO	1111722130009	FETTERLY LA	MINNETONKA	55305	Moderate	WEL
879	00204025	LA MANTIA, CHARLES	A	DO	1111722130019	SHERWOOD HILLS RD	MINNETONKA	55305	Moderate	WEL
880	00204023	LEEDS, JACK	A	DO	1111722130023	SHERWOOD HILLS CIR	MINNETONKA	55305	Moderate	WEL
881	00223804	BEATTY, HERBERT O.	A	DO	1111722130024	SHERWOOD HILLS CIR	MINNETONKA	55305	Moderate	WEL
882	00223803	JOHNSON, ORELAND	A	DO	1111722130028	SHERWOOD HILLS RD	MINNETONKA	55305	Moderate	WEL
883	00158081		A	DO	1111722130031	SHERWOOD HILLS RD	MINNETONKA	55305	Moderate	WEL
884	00204024	BOWEN, ROBERT	A	DO	1111722130037	SHERWOOD HILLS RD	MINNETONKA	55305	Moderate	WEL
885	00149847	NITZ, DAVID	A	DO	1111722130043	SHERWOOD HILLS RD	MINNETONKA	55305	Moderate	WEL
886	00147855	MOORE, CLEM	A	DO	1111722130047	SHERWOOD HILLS RD	MINNETONKA	55305	Moderate	WEL
887	00204026	SCHMITT	A	DO	1111722130048	SHERWOOD HILLS RD	MINNETONKA	55305	Moderate	WEL
888	00204028	DORN REALTY	A	DO	1111722140020	NOTTINGHAM CT	MINNETONKA	55305	Moderate	WEL
889	00204029	DORN REALTY	A	DO	1111722140021	NOTTINGHAM CT	MINNETONKA	55305	Moderate	WEL
890	00223805	HYDE, ARTHUR	A	DO	1111722210060	DWIGHT LA	MINNETONKA	55305	Moderate	WEL
891	00204030	JOHNSON, FRIDOLPH	A	DO	1111722220309	ADDRESS UNASSIGNED	MINNETONKA	0	Moderate	WEL
892	00204031	ALEXANDER	A	DO	1111722230030	HILLOWAY RD W	MINNETONKA	55305	Moderate	WEL
893	00161427	CARTIER,TOM	A	DO	1111722240023	BYRNES RD	MINNETONKA	55305	Moderate	WEL
894	00133350	NITZ, DAVID	A	DO	1111722240032	BYRNES RD	MINNETONKA	55305	Moderate	WEL
895	00272452	LEEDS, JACK	A	DO	1111722240048	HILLOWAY RD W	MINNETONKA	55305	Moderate	WEL
896	00204033	JOHNSON, DOUG	A	DO	1111722310010	ORCHARD AVE W	MINNETONKA	55305	Moderate	WEL
897	00204034	DORN, MIKE	A	DO	1111722320001	SYLVAN RD S	MINNETONKA	55305	Moderate	WEL
898	00204048	MCCANN, LLOYD	A	DO	1211722130043	CEDARWOOD RIDGE	MINNETONKA	55305	Moderate	WEL
899	00204050	LESCHIEDER, PETE	A	DO	1211722220003	CAPE COD PL	MINNETONKA	55305	Moderate	WEL
900	00750624	EARTH SPIRIT ENVIRONMENT	A	IR	1211722220007	CAPE COD PL	MINNETONKA	55305	Moderate	WEL
901	00204052	HOLT, S. S.	A	DO	1211722230033	MILL RUN	MINNETONKA	55305	Moderate	WEL
902	00203682	DEDRICK, GRANVILLE A.	A	DO	311722110031	FAIRFIELD RD	MINNETONKA	55305	Moderate	WEL
903	00203691	TRIPLETT, JEROME	A	DO	311722140027	SUNSET DR S	MINNETONKA	55305	Moderate	WEL
904	00203696		A	DO	311722310007	ESSEX RD	MINNETONKA	55305	Moderate	WEL
905	00203716	SKOGEN, LYLE	A	DO	311722420017	ESSEX RD	MINNETONKA	55305	Moderate	WEL
906	00137381	RUTTEN, JOHN N	A	DO	1111722320008	PLYMOUTH RD	MINNETONKA	55305	Moderate	WEL
907	00203793	GOETZE, BRITTON	A	DO	911722140021	MEETING ST	MINNETONKA	55391	Low	WEL
908	00204138	BOYER, JOE	A	DO	1611722110014	MINNEHAHA CT	MINNETONKA	55391	Low	WEL
909	00150356	MINNETONKA 10A	A	PC	1611722140002	WILLISTON RD	MINNETONKA	55345	Low	WEL
910	00204140	MINNETONKA 10	A	PC	1611722140002	WILLISTON RD	MINNETONKA	55345	Low	WEL
911	00661401	MINNETONKA 16A	A	PC	1611722140002	WILLISTON RD	MINNETONKA	55345	Low	WEL
912	00203726	BAKER, L. J.	A	DO	411722310008	CLARENDON DR	MINNETONKA	55391	Low	WEL
913	00203728	LAUER, DICK	A	DO	411722310012	CLARE LA	MINNETONKA	55391	Low	WEL
914	00203727	AULD, JOE	A	DO	411722320002	HOLDRIDGE TER	WAYZATA	55391	Low	WEL
915	00203729	ASTRUM, CARL	A	DO	411722320004	HOLDRIDGE TER	WAYZATA	55391	Low	WEL
916	00561362	ESTHER CHRISTENSON TRUST	A	DO	411722320004	HOLDRIDGE TER	WAYZATA	55391	Low	WEL
917	00424071	KLEVEN, DAVID	A	DO	411722320007	HILL RD	WAYZATA	55391	Low	WEL
918	00620055	KROECK, GEORGE	A	DO	411722320012	HILL RD	WAYZATA	55391	Low	WEL
919	00462143	FRANK, SUSAN	A	DO	411722320014	HOLDRIDGE TER	WAYZATA	55391	Low	WEL
920	00615234	BREMER, BILL	A	DO	411722320015	CROSBY RD	WAYZATA	55391	Low	WEL
921	00650716	ALLEN-WOLSTEAD, LISA & E	A	DO	411722320016	HOLDRIDGE TER	WAYZATA	55391	Low	WEL
922	00426532	ROSEN, CASEY	A	DO	411722320017	CROSBY RD	WAYZATA	55391	Low	WEL
923	00538036	COOK, TIM	A	DO	411722320019	CROSBY RD	WAYZATA	55391	Low	WEL
924	00735741	SMITH, RUSSELL	A	DO	411722320020	HOLDRIDGE TER	WAYZATA	55391	Low	WEL
925	00419428	LIPACO, JOHN	A	DO	411722320022	HOLDRIDGE TER	WAYZATA	55391	Low	WEL
926	00184761	BRIGGS, GARY	A	DO	411722320024	HOLDRIDGE TER	WAYZATA	55391	Low	WEL
927	00112218	COLLINS, THOMAS	A	DO	411722320025	HOLDRIDGE TER	WAYZATA	55391	Low	WEL
928	00203731	LINDAHL, JACK	A	DO	411722320030	HOLDRIDGE RD E	WAYZATA	55391	Low	WEL
929	00705933	HOLDRIDGE LLC	A	DO	411722320032	HOLDRIDGE RD E	WAYZATA	55391	Low	WEL
930	00112226	LUDWIG, L. J.	A	DO	411722330001	HOLDRIDGE RD E	WAYZATA	55391	Low	WEL
931	00655014	MALMBERG, JOEL & JEAN	A	DO	411722330007	CROSBY RD	WAYZATA	55391	Low	WEL
932	00621593	KELLESTAD, LEIGH	A	DO	411722330008	CROSBY RD	WAYZATA	55391	Low	WEL
933	00203733		A	DO	411722330014	HOLDRIDGE RD E	WAYZATA	55391	Low	WEL
934	00203732	JOHNSON, RAY	A	DO	411722330015	HOLDRIDGE RD E	WAYZATA	55391	Low	WEL
935	00203734	HAIL, DOUGLAS	A	DO	411722330045	HOLDRIDGE RD E	WAYZATA	55391	Low	WEL
936	00203746	VON BUSCH, ART	A	DO	411722410011	BRIGHTWOOD DR	MINNETONKA	55391	Low	WEL
937	00203747	BANAZAK	A	DO	411722410012	BRIGHTWOOD DR	MINNETONKA	55391	Low	WEL
938	00136737	CARLSON, KEN	A	DO	411722430001	LINNER RD	MINNETONKA	55391	Low	WEL
939	00223743	CARLSON, KENNETH	A	DO	411722430008	DEER HILL CT	MINNETONKA	55391	Low	WEL
940	W0000115	CROSBY, JUDIE	A	DO	411722430052	LINNER RD	MINNETONKA	55391	Low	WEL
941	00203751	JOHNSON, IVAN	A	DO	411722440007	DEER HILL DR	MINNETONKA	55391	Low	WEL
942	00203752	LONG, G. R.	A	DO	411722440008	DEER HILL DR	MINNETONKA	55391	Low	WEL
943	00203753	SMESTAD + ENGQUIST	A	DO	411722440009	DEER HILL DR	MINNETONKA	55391	Low	WEL

Figure ID	Unique Number	Well Name	Status Code	Use Code	Parcel ID	Address	City	Zip Code	Vulnerability	PCS Code
944	00203754	RYERSE, D. D.	A	DO	411722440011	DEER HILL DR	MINNETONKA	55391	Low	WEL
945	00203750	MEYERS, CLIFFORD	A	DO	411722440019	OAKWAYS	MINNETONKA	55391	Low	WEL
946	00203766	EXTURM, ED	A	DO	511722440006	RINGER RD	MINNETONKA	55391	Low	WEL
947	00203763	BUDINGER	A	DO	511722440013	RINGER RD	MINNETONKA	55391	Low	WEL
948	00203767	PIERCE, C.C.	A	DO	511722440015	LYMAN LA	MINNETONKA	55391	Low	WEL
949	00203765	PIERCE	A	DO	511722440016	RINGER RD	MINNETONKA	55391	Low	WEL
950	00203769	HEIL, RICHARD	A	DO	511722440025	LYMAN LA	MINNETONKA	55391	Low	WEL
951	00203764	BOYER, JOE	A	DO	511722440038	RINGER RD	MINNETONKA	55391	Low	WEL
952	00688960		A	DO	511722440039	CROSBY RD	WAYZATA	55391	Low	WEL
953	00223744	MICHAEL, WAYNE	A	DO	911722110002	MEETING ST	MINNETONKA	55391	Low	WEL
954	00223745	STEDMAN	A	DO	911722110006	MEETING ST	MINNETONKA	55391	Low	WEL
955	00203792	GOETZE, B. A.	A	DO	911722130057	STONE RD	MINNETONKA	55391	Low	WEL
956	00204007	WATERHOUSE, RAY	A	DO	911722440008	MAYFIELD RD	MINNETONKA	55391	Low	WEL
957	00204006	WATERHOUSE, RAY	A	DO	911722440010	MAYFIELD RD	MINNETONKA	55391	Low	WEL
958	00204004	WATERHOUSE, RAY	A	DO	911722440013	MAYFIELD RD	MINNETONKA	55391	Low	WEL
959	00204005	WATERHOUSE, RAY	A	DO	911722440014	MAYFIELD RD	MINNETONKA	55391	Low	WEL
960	00426893	COLWELL, FELTON	A	DO	911722440025	COPPERFIELD PL	MINNETONKA	55391	Low	WEL
961	204008	MINNETONKA 9	A	MU	1011722220022	ADDRESS UNASSIGNED	MINNETONKA	0	Low	WEL
962	00791777	WEBER, LOUIS	A	DO	1011722240013	OAKLAND RD	MINNETONKA	55305	Low	WEL
963	00276376	OLSON, H.S.	A	DO	411722310003	CLARENDON DR	MINNETONKA	55391	Low	WEL
964	00750674	FITZGERALD, SUZANNE	A	DO	411722320008	HILL RD	WAYZATA	55391	Low	WEL
965	00127500	BRITIAN, BOB	A	DO	411722320010	HOLDRIDGE TER	WAYZATA	55391	Low	WEL
966	00204556	OLSON, DON	A	DO	2311722330013	BRIARWOOD TER	MINNETONKA	55343	High	WEL
967	00204555	OLSON, DON	A	DO	2311722330018	BRIARWOOD TER	MINNETONKA	55343	High	WEL
968	00204561	UNDESTAD	A	DO	2311722340034	JAMES RD	MINNETONKA	55343	High	WEL
969	00204562	UNDESTAD	A	DO	2311722340035	JAMES RD	MINNETONKA	55343	High	WEL
970	00204563	UNDESTAD	A	DO	2311722340038	JAMES RD	MINNETONKA	55343	High	WEL
971	00204565	UNDESTAD, N.	A	DO	2311722340039	JAMES RD	MINNETONKA	55343	High	WEL
972	00204566	DONEFF, JACK	A	DO	2311722340040	JAMES RD	MINNETONKA	55343	High	WEL
973	00204560	UNDESTAD	A	DO	2311722340043	JAMES RD	MINNETONKA	55343	High	WEL
974	00249976	WALDENBERGER, LYNETTE	A	DO	1811721210035	31ST ST W	ST. LOUIS PARK	55426	High	WEL
975	00224065	SAMUELSON, C.S.	A	UN	1811721210077	COBBLECREST CT	ST. LOUIS PARK	55426	High	WEL
976	00203192	TINKER, DR. H. A.	A	UN	711721340030	CAVELL AVE S	ST. LOUIS PARK	55426	High	WEL

APPENDIX B
Figures



Hopkins
minnesota

Figure 1: DWSMA Vulnerability
Wellhead Protection Plan
City of Hopkins

WSB

DWSMA

City Boundary

Soil Texture

Unknown

Coarse-loamy

Fine

Fine-loamy

Fine-loamy over sandy or sandy-skeletal

Fine-silty

Loamy

Other

Sandy over loamy

494

12

169

7

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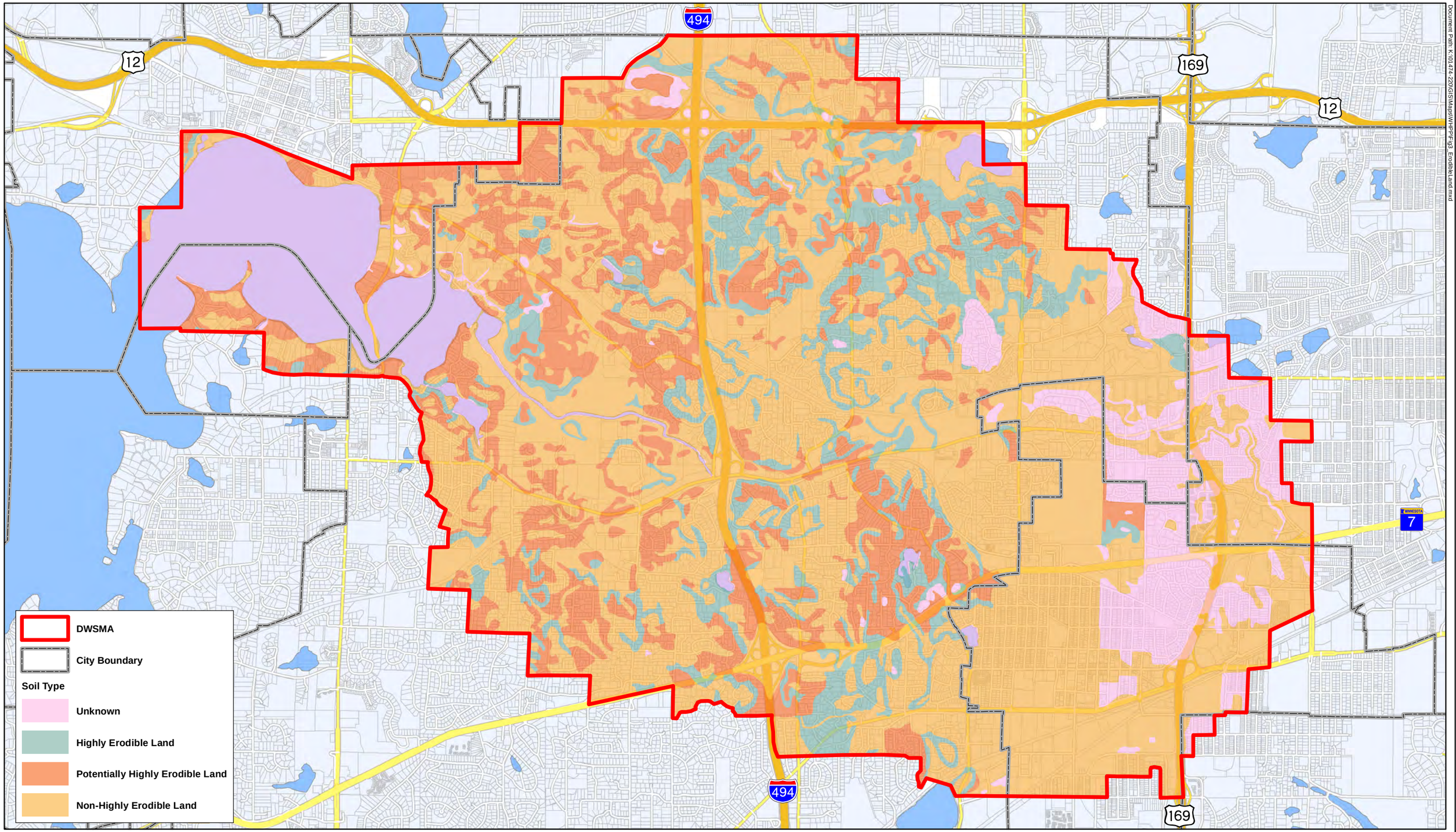
Figure 2: Soil Type
Wellhead Protection Plan
City of Hopkins

N

0 2,750 Feet

Hopkins minnesota

WSB



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Hopkins minnesota

Figure 3: Erodible Land
Wellhead Protection Plan
City of Hopkins

WSB

DWSMA
City Boundary
Seasonal/Vacation
Single Family Detached
Single Family Attached
Multifamily
Retail and Other Commercial
Office
Mixed Use Residential
Mixed Use Industrial
Mixed Use Commercial and Other
Industrial and Utility
Institutional
Park, Recreational or Preserve
Golf Course
Major Highway
Railway
Undeveloped
Water

Figure 4: Existing Land Use
Wellhead Protection Plan
City of Hopkins

N
0 2,750 Feet

DWSMA
City Boundary
Storm Sewer System
Ditches

Figure 5: Storm Sewer and Public Drainage
Wellhead Protection Plan
City of Hopkins

N

0 2,750 Feet

Hopkins minnesota

WSB

DWSMA
City Boundary
Sanitary Sewer System

Figure 6: Sanitary Sewer
Wellhead Protection Plan
City of Hopkins

N

0 2,750 Feet

Hopkins minnesota

WSB

Hopkins minnesota

Figure 7: Public Water Supply System
Wellhead Protection Plan
City of Hopkins

N
0 2,750 Feet

WSB

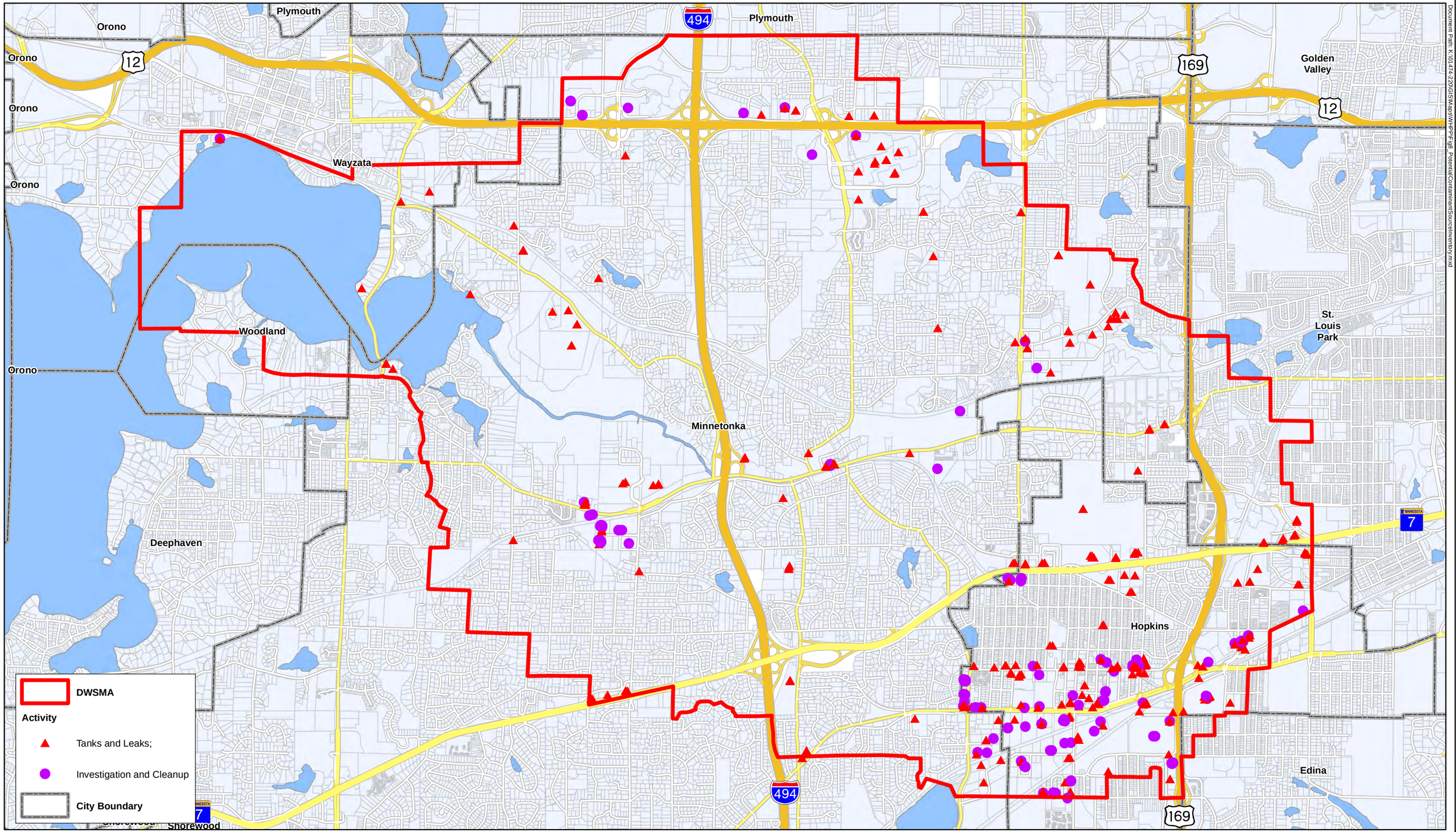

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Figure 8: Potential Contaminant Source Inventory
Wellhead Protection Plan
City of Hopkins

N

0 2,750 Feet

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Figure 9: Wells
Wellhead Protection Plan
City of Hopkins

Hopkins minnesota

WSB

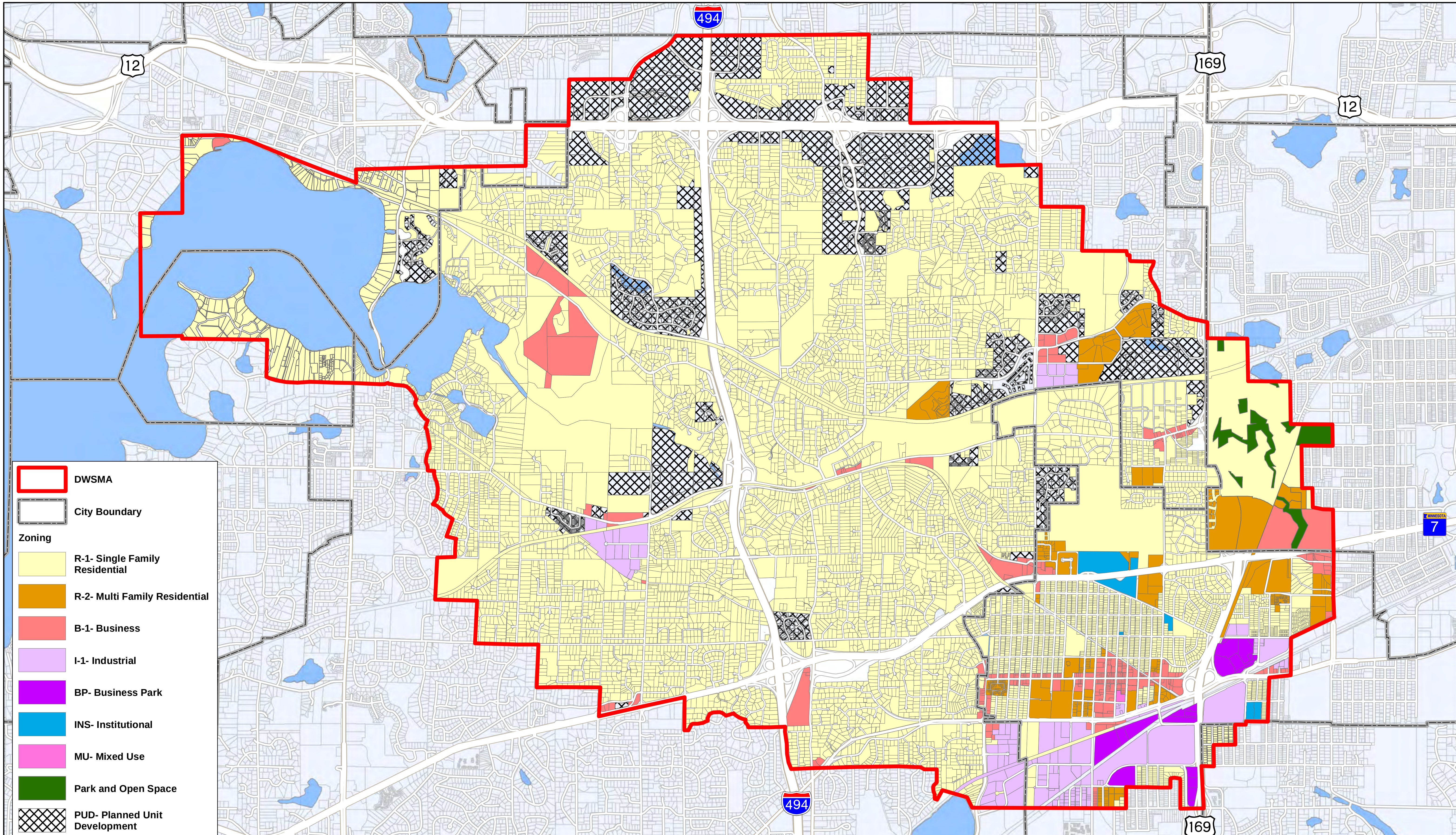

Figure 10: Zoning
Wellhead Protection Plan
City of Hopkins

N

0 2,750 Feet

APPENDIX C
Wellhead Protection Plan Part 1

Amendment to the
Wellhead Protection Plan

Part 1

Delineation of Wellhead Protection Area, Drinking Water Supply Management Area, and Drinking Water Supply Management Area Vulnerability Assessment

March 2015

Prepared for

The City of Hopkins

by

Leggette, Brashears & Graham, Inc.

