City of Lauderdale 2040 Comprehensive Plan





Revised Submittal: June 28, 2019

This page is intentionally left blank.

TABLE OF CONTENTS

Chapter 1: Community and Planning Context Chapter 2: Vision, Goals and Strategies Chapter 3: Land Use Chapter 4: Housing Chapter 5: Parks, Trails and Open Space Chapter 6: Transportation Chapter 7: Surface Water Management Chapter 8: Water Supply and Sanitary Systems Chapter 9: Implementation

Appendix

A. Background Report

- B. Glossary of Terms
- C. Jurisdictional Review (Matrix)
- D. Resolution
- E. Minutes
- F. City of Lauderdale CIP
- G. Parks CIP
- H. Local Surface Water Management Plan
- I. Intercommunity Connection Agreement
- J. Saint Paul Regional Water Services Water Supply Plan



This page is intentionally left blank.

ACKNOWLEDGMENTS

City of Lauderdale

Mayor Mary Gaasch Council Member Jeffrey Dains Council Member Kelly Dolphin Council Member Roxanne Grove Council Member Andi Moffatt

City Staff:

Heather Butkowski, City Administrator Jim Bownik, Assistant to the City Administrator Miles Cline, Deputy City Clerk

Lauderdale Steering Committee:

Kelly Dolphin Dave Greenlund Daniel Gumnit John Hamre Kendra Kauppi Zak Knudson Kathy Lerfald Brian Malzer Bob Milligan Javiar Navar

Zack Zehrer

Prepared by Swanson Haskamp Consulting, LLC

Contributing Consultants: Perkins + Will, Inc. Tangible Consulting Services Stantec



Chapter 1: Community & Planning Context

Yesterday, Today & Tomorrow





Comprehensive Plan 2040





1. COMMUNITY & PLANNING CONTEXT City of Lauderdale Comprehensive Plan 2040

INTRODUCTION

The City of Lauderdale is a small town with a long history. Nestled between Saint Paul and Minneapolis, and bordered by Roseville and Falcon Heights, Lauderdale's residents have the luxury of a quaint community all within proximity to the bustle of the major metropolitan area. Even though the City has perhaps one of the best locations within the region, the community has managed to retain its quaint charm and neighborhood fabric.

As a fully developed community the City's neighborhoods, businesses and roadways have experienced little change over the past several decades. Historically, the community primarily focused on maintenance and management of its infrastructure and performed incremental improvements as the needs of the community evolved.

While maintenance and management has been the status quo in the community for decades, in the mid-2000s the City began to explore opportunities for redevelopment in key areas of the community. Of particular interest was the activities within the Larpenteur Avenue corridor and what opportunities may exist to revitalize and reimagine how the corridor may serve as a gateway into the City.

Though the City's efforts to be proactive about the corridor began more than a decade ago, like every community, those plans were put on hold during the great recession of the later part of the 2000s and early 2010s. No community was untouched during the great recession, and for nearly a decade nothing happened.



As the economy recovered, so too did the interest in planning for the City's future. This Comprehensive Plan Update planning process provided the City with the opportunity to explore what its future may hold for not only the Larpenteur Avenue corridor, but for the entire community. From development and redevelopment, housing, parks, trails, and open space to resiliency in infrastructure, transportation, and transit this Plan provides the building blocks from which subsequent policies, ordinances and efforts can be structured.

However, before we can begin to develop a plan for the community's future it is import to first establish the City's context within the region and understand the framework from which subsequent chapters of this Plan are derived. The following sections of this Chapter provide a snapshot of the community's context which summarizes a more detailed set of data found within the Background Report within the Appendix. This Chapter is intended to provide context regarding the following:

- Summary of current demographic and socio-economic trends
- Current market snapshot (local and regional)
- Planning Context
 - Metropolitan Council (regional)
 - Local (objectives established and local process)

2040 Community & Planning Context Highlights – What's to Come

- Residents and business stay in the community long-term providing unique small-town, quirky, and engaged environment.
- » Lauderdale remains one of the most affordable places to live in the Twin Cities metropolitan area contributing to a diverse community.
- » Planning for change in key areas is important to protect Lauderdale's character and longterm resiliency and sustainability.



1. COMMUNITY & PLANNING CONTEXT City of Lauderdale Comprehensive Plan 2040

COMMUNITY DEMOGRAPHICS AND SOCIO-ECONOMIC TRENDS

The City of Lauderdale is a small geographic community comprising approximately 270-acres, and is bordered by the Cities of Minneapolis, Saint Paul, Roseville and Falcon Heights. Located on the far western edge of Ramsey County, Lauderdale is centrally located less than 10-minutes from both downtown Minneapolis and Saint Paul business districts, the University of Minnesota - Twin Cities campuses and other sub-regional job centers. In 2016 the City's population was estimated at 2,440 people and approximately 1,145 households. Key 2015 demographic statistics compiled from the American Community Survey and the US Census that were used to inform Plan development include:

- Age
- Household tenure
- Racial/ethnic
- Median income

Market Snapshot

A critical component to planning for the City's future is to understand the current market dynamics in the community and compare those to the larger region. This is an important aspect of the planning process because it provides context from which the City's vision for it's future can be derived. The purpose of this Plan is to be aspirational, but also to consider and be rooted within market reality so that the community can evolve and grow over this planning period.





As shown in Figure 1-1, the City's existing housing stock is diverse and includes single-family, condominium, townhome and multi-family products. While the housing stock is diverse, most of the product was developed more than 30-years ago, and much of the single-family housing was developed more than 50-years ago.



Housing Market Trends

Because Lauderdale is small, and residents tend to stay in their homes for decades, it is difficult to gauge the true value of owner-occupied housing in the community given few recent sales transactions. Despite the limited availability of comparables, some data does exist and provides some context to the existing housing market place. According to the Minneapolis Association of Realtors, the median home sales price for Lauderdale in 2016 was \$187,500. While this median price is well below that of the metropolitan area, it does represent a recovery back to and slightly above the pre-housing bust values (see Figure 1-2).



Figure 1-2. Median Home Sales Price 2007-2016

Figure 1-3. Market Rate Rental Housing Price Trends 2007-2017





1. COMMUNITY & PLANNING CONTEXT City of Lauderdale Comprehensive Plan 2040 A significant proportion of the City's housing stock is renter-occupied and most of this housing is confined to apartments or multi-family housing generally located along the Larpenteur Avenue corridor and south of the corridor on Eustis Street. As shown on Figure 1-3, the City's market rate rental is also affordable when compared to the region. As with other renteroccupied units in the Twin Cities, rents have been steadily increasing over the past 10 years, but Lauderdale continues to be more affordable than the region. Some of this is likely due to the age of the City's existing multi-family structures that are all more than 30 years old. The recent apartment boom in adjacent communities such as Saint Paul and Minneapolis bring new product to the market place that is renting at substantially higher rates, thus further contributing to the disparity between the region and the City.

Employment and Commercial Trends

Though the dominant land use within the community is residential, the City also includes commercial development along the Larpenteur Avenue corridor and at the Eustis Street intersection. In addition to commercial and retail opportunities, west of Highway 280 the City's dominant land use is industrial and includes new and long-standing businesses. Employment in a community can influence not only its tax base and use of land but can also impact the types of housing demanded and support of certain types of retail.

Since 2000 Lauderdale's employment base has fluctuated with the economy and there are currently a little over 600 jobs in the City. Nearly half of the current employment base is in the

Education and Healthcare sector, which marks a shift from previous years when "production"based jobs dominated the City's employment types (Figure 1-4).

As a small community, Lauderdale truly is unique in its diversity of land uses present. Typically communities of such small geographic area lack diversity in land use which can be challenging. Lauderdale recognizes how valuable its mix of uses is to the sustainability of the community, and consequently has considered how to maintain and enhance the diversity through this Plan development process.

Figure 1-4. Employment Profile by Industry 2015 100% 90% Other 80% Gov't 70% Percent of Workers Hospitality 60% Eds/Meds ■ Knowledge* 50% Retail 40% PDR** 30% 20% 10% 0% LAUDERDALE RAMSEY 7-COUNTY COUNTY MFTRO AREA

*Knowledge = Consists of "knowledge-based" industry sectors, such as Information, Finance, and Professional Services/Managment ** PDR = Production, Distribution, and Repair industry sectors (i.e., Manufacturing, Construction, Transportation, Utilities, etc.)

Sources: Minnesota Department of Employment and Economic Development, QCEW dataset; Perkins+Will



PLANNING CONTEXT

The planning context of this 2040 Comprehensive Plan Update (Plan) is also an important consideration to understand how and why the subsequent chapters of this planning document were created. While the City's regional location and current market dynamics provide context to where and why certain characteristics are emphasized within this Plan, the planning context establishes the requirements of this planning effort and also describes who was involved at the local level in the creation of this Plan. The sections in this Chapter will define the planning context of the following:

- 1. Regional context and requirements (Metropolitan Council)
- 2. Local context and objectives guiding Plan development

Regional Context and Requirements – Metropolitan Council

Cities often wonder when, and why, they should prepare an update to their Comprehensive Plan. While cities are able to amend or update their Plans at any time, the Metropolitan Land Planning Act requires all cities and counties in the Twin Cities metropolitan area (seven-county region) to adopt a Comprehensive Plan, and to update and amend those plans on a minimum of a decennial basis for consistency with the regional systems. The Plan update may address a broad spectrum of issues and opportunities important to the City, but at a minimum the Plan must be updated for conformance with the Metropolitan Council's regional system plans that include transportation (highways and transit), water resources (wastewater services), airports, parks and open space.

To clearly define how a City must establish conformance with the Metropolitan Council's requirements the Metropolitan Council issues a System Statement to each community in advance of the decennial Plan update period. Within the System Statement, the Metropolitan Council outlines and details the key areas that Lauderdale must update for compliance with the regional system. The following pages provide a summary of the System Statement requirements that were considered and planned for within this Plan update.



Community Designations

The Metropolitan Council groups cities and communities with similar characteristics into Community Designations for the application of regional policies. The entire community of Lauderdale is designated as an Urban community (see Map 1-1). This designation acknowledges and recognizes that the City is fully developed and has been primarily been developed with a compact development pattern. It is also a recognition of the City's proximity to both Saint Paul and Minneapolis and is a nod to the time period in which the community was developed. One of the primary objectives in establishing Community Designations, is to ensure that communities plan for development and corresponding infrastructure in a sustainable and fiscally responsible way that will support the objectives of the designation.

More detail regarding the community's roles and responsibilities as an Urban designated community can be found in Chapter 3 Land Use. Some of the key highlights of the City's role are as follows:

- Plan for any redevelopment, or new development, to achieve average densities of no less than 10 dwellings per acre.
- Targeted redevelopment should be considered at key transportation corridors, or where regional transit investments are known.
- Focus should be placed on local infrastructure needs of current and future development in the community – including sidewalks, roadways, sewer, water and surface water management.





Source: Metropolitan Council

Forecasted Growth

To plan for the City's future the Metropolitan Council provided forecasted population and household projections that the City is required to consider as it prepared this Plan update. As stated within Chapter 3, the City believes it may grow beyond what is identified within the 2015 System Statement given current redevelopment expectations. As the City contemplates redevelopment it is important that the City considers the following:

- Allow development that is consistent with this Comprehensive Plan, which includes revised household and population projections based on redevelopment plans.
- Promote redevelopment of key areas that provide the greatest access to existing transportation and transit lines.
- Consider redevelopment that incorporates sustainable and resilient infrastructure design standards to ensure adequate infrastructure is available to new areas.

Even with the areas identified for redevelopment, given the City's relatively small geographic area, the additional population and households is a relatively small contribution to the growing region. However, an increase in 400 +/- households to the City would mark a significant change in the community itself and therefore this Plan focuses on how to seamlessly integrate new development to enhance the Lauderdale spirit.

Local Planning Context and Objectives Guiding Plan Development

In part, the City has prepared this Comprehensive Plan Update to fulfill the requirements of the Metropolitan Council; however, the City also viewed this process as an opportunity to further refine its goals and aspirations for the future of Lauderdale.





2040 Plan Update Objectives

The following objectives were established to help guide the Plan update process:

- 1. Update the Comprehensive Plan to meet the Metropolitan Council's requirements for compliance with the four regional systems, while tailoring the Plan to meet the City's long-term goals and aspirations.
- 2. Refine and more clearly define the redevelopment areas within the community and establish an appropriate mix of uses that balance market realities with the aspirations and vision of the community.
- 3. Create a Plan that is easy to use and understand. The Plan should be helpful to staff, residents, stakeholders and policy-makers.
- 4. Engage the public, key stakeholders and a Steering Committee throughout the process to help guide Plan development.

Engagement Process

A key component of the planning process was the engagement and involvement of a Steering Committee that served as the working group to the plan development process. Engaging a diverse group of community residents, stakeholders and policy makers frequently through the process was integral to creating a more refined Plan that would respond to the needs of the existing community and to the future residents. The City was supportive of establishing a Steering Committee from the beginning of this process and helped identify and select a broad cross section of residents and stakeholders to participate on the committee. The Steering Committee's on-going participation played an important role at every step of the process. The committee met regularly over a year and helped inform the larger engagement strategy, participated at the open houses, and provided meaningful direction at meetings, and reviewed draft documents.

Efforts to solicit feedback from the public included various methods that included attending events like the Farmer's Markets, to stakeholder meetings and online surveys.

At the end of this process all the work of the Steering Committee and feedback from the public was synthesized and complied to provide direction to the Plan chapters that are contained within the Plan update.



Plan Development and Changes from the 2030 Plan

The chapters that follow are the culmination of efforts of the Steering Committee, stakeholder and resident feedback, staff and the City Council. This Plan is intended to serve as a guide for the community's land use, redevelopment, housing and infrastructure planning through this planning period. The City acknowledges that the community relies on this Plan to understand where and how things may stay the same, or change and evolve in Lauderdale over the years. This Plan is also intended to clearly describe to potential developers where the City's is interested in redevelopment, and how those areas can be reimagined to fit into the Lauderdale community. While this Plan makes every effort to lay out a path forward for the next 20 years, it is also intended to be a living document that should be reviewed, updated, and changed when necessary.

This 2040 Plan is a re-write of the previously adopted Plan, yet it is informed by previous planning efforts which served as a foundation to this effort. Some of the key highlights of this Plan are as follows:

- Three specific redevelopment areas are identified in this Plan the Larpenteur Avenue Corridor, 1795 Eustis Street and the Breck Woods. Each of these areas are specifically discussed and planned for with tailored land uses within this Plan.
- Current market trends and projections were used to help inform the types of land use changes identified within this Plan. This Plan carefully balances market dynamics with the goals and aspirations of the community.
- This Plan identifies implementation strategies and steps to reinforce resilient, and sustainable redevelopment plans to include considerations for localized stormwater management, conservation areas and connected trails and open space areas.

The chapters that follow consider existing trends in the housing and commercial/retail/business market and project future uses based on expected demand. The City understands that the market is cyclical and redevelopment may happen at a slower or faster pace than anticipated within this Plan. Lauderdale will likely experience similar trends to those happening within the greater region, so it is important to periodically review this Plan to ensure responsiveness to current market trends while considering the City's long-term vision and aspirations for the future of Lauderdale.



Chapter 2: Vision, Goals & Strategies

Looking forward to 2040





Comprehensive Plan 2040

In 2040, Lauderdale residents and business owners will say...

We are a diverse, dynamic community with small-town appeal in the heart of the Twin Cities. Our neighborhoods continue to become stronger with passionate and involved residents. We have developed an accessible, safe road network for cars, bicyclist and pedestrian that provide essential connections within the community and to the greater region. Our land uses are diverse, with a balance of new and old, commercial and residential, industrial and institutional. We are proud of our parks, our houses, our neighborhoods, our businesses, and our community.



2. VISION, GOALS & STRATEGIES City of Lauderdale Comprehensive Plan 2040

A State State Order Back

LAUDERDALE VISION 2040

The City of Lauderdale convened a Steering Committee to help guide and work through the 2040 Comprehensive Plan Update process. To kick-off the effort the Steering Committee began by working through a visioning exercise that was intended to build on previous planning efforts, and to either confirm or refine the vision established in the 2030 Comprehensive Plan. Much the same as this planning process, the 2030 Plan Update was largely guided by a volunteer working group of residents in the community that made up the Steering Committee. The 2030 Plan established a short vision statement that guided the Comprehensive Plan which was identified as,

"Creating a livable, lovable Lauderdale....together."

While this vision statement continues to be reflective of the ideas and feedback heard over the past year, the work completed during the current plan update process suggests that further refinement, and perhaps a bit more detail is needed to more clearly establish a vision for the community as it plans for change in this planning period.

As described in subsequent Chapters of this Plan, the City is planning for the potential development and redevelopment of key areas of the community which means establishing a clear and descriptive vision is critical to achieving the City's objectives over this planning period. In an effort to clearly define and establish a vision, the City's Steering Committee worked through a series of exercises and discussions that helped to shape the following vision statement, as well as establish the supporting goals and strategies contained within this Chapter. Perhaps most frequently communicated throughout this planning process was the desire of residents, stakeholders, business owners and policy-makers to maintain the small-town, neighborhood quality of the community and the desire to maintain that value in any new development or redevelopment moving forward. Closely related to that desire, was the recognition that not all areas of the community benefit from that neighborhood, small-town quality. This was most noticeably recognized by the geographical divides created by major roadways that bisect the community.



2-1

The two defining 'divides' in the community are 1) Larpenteur Avenue as a divide between the single-family residential neighborhoods on the north, and the multi-family neighborhoods on the south; and 2) Highway 280 which separates the industrial uses and businesses from the neighborhoods and uses east of the highway. While the geographic 'divides' have created obstacles in establishing a united community character in the past, the City has the opportunity to rethink how the roadways and adjacent land uses could evolve and what efforts could be made to make all residents, stakeholders and businesses feel more connected to the community as it changes and grows in this planning period.

Building upon that feedback, the vision that is provided below is a compilation of themes, ideas and messaging that have been shared by residents, business owners and stakeholders throughout this process. What is evident is that residents, business owners, stakeholders and policy makers all agree that Lauderdale is a special place with exceptional neighborhoods and passionate community members. The intent of the vision that follows is to describe a direction for the community moving forward through this planning period, and to provide guidance as change is presented.

GOALS AND STRATEGIES

The 2030 Comprehensive Planning process was the first to contemplate and consider redevelopment in the community. Exploring redevelopment in a fully developed community is a complex undertaking because it involves tough discussions with long-time residents, business owners and other stakeholders that may not be ready for change. As such, beginning the conversation early so that ongoing dialogue can help shape and frame the objectives of the community moving forward is critical to long-term buy in and success of any redevelopment efforts of the City. The planning process was a continuation of the early conversations more than a decade ago, and the following goals and strategies are structured to build on previous and continuing discussions that have occurred over the past year.

Early in the Comprehensive Planning process, the Steering Committee helped define and establish a set of draft goals that are the foundation from which the Chapters contained within this Plan are developed. The first step in establishing a set of draft goals was a Strengths, Weaknesses, Opportunities and Threats ("SWOT") exercise that required the Steering Committee to identify what specific characteristics and qualities of the community that they hoped would either be addressed, maintained or enhanced. The Steering Committee was then asked to prioritize their SWOT exercise to determine which characteristics and qualities rose to the level of aspirations and goals for this Plan.



The results of the SWOT and prioritization were then turned into goal statements using specific action-oriented works with a defined meaning. The draft goals statements became the foundation for discussions of the Steering Committee moving forward addressing topics such as Community Identity and Brand, Land Use and Redevelopment, Housing, and Infrastructure.

The goal statements and themes became the foundation from which feedback and information were collected throughout the Comprehensive Planning process. These topics were used to structure and guide focused discussions with stakeholder groups, on-line surveys, staff, and at public events. After collecting feedback through the public engagement efforts, and working with the Steering Committee and city staff, a set of supporting strategies were developed based on the input received.

The following goals and strategies are a culmination and synthesis of information collected through the various efforts to engage the public, the Steering Committee, stakeholder groups and staff. This Chapter is the core of the Comprehensive Plan and establishes the priorities and initiatives the City has identified as essential during this planning period. Given the importance of this Chapter to the Plan, it is critical that definitions for certain terms and words are universally understood by the user of this Plan. For purposed of this document, the following definition of a goal and a strategy are provided:

Goal: A general statement of community aspirations and desired objectives indicating broad social, economic, or physical conditions to which the community officially agrees to try to achieve in various ways, one of which is the implementation of the Comprehensive Plan.

Strategy: An officially adopted course of action or position to implement the community goals.



In addition to properly defining a "Goal" and a "Strategy", the definition of the action word contained within the goal and strategy statements must also hold a common definition that assigns various roles, commitments, and responsibilities to the City. A glossary of these terms is found in the Appendix of this Comprehensive Plan. The 'action' words used in the following goal and strategy statements are assigned the following commitment level:

No commitment of financial investment, staff resources and policy directives	May include financial investment, staff resources and policy directives	Commitment to financial investment (if needed), staff resources and policy directives
Continue	Create	Protect
Endorse	Encourage	Provide
Recognize	Enhance	Strengthen
Promote	Explore	Support
Work	Maintain	Sustain
	Identify	

The following goals and strategies are categorized by topic area, and generally correspond to the individual Chapters that are contained within this Comprehensive Plan. Each Chapter should support, build upon, and incorporate these goals and strategies into the Plan component and develop implementation steps that will help achieve the goals and strategies as identified. The intent of these statements is to provide a roadmap for development in the City; to be aspirational; and to create a framework for policy makers, staff, developers, landowners, and residents.



Community Character (CC)

CC Goal 1. Enhance and strengthen the "small city" feel of the community.

Strategies:

- 1. Identify opportunities to engage residents south of Larpenteur Avenue with residents north of Larpenteur Avenue.
- 2. Endorse the concept of 'gateway' through signage, scale and other design elements to create a more hospitable throughway.
- 3. Provide additional opportunities for community gatherings that involve all residents, so neighbors can get to know each other.
- 4. Create and designate areas for community gatherings that can be used for residents and the local region.

CC Goal 2. Work to maintain effective, responsible and adaptive leadership in the City.

Strategies:

- 1. Maintain and improve communication between City Hall and residents, stakeholders and the business community.
- 2. Continue to use the City's website, newsletter and other available media to keep interested parties informed of events, activities, and processes underway at City Hall.

CC Goal 3. Support citizen participation, public education and outreach to ensure policies and plans reflect the aspirations of the community.

- 1. Encourage continued volunteerism when creating new plans, processes or other initiatives at the City.
- 2. Explore the use of diverse social media tools to improve communication and to reach a broader portion of the residents.
- 3. Continue to issue and write the newsletter and include information about any upcoming processes and initiatives.
- 4. Provide strategic community events that encourage citizen interaction.
- 5. Create opportunities for meaningful engagement when appropriate.



Regional Collaboration and Intergovernmental Relationships (RC)

RC Goal 1. Strengthen opportunities to collaborate with adjacent municipalities on planning, transportation and infrastructure initiatives that occur near the City's borders.

Strategies:

- 1. Encourage city staff to work with staff members in adjacent communities to identity opportunities to coordinate efforts that are mutually beneficial.
- 2. Work to identify key resources available that assist communities with coordinated planning efforts.

RC Goal 2. Work to build stronger relationships with jurisdictions and agencies having authority over systems within the City to ensure open communication.

Strategies:

- 1. Recognize the importance of the City's participation within the region given the small geographic size and the need to plan across its borders to make a stronger Lauderdale.
- 2. Identify opportunities to check-in and communicate with regional and local partners to understand upcoming initiatives and projects.

RC Goal 3. Identify ways to increase collaboration and cooperation with regional and local agencies that support the goals and objectives of the City.

- 1. Work to identify communities with similar opportunities and challenges and meet with their community members to understand lessons learned.
- 2. Encourage staff to attend meetings, brown-bag sessions and other informational events hosted by regional and local agencies on topics such as housing, redevelopment, transit and other systems of importance in the City.



Land Use and Redevelopment (LUR)

LUR Goal 1. Explore ways to promote the locational advantage of Lauderdale within the greater region.

Strategies:

- 1. Create a branding identity that will be used on signage, collateral material and in on-line materials that incorporates references to the City's location.
- 2. Identify key parcels, intersections or other geographic characteristics to define the gateway into the community.
- 3. Work to promote Lauderdale's opportunity areas through participation and attendance at local and regional events.

LUR Goal 2. Work to create a community with a balanced land use pattern that allows for diversity in business, housing, recreation, and transportation.

Strategies:

- 1. Support the refinement of the City's existing zoning and subdivision ordinances to implement this Comprehensive Plan.
- 2. Create new zoning designations and ordinances to better support the planned land uses contained within the Future Land Use plan.
- 3. Protect existing industrial businesses through continued communication and appropriate land use and zoning regulations.
- 4. Promote a mix of allowable and conditional uses in newly created zoning districts.
- 5. Encourage diversity in redevelopment areas to maintain a dynamic land use pattern.

LUR Goal 3. Promote and explore the redevelopment potential of land adjacent to Larpenteur Avenue as the City's central, vibrant, corridor.

Strategies:

- 1. Encourage developers and land owners to be innovative within the mixed-use designations in the corridor to support a vibrant, forward-thinking development pattern.
- 2. Identify key gateway parcels and elements to support a sense of entry into the community.
- 3. Encourage redevelopment plans to unite the north and south neighborhoods through planned connections and integrated design elements.



2-7

LUR Goal 4. Encourage a mix of uses in the City including businesses, housing, industrial, and institutional uses throughout the Larpenteur Avenue corridor.

Strategies:

- 1. Endorse exploration of new business types and emerging trends that may differentiate the corridor from other places in the metropolitan area.
- 2. Strengthen existing zoning districts to provide clear permitted and conditionally permitted uses within the corridor.
- 3. Provide new zoning districts that promote and support diverse uses within new mixed-use land use designations in the corridor.
- 4. Recognize the importance of industrial uses on the west end of the Larpenteur Avenue corridor and explore ways to integrate users into the community identity.

Housing (HSG)

8 **HSG Goal 1.** Promote a diverse housing stock that provides opportunities for all income levels to live in the community.

Strategies:

- 1. Continue to support a balanced approached to rental and owner-occupied housing.
- 2. Identify best practices that assist with preservation of naturally occurring affordable housing in other communities.
- 3. Support the development of new zoning designations for newly designated mixed-use areas that will allow for more density on key parcels.

HSG Goal 2. Protect existing single-family neighborhood patterns through appropriate ordinances and regulations, while allowing for redevelopment and revitalization of the aging housing stock.

- 1. Work with residents to maintain and manage existing single-family properties.
- 2. Endorse the continued refinement of the rental license ordinance and policy to support the objectives of this Comprehensive Plan.
- 3. Recognize the importance of communicating available financial resources and tools for residents to maintain their homes even if such tools are not provided by the City.



4. Enhance existing zoning districts to more directly regulate dimensional standards for major remodels and tear-downs in existing neighborhoods.

HSG Goal 3. Encourage the use of sustainable practices including conversion to energy efficiency within the existing housing stock and in new residential developments.

Strategies:

- 1. Identify and research similarly situated community's ordinances and policies to learn best practices that may be incorporated into the City's future ordinances.
- 2. Explore opportunities to be innovative in energy and design in new or redeveloping properties.
- 3. Endorse discussions with utilities and alternative energy providers to identify potential improvements that could be retrofitted into the existing housing stock or neighborhood patterns.
- 4. Provide education and information to homeowners and businesses regarding available energy incentive programs.

Transportation, Transit, Bikeways and Walkability (TTBW)

TTBW Goal 1. Provide a safe network of roadways, bikeways and pedestrian ways that connect residents in the City and to the larger region.

- 1. Support new roadway designs in redevelopment areas that plan for bikeways and pedestrian ways that provide mode choice to existing and new residents.
- 2. Create a map that identifies bike and pedestrian connections within the community and where connections to regional infrastructure can be made.
- 3. Work with adjacent municipalities to identify gaps in the system and work together to find ways to complete the network.
- 4. Explore cost-effective safety improvements to pedestrian crossings on Larpenteur Avenue that connect with transit stops.

TTBW Goal 2. Encourage residents to chose alternate transportation modes (other than auto) by improving the bike, transit and pedestrian network in the City.

Strategies:

- 1. Enhance existing ordinances, and incorporate into new zoning districts, requirements that make pedestrian and bike access more efficient. (Examples such as bike parking, awnings and pedestrian shelters.)
- 2. Work with Metro Transit to identify potential improvements to bus stops and bus shelters that would improve the rider's experience.
- 3. Identify potential improvements to Eustis Street south of Larpenteur Avenue or identify routes through redevelopment areas to provide safer connections for pedestrians and bicyclists.

TTBW Goal 3. Identify roadways, bikeways and sidewalks that could be improved to support a complete streets network.

Strategies:

- 2-101. Continue to work with the County prior to roadway improvements to identify opportunities to incorporate bikeways and walkways into reconstruction projects.
 - 2. Work to identify cost-effective tools such as painting and striping of local roadways that would designate key roads as bike and/or pedestrian friendly.

Parks, Trails, Open Spaces and Natural Resources (PTOS)

PTOS Goal 1. Maintain and promote the community's parks and open space as an important asset in the community.

- 1. Continue to host events at the Lauderdale Community Park such as the Farmer's Market, and encourage residents to attend through communication tools such as the newsletter and website.
- 2. Encourage and educate residents about available facilities at each park such as picnicking areas, parking lots, play equipment, basketball courts and athletic fields.
- 3. Continue to plan for the enhancement and maintenance of the City's parks, open spaces and natural resources as a priority within the capital improvement plan and city budget.



PTOS Goal 2. Continue to adapt parks and open space programming and uses to reflect the demands and needs of the residents.

Strategies:

- 1. Explore the use of period on-line surveys to solicit information from residents about their current and expected park needs and wants.
- 2. Sustain the quality of the existing parks through appropriate capital improvement planning.
- 3. Explore ways to protect important open space and trail connections through redevelopment areas in the community.

PTOS Goal 3. Identify opportunities to connect residents with parks and open spaces in the community.

Strategies:

- 1. Create a park dedication ordinance that corresponds to a trail plan that connects residents with parks and open spaces in the City.
- Encourage the development of a park and trail map pamphlet and/or online tool to educate 2-11 residents about park and trail locations, as well as the City's connections to regional parks and trails.

PTOS Goal 4. Protect and maintain the remaining natural resources in the community.

- 1. Provide new zoning regulations that support conservation efforts of key areas containing natural resource value in the community.
- 2. Explore ways to incorporate the Minnesota Land Cover Classification System (MLCCS), natural resources inventory, national wetland inventory and other available tools into development and redevelopment planning.

This page is intentionally left blank.

Chapter 3: Land Use

Existing & Future





Comprehensive Plan 2040





INTRODUCTION

The City of Lauderdale is an established, vibrant, small community located near the core of the Twin Cities metropolitan area. As a fully developed community, often times it is easy to forget that the existing land uses of today and the past may evolve and change in the future particularly when little change occurs over extended periods of time.

The idea that change might happen was first explored in the 2030 Comprehensive Plan which contemplated the redevelopment of key areas in the community with specific opportunity identified within the Larpenteur Avenue corridor. While there was a sense that change and potential redevelopment pressure may occur on underutilized parcels within the corridor, there was not a clear sense of how to promote and encourage redevelopment that would be consistent with Lauderdale's vision for the future of the community.

The 2030 Plan was the first step towards identification of opportunity areas, but subsequent implementation steps were not taken, and as a result the corridor looks today much like it did in the last planning period. One of the principle objectives of this Plan is to build on the previous planning effort and to refine and clearly describe the City's Land Use and Redevelopment vision for the community through 2040. Since the City has not experienced significant change, growth or pressure for redevelopment over the past several decades it can be overwhelming to consider and plan for future redevelopment in the City has been slow to take hold, the recovery in the real estate and development market over the past five years indicates that it is likely that the City will begin to experience an increase in interest and demand for redevelopment given the desirable location of the community within the metropolitan area.

2040 Land Use Highlights – What's to Come

- » The City is planning for change in key redevelopment areas and corridors.
- Protecting the existing neighborhood character, while embracing new opportunities will create a more vibrant Lauderdale long-term.

The purpose of the subsequent sections of this Chapter is to acknowledge and identify the City's existing land use patterns; to establish and define a Future Land Use Plan; and to describe the areas of redevelopment opportunity contemplated within this planning period.



Community Designation and Forecasts

As described in Chapter 1: Community and Planning Context, the City is required to plan for its future land use pattern and redevelopment opportunities consistent with the Metropolitan Council's projections and community designation which is provided for within the 2015 System Statement. The City's Community Designation is "Urban," and ThriveMSP 2040 identifies the following Community Role for orderly and efficient land use as:

- Plan for forecasted population and household growth at average densities of at least 10 units per acre for new development and redevelopment. Target opportunities for more intensive development near regional transit investments at densities and in a manner articulated in the 2040 Transportation Policy Plan.
- Identify areas for redevelopment, particularly areas that are well-served by transportation options and nearby amenities and that contribute to better proximity between jobs and housing.
- Collaborate with other regional partners, and lead major redevelopment efforts.
- Lead detailed land use planning efforts around regional transit stations and other regional investments.
- Plan for and program local infrastructure needs (for example, roads, sidewalks, sewer, water, and surface water), including those needed for future growth and to implement the local comprehensive plan.
- Recognize opportunities for urban agriculture, and small-scale food production.

The Metropolitan Council's population, household and employment forecasts for the 2040 Plan as shown in the 2015 System Statement are provided in the following table:

Forecast Year	Population	Households	Employment
2010	2,379	1,130	718
2020	2,490	1,200	790
2030	2,500	1,200	830
2040	2,520	1,200	870

Table 3-1. Metropolitan Council Forecasts

Source: 2015 Metropolitan Council System Statement for Lauderdale



As discussed during this Plan review process the City has identified and guided areas within the City for redevelopment, and anticipates more households and population than guided within the 2015 System Statement. After discussion with the Metropolitan Council, the Forecasts have been revised as shown in Table 3-2.

In the subsequent Future Land Use section of this Chapter specific areas are identified that are planned for, and may be available for, redevelopment in this planning period. The City acknowledges that is possible that not all areas identified as an opportunity will redevelop over the next 20-years, but the City is confident that certain parcels will redevelop with either mixed use or high density residential uses and all redevelopment will include the addition of new households in the community. Additionally, current employment in the City is estimated at 902 jobs, which exceeds the 2015 System Statement's 2040 projection and therefore the forecast has been adjusted accordingly.

Forecast Year	Population	Households	Employment
2017 (Census)	2,426	1,148	902
2020	2,490	1,200	920
2030	2,800	1,380	1,020
2040	2,950	1,460	1,160

Table 3-2. Revised Lauderdale Forecasts

Source: Metropolitan Council, City of Lauderdale, SHC


EXISTING LAND USE

The City is geographically small but is truly unique in its diverse land use pattern that has been sustained since the City's beginning. Before the City can plan for its future it is important to understand the existing land uses to serve as the basis from which future planning and implementation efforts can be structured. By mapping existing land uses, infrastructure and patterns of intensity often times redevelopment opportunity areas emerge. For example, as Larpenteur Avenue has expanded over time and trip/traffic counts have increased, adjacent single-family residential uses may no longer be the most compatible, or desirable. The existing land use map helps to visually describe where those incompatibilities may exist, while the corresponding acreages in Table 3-3 describes the existing land use mix and suggests what types of land uses may be deficient or needed over the next planning period.

Existing Land Use	Acres	% of Total Acres
Single Family Residential	89.55	33.3%
Townhome/Condo	12.58	4.7%
Apartments	18.25	6.8%
Commercial	2.93	0.3%
Industrial	19.75	7.3%
Institutional	7.46	2.8%
Open Space	11.12	4.1%
Parks and Recreation	6.43	2.4%
Utility	15.84	5.9%
Rail Road Right-of-Way (ROW)	9.59	3.6%
ROW	75.68	28.1%
TOTAL	269.18	100%

Source: Metropolitan Council, MNGEO, City of Lauderdale, SHC



3-4





3-5

 Existing Land Use
 Inst

 Single Family Res
 Ope

 Townhome/Condo
 Par

 Apartments
 Utili

 Commercial
 RO

 Industrial
 Rai

Open Space
Park and Recreation
Utility
ROW
Railroad ROW

Source: Metropolitan Council, MNGEO, City of Lauderdale, SHC



3. LAND USE City of Lauderdale Comprehensive Plan 2040

Existing Land Use Definitions

Single Family Residential: This land use designation identifies land that is primarily developed with detached single-family residential and accessory uses. This development pattern is generally found north of the Larpenteur Avenue corridor and is comprised of existing neighborhoods that were developed in a fairly regular urban grid pattern.

Townhome/Condo: This development pattern was primarily developed in the 1980s and includes the Brandychase Condominiums and Rose Hill Townhomes. These developments include attached housing, and are primarily owner-occupied, with some mix of rental units.

Apartments: Existing apartments are primarily located on the Larpenteur Avenue corridor and were constructed between the 1950s and 1980s.

Commercial: The existing commercial uses are located along the Larpenteur Avenue corridor and include some small retailers, including a gas station and convenience store.

Industrial: The industrial businesses and land are located to the west of Highway 280, are accessible from the railroad and are well connected to the adjacent Minneapolis industrial business areas.

Institutional: The institutional uses are parcels that are currently, or historically have been, used for religious institution, schools, City Hall and other civic or municipal structures.

Open Space: There are a few parcels that are owned by private and public entities that are not developed. Some parcels have some natural resource value or provide stormwater management to adjacent lands. These areas are commonly referred to as the Breck Woods, the Lauderdale Natural Area, and Walsh Lake in the far northeastern corner of the community.

Parks and Recreation: This designation of use identifies existing publicly owned park and recreation land including the Lauderdale Community Park and Skyview Park. These areas include some natural areas, athletic fields, sport courts, tot-lots/jungle gyms, dog park, and other recreational improvements.

Utility: A large substation, currently owned by Xcel Energy is located along the west side of Highway 280. The area is surrounded by existing industrial uses, right-of-way and the railroad. Also included within this designation is land owned by the Minnesota Department of Transportation that provides stormwater management for Highway 280.



Rail Road ROW: The railroad right-of-way is located west of Highway 280 and provides rail access to industrial properties in the City and to the adjacent industrial lands in the City of Minneapolis.

ROW: The existing right-of-way includes state, county, and local roadways. Right-of-way is used for roadways, auto-traffic, transit and bike/trails.

FUTURE LAND USE

The City of Lauderdale is generally classified as fully developed, and no significant residential development or redevelopment has occurred since the late 1980s. Therefore, the age of the housing stock became a significant topic in the land use discussions during this planning process since the recovery of the housing market is in full swing after the housing bust of the early 2010s. With renewed demand for higher density housing in the market place, and the City's naturally desirable location, this planning period provides the City the opportunity to capitalize on its locational advantage and to more efficiently use and guide appropriate land uses in key areas of the community that could benefit from redevelopment.

The City first explored the concept of introducing mixed-use and redevelopment opportunities along the Larpenteur Avenue corridor between Highway 280 and Pleasant Street in their 2030 Future Land Use Plan. Since the adoption of the 2030 Plan little has happened in the corridor with respect to redevelopment. Existing single-family homes remain, and a few small businesses

continue to operate. Large scale investment or reinvestment has yet to occur, so some uses, and buildings, continue to experience deferred maintenance further degrading the character of the corridor.

Ten years ago, the City and its residents identified the need to encourage redevelopment of the Larpenteur Avenue corridor because it is the main gateway and LU Goal #1. Explore ways to promote the locational advantage of Lauderdale within the greater region.

- Chapter 1: Vision, Goals & Strategies

throughway of the community. Using that as a starting place, this planning process sought to evaluate the viability of the land use designations previously identified, particularly as they related to permitted density, and to provide refinement within this 2040 Plan update. This analysis and study was completed with the help of the Steering Committee through a generalized redevelopment workshop which revealed the necessity to revamp the City's 2030



Land Use designations to more appropriately match marketplace expectations. Also emerging through this process and the redevelopment exercise was a consensus that the City should promote and encourage redevelopment in key areas of the Larpenteur Avenue corridor but that new, more intense uses, should thoughtfully transition and be mindful of existing single-family residential neighborhoods north of the corridor. This planning period also identified other pocket areas ripe for redevelopment or development due to change in ownership, or anticipated changes in ownership over the next ten years, thus providing the impetus to consider a change in use within this planning period.

The Future Land Use Plan (FLU) that follows builds on these principles and seeks to further clarify and describe new land uses, identify areas of change, and provide anticipated phasing and/or staging of when changes and redevelopment may be expected in the community.

Future Land Use	Density	Acres	% of Total Acres
Low Density Residential (LDR)	3-5 DU/A	91.27	33.9%
Medium Density Residential (MDR)	5.01-10 DU/A	12.53	4.7%
High Density Residential (HDR)	12.01-30 DU/A	14.02	5.2%
High Density Residential Conservation (HDR-C)	10.01-30 DU/A	6.30	2.4%
Mixed Use – North (MXD-N)*	5.01-10 DU/A	2.71	1.0%
Mixed Use – South (MXD-S)*	12.01-30 DU/A	10.47	3.9%
Business Park (BP)	NA	4.03	1.5%
Industrial	NA	26.27	9.6%
Park/Open Space	NA	10.45	3.9%
Rail Road ROW (RR ROW)	NA	9.59	3.6%
ROW	NA	81.54	30.3%
TOTAL		269.18	100%

Table 3-4. Future Land Use

*Density identified is the residential portion of land use designation.

Source: Metropolitan Council, MNGEO, City of Lauderdale, SHC







2040 Future Land Use LDR (3-5 DU/Ac.) MDR (5.01-10 DU/Ac.)

HDR (12.01-30 DU/Ac.) MXD-N (5.01-10 DU/Ac.) MXD-S (12.01-30 DU/Ac.) BP

Park/Open Space ROW RR ROW

Source: Metropolitan Council, MNGEO, City of Lauderdale, SHC



3. LAND USE City of Lauderdale Comprehensive Plan 2040

Future Land Use Designations: Definitions

Low Density Residential (LDR): Over 33% of the City's land area is designated for Low Density Residential uses with planned density between 3.01 and 5 dwelling units per acre. This land use designation is primarily in existing neighborhoods that are dominated by single-family detached and single-family attached uses north of Larpenteur Avenue, and existing institutional uses. As redevelopment occurs within this land use designation, new uses are planned to be consistent with densities of the existing neighborhood patterns.

Medium Density Residential (MDR): Approximately 5% of the City's land area is designated for Medium Density Residential uses with a planned density between 5.01 and 10 dwelling units per acre. This land use designation is primarily found along the Larpenteur Avenue corridor and includes townhome, co-op and condominium uses. Any redevelopment of these parcels is planned to be consistent with the designated density and to be redeveloped with similar uses.

High Density Residential (HDR): This land use designation comprises approximately 5% of the City's land area and is developed with apartments and condominiums/townhomes at densities between 12.01 and 30 dwelling units per acre. This land use designation is primarily found south of Larpenteur Avenue and is guided for lands designated as redevelopment areas of the community.

High Density Residential – Conservation (HDR-C): This land use designation comprises approximately 2.6% of the City's land area and is planned for densities between 10.01 and 30 dwelling units per acre on lands that are not protected within a conservation area. A portion of the land area in this designation contains natural resource value that must be considered as part of any development plan. If development in this land use designation occurs, it should cluster residential areas while protecting important natural areas and provide public access, where feasible, to the natural amenities.

Mixed Use – North (MXD-N): This land use designation comprises approximately 1% of the City's land area and is planned for a mix of residential, commercial and office/service uses. This land use designation plans for a minimum of 75% of the land/use contained within the designation to be developed with residential uses at densities between 5.01 and 10 dwelling units per acre. Mixed-use is generally contemplated to be vertically integrated but may be horizontally integrated across the land use designation. This land use designation is generally confined to the northerly parcels with frontage on Larpenteur Avenue from Highway 280 easterly to Pleasant Street.



Mixed Use – South (MXD-S): This land use designation comprises approximately 4% of the City's land area and is planned for a mix of residential, commercial and office/service uses. This land use designation plans for a minimum of 75% of the land contained within the designation to be developed with residential uses at densities between 12.01 and 30 dwelling units per acre, with increasing densities evaluated through a Planned Unit Development master plan. Land uses are planned to be compatible with the Mixed-Use North land use designation, and may include retail, commercial, and other office uses. This land use designation is adjacent to and south of Larpenteur Avenue from Highway 280 easterly to Pleasant Street and extending southerly on Eustis Street.

Business Park/Office (BP): This land use designation comprises approximately 1.5% of the land area in the City and has been developed with traditional office uses. Uses in this land designation include office, medical office, or medical uses.

Industrial: Approximately 10% of the City's land area is planned for industrial businesses. This land use designation is located to the west of Highway 280 and is accessible from the railroad and is well connected to the adjacent Minneapolis industrial business areas.

Park / Open Space: About 4% of the City's land is used for parks or open space. These land uses offer residents access to public green spaces for recreation and/or nature observation. They can also help achieve conservation or sustainable management of natural resources within the City.

Rail Road ROW (RR ROW): The railroad right-of-way is located west of Highway 280 and provides rail access to industrial properties in the City and to the adjacent industrial lands in the City of Minneapolis.

ROW: The existing right-of-way includes state, county, and local roadways. Right-of-way is used for roadways, auto-traffic, transit and bike/trails.

LU Goal #4.Encourage a mix of uses including businesses, housing, institutional and industrial uses throughout the City to create a diverse land use pattern.

- Chapter 1: Vision, Goals & Strategies

AREAS PLANNED FOR GROWTH AND CHANGE

The City is likely to face new challenges in this planning period that were not present over the past several decades. As stated throughout this Plan, the City's location within the region makes it potentially highly desirable particularly if some transit improvements or other key regional connections are implemented over the next several decades. The City's proximity to regional and sub-regional job centers matched with increasing market demands for more accessible housing means that Lauderdale is positioned to experience new development pressure if the current market demands and changes continue into the future.

These market dynamics signify a shift in growth patterns from the past several decades when new households were generally planned for and developed in third-ring and fourth-ring suburbs. Now the 2040 ThriveMSP regional plan generally responds to and plans for expected demand within the core cities of Minneapolis and Saint Paul, followed closely by renewed interest in first-ring suburbs.

Lauderdale's older housing stock, and lack of recently built housing means that it may become more desirable as an area that could be targeted for redevelopment within this planning period. The following sections describe and highlight areas within the community that are anticipated to change or could experience redevelopment through 2040.

Existing Single-Family Neighborhoods

Generally, the City anticipates that its existing single-family neighborhoods north of Larpenteur Avenue will largely stay in-tact through this planning period. The Future Land Use plan further supports that objective and desire by guiding areas with the existing grid-neighborhood pattern for Low Density Residential uses at densities between 3 and 5 dwelling units per acre.

While the neighborhoods guided as Low Density Residential are expected to be protected with respect to roadway pattern and density, the City has begun to experience demand for large-scale remodels and potential tear-downs to construct newer, more modern housing. The interest in redevelopment is not necessarily bad, in fact in many ways it is positive and can enhance the long-term sustainability of the community and encourage diversity at the block level. However, the City needs to be cognizant of the potential adverse impacts of new construction and development within its single-family neighborhoods because new housing styles may not be compatible with existing homes without appropriate regulations. More than 40% of the City's single-family housing stock was constructed prior to 1960, and many are bungalows and single-story structures. Existing neighborhood lot patterns were primarily platted with 40-feet of frontage, with alley access and were scaled proportionately to accommodate smaller home sizes



and footprints. Though not always the case, many infill single-family structures are two stories, and seek to maximize foundation sizes and can look out of place towering over their single-story bungalow neighbors.

The City wants to be proactive with respect to allowing redevelopment and infill within its existing single-family neighborhoods, but also seeks to balance those demands with appropriate regulations to protect existing structures. As detailed within Chapter 8: Implementation, the City will update its zoning ordinance to appropriately address potential infill and redevelopment within existing neighborhoods and will ensure such regulations are consistent with the Low Density Residential land use designation as guided within this Comprehensive Plan Chapter.