Table of Contents Page

List of Tables

Table of Contents - Continued

List of Figures

List of Appendices

Glossary of Terms

Data Element. A specific type of information required by the Minnesota Department of Health to prepare a Wellhead Protection Plan.

Drinking Water Supply Management Area (DWSMA). The area delineated using identifiable land marks that reflects the scientifically calculated wellhead protection area boundaries as closely as possible (Minnesota Rules, part 4720.5100, subpart 13).

Drinking Water Supply Management Area Vulnerability. An assessment of the likelihood that the aquifer within the DWSMA is subject to impact from land and water uses within the wellhead protection area. It is based upon criteria that are specified under Minnesota Rules, part 4720.5210, subpart 3.

Emergency Response Area (ERA). The part of the wellhead protection area that is defined by a one-year time of travel within the aquifer that is used by the public water supply well (Minnesota Rules, part 4720.5250, subpart 3). It is used to set priorities for managing potential contamination sources within the DWSMA.

Inner Wellhead Management Zone (IWMZ). The land that is within 200 feet of a public water supply well (Minnesota Rules, part 4720.5100, subpart 19). The public water supplier must manage the IWMZ to help protect it from sources of pathogen or chemical contamination that may cause an acute health effect.

Wellhead Protection (WHP). A method of preventing well contamination by effectively managing potential contamination sources in all or a portion of the well's recharge area.

Wellhead Protection Area (WHPA). The surface and subsurface area surrounding a well or well field that supplies a public water system, through which contaminants are likely to move toward and reach the well or well field (Minnesota Statutes, part 103I.005, subdivision 24).

Well Vulnerability. An assessment of the likelihood that a well is at risk to human-caused contamination, either due to its construction or indicated by criteria that are specified under Minnesota Rules, part 4720.5550, subpart 2.

Acronyms

ATP - Aquifer Test Plan

CFR - Calculated Fixed Radius

CWI - County Well Index

DNR - Minnesota Department of Natural Resources

EPA - United States Environmental Protection Agency

FSA - Farm Security Administration

MDA - Minnesota Department of Agriculture

MDH - Minnesota Department of Health

MGS - Minnesota Geological Survey

MnDOT - Minnesota Department of Transportation

MnGEO - Minnesota Geospatial Information Office

MPCA - Minnesota Pollution Control Agency

NRCS - Natural Resource Conservation Service

SWCD - Soil and Water Conservation District

SWUDS – State Water Use Database System

UGE - Upgradient Extensions

UMN - University of Minnesota

USDA - United States Department of Agriculture

USGS - United States Geological Survey

1. Introduction

Leggette, Brashears and Graham, Inc. (LBG) has developed Part 1 of the Wellhead Protection (WHP) Plan for the City of Hopkins, Minnesota (City) (public water supply identification number 1270016). The work was performed in accordance with the Minnesota Wellhead Protection Rule (MR), parts 4720.5100 to 4720.5590. The City's existing WHP Plan, approved in 2007, is being amended now to have this amendment completed and approved by the expiration of the previous plan on September 15, 2017.

The results of the development of this amended WHP Plan are presented in the text below, on Tables 1 through 7, Figures 1 through 11, and in Appendix A, which are listed in the Table of Contents.

This report presents delineations of the wellhead protection area (WHPA) and drinking water supply management area (DWSMA), and the vulnerability assessments for the public water supply wells and DWSMA. Figure 8 shows the boundaries of the WHPA and the DWSMA. These are based on WHPAs for the City's three wells that are defined by a 10-year time of travel and fracture flow considerations. Figure 8 also shows the emergency response area (ERA), which are defined by a 1-year time of travel. An inner wellhead management zone (IWMZ), which is the area within a 200-feet radius around the well, serves as the wellhead protection area for emergency wells, and is not displayed in this report. Definitions of rule-specific terms that are used are provided in the "Glossary of Terms".

This report also lists the technical information that was used to prepare this portion of the WHP Plan in accordance with the MR. Information pertaining to the Determination of Aquifer Properties and Aquifer Test Plan (DAP-ATP) and the well vulnerability sheets can be obtained from the Minnesota Department of Health (MDH).

The City Wells included in the WHP Plan are listed in Table 1.

Table 1 - Water Supply Well Information
City of Hopkins

Local Well Name	Unique Number	Type	Casing Diameter (inches)	Casing Depth (feet)	Well Depth (feet)	Date Constructed/ Reconstructed	Well Vulnerability	Aquifer
Well No. 1	204573	Emergency	16 x 12	286	482	1905	Vulnerable	OPCJ
Well No. 4	204068	Primary	24 x 20	410	548	1954	Vulnerable	OPCJ
Well No. 5	204570	Primary	36x24x16	382	495	1967	Vulnerable	OPCJ
Well No. 6	112228	Primary	30 x 24	354	545	1977	Vulnerable	OPCJ

OPCJ- Prairie du Chien - Jordan

2. Assessment of the Data Elements

Table 2 presents the assessment of the data elements as outlined in the MDH's scoping letter relative to the present and future implications of planning items that are specified in MR, part 4720.5210.

Table 2 - Assessment of Data Elements

Data Element	Present and Future Implications				Data Source (See Selected References for Numbered Citations)
	Use of the Well (s)	Delineation Criteria	Quality and Quantity of Well Water	Land and Groundwater Use in DWSMA	
Precipitation					
Geology					
Maps and geologic descriptions	H	H	H	H	MGS, 2000 and 2013, CWI
Subsurface data	H	H	H	H	MGS, 2000 and 2013, CWI
Borehole geophysics	H	H	H	H	MGS
Surface geophysics					None Available
Maps and soil descriptions					
Water Resources					
Watershed units					
List of public waters					
Land Use					
Parcel boundaries map	L	L	L	L	Hennepin County GIS Data
Political boundaries map	L	H	L	L	ESRI Data
PLS map	L	H	L	L	ESRI Data
Public Utility Services					
Transportation routes and corridors	L	M	M	M	ESRI
Storm/sanitary sewers and PWS system map					
Public drainage systems map or list					
Records of well construction, maintenance, and use	H	H	H	H	City, CWI, MDH Files
Surface Water Quantity					
Stream flow data					
Ordinary high water mark data					
Permitted withdrawals					
Protected levels/flows					
Water use conflicts					
Groundwater Quantity					
Permitted withdrawals	H	H	H	H	DNR
Groundwater use conflicts	H	H	H	H	DNR
Water levels	H	H	H	H	DNR, MPCA, MDH, City

Data Element	Present and Future Implications				Data Source (See Selected References for Numbered Citations)
	Use of the Well (s)	Delineation Criteria	Quality and Quantity of Well Water	Land and Groundwater Use in DWSMA	
Surface Water Quality					
Monitoring data summary	L	M			MDH, MPCA, MDA, DNR, City
Groundwater Quality					
Monitoring data					
Isotopic data	H	H	H	H	MPCA, MDH. USGS, UMN
Tracer studies					None Available
Contamination site data					
MPCA and MDA spills/release reports	H	H	H		MPCA and MDA

Definitions Used for Assessing Data Elements:

High (H) – The element has a direct impact.

Moderate (M) – The element has an indirect or marginal impact.

Low (L) – The element has little if any impact.

Shaded – The element was not required by MDH for preparing the WHP Part 1 Plan.

3. General Descriptions

3.1 Description of the Water Supply System

The City, shown on Figure 1, obtains its drinking water supply from 3 primary wells, City Wells No. 4, 5, and 6. The wells are shown on Figure 1 and Table 1 summarizes information regarding them.

3.2 Description of the Hydrogeologic Setting

The geology in the vicinity of the City consists of Quaternary-age glacial and post-glacial deposits that are underlain by Ordovician and Cambrian-aged bedrock. Clay and sand deposits are predominant throughout the study area. The uppermost bedrock over much of the area in and around the City consists of the Platteville and Glenwood Formations. These overlie, in order of depth, the St. Peter Sandstone, the Prairie du Chien Group, the Jordan Sandstone, the St. Lawrence Formation, the Tunnel City Group, the Wonewoc Sandstone, the Eau Claire Formation and the Mt. Simon Sandstone. A summary of the hydrologic conditions at the City Wells is presented in Tables 3a and 3b.

The layers of interest in this study are the Prairie du Chien Group and Jordan Sandstone as the City's production wells are completed solely within these aquifers. These two aquifers are referred to herein as the Prairie du Chien and Jordan Aquifers. The Jordan Aquifer is underlain by the St. Lawrence formation, a dolomitic siltstone that acts as a regional aquitard and confining layer, effectively isolating the layers from deeper bedrock aquifers.

Table 3a - Description of the Prairie du Chien Aquifer at Hopkins Wells

Aquifer	Attribute	Descriptor	Data Source
Prairie du Chien (OPDC)	Aquifer Material	Shale, Dolomite	City Well Logs
	Primary Porosity	0.056	Typical of aquifer material and recommended by MDH.
	Aquifer Thickness	115 - 119	City Well Logs (OPDC)
	Stratigraphic Top Elevation	637 – 656 ft-amsl	City Well Logs
	Stratigraphic Bottom Elevation	519 – 536 ft-amsl	City Well Logs
	Hydraulic Confinement	Confined	City Well Logs
	Transmissivity (T)	Reference Value: 20,532 ft^2/day	The reference value for the OPDC was calculated using a pumping test on both the OPDC and CJDN aquifers at City Well No. 5 in 2005 and a test on the CJDN aquifer at Minnetonka City Well No. 6a in 1994.
	Hydraulic Conductivity (K)	Reference Value/Range: 177 ft/day (88.5 – 304 ft/day)	The reference value for the conductivity of the OPDC was determined by dividing the reference transmissivity by the thickness of the OPDC at City Well No. 5. The high end of the range was defined by an MDH re-analysis of the pumping test at City Well No. 5 from 2014 (see DAP-ATP). The low end of the range is equal to half of the reference value.
	Groundwater Flow Field	Flow to the east and south (variable) Hydraulic Gradient: 2.0×10^{-3}	Measured from model results. Flow generally toward the Mississippi River.

- ft-amsl = feet above mean sea level (NAVD 88)

Table 3b - Description of the Jordan Aquifer at Hopkins Wells

Aquifer	Attribute	Descriptor	Data Source
Jordan Sandstone (CJDN)	Aquifer Material	Sandstone	City Well Logs
	Primary Porosity	0.2	Typical of aquifer material and recommended by MDH.
	Aquifer Thickness	60 - 105 ft	City Well Logs
	Stratigraphic Top Elevation	519 - 536 ft-amsl	City Well Logs
	Stratigraphic Bottom Elevation	423 - 474 ft-amsl	City Well Logs
	Hydraulic Confinement	Confined	City Well Logs
	Transmissivity (T)	Reference Value: 1,548 ft^2/day	The reference value for the transmissivity of the CJDN aquifer calculated from the conductivity determined from a pumping test at City of Minnetonka Well No. 6a in 1994 and the thickness of the CJDN at City Well No. 5.
	Hydraulic Conductivity (K)	Reference Value/Range: 25.9 ft/day (22 – 71.8 ft/day)	The reference value was determined from a CJDN-only pumping test at City of Minnetonka Well No. 6a in 1995 and the range was determined from a test at City of Medina Well No. 6 in 2007 and specific capacity data from CJDN-only wells in the area.
	Groundwater Flow Field	Flow to the east and south (variable) Hydraulic Gradient: 2.0×10^{-3}	Measured from model results. Flow generally toward the Mississippi River.

4. Delineation of the Wellhead Protection Area

4.1 Delineation Criteria

The boundaries of the WHPA for the City are shown in Figure 8. Table 4 provides descriptions of how the delineation criteria that are specified under MR, part 4720.5510 were included in the model.

Table 4 - Description of WHPA Delineation Criteria

Criterion	Descriptor	How the Criterion was Addressed
Flow Boundary	Mississippi and Minnesota Rivers, Bassett and Minnehaha Creeks, Lake Minnetonka and other local lakes.	The rivers provide boundary conditions within the regional model near the City. They are included in the local model and help set the local groundwater flow.
Daily Volume of Water Pumped	See Table 5	Pumping information was obtained from the Minnesota Department of Natural Resources (DNR) Appropriations Permit 1975-6245. The annual pumped volumes were converted to a daily volume pumped by a well.
Flow Boundary	Other High-Capacity Wells (Table 6)	The pumping amounts were determined based on the averaged 2010-2014 pumped volumes. The pumping amounts of these high-capacity wells were included in the methods used for the delineation.
Groundwater Flow Field	See Figures 3 through 5	The model calibration process addressed the relationship between the calculated versus observed groundwater flow field.
Aquifer Transmissivity	Reference Value 22,080 ft^2/day	The reference value for the transmissivity of the combined OPDC and CJDN Aquifers was determined from a pumping test conducted at City Well No. 5 in 2005.
Time of Travel	10 years	The public water supplier selected a 10-year time of travel.

Information provided by the City and from the DNR MPARS database were used to identify the maximum volume of water pumped annually by each well over the previous five-year period (2010 – 2014). The volumes pumped from the wells over previous five years and the rates used in the delineation are summarized in Table 5. The total volume illustrated in Table 5 (1,094.3 MGY) is approximately 33% greater than the highest single-year demand over the period of record (820 MGY in 2011), indicating a conservative delineation volume. The daily volume of discharge used as an input parameter in the model was calculated by dividing the annual withdrawal volume by 365 days.

Table 5 - Annual Volume of Water Discharged from Water Supply Wells

Well Name	Unique Number	Total Annual Withdrawal (million gallons/year[MGY])					Maximum Withdrawal 2010 - 2014 (MGY)	Daily Withdrawal used in WHP Plan (m3/d)
		2010	2011	2012	2013	2014		
Well No. 1	204573	0	0	0	0	0	0	0.0
Well No. 4	204068	476.9	**561.2**	460	489.6	440.2	561.2	5,814.0
Well No. 5	204570	0	78.1	191.8	198.2	**216**	216	2,237.8
Well No. 6	112228	**317.1**	180.7	119.8	129.8	156.4	317.1	3,285.2
Totals		794	**820**	771.6	817.6	812.6	1,094.3	11,336.9

- Source: The DNR State Water Use Database System (MPARS) Permit Number 1965-6425.
- Underlined values used in model for WHPA delineation.

Table 6 - Other Permitted High-Capacity Wells within 2 Miles of City Wells

Unique Number	Well Name	DNR Permit Number	Aquifer	Use	Annual Volume of Water Pumped* (million gallons)	Daily Volume (cubic meters)
203613	Edina, City of	1973-1119	CJDN	Municipal/Public Water Supply	374.86	3,883.5
203614	Edina, City of	1973-1119	CMTS	Municipal/Public Water Supply	111.9	1,159.3
132263	Minnetonka, City Of	1979-6207	OPDCCJDN	Municipal/Public Water Supply	182.6	1,891.7
205165	Minnetonka, City Of	1979-6207	OPDCCJDN	Municipal/Public Water Supply	182.2	1,888.0
204054	Minnetonka, City Of	1979-6207	CJDN	Municipal/Public Water Supply	127.9	1,324.6
208012	Minnetonka, City Of	1979-6207	CJDN	Municipal/Public Water Supply	111.6	1,155.8
204537	Minnetonka, City Of	1979-6207	OPDCCJDN	Municipal/Public Water Supply	85.0	880.4
160021	Minnetonka, City Of	1979-6207	OPDCCJDN	Municipal/Public Water Supply	92.1	953.9
204072	Oak Ridge Country Club	1966-1167	OPDCCJDN	Golf Course Irrigation	28.7	296.8
216050	St Louis Park, City Of	1988-6213	OPCJ	Pollution Containment	27.6	285.7
453805	Interlachen Country Club	1969-0490	OPCJ	Golf Course Irrigation	15.9	164.7

- Source: The DNR State Water Use Database System (MPARS) average pumping data from 2010-2014

4.2 Method Used to Delineate the Wellhead Protection Area

The WHPA for each City Well was determined using a combination of two delineations. The first was a porous media groundwater flow model. The second was a fracture flow delineation, which considers flow through fractured bedrock that could potentially significantly expand the capture zone of a well.

4.2.1. Porous Media Delineation

The porous media delineations of the WHPA for the City Wells were completed using an existing regional MODFLOW model, Metromodel 2.0, which was provided by the Metropolitan Council (Met Council, 2009). MODFLOW is a 3D, cell-centered, finite difference, saturated flow model developed by the USGS (Harbaugh et al., 2005).

The regional Metromodel consists of nine layers that represent the major aquifers and aquitards within the seven-county metropolitan area. These layers represent, from top to bottom, the following units: (1) surficial aquifer of glacial deposits; (2) St. Peter Sandstone or Quaternary Buried Artesian Aquifer; (3) Prairie du Chien Group; (4) Jordan Sandstone; (5) St. Lawrence Formation (aquitard); (6) Tunnel City Group; (7) Wonewoc Sandstone; (8) Eau Claire Formation (aquitard); and, (9) Mt. Simon Sandstone. The regional groundwater model was calibrated to steady-state water levels and river base flows.

A local-scale model, limited to parts of Hennepin and Ramsey Counties, was extracted from the regional seven-county model and is shown on Figures 1 through 4. The local model and all of the modeling for this amendment was completed using GMS (Aquaveo, 2015), a pre- and post-processor for MODFLOW. The local model was created using the technique of local grid refinement where a smaller, more refined grid is used within the regional model. The heads computed from the regional model then provide some of the boundary conditions for the local model as specified heads. The size of the domain and the general flow-field characteristics of the model were based on the Metromodel and the results of the original delineation.

The local model domain was divided into a three-dimensional, non-uniform grid. The model has 329 rows, 395 columns, and nine layers. The details of the Metromodel were translated to the local-scale model using GMS. Finer grid spacing was applied in the local model with telescopic mesh refinement used in the area of the site where the City Wells are located. This grid spacing (3 m in the area of the City's wells) provides better definition in the area of the flow field where simulating the influence of pumping from the wells is critical. The base of the model is variable at an elevation of approximately 30 meters below mean sea level in the area of the City Wells. There are the same nine layers in the local model to represent the bedrock units and unconsolidated materials as in the Metromodel. These layers correspond to the approximate vertical extent of the various stratigraphic units observed in the vicinity of the City. Layer 1 represents the unconsolidated materials, primarily clay till and sand units. Layer 2 represents unconsolidated materials in some areas and St. Peter Sandstone, where present. Layers 3 and 4 are comprised primarily of the Prairie du Chien Group and Jordan Sandstone, respectively. Layer 5 is the St. Lawrence Formation, which is an aquitard that effectively eliminates any influence from the four deeper layers of the model in the area of interest.

Changes were made to the original Metromodel defined characteristics in the area of interest around the City Wells. Site specific information allowed for more accurate definition of aquifer

characteristics. These changes were confined primarily to the Prairie du Chien and Jordan Aquifers in the area of the City. The conductivities of the Prairie du Chien and Jordan Aquifers were modified to be in line with the values reported in the DAP-ATP. Zones were created in Layers 3 and 4 of the model, shown in Figure 2, for modifying the horizontal and vertical conductivity of the aquifers in the vicinity of the City Wells and their capture zones. These conductivities replaced those used in the Metromodel for that area.

In addition to the previously mentioned changes, the following modifications were incorporated in the refined model:

- The pumping rates from Table 5 were assigned to the City Wells.
- The pumping rates from Table 6 were assigned to the permitted high-capacity wells located within approximately 2 miles of the City Wells.

As part of the delineation, groundwater pathline analyses were performed to determine the 1-, 5- and 10-year capture zones and ultimately the WHPA. The pathline analysis consisted of using MODPATH, a flowpath calculation program, to determine the capture zone for each of the City Wells. This was completed by tracing 375 flow paths from each cell for a 10-year travel time. Porosities of 5.6 percent and 20 percent were used for the Prairie du Chien Aquifer and the Jordan Aquifer, respectively, per MDH recommendations.

All three of the primary City Wells are open to both the Prairie du Chien and Jordan Aquifers. The Jordan Aquifer is also hydraulically connected to the Prairie du Chien Aquifer with a high likelihood of leakage between the two as documented in numerous tests and other WHP Plans completed in the area. The high likelihood of fracture flow within the Prairie du Chien Aquifer required the completion of a delineation of the potential area of fractured rock contributing to the flow from the City Wells.

4.2.2. Fractured Rock Delineation

The second WHPA delineation for the City Wells was determined using the "Guidance for Delineating Wellhead Protection Areas in Fractured and Solution-Weathered Bedrock in Minnesota" (MDH, 2012). This guidance was developed by MDH to address the increased variability in flow velocities and directions in geologic settings with secondary porosity. The guidance is a modified volumetric analysis and does not use a model based on flow equations.

In accordance with the guidance, Delineation Technique 3 was used to delineate the WHPA. This technique was chosen, in part, because it is recommended for aquifers characterized by locally confined conditions where the ratio of the well discharge to the discharge vector is less than 3000, and Wells No. 4 through 6 are open to both the Prairie du Chien and Jordan. Parameters used in the fracture flow analysis are summarized in Appendix A.

The fracture-flow analysis is a method that establishes a calculated fixed-radius (CFR) capture zone based on the 5-year volume of water pumped for a given well. The initial CFRs were calculated using the MDH Calculated Fixed Radius Tool (Tool) for City Wells No. 4 and 6. Special considerations had to be made due to significant overlap of the initial CFRs. As a result, through discussions with MDH, it was decided that it would be useful to apportion the flow volume of City Well No. 5 to Wells No. 4 and 6 based on their proportion of total flow. This approach allowed a "two-well" scenario to be run using the Tool to determine the original, revised, and upgradient extensions for City Wells No. 4 and 6.

The flow direction was determined by reviewing the upgradient capture direction determined from the 10-year capture zones in the groundwater flow model.

Appendix A presents the input and output from the Tool used to determine the fracture flow delineation. Figure 7 illustrates the initial and revised CFRs, and the resulting fracture flow WHPA delineation.

After the uncertainty analysis and the fracture flow analysis were completed, the capture zones delineated for each of the analyses were plotted together. The outline of this concatenation delineates a final composite WHPA capture zone, shown on Figure 8, for use in defining the DWSMA.

The resulting WHPA boundaries (Figure 8) are a composite of the 10-year capture zones calculated using this model for the base case parameters, the parameter values used in the sensitivity analysis, and the fracture flow delineation. Details are discussed in the following section. The model input files are available upon request from the MDH.

4.3 Results of Model Calibration and Sensitivity Analysis

The goal of numerical model calibration is to obtain a reasonable correlation between the simulated model results and observed field data. The calibration process is generally completed by running a series of steady-state simulations (simulations where the flow magnitude and direction are constant with time), comparing calculated heads to the measured heads at wells within the model domain while changing the model parameters until the best match between the two is achieved. After a model is reasonably calibrated a sensitivity analysis is used to determine the impact that changes to an input parameter have on the output of the model. In areas where there is a great deal of uncertainty in the physical parameters, either as a consequence of lack of data or based on the uncertainty associated with the interpretation of available data (i.e. pumping test analyses), a number of models are generally run to observe the effect on the model results over the range of potential values for each of the significant parameters. While none of the individual capture zones delineated as part of this analysis should be considered the “correct” one, it is assumed that the actual capture zone is encompassed by the resulting concatenation of analysis zones.

4.3.1. Calibration

The calibration plot, showing measured versus simulated hydraulic head values, for Layers 3 and 4 of the local model (representing the Prairie du Chien and Jordan Aquifers, respectively) is illustrated on Figure 5. The plots show that the simulated values and measured head values generally compare quite favorably and have a normalized root mean squared (NRMS) error of approximately 9 percent. Much of the error stems from areas in the model where the observation data was collected more than 20 years ago. In many parts of the metropolitan area, pumping has increased dramatically over this time period resulting in the model over-predicting drawdown relative to this older information. These portions of the model still calibrate reasonably well, however, and these older measurements are considered more valuable than no data. Therefore, no further effort was put into improving the calibration once the simulated heads in the area of interest closely matched the measured heads.

More extensive observation data collected within the same general time period and more accurate, site-specific transmissivity values throughout the model domain would improve calibration and model confidence.

The groundwater flow field and hydraulic heads in the area of the City for the calibrated model are shown on Figures 3, 4, and 7. The 1-, 5-, and 10-year capture zones, predicted using the calibrated model, are shown on Figure 6. However, due to the potential variability associated with the physical characteristics of the aquifer, a sensitivity/uncertainty analysis was completed as part of the modeling effort.

4.3.2. Sensitivity Analysis

Sensitivity is the amount of change in model results caused by the variation of a particular input parameter. For example, changing the hydraulic conductivity of an area can change the calculated head values in and around the area of the modified model as compared to the heads in an unmodified model. Because of the relative complexity of the area of interest in this model, the size and orientation of the modeled capture zone may be sensitive to any of the input parameters described below:

The **pumping rate** determines the volume of the aquifer that contributes water to the well. Increasing the pumping rate will expand the capture zone, for a given thickness, and decreasing it will make the capture zone smaller.

- **Results –** The pumping rate for each well was defined by MR and therefore is not a variable for consideration in this analysis.

The **direction of groundwater flow** and gradient can often be variable and change significantly with changing conditions such as fluctuations in local surface water elevations or the pumping rates in local wells

- **Results** – The regional flow direction and gradient were determined through the modeling process and closely resemble the flow direction and gradient determined through mathematical analysis of the measured heads in the area. The model was calibrated to hydraulic heads, and the local refined model calibration mirrored the regional calibration. Based on the regional observation data, the characteristics of the flow field and the use of the aquifers of interest there is not likely to be a significant change to the flow field.

The **horizontal hydraulic conductivity** influences the size and shape of the capture zone. In the presence of a gradient, higher conductivities will result in long, narrow capture zones extending upgradient. Lower conductivities will result in shorter, wider capture zones. As there is nearly always a large amount of uncertainty associated with this parameter, most analyses will consider a range of conductivities. All of the transmissivity and conductivity data and analysis can be found in the DAP-ATP documentation from the MDH.

- **Results** - A change in the hydraulic conductivity of the aquifer will alter the location of the capture zones. As a result, a range of potential values of hydraulic conductivity were calculated using each of the City Wells. The hydraulic conductivity in the area of the City Wells was determined from the results of pumping tests completed at City Well No. 5 in 2005 and Minnetonka City Well No. 6A (208012) in 1994. Minnetonka City Well No. 6a is a solely Jordan Aquifer well that provided the hydraulic conductivity value for the Jordan Aquifer in the area. Using this information to determine the Jordan Aquifer contribution to the total flow at City Well No. 5 allowed for the calculation of the Prairie du Chien Aquifer conductivity in the Hopkins area. The values determined from specific capacity data from other wells completed only in the Jordan Aquifer in the Hopkins area yielded a conductivity range of 22 to 72 ft/day

(6.7 to 21.9 m/day) that was used during the uncertainty analysis, described in Section 4.4. The range of values for the Prairie du Chien Aquifer was determined by using half of the reference value for the low end of the range and the high end of the range was obtained from an MDH reassessment of the original City Well No. 5 test data. This yielded a range of approximately 89 to 304 ft/day (27 to 93 m/day) that was used during the uncertainty analysis.