[Re] Development Opportunity Areas

While much of the City's land uses are expected to remain fairly similar or consistent with the existing uses, there are a few key redevelopment areas identified as an opportunity within planning period. The following description of each redevelopment, or development, area is

provided to guide future developers, land owners or stakeholders and describe the City's reasons for including them within this opportunity analysis. These descriptions will also satisfy and answer the Metropolitan Council's requirement that planned areas of change be identified and adequate densities assigned to each redevelopment area to ensure a development pattern consistent with the City's Urban Community Designation.

LU Goal #3. Promote and explore the redevelopment potential of the Larpenteur Avenue as the City's central, vibrant corridor.

- Chapter 1: Vision, Goals & Strategies

Larpenteur Avenue Corridor

3-14 The properties lining the Larpenteur Avenue corridor were first designated with a mixed-use land use designation in the 2030 Land Use Plan. Similar to the expectations for redevelopment in the previous planning effort, the 2040 Land Use plan also guides the properties within the corridor for mixed-use.

Though the guided land uses in this plan are relatively consistent with the 2030 Plan, this planning process sought to refine the density ranges to match with market expectations that may be associated with any redevelopment in the corridor. To effectively work through that process, the Steering Committee worked through a block-model exercise that conceptually assigned development to parcels that included consideration of estimated market values and appropriate development returns on investment. Even though the process was conceptual, it provided a valuable framework from which to establish a more refined and appropriate land use designation that will more adequately respond to potential market demands for reasonable unit counts, commercial and office square footages, etc.

In addition to a greater understanding of market realities, was the refinement of the vision for the corridor. Based on public feedback solicited from the Farmer's Markets, on-line surveys, and the Steering Committee, the community continues to strongly believe that the Larpenteur Avenue corridor is the gateway to the community and right now is the 'great divide' between the northern single-family neighborhoods and the southern multi-family neighborhoods. Larpenteur Avenue could, and should, play a role in creating a more united community where the northern



single-family neighborhoods and southern multi-family communities are more integrated. While there is opportunity, there is still acknowledgment that any redevelopment of the north side of Larpenteur will function differently than redevelopment on the south side of Larpenteur. Generally, any redevelopment on the north side is expected to thoughtfully transition to singlefamily neighborhoods and redevelopment on the south side is more likely to increase densities and capitalize on existing topography and viewsheds.

To further support these objectives and ideas the City has created two land use designations for this portion of the corridor. While both designations are mixed-use, and the types of uses permitted and promoted within the land use designation are consistent – the planned density for the Mixed-Use North designation is less than the planned density for the Mixed-Use South designation. The intent of creating two land use designations is to more clearly describe the City's vision for the corridor where a more transitional land use pattern is expected given existing single-family neighborhood patterns on the north, and a more intensely developed pattern could easily be accommodated on the south side. Redevelopment of both the north and south side should be done in a manner that considers the relationship between both sides and creates a gateway and corridor in the community. Even though the south side provides greater intensity for redevelopment, given the significant topography and slope on the south side the scale and massing, if done properly, can be consistent with the feel of redevelopment on the north side.





Future Land Use 2040 Designation



Source: Metropolitan Council, MNGEO, City of Lauderdale, SHC



In addition, any redevelopment of the north and south side should consider and plan for pedestrian and bikeway connections that improve access to surrounding transit, schools, and local retailers. The existing Eustis Street corridor is heavily used by cars, bikes and pedestrians and is inhospitable to the diverse modes. Redevelopment of the parcels along Larpenteur Avenue provide opportunities to consider how pedestrians and bicyclists may safely traverse and navigate through a redevelopment area separate from the heavy vehicular traffic on Eustis.

To bring this vision to fruition, the City will update its zoning ordinance to include new zoning districts that will support these two land use designations. Further, now that redevelopment is more likely to occur, the City will explore the creation of a park dedication ordinance to support the development of a more connected trail network particularly through redevelopment areas of the community. Further description regarding these implementation methods are found in the Implementation Chapter of this Plan.



Map 3-4. 1795 Eustis Street Planned Redevelopment

Source: Metropolitan Council, MNGEO, City of Lauderdale, SHC



3-16

1795 Eustis Street

Nestled into the existing single-family neighborhood patterns on Eustis Street, and north of Larpenteur Avenue is the old school building which has most recently been used for a religious institution. For the latter part of the 2010s the property was for-sale, and was contemplated for reuse as another religious institution, a secondary school and also a senior housing facility. Ultimately plans fell through and the building continued to be for-sale. Since the building, use and parcel were in transition it naturally became a discussion topic for the City to explore what it would hope to see on the site if the building were to be redeveloped. The site is approximately 1.7-acres that in an existing community is a fairly large contiguous property that could be redeveloped with several uses.

Eventually, the City acquired the property in the early part of 2018 through the use of a TIF (Tax Increment Financing) development district. One of the unique aspects of this planning process has been the focus and consideration on the market, and the relationship the market should play in creating appropriate and supportive land use designations to guide appropriate uses in redevelopment areas of the community.

Fortunately the City's acquisition of this property occurred as the Future Land Use Plan was contemplated, and therefore considerations for appropriately guiding the property for redevelopment could be evaluated and studied inclusive to the comprehensive planning process.

In addition to understanding the market conditions, the site and its relationship to adjacent uses must be considered, as well as the amount of investment required by the City to acquire the property. Given the location of the site it was determined that the highest and best use of the parcel would be for high-density residential uses. The City discussed at length what types of residential uses they would like to see on the site including senior, market rate, owneroccupied and rental options. While no firm commitment to a specific style was established, there was generally interest in a development project that would provide options to senior residents allowing them to stay in the community thus supporting a life-cycle of housing.

Future redevelopment may present itself in the form of a true senior development, or it may also be in a market-rate project that has a mix of all ages. Generally, it was recognized that since no new multi-family housing has been constructed in the community in more than 30-years, that a new building will likely offer amenities that are simply not offered in the older apartment stock today, and that providing those options will be a benefit to current and future residents.

LU Goal #2. Work to create a community with a balanced land use pattern that allows for diversity in business, housing, recreation, and transportation. - Chapter 1: Vision, Goals & Strategies



Breck Woods Site

The Breck Woods Site is an undeveloped piece of property that is located south of the existing high-density residential apartments that border the Larpenteur Avenue corridor, and east of the Greenway Village apartments on Eustis Street (See Map 3-5). The parcel is approximately 7 acres, and includes a stormwater pond, some wetland areas, significant sloping topography and old woodlands. Although the site is now vacant, it was subdivided in the last five years when the Luther Seminary sold the portion of the parcel with their student housing to a private developer (Greenway Village Apartments), and retained the vacant parcel separately. Through outreach efforts of this planning process to key landowners and stakeholders, the owners of the property revealed that they would sell vacant parcel for potential development, and that such plan was likely to occur within this planning period.

As a result, this piece of land that has always been thought of as a conservation or natural area in the community may be sold to a private developer that will likely expect to develop the site with a reasonable use. Again, given the market framework of this Plan, the City began exploring and evaluating the types of uses that would likely be most suitable on the site. In addition to that process, the City began considering what characteristics and elements of the site would be the most important to protect as part of any future development.





2040 Land Use Designations

Source: Metropolitan Council, MNGEO, City of Lauderdale, SHC



Since the property is undeveloped, the City created a new land use designation for this property because it is so different than any other property in the community. The new land use category includes the recognition that a portion of the property contains important surface water features, woodlands and topography that must considered, and in some areas protected, as part of any development. If new development occurs, it should be clustered to protect as much of the natural resource value as reasonable, and public access to the open spaces should be provided. Once the natural resource areas are identified, the remaining buildable areas may be developed with densities between 10.01 and 30 dwelling units per acre consistent with the City's high-density residential land use designation. To further illustrate the City's conceptual plan for the property Map 3-6 is provided. This concept is not the overall guiding land use, but it provides a framework of how a potential developer may consider development while protecting important natural resources. It should be noted that this land use designation does not require development of the parcel to occur, and the City is open to alternative solutions proposed by the land owner, developer or community stakeholders that may protect the parcel in its entirety. However, it was imperative that through this process the City be proactive to find a solution that would protect some of the natural areas into perpetuity, while allowing the reasonable development of a portion of the property.

To implement the new land use designation the City will update, or if necessary, create a new zoning district that identifies an appropriate process to consider the natural resources while allowing development on the parcel. Further description can be found in the Implementation Chapter of this Plan.





3. LAND USE City of Lauderdale Comprehensive Plan 2040



Expected Growth

The City's redevelopment areas comprise approximately 4.4% of its total land area, which if developed to the maximum extent will result in significant increases in households and population relative to Lauderdale's current size. Given that the number of new households and population is relatively small, regional infrastructure is expected to be adequate to serve any redevelopment contemplated by this Plan. Table 3-5 identifies the redevelopment areas future land uses, estimated net developable acres, and estimated households; and Table 3-7 provides a breakdown of the anticipated developable acres by decade. Although the City anticipates some redevelopment within the single-family residential neighborhoods, the number of households and units is expected to stay relatively constant given the planned continued single-family use.

	Total Net	2019-2020		2021-2030		2031-2040		Total by 2040	
Land Use	Developable Acre (Res.)	Net Acres	нн	Net Acres	нн	Net Acres	нн	HH (Minimum)	HH (Maximum)
Mixed-Use South* 12.01-30 D.U./Ac	~4.1	-	-	3	36 - 90	1.1	14 - 33	50	123
Mixed-Use North** 5.01-10 D.U./Ac	~2	-	-	-	-	2	10 - 20	10	20
High Density Residential 12.01-30 D.U./Ac	~1.6	1.6	20-51	-	-	-	-	20	51
High Density Residential Conservation 10.01-30 D.U./Ac	~4.0	-	-	4.0	40 - 120	-	-	40	120
TOTAL	11.9		20-51		76 - 210		24- 53	120	314
Net Density Estimate of areas planned for change							10 DU/ Acre	26 DU/ Acre	

Tabla	25	Antioin	otod	Dooida	ntial	Haura	boldo	by	Dooodo
Iabic	5-5.	Anticip	aleu i	1163106	iillai	110036	110103	NY	Decaue

*The residential allocation of the Mixed-Use South land use designation is 75% of the redevelopment acres. The net developable acreage represents the land excluding existing high density residential uses that are not planned to change in this planning period.

**The residential allocation of the Mixed-Use North land use designation is 75% of the redevelopment acres.

In addition to residential growth some employment growth is anticipated in the City during this planning period. The follow table provides employment projections utilizing Floor Area Ratio (FAR) calculations.

Table 3	3-6.	Employment	Projections
---------	------	------------	-------------

Land Use	Employment Acres	F.A.R	SF Yield	SF/Job	2040 Employment
Industrial	26.27	0.46	526,388	1,500	351
Business Park	4.87	2.0	420,790	600	701
Mixed Use - North*	0.68	0.7	20,658	920	22
Mixed Use - South*	2.62	0.7	79,813	920	87
TOTAL	34.44				1,161

*The employment allocation of the Mixed-Use South and Mixed-Use North

land use designation is 25% of the redevelopment acres.

3. LAND USE



3 - 20

Table 3-7. Anticipated Developable Acres by Decade

Future Land Use	Redeveloment Acres (Gross)	Redevelopment Acres (Net)	2019- 2020	2021- 2030	2031- 2040	Total by 2040
High Density Residential (HDR)	1.6	1.6	1.6	-	-	1.6
High Density Residential – Conservation (HDR-C)	6.3	4.0	-	4.0	-	4.0
Mixed Use – North	2.71	2.71	-	-	2.71	2.71
Mixed Use – South**	10.47	5.47	-	3.75	1.72	5.47
TOTAL	21.08	13.78	1.6	7.75	4.43	13.78

*Commercial Land Use designation will be redeveloped with Mixed-use, and thus does not appear on Future Land Use Plan.

**Existing High Density Residential portion of MXD-S land use designation expected to maintain household count in this planning period. Only those additional units attributed to redevelopment are calculated within the MXD-S, existing units are allocated to the HDR land use designation.

It is difficult to determine how much growth is likely to occur within a specific decade because the redevelopment areas are relatively small and are likely to be master planned at time of redevelopment. As a result, the projections provided in Table 3-7 are generally spread equally across the planning period, even though this is not necessarily how development and redevelopment would occur.

The two areas that the City is planning for in the near-term are 1795 Eustis Street (described on Page 18) and the Breck Woods Site (described on page 20-21)which are accounted for within Table 3-7.



SPECIAL RESOURCES PROTECTION

Historic Sites

There are no sites or structures listed on the State or Federal historical registries. While formally there are no historical designations, there are structures and sites within the City with historical integrity and interest that are valuable resources to the community and should be acknowledged in this Plan.

As shown in the Housing Chapter, the age of the single-family housing stock is diverse, with some structures dating back to the late 1800's when the area was first settled. These structures in many cases have evolved and changed over time, but they remain in some form, and are important houses to consider with respect to neighborhood and block character. On a broader level, the neighborhood and block pattern is a representation of the history of Lauderdale and explains the evolution of the neighborhoods and the urban-grid like pattern that developed as opposed to a more suburban pattern that is often found in first-ring suburbs. Additionally, the relatively small geography of the City means that some of the historical significance of the area naturally crosses over into adjacent communities such as Saint Paul and Roseville. For example, the old trolley line through the City's Natural Area extends beyond its borders providing opportunities to connect with adjacent communities through interpretive signing, trail connections or other efforts to tell the story of its past.

In an effort to acknowledge the history of the community, there are many ways the City can evolve while respecting the history of the community. For example, if property owners residing in one of the first homes of the community desire to pursue designation as historically significant, the City will work with those owners on those efforts. The City is open to continued efforts to preserve the story of the City's history, and will work with property owners, developers and other interested parties to support the character of the community into the future.

Solar Access

The City acknowledges the importance of maintaining solar access for residents who want to make use of this energy source. The City will assist homeowners in finding information pertaining to design criteria for solar access consistent with State Statutes, and the City will consider variances in circumstances where practical difficulties are imposed because of the inability of structures to obtain direct sunlight for solar energy systems because of existing zoning and subdivision ordinance provisions. Table 3-7 shows the gross solar calculation as provided by the Metropolitan Council, and demonstrates the potential for existing or new





3-23



redevelopment areas to capitalize on this resource. As shown on Map 3-7, the greatest solar potential in the City is south of the Larpenteur Avenue Corridor in areas that are targeted for redevelopment in this planning period. Given the redevelopment opportunity of this area, the City will explore ways to integrate and incorporate clear standards regarding solar within new and created zoning districts that will support new land use designations created in this plan.

Table 3-7. Gross Solar and Rooftop Solar Potential Calculation

Gross Potential (Mwh/yr)	Rooftop Potential (Mwh/yr)	Gross Generation Potential (Mwh/yr) ²	Rooftop Generation Potential (Mwh/yr) ²
499,907	82,034	49,990	8,203

Source: Metropolitan Council

Aggregate Resource Protection

No aggregate resources have been identified within the City of Lauderdale.

3-24



Chapter 4: Housing

Supply, Demand & Allocations





Comprehensive Plan 2040





INTRODUCTION

The purpose of this Chapter is to evaluate Lauderdale's existing housing stock and to plan for future housing needs based on household and population projections as required in the City's 2015 System Statement prepared by the Metropolitan Council. Addressing and planning for the City's housing stock is a critical part of the Comprehensive Plan. The City's three residential land use categories account for nearly 45 percent of the City's current area, by far the largest type of use. Moreover, a diverse housing stock with access to open space and essential goods and services is essential to a healthy, sustainable, and resilient community. It protects the community's tax base against market fluctuations; it helps the community's economic competitiveness by assisting Lauderdale businesses with employee attraction and retention; it provides options for existing residents to remain in the community should their life circumstances (e.g., aging-in-place) change; and it offers future residents access to the same amenities and levels of service that current residents have come to expect and appreciate.

The first part of the Chapter focuses on the existing housing stock. It summarizes important information regarding the overall number of housing units, the type of units, their affordability, and the profile of who lives in those units. Understanding the existing housing stock is essential to determining what types of housing products may be demanded over the next 10-20 years and where they should be planned for. The third part of the Chapter addresses the projected need for housing during the planning period. The final section links projected housing need to practical implementation tools to help the City achieve its housing goals and strategies identified within this Chapter.

2040 Housing Highlights

- » Maintain a healthy and diverse housing stock with access to open space and essential goods and services.
- » Ensure options for existing residents to remain and age in their neighborhoods.
- » Support rental properties as integral part of the City's housing stock that contributes to a mix of affordability in the community.



ASSESSMENT OF EXISTING HOUSING SUPPLY

Overview of Lauderdale's Residential Neighborhoods

The City of Lauderdale's residential areas have evolved over time and now include a variety of housing types, styles and development patterns. There is a little bit of every housing style in the community ranging from single-family residential areas to high-density multi-family apartment options. In the City's community survey conducted as part of the last planning process, the City's residents emphasized the desire to maintain a healthy housing stock, and to ensure that affordability and options remained a key part of the neighborhood fabric allowing homeowners to stay in their homes (age-in-place), and rental properties to continue to thrive within the community. A summary of the City's residential areas are as follows:

Single-Family Residential

The Single-Family Residential neighborhoods are found generally north of the Larpenteur Avenue corridor and east of Highway 280. The single-family neighborhoods are developed on a traditional grid system with lot sizes ranging from approximately 5,000 square feet to approximately 3/4-acres. The average single-family lot size is approximately 7,650 square feet and most homes sit on traditional 'urban' sized lots, with some larger lot exceptions that are found interspersed within the traditional block pattern. The age of the housing stock ranges from homes constructed in the late 1800s to 2015, with a significant portion of the homes constructed



between the 1930s and 1960s. Homes in the single-family neighborhoods are modest, with an average size of 1,200 square feet making them desirable and affordable when compared to surrounding communities. Housing styles include small single-story bungalows, story-and-half homes, split levels, and two stories which result in interesting blocks and architectural diversity.

The City has recently faced a new challenge in the established single-family neighborhoods from tear-downs and major remodels occurring on established, fully-developed blocks. The City is generally receptive to investment and reinvestment within the City's established neighborhoods; however, the City's current ordinances and zoning tools do not contemplate this type of development/redevelopment activity and have thus resulted in little to no regulation on the new structures causing some conflict within the existing neighborhoods.



Multifamily Residential

In the 1980s a few large scale multifamily projects were developed that included townhomes, condominiums and apartments. Brandychase Condominiums is located on the east end of the City on the northwest corner of Larpenteur Avenue and Fulham Street, which continues to thrive today. On the southwest corner of Larpenteur Avenue and Fulham Street is the Rose Hill development which includes the City Gables apartment complex that are rental housing, and the Rose Hill townhomes that are owner-occupied. The Luther Seminary also added Sandgren Apartments to their existing student housing which are located south of Idaho Avenue and have recently been sold to a private entity and rebranded as Greenway Village after a major renovation. All three developments, Brandychase, Rose Hill and Greenway Village are distinct 'neighborhoods' within the community.

In addition to the large complexes, adjacent to the Rose Hill development are a collection of small and medium size apartment buildings that were all constructed around 1960, and each building includes between 17 and 48 units per structure. These apartments are predominantly rented by students.

Housing Stock Statistics

Total Housing Units

According to data from the Metropolitan Council and the City of Lauderdale, there are 1,201 housing units in Lauderdale as of 2017. As a fully developed community, new residential development in Lauderdale has been limited since the late 1980s. According to the Metropolitan Council, nine new housing units have been built since 1988; all of which have been detached, single-family homes.



1,201 Lauderdale housing units as of February 2017

- Sources: Metropolitan Council



Housing Tenure (Owned and Rented Units)

Of the 1,201 housing units in Lauderdale, 560 units (45%) are owned and 641 units (55%) are rented according to data from the Metropolitan Council. This distribution of ownerand renter-occupied housing varies significantly north and south of Larpenteur Avenue. North of Larpenteur Avenue 82 percent of the units are owned, whereas south of Larpenteur Avenue only 10 percent are owned.

Table 4-1. Housing Tenure (2017)

	Own	Rent	Total
Lauderdale	560	641	1,201
North of Larpenteur	488	109	597
South of Larpenteur	57	546	604

Sources: Metropolitan Council; US Census; Perkins+Will



Sources: Metropolitan Council; US Census Perkins+Will

4-4 Housing Type

Related to housing tenure is housing type. Overall, Lauderdale has a relatively balanced housing stock with 553 single-family homes (46% of housing) and 648 multifamily units (54%). There is a significant difference in the type of housing north of Larpenteur Avenue compared to south of Larpenteur Avenue. North of Larpenteur 83 percent of the housing stock (495 units) are single-family homes, south of Larpenteur Avenue only 10 percent of the housing stock (58 units) are single-family homes.

Table 4-2. Housing Type (2017)

	Single-Family Units	Multifamily Units	Manufactured Homes	Other Housing Units	Total
Lauderdale	553	648	0	0	1,201
North of Larpenteur	495	102	0	0	597
South of Larpenteur	58	546	0	0	604

Source: Metropolitan Council; US Census; Perkins+Will



Year Built

Two-thirds (66%) of Lauderdale's housing stock (nearly 800 units) is more than 40 years old. In particular, nearly 80 percent of the housing stock north of Larpenteur is more than 40 years old. Therefore, it will be important to track the condition of these older homes because they are at-risk of deferred maintenance, which can rapidly result in critical structural problems. At the same time, well-maintained older housing can be an important source of entry-level housing because of its relative affordability when compared to newer construction.

Housing Goal #2. Protect existing single-family neighborhood patterns through appropriate ordinances and regulations, while allowing for redevelopment and revitalization of the aging housing stock.

- Chapter 2: Vision, Goals & Strategies

	Before 1940	1940 to 1959	1960 to 1979	1980 to 1999	2000 or later	Total
Lauderdale	221	260	313	397	10	1,201
North of Larpenteur	221	181	71	114	10	597
South of Larpenteur	8	71	242	283	0	604

Source: Metropolitan Council; US Census; Perkins+Will

Housing Affordability

The Metropolitan Council considers housing affordable when low-income households are spending no more than 30 percent of their income on housing costs. Households are considered low-income if their income is at or below 80 percent of the metropolitan area's median income (AMI).

The housing stock in Lauderdale is very affordable relative to other communities in the Twin Cities region. According to the Metropolitan Council, 89% of the housing units in Lauderdale are considered affordable (see Table 4-4). Moreover, none of this housing is publicly subsidized. It is all privately owned and pricing is set by the market. According to the Minneapolis Area Association of Realtors, there were 21 home sales in Lauderdale in 2017 with a median sale price of \$196,000. This was roughly 20 percent lower than the Metropolitan Area sale price of \$247,900. For rental housing, according to CoStar, a national provider of real estate data, the average monthly rent for an apartment in Lauderdale in 2017 was \$916 compared to the Metropolitan Area average of \$1,144.

Table 4-4. Affordability of Units by Income Level

	Lauderdale	% of All Housing Units	Metro Area % of All Housing Units
Units affordable to households with income at or below 30% of AMI	15	1.2%	6.5%
Units affordable to households with income 31% to 50% of AMI	590	49.1%	21.8%
Units affordable to households with income 51% to 80% of AMI	464	38.6%	39.9%
Total Units at or below 80% AMI	1,069	89.0%	68.3%

Source: Metropolitan Council staff estimates for 2015 based on 2105 and 2016 MetroGIS Parcel Datasets (ownership units), 2009-2013 Comprehensive Housing Affordability Strategy data from HUD (rental units and household income), and the Council's 2015 Manufactured Housing Parks Survey (manufactured homes).

\$196,000

2017 median sale price of a Lauderdale home

\$247,900

2017 median sale price of a Metropolitan Area home 2017 average monthly rent for a Lauderdale apartment

\$916

\$1,144 2017 average monthly rent for a Metropolitan Area apartment

Source: Minneapolis Area Association of Realtors

The high rate of affordability is largely due to the prevalence of smaller and older homes, both owned and rented. A good example of this is the Brandychase Condominiums. Although the development isn't especially old – it was built in the early 1980s – most of the units have less than a 1,000 square feet of living space. Such small sized properties are invariably less expensive because they have significantly less living space. Due to the high rate of affordability, unlike most communities in the Twin Cities Metropolitan area, this means the Metropolitan Council does not allocate a need for new affordable housing units in Lauderdale through 2030.





Map 4-1. Estimated Market Value of Homesteaded Property

Legend Estimated Market Value (Homesteaded) < \$238,500

> \$238,500



4. HOUSING City of Lauderdale Comprehensive Plan 2040



Although Lauderdale currently has a housing stock that by the Metropolitan Council's definition is largely affordable, there are some observable trends that would suggest the cost of housing in Lauderdale could rise rapidly in the coming years and become increasingly less affordable. For example, the former Seminary Apartments were recently purchased by a private entity who renovated the property and rebranded as it Greenway Village. Rents for the renovated property were increased several hundred dollars per month. This occurred in part because of Lauderdale's central location in the region and desirable nearby amenities and destinations. The rapid absorption of the higher priced units is a strong indicator that other interests will be looking for similar opportunities to "add value" to existing properties in Lauderdale.



There also are similar market pressures for for-sale housing. As mentioned previously, Lauderdale is beginning to experience large property additions or tear downs/rebuilds that in some cases are changing the character of certain blocks. This amount of investment is occurring because of the advantageous location of Lauderdale and its overall desirable character. Not only will increased investor interest raise prices, but new or significantly rebuilt homes that are much larger will also result in market-wide increases. These trends are important to consider as new policies are implemented that deal with housing in the community.

More detailed information about housing and socio-economic data are included within the Appendix to the 2040 Comprehensive Plan.



KEY DEMOGRAPHICS

Age Profile of the Population

The age profile of residents who live north of Lauderdale Avenue is dramatically different than the profile of residents who live south of Larpenteur Avenue. The nature of the housing helps explain these profiles. The prevalence of apartment buildings south of Larpenteur, which are easily accessible to both the Saint Paul and Minneapolis campuses of the University of Minnesota, attracts young university students. In 2016, age 28 was the median age of residents which has been consistently the case for many years. In 2000, age 28 was also the median age.

North of Larpenteur Avenue the age profile is decidedly older with a median age of 45. Unlike the area south of Larpenteur, the age profile of residents north of Larpenteur continues to increase it's proportion of older residents much like the region where the aging of the Baby Boom generation has had an impact on the overall age profile. However, the age of the population north of Larpenteur has some unique characteristics not found everywhere that have future housing impacts. First, 41 percent of the population is age 55 or older. This is significantly above the Metropolitan Area's percentage of 25 percent of the population is age 55 or older. Furthermore, this proportion of adults age 55 and older is in the absence of any age-restricted housing. Second, the number of households north of Larpenteur that have lived in their home more than 35 years is 26 percent. This is more than double the percentage found across the metropolitan area. This suggests that households that buy a home north of Larpenteur Avenue tend to stay in Lauderdale far longer than most other communities in the region. This suggests that there is a significant pent-up demand for alternative housing that would be appropriate for older households who want to remain in Lauderdale but are unable to because of a lack of housing options. It also means that many of homes are not experiencing a natural cycle in which older households sell to younger households who then re-invest in the property and keep them up-to-date and marketable.

41% Population age 55 or older that live north of Larpenteur Avenue

25% Population age 55 or older in the Metropolitan Area **1:4** Ratio of households north of Larpenteur Avenue that have lived in their home 35 years or more

Sources: US Census; Perkins+Will



Cost Burdened Households

Cost burden is the proportion of household income spent toward housing and utilities. When lower income households spend more than 30 percent of their income toward housing and utilities this burden is considered excessive because it begins to limit the money available for other essentials such as food, clothing, transportation, and healthcare. Table 4-5 presents the number and percentage of low-income Lauderdale households that are cost burdened and compares this against the Metropolitan Area rate of cost burdened low-income households.

According to data from the Metropolitan Council, 440 Lauderdale households have incomes at or below 80 percent of Area Median Income (AMI) and also spend more than 30 percent of their income on housing costs. This is 37 percent of the City's households. This percentage is well above the Metropolitan Area rate of 23 percent. The high incidence of cost burdened households is correlated with a high proportion of younger households, many of which are students, and older households, many of which are in retirement and no longer working.

	Lauderdale Households	% of All Households	Metro Area % of All Households
Income at or below 30% of AMI	224	19.0%	10.0%
Income 31% to 50% of AMI	166	14.1%	7.4%
Income 51% to 80% of AMI	50	4.3%	5.8%
Total households at or below 80% AMI	440	37.4%	23.2%

Note: Housing cost burden refers to households whose housing costs are at least 30% of their income.

Source: U.S. Department of Housing and Urban Development, 2009-2013 Comprehensive Housing Affordability Strategy (CHAS) data, with counts adjusted to better match Metropolitan Council 2015 household estimates.

FUTURE HOUSING OPPORTUNITIES

Projected Housing Need

Recognizing that the land use plan identifies several key sites that are envisioned for new development or redevelopment, this will result in an opportunity to accommodate more housing and increase the City's number of affordable and market rate households. Based on guided residential densities in the development/redevelopment opportunity areas, the revised projected household forecasts up to 582 new households through 2040.



Each of the three development opportunity areas are very distinct with decidedly different

contexts and opportunities. Nonetheless, taken together these three sites have the potential to greatly expand Lauderdale's current housing choices. Moreover, each opportunity area has the potential to not only provide new forms and types of housing but to catalyze or rejuvenate investment into separate areas of the City resulting in stronger linkages between neighborhoods and districts that are currently isolated from one another.

The 2015 System Statement did not allocate an affordable housing need for the community, however, with the revised projections the Metropolitan Council has identified a potential need to accommodate up to 64 affordable housing units between 2020 and 2030. Table 4-6 identifies the revised affordable housing allocation.

120-314 Number of potential new Lauderdale households through 2040 assuming redevelopment of key sites

Sources: Metropolitan Council, SHC

Table 4-6. Affordable Housing Allocation

	Allocation
Income at or below 30% of AMI	38
Income 31% to 50% of AMI	6
Income 51% to 80% of AMI	20
Total	64

The following table demonstrates how the Future Land Use designations and corresponding units accommodate the allocated units. The buildable area of the HDR-C site is approximately 4 acres and will be developed at a minimum density of 10.01 DU/Acre, with potential for increased density with additional protection of natural resources and open space beyond park dedication requirements.

Table 4-7. Future Land Use Designations that Accommodate Affordable Housing Allocation

	Density	Acres (2021-2030)	Households
High Density Residential Conservation (HDR-C)	10.01-30 DU/Ac	~4	40 - 120
Mixed-Use South	12.01-30 DU/Ac	3	36 - 90
Total			76 - 210



Future Residential Uses in Planned [Re] Development Opportunity Areas

Larpenteur Avenue Redevelopment Area

This area has the potential to add the most new housing units, especially south of Larpenteur Avenue where guided densities are highest in the Mixed Use - South district. In the area east of Eustis Street, good visibility from Highway 280 along with the potential for desirable views of Downtown Minneapolis could likely result in pressure to build a taller structure on this site. Therefore, implementation of this Plan should consider how this area is zoned in order to balance the ability of the property owner to deliver needed housing to the community with its potential impact on neighbors. Any development of this area should also be seen as an opportunity to support commercial users along Larpenteur Avenue and as a way to improve the multi-modal function to Eustis Street, which would allow safer and more pleasant connections to transit service along both Larpenteur Avenue and along Como Avenue to the south.

As this area evolves, the desirability of this site from a market perspective may result in support of much higher rents than are currently found in Lauderdale. This would add more housing choices in Lauderdale, and it could also support a mix of both market rate units and affordable units. Therefore, consideration will need to be given to working with any future developer in a possible partnership with the City to help deliver affordable units as part of any redevelopment.

Housing Goal #1. Promote a diverse housing stock that provides opportunities for all income levels to live in the community. - Chapter 2: Vision, Goals & Strategies

The area east of Eustis Street and south of Larpenteur Avenue currently contains a number of well-established multifamily properties. Although these properties appear to be well-maintained by their current owners, and thus generating revenue, which reduces their likelihood of being redeveloped in the short-term, many of the properties are now over 50 years old. Therefore, consideration should be given to how this area should evolve should future property owners decide to demolish and rebuild in this area.

The area immediately north of Larpenteur Avenue has a guided use of Mixed Use-North, which is at a slightly lower density than the other opportunity areas. This is meant to be transition between the more dense uses envisioned south of Larpenteur Avenue and the single-family residential areas to the north of this district. Given the commercial character of Larpenteur Avenue and the short depth of the potential sites in this area, the likelihood of future housing in this area would be above ground floor commercial uses.



1795 Eustis Street

As noted in Chapter 3: Land Use, this site is actively planned for redevelopment. As a redevelopment site, it will be unlikely that the property could be redeveloped at a densities consistent with the surrounding single-family homes. However, the City evaluated a number of concepts that could potentially support higher densities (i.e., feasibility), without having a significant impact on the surrounding neighborhood. Such concepts included townhome product with tuck-under parking and main entries facing the street, low or mid-rise apartments and senior specific developments.

As a redevelopment opportunity that will likely occur during this planning period, this would be an opportunity to demonstrate the application of sustainable practices in residential development. Capture of stormwater on site, which is especially important for higher density development, is

one example of how such practices could be applied. Moreover, by introducing such practices into a new development it will help inform other nearby property owners to how similar practices could be applied to existing homes.

Breck Woods Site

This site is an undeveloped area with the potential to accommodate open space with public access and a connection with an existing public trail along with Housing Goal #3. Encourage the use of sustainable practices including conversion to energy efficiency within the housing stock and in new residential developments.

- Chapter 2: Vision, Goals & Strategies

high density residential development. This area has the potential to be attractive to housing developers. The southeastern corner of the site, which abuts existing single-family homes could support higher-end single-family homes continuing the existing neighborhood pattern.

The western portion of the site that conceivably could be available for future residential development would also be extremely attractive to a housing developer but for different reasons. These areas are adjacent to existing multifamily properties, some of which (Greenway Village) have undergone recent renovations. A new multifamily development in this area would leverage the relative seclusion of the site, access to the City's trail system, and proximity to the centers of both Lauderdale and St. Anthony Park. This area could be especially attractive to empty-nesters or early retirees, though many potential markets could be drawn to these sites.


HOUSING RESOURCES, STRATEGIES, AND TOOLS

Table 4-8 outlines a variety of resources, strategies, and tools to implement Lauderdale's identified housing needs and stated housing goals. There is a wealth of resources available to assist communities in meeting their goals. The table on the following page should be considered a starting point. As the City's housing needs evolve or become more clear, it should expand with options.

Housing Goal	Tool/Resource/ Strategy	Affordability Target	
Housing Goal #1: Promote a diverse stock that provides opportunities for all income levels	Ramsey County Housing and Redevelopment Authority (HRA)	Given the limited staff capacity of Lauderdale, the City does not have a local HRA. Instead, the City regularly coordinates with the Ramsey County HRA to best align their resources with the City's housing needs and goals. The HRA has capacity, funding resources, and expertise to assist smaller communities with their housing needs. (Resources include CDBG, HOME funds, etc.)	<30% AMI 30-50% AMI 51-80% AMI
	Livable Communities Demonstration Account (LCDA)	Consider making an application to LCDA programs for multi-family rental proposals in areas guided for high density residential uses and targeted to households of all income levels. Potential projects marketed/targeted to seniors or mixed-rent projects would be prioritized. Lauderdale will lead such efforts to acquire funds on projects that meet the City's stated objectives.	<30% AMI 30-50% AMI 51-80% AMI
	Tax Abatement	Consider tax abatement for large rental project proposals.	<30% AMI 30-50% AMI
	Zoning and Subdivision ordinances	Review zoning and subdivision ordinances to identify any regulations that inhibit the housing priorities in this document. Update for consistency within 9-monts of plan adoption.	<30% AMI 30-50% AMI 51-80% AMI
	Expedited application process	Streamline the pre-application process in order to minimize unnecessary delay for projects that address our stated housing needs, prior to a formal application submittal. The City will support this through its zoning ordinance process update.	<30% AMI 30-50% AMI 51-80% AMI
	Site Assembly	The City will consider strategies for assembling sites in high-density or mixed- use districts that would increase appeal to developers over the next 10-years.	30-50% AMI 51-80% AMI
	Housing Bonds	Work with Ramsey County HRA to raise housing bonds for the development of low-income housing at various targeted income levels. The City is currently working with a developer on Senior Affordable Housing project that will use housing bonds.	30-50% AMI 51-80% AMI
	Tax Increment Financing (TIF)	To help meet the need for low-income housing, the City will continue use of its TIF district in areas guided for high density development. The TIF district was reestablished in 2018.	30-50% AMI 51-80% AMI
	Brownfield Clean-Up	In potential redevelopment areas , explore EPA and MN DEED grant programs that provide funding and assistance with planning, assessment, and site clean-up. This would be a potential resource for the MXD-S land use area.	<30% AMI 30-50% AMI 51-80% AMI

Table 4-8. Housing Resources	, Strategies and Tool	ls (Implementation Matrix)
------------------------------	-----------------------	----------------------------



Housing Goal	Tool/Resource/ Strategy	Description	Affordability Target
Housing Goal #2: Protect existing single-family neighborhood patterns	CDBG	Work with Ramsey County HRA to use CDBG funds to help low- and moderate-income homeowners with rehabilitation assistance.	<30% AMI 30-50% AMI 51-80% AMI
	Referrals	Review and update reference procedures and training for applicable staff, including a plan to maintain our ability to refer our residents to any applicable housing programs outside the scope of our local services.	<30% AMI 30-50% AMI 51-80% AMI
	Low or No Cost Home Rehabilitation Programs	Continue support of low-or no-cost loans to help homeowners repair heating, plumbing, or electrical systems helps preserve existing housing. For example, Minnesota Housing's Rehabilitation Loan and Emergency Loan programs make zero percent, deferred loans that are forgivable if the borrower lives in the home for 30 years. Minnesota Housing's Community Fix Up Program offers lower-cost home improvement loans, often with discounted interest rates, remodeling advising, or home energy services, through a trained lender network.	<30% AMI 30-50% AMI 51-80% AMI
	Foreclosure prevention	In established neighborhoods, a rash of foreclosures, especially in close proximity to one another, can have a deleterious effect on the surrounding neighborhood. Be aware of foreclosures and be able to direct homeowners at-risk of foreclosure to resources that can help prevent foreclosures (can http://www.foreclosure-response.org/policy_guide/index.html).	<30% AMI 30-50% AMI 51-80% AMI
	Rental License & Inspection Program	The City has an adopted rental license and inspection program which is reviewed and updated as needed. A large percentage of the City's housing stock is renter-occupied and this program is intended to help ensure a safe and adequate rental housing stock in the City.	<30% AMI 30-50% AMI 51-80% AMI
	Preservation Resources (i.e. 4D Tax Incentives	Support exploration and consideration of available preservation resources, including 4d tax incentives and financial resources available through Minnesota Housing and Greater Minnesota Housing Fund's NOAH Impact fund. Given the City's limited staff capacity, prioritization will be given to units at 50% or below AMI.	<30% AMI 30-50% AMI
Housing	Local Fair Housing Policy	The City will work to adopt a and incorporate a Fair Housing policy into its ordinances and policies. (Addresses all affordability levels).	<30% AMI 30-50% AMI 51-80% AMI
Housing Goals #1, 2 and 3	Minnesota Housing's Consolidated RFP Process	The City will support projects soliciting funds through the MHFA's consolidated RFP process and will participate as needed through expedited review processes, resolutions and other formal support for projects that meet the goals and objectives of this Plan.	<30% AMI 30-50% AMI 51-80% AMI
	Participation/ support for existing or future Community Land Trust	The City will support exploration by others, including developers, for redevelopment projects that include a community land trust. Given the relative affordability of the existing housing stock, the City will not initiate projects using this strategy.	<30% AMI 30-50% AMI 51-80% AMI
	Housing Improvement Areas	The City does not have the staff capacity, or EDA or HRA to implement a Housing Improvement Area. However, the City will support the County's HRA and will participate in such programs if applicable, and needed.	<30% AMI 30-50% AMI 51-80% AMI

uder

This page is intentionally left blank.

Chapter 5: Parks, Trails & Open Space

Play, Relax & Enjoy





Comprehensive Plan 2040





5. PARKS, TRAILS & OPEN SPACE City of Lauderdale Comprehensive Plan 2040

INTRODUCTION

The City's parks and open spaces are an important part of the community and are some of the most valued and appreciated areas of Lauderdale. Ask any resident about their favorite places in the community and nearly all at some point will mention the Community Park. The City's parks and open spaces have become the community's gathering spaces, where summers are filled with picnicking and pick-up basketball games, farmers markets and dog park activity.

The existing parks and open spaces are treasured by the residents and their desire to maintain these areas as high-quality community amenities was repeatedly identified as a priority through this planning process. This Chapter is intended to build on the desire to maintain and manage what the City already has within the system, and also to identify opportunities to enhance and create a more interconnected system that considers the relationship between parks, trails, natural resources and resiliency as the community changes over this planning period.

The City is at an important time because redevelopment areas have been identified within this Plan. With redevelopment comes change, and the opportunity to think about how new developments could contribute to a more interconnected parks, trails, and open space (PTOS) system in the community. The following Chapter begins with identification of the existing PTOS system, and then describes how the City will help support and plan for a more interconnected system over this planning period.

2040 Parks, Trails & Open Space Highlights – What's to Come

- » Greater focus on bike and pedestrian connections within the City and to the region should be prioritized in this planning period.
- » The existing parks provide opportunities for community gatherings, recreation and contribute to the City's high-quality of life.



1

EXISTING PARKS, TRAILS AND OPEN SPACE (PTOS) SYSTEM

As a small community the existing PTOS system is an important component of the City's neighborhood fabric and community gathering spaces. Even though there are only a few publicly protected parks and open space in the community those spaces have become a source of community identity and character. The following summary of the existing system is provided as a baseline from which the subsequent sections of this Chapter are derived.

Existing Parks and Open Space

Lauderdale Community Park

Classification: Neighborhood Park

Lauderdale Community Park is the City's largest park and open space and includes both active and passive recreational activities. The park was established in March of 1985 and was purchased by the City from the Roseville School District. The Community Park includes ball fields, tennis courts, basketball courts, playground, volleyball court, paved hockey rink, dog park, picnic shelter, and passive recreation areas including picnicking areas and trails. The park's natural resources include rolling topography, old growth trees and stormwater improvements. The park is approximately 7.3 acres and is located in the northeast quadrant of the City and is primarily surrounded by single-family residential neighborhoods. The park includes surface parking lots on the north and east sides and is otherwise accessible by pedestrians and bicyclists using local roadways.



Lauderdale Nature Area Classification: Passive Open Space

The Lauderdale Nature Area is approximately 2.8 acres and is located south of the Rose Hill Townhomes. The area was purchased to provide infiltration and stormwater management for adjacent impervious surfaces associated with the higher-intensity surrounding uses. Residents who use the area find it a peaceful passive recreational area which can connect them to Falcon Heights and the University of Minnesota's Saint Paul Campus.



Stormwater Easement

Classification: Easement

Adjacent to the Lauderdale Nature Area, the City owns an easement for a stormwater pond that provides additional connected passive open space to the area. The City does not own the property but holds the stormwater easement in perpetuity. Though the land is privately owned, the easement area, as well as the adjacent privately-owned land, have been maintained as open space/woodlands and is an important part of the community's neighborhoods south of Larpenteur Avenue.

Walsh Lake Area

Classification: Passive Open Space

The City owns four lots on the northwest side of Walsh Lake that is approximately 0.7 acres. The majority of the land is either underwater or within the lake shore and is largely inaccessible with the exception of a small path on the east side of Ryan Avenue and a narrow piece of land on the north end of Pleasant Street. Walsh Lake provides additional benefits to the area and serves as part of the stormwater management system in the community.

Walnut/Ione Street Area (Skyview Park)

Classification: Neighborhood Park

Skyview Park was acquired by the City in 2002 and has slowly been improved since its acquisition. The City moved the playground equipment from the Community Park to the Skyview Park several years ago. Most noticeably, there is view of the downtown Minneapolis skyline from the park. The small park includes a small picnic table and garbage can, and can be accessed from the alley off of Ione Street.





Existing Trails

There are no existing dedicated off-road trails in the City. Currently residents generally walk and bike on local roadways that connect to adjacent regional trails and bikeways. As some local roadways have been reconstructed, sidewalks have been installed on roadways with higher traffic volumes.

Existing Regional Parks and Trails

While there are no regional parks or trails within the city limits of Lauderdale, there are regional parks and trails in adjacent communities that are accessible to the City's residents. Part of the efforts of this Chapter are to identify ways in which the community's trail system could provide improved trail connections to adjacent amenities and resources so that residents have various ways to access these areas.

FUTURE PARKS, TRAILS, AND OPEN SPACE SYSTEM

As described in previous Chapters of this Plan, the City is fully developed leaving few opportunities to acquire additional land for parks, trails and open spaces. However, the City has identified a few potential redevelopment areas as part of this Plan that, if and when developed, will provide additional opportunities to contribute to the PTOS system. The purpose of this section is to plan for how the existing system can be maintained, but also how it might be further enhanced through acquisitions at time of redevelopment, reinvestment as infrastructure improvements occur, and reimagining how existing development patterns could be used to create a more connected system.

The following sections describe the plan for how each of the components of the PTOS system can be further enhanced or improved as the community evolves over the next planning period. The information that follows is not meant to be prescriptive, but rather to provide general guidance as to how the PTOS system will support the Future Land Use Plan and support a more sustainable and resilient community into the future.



Park, Trails, and Open Space System

Throughout this planning process residents of the community, and adjacent communities, reinforced the important role that the Lauderdale Community Park and Skyview Park plays in the community. While both parks play an important role and function in the community, residents offered the following feedback as the City plans for the future of the City's PTOS system:

- Programming in the Lauderdale Community Park should be evaluated periodically to make sure the facilities match resident's needs.
- Skyview Park could benefit by better access, and potential improvements to the existing facilities within the park. Specifically, some residents noted that the play equipment was dated, and perhaps not accessible to some local kids.
- Residents noted the lack of active park space in the southern quarter of the City and noted that if redevelopment occurs on the Larpenteur Avenue corridor there may be some need for additional programmed park space as part of any redevelopment that may include housing.
- Some of the open space within the community is protected and owned by the City, while other undeveloped areas such as the Breck Woods are privately owned by Luther Seminary and not protected with any type of covenant or restriction. Because of the mix in private and public ownership, it is difficult to project with certainty how much of the remaining natural lands will be protected into perpetuity.
- Residents were vocal about their desire to have safe pedestrian and bikeway access. Many residents expressed that safety on the more heavily traveled roadways such as Larpenteur and Eustis (particularly south of Larpenteur) should be a priority. Other local roadways were viewed as adequate and did not require further sidewalk or other trail improvements.
- Feedback from the public and Steering Committee focused on identifying a safer pedestrian/bikeway on Eustis Street south of Larpenteur Avenue. This segment of roadway is steep, and treacherous but heavily used as a connection to regional transit. It also signals a potential barrier to some of the multi-family areas feeling connected to the neighborhoods on the north side of Larpenteur.
- Some people also expressed a desire to have better access to the regional trails, and most identified improvements on Larpenteur as the key to improving these connections.



Planning for the Future of the PTOS System

Based upon feedback from residents and the discussion of the Steering Committee, the existing parks and open spaces remain a top priority of the community. Moving forward, both of the existing neighborhood parks as well as the protected natural areas will continue to play an important role as a community gathering place. Though the City is not planning for, or anticipating, any significant park and natural area acquisitions there will likely be opportunities to further improve the PTOS system as redevelopment in the community occurs. Since a specific redevelopment plan is unknown at this time, it is not prudent to plan for a specific type of park or programming because the needs of the ultimate users are unknown. Instead the City simply acknowledges that additional dedicated park, open space and trail areas may be important, especially if new housing is introduced into the community. For example, the City understands that the park demands for a senior housing project may be considerably different than a market-rate housing project. As such Map 5-1 Existing and Future Park, Trail and Open Space, identifies approximate search locations that generally correlate to the redevelopment areas identified in Chapter 3: Land Use. The intent of this map is to signal to developers that parks, trails and open spaces should be a component of any redevelopment effort and that the City will work collaboratively through the development process to identify the appropriate improvement that best meets the needs of the existing community, and the future user.