The aquifer **thickness** and **porosity** influence the size and shape of the capture zone by limiting the water-bearing volume within a given area of aquifer. Decreasing or increasing either thickness or porosity forces a proportional decrease or increase in the areal extent of the capture zone.

- **Results** - The thickness of the aquifers around the wells in the model was compared to the actual thicknesses observed on the well logs for each of the City Wells. The modeled Prairie du Chien aquifer is approximately 7 percent thinner than the logged thickness at City Well No 6, the same thickness at City Well No. 5 and approximately 7 percent thicker at City Well No. 4. The modeled Jordan Aquifer is 38 percent thicker at City Well No. 5, 17 percent thinner at City Well No. 6 and approximately the same at City Well No. 4. To account for these differences, the values for the hydraulic conductivity used in the model were modified slightly from the values shown in Tables 3a and 3b in order to maintain the proper transmissivity. The porosity value in the model for the Jordan Aquifer is 20 percent and 5.6 percent for the Prairie du Chien Aquifer are typical or conservative for these aquifers and are not considered variables.

4.4 Addressing Model Uncertainty

Using computer models to simulate groundwater flow always requires that simplifying assumptions be made. Local geology can be highly variable and information from well logs and pumping tests indicates that this is likely the case near the City Wells. Unfortunately, existing information is not detailed enough to define this degree of variability and interpretation of log and test data is often inconsistent. For models of the scale used in this study, the information and computational ability does not exist to precisely delineate the WHPA. To account for this, a number of models are run to examine the various potential WHPAs for the wells, given the range of the input data mentioned previously.

MODFLOW models were used to delineate the capture zones for the Prairie du Chien and Jordan Aquifers that supply water to the City Wells. As described previously, the hydraulic conductivity was the single variable identified that could cause the greatest change in the WHPAs for the City Wells. The range of hydraulic conductivity determined from the pumping test data at the City Wells and specific capacity analyses at other local wells is summarized in Table 3. The values used for each of the model runs in the uncertainty analysis are presented in Table 7.

Table 7– Hydraulic Conductivity Values Used in Uncertainty Analysis

Simulation	Prairie du Chien Conductivity (ft/day)	Prairie du Chien Conductivity (m/day)	Jordan Conductivity (ft/day)	Jordan Conductivity (m/day)
Base Model	177	53.9	25.9	7.9
Uncert-1	177	53.9	71.9	21.9
Uncert-2	177	53.9	22	6.7
Uncert-3	89	27	25.9	7.9
Uncert-4	89	27	22	6.7
Uncert-5	89	27	71.9	21.9
Uncert-6	304	93	25.9	7.9
Uncert-7	304	93	22	6.7
Uncert-8	304	93	71.9	21.9

- Conductivities were determined through testing and analysis as summarized in the DAP-ATP.

Capture areas delineated for the assessed range of aquifer conductivities for a 10-year time-of-travel period are shown on Figure 6. The WHPAs for the City Wells consist of a composite of the porous media aquifer delineations for the different input parameters used in the uncertainty analysis, shown on Figure 8, and the previously described fracture flow delineation, shown on Figure 7.

5. Delineation of the Drinking Water Supply Management Area

The boundaries of the DWSMA were defined by LBG using roads, railroads and Public Land Survey System (PLSS) coordinates (Figure 8). The boundary was digitized using an aerial photo, and therefore, may not match the topographic map background layer exactly. Where the PLSS quarter quarter section coordinates were used, the DWSMA is snapped to the intersections.

6. Vulnerability Assessments

The Part 1 WHP Plan includes the vulnerability assessments for the public water supply well and DWSMA. These vulnerability assessments are used to help define potential contamination sources within the DWSMA and to select appropriate measures for reducing the risk that they present to the public water supply.

6.1 Assessment of City Well Vulnerability

The City Well vulnerability assessment was conducted in accordance with the MDH guidance document, “Assessing Well and Aquifer Vulnerability for Wellhead Protection” (MDH, 1997). Vulnerability assessment rating sheets and vulnerability scores for Wells No. 4 through 6 were obtained from the MDH and reviewed by LBG. The vulnerability of a well is scored based on the following six categories: DNR geologic sensitivity rating, casing integrity, casing depth, pumping rate, isolation distance from contaminant sources, and chemical and isotopic information. Based on these categories, City Wells No. 4 and 5 are considered Vulnerable, and City Well No. 6 is considered Not Vulnerable. The presence of tritium above 1 Tritium Unit (T.U.) in City Wells No. 4 and 5 triggered

the Vulnerable rating for these wells and the absence of a tritium result above 1 T.U. resulted in City Well No. 6 being Not Vulnerable.

6.2 Assessment of Drinking Water Supply Management Area Sensitivity

The assessment of geologic sensitivity is a useful metric when estimating the relative vertical downward travel time of contaminants from grade level to the water table or source aquifer. A Level-3 DNR geologic sensitivity assessment was used for the City Wells. The Level-3 DNR geologic sensitivity rating is an empirical value determined by dividing the cumulative thickness of low permeability units above the aquifer by 10 (DNR, 1991). The resulting score is termed the "L-score". A higher L-score indicates more low-permeability material above the aquifer, and therefore a lower vulnerability. A low L-score represents higher vulnerability. For example, a rating of L-1 has a higher vulnerability than L-9, because there is less low-permeability material present above the aquifer. A Level-3 assessment was conducted since the aquifers are overlain by varying thicknesses of clay.

A Level-3 assessment was also conducted for all Minnesota County Well Index (CWI) wells located in the vicinity of the DWSMA delineation. The geologic sensitivity "L-scores" were calculated by MDH using a Geographic Information System tool that utilizes lithology information from the CWI. Figure 9 illustrates the geologic sensitivity for the DWSMA as determined by mapping L-scores from well logs for wells near the DWSMA.

Review of site-specific data from the CWI indicates that much of the DWSMA has significant thicknesses of low permeability material that overlie the Prairie du Chien and Jordan aquifers. This results in geologic sensitivity ratings of Very Low and Low across much of the DWSMA. However, there are two areas across the DWSMA where there is less low permeability material, and therefore these are categorized as High geologic sensitivity. One area is located near the southwest boundary of the DWSMA, and the other is located near the northeast boundary of the DWSMA. City Wells No. 4 and 6 are considered to have Low geologic sensitivity, and City Well No 5 is considered in to have Very Low geologic sensitivity. These categorizations are the result of the MDH City Well Vulnerability Assessment sheets and the DWSMA geologic sensitivity analysis.

6.3 Assessment of the Drinking Water Supply Management Area Vulnerability

Once the geologic sensitivity was determined for wells near the DWSMA and for the area within the DWSMA, the vulnerability ratings could be determined. Since tritium has been detected above 1 T.U., the vulnerability rating in the vicinity of the City Wells and across the DWSMA was increased one level compared to the sensitivity rating (Figure 10), when the geologic sensitivity alone could not explain the presence of Tritium.

6.4 Conjunctive Delineation

A review was conducted to determine if a conjunctive delineation was necessary due to the presence of tritium above 1 T.U. present in City Wells No. 4 and 5, and that there were two areas considered geologically sensitive. Given that much of the DWSMA near the main surface water feature, Lake Minnetonka, has significant low permeability material overlying the Prairie du Chien and Jordan Aquifers, there does not appear to be a direct connection between these aquifers and surface water. Further, the two areas that are considered to have High geologic sensitivity are not coincident with significant surface water bodies. The high geologic sensitivity area in the southwest part of the DWSMA has a pond within the area, but in the event of surface drainage from the pond, the runoff

would run further southwest, and out of the DWSMA. Therefore, no conjunctive delineation was completed at this time.

7. Comparing Original Part 1 to This Amendment

The vast majority of the WHP Area is the same between the original and this amended Part I. The primary difference between the original and current WHP Area is that there is an extension of the northwest boundary from the original Part I. This is due to the inclusion of the higher hydraulic conductivity value used for the Prairie du Chien Aquifer as part of the uncertainty analysis. The similarity between the remainder of the two WHP Areas is a result of using similar CFR Methodology for the determination of the fracture flow delineation.

The original Part 1 model was an analytic element model that considered the Prairie du Chien Group and Jordan Sandstone as a single aquifer. The current model is a finite difference model that treats each aquifer separately and incorporates the variable thicknesses of each aquifer and potential interactions with overlying and underlying layers. The current model should be flexible enough to be modified and updated to include any new data when the next Amendment to this Part 1 is due.

8. Recommendations

As the majority of the WHP Area was included as a result of the uncertainty associated with the fracture flow nature of the Prairie du Chien Aquifer, there are not many options for reducing the uncertainty. Therefore, upon completion of this Part 1 WHP Plan amendment, only the following recommendations are provided for the City to consider for better understanding the hydrogeologic conditions of the source aquifers and refinement of future WHPA delineations.

- Collect a synoptic round of groundwater samples from City Wells No. 4 and 5, surface water samples from Lake Minnetonka and Minnehaha Creek, and precipitation samples. It is recommended that one round of sampling be completed to conduct stable isotope analyses to evaluate the mixture of surface water and groundwater.

- Continue collecting groundwater samples from the City wells for analysis of regulated contaminants and provide the data to the MDH.

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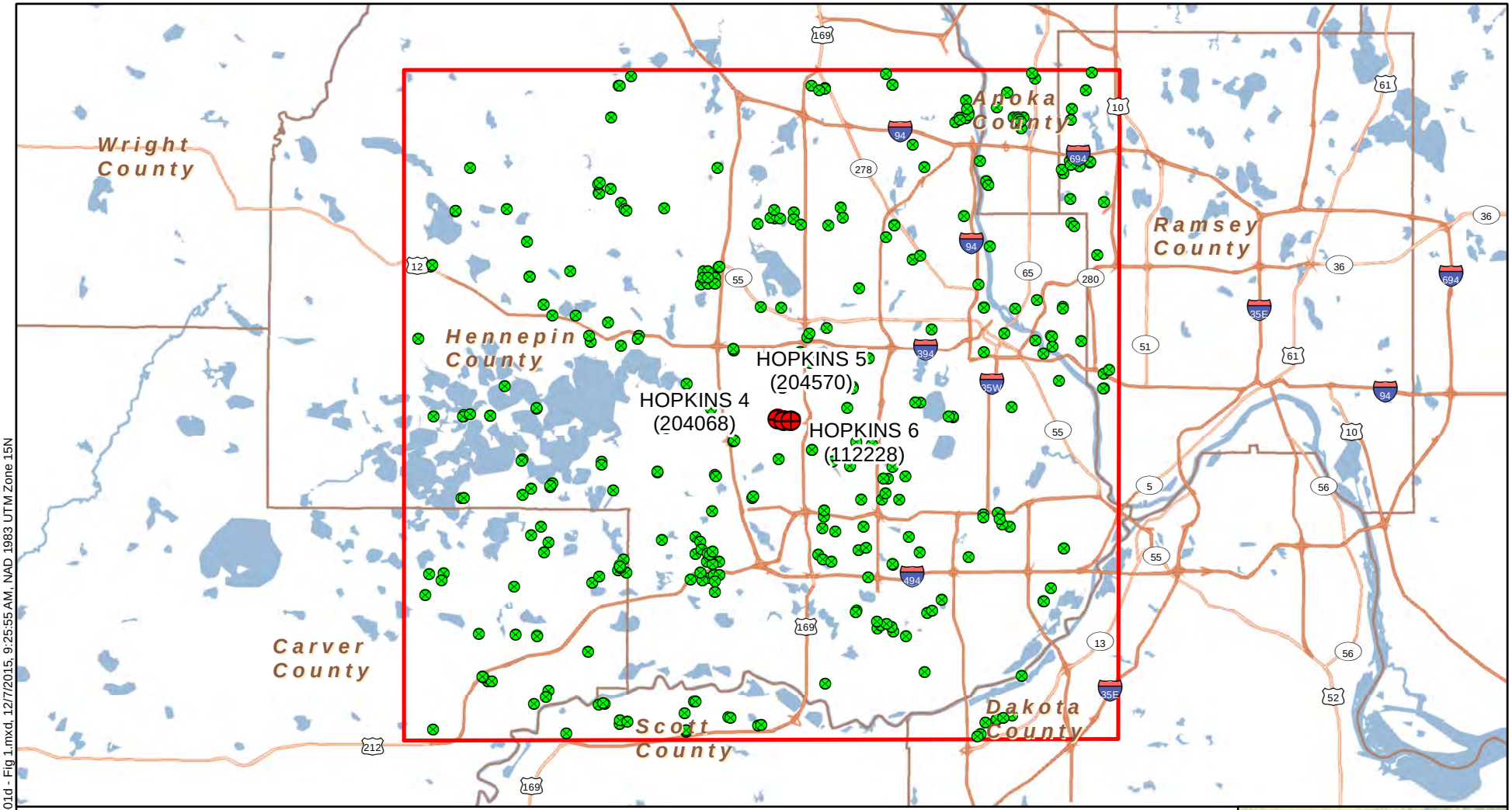
Figures



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CITY OF HOPKINS

HOPKINS, MINNESOTA

SITE LOCATION, HIGH CAPACITY WELLS, AND
LOCAL MODEL BOUNDARY

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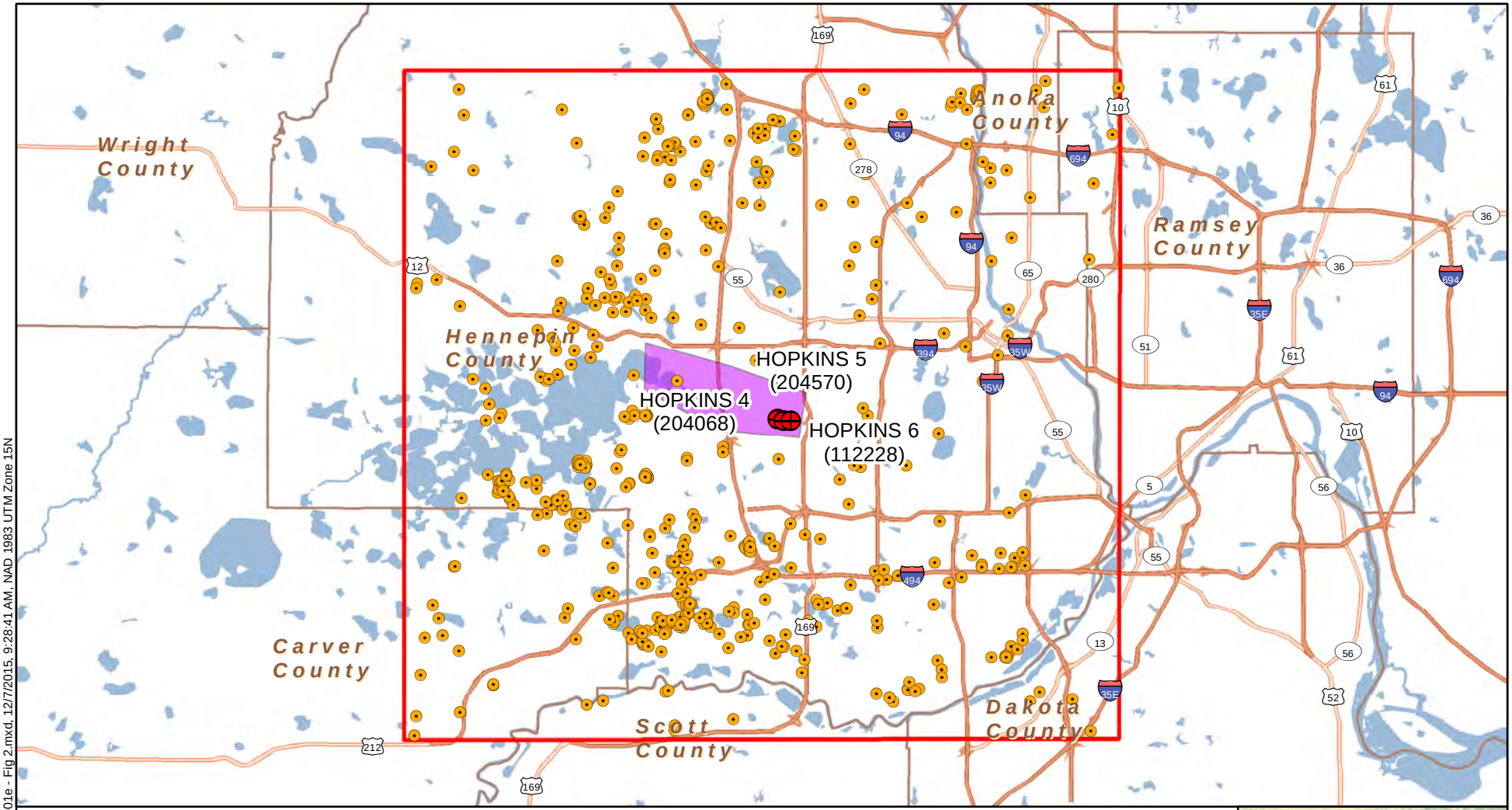

City Well Location
Calibration Point Location
Local Model Boundary
Modification Area

0 5 Miles

7-County Metro Area
Site

Source: ESRI, DigitalGlobe, GeoEye i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
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CITY OF HOPKINS
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LOCAL MODEL BOUNDARY, CALIBRATION POINTS, AND MODIFICATION AREA

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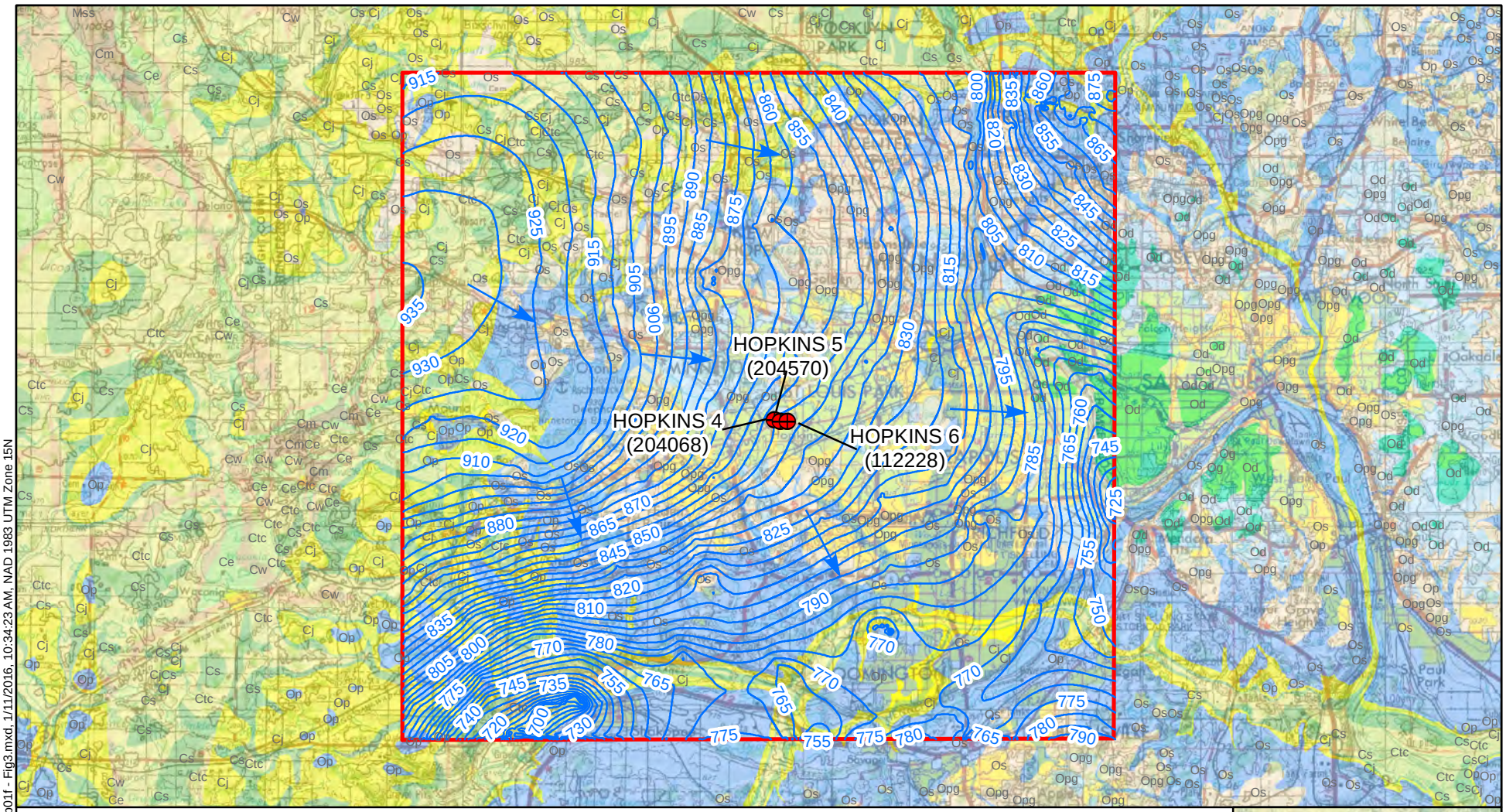

City Well Location
Potentiometric Surface Contour Prairie du Chien Aquifer (feet)
Groundwater Flow Direction
Local Model Boundary

Bedrock in Model Boundary

- Opg — Platteville and Glenwood Formations
- Os — St. Peter Sandstone
- Op — Prairie du Chien Group
- Cj — Jordan Sandstone
- Cs — St. Lawrence Formation
- Ctc — Tunnel City Group
- Cw — Wonewoc Sandstone
- Cm — Mt. Simon Sandstone

0 6 Miles

7-County Metro Area

Site

Source: ESRI, DigitalGlobe, GeoEye i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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CITY OF HOPKINS
HOPKINS, MINNESOTA

SIMULATED GROUNDWATER EQUIPOTENTIAL CONTOURS OF
PRAIRIE DU CHIEN AQUIFER AND BEDROCK GEOLOGY

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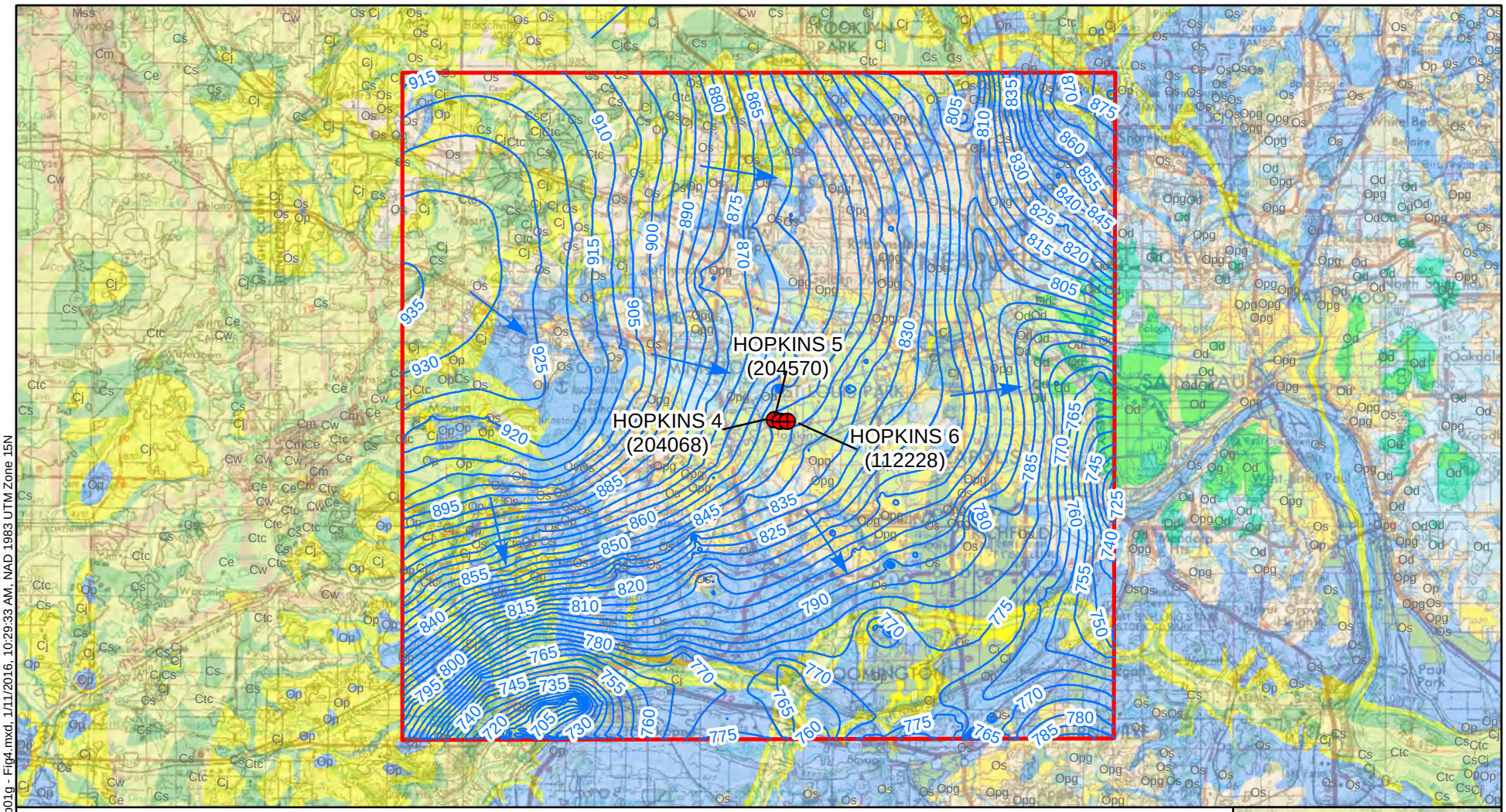
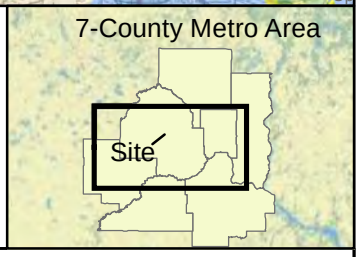


City Well Location
Potentiometric Surface Contour Jordan Aquifer (feet)
Groundwater Flow Direction
Local Model Boundary

Bedrock in Model Boundary

Opg	Platteville and Glenwood Formations
Os	St. Peter Sandstone
Op	Prairie du Chien Group
Cj	Jordan Sandstone
Cs	St. Lawrence Formation
Ctc	Tunnel City Group
Cw	Wonewoc Sandstone
Cm	Mt. Simon Sandstone

0 6 Miles



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CITY OF HOPKINS
HOPKINS, MINNESOTA