Resilient Infrastructure

Throughout the development of this Plan, it was often expressed that existing neighborhoods and any redevelopment should consider how to incorporate sustainability and natural resources into the City's future. The community, region, state, nation and world are changing and the City has a responsibility to prepare a Plan that is forward-thinking and allows for the community to adapt quickly to those changes. Other Chapters contained in this Plan touch on this issue, but the PTOS system has the unique opportunity to consider and incorporate the environment and natural resources as a critical component to the City's resiliency long-term.







Map 5-1. Existing & Future Parks, Trails & Open Space Map

Park/Open Space Search Area



Green Network

While the City has not adopted a formal Green Network, the principles of green infrastructure can be established without much formality. The concept of creating a Green Network is built on the idea of including recreational, natural areas, trails and open spaces into a connected network. The concept of a Green Network is taken a step further by bringing together the recreational features with elements of the natural system and ecology of the community by protecting remaining biodiversity and enhancing native ecologic performance. Examples of land uses or features within a Green Network could include, but are not limited to:

- Active recreational park
- Passive park/open space
- Golf course
- Conservation easements
- Utility easements
- Lake and shoreland buffers
- Storm pond/retention basin
- Swales
- Wetlands
- Rain gardens

Porous paving with sustainable stormwater management

The Green Network essentially incorporates the City's PTOS system and builds on it by incorporating other natural or open space areas that can contribute to the community's overall sustainability and resiliency to natural events (i.e. storm events, etc.) The example land uses and features above illustrate that both public and private land is beneficial to the Green Network. It is not important for Lauderdale to necessarily maintain control over the land to establish it as a successful contribution to the Network. The key attribute of the land in the Network is that it has long-term protected status and one of the purposes of the protection is natural resource management, preservation, or natural function (such as stormwater infiltration). For example, many of the City's local streets are tree-lined providing valuable shade and infiltration benefits. Vegetated rights-of-way, whether trees, native grasses, or other plant types, can help with stormwater management and water quality thereby performing specific contributions to the Network. While the general public is not walking through the right-of-way easement areas adjoining private lots, these areas still provide important benefits to the Network. Planning for the PTOS and Green Network in Lauderdale achieves a broader long-term goal for resiliency in the community. In this context, resiliency means the ability for the City to endure growing concerns related to the effects of changing climate impacts, higher costs for



public facilities and services, and accumulating environmental pollution issues. Focused land planning for the benefits of ecological health and enhancement of natural systems will increase actions like local groundwater recharge, improved water quality, habitat quality, and less reliance on automobiles. If implementation strategies are thoughtfully incorporated into the City's ordinances, it will put Lauderdale in a position to spend less time and money on clean up, rehabilitation, municipal stormwater systems, and other services that mitigate problems rather than just preventing them with good planning in the first place.

Resiliency also refers to the health and wellness of residents. The PTOS and Green Network creates the opportunity to provide access to nature, views and places that reduce stress, recreational opportunities, community gathering spaces and greenery and canopies that provide shade and comfort. Connected spaces will also establish more walkability, bikability and accessibility to transit in the City.

When considered collectively the PTOS System and concept of a Green Network can function as a resilient infrastructure for the City. Much like roadways function as the City's transportation infrastructure moving people from place to place, the resilient infrastructure utilizes connected green spaces to move water, wildlife, plant diversity and people in an interconnected sustainable way. Resilient infrastructure will establish best practices for the City in natural areas and water quality management providing built-in protection for the growing impacts to the environment, while offering healthy opportunities for activity and wellness to residents. Taken a step further, the City can begin to consider how these concepts and principles translate into building design and site redevelopment. While it may seem overwhelming for a fully developed community to think about how it may retrofit areas to support a Green Network, small steps have the potential to create large impacts. This Plan lays the ground work and establishes it as a principle. It will be a slow evolution to create a Network, but it is achievable if it is established as a priority and if it is at the forefront of any redevelopment effort.



9

This page is intentionally left blank.

Chapter 6: Transportation

Mode Choice & Safety





Comprehensive Plan 2040





6. TRANSPORTATION City of Lauderdale Comprehensive Plan 2040

INTRODUCTION

The purpose of this chapter is to define and describe the City's transportation system and how it supports residents and businesses within the community. The efficiency of the transportation system is an important consideration of any community because it moves people, goods and services into and out of a community. Since this planning effort contemplates some redevelopment opportunities it also offers opportunities to evaluate the system for improvements, and to continue to maintain and enhance the system in a way that will support current and future residents and businesses in the community.

The following sections of this chapter describe existing and planned roadways, traffic projections and potential right-of-way needs, as well as describes existing and planned improvements to the transit and bikeway system in the community. Finally, heavy freight, rail and air are all addressed with varying levels of detail based on their role within the community today and in the future.

While much of the information contained within this chapter is simply an update from the City's previous 2030 Plan, there are some changes in the area and surrounding region that have the potential to impact the community's transportation system. This chapter is intended to provide an update, but also to identify opportunities to improve the City's system through 2040.

2040 Transportation Highlights

- » The continued focus on improved safety of the transportation system is this focus of this Plan.
- » This planning period identifies the need to plan for a more connected bikeway and pedestrian system within the City, and the larger region.



Transportation Objectives

In addition to the goals and strategies identified in Chapter 2 of this Plan, the City has identified a few guiding objectives for the City's transportation system through this planning period:

- Providing safe local roads through appropriate capital planning efforts, and budgeting for improvements such as seal coating and other maintenance will continue to be a priority in the City.
- The City acknowledges that the System is multi-jurisdictional and involves regional and other local partners. The City will continue to partner with neighboring cities, Ramsey County, and Mn/DOT on road improvements to help create a complete system within the community, and that extends beyond its borders.
- While specific redevelopment projects are unknown, the City acknowledges the importance of planning for proper transportation and parking improvements as a part of any future project.
- Access to transit continues to be an important option for Lauderdale's residents. The City will continue to work with Metro Transit, and adjacent jurisdictions on improving access and efficiency of the system for its residents and business owners.
 - Pedestrian and bicycle route planning should be prioritized as an important component of the City's transportation system. Emphasis should be placed on improving connections, efficiency and safety.



Roadways

The City's roadways play a significant role in the transportation system providing residents access within the community as well as the greater region. Even though the City is close to major transit improvements such as light rail transit (LRT), at this time, there remains a large portion of residents and business owners that rely on the roadways to move goods, people and access services in the community. The following sections identify and describe the existing system, and describe future growth and planned improvements to the roadways.

Existing Roadways and Functional Classification of Streets and Highways

The transportation system is comprised of several categories of streets and highways. The classification of each street or highway is determined by its location and design characteristics. This is done to maintain uniformity of transportation plans for communities in the metropolitan area. The functional categories that are situated in Lauderdale are: Principal Arterial, A-Minor Arterial, Urban Collector, and Local Streets (Table 6-1).

Roadway	Jurisdiction	Classification	Length Total (ft)	
Highway 280	State Highway	Principal Arterial	5,000	
Broadway	State	A Minor Reliever	350	
Larpenteur	County	A Minor Arterial	2,660	
Roselawn	County	Urban Collector	2,400	
Eustis	County/City	Urban Collector	4,200/600	
Fulham	County/City	Urban Collector	2,750/325	
Carl	City	Local Street	4,200	
Idaho	City	Local Street	450	
lone	City	Local Street	2,050	
Lake	City	Local Street	1,425	
Malvern	City	Local Street	3,375	
Pleasant	City	Local Street	3,125	
Ryan	City	Local Street	1,125	
Spring	City	Local Street	2,100	
Summer	City	Local Street	2,125	
Walnut	City	Local Street	2,900	
Total Feet			41,250	
Total Miles			7.8	

Table 6-1. Roadway Jurisdiction and Classification

Source: City of Lauderdale, Ramsey County, MnDOT









Principal Arterial

Lauderdale has one Principal Arterial within its borders, Trunk Highway 280 (TH 280). Until the Interstate I-35W bridge collapse in 2007, this road provided access to and from Lauderdale at five separate intersections (Walnut Street, Broadway Drive, Roselawn Avenue, Larpenteur Avenue, and Como Avenue). The Larpenteur entrance point became more important when TH 280 became the official detour while the new I-35W bridge was constructed. Improvements to TH 280 were consequently accelerated and semi-improvements made to the roadway resulting in TH 280 becoming a more significant regional north-south artery connecting I-94 and I-35W. The semi-permanent improvements were slowly replaced with permanent upgrades that continue to make TH 280 an important regional transportation artery in the Twin Cities.

The primary access to the City has always been at Larpenteur Avenue, which functions as the community's gateway and commercial corridor. Since the 2030 Plan was adopted, the TH 280 and Larpenteur Avenue interchange and bridge have been redesigned and upgraded. Lauderdale participated in that process, which also included the introduction of sound walls along the east side of the entrance and exit ramps and TH 280 to assist adjacent residential areas with sound mitigation.

A-Minor Arterial

Lauderdale's only A-Minor Arterial is Larpenteur Avenue, and is defined by MnDOT as a roadway which has significance to the regional transportation system. Larpenteur Avenue serves many functions within the City:

- Larpenteur Avenue is the City's commercial district primarily at the Eustis Street intersection.
- Larpenteur Avenue is an access road to TH 280 for residents of Lauderdale, Falcon Heights, and Roseville.
- Larpenteur is the gateway to the City and provides connections to industrial, commercial, and single-family and multi-family uses.

Roadway	Classification	Existing Lanes 2018	Future Lanes 2040
TH 280	Principal Arterial	4	4
Larpenteur Avenue	A-Minor Arterial	4/5 (center turn lanes)	4/5 (center turn lanes)

Table 6-2. Arterial Lanes

Source: City of Lauderdale



Urban Collectors

Lauderdale's Urban Collector roads are Eustis Street, Fulham Street, and Roselawn Avenue. Urban Collectors are defined by MnDOT as streets that connect neighborhoods, and streets that connect neighborhoods to business concentrations. While Fulham carries less traffic than Roselawn or Eustis it is a "shortcut" between Roselawn and Larpenteur Avenues for Roseville residents, Midland Hill golfers, and the owners of the residences at Midland Hills.

Local Streets

Lauderdale's local streets include Walnut, Malvern, Carl, Pleasant, Lake, Summer, Spring, Ione, and Idaho. Between 2000 and 2010, all of the City streets north of Larpenteur Avenue were reconstructed with new water, sanitary sewer, and storm sewer lines, and paved surfaces between 2000 and 2003. The City bonded for these projects with payments ending in 2015.

Bordering Streets (Partially located within the City)

Lauderdale is bordered on the north by Ryan and Roselawn Avenues, on the east by Pleasant and Fulham Streets, on the south by Como Avenue, and on the west by 33rd Avenue Southeast.

6-6 Alleys

The alleys in Lauderdale were reconstructed in 1993 and improved/ paved during the City road reconstruction projects. The City will continue to maintain the current alleys.

Existing Traffic Counts and Patterns

Map 6-2 shows the 2016 Average Annual Daily Traffic volume (AADT) on the City's Principal, A-Minor Arterial and Collector roadways and the 2016 Heavy Commercial AADT volumes on freight/truck routes.

Currently TH 280 is the only heavy commercial route through the City with 3,700 trips south of Larpenteur and 3,550 trips north or Larpenteur each day. Existing daily traffic volumes on TH 280 are 48,500 south of Larpenteur and 43,000 north of Larpenteur Avenue. The higher traffic volumes south of Larpenteur are indicative of the route connecting the light industrial job center west of TH 280 with I-94 to the south. Currently, Larpenteur Avenue carries 14,300 vehicles east of TH 280 and 15,100 vehicles west of TH280 each day.

The other county roads carry less traffic each day but are significant to local users. Eustis Street carries the most traffic in the community with 1,200 vehicles daily north of Larpenteur Avenue and 2,750 vehicles south of Larpenteur within the City's limits.



Map 6-2. 2016 Traffic Volumes





2040 Traffic Volumes

The City will rely on 2040 traffic model projections produced by the Metropolitan Council in coordination with Ramsey County. Given that there are no significant public improvements to the adjacent or nearby Principal Arterials and A-Minor Arterials, the projected 2040 traffic on roadways within the City are fairly consistent with the existing 2016 AADT with an assumed 2-3% growth rate through 2040.

Transportation Analysis Zones (TAZ)

In the 2030 Plan the City was divided into three TAZs which have now been further divided into five TAZs. All five TAZs extend beyond the City's borders and plan for and take into account adjacent jurisdictions. Since the TAZs incorporate and provide projections for areas that extend beyond Lauderdale, the information and tables that follow do not provide adjustments within the data acquired from the Metropolitan Council's ThriveMSP. Instead, it is noted by asterisk where the City has planned for additional households/retail that may, depending on adjacent jurisdictional planning, impact the estimates for population, households and employment.

Future Land Use and Allocation of Growth

As described in Chapter 3: Land Use Map 3-2 Future Land Use, the City has identified four potential redevelopment areas, all which have residential as a principal use. While there are no active development proposals in the community, it is anticipated that redevelopment could occur between 2020 and 2030. Specifically the 1795 Eustis Street site and Breck Woods are likely to redevelop within the next 5-years in their entirety, and no phasing is contemplated. The Larpenteur Avenue corridor is also designated for possible redevelopment, but there are no currently known plans and such development may occur in phases. All uses, with the exception of the north side of Larpenteur are anticipated to be redeveloped with at least a portion of the sites developed with a high density residential component with a minimum of 10 dwelling units per acre.

1795 Eustis and the Larpenteur Avenue redevelopment areas are adjacent to and accessed from County Roads. The Larpenteur Avenue sites are located on the bus route 61 and 30, and are within a mile of TH 280. 1795 Eustis is situated less than 1/2-mile from Larpenteur Avenue and is within a comfortable walking distance from the bus route. The Breck Woods Site has the most transportation challenges and is most likely to be accessed via a connection to Fulham, but is walkable to bus route 3 located southwest of the site on Como Avenue.



Map 6-3. Transportation Analysis Zones



6-9



Map 6-4. Forecasted 2040 Traffic Volumes





TAZ	Population			Households			Employment		
	2020	2030	2040	2020	2030	2040	2020	2030	2040
1872	186	186	186	83	83	83	0	0	0
1895	1,163	1,259	1,259	487	538	538	10	15	22
1896	0	0	0	0	0	0	216	216	216
1897	0	0	0	0	0	0	135	135	135
1899	1,141	1,355	1,505	630	759	839	529	655	788

Source: Metropolitan Council

As noted within Chapter 3, the City has identified four potential redevelopment areas. The following table provides a summary of potential impacts to the TAZ. Estimates have been derived by adjusting for current housing unit counts contained in Chapter 4, and employment intensity has calculated in Chapter 3. The following table provides a summary of anticipated impact by project and TAZ.

Table 6-4. TAZ Adjustments by Redevelopment Area

Site	TAZ	Land Use	Estimated Population	Estimated House- holds (Avg)	Estimated Employ- ment	Estimated Date
1795 Eustis	1895	HDR	+102	+51	0	2018-2020
North Larpenteur & Eustis	1895	MXD-N	+40	+20	+22	2025-2035
South Larpenteur & Eustis	1899	MXD-S	+248	+124	+87	2020-2030
Breck Woods Site	1899	HDR-C	+240	+120	0	2018-2024



Future Roadways, Planned Improvements and Right-of-Way

The City has no plans to acquire additional right-of-way or expand existing roadways during this planning period, except as may be required as part of a redevelopment plan. Since specific development plans are unknown, the City has not identified any specific right-of-way needs, but instead will require appropriate dedications, if needed, as part of the development review process.

Planned Improvements to the Regional Highway System

The Transportation Policy Plan issued by the Metropolitan Council identifies projects funded and planned through 2040. There are no planned improvements to roadways within the City, or adjacent to the City during this planning period.

Capacity and Safety Issues

Larpenteur Avenue

The Larpenteur / Eustis intersection continues to be identified as a concern and poses safety concerns particularly south of Larpenteur Avenue, and the City will continue to work with Ramsey County to identify a solution. The City has been working with Ramsey County to potentially take back Eustis Street as a local roadway, and that discussion is on-going until an agreement or solution can be identified. The steep embankment that runs along Eustis from Larpenteur Avenue to Como Avenue creates a blind intersection for vehicles crossing or turning onto Larpenteur Avenue. These issues remain a top priority of the City, and identification of both a roadway and pedestrian solution are imperative to address as part of any potential redevelopment project.

In addition to existing conditions, the Larpenteur Avenue corridor is identified as a potential redevelopment area that is planned to include both commercial and residential uses. Given site constraints, visibility challenges and topography any redevelopment may create access and parking challenges that will need to be addressed during the development review process.

County Roads

Ramsey County is responsible for the ongoing maintenance of the county roads: Roselawn, Fulham, Eustis, and Larpenteur. Fulham Street was repaved between 2000 and 2010 and Roselawn Avenue's condition continues to be assessed and monitored. As stated throughout this Plan, the condition and quality of Eustis Street continues to be the City's primary focus and interest, and hopes to identify a solution within this planning period.



Over the past decade the City continued discussions regarding the potential turn back of Eustis Street to the City, with conversations and negotiations nearing an agreement in the late part of 2017 and early 2018. Recent discussions with the County have focused on whether the City would take back the entire portion of Eustis contained within the City, or if the City would take back only that portion north of Larpenteur because of continued challenges with drainage, right-of-way and grades south of Larpenteur.

The City's concern is that the road's surface is deteriorating, and the road needs bike/ pedestrian improvements to improve access to the bus stops on Larpenteur and Como Avenues. Pedestrian safety along Eustis Street south of Larpenteur is of special concern as many students and faculty live in Lauderdale and use the bus to access the University of Minnesota. The City adopted a no parking policy along Eustis Street just north of Como Avenue to improve walkability and site lines for motorists as a start to improving overall access. Surface water runoff also contributes to concerns, particularly in inclement weather, and the City continues to assess what improvements may be warranted if the road is turned back. Many of the potential solutions available for pedestrians and bicyclists are most likely to be implemented during any site redevelopment in the area rather than with a road reconstruction project due to limited right-of-way as well as the presences of utility/power lines and poles. The City will continue to work with Ramsey County to determine if a turn-back of this roadways is viable in the near term. If an agreement can be made, the City will determine what improvements can be made, and if staging of improvements and/or planned redevelopment will offer some solutions particularly related to bicycle and pedestrian improvements.

Local Streets

There are no safety concerns currently identified on any of Lauderdale's local streets. Traffic is primarily generated from residents and by eliminating access to TH 280 in the northern portion of the community roadways have experienced a decrease in cut-through traffic. Throughout the planning process residents stated that local roadways were adequate and safe to support shared modes of travel including car, bicycle and pedestrian traffic. The narrow streets calm traffic and creates a safe experience for pedestrians, bicycles and vehicles to share the road. The City will continue to work with residents and business owners to monitor the existing network and intersections and when warranted will look for ways to improve road crossings and shoulder areas to make the street more walkable and bikable. This may be done through police monitoring, traffic counters, speed carts, road markings / striping crosswalks, and other methods recommended by the City Engineer.



Improvement Strategies

Most of the issues identified by residents, business owners and stakeholders are on roadways and intersections not owned or managed by the City. Since the City does not have jurisdiction over these roadways, the City will continue to work collaborative with the appropriate agency to identify solutions that address the concerns as identified within this Plan.

Access Management

Although the City is largely built out, as discussed throughout this Plan the City has identified a few potential redevelopment sites. If, and when, redevelopment occurs it is important for proper and safe access to implemented. The City and Ramsey County, incorporate by reference the Minnesota Department of Transportation's guidelines for access management. Table 6-4 provides a summary of MnDOT's access spacing guidelines.

6-14



Area or Facility Type	Typical Functional Class	Public Stre	Signal Spacing	
		Primary Full-Movement Intersection	Secondary Intersection	
Principal Arterial	s in the Twin Cities N	/letropolitan Area and I IRCs)	Primary Regional Trade	Centers (Non-
Non-Interstate Freeway		Interchange	Access Only	Interim
Rural	Primary Arterials	1 Mile	1/2 Mile	See section 3.2.5
Urban/Urbanizing		1/2 Mile	1/4 Mile	1/2 Mile
Urban Core		300-660 Feet deper	1/4 Mile	
		Minor Arterials		
Rural		1/2 Mile	1/4 Mile	See section 3.2.5
Urban/Urbanizing	Minor Arterials	1/4 Mile	1/8 Mile	1/4 Mile
Urban Core		300-660 Feet deper	1/4 Mile	
		Collectors		
Rural		1/2 Mile	1/4 Mile	See section 3.2.5
Urban/Urbanizing	Collectors	1/8 Mile	Not Applicable	1/4 Mile
Urban Core		300-660 Feet deper	1/8 Mile	
	Specific /	Area Access Managem	ent Plans	
All	A 11		De Adamérica Dian	

Table 6-5. MnDOT Access Management Guidelines

Source: MnDOT





BICYCLE AND PEDESTRIAN PLAN

Existing Conditions / Barriers

Currently, Lauderdale does not have a defined bicycle or pedestrian network. With the exception of sidewalks along Larpenteur Avenue for pedestrians, bicyclists share the road with vehicles. The absence of sidewalks and bike lanes is generally not a problem on local streets in the residential area north of Larpenteur Avenue. The City does not have special road treatments or crossings for walkers and bikers north of Larpenteur Avenue. For recreational purposes, the City invested in walking paths in and around the Community Park.

Lauderdale attracts students because of its proximity to the University of Minnesota and Luther Seminary. Downtown workers are also drawn to Lauderdale because of its proximity to both the Minneapolis and Saint Paul downtowns. The following diagram highlights where Lauderdale residents work. Three locations stand out: both University of Minnesota campuses and downtown Minneapolis. Smaller pockets of Lauderdale employees are scattered within a few miles of Lauderdale.

Existing Gaps and Challenges

- Residents feel safe on local roadways, but crossing County Roads to access transit or connect to regional bicycle and trail systems remains challenging and there is a perception that it is unsafe.
- Existing development patterns on Larpenteur Avenue make the scale inhospitable to pedestrians and bikers. There is nothing to slow traffic or to alert traffic that a pedestrian or bicyclist may use the roadway.
- Connections to regional bikeways are largely unknown, there is no wayfinding, street markings or any visual cue to inform people of how to connect to nearby amenities.
- Minneapolis is planning a connection to the Grand Rounds trail system bordering the northwest boundary of Lauderdale near the City's industrial uses. There are no connections to this area, but it presents opportunity to connect Lauderdale residents with a regional trail system.
- The Eustis corridor between Larpenteur and Como Avenue lacks pedestrian and bicycle connections to move residents safely between these areas and to/from transit related services and facilities.





Map 6-5. Local Paths/Roads and Regional Bicycle Transportation Network

6. TRANSPORTATION City of Lauderdale Comprehensive Plan 2040

uder



Residents north of Larpenteur Avenue can walk to the Lauderdale businesses and transit stops along Larpenteur Avenue and to the City Park at the corner of Fulham Street and Roselawn Avenue. The City has many avid walkers that loop the City on the local roads. South of Larpenteur Avenue, many residents living in the multi-family housing walk to the transit stop on Como Avenue and Eustis Street to catch Metro Transit Bus 3 which connects both downtowns via the University of Minnesota campuses. Additional points of interest are the HealthPartners Clinic at Como and Eustis, the Midland Hills Golf Club, the University of Minnesota Golf Course, the St. Anthony Park shopping area, and the businesses along the border with Minneapolis.

The City became more aware of the need for good pedestrian and bike access to Minneapolis after the I-35W bridge collapse. Since the last Plan was adopted some improvements have been made including the reconstruction of the Larpenteur Avenue bridge, and sidewalks and pedestrian crossings are in place to access the west side of TH 280. Even with the improvements there remain barriers for pedestrians and bicyclists as shown on Map 6-4. A summary of those issues, and potential opportunities is provided as follows:

6-18 **Larpenteur Avenue** is the City's commercial corridor but it lacks a hospitable environment for pedestrians and bicyclists. The road is not a designated bikeway, but it provides the only access for bikers to the regional bikeway systems located west of TH 280 such as the Minneapolis Grand Rounds which is planned to expand with a connection on the northwesterly border of the City of Lauderdale. There is an opportunity to continue to work with Ramsey, Hennepin County and Minneapolis to make Larpenteur/Hennepin a more bike and pedestrian friendly route to provide improved connections to regional parks and trails, and also job centers.

As previously discussed, the City continues to work with Ramsey County on the potential turnback of **Eustis Street**, and an objective of the turn-back would be to create a safer bicycle and pedestrian environment for Lauderdale residents on this roadway. Residents continue to identify this roadway as unsafe for pedestrians and bicyclists. Eustis north of Larpenteur is narrow and receives more cars per day than other city streets contributing to its identification as an unsafe route to bike or walk. Many Eustis Street residents with front-yard sidewalks replaced them over the years with grass and other plantings. As Eustis Street extends south of Larpenteur Avenue, the grade of the road quickly changes and many perceive the road as too dangerous to walk or bike, yet this connection is critical to transit riders who rely on Bus Route 3 and 30 which travel along Como Avenue just south of the City's border. Pedestrians are required to walk on the shoulder without protection from oncoming traffic and there are no resting spots, and bikers share the roadway with no designated shoulder or other identification that it is a safe bikeway.



Fulham Street is the final road segment identified as a challenge to pedestrian and bicyclists particularly at the Larpenteur Avenue crossing. Much like Eustis Street, Fulham connects travelers to Larpenteur Avenue from Roselawn Avenue, and residents expressed their concern regarding pedestrian crossings at Larpenteur given the lack of traffic control or other safety measure to allow safe access to bus routes/stops and any other amenities such as the Lauderdale Nature Area on the south side of Larpenteur. The shoulders of Fulham are unpaved and cars parked along the eastern side of Fulham (western side of the University of Minnesota Golf Course) force walkers into the motor vehicle right-of-way which adds additional safety concerns to pedestrians.

Bicycle and Pedestrian Facilities and Transit Connections

Given the City of Lauderdale's small geographic area, to create a more connected pedestrian, bikeway and transit system it will be critical to work collaboratively with adjacent jurisdictions and agencies having right-of-way jurisdiction. Since the City is largely built out, the greatest opportunity to improve the system will be within right-of-ways and in conjunction with roadway reconstruction projects. As a result, the City will continue to plan for improvements to the system that will have the greatest impact on safety and access.

Recommended Improvements

Cooperation is critical to improving access for pedestrians and bicyclists as Ramsey County and the State are responsible for Lauderdale's most traveled roads. Planned land use changes and ongoing efforts to create a mixed-use commercial / residential corridor along Larpenteur Avenue provide an opportunity for, and may be dependent upon, connecting Lauderdale and our neighbors through a bike/pedestrian network. Improving the pedestrian and bicycle environment on Larpenteur would not only improve perceptions of safety, but also would provide mode choice to residents for work and recreation. The City understands that potential improvements would require a coordinated effort with multiple agencies, but establishing a long-term plan for this important corridor would ensure a coordinated effort as redevelopment occurs providing improved connections throughout the region.

In addition to Larpenteur Avenue, the City's priority is an improved environment on Eustis Street. The City will continue to work with Ramsey County on the potential turn-back of the roadway, and will also consider necessary improvements as redevelopment occurs to provide an improved pedestrian and bikeway environment particularly south of Larpenteur avenue as demonstrated on Figure 6-4 and within the PTOS chapter.


TRANSIT PLAN

City of Lauderdale residents rely on local bus service and have commented they would benefit from service improvements including longer service spans and more regular daily frequency. In particular, it was noted that the frequency of bus Route 61 was inadequate particularly during non-rush hours and evenings. As redevelopment in this corridor occurs, the City will continue to work with adjacent jurisdictions and Metro Transit to advocate for improved transit services in this corridor (see Map 6-5 for Transit Facilities).

Route 3 (A, B, C) runs along Como Avenue and connects downtown Minneapolis to downtown Saint Paul via both the Minneapolis and Saint Paul University of Minnesota campuses. According to Metro Transit, Monday through Friday service runs approximately every 10 - 15 minutes during rush hours, every 10 minutes during midday, and every 15-30 minutes in the evening. There is no service from 1:00 a.m. to 5:00 a.m. Saturday service runs approximately every 30 minutes and every hour on Sundays and holidays. There is a park-and-ride at the Eustis / Como bus stop which is frequently used by Lauderdale residents. Although this park-and-ride facility is within walking distance to users, residents comment about feeling unsafe walking on Eustis from neighborhoods north of Larpenteur due to insufficient pedestrian accommodation. The City will prioritize an improved pedestrian environment on Eustis Street as part of its pedestrian and bicycle planning.

Route 61 runs along East Hennepin and Larpenteur Avenues to connect downtown Minneapolis and downtown Saint Paul with Lauderdale stops on Larpenteur Avenue. According to Metro Transit, Monday through Friday service runs approximately every 30 minutes during rush hours and midday, and every 60 minutes in the evening. Saturday service runs approximately once per hour. Lauderdale encourages Metro Transit to improve the bus stop areas along Larpenteur Avenue and consider increasing frequency of the route to promote ridership.

Route 30 runs on Larpenteur and Como Avenue providing connections to the West Gate LRT station on the University Avenue Green Line south of the City, and runs to Xerxes Avenue in Golden Valley via Broadway Avenue to the west. During the weekdays service runs approximately every 30 minutes, and every hour on the weekends.

Transit Market Area

Lauderdale is designated by the Metropolitan Council as Transit Market Area II with a population density of 9 to 14.9 persons/acre. Lauderdale's market area is defined as having a moderate concentration of jobs, housing and activities. In Transit Market Area II, Metro Transit runs regular-route locals, all-day expresses, small vehicle circulators, special needs paratransit (ADA, seniors), and ridesharing. Frequencies range from 15-30 minute or 30-60 minute depending on land use pattern. The span of service is generally 12-20 hours per day, 7 days per week. Locals are spaced 0.5-1.0 mile apart with 6-8 bus stops per mile.



Lauderdale plans to continue working with the Metropolitan Council and Metro Transit respectively as transit providers for local transit service. The area's attraction is due to its location in the heart of the metro with excellent access for passenger vehicles as well as transit. As redevelopment occurs it is likely that there may be increased demand for improved transit services, and the City will continue to work with the Metropolitan Council to provide an acceptable level of access and service to existing and new residents.



Map 6-6. Lauderdale Area Transit Facilities

6. TRANSPORTATION City of Lauderdale Comprehensive Plan 2040

SPECIAL TRAFFIC SITUATIONS

Lauderdale is not located in one of the four special traffic situation areas: downtown Minneapolis, downtown Saint Paul, University of Minnesota, and Airport South / Mall of America in Bloomington.

AVIATION PLAN

There are no airports, private airfields, seaplane, or heliport areas within Lauderdale's borders. The City is also not within an airport influence area as defined by the Metropolitan Council. As such, no land use controls are necessary to manage the impacts these aviation facilities might have on the community. Issues related to aircraft noise are also not applicable to the City. However, the City will comply, as necessary, with Federal Aviation Administration (FAA) and Metropolitan Council requirements to protect airspace from potential electric interference to air navigation, communication, air traffic operations, and other aviation land use compatibility guidelines.

6-22 The City has no existing structures of 200 feet or more in height, and has no plans to permit such structures in the future. Any applicant who proposes to construct such a facility shall notify the City and the Federal Aviation Administration (FAA) using form 7460-1.



Chapter 7: Surface Water Management

Protect, Preserve & Conserve





Comprehensive Plan 2040





7. SURFACE WATER MANAGEMENT City of Lauderdale Comprehensive Plan 2040

INTRODUCTION

The purpose of this Chapter and of the 2018 Lauderdale Local Surface Water Management Plan (2018 LSWMP) is to guide the City of Lauderdale in conserving, protecting, and maintaining the quality of its surface waters, ground water, and natural resources. The City recognizes that the responsibility of water resource management is in the hands of numerous agencies and organizations each tasked with monitoring and planning for water resource management and environmental protection. Plans are created to meet the provisions of Minnesota Statutes Chapter 103B (Metropolitan Surface Water Management Act), Minnesota Rule 8410, and standards and requirements of the three watershed management organizations with jurisdiction within the City of Lauderdale: the Mississippi Watershed Management Organization (MWMO), the Capitol Region Watershed District (CRWD), and the Rice Creek Watershed District (RCWD). The 2018 LSWMP and this Chapter may be periodically amended to remain current with local practices and policies.

To fulfill the requirements of the Metropolitan Council's Thrive MSP 2040 checklist, the full LSWMP is appended to this Plan, and this chapter serves as an Executive Summary.

2040 Surface Water Highlights – What's to Come

» The City will continue to adopt, and incorporate by reference, the rules and regulations of the watershed management organizations having jurisdiction of Lauderdale's surface water.



LOCAL SURFACE WATER MANAGEMENT PLAN (2018 LSWMP) EXECUTIVE SUMMARY

The Local Surface Water Management Plan (2018 LSWMP) for the City of Lauderdale was updated and adopted in 2018 and serves as a comprehensive planning document to guide the City in conserving, protecting, and managing its surface water resources. The 2018 LSWMP provides an inventory of water resource related information including the results of assessments conducted by other local and state governmental agencies. From this inventory and assessment, Lauderdale sets forth its goals and policies and implementation program. Goals, policies, and implementation all support the guidance and requirements of other regulatory agencies with water management jurisdiction in Lauderdale.

The City has structured its 2018 LSWMP to provide the information required by Minnesota Rule 8410 and addresses requirements of the Minnesota Pollution Control Agency's Municipal Separate Storm Sewer System (MS4) program designed to reduce the sediment and pollution that enters groundwater and surface waters to the maximum extent practicable. The MS4 program is regulated through the National Pollutant Discharge Elimination System (NPDES) permits. These NPDES permits require the development of Storm Water Pollution Prevention Plan (SWPPP).

The 2018 LSWMP also satisfies the Metropolitan Council requirements for their 2040 Water Resources Policy Plan, which build on those of Minnesota Rule 8410. Finally, the 2018 LSWMP is also consistent with the goals and policies of the local watershed management organizations with jurisdiction within the City, which may go beyond the specific requirements of Statutes and Rules.

Specific details for surface water management can be found in the 2018 LSWMP contained in Appendix B.



2018 LSWMP RELATED AGREEMENTS

Existing agreements between the City of Lauderdale and other agencies include the following as discussed in Section 5 of the 2018 LSWMP:

Conveyance

Multiple inter-agency stormwater conveyance agreements have been made by the City. In March of 1954, Lauderdale entered into an agreement with Roseville and the Minnesota Highway Department authorizing the discharge of stormwater through the Highway 280 system (Minnesota Highway Department Agreement No. C-1245). In March of 1973, the City entered into an agreement with Roseville to share the cost of operating improvement 72-15, consisting of an additional gravity outlet and pump station in Walsh Lake. Copies of these conveyance agreements are included in the 2018 LSWMP, Appendix B for reference.

Watershed Management

The Joint and Cooperative Agreement for the Mississippi Watershed Management Organization was executed by the Minneapolis Park and Recreation Board and the cities of Minneapolis, Saint Paul, St. Anthony and Lauderdale in January 2002. This agreement established the authority and responsibilities of the MWMO Board. A copy of the agreement is included in the 2018 LSWMP, Appendix B for reference.

2018 LSWMP AMENDMENT PROCEDURES

Amendment procedures from Section 9 of the 2018 LSWMP include:

Review and Adoption Process

Review and adoption of this 2018 LSWMP will follow the procedure outlined in Minnesota Statute 103B.235:

"After consideration but before adoption by the governing body, each local government unit shall submit its water management plan to the watershed management organization[s] for review for consistency with the watershed plan. The organization[s] shall have 60 days to complete its review.""



"Concurrently with its submission of its local water management plan to the watershed management organization, each local government unit shall submit its water management plan to the Metropolitan Council for review and comment. The council shall have 45 days to review and comment upon the local plan. The council's 45-day review period shall run concurrently with the 60-day review period by the watershed management organization. The Metropolitan Council shall submit its comments to the watershed management organization and shall send a copy of its comments to the local government unit."

"After approval of the local plan by the watershed management organization[s], the local government unit shall adopt and implement its plan within 120 days and shall amend its official controls accordingly within 180 days."

Amendments to Plan and Future Updates

The 2018 LSWMP will be incorporated into the City's 2040 Comprehensive Plan update and will be applicable until 2028, at which time an updated plan will be required. This timeline marks a change from previous updates; previously, Local Surface Water Management Plan updates were done when the water districts or water management organizations updated their Watershed Management Plans. Periodic amendments may be required to incorporate changes in local practices. In particular, changes to the three applicable Watershed Management Plans may require revisions to this Plan. Plan amendments will be incorporated by following the review and adoption steps outlined above.

PHYSICAL ENVIRONMENT & LAND USE

Existing Physical Conditions and Land Use

Existing Land Use is discussed in Chapter 3 of this Plan, including Map 3-1. Existing Land Use. The land and water resources of the City of Lauderdale are inventoried in Section 2 of the 2018 LSWMP. More detail about soils, groundwater, and climate are found in the 2018 LSWMP. Information about the location context, topography, and water resources in the 2018 LSWMP are summarized as follows:

Location and History

Lauderdale is a fully developed city located in Ramsey County, with a residential population around 2,400 and a total land area of approximately 270 acres. Bordering communities include



Minneapolis, Saint Paul, Falcon Heights, and Roseville, as shown in Figure 2.1 of the 2018 LSWMP. Its proximity to Minneapolis, Saint Paul and the University of Minnesota campuses makes Lauderdale a convenient residential location. Residents and businesses have easy access to State Highway 280, Interstate 35W and Interstate 94. Location and access will continue to keep Lauderdale's business and residential population stable. Revised population and household projections as shown in Chapter 3 are restated in Table 7-1.

Year	Population	Households
2010	2,379	1,130
2020	2,490	1,200
2030	2,704	1,300
2040	3,120	1,500

Table 7-1. Lauderdale Population and Households

Source: SHC, Revised 2015 System Statement Projections (Table 3-2)

Measuring slightly less than one-half square mile in area, Lauderdale has retained its independent character, despite its proximity to larger cities. Most of the City's infrastructure was developed in the 1950s. The City completed a group of major reconstruction projects in 2003, to replace and update most of the streets, sewers and waterlines. Stormwater management practices were used to create drainage capabilities throughout the residential portion of the City, thereby integrating these areas into surrounding established systems.

Topography

Lauderdale's topography is highest in the center of the City. Approximately 100 acres of Falcon Heights drains into Lauderdale via two ravines. Runoff within the City drains to one of three areas, either to Walsh Lake in the northeast corner, or via two storm sewer outlets in the south end of the City. The City is located within the jurisdictional boundaries of three watersheds: The Mississippi Watershed Management Organization (MWMO), Capitol Region Watershed District (CRWD), and the Rice Creek Watershed District (RCWD). See Map 7-1 for watershed boundaries. Rice Creek Watershed receives stormwater from Lauderdale only when a pump on the north end of Walsh Lake is operating. When the pump is not running, runoff from the northern part of Lauderdale flows west to the Highway 280 drainage system, which flows south to the southwest corner of the City and the Bridal Veil tunnel system in the City of Minneapolis.

Water Resources

• Walsh Lake

Walsh Lake is located on the north boundary of Lauderdale and is identified on the





USFWS National Wetland Inventory (NWI) and the DNR Public Waters Inventory (PWI). The NWI Cowardin system lists Walsh Lake as PABG. This is an aquatic system defined as a palustrine waterbody with an aquatic bed that is intermittently exposed. Walsh Lake is considered a Type 4 wetland by FWS Circular 39. Type 4 or PABG wetlands are deep marshes, where the soil is usually covered with water during the spring and summer seasons. Vegetation includes cattails, reeds, bulrushes, spikerushes, and wild rice. Pondweed, naiads, coontail, watermilfoils, waterweeds, duckweeds, or spatterdocks may grow in open areas of the wetland. Walsh Lake supports stands of cattail and a dense layer of duckweed. This basin is identified on the PWI as 214W. This identification does not reveal the nature of the system but is used for record keeping. The Minnesota Department of Natural Resources has regulatory jurisdiction over the lakes, wetlands, and watercourses defined as public waters within the State.

Walsh Lake was identified in the RCWD Southwest Urban Lake Study (2009) report as a lake that had insufficient water quality monitoring data. The RCWD report recommended that Walsh Lake be added to the RCWD monitoring program. Recommendations for in-lake data collection include bathymetric data collection, water quality collection to obtain total phosphorus and chlorophyll data, and macrophyte/aquatic invertebrate data. The City will continue to coordinate with the RCWD as it moves to create a Management Action Plan (MAP) for Walsh Lake.

• Seminary Pond (aka "Breck Woods" site)

Seminary Pond is located in the southeast corner of the City. The western portion of this pond (0.79 acres) is listed on the NWI Cowardin system as PEM1C, while the eastern portion of this pond (0.94 acres) is listed as PFO1C. The designation of PEM1C indicates that this is a seasonally-flooded palustrine system supporting persistent emergent vegetation. FWS Circular 39 characterizes the western portion of the pond as a Type 3 wetland. A Type 3 or PEM1C wetland is characterized by saturated soil that is often covered with only a few inches of water. Common vegetation for these systems includes cattail, pickerelweed, sedges, rushes, arrowhead, and smartweed. However, this particular wetland does not support any of these species.

The eastern portion of the pond, designated as PFO1C, is a seasonally-flooded, palustrine system, that is characterized with broad-leaved deciduous vegetation (i.e. trees or shrubs, with relatively wide, flat leaves), such as black ash. FWS Circular 39 characterizes the eastern portion of the pond as a Type 7 wetland, where typical trees are tamarack, white



cedar, red maple, and black ash. The dominant species in Seminary Pond is reed canary grass, and purple loosestrife is common. Both plants are invasive species that will choke out native species. To allow native plants the chance to reclaim the site, management strategies such as a controlled burn, herbicide treatment, or mowing the area would help suppress these invasive species.

• Gasperre Pond

Gasperre Pond is located in the southeast corner of the City. In the previous 2008 Lauderdale Water Plan, this pond was not listed as a delineated wetland under this section, but it has recently been added to NWI and PWI lists. The pond is classified as PUBG, which is an intermittently exposed, palustrine ecosystem with an unconsolidated bottom. It supports hydrophytic vegetation (vegetation adopted for wetland conditions).

Future Physical Conditions and Land Use

Chapter 3 of this Plan discusses the planned land use and expected physical conditions for the City of Lauderdale through 2040, including Map 3-2. Future Land Use Map. In general the City of Lauderdale is considered fully developed. Expected changes to land use through the 2040 planning period focuses on updating the City's existing housing stock, adding higher density housing, and implementing key areas identified for redevelopment. Future land use does not expect to significantly alter existing patterns of surface water drainage and may improve certain locations where stormwater runoff can be managed more effectively.

Drainage Areas

Future land use is not expected to significantly alter the drainage and rates of flow existing now within the City. The local watershed districts map the drainage within the sub-watersheds within the City boundaries. More information about the drainage and flows can be found in the watershed management plans (WMPs) for each of the local Watershed Management Organizations (WMOs): Mississippi Watershed Management Organization (MWMO), the Capitol Region Watershed District (CRWD), and the Rice Creek Watershed District (RCWD). The stormwater system map drains runoff to adjacent jurisdictions and to areas within the City. The Map can be found in the 2018 LSWMP and Map 7-2. Stormwater System is located on the following page. 7



WATER RESOURCE ISSUES

Existing and Potential Water Resource Problems

An assessment of specific existing and potential water resource-related problems is included in the 2018 LSWMP and summarized in Tables 7-2 and 7-3 to follow. Proposed corrective actions are also listed in the tables. In addition, the 2018 LSWMP states:

"In addition to these specific problems, the WMPs for the three WMOs having jurisdiction in Lauderdale also identify general stormwater management issues that apply across the jurisdiction or to a smaller sub-area of their jurisdiction. The City will be incorporating corrective actions to address the applicable general issues into the LSWMP goals and policies (Section 7) and/or stormwater management standards (Section 8), which conform to the goals and policies and stormwater management standards of the WMOs."

Impaired Waters

Impaired waters are lakes and streams that do not meet federal and state requirements for water quality. Detailed information about impaired waters as they relate to the City of Lauderdale is found in the 2018 LSWMP and included here:

None of the water bodies within Lauderdale are listed on the Minnesota Pollution Control Agency's list of impaired waters. However, drainage from Lauderdale ultimately discharges into multiple impaired water bodies: Pike Lake, South Long Lake, North Long Lake, Rice Creek, and the Mississippi River. Table 7-4 includes information about these impaired waters and Section 3.7 of the 2018 LSWMP includes discussion on impaired waters and the Total Maximum Daily Load (TMDL) process.

Impaired waters in the Lauderdale area are also illustrated in Map 7-3. Impaired Waters.



LOCAL IMPLEMENTATION PLAN

Performance Standards

Areas and elevations for stormwater storage and related performance standards are regulated by the local WMOs. The City of Lauderdale coordinates with the WMOs and implements its MS4 Permit and official controls to meet the standards of the WMOs and water resource management regulations.

A table of the stormwater management standards for each of the three WMOs with jurisdiction in the City is found in the 2018 LSWMP, Appendix D.

Local Roles and Responsibilities of Community

Section 3 of the 2018 LSWMP clearly details the role of the City in relation to local WMOs and other agencies with regard to surface water management and water resource protection. Table 7-4 is from the 2018 LSWMP and summarizes these roles.

Table 7-4. Regulatory Controls

Official Controls

Section 6 of the 2018 LSWMP includes detailed information about city codes that exist or are needed to implement current water resource management in the City. A summary of this information is summarized below and in Table 7-5:

Codes and ordinances (official controls) are necessary tools supporting implementation of this 2018 LSWMP. Many of the stated goals and policies specifically reference city codes that exist or need to be created. The City's MS4 permit includes a summary of ordinances required to comply with NPDES requirements.

After adoption of this 2018 LSWMP, all applicable portions of Lauderdale's city code will need to be updated to achieve consistency with local watershed plans. Per Minnesota Statutes, this implementation step must be completed within 180 days after adoption of this Plan. In addition, over time, codes must be updated to remain consistent with the City's goals, policies, and practices. Table 7-5 assesses the status of city codes related to surface water management.



Implementation Components

Implementation components and procedures for surface water management are detailed in Section 8 of the 2018 LSWMP. Tables 7-6 and 7-7 summarize projects and ordinance updates, as well as potential funding sources outlined in the Plan.

Additionally, the City's current overall Capital Improvement Plan (CIP) includes several projects that address issues identified in the summary implementation tables. The City will use the water management implementation planning to update their current CIP, as necessary. The City updates the CIP on an annual basis.

Potential Funding

Implementation of the proposed studies, programs, and improvements identified in this Plan will affect the City's finances. To quantify this effect, a review of the ability of the City to fund these studies, programs, and improvements is required.

Below is a listing of various sources of revenue that the City could attempt to utilize:

- Existing stormwater utility.
- Grant and partnership monies possibly secured from various agencies for projects.
- General fund.
- Project funds could be obtained from watershed district levies as provided for in Minnesota Statutes Chapter 103D.905 for those projects being completed by or in cooperation with the RCWD or CRWD.
- Special assessments for local improvements performed under authority of Minnesota Statutes Chapter 429.
- Revenue generated by Watershed Management Special Tax Districts provided for under Minnesota Statutes Chapter 473.882.
- Other sources potentially including tax increment financing, tax abatement, state aid, and others.

The City's stormwater utility is the primary source for the studies, programs, and improvements identified in this Plan.



Chapter 8: Water Supply & Sanitary Systems

Manage, Treat & Reserve





Comprehensive Plan 2040





8. WATER SUPPLY & SANITARY SYSTEM City of Lauderdale Comprehensive Plan 2040

INTRODUCTION

This chapter of the City of Lauderdale's 2040 Comprehensive Plan addresses water supply and wastewater (sanitary sewer) systems in the City. It is consistent with the Metropolitan Council's *Thrive MSP 2040* planning and *2040 Water Resources Policy Plan*. This Plan chapter is primarily intended to assist the Metropolitan Council Environmental Services (MCES) with continued operation of the Metropolitan Disposal System (MDS) for wastewater collection and treatment.

2040 Water Supply & Sanitary Highlights – What's to Come

- » The St. Paul Regional Water Service supplies the City with clean water.
- » Sanitary Sewer services in the City are part of the regional system. Capacity is adequate for existing and forecasted projections through 2040.