SIMULATED GROUNDWATER EQUIPOTENTIAL CONTOURS OF
JORDAN AQUIFER AND BEDROCK GEOLOGY

FILE: g3hopkinswhp01g - Fig4.MXD | DATE: 1/11/2016 | FIGURE: 4

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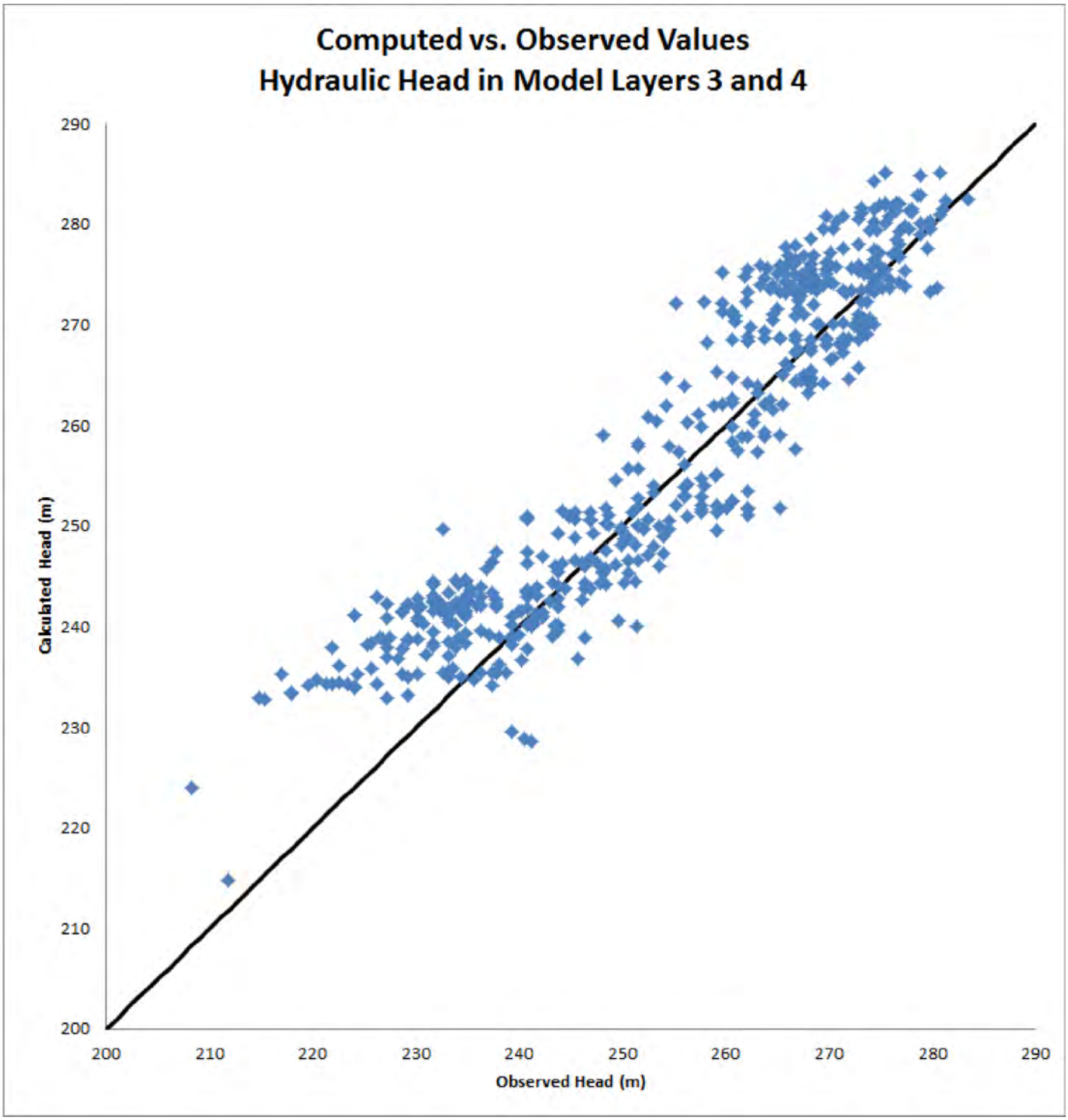

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Environmental Engineering Services
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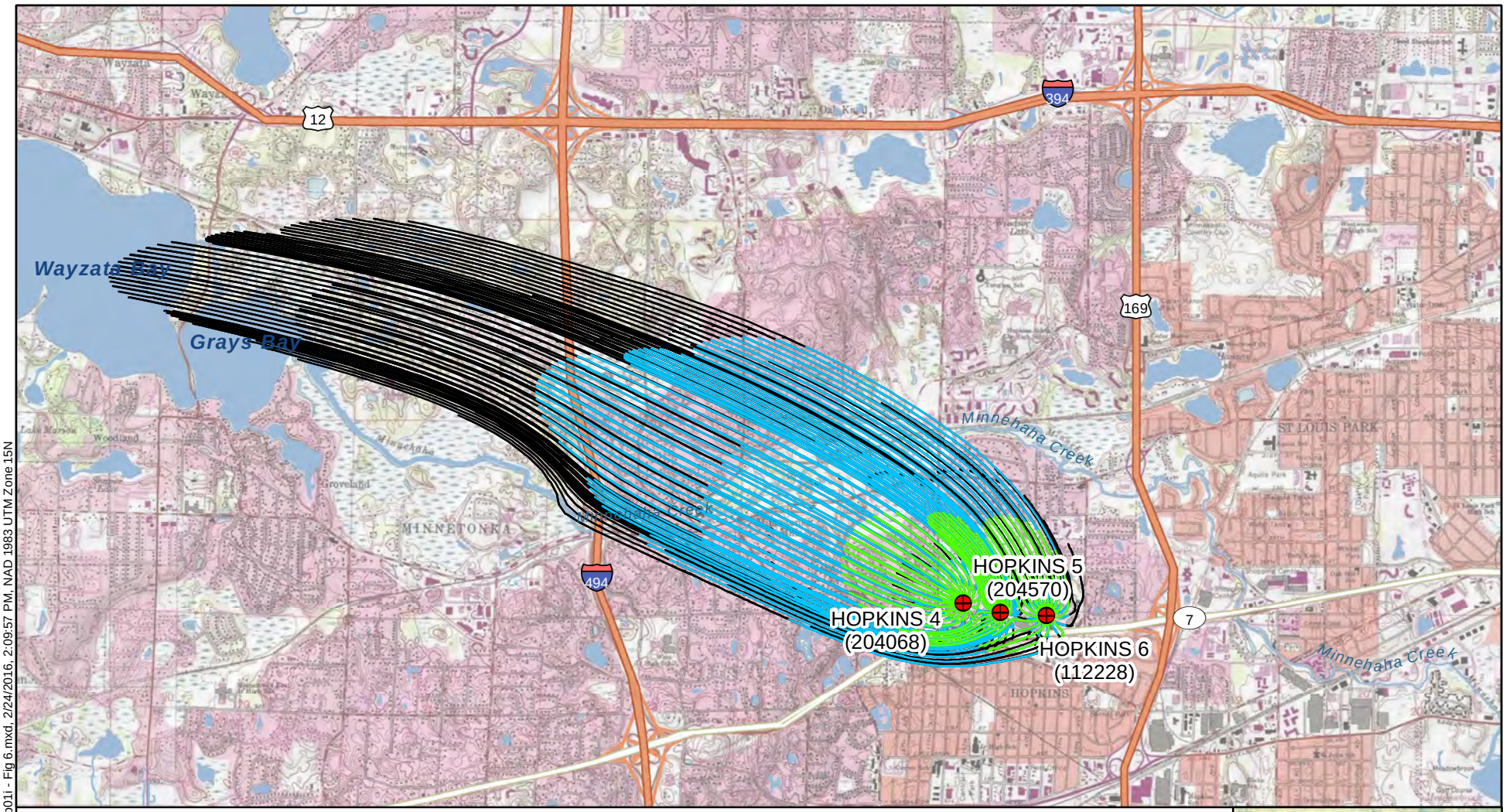
CITY OF HOPKINS
HOPKINS, MINNESOTA

MODEL CALIBRATION

FILE: g3hopkinswhp01h - Fig 5.MXD	DATE: 11/25/2015	FIGURE: 5



City Well Location

1-Year Flowpaths Jordan and Prairie du Chien Aquifers

5-Year Flowpaths Jordan and Prairie du Chien Aquifers

10-Year Flowpaths Jordan and Prairie du Chien Aquifers

0 4,000 Feet

7-County Metro Area

Site

Source: ESRI, DigitalGlobe, GeoEye i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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CITY OF HOPKINS

HOPKINS, MINNESOTA

1, 5, AND 10 YEAR FLOWPATHS FOR CALIBRATED MODEL

FILE:	DATE:	FIGURE:
g3hopkinswhp01i - Fig 6.MXD	2/24/2016	6

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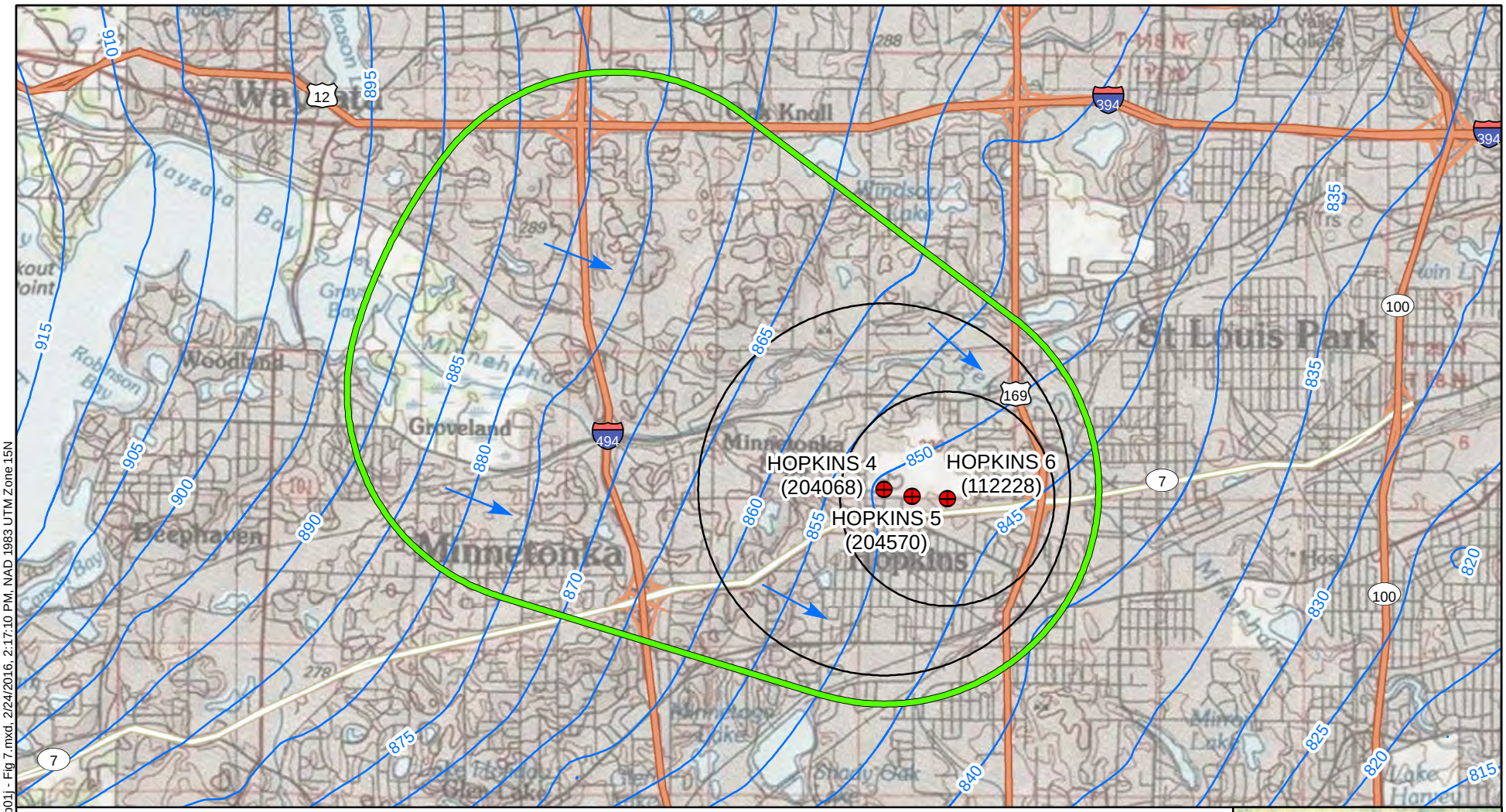

City Well Location

Fracture Flow - Initial Fixed Radii

Fracture Flow - Capture Zone
(Wells No. 4 through 6 with extensions)

Potentiometric Surface Contour
(Prairie du Chien Aquifer)

Groundwater Flow Direction

0 1 Miles

7-County Metro Area

Site

Source: ESRI, DigitalGlobe, GeoEye i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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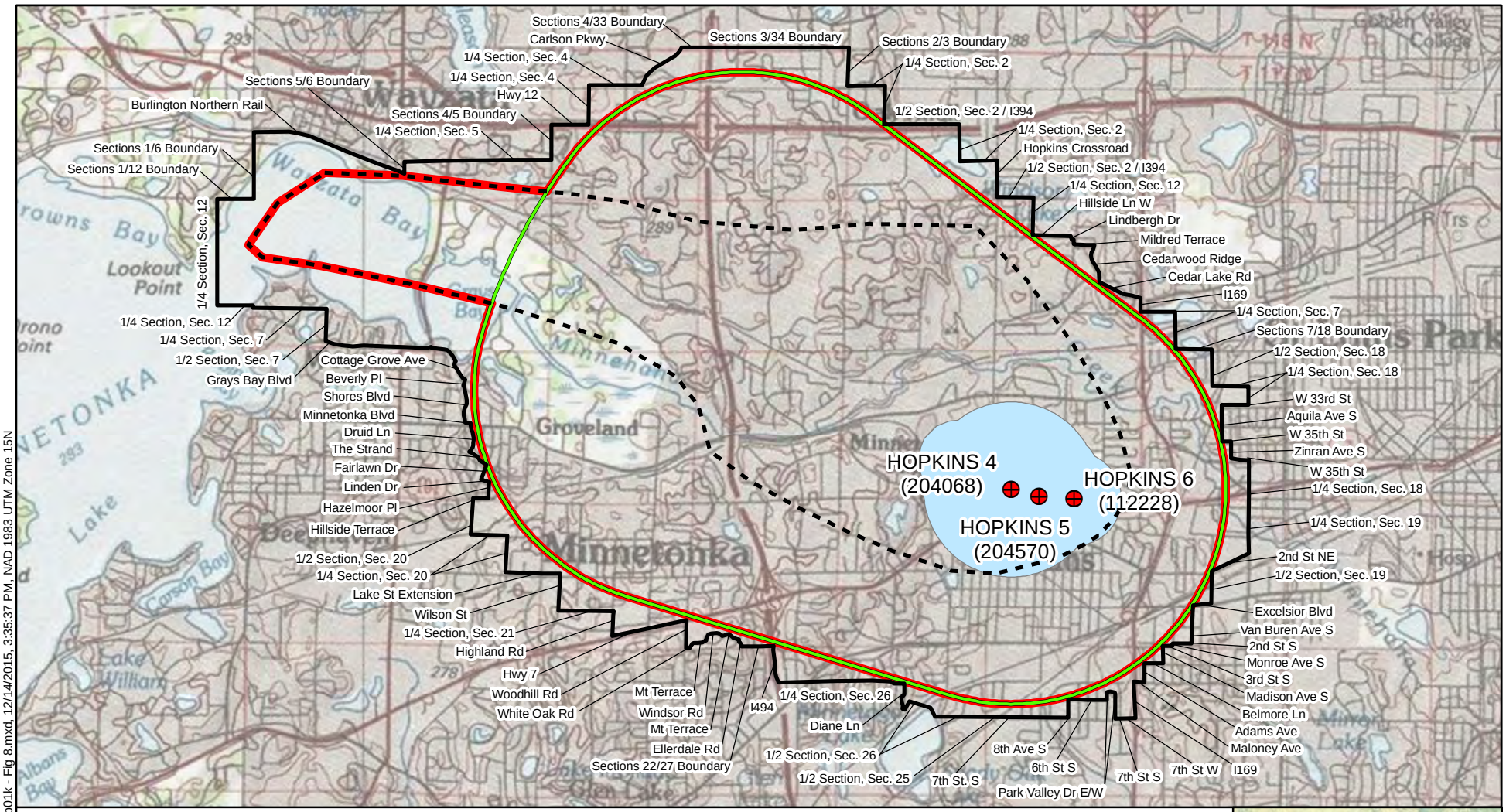
CITY OF HOPKINS
HOPKINS, MINNESOTA

FRACTURE FLOW DELINEATION BOUNDARIES

FILE: g3hopkinswhp01j - Fig 7.MXD | DATE: 2/24/2016 | FIGURE: 7

G:\GIS\Hopkins_WHP_Amendment\maps\g3hopkinswhp01j - Fig 7.mxd, 2/24/2016, 2:17:10 PM, NAD 1983 UTM Zone 15N



City Well Location

10-Year Composite Capture Zone (porous flow)

Fracture Flow Capture Area

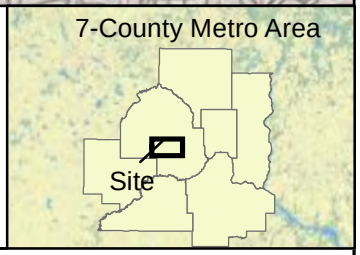
Combined Wellhead Protection Area

Drinking Water Supply Management Area

Emergency Response Area (1-yr time of travel))

IWMZ (Inner Wellhead Management Zone Note: Hidden Behind Well Symbol)

0 1 Miles



Source: ESRI, DigitalGlobe, GeoEye i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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CITY OF HOPKINS

HOPKINS, MINNESOTA

COMBINED WELLHEAD PROTECTION AREA BOUNDARY AND DRINKING WATER SUPPLY MANAGEMENT AREA

FILE: g3hopkinswhp01k - Fig 8.MXD | DATE: 12/14/2015 | FIGURE: 8

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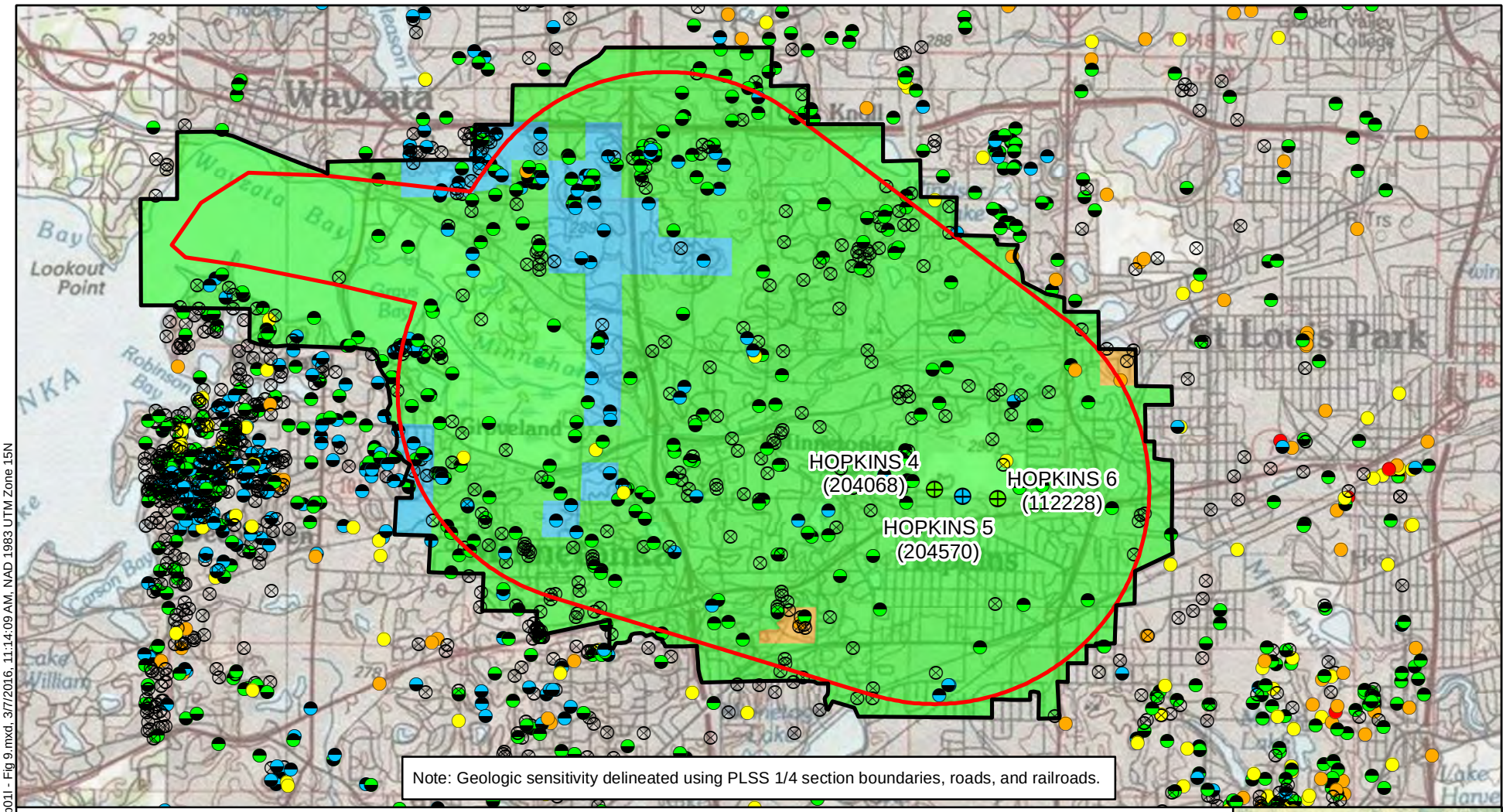

City Well Location
Insufficient Data
Domestic Well
Combined Wellhead Protection Area
Drinking Water Supply Management Area

Geologic Sensitivity
- Very High Sensitivity
- High Sensitivity
- Moderate Sensitivity
- Low Sensitivity (L-Score: 1-3)
- Low Sensitivity (L-Score: 4-7)
- Very Low Sensitivity (L-Score: 8-11)
- Very Low Sensitivity (L-Score: >11)

0 1 Miles

7-County Metro Area
Site

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CITY OF HOPKINS
HOPKINS, MINNESOTA

DRINKING WATER SUPPLY MANAGEMENT AREA
GEOLOGIC SENSITIVITY ASSESSMENT

FILE: g3hopkinswhp01l - Fig 9.MXD | DATE: 3/7/2016 | FIGURE: 9

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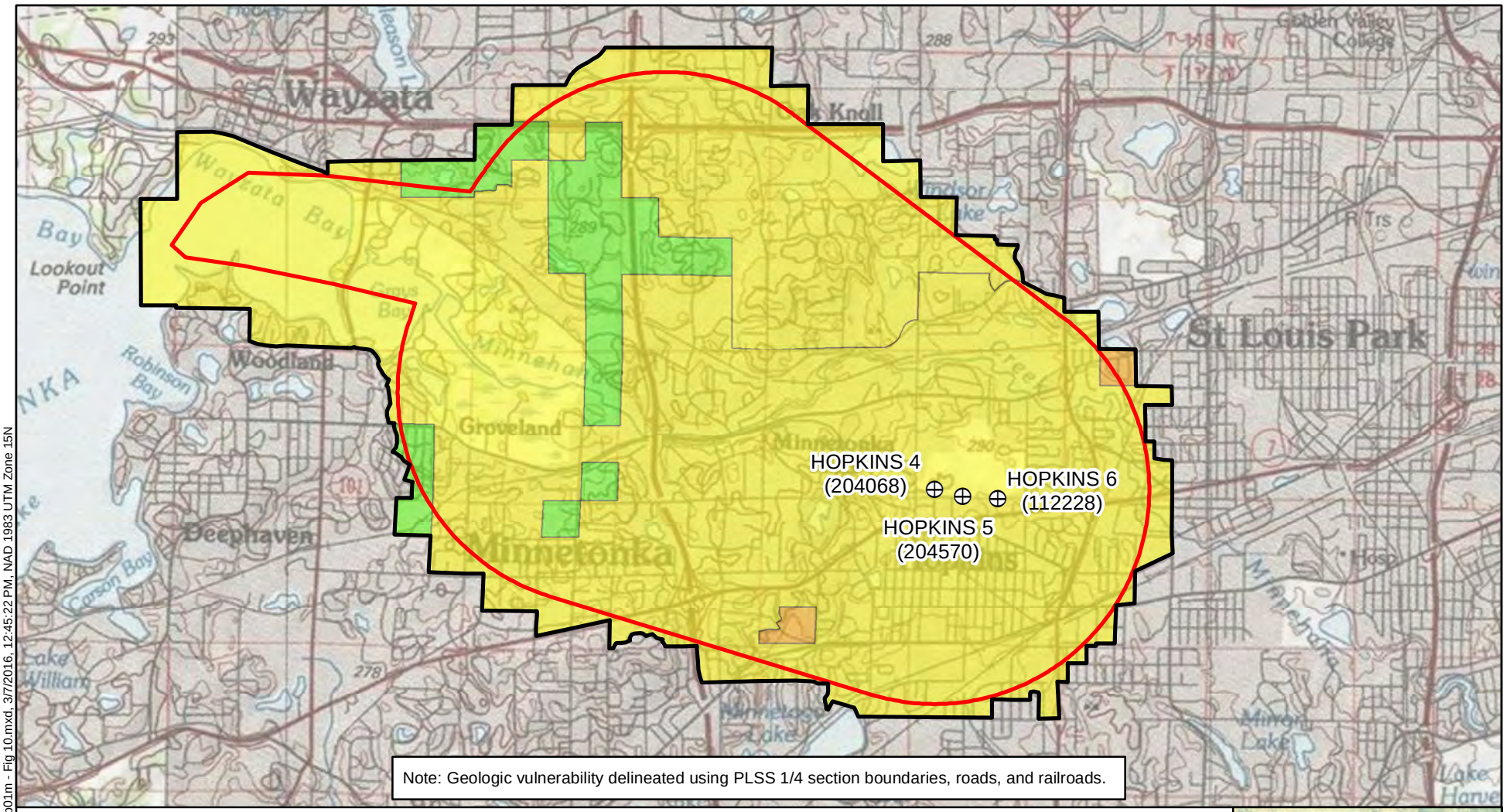

City Well Location
Combined Wellhead Protection Area
Drinking Water Supply Management Area