8-1

WATER SUPPLY PLAN

Since the late 1990s, St. Paul Regional Water Service (SPRWS) has owned and maintained the water supply utilities in the City of Lauderdale. As the City does not manage its own water supply, a local water supply plan is not required as part of the 2040 Comprehensive Plan. More information about the local water supply plan for the St. Paul Regional Water Service can be found online at www.stpaul.gov/departments/saint-paul-regional-water-services.

Water Sources and Conservation

This source water comes from the Mississippi River and the surrounding watershed. SPRWS also maintains a series of groundwater wells pumping from the Prairie du Chien-Jordan aquifer as a backup supply system. intake station in Fridley, which is located roughly 25 miles northwest of the utility's water treatment plant

There are currently no private water supplies within the City, and protection of water supply sources for Lauderdale falls outside of local jurisdictional limits. Likely the best way residents and businesses within Lauderdale can contribute to conservation and protection of the local water supply is by encouraging local groundwater recharge. Adding opportunities for water runoff to infiltrate on or near local properties will reduce pollution and contamination and contribute to a more sustainable water supply for the region.

Additionally, residents and businesses can work to conserve the water supply used by reducing water use. Implementing ideas like rain barrels, reduced lawn, and grey-water reuse all contribute to using less water from the municipal water supply. The City will continue to encourage water conservation by promoting education and conservation programs for residents.

Special Well and Boring Construction Area

The City of Lauderdale is within the MDH-designated Twin Cities Army Ammunition Plant (TCAAP) Special Well and Boring Construction Area (SWBCA) which went into effect July 1, 1996 and was most recently updated in April 2016. Groundwater in portions of the designated area has been contaminated with volatile organic compounds (VOCs) from solvents used and disposed at TCAAP in Arden Hills. The designation requires that construction, repair, and sealing of regulated wells and borings within the SWBCA only take place in accordance with the conditions and requirements set forth by the MDH.

Efforts to contain and clean up the contamination at the TCAAP facility and to the south of TCAAP have been underway for many years through contaminated groundwater treatment



and removal of water-supply wells known to be contaminated. Additional concern centers around construction of new wells or borings—or modification of existing wells or borings within the SWBCA that may interfere with cleanup efforts and/or cause further spread of the contamination. It is therefore important for the City of Lauderdale to implement and enforce the requirements of the SWBCA with respect to existing and proposed water supply wells in the area. Of particular significance to Lauderdale, any construction-related and environmental borings are required to follow these regulations.

System Maintenance

Many of the City's water lines were replaced during road reconstruction projects in the early 2000s. There are currently no plans by SPRWS to replace water mains in Lauderdale. However, the City is currently discussing the possibility of taking back a portion of Eustis Street, and if that were to occur, SPRWS will update the watermains in coordination with proposed road reconstruction project.

WASTEWATER (SANITARY) SEWER SYSTEM

System Capacity Description

Lauderdale's sewers were originally constructed in the 1950s, and the City completed a group of major reconstruction projects in 2003 to replace and update the streets, sewers, and waterlines. Since the adoption of the 2030 Plan in 2010 the City has been using cured in place pipe (CIPP) to rehabilitate and repair the existing sewer lines that were not updated during the 2000-2003 major street reconstruction projects.

The City of Lauderdale is served by regional sanitary sewer service. Lauderdale's sanitary sewer system is shown on Map 8-1. The system is divided into five sanitary sewer district defined by points of discharge to sewer trunk lines. Districts 1 and 2 flow to MCES Meter M103, located near 33rd Avenue Southeast and Talmadge Avenue in Minneapolis. Meter M103 and Lauderdale Districts 3 and 4 all flow to MCES Interceptor 1-MN- 301 near 33rd Avenue Southeast and Como Avenue in Minneapolis. District 5 flows to St. Paul's sewer system at the intersection of Fulham Street and Hoyt Avenue.

Lauderdale does not have a wastewater treatment facility. Wastewater is collected in the City sewer system and discharged to the systems described above; which convey wastewater to the MCES treatment plant at Pig's Eye Lake in St. Paul. MCES charges Lauderdale for treatment of this wastewater. Districts 3, 4, and 5 are periodically metered by the MCES.



Map 8-1. Sanitary Sewer System Map



Source: City of Lauderdale



System Features

Lauderdale's sanitary sewer system is composed of approximately 6.7 miles of sewer lines and 156 manholes. There are no lift stations in the system. Most of the sanitary sewers in Lauderdale were replaced between 2000 and 2003, and those not replaced have been lined since 2010. The City redirected flows in District 1 to the north and constructed a trunk line parallel to Highway 280 to carry this flow south. These improvements allowed Lauderdale to abandon four aging lift stations.

There are no on-site septic systems or large sewer users (flow exceeding 0.05 MGD) located within the City. Undeveloped parcels in Lauderdale can be adequately served using existing facilities, so there are no system extensions or new MDS connection points planned. Future improvements will focus on maintenance of the existing system.

Projected Population and Wastewater Flows

Table 8-1 lists the population, households and employment as estimated by the City of Lauderdale in Chapter 3 of this Plan, and identifies and wastewater flow projections issued by the Metropolitan Council in the City of Lauderdale's 2015 System Statement.

	2020	2030	2040
Population	2,490	2,800	2,950
Households	1,200	1,380	1,460
Employment	920	1,020	1,160
Average Wastewater Flow (MGD)	0.23	0.24	0.24
Allowable Peak Flow (MGD)	0.90	0.94	0.94

Table 8-1. Lauderdale Wastewater Flow Projections

Source: Metropolitan Council (Peak Flow Factor = 3.9), City of Lauderdale, SHC

System Flows and Capacity

System flows have been estimated for current (2018) conditions as well as 2040 projected land use conditions. The average wastewater flow from each sanitary sewer district has been estimated by applying unit flow rates to each land use category. These estimates are summarized in Tables 8-2 and 8-3.

The sanitary sewer system must be capable of handling the anticipated peak flows, estimated by applying a peak flow factor to the average flow. The peak flow factor accounts for flow variability and includes an allowance for infiltration and inflow.



				Waster	vater Flow a	nd System (Capacity - Ex	cisting				
Existing 2018 Landuse	Total	Park & Recreation	Roadway ROW	Railway ROW	Open Space	Utility	Single Family Residential	Townhome/ Condo	Apartments	Commercial	Industrial	Institutional
Sewer District						4	rrea (Acres)					
1	158.6	6.43	43.23	5.64	1.23	9.98	73.58		0.98		7.22	2.71
2	39.17		14.29				13.36	7.85		2.27		
e	42.3		5.74		9.09			4.73	17.27			
4	24.95		11.83	3.95		5.86				0.66	12.53	4.03
Ð	4.16		0.59		0.8		2.61					0.72
City Total	269.18	6.43	75.68	9.59	11.12	15.84	89.55	12.58	18.25	2.93	19.75	7.46
Units per acre							6	6	15			
Persons per unit							2.5	2.5	1.1			
Population	2510						1926	283	301			
Gallons/person/day							80	75	75			
Gallons/acre/day						100	1800	1800	1238	1000	1000	800
MGD / acre		0	0	0	0	0.0001	0.0018	0.0012	0.0012	0.0010	0.0010	0.0008
MGD / City	0	0	0	0	0	0.0016	0.1612	0.0151	0.0219	0.0029	0.0198	0.0060
Sewer District						Avera	age Flow (MC	3D)				
1	0.1432	0000.0	0.0000	0.0000	0.0000	0.0002	0.1324	0.0000	0.0012	0000.0	0.0072	0.0022
2	0.0404	0000.0	0.0000	0.0000	0.0000	0.0000	0.0240	0.0141	0.0000	0.0023	0.0000	0.0000
ю	0.0299	0000.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0085	0.0214	0000.0	0.0000	0.0000
4	0.0165	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0007	0.0125	0.0032
5	0.0053	0.0000	0.0000	0.0000	0.0000	0.0000	0.0047	0.0000	0.0000	0.0000	0.0000	0.0006
City Total	0.2353											
Sewer District	Avg Flow (MGD)	Peak Factor	Design Flow (MDG)			Trunk dia (in)	slope (ft/ft)	Capactiy (MGD)		Capacity/ Design		
1	0.1432	3.9	0.5585			15	0.0018	2.0937		2.3413		
2	0.0404	4.0	0.1618			15	0.0012	1.7095		1.9117		
Subtotal to M103	0.1837	3.9	0.7162									
с	0.0299	4.0	0.1196									
4	0.0165	4.0	0.0660									
Subtotal to 1-MN-301	0.0464	3.8	0.1763			18	1-MN-301					
5	0.0053	4.0	0.0211									
City Total	0.2353	3.8	0.8942									

Table 8-2. Wastewater System Capacity - Existing



			Wastewa	ter Flow ai	nd System C	apacity - 204:	0			
Planned 2040 Land Use	Total	Park, Recreation & Open Space	Roadway	Railway	Low Density Resdiential	Medium Density Residential	High Density Residential	Industrial	Business Park	Mixed Use
Sewer District					Are	a (Acres)				
~	158.6	9.02	49.09	5.64	76.06	0	1.69	17.1		0
2	39.17	0.14	14.29		11.64	7.85				5.25
с	42.3	7.59	5.74			4.68	12.33		4.03	7.93
4	24.95		11.83	3.95				9.17		
5	4.16		0.59		3.57					
City Total	269.18	16.75	81.54	9.59	91.27	12.53	14.02	26.27	4.03	13.18
Units per acre					9	6	15			
Persons per unit					2.5	2.5	1.1			
Population	3007				2126	283	598			
Gallons/person/day					08	08	75			
Gallons/acre/day					1800	1238	1238	1000	1000	1000
MGD / acre	0.0000	0.000	0.0000	0.0000	0.0018	0.0012	0.0012	0.0010	0.0010	0.0010
MGD / City	0.0000	0.0000	0.0000	0.0000	0.1643	0.0150	0.0168	0.0263	0.0040	0.0132
Sewer District					Average	Elow (MGD)				
<-	0.1561	0000.0	0.0000	0.0000	0.1369	0.0000	0.0021	0.0171	0.0000	0.0000
2	0.0359	0.0000	0.0000	0.0000	0.0210	0.0097	0.0000	0.0000	0.0000	0.0053
с	0.0330	0.0000	0.0000	0.0000	0.0000	0.0058	0.0153	0.0000	0.0040	0.0079
4	0.0092	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0092	0.0000	0.0000
5	0.0064	0.0000	0.0000	0.0000	0.0064	0.0000	0.0000	0.0000	0.0000	0.0000
City Total	0.2406				0.1643	0.0155	0.0174	0.0263	0.0040	0.0132
	Ava Flow		Design		Trunk dia		Capactiv		Capacitv/	
Sewer District	(MGD)	Peak Factor	Flow (MDG)		(in)	slope (ft/ft)	(MGD)		Design	
~	0.1561	3.9	0.6088		15	0.0018	2.0937		2.3515	
2	0.0359	4.0	0.1437		15	0.0012	1.7095		1.9200	
Subtotal to M103	0.1920	3.8	0.7297							
ю	0.0330	4.0	0.1321							
4	0.0092	4.0	0.0367							
Subtotal to 1-MN-301	0.0422	3.7	0.1561		18	1-MN-301				
5	0.0064	4.0	0.0257							
City Total	0.2406	3.7	0.8903							

Table 8-3. Wastewater System Capacity - 2040





8-7

Trunk line capacities are also included in Tables 8-2 and 8-3. The existing trunk system has adequate capacity for existing and estimated flows. Table 8-4 applies forecasted wastewater flows by proposed land use for 10-year increments, identifying residential and commercial flows for the system. All total wastewater flows are within the projected averages and well within peak flow capacity.

		20	20	2	030	2040	
		Est. Units / Jobs	Avg Flow (MGD)	Est. Units / Jobs	Avg Flow (MGD)	Est. Units / Jobs	Avg Flow (MGD)
ds	M103	998	0.1671	1,125	0.1682	1,195	0.1693
hold	Unmetered - St. Paul	15	0.0047	15	0.0056	15	0.0064
use	Unmetered - Mpls	187	0.0264	240	0.0234	250	0.0204
Но	TOTAL	1,200	0.1982	1,380	0.1972	1,460	0.1961
nt	M103	382	0.0117	393	0.0171	447	0.0224
/me	Unmetered - St. Paul	16	0.0006	0	0	0	0
Emplo	Unmetered - Mpls	492	0.0164	632	0.0188	714	0.0211
	TOTAL	890	0.0287	1,025	0.0361	1,161	0.0435
Total Wastewater Flow			0.2269		0.2333		0.2396

Table 8-4. Lauderdale Sanitary Sewer Forecasts by Metered Area

Source: Metropolitan Council, City of Lauderdale, Stantec, SHC

*Land use designation changes between 2020 and 2040 may account or differing acreages and resulting average flows by use type.

Inflow and Infiltration

Background Information

In February 2006, Metropolitan Council instituted its Infiltration/Inflow (I/I) Surcharge Program. The fundamental policy statement summarizing this program is that Metropolitan Council "will not provide additional capacity within its interceptor system to serve excessive inflow and infiltration." The Council establishes infiltration and inflow thresholds for each of the communities that use its system. Communities that exceed this threshold are required to eliminate this excess flow within a reasonable timeframe or pay a surcharge fee. Lauderdale has been identified by Metropolitan Council as a municipality with excessive I/I. However, the City does have an aggressive sewer maintenance program to limit I/I and preserve capacity within its system. This program is described in further detail in the following sections.



Sources and Extent of I/I

Inflow and Infiltration (I/I) can come from several sources contributing non-sanitary flow into the sanitary sewer system. Example sources include surface runoff from roofs and manholes drainage from drain tile and sump pumps, and leaks from failing sanitary infrastructure. The Metropolitan Council establishes I/I goals in the 2040 Water Resources Policy Plan for all communities discharging wastewater to the Metropolitan Disposal System (MDS). Communities identified to have excessive I/I in their sanitary sewer systems are required to reduce and eliminate the excess. Lauderdale has previously been identified as a community with excess I/I.

Potential sources of I/I can include:

- Groundwater infiltration in low areas around the lakes within the City.
- Underground springs that may contribute to groundwater infiltration.
- The increasing frequency of high-intensity rain events in the region that contribute inflow, especially when the 100-year high water level is exceeded.
- Compromised sewer lines and manholes.

The EPA Guide for Estimating Infiltration and Inflow (June 2014) was used to estimate the proportion of I/I contribution in the City's wastewater system. Monthly flow data were obtained from Metropolitan Council Environmental Services (MCES), for the period from 1991 to 2016. 2012 to 2016 monthly data were used to obtain monthly average flows for the five-year period from March to November (representative of a wet portion of the year). It was determined that the wet monthly average flow (March-November) was 2.62 mg, and that the dry monthly average flow (December-February) was 2.41 mg. Thus, on average, I/I contributes roughly 0.21 mg monthly (roughly 9% of base flows). The peak flow for the City of Lauderdale for the time period assessed (2012 to 2016) was 4.10 mg in June 2014, so in the peak flow months, I/I can contribute roughly 70% of base flows. Efforts to reduce I/I have occurred since the 2014 exceedance and the City has not received an exceedance from MCES since 2016.

Lauderdale's I/I Reduction Efforts

In January 2007, the City of Lauderdale initiated a multifaceted Infiltration and Inflow reduction program. Initially, the City smoke tested the City and identified a significant source of I/I at an industrial business. This issue was corrected, and the City was then determined to be exempt from the I/I program until another sanitary exceedance occurred.

After MCES changed its metering thresholds, the City had exceedances that became the impetus for on-going efforts to address I/I. The most straightforward fixes included closing sewer pick holes and rehabilitating leaky manholes. In 2013, two rain events in June resulted in \$105,820 in exceedance notices associated with I/I surcharge amounts. The City's sanitary sewer lining project in 2013 and 2014 along with other smaller eligible projects was used to fully mitigate this surcharge. In 2014, an exceedance in June totaled \$199,200 (\$49,800 over four years). The City was able to apply some unused eligible 2014 mitigation costs to reduce the 2015 planned spending to \$32,500. In 2015, Stantec assisted the City in \$29,000 sanitary sewer flow monitoring to determine the source of I/I. Based on this flow monitoring, an industrial business in the southern portion of the City was identified as contributing to excessive I/I. The City worked closely with the industrial business to redirect its stormwater runoff from the building to surface water and storm sewer features, thereby eliminating the conveyance of the building's runoff into the sanitary sewer system. The "replumbing" of their building was completed in 2016 to accomplish this effort and was funded privately by the contributing business. Although costs to remediate the I/I for this project were funded privately by the business, it is estimated the work to eliminate I/I for this property exceeded \$100,000. Since this project has been completed in 2016, the City has not received an exceedance notice for surcharge from MCES. The City has also been able to line the sanitary sewer pipes that were not completed as part of roadway projects with grant assistance from the Metropolitan Council. In 2018, the City lined sewer pipes where pipes were not replaced north of Larpenteur Avenue. In March of 2019, the City did receive a notice from MCES of a peak flow that exceeded the goal of 0.39 mgd by 0.07 mgd, but no action was required for this notification. With the 2018 project complete, the City will have only one more project remaining to finish the replacement or lining of the entire sanitary sewer system.

Goals for I/I Management

Lauderdale will continue its efforts to eliminate excess I/I with the following goals for system management:

- Replace sewer linings
- Repair cracks and joints in public system
- Monitor sump pump drainage
- Educate property owners about reducing I/I
- Implement residential monitoring program for private sewer line maintenance



Lauderdale will also work cooperatively with other agencies and property owners to educate residents and businesses about the importance of reducing I/I and promote ongoing maintenance of infrastructure on private property. It is particularly important to inspect and repair damaged sewer service lines connected to the MDS, and replace older clay pipes that are beyond their useful life.

I/I IMPLEMENTATION PLAN

Since the City has addressed their excessive I/I issues, it does not have a priority area of focus for I/I reduction. The City does have implementation activities and schedules to help prevent and ensure I/I from the system is not excessive including looking for sump pumps draining to the sanitary sewer system as part of the City's building permit and rental housing inspections programs. In addition to these activities, the City will:

- Complete the remaining project that will finish lining or replacing the entire City's sanitary sewer system (timing to be determined as funding becomes available).
- Continue to repair and rehabilitate trunk sanitary sewer and manholes (as needed, with street reconstruction projects).
- Consider programs to reduce I/I contributions from private property and pursue grant funding from the MCES (if available and applicable, timing TBD).
- Monitor MCES metering and work with the MCES to identify and reduce regional I/I contributions to the system (ongoing basis).

I/I Cost Estimates

The City has not received an exceedance notice for surcharge from MCES since 2016, when site corrections were made to the private business in the southern portion of the City. In the past six years, the City has invested roughly \$510,000 in flow monitoring and lining projects that address I/I issues. The following is a breakdown of projects that the City has completed since 2013:

- 2013 Lining Project: \$22,000 (construction and engineering)
- 2016 Lining Project: \$135,000 (construction and engineering)
- 2018 Lining Project: \$120,000 (construction and engineering)
- Lauderdale I/I: \$30,000 (flow monitoring)



The City anticipates lining roughly 5500 feet of sanitary sewer pipe within the next five years, which is the remainder of the sanitary pipe in the City that hasn't been either lined or replaced with PVC pipe. It is estimated that these improvements would cost ~\$175,000 over a period of five years. The City will continue to fund its implementation program using funds generated from a combination of its sanitary sewer utility fund and grants from the Metropolitan Council Municipal I/I Grant Program.

Policies and Regulations

Lauderdale regulates against inflow and infiltration to the sanitary system from surface water sources. City Ordinance 8-2-2-9: Discharge of Surface Water Prohibited states "Except as otherwise expressly authorized in this subdivision, no water from any roof, surface, sump pump, footing tile or drains, swimming pool, any other natural precipitation or groundwater, cooling water, or industrial process shall be discharged into the sanitary sewer system. Dwellings and other buildings and structures which require, because of the infiltration of water into basements, crawl spaces and the like, a sump pump discharge system shall have a permanently installed discharge line which shall not at any time discharge water into the sanitary sewer system." This ordinance also requires disconnection of any "roof, surface, sump pump, footing tile or drains, swimming pool, cooling water or unpolluted industrial process water now connected and/or discharging into the sanitary sewer system shall disconnect or remove the same." The City will continue to monitor

8-12



compliance with this ordinance through its permitting processes.

Chapter 9: Implementation

Vision to Reality





Comprehensive Plan 2040





9. IMPLEMENTATION City of Lauderdale Comprehensive Plan 2040

INTRODUCTION

To bring this Plan to fruition, a clear and descriptive set of implementation strategies and priorities are necessary to provide a roadmap forward for the City. This Chapter identifies a set of implementation strategies that are specific to the Chapters, goals and strategies, and feedback heard throughout this planning process.

Common themes and messaging emerged as the planning process progressed, which ultimately became the foundation for the Chapters and the implementation strategies that follow.

Regularly throughout this planning process the City solicited targeted feedback from residents, stakeholders and the Steering Committee in an effort to establish the top priorities for Lauderdale moving forward. A summary of the top priorities that emerged from the planning process are as follows:

- The community's housing is diverse and affordable, and we like it that way. Lauderdale should continue to be a place where a diverse population with varying economic levels can enjoy our high-quality of life.
- Our location is amazing, and yet we fly under the radar this presents opportunities and challenges moving forward for our redevelopment areas. We should be thoughtful about how redevelopment occurs, but we should also embrace change since it will make us a more sustainable and resilient community in the future.
- Establish clear standards and regulations for areas designated or identified for potential redevelopment. It is important to consider massing, setbacks, relationship with existing homes, open spaces, trails, and natural resources.
- Larpenteur Avenue is the gateway through and into the community but it does not currently match how we think about our community as a "small-town" with quaint character in the middle of the City . We should identify ways to match the character of the corridor with the spirit of the community.
- Safety of pedestrian and bike crossings on Larpenteur Avenue should be prioritized. The pedestrian environment of the roadway is inhospitable and there should be ways to improve the feeling and character of the roadway.
- One specific comment, heard repeatedly through this planning process, was the desire to improve pedestrian and bikeway connections on Eustis Avenue south of Larpenteur Avenue. Many residents use this important corridor to get to mass transit, and it is unsafe year-round.



9-1

Based on these guiding priorities the following implementation strategies were derived. Most Chapter's Implementation Strategies can be found in the following sections with the exception of the Housing Implementation Strategies that are included within Chapter 4: Housing for consistency with the Metropolitan Council's checklist.

The following implementation strategies are not meant to identify every potential strategy that could be employed to achieve the goals and objectives of this Plan, but instead is meant to serve as guide and roadmap to the types of strategies and questions the City will tackle in this planning period. Just as this list may not include every strategy, Lauderdale may not complete every strategy on this list based on market dynamics or other external factors. But generally the City will use the following strategies as a guide to work towards implementing the Vision and Goals that this Plan has established for the City as it continues to evolve and change into 2040.

2040 Implementation Highlights – What's to Come

- » Development of clear, concise, and supportive ordinances will bring this Plan to fruition.
- » Prioritization of efforts will ensure a methodical approach to planning over the next 20-years.





9. IMPLEMENTATION City of Lauderdale Comprehensive Plan 2040

IMPLEMENTATION STRATEGIES

Chapter 3: Land Use

The following list of Implementation Strategies is provided as a guide to implement the goals and strategies identified in Chapter 3 of this Comprehensive Plan Update.

- 1. The City will create zoning districts to support the new land use designations identified on the Future Land Use Plan.
 - a. At a minimum three new zoning districts will be developed for consistency with the Mixed-Use South, Mixed-Use North and High Density Residential Conservation land use designations.
 - b. The process to prepare the new zoning districts will be led by Staff and the City Council and may involve a subcommittee and/or assistance from a consultant to develop the ordinances. The process should be initiated immediately upon adoption of this Comprehensive Plan and should be completed within nine (9) months of its adoption. Each zoning district will address, at a minimum:
 - Massing and architectural design
 - Setbacks
 - Height restrictions
 - Site design/landscape standards
 - Permitted, conditionally permitted and not permitted uses
 - Mix of uses
 - PUD process or other incentive process
 - Establishment of how mixed-use will be applied (i.e. through a master plan approach, parcel-by-parcel basis, etc.)
- 2. The City will develop a process and methodology for tracking the mixed-use and redevelopment projects to achieve the mix of uses as contemplated within this Comprehensive Plan. The process may include exploration of ghost-platting, development of a database/tracking spreadsheet, and the development of 'cheat-sheet' or development reference guide for developers and land owners that describes the mix of uses contemplated and the process to ensure compliance with the ordinance and this Plan.
- 3. The City may consider engaging a consultant to assist with developing a conceptual master plan for the Mixed-Use Areas, the Eustis Site and the Breck Woods redevelopment site to communicate the City's vision for these key areas of the community.