DWSMA Vulnerability
Very High
High
Moderate
Low

0 1 Miles

7-County Metro Area
Site

Source: ESRI, DigitalGlobe, GeoEye i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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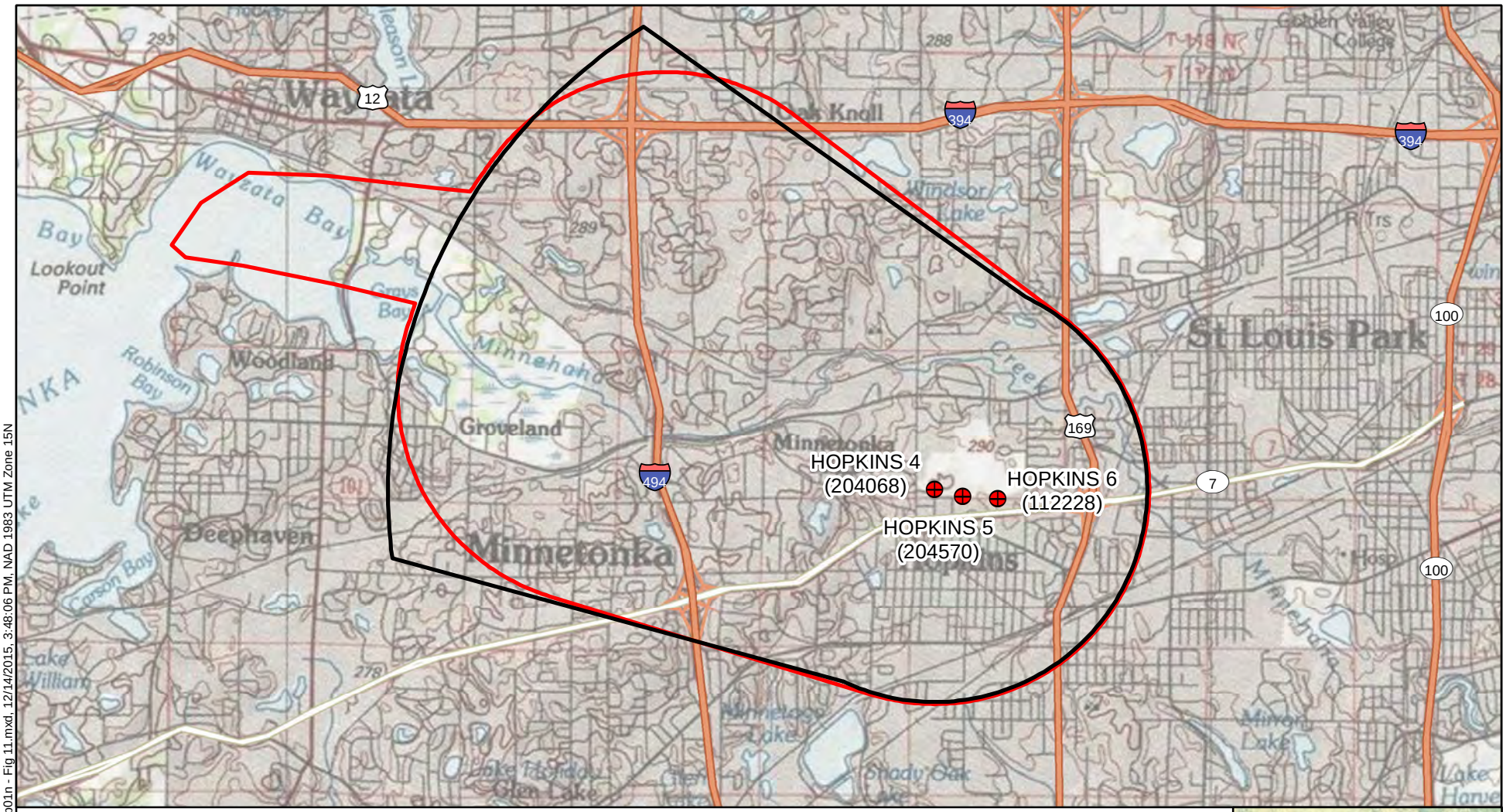
CITY OF HOPKINS
HOPKINS, MINNESOTA

DRINKING WATER SUPPLY MANAGEMENT AREA
VULNERABILITY ASSESSMENT

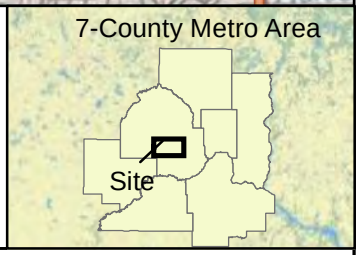
FILE: g3hopkinswhp01m - Fig 10.MXD | DATE: 3/7/2016 | FIGURE: 10

G:\GIS\Hopkins_WHP_Amendment\maps\g3hopkinswhp01m - Fig 10.mxd, 3/7/2016, 12:45:22 PM, NAD 1983 UTM Zone 15N



City Well Location
Amended 2015 Wellhead Protection Area
Original 2005 Wellhead Protection Area

0 1 Miles



Source: ESRI, DigitalGlobe, GeoEye i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
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CITY OF HOPKINS
HOPKINS, MINNESOTA

ORIGINAL AND AMENDED WELLHEAD PROTECTION AREAS

FILE:	DATE:	FIGURE:
g3hopkinswhp01n - Fig 11.MXD	12/14/2015	11

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Appendix A

Fracture Flow Delineation Calculation Data

Appendix A
Fracture Flow Delineation Calculation Data

Part 1 Wellhead Protection Plan
Hopkins, Minnesota

Unique Well# = 204068
HOPKINS 4
X = 466,990.000, Y = 4,975,893.000

5 Year Pumping Volume (1825 days)				
Pumping Volume (Q):	7,252.00 m3/day	256,102.00 cu.ft./day	1,330.40 gal./min.	1,915,776.00 gal./day
Water Producing Zone Thickness (L):	13.411 m	44 ft.		
Effective Porosity (n):	0.056			
Original (CFR) Radius:	2,368.41 m	7,770.39 ft.		
New Radius:	2,688.88 m	8,821.79 ft.		
New Pumping Volume (Q): *	9,347.29 m3/day	330,096.31 cu.ft./day	1,714.79 gal./min.	2,469,291.91 gal./day

Unique Well# = 112228
HOPKINS 6
X = 467,675.000, Y = 4,975,792.000

5 Year Pumping Volume (1825 days)				
Pumping Volume (Q):	4,095.33 m3/day	144,625.25 cu.ft./day	751.3 gal./min.	1,081,872.00 gal./day
Water Producing Zone Thickness (L):	26.21 m	86.00 ft.		
Effective Porosity (n):	0.056			
Original (CFR) Radius:	1,273.06 m	4,176.72 ft.		
New Radius:	1,273.06 m	4,176.72 ft.		
New Pumping Volume (Q): *	4,095.33 m3/day	144,625.25 cu.ft./day	751.3 gal./min.	1,081,872.00 gal./day

OVERLAP SUMMARY INFORMATION

Original (CFR) Area for Well# 204068:	17,622,400.90 m2	189,685,761.08 sq.ft.
New (CFR) Area for Well# 204068:	22,713,956.09 m2	244,490,751.90 sq.ft.
Original (CFR) Area for Well# 112228:	5,091,555.18 m2	54,804,990.82 sq.ft.
New (CFR) Area for Well# 112228:	5,091,555.18 m2	54,804,990.82 sq.ft.
Overlap Area to Well# 204068:	5,091,555.18 m2	54,804,990.82 sq.ft.
Overlap Area to Well# 112228:	0 m2	0 sq.ft.
Total Overlap Area:	5,091,555.18 m2	54,804,990.82 sq.ft.

* = New Pumping Volumes (Q) if needed for additional overlap computations with another well.

UP-GRADIENT EXTENSION (UGE)
(area beyond the New Areas of both Wells)
(area beyond the New Areas of both Wells)
Bearing from Well# 204068 = 297° from North +/- 10°.
Bearing from Well# 112228 = 297° from North +/- 10°.

Up-Gradient Extension Area:	24,682,304.62 m2	265,677,858.72 sq.ft.

APPENDIX D
Inner Well Management Zone

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1270016 **COMMUNITY**
NAME	Hopkins
ADDRESS	Hopkins Water Superintendent, 11100 Excelsior Boulevard, Hopkins, MN 55343

FACILITY (WELL) INFORMATION

NAME	Well #1
FACILITY ID	S01
UNIQUE WELL NO.	204573
COUNTY	Hennepin

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

☐ **YES** (Please attach a copy)
☐ **NO** ☐ **UNDETERMINED**

PWS ID / FACILITY ID	1270016 S01	**UNIQUE WELL NO.**	204573

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1270016 S01	UNIQUE WELL NO.	204573

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	140	N
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		N		
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1270016 S01	UNIQUE WELL NO.	204573

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

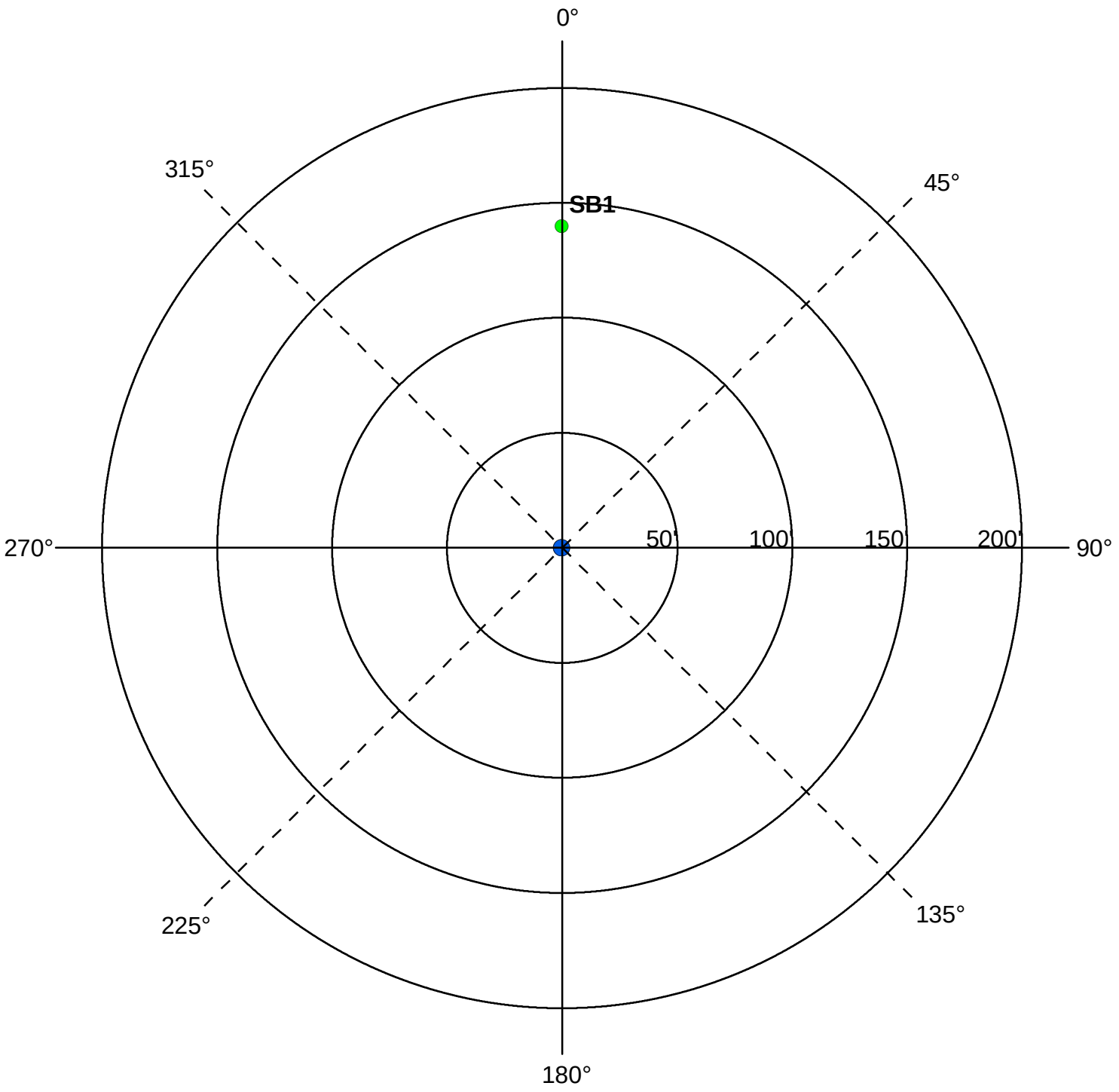
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1270016 S01	UNIQUE WELL NO.	204573

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			X
Is the system monitoring existing nonconforming sources of contamination?			X

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Freitag, John	DATE	5 - 31 - 2017

PWS ID / FACILITY ID	1270016 S01	UNIQUE WELL NO.	204573

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

COMMENTS

There is a gravel pocket at an unkown distance and bearing.

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1270016 **COMMUNITY**
NAME	Hopkins
ADDRESS	Hopkins Water Superintendent, 11100 Excelsior Boulevard, Hopkins, MN 55343

FACILITY (WELL) INFORMATION

NAME	Well #4
FACILITY ID	S03
UNIQUE WELL NO.	204068
COUNTY	Hennepin

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

☐ **YES** (Please attach a copy)
☐ **NO** ☐ **UNDETERMINED**

PWS ID / FACILITY ID	1270016 S03	**UNIQUE WELL NO.**	204068

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1270016 S03	UNIQUE WELL NO.	204068

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		Y	80	N
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		N		
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1270016 S03	UNIQUE WELL NO.	204068

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	Y	90	N
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

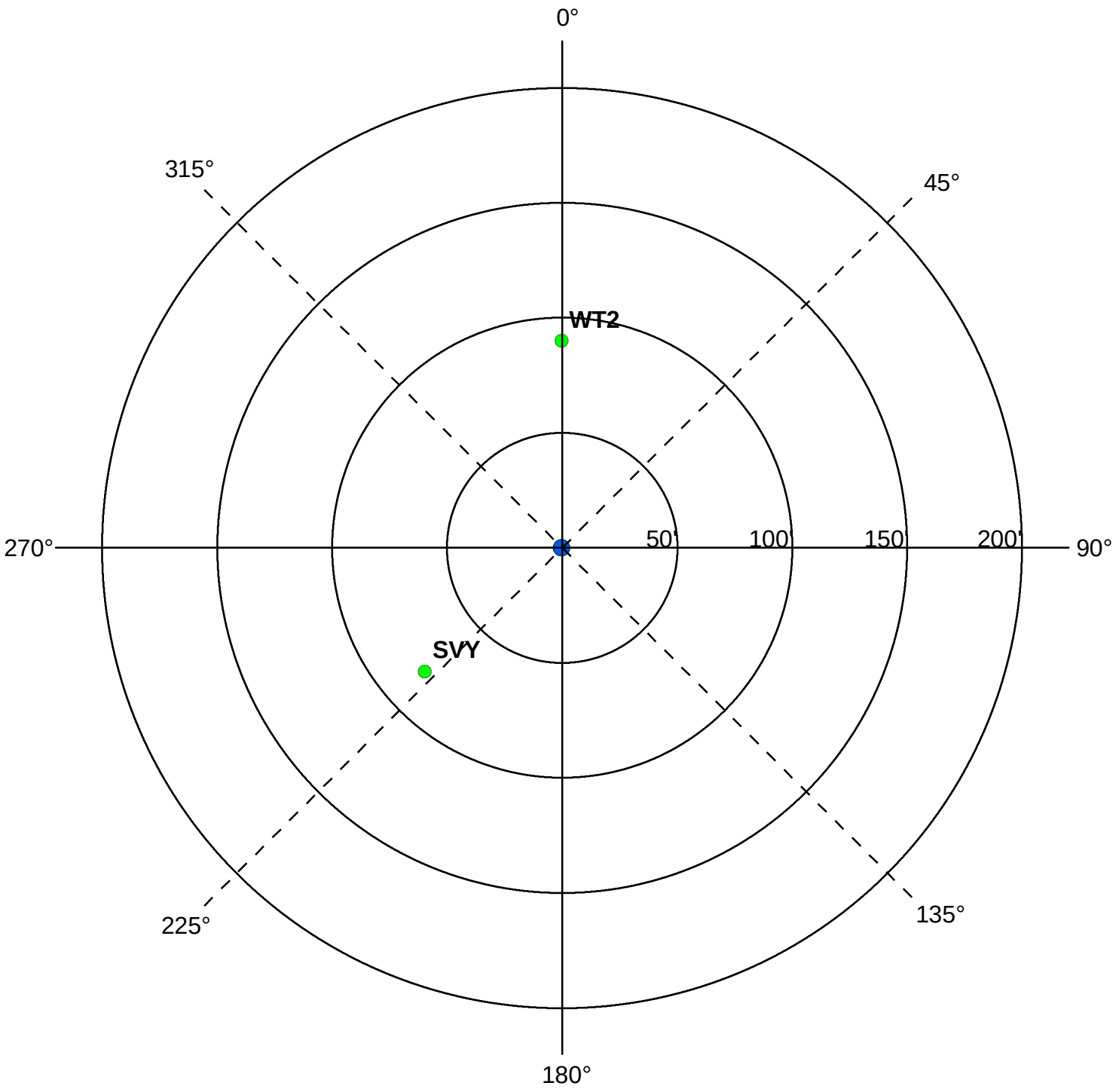
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1270016 S03	UNIQUE WELL NO.	204068

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			X
Is the system monitoring existing nonconforming sources of contamination?			X

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Freitag, John	DATE	5 - 31 - 2017

PWS ID / FACILITY ID	1270016 S03	UNIQUE WELL NO.	204068

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1270016 **COMMUNITY**
NAME	Hopkins
ADDRESS	Hopkins Water Superintendent, 11100 Excelsior Boulevard, Hopkins, MN 55343

FACILITY (WELL) INFORMATION

NAME	Well #5
FACILITY ID	S04
UNIQUE WELL NO.	204570
COUNTY	Hennepin

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

☐ **YES** (Please attach a copy)
☐ **NO** ☐ **UNDETERMINED**

PWS ID / FACILITY ID	1270016 S04	**UNIQUE WELL NO.**	204570

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1270016 S04	UNIQUE WELL NO.	204570

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		N		
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1270016 S04	UNIQUE WELL NO.	204570

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

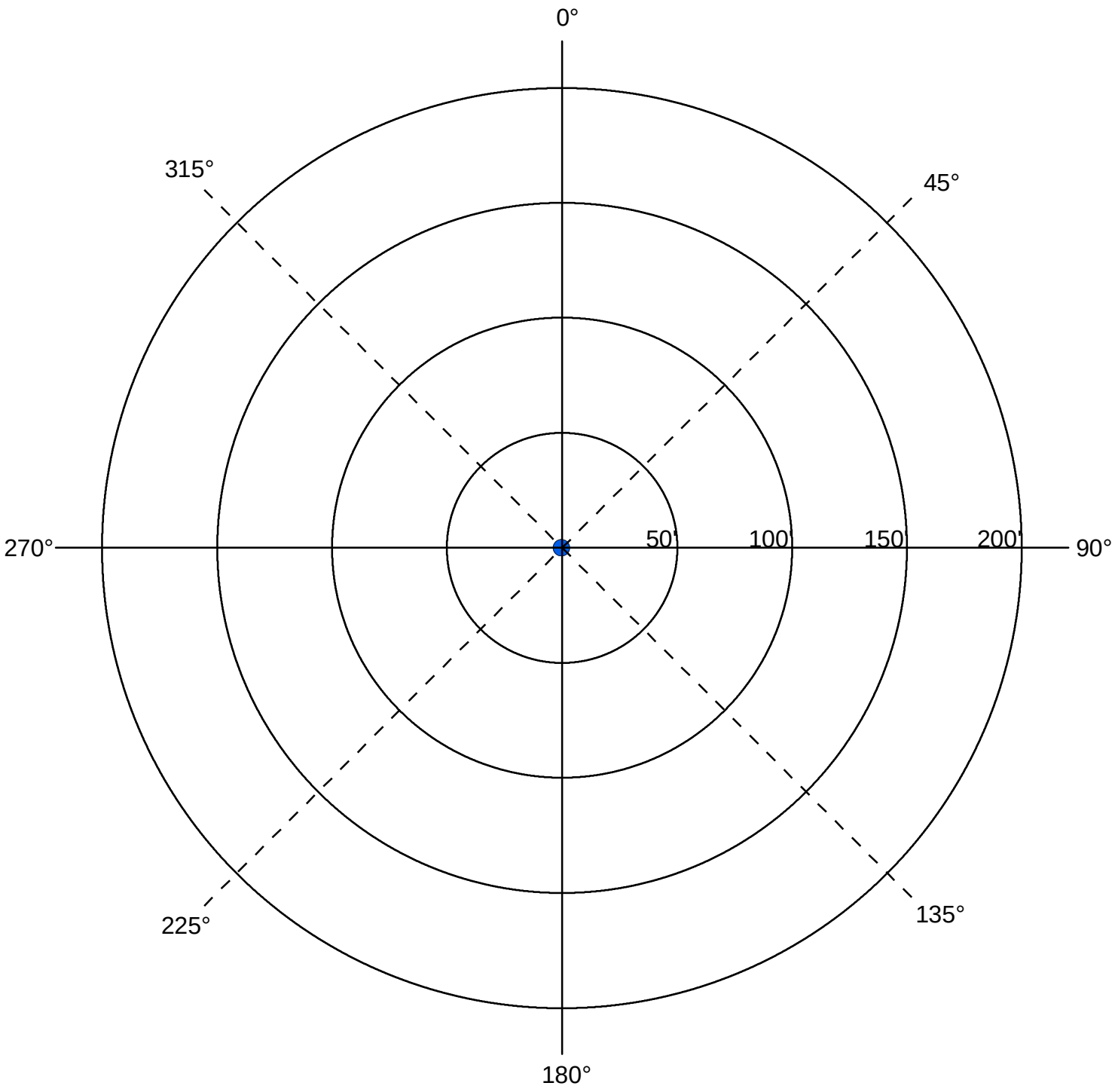
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1270016 S04	UNIQUE WELL NO.	204570

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			X
Is the system monitoring existing nonconforming sources of contamination?			X

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Freitag, John	DATE	5 - 31 - 2017

PWS ID / FACILITY ID	1270016 S04	UNIQUE WELL NO.	204570

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

COMMENTS

There is a gravel pocket at an unknown distance and bearing.

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1270016 **COMMUNITY**
NAME	Hopkins
ADDRESS	Hopkins Water Superintendent, 11100 Excelsior Boulevard, Hopkins, MN 55343

FACILITY (WELL) INFORMATION

NAME	Well #6
FACILITY ID	S05
UNIQUE WELL NO.	112228
COUNTY	Hennepin

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

☐ **YES** (Please attach a copy)
☐ **NO** ☐ **UNDETERMINED**

PWS ID / FACILITY ID	1270016 S05	**UNIQUE WELL NO.**	112228

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1270016 S05	UNIQUE WELL NO.	112228

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	110	N
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		N		
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		Y	25	N
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		Y	150	N
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1270016 S05	UNIQUE WELL NO.	112228

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

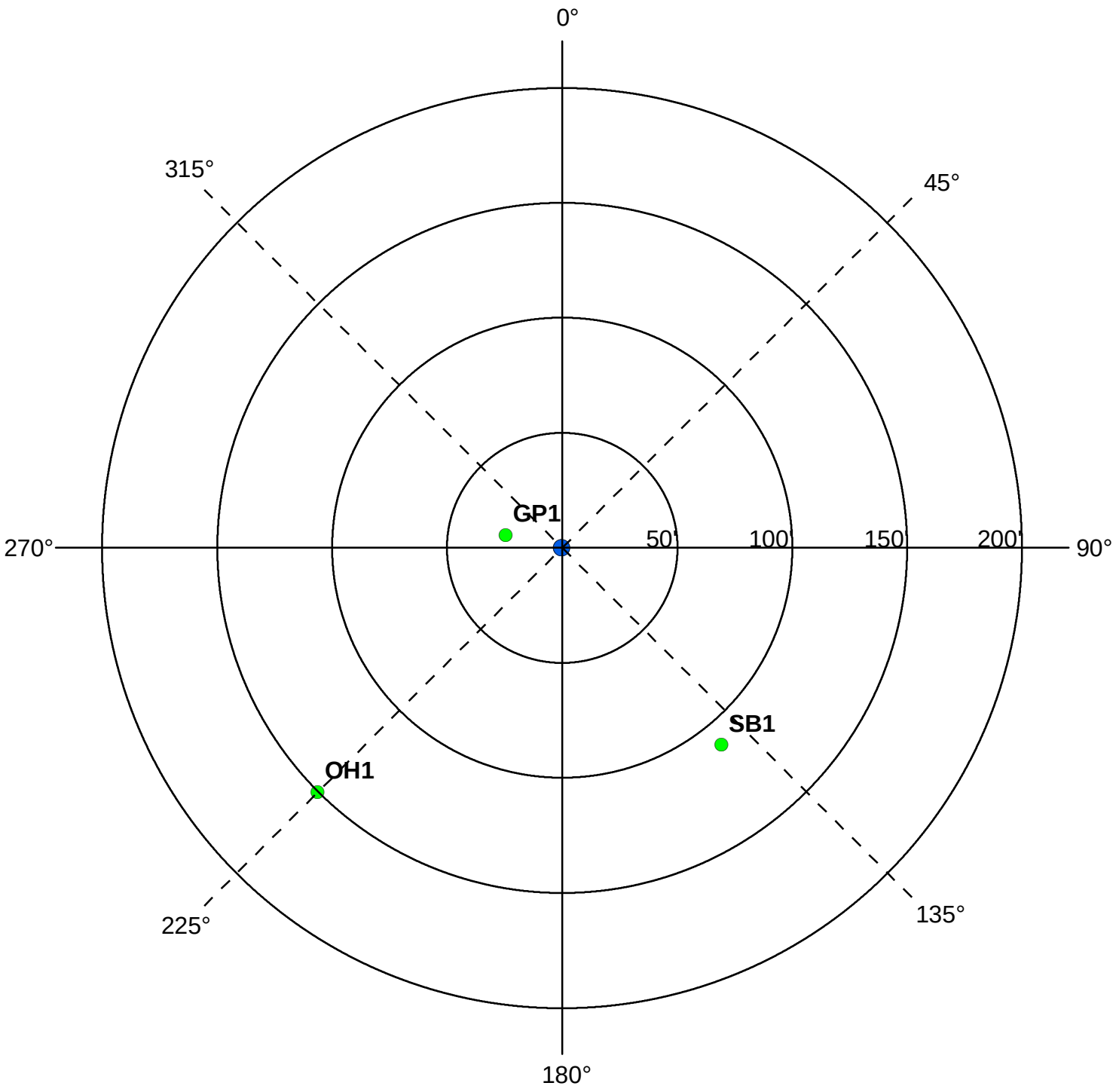
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1270016 S05	UNIQUE WELL NO.	112228

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			X
Is the system monitoring existing nonconforming sources of contamination?			X

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Freitag, John	DATE	5 - 31 - 2017

PWS ID / FACILITY ID	1270016 S05	UNIQUE WELL NO.	112228

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

APPENDIX E
Consumer Confidence Report

Hopkins Highlights Extra

Partnering with the Community, Enhancing the Quality of Life

Inspire - Educate - Involve - Communicate

June 2014

The City of Hopkins is issuing the results of monitoring done on its drinking water for the period from January 1 to December 31, 2013. The purpose of this report is to advance consumers' understanding of drinking water and heighten awareness of the need to protect precious water resources.

Source of Water

The City of Hopkins provides drinking water to its residents from a groundwater source: three wells ranging from 495 to 548 feet deep that draw water from the Prairie Du Chien-Jordan aquifer.

The water provided to customers may meet drinking water standards, but the Minnesota Department of Health has also made a determination as to how vulnerable the source of water may be to future contamination incidents. If you wish to obtain the entire source water assessment regarding your drinking water, please call 651-201-4700 or 1-800-818-9318 (and press 5) during normal business hours, or view it online at www.health.state.mn.us/divs/eh/water/swp/swa/.

Call 952-548-6373 if you have questions about the City of Hopkins drinking water or would like information about opportunities for public participation in decisions that may affect the quality of the water.

Results of Monitoring

No contaminants were detected at levels that violated federal drinking water standards. However, some contaminants were detected in trace amounts that were below legal limits. The table that follows shows the contaminants that were detected in trace amounts last year. (Some contaminants are sampled less frequently than once a year; as a result, not all contaminants were sampled for in 2013. If any of these contaminants were detected the last time they were sampled for, they are included in the table along with the date that the detection occurred.)

Key to Table Abbreviations

MCLG (Maximum Contaminant Level Goal)—The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MCL (Maximum Contaminant Level)—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MRDL (Maximum Residual Disinfectant Level)

MRDLG (Maximum Residual Disinfectant Level Goal)

AL (Action Level)—The concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow.

90th Percentile Level—This is the value obtained after disregarding 10 percent of the samples taken that had the highest levels. For example, in a situation in which 10 samples were taken, the 90th percentile level is determined by disregarding the highest result, which represents 10 percent of the samples. Note: In situations in which only 5 samples are taken, the average of the two with the highest levels is taken to determine the 90th percentile level.

pCi/l (PicoCuries per liter)—A measure of radioactivity.

ppb (parts per billion)—Can also be expressed as micrograms per liter (ug/l).

ppm (parts per million)—Can also be expressed as milligrams per liter (mg/l).

nd—No detection.

N/A (Not applicable)—Does not apply.

	Level Found				
Contaminants (units)	MCLG	MCL	Range 2012	Average/ Result*	Typical Source of Contaminant
Alpha Emitters (pCi/l)	0	15.4	N/A	5.8	Erosion of natural deposits.
Barium (ppm)	2	2	N/A	0.14	Discharge of drilling wastes, discharge from metal refineries, and erosion of natural deposits.
Combined Radium (pCi/l)	0	5.4	N/A	1.2	Erosion of natural deposits.
Fluoride (ppm)	4	4	0.68–1.2	1.07	Erosion of natural deposits, discharge from fertilizer and aluminum factories, and the State of Minnesota requires all municipal water systems to add fluoride to the drinking water to promote strong teeth.
Haloacetic Acids (HAA5) (ppb)	0	60	nd-1.3	0.85	By-product of drinking water disinfection.
TTHM (Total Trihalomethanes) (ppb)	0	80	0.3-1.1	0.78	By-product of drinking water disinfection.
cis-1, 2-Dichloroethylene (ppb)	70	70	N/A	0.45	Discharge from industrial chemical factories.

*This is the value used to determine compliance with federal standards. It sometimes is the highest value detected and sometimes is an average of all the detected values. If it is an average, it may contain sampling results from the previous year.

Hopkins Highlights Extra

Partnering with the Community, Enhancing the Quality of Life

Inspire - Educate - Involve - Communicate

June 2014

Contaminants (units)	MRDLG	MRDL	Highest and Lowest Monthly Average	Highest Quarterly Average	Typical Source of Contaminant
Chlorine (ppm)	4.0	4.0	0.6–1	0.85	Water additive used to control microbes.

Contaminants (units)	MCLG	AL	90% Level	# Sites Over AL	Typical Source of Contaminant
Copper (ppm)	1.3	1.3	0.93	0 out of 30	Corrosion of household plumbing systems and erosion of natural deposits.
Lead (ppb) *6/18/2010*	0	15	2.8	1 out of 30	Corrosion of household plumbing systems and erosion of natural deposits.

If present, elevated levels of **lead** can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Hopkins is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Some contaminants do not have Maximum Contaminant Levels established for them. These unregulated contaminants are assessed using state standards known as health risk limits to determine if they pose a threat to human health. If unacceptable levels of an unregulated contaminant are found, the response is the same as if an MCL has been exceeded; the water system must inform its customers and take other corrective actions. No unregulated contaminants were detected.

Compliance with National Primary Drinking Water Regulations

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- ***Microbial contaminants***, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ***Inorganic contaminants***, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- ***Pesticides and herbicides***, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- ***Organic chemical contaminants***, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- ***Radioactive contaminants***, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Hopkins Highlights EXTRA

2014 Drinking Water Report

The City of Hopkins is issuing the results of monitoring done on its drinking water for the period from January 1 to December 31, 2014. The purpose of this report is to advance consumers' understanding of drinking water and heighten awareness of the need to protect precious water resources.

Source of Water

The City of Hopkins provides drinking water to its residents from a groundwater source: three wells ranging from 495 to 548 feet deep that draw water from the Prairie Du Chien-Jordan aquifer.

The water provided to customers may meet drinking water standards, but the Minnesota Department of Health has also made a determination as to how vulnerable the source of water may be to future contamination incidents. If you wish to obtain the entire source water assessment regarding your drinking water, please call 651-201-4700 or 1-800-818-9318 (and press 5) during normal business hours, or view it online at www.health.state.mn.us/divs/eh/water/swp/swa/.

Call 952-548-6373 if you have questions about the City of Hopkins drinking water or would like information about opportunities for public participation in decisions that may affect the quality of the water.

Results of Monitoring

No contaminants were detected at levels that violated federal drinking water standards. However, some contaminants were detected in trace amounts that were below legal limits. The table that follows shows the contaminants that were detected in trace amounts last year. (Some contaminants are sampled less frequently than once a year; as a result, not all contaminants were sampled for in 2014. If any of these contaminants were detected the last time they were sampled for, they are included in the table along with the date that the detection occurred.)

Key to Table Abbreviations

MCLG (Maximum Contaminant Level Goal)—The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MCL (Maximum Contaminant Level)—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MRDL (Maximum Residual Disinfectant Level)

MRDLG (Maximum Residual Disinfectant Level Goal)

AL (Action Level)—The concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow.

90th Percentile Level—This is the value obtained after disregarding 10 percent of the samples taken that had the highest levels. For example, in a situation in which 10 samples were taken, the 90th percentile level is determined by disregarding the highest result, which represents 10 percent of the samples. Note: In situations in which only 5 samples are taken, the average of the two with the highest levels is taken to determine the 90th percentile level.

pCi/l (PicoCuries per liter)—A measure of radioactivity.

ppb (parts per billion)—Can also be expressed as micrograms per liter (ug/l).

ppm (parts per million)—Can also be expressed as milligrams per liter (mg/l).

nd—No detection.

N/A—Does not apply.

Contaminants (units)	MCLG	MCL	Level Found		Typical Source of Contaminant
			Range 2014	Average/ Result*	
Alpha Emitters (pCi/l)	0	15.4	N/A	3.8	Erosion of natural deposits.
Barium (ppm)	2	2	N/A	0.14	Discharge of drilling wastes, discharge from metal refineries, and erosion of natural deposits.
Combined Radium (pCi/l)	0	5.4	N/A	1.1	Erosion of natural deposits.
Fluoride (ppm)	4	4	0.98–1.2	1.1	Erosion of natural deposits, discharge from fertilizer and aluminum factories, and the State of Minnesota requires all municipal water systems to add fluoride to the drinking water to promote strong teeth.
Haloacetic Acids (HAA5) (ppb)	0	60	1.5–1.9	1.9	By-product of drinking water disinfection.
Nitrate (as Nitrogen) (ppm)	10.4	10.4	nd–.07	0.07	Runoff from fertilizer use, leaching from septic tanks and sewage, and erosion of natural deposits.
TTHM (Total Trihalomethanes) (ppb)	0	80	0.7–1.1	1.1	By-product of drinking water disinfection.

**This is the value used to determine compliance with federal standards. It sometimes is the highest value detected and sometimes is an average of all the detected values. If it is an average, it may contain sampling results from the previous year.*

Contaminants (units)	MRDLG	MRDL	Highest and Lowest Monthly Average	Highest Quarterly Average	Typical Source of Contaminant
Chlorine (ppm)	4	4	0.7–1.1	0.92	Water additive used to control microbes.

Contaminants (units)	MCLG	AL	90% Level	# Sites Over AL	Typical Source of Contaminant
Copper (ppm)	1.3	1.3	0.93	0 out of 30	Corrosion of household plumbing systems and erosion of natural deposits.
Lead (ppb) *6/18/2010*	0	15	2.8	1 out of 30	Corrosion of household plumbing systems and erosion of natural deposits.

Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children.

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Hopkins is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking.

If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Compliance with National Primary Drinking Water Regulations

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- ***Microbial contaminants***, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ***Inorganic contaminants***, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- ***Pesticides and herbicides***, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- ***Organic chemical contaminants***, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- ***Radioactive contaminants***, which can be naturally occurring or be the result of oil and gas production and mining activities.

Additional Contaminants

Monitoring may have been done for additional contaminants that do not have MCLs established for them and are not required to be monitored under the Safe Drinking Water Act. Results may be available by calling 651-201-4700 or 1-800-818-9318 during normal business hours.

Monitoring for unregulated contaminants as required by U.S. Environmental Protection Agency rules (40 CFR 141.40) was conducted in 2014. Results of the unregulated contaminant monitoring are available upon request from Cindy Swanson, Minnesota Department of Health, at 651-201-4656.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Hopkins Highlights EXTRA

2015 Drinking Water Report

The City of Hopkins is issuing the results of monitoring done on its drinking water for the period from January 1 to December 31, 2015. The purpose of this report is to advance consumers' understanding of drinking water and heighten awareness of the need to protect precious water resources.

Source of Water

The City of Hopkins provides drinking water to its residents from a groundwater source: three wells ranging from 495 to 548 feet deep that draw water from the Prairie Du Chien-Jordan aquifer.

The Minnesota Department of Health has made a determination as to how vulnerable our systems' source(s) of water may be to future contamination incidents. If you wish to obtain the entire source water assessment regarding your drinking water, please call 651-201-4700 or 1-800-818-9318 (and press 5) during normal business hours. Also, you can view it on line at www.health.state.mn.us/divs/eh/water/swp/swa/.

Call 952-548-6373 if you have questions about the City of Hopkins drinking water or would like information about opportunities for public participation in decisions that may affect the quality of the water.

Results of Monitoring

No contaminants were detected at levels that violated federal drinking water standards. However, some contaminants were detected in trace amounts that were below legal limits. The table that follows shows the contaminants that were detected in trace amounts last year. (Some contaminants are sampled less frequently than once a year; as a result, not all contaminants were sampled for in 2015. If any of these contaminants were detected the last time they were sampled for, they are included in the table along with the date that the detection occurred.)

Key to Table Abbreviations

MCLG (Maximum Contaminant Level Goal)—The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MCL (Maximum Contaminant Level)—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MRDL (Maximum Residual Disinfectant Level)

MRDLG (Maximum Residual Disinfectant Level Goal)

AL (Action Level)—The concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow.

90th Percentile Level—This is the value obtained after disregarding 10 percent of the samples taken that had the highest levels. For example, in a situation in which 10 samples were taken, the 90th percentile level is determined by disregarding the highest result, which represents 10 percent of the samples. Note: In situations in which only 5 samples are taken, the average of the two with the highest levels is taken to determine the 90th percentile level.

pCi/l (PicoCuries per liter)—A measure of radioactivity.

ppb (parts per billion)—Can also be expressed as micrograms per liter (ug/l).

ppm (parts per million)—Can also be expressed as milligrams per liter (mg/l).

nd—No detection.

N/A—Does not apply.

Contaminants (units)	MCLG	MCL	Level Found		Typical Source of Contaminant
			Range 2015	Average/ Result*	
Alpha Emitters (pCi/l)	0	15.4	N/A	3.8	Erosion of natural deposits.
Barium (ppm)	2	2	N/A	0.14	Discharge of drilling wastes, discharge from metal refineries, and erosion of natural deposits.
Combined Radium (pCi/l)	0	5.4	N/A	1.1	Erosion of natural deposits.
Fluoride (ppm)	4	4	0.77–1.0	1.04	Erosion of natural deposits, discharge from fertilizer and aluminum factories, and the State of Minnesota requires all municipal water systems to add fluoride to the drinking water to promote strong teeth.
Haloacetic Acids (HAA5) (ppb)	0	60	1–1.2	1.2	By-product of drinking water disinfection.
Nitrate (as Nitrogen) (ppm)	10.4	10.4	nd–.05	0.05	Runoff from fertilizer use, leaching from septic tanks and sewage, and erosion of natural deposits.
TTHM (Total Trihalomethanes) (ppb)	0	80	0.5–0.6	.6	By-product of drinking water disinfection.

**This is the value used to determine compliance with federal standards. It sometimes is the highest value detected and sometimes is an average of all the detected values. If it is an average, it may contain sampling results from the previous year.*

Contaminants (units)	MRDLG	MRDL	Highest and Lowest Monthly Average	Highest Quarterly Average	Typical Source of Contaminant
Chlorine (ppm)	4	4	0.6–0.9	0.9	Water additive used to control microbes.

Contaminants (units)	MCLG	AL	90% Level	# Sites Over AL	Typical Source of Contaminant
Copper (ppm) *6/28/2013*	1.3	1.3	0.93	0 out of 30	Corrosion of household plumbing systems and erosion of natural deposits.
Lead (ppb) *6/28/2013*	0	15	2.8	1 out of 30	Corrosion of household plumbing systems and erosion of natural deposits.

Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children.

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Hopkins is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking.

If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Additional Contaminants

Monitoring may have been done for additional contaminants that do not have MCLs established for them and are not required to be monitored under the Safe Drinking Water Act. Results may be available by calling 651-201-4700 or 1-800-818-9318 during normal business hours.

Compliance with National Primary Drinking Water Regulations

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- ***Microbial contaminants***, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ***Inorganic contaminants***, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- ***Pesticides and herbicides***, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- ***Organic chemical contaminants***, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- ***Radioactive contaminants***, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Appendix C:

City of Hopkins Coordination Plan

City of Hopkins Coordination Plan

The *MCWD* Watershed Management Plan *(2018)* and *NMCWD Water Management Plan* (2017) both highlight the desire to more closely integrate land use planning and water resource management to capitalize on opportunities to improve water resources as development and redevelopment occurs. Given that land use planning lies primarily with the cities, achievement of this goal will require close coordination and partnership between the watershed districts (WDs) and cities.

To achieve the level of coordination and communication required to successfully capitalize on opportunities to improve water resources as part of land use planning, the city will strive to conduct the following activities:

- Participate in an annual meeting to review water resource plan implementation, to be coordinated by the WDs. Parties will discuss how the WDs can receive notice of and consult on land use, infrastructure, park and recreation, and capital improvement planning efforts.
- Transmit the annual NPDES MS4 report to WDs (mutual transmittal, if applicable).
- Notify the WDs of the following:
    - Updates to road and infrastructure implementation programs. The City annually produces a map of anticipated road reconstruction and road maintenance projects for the next five years.
    - Updates to park and recreation plans.
    - Institution and completion of small area plans, sketch plans (if submitted) for large projects, and other focused development or redevelopment actions.
    - Significant alterations within the City MS4 system (to maintain currency of the WD watershed-wide hydrology and hydraulics model).
    - Updates to the Capital Improvement Plan.
- Partnership or coordination as to public communications and education.

The WDs are asked to complete the following activities:

- District notice to the City regarding watershed management plan amendments and annual capital improvement program updates.

Annual Meeting

To capture CIP and budget planning, the annual meeting is planned to occur early in the second quarter. The annual meeting will involve a Planning Team that consists of the City Engineer, Assistant City Engineer and City Planner. The City welcomes and will accommodate requests from the WDs for additional meetings and communications that spur from the annual meeting. For elements the City and WDs identify for coordination, specific communication plans and schedules will be made. The Assistant City Engineer will facilitate communication among appropriate parties based on the scope of the item.

Conversations around water resources planning occur continuously throughout the year and are guided by this plan. It is common for various stakeholders across the community (public agencies, non-profit organizations, citizen groups, city departments, and private entities) to be involved in work that has prominent or nuanced water resources implications. Some of the challenges of coordinating water

resources planning includes the number of stakeholders involved, balancing funding priorities, community attitudes, and the fact that plans and projects are often owned by others (and may have different schedules, values, and service targets). Due to the dynamic nature of various concurrent activities and planning efforts, maps of anticipated road reconstruction, potential park improvements, capital infrastructure investment/reinvestment, priority water resources issues, and private development are not provided here, but will be prepared ahead of each annual meeting. Spatial analysis tools allow for these pieces of information to be integrated annually, efficiently incorporating the best available information.

Watershed District Coordination

The City will work closely with the NMCWD and MCWD to identify and implement water resource protection or improvement partnership projects. The City and WDs have a history of partnership. The past successes have largely been the result of strong working relationships that promote regular conversations. The City is eager to continue and expand cooperative work in the following areas;

- CIP and budget planning: The City's process for this is described in more detail in the Capital Improvement Plan, which is located on the City's website: http://www.hopkinsmn.com/468/Capital-Improvement-Plan
- Private development and redevelopment: It's common for large projects to go through a sketch plan review with City Council. The City will share known upcoming projects at the annual meeting and refer to the watersheds as part of the sketch plan review process on larger projects. As WD staff develop relationships with the community and economic development staff at the City, they can regularly and informally check in with the City to stay abreast of private development and redevelopment activity. The City will facilitate a coordination meeting with private developers and the WDs at the request of the WDs. For projects that do not go through a sketch plan process, the City will inform permit applicants of the potential need for a WD permit and, when one is required, will not issue a City permit until the WD permit application has been made.
- Public development and redevelopment: Because of the City's strong working relationship with the WDs, the City is continually seeking opportunities for coordination. This occurs through informal conversations as opportunities arise. Any future efforts including small area plans or other planning activity will be shared at the annual meeting.
- Operation and maintenance: The City will inform the WDs of illicit discharges in a timely manner and share a summary of the illicit discharge detection and elimination program at each annual meeting. Additionally, the City will share its MS4 inspection results at each annual meeting.
- Applicants will be informed that permits may be required from the WDs and provide them with the necessary information to contact WD staff.
- Education and engagement: The City will share its education and engagement calendar at each annual meeting. The City asks the WDs to continue to cross- promote and partner on events.

Project Partnerships

While some opportunities may be associated with development and redevelopment, other opportunities will be focused on land owned by the City. Figure SW-09 shows the city-owned parcels throughout the city. Upcoming opportunities for water resource management or improvement partnerships associated with City-owned park and property redevelopment include:

- Cottageville Park: Phase III Improvements
- Central Park: Park Improvements
- Development for 325 Blake Road

In 2010, the City and Minnehaha Creek Watershed District initiated a Cooperative Agreement (Agreement), known as the Cottageville Park Stormwater Management and Park Improvement Project. The purpose the Agreement was to address the Minnehaha Creek corridor, which had sustained damage to its water quality, channel stability, habitat and public use opportunities as the result of decades of urban development, urban stormwater discharges and adjacent urban uses. The goal was to advance social, economic and environmental goals within the Minnehaha Creek corridor. The Cottageville Park Stormwater Management and Park Improvement Project cooperative agreement and amendments are attached at the end of this plan.

In September 2020, the City and MCWD agreed to explore further collaborative work in the Minnehaha Creek corridor through the adoption of the Cooperative Agreement for the Coordinated Planning, Improvements and Development for 325 Blake Road. This agreement allows for the joint planning of a mixed use development on a portion of the MCWD-owned 325 Blake Road parcel and integration of the development with MCWD's concurrent capital project on the same site. MCWD's capital project includes regionalizing the treatment of approximately 270 acres of stormwater flowing into Minnehaha Creek, adding trails along the creek and connections to the regional trail system, an ecological restoration of the site, and open space amenities for use by the community. The MCWD's Cottageville Park Phase II Riparian Restoration project will also be completed as part of the overall project.

Development Review Process and Land Use Planning

The City utilizes its Development Review process to address stormwater management and ensure water resource protection within the City. Engineering staff review development and redevelopment proposals to ensure that the stormwater management policies and standards of the WRMP are met. Engineering staff also consult the City's Wellhead Protection Plan to ensure that development and redevelopment proposals are in line with the protective measures established for the City's sensitive groundwater resources.

Staff from the City's planning department review development and redevelopment proposals with the guidance of the City's long-range Comprehensive Plan and Zoning Ordinance. In addition to incorporating the policies and design standards of this WRMP, the *City of Hopkins Comprehensive Plan* includes policies, principles, and guidelines that integrate water resources protection and management with land use planning. Among these include the City's land use policy to "grow and develop in a sustainable manner that will protect its high quality natural environment, promote energy efficiency and conservation of natural resources" and to "maintain the current open space and wetlands acreage and seek to expand it whenever possible". The Comprehensive Plan encourages reductions in impervious surfaces and associated stormwater runoff from redevelopment sites and parking lot design that

promotes stormwater infiltration, and encourages protection and improvement of urban forests, which provides stormwater management benefits, among others.

Additionally, the Hopkins Comprehensive Plan includes procedures for planning, programming, and implementing transportation infrastructure, sewer and water infrastructure, and park, recreation, and natural area management. These plans coincide with the timing of the local comprehensive planning timeline and support the Transportation, Water Resources, and Parks & Trails elements of the comprehensive plan.

The City's zoning ordinance is used by staff in the planning department to guide development and redevelopment within the city. The zoning ordinance establishes required setbacks from naturally occurring lakes, ponds, and streams. In some cases, the buffer requirements of the watershed districts may be more stringent, upon which the watershed district requirements supersede. The City's zoning ordinance also addresses development within the floodplain districts of the city.

Station Area Plans outline the long-range vision for land use and development along the proposed Green Line LRT Extension. Station area planning is occurring on an ongoing basis around and within a ½ mile radius of the station locations at Blake Road, in Downtown Hopkins and at Shady Oak Road. The plans can be viewed at: http://www.hopkinsmn.com/162/Station-Area-Planning.

The City of Hopkins is basically fully developed; thus, land alteration activities are primarily of a redevelopment nature. As the city redevelops, the City utilizes the policies of the Hopkins Comprehensive Plan, the zoning ordinance, and this WRMP to encourage low-impact site design. The City also relies on implementation of the rules and regulations of the NMCWD and MCWD.

COOPERATIVE AGREEMENT
&
AMENDMENTS

Cottageville Park Stormwater Management and Park Improvement Project

COOPERATIVE AGREEMENT

Minnehaha Creek Watershed District and City of Hopkins
Cottageville Park Stormwater Management and Park Improvement Project

This Cooperative Agreement ("Agreement") is made between the Minnehaha Creek Watershed District (MCWD), a watershed district and political subdivision with powers at Minnesota Statutes Chapters 103B and 103D, and the City of Hopkins ("Hopkins"), a home rule charter city of the State of Minnesota (together, the "parties").

Recitals and Statement of Purpose

WHEREAS the Minnehaha Creek corridor has sustained damage to its water quality, channel stability, habitat and public use opportunities as the result of decades of urban development, urban stormwater discharges and adjacent urban uses;

WHEREAS market forces, public investments and other external sources prompt and are expected to continue to prompt evolution of current land use, development and redevelopment along the corridor;

WHEREAS Hopkins has a strong interest in supporting and facilitating current use, development and redevelopment that promote the social, economic and environmental well-being of its residents and the broader community;

WHEREAS coordination between the parties, and among the parties and other public and private stakeholders, can enhance the social, economic and environmental vitality of the corridor cost-effectively and further the goals and purposes of the parties;

WHEREAS in furtherance of the parties' objectives, the parties have entered into the Option Agreement identified and defined in Paragraph 7 of this Agreement;

WHEREAS the parties acknowledge that their ability to achieve these objectives depends on each party satisfactorily and promptly performing individual obligations and working cooperatively with the other party in accordance with the terms and conditions stated in this Agreement;

THEREFORE the parties enter into this Agreement to document the scope of work to be undertaken and the responsibilities assumed by each party; establish procedures for carrying out these responsibilities; and facilitate communication and cooperation between the parties for the successful completion of the work encompassed by the Agreement; and

THEREFORE the parties further agree that this Agreement is made for mutual valuable consideration and is legally binding on them pursuant to the terms herein.

Agreement

Relation of the Parties

1. This Agreement provides for the coordination of independent activities by the parties related to the proposed acquisition of the Property pursuant to the Option Agreement (as those terms are defined in Paragraph 7), the development or improvement of that Property according to the provisions of this Agreement, and related cooperation for municipal and watershed goals as described herein, and does not provide for a joining of powers. The governing body of each party will retain its authority to direct the activities for which that party is responsible. Neither party is responsible for the acts or omissions of the other within the meaning of Minnesota Statutes §471.59, subdivision 1a.

2. All notices or other communications under this Agreement shall be in writing and shall be deemed to have been delivered on receipt in hand, by fax or electronically at the addresses stated below, namely:

MCWD	*Hopkins*
Mark Ten Eyck Land Conservation Program Manager MCWD 18202 Minnetonka Boulevard Deephaven MN 55391 952-471-0590 ext. 202 mteneyck@minnehahacreek.org	Kersten Elverum Director of Planning 1010 First Street South Hopkins, MN 55343 kelverum@hopkinsmn.com

Either party may change its addresses for notice purposes by written notice to the other party given as provided above.

3. The parties will cooperate to develop and carry out a plan for proper and effective communications with affected landowners and the broader public related to the subject matter of this Agreement.

4. Each party will bear the cost of carrying out its tasks and responsibilities under this Agreement, except as otherwise expressly provided in this Agreement.

5. MCWD approval of a stormwater facility or park improvement design under this Agreement is not an engineering certification of the design. The MCWD specifically disclaims any warranties or representations relative to the design or functionality of such improvements. The MCWD has no authority to select, or role in selecting, the means, method or manner of performing any of the work or the person or firm who will perform the work and is not liable for any amounts owed to such persons or firms. Any MCWD right to review or approve a design, work in progress or constructed improvement under this Agreement is solely for the MCWD's own purpose of ensuring that its public water resource goals are met and accounting for funds expended.

6. Hopkins will indemnify, defend and hold harmless the MCWD, its officers, board members, employees and agents from any and all actions, costs, damages and liabilities of any nature to the degree they are the result of any action or inaction by Hopkins or its contractor that is the basis for Hopkins' or its contractor's liability in law or equity, including but not limited to ordinary negligence. The MCWD will indemnify, defend and hold harmless Hopkins, its officers, council members, employees and agents, from any and all actions, costs, damages and liabilities of any nature to the degree they are the result of any action or inaction by the MCWD that is the basis for the MCWD's liability in law or equity, including but not limited to any claims arising out of the Option Agreement. Notwithstanding the foregoing or any other term of this Agreement, neither the MCWD nor Hopkins waives immunity in tort. This Agreement creates no right in and waives no immunity, defense or liability limit with respect to any third party.

Real Estate Acquisition

7. In accordance with the provision of that certain Memorandum Agreement by and between Hopkins and the MCWD dated June 14, 2010 (the "Memorandum Agreement"), Hopkins hereby assigns to MCWD all rights it possesses as Optionee under that certain Option Agreement dated June 16, 2010, and all amendments thereto, by and among Nemar Properties, LLC; Hopkins, and the MCWD for the purchase of 427-429 Blake Road (the "Option Agreement"). The real property located at 427-429 Blake Road that is the subject of the Option Agreement is herein referred to as the "Property". If and to the extent necessary, Hopkins will cooperate with the MCWD in connection with the exercise of all rights, responsibilities and remedies of Optionee under the Option Agreement; provided, however, Hopkins' liability for costs and expenses in connection with the Option Agreement incurred or arising prior to the date hereof shall be limited by and allocated in accordance with the provisions of the Memorandum Agreement. Paragraphs 1, 2 and 3 of the Memorandum Agreement are incorporated in this Agreement by reference and shall remain in effect in all of their terms, covenants and conditions.

8. This Agreement does not obligate the MCWD to exercise the option for acquisition of the Property. From and after the date hereof, the MCWD may exercise its rights and responsibilities as Optionee under the Option Agreement in its sole discretion and as it determines appropriate. The MCWD will promptly advise Hopkins of its decisions and actions as Optionee and will notify Hopkins of a) its

election to exercise the option to purchase the Property, or b) the termination of the Option Agreement and election by MCWD not to exercise its option to purchase the Property.

9. The parties' obligations and undertakings under the succeeding paragraphs of this Agreement are subject to and contingent upon the MCWD acquiring the Property pursuant to the Option Agreement. If the MCWD does not acquire the Property pursuant to the Option Agreement, Paragraphs 10-29 of this Agreement shall become null and void and shall have no further force or effect.

Stormwater Management Improvements

10. If the MCWD acquires the Property and conveys or unconditionally agrees to convey the Easement (defined in Paragraph 12) to Hopkins, Hopkins will design, construct and maintain stormwater management facilities conforming to the siting, performance, vegetation and maintenance criteria contained in Exhibit A to this Agreement, attached and incorporated herein. The stormwater management facilities to be designed, constructed and maintained by Hopkins in accordance with the terms and conditions of this Agreement are herein referred to as the "Stormwater Management Facilities."

11. Within 180 days following MCWD's closing on the Property, Hopkins will transmit to the MCWD preliminary plans for the Stormwater Management Facilities. The Stormwater Management Facilities may be sited on one or more parcels owned by Hopkins including the Cottageville Park property and any other property on which Hopkins has acquired, or is committed to acquiring, the property interest to support the improvements; or on the Property. The parties will consult and cooperate in Hopkins' development of the preliminary plan.

12. The MCWD will convey to Hopkins, at no cost, temporary and perpetual easements on the Property sufficient for construction and maintenance of stormwater management facilities conforming to Exhibit A and approved by the MCWD pursuant to this Agreement (the "Easement"). Notwithstanding, (a) Hopkins will conduct construction staging and stockpiling to the extent feasible on property other than the Property and (b) construction limits on the Property will be defined to minimize tree, vegetation and soil damage. Hopkins will perform the work in accordance with all applicable permits and approvals, including those of the MCWD. The MCWD in the easement may place terms on the performance of the work in order to protect its proprietary and water resource interests, provided they do not render the work unfeasible or significantly increase its cost.

13. Hopkins will exercise reasonable diligence to timely produce final design plans and specifications, as well as facility and vegetation management plans, for the Stormwater Management Facilities, for MCWD review and approval. MCWD approval will be based on the criteria in Exhibit A and will not be unreasonably withheld. Specifically, if the final design plans and specifications for the Stormwater Management Facilities are in conformity with the preliminary plans submitted under

Paragraph 11 and the criteria in Exhibit A, the MCWD shall reasonably grant approval of such plans and specifications.

14. On MCWD approval under the preceding paragraph 13 and the conveyance of or unconditional agreement to convey the Easement to Hopkins, Hopkins will retain a contractor to promptly and diligently construct the Stormwater Management Facilities substantially in accordance with the approved design and all applicable permits, approvals, rules, environmental review and other legal requirements, including those of the MCWD. To the extent work will occur on MCWD property, the MCWD may require that Hopkins include in the construction contract or otherwise provide reasonable protections for the MCWD as to potential liabilities resulting from construction and maintenance of the facilities that may include, but are not limited to, insurance coverage and indemnification requirements, as well as vegetation warranties. To the extent of its authority under applicable bidding law, Hopkins will work with the MCWD to incorporate and apply criteria to ensure the selected contractor is qualified to successfully implement any specialized designs or methods.

15. Hopkins will notify the MCWD of construction meetings, which the MCWD may attend. Hopkins may issue change orders and work change directives for the work, subject to MCWD concurrence in any change that materially modifies either the Stormwater Management Facilities approved by MCWD or any element of the contract providing protection for the MCWD as described in the preceding paragraph 14. Hopkins will notify the MCWD of proposed change orders and work change directives and provide the MCWD at least two full business days to review and respond. If a proposed change order or work change directive requires city council approval, Hopkins will provide such notice at least two business days before city council consideration. Where MCWD concurrence is required, the MCWD will respond within two business days of a written request for concurrence accompanied by adequate documentation of the proposed change. A response may state the need for additional time, if MCWD concurrence requires Board approval or specific engineering review is needed. In such a case, the MCWD will exercise good faith and diligence to respond as quickly as possible consistent with the contract(s) entered into by Hopkins for the construction of the Stormwater Management Facilities. Change order and work change directive concurrence may be exercised by MCWD staff provided the design as revised conforms with Exhibit A.

16. Hopkins will notify the MCWD within a reasonable time of the substantial completion of the Stormwater Management Facilities. At the earliest mutual opportunity, the MCWD will accompany Hopkins on the walk-through and identification of remaining work items. Within 20 days of walk-through, the MCWD will provide concurrence in conformance to design plans and specifications or specify deviations. If the MCWD specifies deviations in the Stormwater Management Facilities that are not in substantial compliance with the approved plans and specifications therefor, the parties will work together to determine remaining work required and how it will be accomplished. Hopkins will provide the MCWD with a full set of record drawings for the stormwater management improvements.

17. Hopkins will maintain the Stormwater Management Facilities in perpetuity in accordance with the facility and vegetation management plans approved by the MCWD. If the MCWD finds that facility or vegetation management is not meeting requirements of such management plans, it will provide Hopkins written notification describing the deficiency and, at the request of either party, the parties will meet promptly. Hopkins may cure such a facility maintenance deficiency within 30 days of the notification or meeting, or within such other time as the parties may agree; and may cure a vegetation maintenance deficiency by October 15 following the next full growing season after the notification or meeting, or within such other time as the parties may agree. If at that time the MCWD finds that the deficiency has not been cured, it may assume responsibility for maintenance of the facilities and/or native vegetation, with reimbursement by Hopkins for MCWD contract costs incurred. If the MCWD does not exercise this right, Hopkins' maintenance responsibility and its responsibility for maintenance costs will remain undiminished.

18. The parties will collaborate with respect to signage and other public information relating to the facilities. Each party retains the right to install and maintain signage or otherwise engage in any public informational effort with respect to its property, but will consult with the other party. Any public materials will acknowledge the shared participation of the parties in the project.

19. With the input of the MCWD and Hopkins engineers, the MCWD Board of Managers will determine the pollutant load reduction resulting from the project. On the basis of relative contributions to the costs of stormwater management improvements as reviewed by the parties, the MCWD will receive credit for 68 percent, and Hopkins will receive credit for 32 percent, of the pollutant load reduction for the purpose of meeting load allocations in the MCWD's watershed plan as well as any other water quality-related purpose.

Park Improvements

20. Hopkins intends to undertake recreational, park or other improvements to and the reconfiguration or expansion of Cottageville Park at its discretion and sole cost in conjunction with the acquisition of the Easement and design and construction of the Stormwater Management Facilities. MCWD may approve the siting of park improvements on the Property and shall convey easement rights to Hopkins consistent with its approval. MCWD approval will be on the basis of the water resource impacts of the park improvements, the potential for other uses of the Property consistent with MCWD's statutory purposes, possible MCWD liabilities and other relevant considerations.

21. Park improvements on the Cottageville Park property and any adjacent properties Hopkins may acquire have a primary purpose of serving recreational needs for the community. The MCWD will cooperate with Hopkins on the design and construction of any park improvements. For park improvements on Hopkins property, MCWD staff will have authority to approve the preliminary or concept plans for the park improvements with respect to water resource aspects of the design, including but not limited to stormwater impacts, tree preservation and design for

public education on water resource features of the site. Aside from orderly review and permitting under its rules, the MCWD will not have authority to approve the final plans and specifications for the park improvements on Hopkins property, provided such final plans and specifications are in conformity with the preliminary plans or concept plans for the park improvements approved by MCWD. The MCWD recognizes that the park improvements are intended, among other things, to serve specific recreational needs of the community. Hopkins recognizes the importance of meeting identified recreation needs in a way that supports and does not interfere with the District's surface and groundwater protection goals. The parties agree to work together and collaboratively to allow Hopkins to produce a park design that will integrate and knit together areas of active recreation, stormwater facilities, and protected vegetation and riparian areas to meet recreational needs in a way that provides for both active and passive recreation; meets MCWD goals for water resource restoration, enhancement and protection; and brings the public into productive and learning contact with water resource and conservation features.

Metropolitan Council Lift Station

22. The parties will cooperate to engage the Metropolitan Council in its project to relocate and reconstruct its Blake Road sanitary lift station. The parties' goal will be to establish a lift station location, design and construction schedule consistent with their water resource and park interests.

23. Hopkins will use its powers including its land use authorities to avoid a lift station siting deemed unacceptable to Hopkins or the MCWD, to distance the site from the creek, and to provide for spill protection and other risk reducing features to be incorporated into the design.

Further Collaboration

24. The parties will collaborate closely during design of the stormwater management facility and park improvements described in this Agreement. Hopkins will initiate or continue design efforts on these improvements on execution of this Agreement, in order to produce, without compromising the November 30, 2012 date for substantial completion of the Stormwater Management Facilities, a design that best integrates the public goals of the parties for the contiguous area comprising the Cottageville Park parcel, Property, and any other parcels in which Hopkins has acquired or is to acquire sufficient property rights. In a writing signed by both parties, and an amendment to this Agreement if necessary, the parties may adjust the design of the stormwater management facility improvements to incorporate trails or other park features and otherwise to advance the parties' mutual goals.

25. Hopkins and the MCWD agree that collaboration can result in expanded public benefits in realms of economic and housing redevelopment, public facilities and water resource protection and conservation. The parties will jointly review and build on the adopted Hopkins small-area plan encompassing the project area in order to develop a long-range redevelopment plan for an appropriately delineated area identified cooperatively. For the purpose of developing this plan, the parties commit

to work collaboratively and diligently to achieve, by September 9, 2010, governing body approval of a document that contains the following:

a. A mutual statement of redevelopment goals;
b. Identification and assessment of potentially applicable redevelopment tools including but not limited to land use powers, regulatory powers, redevelopment powers, property acquisition funds and powers, and revenue mechanisms;
c. A review of opportunities for third-party participation, including but not limited to housing and redevelopment authorities, private landowners and stakeholders, and other municipalities along the Minnehaha Creek corridor; and
d. Identification of further steps needed to complete a redevelopment implementation plan and a plan and schedule to complete those steps.

The parties will cooperate to complete the redevelopment implementation plan. The parties will retain consultants, commission studies and otherwise apply resources that they mutually determine are needed to ensure a sound and feasible plan that has community support. Costs, data ownership and other considerations related to this work will be negotiated between the parties in accordance with the relation the work in question bears to the purposes and roles of each party.

26. Neither party is committing to any specific role or responsibility under a redevelopment implementation plan by signing this Agreement. The outcome of the parties' effort under paragraph 25 will be a separate agreement allocating roles and responsibilities under the implementation plan, and that will be subject to approval by each party's governing body.

Remedies and Termination

27. Subject to the contingencies and conditions stated above, Hopkins will substantially complete the Stormwater Management Facilities by November 30, 2012.

28. Only contractual remedies are available for the failure of a party to fulfill the terms of this Agreement. The parties agree that the MCWD's acquisition of the Property, its assumption of relocation, demolition and other costs related to 427-429 Blake Road, and the acquisition of the Easement by Hopkins constitutes valuable consideration for the Stormwater Management Facilities. If the Stormwater Management Facilities are not completed by Hopkins in accordance with this Agreement, the MCWD may have, at its election, the contractual remedy of specific performance requiring that Hopkins fully perform its obligations under this Agreement.

29. This Agreement is effective when fully executed by the parties and expires five years thereafter. All obligations that have come into being before expiration, specifically including but not limited to obligations under paragraphs 6 and 17, shall survive expiration.

INTENDING TO BE BOUND,

MINNEHAHA CREEK WATERSHED DISTRICT

James B. Calkins 9-9-10

James Calkins, President

Approved for Form and Execution:

MCWD Counsel

CITY OF HOPKINS

Eugene J Maxwell

By: Eugene J. Maxwell
Its: Mayor

By: Richard Getschow
Its: City Manager

Dated: September 10, 2010

Hopkins – MCWD Cooperative Agreement

EXHIBIT A

STORMWATER FACILITY STANDARDS:

Stormwater facilities located on the 427-429 Blake Road Property (the "MCWD Property") and contiguous parcels owned by the City of Hopkins or in which it has acquired easement rights, designed and constructed by the City of Hopkins shall generally conform to the performance standards of the September 8, 2009 SEH Concept Plan. These facilities shall provide water quality (phosphorus load reduction), water quantity (runoff volume reduction) and runoff rate control for 32.48 acres of residential and commercial land in the City of Hopkins, identified by the City of Hopkins and SEH as subwatersheds EE-1 (1.19 acres), EE-2 (9.65 acres), EH-1 (3.13 acres), EH-2 (2.7 acres), EH-3 (4.04 acres), EK-1 (0.48 acres), EK-2 (11.29 acres).

Stormwater facilities are to be designed and constructed to treat the 32.48 acre tributary drainage area and shall: (a) provide at least 17 lbs/year of phosphorus load reduction, (b) reduce runoff rates to the extent feasible and in no case increase runoff rates above existing rates for the 1, 10 and 100 year design storm events and (c) provide maximum amount of runoff volume reduction feasible based on site specific conditions such as groundwater elevation, hydrologic soil groups etc. Pre-treatment shall be included for stormwater facilities in accordance with the Minnesota Stormwater Manual. Design performance of facilities shall be documented through the use of appropriate hydraulic, hydrologic and pollutant load modeling. Modeling will be based on the 2030 buildout for the drainage area, presuming that water quality, peak flow and volume for new development and redevelopment will be managed consistent with present Hopkins and MCWD permitting standards.

Modeling and design of stormwater facilities on site should incorporate the following recommendations outlined in the February 10, 2010 memorandum from Wenck Associates to the Minnehaha Creek Watershed District: "Evaluation of Conceptual Stormwater Routing Plans for Cottageville Park on Blake Road in Hopkins" (attached).

Adjustments to modeling:

- Use more recent precipitation and temperature files, and increase the number of runs from 1 to 3.
- Change the filtration efficiency for soluble fraction (P0) from 90% to 0% to reflect that soluble phosphorus will be passing through the system untreated.
- Reduce pond volumes to reflect the likely limit in pond depth and maintain existing footprint for conceptual plan. Original depths were about 2.2 to 2.3, revised pond depths should be set to 1.8 feet to accommodate an underdrain system.

Conceptual Alternative Design:

- Characterize local groundwater elevation & soils prior to design.
- Add pretreatment with a forebay or proprietary device, this will also reduce maintenance activities.
- Use engineered filtration media to promote filtration, enhance plant rooting depth, increase evapotranspiration.
- Consider assisted filtration by adding iron filings or an alternative to target removal of soluble phosphorus. Consider making this a demonstration project, by adding iron filings to one of the two ponds and measuring load reductions in both ponds. Some alternative routing scenarios would be necessary if this option is selected.
- Design the biofiltration systems with underdrains.
- Consider addition of a shallow profile stormwater collection/ passive irrigation system to the garden area (or two garden areas). This could be in-lieu of one of the ponds, or to treat additional drainage area. Consider making the garden a native plant showcase and adding educational or community outreach elements. The additional cost for passive irrigation in an area about the size of the planned garden-oval is about $160,000. The volume mitigation is equivalent to the 0.7 inch storm which corresponds to 50% P removal capacity, and 80- 90 % of storms. This can also serve as a demonstration for future multipurpose public land use projects.
- Add monitoring to gauge effectiveness of demonstration projects. Bypass winter and early spring wet weather and large storm events to avoid impacts of road salt and large storms.
- Disconnect Pond A and B, as the treatment train will do nothing but hydraulically overload Pond B.
- Review updated MCWD XP-SWMM Model of the Creek to make additional recommendations.
- Add educational kiosks.
- The bio-filtration area EK-1 should be expanded to treat the 1.25 inch event Bring existing Interceptor Crossing into compliance with the MCWD Waterbody Crossing Rule.

Stormwater facilities may not include design features or management practices that unduly restrict groundwater flow through the site.

VEGETATION STANDARDS:

Native vegetation shall be planted and maintained in all bioretention basins such that a minimum of 95% native species cover and a maximum of 5% invasive species cover is retained.

Vegetative Performance Standards:

- Year 1 (first full growing season after construction): Seedlings of at least 4 native species shall be widely dispersed through the bioretention basins. No areas of bare soil larger than 16 square feet shall exist. There shall be no more than 5% total coverage of exotic, non-native, or invasive vegetation (such as cattail).

- Year 2 (second full growing season after construction): The bioretention basins shall contain at least 30% of all species contained in the specified seed mixture. No areas of bare soil larger than 9 square feet shall exist. There shall be no more than 5% total coverage of exotic, non-native or invasive vegetation.

- Subsequent years after Year 2: The bioretention basins shall have a minimum of 95% cover of native, non-invasive vegetation and shall contain at least 40% of all species in the specified seed mix. No areas of bare soil larger than 4 square feet shall exist. There shall be less than 5% total coverage of exotic, non-native, or invasive vegetation.

ECOLOGICAL RESTORATION & SECONDARY OBJECTIVES:

In addition to achieving the above water quality, water quantity and rate control standards, design of the stormwater facilities on site should, as feasible, accommodate concurrent or future integration of broader ecological concerns, passive recreation and trails, active recreation and public education opportunities. The 75 foot average buffer may include the native planting areas within the rain water gardens and may include a pedestrian trail and at least one access point to the creek as shown in the concept plans prepared by the City. Any temporary excavations within the buffer area will have adequate erosion protection and shall be restored in a timely fashion.

Stormwater facilities and the 75 foot creek buffer shall be planted and maintained with native vegetation suited to the site and anticipated soil moisture conditions.

Design of stormwater facilities on site will conform to a tree preservation plan prepared by the MCWD after site inspection and consultation between the MCWD and Hopkins.

MAINTENANCE:

Maintenance terms described in this exhibit will be incorporated in recorded perpetual instruments (easement for the MCWD Property, declaration for Hopkins parcels).

STORMWATER FACILITIES MAINTENANCE

When construction is complete, Hopkins will perform an as-built topographic survey of the stormwater facilities. Bottom sediment elevations are to be observed annually and measured every 3 years to monitor sedimentation. When half of the as-built volume has been displaced with sediment, the basin shall be excavated and rebuilt to its design depth.

Hopkins shall perform annual inspections of stormwater facilities, stormsewer pipes and side slopes. Maintenance is required to remove trash and debris, and to repair eroded side slopes.

Bioretention basins are to be inspected annually and after significant storms. The length of time required for a basin full of water to completely drain should be no more than 48 hours. If a basin does not drain at this rate, maintenance is required.

Any proprietary devices shall be inspected and maintained in accordance with manufacturer instructions.

Hopkins shall keep records of inspections and maintenance performed.

VEGETATION MAINTENANCE

Native vegetation shall be planted and maintained such that a minimum of 95% native species cover and a maximum of 5% invasive species cover is retained.

Maintenance activities shall be performed by a qualified professional:

- A certified wetland scientist or biologist shall conduct all vegetation surveys.
- A licensed contractor shall perform all maintenance within the bioretention basins.

FIRST AMENDMENT to COOPERATIVE AGREEMENT

Minnehaha Creek Watershed District and City of Hopkins
Cottageville Park Stormwater Management and Park Improvement Project

This First Amendment ("Amendment") to the Cooperative Agreement ("Agreement") is made between the Minnehaha Creek Watershed District (MCWD), a watershed district and political subdivision with powers at Minnesota Statutes Chapters 103B and 103D, and the City of Hopkins ("Hopkins"), a home rule charter city of the State of Minnesota (together, the "parties").

Recitals and Statement of Purpose

WHEREAS on September 10, 2010, the parties entered into the Agreement to advance social, economic and environmental goals within the Minnehaha Creek corridor;

WHEREAS pursuant to paragraphs 7 through 9 of the Agreement, the MCWD acquired the real property located at 427-429 Blake Road (the "Property");

WHEREAS pursuant to the Agreement, Hopkins assumed the responsibility to design, build and maintain water quality facilities located on the Property, at its expense, in coordination with such park improvements it should choose to construct in adjacent, city-owned Cottageville Park, and pursuant to terms in the Agreement for the parties' collaboration in the overall site improvements;

WHEREAS in January 2014 the Board of Water and Soil Resources (BWSR), on behalf of the State of Minnesota, awarded the MCWD a Clean Water Fund grant from the State of Minnesota in the amount of $483,000, requiring a local match of $150,000, to fund water quality and riparian improvements within the area described in this Agreement in order to meet water quality goals for Minnehaha Creek;

WHEREAS the MCWD concludes that it is cost-effective and advances the MCWD's public goals to extend the design for the water resource improvements to encompass the parcel shown as Phase II on Exhibit C of this Amendment and riparian to Minnehaha Creek (together, "MCWD Properties");

WHEREAS as conceptual design has proceeded, the parties have come to conclude that the MCWD should assume responsibility to design and construct the water resource improvements on the MCWD Properties;

WHEREAS the parties concur that in the interest of an integrated design and construction efficiencies, the MCWD's design and construction activity also should extend onto the Cottageville Park property for the purpose of certain land grading, trail construction and landscaping;

WHEREAS these circumstances require that the Agreement be amended to revise the roles and responsibilities of the parties with respect to the design, construction and maintenance of the improvements contemplated in the Agreement and the funding of those improvements;

THEREFORE the parties agree that this Amendment is made for mutual valuable consideration and is legally binding on each party pursuant to the terms herein.

Terms of Amendment

A. Paragraph 2 of the Agreement is deleted and replaced by the following:

> 2. All notices or other communications under this Agreement shall be in writing and shall be deemed to have been delivered on receipt in hand, by fax or electronically at the addresses stated below, namely:
>
> | *MCWD* | *Hopkins* |
> |---|---|
> | Renae Clark
Projects Manager
MCWD
15320 Minnetonka Boulevard
Minnetonka MN 55345 | Steve Stadler
Director of Public Works
City of Hopkins
1010 First Street South 55343
Hopkins MN |
> | rclark@minnehahacreek.org | sstadler@hopkinsmn.com |

B. Paragraph 5 of the Agreement is deleted and replaced by the following:

> 5. A party's approval of a design prepared by or for the other party is not an engineering certification of the design and the approving party specifically disclaims any warranties or representations relative to the design or functionality of the design. A party has no authority to select, or role in selecting, the means, method or manner of performing any of the work or the person or firm who will perform the work of or on behalf of the other party, and is not liable for any amounts owed to such person or firm. Any right of a party to review or approve a design, work in progress or constructed improvement under this Agreement is solely for that party's own purposes of ensuring that its public goals are met and accounting for funds expended. Notwithstanding, the release and hold harmless of paragraph 14, and the release, hold harmless and indemnification of paragraph 20b, are undiminished by this paragraph.

C. Paragraphs 10 through 18 of the Agreement hereby are deleted and replaced by the following paragraphs 10 through 18.

> 10. The MCWD, at its election, may design and construct water resource improvements on the MCWD Properties, including but not limited to stormwater management facilities and associated stormwater conveyances

("Facilities"), creek bank improvements including vegetated buffer areas and native vegetation, structures and signage for public education and riparian recreation, and related appurtenances (all together, the "Water Resource Improvements"). The design will conform to the siting, performance, vegetation and maintenance criteria contained in Exhibit A and the Conceptual Master Plan that is Exhibit B to this Amendment, both attached and incorporated herein. MCWD contracts for design and construction will state that warranties run to both the MCWD and Hopkins. The MCWD may phase the work at its discretion.

11. Hopkins will timely advise the MCWD of technical requirements for the Facilities to be connected to and incorporated into the municipal stormsewer system. The MCWD must secure Hopkins' approval of the 90 percent plans and specifications for the Facilities, which Hopkins will not delay or unreasonably withhold. Hopkins will timely process any MCWD permit needed for the Water Resource Improvements, without permit review costs, fee or financial assurance, and will timely communicate any local requirements regarding traffic, disturbance or occupation of public ways, and any other matters. The work will include an open cut in Lake Street to install stormwater piping. Hopkins will communicate reasonable terms and specifications for traffic control and restoration.

12. The MCWD will notify Hopkins of construction meetings concerning the Facilities, which Hopkins may attend. The MCWD may issue change orders and work change directives, subject to Hopkins concurrence in any change to the Facilities that may materially affect operation of the municipal stormsewer system or the cost or schedule to maintain the Facilities. For such a change, the MCWD will notify Hopkins and provide Hopkins at least two full business days to review and respond. If a proposed change order or work change directive requires board of managers approval, the MCWD will provide such notice at least two business days before board consideration. Hopkins may have additional time, if its concurrence requires specific engineering review. In such a case, Hopkins will exercise good faith and diligence to respond as quickly as possible in recognition of the need to avoid delay under the MCWD's contract(s) for the Water Resource Improvements. Change order and work change directive concurrence may be exercised by the city manager on behalf of Hopkins. Any contract delay cost resulting from Hopkins contract change review will be shared equally by the parties.

13. The MCWD will notify Hopkins when the Facilities are installed and before subsurface elements are covered. Hopkins will have three business days to inspect the Facilities and to advise the MCWD in writing of any concern that the Facilities materially diverge from the 90 percent plans and specifications. When the Facilities are constructed, the MCWD will supply Hopkins with record drawings and ownership of the Facilities will vest in Hopkins. At that time Hopkins will hold harmless and release the MCWD from all claims with respect to the design and construction of the Facilities.

14. In exchange for being released from its obligation under the Agreement to fund the design and construction of stormwater management facilities on the Property, and for the additional benefits to Hopkins from the improvements, Hopkins agrees to reimburse the MCWD for all design contract costs incurred by the MCWD after April 10, 2014 and all construction contract costs incurred by the MCWD for design and construction of the Water Resource Improvements, beyond those costs that are reimbursed from grant funds. For each payment the MCWD has made on a design or construction contract for the Water Resource Improvements, it will have a right of reimbursement from Hopkins. The MCWD will use best efforts first to obtain reimbursement from grant funds up to the amount of the grant, and will invoice Hopkins no more frequently than monthly. Hopkins will process invoices within 30 days. At its request, Hopkins may have an accounting.

15. The parties will collaborate with respect to signage and other public information. Each party retains the right to install and maintain signage or otherwise engage in any public informational effort with respect to its property, but will consult with the other party. Any public materials will acknowledge the shared participation of the parties in the project.

16. The MCWD will maintain native vegetation, buffer zone improvements and signage on the MCWD Properties, all in accordance with terms of the grant agreement. Hopkins will maintain the Facilities in perpetuity in accordance with Exhibit A and applicable requirements of its municipal stormwater system (MS4) permit. Except as provided in the first sentence of this paragraph, above, Hopkins will be responsible for day-to-day inspection and maintenance of the combined MCWD-Hopkins public space comprising Cottageville Park and the MCWD Properties, including but not limited to sanitation, inspection for and addressing hazards resulting from events such as severe weather, and public safety. Hopkins will prioritize inspection and maintenance consistent with the parties' shared recognition that the site is locally and regionally visible. The MCWD will be responsible for capital replacement on the MCWD Properties.

17. If the MCWD believes that Hopkins is not meeting an obligation under paragraph 16 with respect to the MCWD Properties, it will advise Hopkins in writing and the parties will meet promptly and in good faith to review the concern. Thereafter, if Hopkins fails to meet its obligations, with 30 days' written notice the MCWD may perform the deficient work itself and will be reimbursed by Hopkins for the reasonable cost thereof.

18. When construction of the Water Resource Improvements is complete, the MCWD will deliver to Hopkins an easement for filing in county land records affording Hopkins all rights necessary for it to meet its inspection and maintenance obligations under paragraph 16 ("Easement"). The easement may contain reasonable conditions to protect the Water Resource

Improvements and otherwise to protect Minnehaha Creek and related water resources from damage.

D. New paragraphs 20a through 20c are inserted into the Agreement as follows:

20. The MCWD's design and construction of the Water Resource Improvements will encompass that part of Cottageville Park identified as "Phase I - Hopkins Land" on the Design and Construction Phasing Plan attached hereto as Exhibit C and incorporated herein ("Cottageville Elements"). The MCWD's design will include a part of the Facilities, as well as grading, surface treatment and landscaping, and will conform to Exhibit B. The MCWD must secure Hopkins' approval of the 90 percent plans and specifications for the Cottageville Elements, consisting of grading plans, site trail layout and details/cross-sections, which Hopkins will not delay or unreasonably withhold. Hopkins will timely process any MCWD permit needed for the Cottageville Elements, without permit review costs, fee or financial assurance, and will timely communicate any local requirements regarding traffic, disturbance or occupation of public ways, and any other matters. Hopkins will allow for ingress/egress and occupation of Cottageville Park as necessary or convenient for construction. MCWD contracts for design and construction of the Cottageville Elements will state that warranties run to both the MCWD and Hopkins.

20a. The MCWD will notify Hopkins of construction meetings concerning the Cottageville Elements, which Hopkins may attend. The MCWD may issue change orders and work change directives, subject to Hopkins concurrence in any change that would materially affect contract price or time, or the cost or schedule to maintain the improvements. For such a change, the MCWD will notify Hopkins and provide Hopkins at least two full business days to review and respond. If a proposed change order or work change directive requires board of managers approval, the MCWD will provide such notice at least two business days before board consideration. Hopkins may have additional time, if its concurrence requires specific engineering review. In such a case, Hopkins will exercise good faith and diligence to respond as quickly as possible in recognition of the need to avoid delay under the MCWD's contract(s). Change order and work change directive concurrence may be exercised by the city manager on behalf of Hopkins. Any contract delay cost resulting from Hopkins contract change review will be shared equally by the parties.

20b. The MCWD will notify Hopkins when the Cottageville Elements are substantially completed. Hopkins will inspect the improvements without undue delay and advise the MCWD in writing of any concern that the improvements materially diverge from the 90 percent plans and specifications. When the improvements are constructed, the MCWD will supply Hopkins with final grades and ownership of the improvements will vest in Hopkins. At that time Hopkins will hold harmless and release the MCWD from all claims with respect to the design and construction of the Cottageville Elements, and

will indemnify the MCWD with respect to all liabilities, damages and costs arising out of any third-party claim arising from the design, construction or use of the Cottageville Elements.

20c. Hopkins will reimburse the MCWD for design and construction costs that it incurs for the Cottageville Elements in the same manner as specified at paragraph 14. Hopkins recognizes that a substantial part of these costs may not be eligible for grant reimbursement.

E. Paragraph 20 is renumbered as paragraph 20d and revised to read as follows:

20. Hopkins intends to undertake recreational, park or other improvements to Cottageville Park, including refinements to the area encompassed by the Cottageville Elements, improvements to that part of Cottageville Park not labeled as "Phase I - Hopkins Land" on Exhibit C (including the area indicated on Exhibit C as "Out Parcel," which presently is under private ownership), and a redesign of the right-of-way north of Cottageville Park at its discretion and sole cost. Any such improvements will be consistent with Exhibit B.

F. Paragraph 24 is deleted and replaced by the following:

24. The parties will collaborate closely during design of the Water Resource Improvements and park improvements described in this Agreement. The parties' efforts will be directed to produce a design that best integrates their public goals for the contiguous area comprising the Cottageville Park parcel, the District Properties, and any adjoining parcels owned by either party that are incorporated into the design for the improvements. Specifically, but not exclusively, the District owns a parcel southeast of Lake Street, northeast of Minnehaha Creek and riparian to the creek, as shown in Exhibit B, that may be suited for a public canoe launch and otherwise to augment the Water Resource Improvements.

G. Paragraph 27 is deleted, and paragraphs 28 and 29 are deleted and replaced by the following:

28. Only contractual remedies are available for the failure of a party to fulfill the terms of this Agreement. The parties agree that the MCWD's acquisition of the Property; its assumption of relocation, demolition and other costs related to 427-429 Blake Road; and its siting and construction of the Facilities on its property constitute valuable consideration for the financial contributions and maintenance obligations assumed by Hopkins under this Agreement. The contractual remedy of specific performance is available for either party under this Agreement regardless of the existence of an adequate remedy at law.

29. This Agreement is effective when fully executed by the parties and expires on March 31, 2019. All obligations that have come into being before

expiration, specifically including but not limited to obligations under paragraphs 6, 17 and 18, will survive expiration.
16 17

H. Wherever in the agreement the term "Stormwater Management Facilities" appears, it is replaced by the term "Water Resource Improvements."

I. Exhibits A to this Amendment, labeled "Revised Standards," replaces Exhibit A of the Agreement. Exhibits B and C to this Amendment, labeled, respectively, "Conceptual Master Plan" and "Design and Construction Phasing Plan," are Exhibits B and C to the Agreement.

J. Except as specifically amended hereby, the Agreement and all terms therein remain in full force and effect.

INTENDING TO BE BOUND,

MINNEHAHA CREEK WATERSHED DISTRICT

Sherry Davis White Date: 4/10/14
Sherry Davis White, President

Approved for Form and Execution:

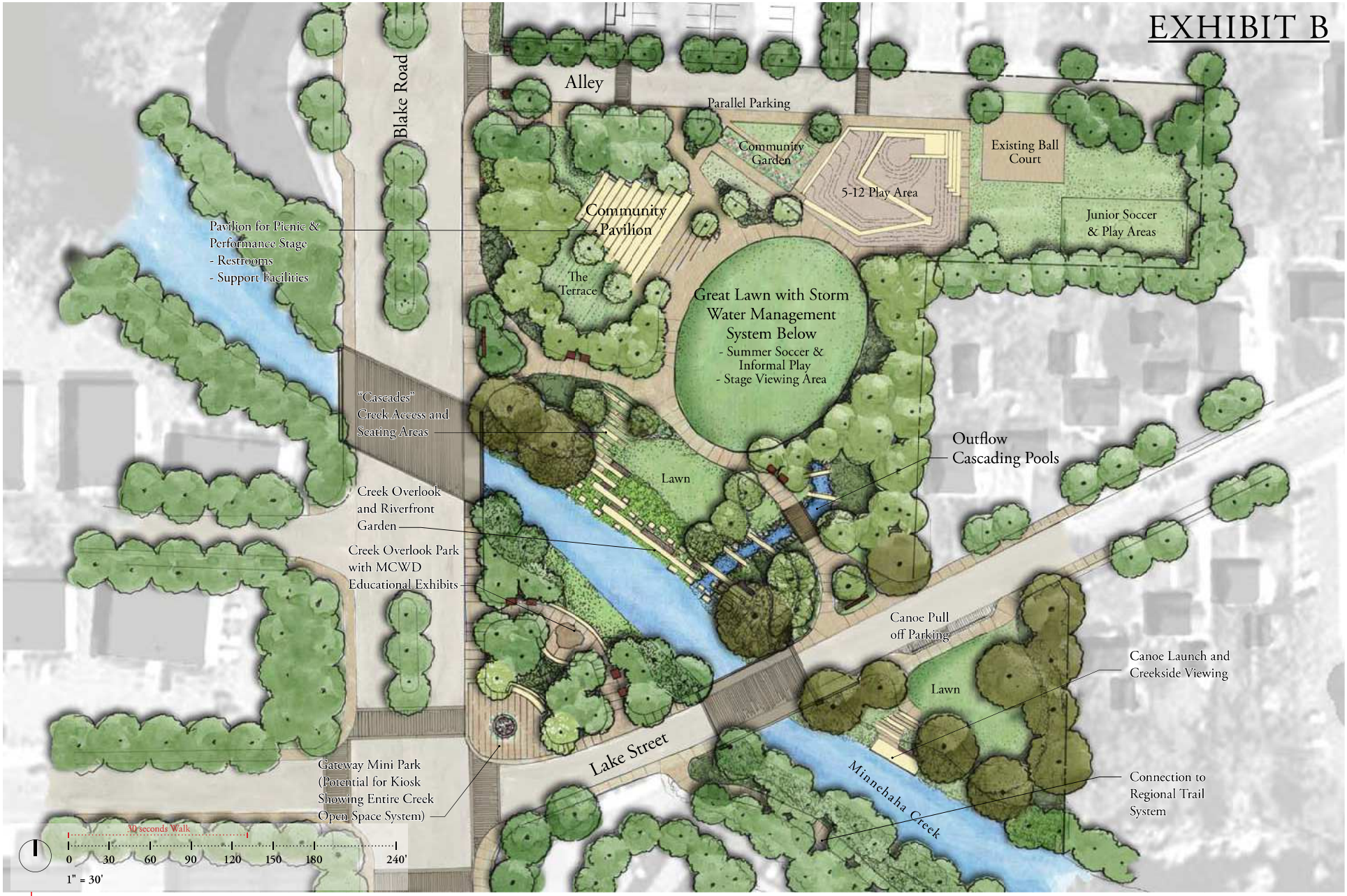
MCWD Counsel

CITY OF HOPKINS

Eugene Maxwell Date: 4-1-14
Eugene Maxwell, Mayor

Date: 4-1-14
Michael Mornson, City Manager

EXHIBIT B



HART | HOWERTON

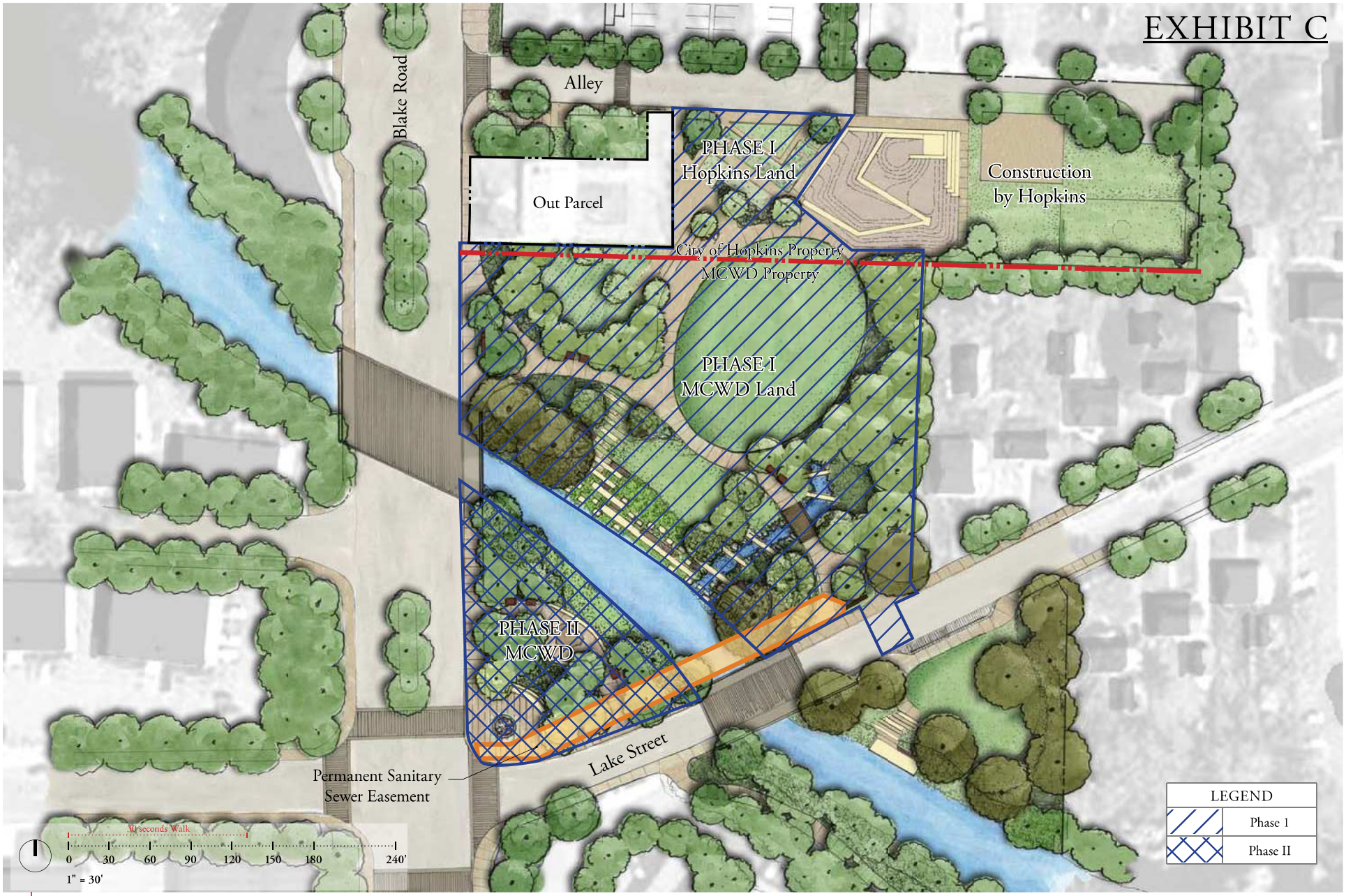
COTTAGEVILLE PARK

Hopkins, Minnesota

Conceptual Master Plan

March 27, 2014

EXHIBIT C



HART | HOWERTON

COTTAGEVILLE PARK

Hopkins, Minnesota

Design and Construction Phasing Plan

March 27, 2014

SECOND AMENDMENT to
COOPERATIVE AGREEMENT

Minnehaha Creek Watershed District and City of Hopkins
Cottageville Park Stormwater Management and Park Improvement Project

This Second Amendment ("Amendment") to the Cooperative Agreement ("Agreement") is made between the Minnehaha Creek Watershed District (MCWD), a watershed district and political subdivision with powers at Minnesota Statutes Chapters 103B and 103D, and the City of Hopkins ("Hopkins"), a home rule charter city of the State of Minnesota (together, the "parties").

Recitals and Statement of Purpose

WHEREAS on September 10, 2010, the parties entered into a cooperative agreement to advance social, economic and environmental goals within the Minnehaha Creek corridor, and on April 10, 2014 the parties amended that agreement (together, the "Agreement");

WHEREAS the Agreement stated roles and responsibilities for water quality, riparian and community recreational improvements within the area described;

WHEREAS pursuant to the Agreement, the MCWD designed the improvements and solicited bids for their construction, but on the basis of bids received the parties determined to postpone a bid award in order to review project design, consider value engineering modifications, and extend the improvements to two areas adjacent to Cottageville Park that at the time of the Agreement were not yet under Hopkins control or otherwise were not ready to site the improvements;

WHEREAS one of these areas, a private residential duplex, now has been acquired by Hopkins, which will perform demolition of the structure and prepare the site, and the other, a public alley right-of-way owned by Hopkins, now is suitable in Hopkins' determination for incorporation into the improvements;

THEREFORE the parties agree that this Amendment is made for mutual valuable consideration and is legally binding on each party pursuant to the terms herein.

Terms of Amendment

A. Paragraph 20 of the Agreement is revised to read as follows:

> 20. The MCWD's design and construction of the Water Resource Improvements will encompass that part of Cottageville Park identified as "Phase I - Hopkins Land," as well as those areas labeled as "Out Parcel" and "Alley," on the Design and Construction Phasing Plan attached hereto as Exhibit C and incorporated herein (together, the "Cottageville Elements"). The MCWD's design will include a part of the Facilities, as well as grading,

surface treatment and landscaping, and will conform to Exhibit B. The MCWD must secure Hopkins' approval of the 90 percent plans and specifications for the Cottageville Elements, consisting of grading plans, site trail layout and details/cross-sections, which Hopkins will not delay or unreasonably withhold. Hopkins will timely process any MCWD permit needed for the Cottageville Elements, without permit review costs, fee or financial assurance, and will timely communicate any local requirements regarding traffic, disturbance or occupation of public ways, and any other matters. Hopkins will allow for ingress/egress and occupation of Cottageville Park as necessary or convenient for construction. MCWD contracts for design and construction of the Cottageville Elements will state that warranties run to both the MCWD and Hopkins.

B. Paragraph 20d of the Agreement is revised to read as follows:

20d. Hopkins intends to undertake recreational, park or other improvements to Cottageville Park, including refinements to the area encompassed by the Cottageville Elements, at its discretion and sole cost. Any such improvements will be consistent with Exhibit B.

C. Except as specifically amended hereby, the Agreement and all terms therein remain in full force and effect.

Intending to be bound,

MINNEHAHA CREEK WATERSHED DISTRICT

Sherry Davis White Date: 10-9-14

Sherry Davis White, President

Approved for Form and Execution:

MCWD Counsel

CITY of HOPKINS

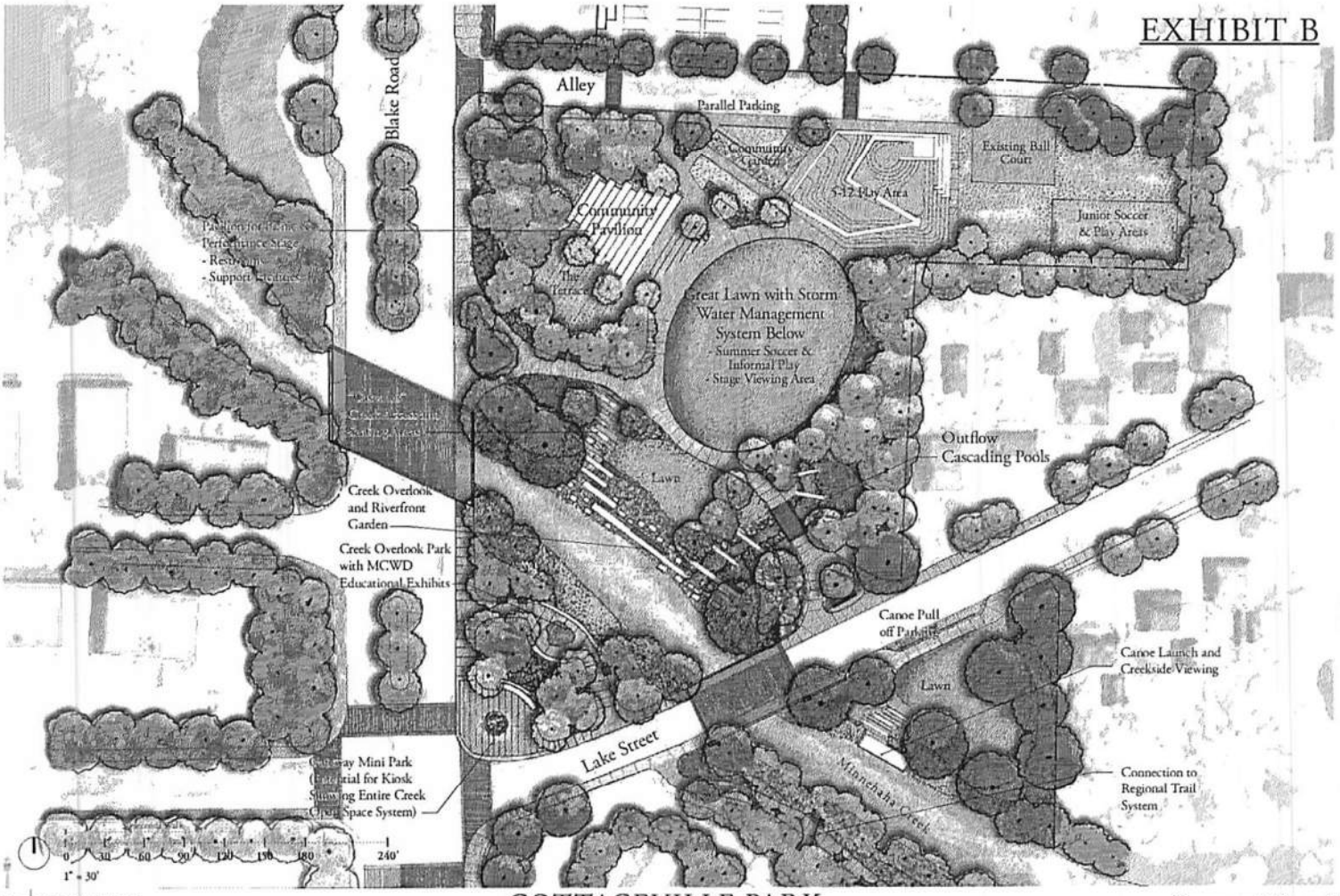
Eugene J Maxwell Date: 10/7/14

Eugene Maxwell, Mayor

Date: 10/7/14

Michael Mornson, City Manager

EXHIBIT B



HART | HOWERTON

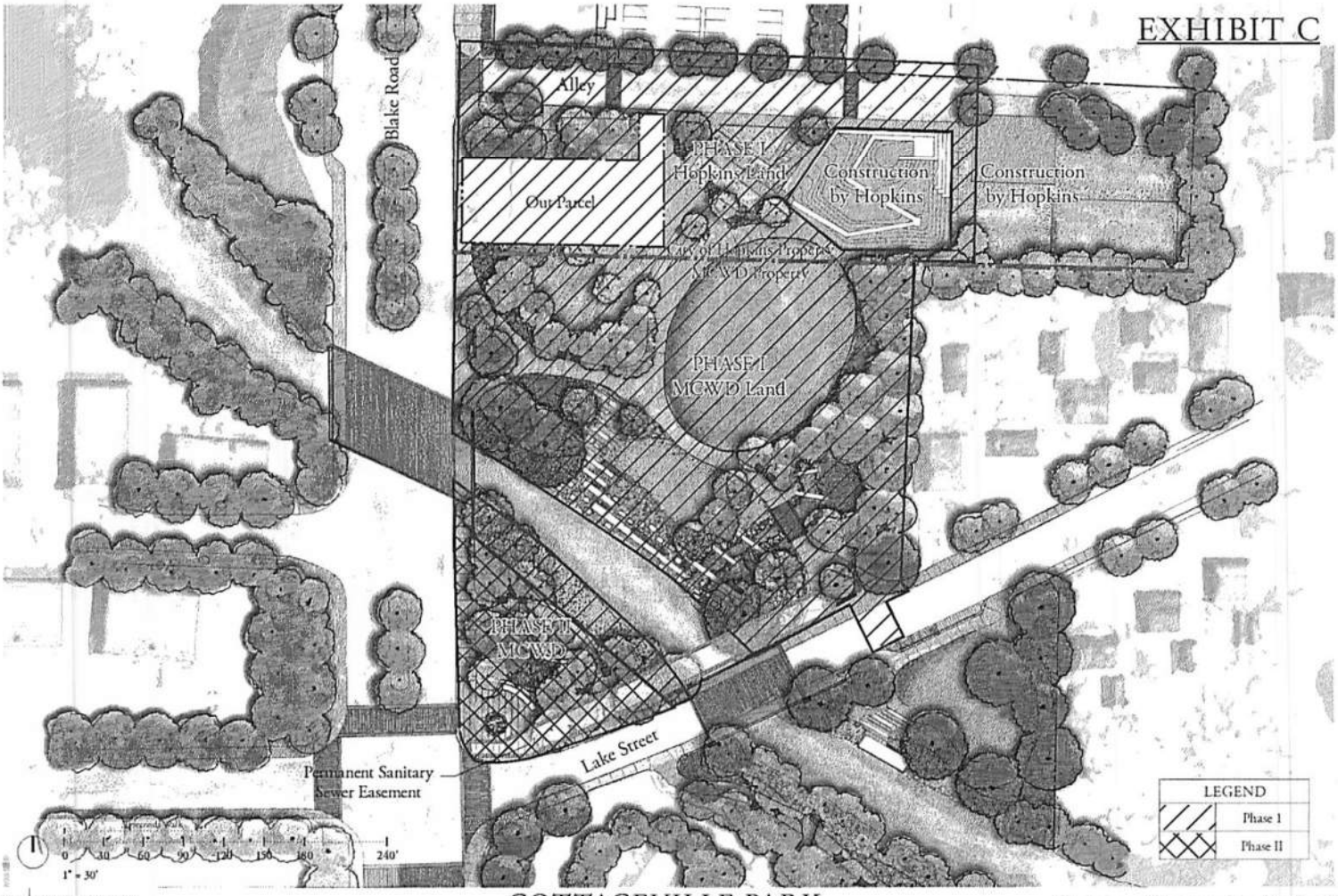
COTTAGEVILLE PARK

Hopkins, Minnesota

Conceptual Master Plan

March 27, 2014

EXHIBIT C



HART | HOWERTON

COTTAGEVILLE PARK

Hopkins, Minnesota

Design and Construction Phasing Plan

October 1, 2014