9-3

- 4. The recent amendment of the TIF district to acquire the old School site (1795 Eustis) is a high-priority to engage a developer that will create a project that is consistent with the City's goals and vision for the site as contemplated in this Plan. The City anticipates that the project will be primarily developed with residential uses, but is interested in a balanced development plan that may also include the incorporation of open space and other site and architectural characteristics that will be compatible with adjacent low density residential uses.
- 5. The Breck Woods, historically been known as the "Seminary Woods", has been reguided as part of this Plan for a mix of low density residential uses adjacent to existing single-family homes, and High Density Residential Conservation (HDR-C). The City will create a supporting zoning district for the HDR-C that addresses, at a minimum, the following:
 - a. A minimum percent of the property to be protected as open space into perpetuity.
 - b. The ordinance will establish and identify incentives for increased preservation of natural resources, open space, resilient infrastructure improvements such as improved surface water management and other low impact development techniques. Incentives will be focused on increased preservation of natural resources, open space, resilient infrastructure improvements such as improved surface water management and other low impact development techniques.
- 6. The City will review and update its existing Zoning Ordinance to be consistent with this Comprehensive Plan. The review and update process may require additional zoning districts to be created beyond those previously described. This process will be complete within nine (9) months of Plan adoption.



Lauderdale Zoning

Lauderdale will update its zoning as part of the implementation process of the Comprehensive Plan. To follow is the most current Zoning Map established in 1996. Zoning designations are defined with the following uses:

R-1, Suburban Residential:

- Public parks and playgrounds
- Public schools
- Single family dwellings
- Amateur radio antennas
- R-2, Urban Residential:
 - Public parks and playgrounds;
 - Public schools;
 - Single family dwellings; and
 - Two family dwellings.

R-3, Multiple Residential:

- Churches;
- Multiple family dwellings;
- Public and parochial schools;
- Public parks and playgrounds; and
- Townhouses.

B-1, Community Business:

- Commercial schools;
- Eating and drinking places;
- Motor fuel stations;
- Offices and banks;
- Parking lots;
- Personal and professional services;
- Public buildings; and
- Retail business.

I-1, Industrial:

- Light manufacturing;
- Motor fuel stations;
- Offices;
- Public buildings;
- Research laboratories;
- Testing laboratories; and
- Warehousing

C-1, Conservation:

- Open space recreational uses; and
- Public parks and playgrounds

9-5






Chapter 4: Housing

The Implementation Strategies to achieve the City's Housing goals and objectives can be found in Chapter 4: Housing of this Plan.

Chapter 5: Parks, Trails and Open Space (PTOS)

The following list of Implementation Strategies is provided as a guide to implement the goals and strategies identified in Chapter 5 of this Comprehensive Plan Update.

- 1. The City will develop a park dedication ordinance that will follow the requirements of Minnesota State Statute 462.358 and 462.353. As a fully developed City for the past several decades, there were no opportunities to collect park dedication fees or to require land dedication to help support the City's PTOS system. The identification of the redevelopment areas means there will likely be opportunities to enhance the PTOS system provided proper ordinances and supporting plan documentation are adopted at time of redevelopment. The City will initiate a process to establish the park dedication ordinance upon adoption of this Plan.
- 2. The City will use the park dedication ordinance to create open spaces and park areas in new or redeveloping areas of the community as needed and as supported within this Plan.
- 3. The City will continue to explore opportunities to provide an improved road separated trail that connects the north with the south sides of Larpenteur in and around the Eustis Street intersection. The City acknowledges that the opportunity to find an alternate route is most likely to become available at time of redevelopment. As such, this Plan identifies a search corridor which is conceptual and meant to indicate that a new trail alignment could be either on the east or west side of Eustis Street.
- 4. The City will continue to maintain and manage the Lauderdale Community Park and will periodically evaluate the programming of the facility to match Lauderdale's resident demands.
- 5. Lauderdale will continue to support opportunities for community gatherings at each of its parks, including, but not limited to the summer Farmer's Markets and other celebrations.
- 6. The City will continue to explore options to keep local roadways safe for pedestrians and bicyclists, and acknowledges that the City's roadways are equally as important to walkers, bicyclists and other non-motorized uses.



Chapter 6: Transportation

The following list of Implementation Strategies is provided as a guide to implement the goals and strategies identified in Chapter 6 of this Comprehensive Plan Update.

- 1. The City will continue to work with Ramsey County regarding the turn-back of Eustis Street, and to ensure the resident needs are matched with proper roadway jurisdiction.
- 2. The City has identified pedestrian crossing and safety on Larpenteur Avenue as a concern that may warrant further study. The process to evaluate what types of improvements, whether low cost or more substantial, should be initiated during the development review process of any redevelopment project in the corridor.
- 3. Any roadway reconstruction or improvement should consider the incorporation of a stormwater assessment, and any plans should incorporate and implement the Minnesota Pollution Control Agency's Best Management Practices to improve stormwater quality, recharge local aquifers, and reuse and conserve stormwater where possible.
- 4. The City will continue to budget for regular maintenance of roadways, including seal coating, every approximately five to eight years, and include such plan within the City's Capital Improvement Program (CIP).
- 5. Lauderdale is interested is connecting to the planned Regional Bicycle Transportation Network (RBTN) that is currently planned in adjacent communities. Larpenteur Avenue would provide the most likely corridor connection, and the City will participate and/ or collaborate on any task force or work group planning for this portion of the RBTN area, particularly when and if improvements to Larpenteur are proposed or at time of redevelopment.
- 6. Many of the City's residents use Transit, and accessibility to frequent bus routes or other mass transit remains an important transportation option in the community. Bus stops, pedestrian crossings and frequency of routes all remain important issues to the community. The City will continue to work with Metro Transit and other adjacent communities to provide a more connected transit system.

Chapter 7: Surface Water

The Implementation Strategies to achieve the City's Surface Water goals and objectives can be found in Chapter 7: Surface Water of this Plan and within the City's full Local Surface Water Management Plan.



Chapter 8: Water Supply and Wastewater

The following list of Implementation Strategies is provided as a guide to implement the goals and strategies identified in Chapter 8 of this Comprehensive Plan Update.

- 1. The City will continue to plan for water and sewer infrastructure improvements to occur concurrently with any planned roadway improvements.
- 2. The City does not own the water system and therefore will continue to work with the Saint Paul Regional Water utility to coordinate any new or pending reconstruction plans so that the City can coordinate any other efficient upgrades to its utilities and infrastructure.
- 3. The LSWMP identifies several capital and administrative projects that are incorporated into this implementation plan by reference. The City will properly manage and schedule such improvements to be included within its CIP for on-going planning and action.



This page is intentionally left blank.

APPENDIX

Appendix

- A. Background Report
- B. Glossary of Terms
- C. Jurisdictional Review and Comments
- D. Resolution
- E. Minutes
- F. City of Lauderdale Capital Improvement Plan
- G. Capital Improvement Plan for Lauderdale Parks
- H. Local Surface Water Management Plan
- I. Intercommunity Service Agreement
- J. Saint Paul Regional Water Services Water Supply Plan



This page is intentionally left blank.

Appendix A: Background Report

Prepared: May 24, 2017



This page is intentionally left blank.

TABLE OF CONTENTS

Introduction, Context & History1	
Community Character	
Socio-Economic Conditions8	
Housing	26
Land Use, Redevelopment & Zoning38	
Transportation4	3
Parks, Trails, Open Space & Natural Resources45	
Community Facilities	

This page is intentionally left blank.

Introduction, Context & History

This background report is the first step in the 2040 Comprehensive Plan ("2040 Plan") update process, and it will be refined throughout the process as needed to ensure that it captures the current characteristics of the community. The intent of the following inventory and analysis is that will help facilitate the development of a 2040 Plan that is based in reality, is responsive to current and anticipated market trends, and respects the community's vision for the future of Lauderdale.

The purpose of the background report is to provide a comprehensive 'snapshot' in time of Lauderdale today by providing a baseline of information, data and analysis about the community. Coupling this information with local and regional trends will help inform and guide the planning process by establishing a foundation from which the Plan can be developed.

The following sections will discuss the people, the businesses, the facilities, parks, open space and natural resources, and the transportation system that make up the community. This report will serve as a resource for the Steering Committee, city staff, policymakers, stakeholders and residents throughout the 2040 Plan development process. As the planning process progresses perspectives from Lauderdale's residents, stakeholders, policymakers, employers, visitors and staff will be solicited to ensure that the adopted 2040 Plan reflects the longterm vision and goals of the community. This planning effort will focus on the needs of Lauderdale's residents and businesses, and will work to balance the desire to maintain the existing small-town character while allowing for and accommodating change and redevelopment in strategic areas of the community.

Community Location and Designation

The City of Lauderdale is approximately 270-acres and is generally bound by Como Avenue/Hoyt Avenue on the south, Fulham Street on the east, Ryan Avenue on the north, and 33rd Avenue SE on the west. The City is bisected by State Highway 280 which runs north-south in the western third of the community. Larpenteur Avenue is the major east-west connector through the city and has a major interchange with Highway 280 which connects directly to I-94 just south of the city and I-35W/Highway 36 to the north.

The City is designated as "Urban" per the Metropolitan Council's System Statement, which describes the community as fully developed. Communities designated as Urban are further defined by the Metropolitan Council as, "Urban communities experienced rapid development during the post-World War II era, and exhibit the transition toward the development stage dominated by the influence of the automobile."

History of Lauderdale

Lauderdale was originally Rose Hill which was a part of the larger Rose Township, which was formally organized in 1859. Rose Township included portions of today's Roseville, Falcon Heights, Lauderdale, Minneapolis, Saint Paul, and St. Anthony Village. Rose Hill joined the larger Rose Township and was organized as a voting precinct, which allowed them to elect town officers and levy its first taxes. In 1871, Rose Hills' first school opened when Herman Gibbs of Gibbs Farm Museum fame donated the land for the school. By 1895 Rose Township had a population of 1,028 and was steadily growing. Around 1899 the first telephone lines were installed along Eustis Street serving residents of the area.

The Village of Lauderdale was officially incorporated on January 21, 1949 with an area comprising approximately 270 acres. The Village took its name from William Henry Lauderdale, a Minneapolis land dealer who donated the land for the City's school and park. When the Village was incorporated, the community was an industrial community with strong industrial businesses and land uses with a population of approximately 1,500 residents many of whom worked in the local industrial businesses in the Village. The presence of the railroad running north-south on the western edge of the community contributed to the industrial land use pattern and viability of businesses located within the community. The first Village boundaries were Roselawn Avenue on the north, Fulham Street on the east, Hoyt Avenue on the south, and Emerald (33rd Avenue SE) on the west. The water and sewer systems were installed shortly thereafter in the 1950s.

Lauderdale annexed the land between Roselawn Avenue and Ryan Avenue on February 15, 1954 adding approximately 30-acres to the community, for a total of 270-acres which is the modernday City of Lauderdale. On March 20, 1956, Lauderdale adopted a "weak mayor-council" form of government, and in April 1961, a \$75,000 bond issue was approved for a new Village Hall. In 1954, the plans for Trunk Highway 280 were approved, and the Highway was eventually connected to I-94 in the late 1960s which improved the community's accessibility and made it more desirable for residential development resulting in an increase of the City's population throughout the 1970s and 1980s. In 1973,

Background Report - May 24, 2017 City of Lauderdale Comprehensive Plan 2040

the Village of Lauderdale became the City of Lauderdale. Lauderdale's only public school, "Lauderdale School," closed in 1974. Currently, Lauderdale children attend Roseville Area Schools, Independent School District #623.

Regional Context

Lauderdale is positioned centrally in the region with proximity to major and secondary job centers, access to major freeways and transportation infrastructure, and adjacency to regional and local retailers and service providers. The City is located approximately three miles east of the downtown Minneapolis Central Business District (CBD), six miles from the Saint Paul CBD, adjacent to several secondary job centers in neighboring cities, one-and-a-half miles to the University of Minnesota east and west bank campuses, and a half mile to its Saint Paul Campus. Regional shopping is available along the Highway 36 corridor in Roseville, which includes the Rosedale Mall located approximately three miles from Lauderdale. The City is connected to major highways and interstates (I-94, 35W, Hwy 36) via Highway 280 which provides quick and easy auto access to surrounding communities. The city is also connected to the regional mass transit system by bus routes that provide connections into nearby Light Rail Transit (LRT) and Bus Rapid Transit (BRT) lines that provide transportation mode

choice to Lauderdale's residents and employers.

Community Character

The City of Lauderdale has retained its smalltown charm over the years despite development pressure and changes in adjacent communities near the City's borders. As places like Roseville and Falcon Heights became increasingly more suburban, Lauderdale managed to retain its diversity and mix of businesses, industry and residential areas. For such a small community, Lauderdale really offers it all – opportunities to live, work, recreate, worship, and congregate all within its borders. While many characteristics of a community contribute to the character of a place, there are certain physical and social characteristics that start to define a community and become the fabric of the City.

In the 2030 Comprehensive Plan ("2030 Plan") the City conducted a city-wide survey to better understand what residents identified as key community characteristics , and to identify opportunities and challenges that existed which should be addressed as the city planned for the future. Since the last planning period many of the issues/ opportunities identified in the survey have been accomplished or addressed, while others remain outstanding. The community survey topics included: City Curb Appeal, Building a Healthy Community, Environmental Responsibility, Transportation Options, Larpenteur Avenue Development/ Redevelopment, and Internet Access. Many of these topic areas are still relevant to this planning period and will be further developed and refined during this planning process.

The community survey results were informative about how the community wanted to move forward, what aspects of the city that they wanted to retain, and which parts could be improved or enhanced. First and foremost, residents expressed pride in how the city maintained the existing neighborhoods, residents and businesses. The word 'loyal' was used to describe how residents viewed the larger community. Residents generally described their city streets as quiet, walkable and fairly safe while acknowledging some exceptions on busier streets such as Larpenteur and Eustis that could benefit from better pedestrian environments. There was a general 'neighborliness' tone throughout responses that captured the desire to help out one another and to acknowledge that not everyone's position (whether it be financial, age, profession, etc.) is the same, and that the community should be flexible enough to recognize and accommodate those differences. Finally, residents recognized that the Larpenteur Avenue corridor was underutilized and could be redeveloped, though there was no clear consensus on what the corridor should be developed into or what types of businesses should be there (with the exception of a coffee shop, which received multiple votes).

Though indirect, the survey topics began helped to define the character of the community and provided a starting point from which a vision for Lauderdale's future could be developed. Eventually communities that are fully developed begin to experience some changes in their land use patterns as businesses move out, and areas become underutilized signaling an opportunity to begin the planning and development cycle again. In many ways portions of Lauderdale are entering that cycle, particularly the Larpenteur Avenue corridor between Highway 280 and the eastern city border. While change is difficult, survey respondents generally acknowledged that some change and redevelopment could enhance the community. Additionally, while many of the single-family neighborhoods are largely intact, there are some homes and areas that suffer from deferred maintenance. These issues, while common in post-world war II communities, are important to address and consider during this planning process. It is important to create a 2040 Plan that builds on previous planning efforts and encourages redevelopment and reinvestment to ensure the community remains sustainable long-term and continues to be a desirable place to live,

Background Report - May 24, 2017 City of Lauderdale Comprehensive Plan 2040 work and recreate into the future.

Residential Neighborhoods

The City of Lauderdale's residential areas have evolved over time and now include a variety of housing types, styles and development patterns. There is a little bit of every housing style in the community ranging from singlefamily residential areas to high-density multi-family apartment options. In the City's community survey conducted as part of the last planning process, the City's residents emphasized the desire to maintain a healthy housing stock, and to ensure that affordability and options remained a key part of the neighborhood fabric allowing homeowners to stay in their homes (age in place), and rental properties to continue to thrive within the community. A summary of the City's residential areas are as follows:

<u>Single-Family Residential</u>
 The Single-Family Residential
 neighborhoods are found generally
 north of the Larpenteur Avenue corridor
 and east of Highway 280. The single family neighborhoods are developed
 on a traditional grid system with lot
 sizes ranging from approximately 5,000
 square feet to approximately 1.4 acres.
 The average single-family lot size is
 approximately 7,650 square feet and most
 homes sit on traditional 'urban' sized lots,
 with some exception parcels with larger

lot sizes that are found interspersed within the traditional block pattern. The age of the housing stock ranges from homes constructed in the late 1800's to 2015, with a significant portion of the homes constructed between the 1940s and 1960s. Homes in the single-family neighborhoods are modest, with an average size of 1,200 square feet making them desirable and affordable when compared to surrounding communities. Housing styles include small single-story bungalows, story-andhalf homes, split levels and two stories which result in interesting blocks and architectural diversity.

The City has recently faced a new challenge in the established singlefamily neighborhoods from tear-downs and major remodels occurring on established, fully-developed blocks. The City is generally receptive to investment and reinvestment within the City's established neighborhoods; however, the City's current ordinances and zoning tools do not contemplate this type of development/redevelopment activity and have thus resulted in little to no regulation on the new structures causing some conflict within the existing neighborhoods. This pressure is likely to continue given demographic trends which is discussed in subsequent sections of this report, and this planning process should address how to allow for and

PERKINS+WILL

promote reinvestment of properties while respecting and preserving the existing neighborhood character in the singlefamily residential areas of the community.

 <u>Multi-Family Residential</u> In the 1980s a few large scale multifamily projects were developed that included townhomes, condominiums and apartments. Brandychase Condominiums is a co-op townhome community located on the east end of the City on the northwest corner of Larpenteur Avenue and Fulham Street, which continues to thrive today. On the southwest corner of Larpenteur Avenue and Fulham Street is the Rose Hill development which includes the City Gables apartment complex that are rental housing, and the Rose Hill townhomes that are owner occupied. The Luther Seminary also constructed the Burnvedt Apartments which are located south of Idaho Avenue. All three developments, Brandychase, Rose Hill and Burnvedt are distinct 'neighborhoods' within the community. Brandychase and Rose Hill have been dominated by students attending the nearby university in recent years, which have created its own set of challenges due to the transient, and relatively short-term, nature of the residents of these areas.

In addition to the large complexes, adjacent to the Rose Hill development are a collection of smaller scale apartment buildings that were all constructed around 1960, and each building includes between 10 and 20 units per structure. These apartments are also predominantly rented by students, and experience some of the same challenges as nearby Brandychase and City Gables.

Industrial Business District

As presented within the History of Lauderdale, the City's Industrial areas have served as an important and character defining aspect of the community since the early 1900s. The presence of the railroad and rail spur on the western side of the community made the area prime for industrial businesses to locate. Once Highway 280 was constructed, and eventually connected to I-94 the desirability of the area for industry and light manufacturing only improved. Today, there remains a significant area of industrial and light industrial uses on the western edge of the City, generally west of Highway 280. This area has begun some transition in recent years with new types of users such as breweries popping up on adjacent lands in Minneapolis. Larpenteur Commercial Corridor

The Larpenteur Avenue corridor continues to be a main thoroughfare in the community,

and is an area identified as underutilized and ripe for potential redevelopment. In the previous community survey residents identified this area as an important part of the community as it serves as an 'entry' or 'gateway' through the community. Given its high visibility, residents agreed that it deserved increased attention but residents were unsure of exactly what and who should facilitate that effort. Many of the existing structures in the corridor are aging, and do not necessarily evoke the 'small-town' charm that many residents feel is so prevalent in the existing single-family neighborhoods north of Larpenteur. Part of this planning process will look in more depth at the key parcels, business and land uses within the corridor to identify how the community may start to consider a more comprehensive redevelopment approach to better match the vision of the community for this gateway of the community.

Community Events

Part of Lauderdale's charm is that it continues to reinforce its small-town roots by holding events that promote a sense of community. The City's events are planned with the help of the City's Community Involvement Committee (CIC) and run by volunteers which enhances the overall sense of community and engagement by the residents. Given Lauderdale's historical roots and relationship with surrounding communities, there are also events that are held to promote the larger community through coordinated activities with Falcon Heights. A listing of current events is provided below: (source: City of Lauderdale Website):

- City-Wide Garage Sale
- Farmers Markets at the Lauderdale Community Park
- Minnesota Night to Unite
- Falcon Heights-Lauderdale Family 5K Fun Run/Walk
- Halloween Party

Socio-Economic Conditions

The following section presents demographic and economic data for the City of Lauderdale. This data provides an understanding of key trends that influence land use and other important community systems. In many of the exhibits included in this section, additional data is also presented for Ramsey County and the 7-County Twin Cities Metropolitan Area. This additional data is intended to provide greater context to trends and patterns that likely extend well beyond Lauderdale's border but nevertheless impact the community.

8

Metropolitan Council Socio-Economics Forecasts

The Metropolitan Council prepares socioeconomic forecasts for each community within the 7-County metropolitan area. These forecasts are meant to inform every element of the 2040 Plan development.

Figures 1 through 4 and Table 1 present data on the recent and forecasted growth trends for Lauderdale through 2040. Given the lack of available land for new development, the Metropolitan Council does not anticipate significant growth or decline in Lauderdale's population, household base, or number of workers through 2040.



Figure 1: Lauderdale Socio-Economic Growth Trends 2000-2040

Background Report - May 24, 2017

City of Lauderdale Comprehensive Plan 2040



Figure 2: Population Growth Rates 2000-2040

* East Metro includes all of Ramsey and Washington counties, the eastern two-thirds of Dakota county, and the eastern onethird of Anoka county. Source: Metropolitan Council

Figure 3: Household Growth Rates 2000-2040



* East Metro includes all of Ramsey and Washington counties, the eastern two-thirds of Dakota county, and the eastern onethird of Anoka county. Source: Metropolitan Council

PERKINS+WILL



Figure 4: Employment Growth Rates 2000-2040

* East Metro includes all of Ramsey and Washington counties, the eastern two-thirds of Dakota county, and the eastern onethird of Anoka county. Source: Metropolitan Council

Table 1: Socio-Economic Growth Trends 2000-2040

							Numeric Change				Percent Change				
Geography	2000	2010	2020	2030	2040	'00-'10	'10-'20	'20-'30	'30-'40	'00-'10	'10-'20	'20-'30	'30-'40		
Population															
Lauderdale	2,364	2,379	2,490	2,500	2,520	15	111	10	20	0.6%	4.7%	0.4%	0.8%		
Ramsey Co.	511,035	508,640	548,220	570,610	593,320	-2,395	39,580	22,390	22,710	-0.5%	7.8%	4.1%	4.0%		
East Metro ¹	951,886	1,012,706	1,104,420	1,183,710	1,265,150	60,820	91,714	79,290	81,440	6.4%	9.1%	7.2%	6.9%		
Metro Area ²	2,642,062	2,849,567	3,127,660	3,388,950	3,652,060	207,505	278,093	261,290	263,110	7.9%	9.8%	8.4%	7.8%		
Households															
Lauderdale	1,150	1,130	1,200	1,200	1,200	-20	70	0	0	-1.7%	6.2%	0.0%	0.0%		
Ramsey Co.	201,236	202,691	223,460	236,090	246,050	1,455	20,769	12,630	9,960	0.7%	10.2%	5.7%	4.2%		
East Metro ¹	360,626	391,728	439,010	477,710	513,750	31,102	47,282	38,700	36,040	8.6%	12.1%	8.8%	7.5%		
Metro Area ²	1,021,456	1,117,749	1,256,580	1,378,470	1,491,780	96,293	138,831	121,890	113,310	9.4%	12.4%	9.7%	8.2%		
Employment															
Lauderdale	700	718	790	830	870	18	72	40	40	2.6%	10.0%	5.1%	4.8%		
Ramsey Co.	329,145	316,937	356,130	375,220	393,070	-12,208	39,193	19,090	17,850	-3.7%	12.4%	5.4%	4.8%		
East Metro ¹	493,830	503,511	582,700	622,100	659,820	9,681	79,189	39,400	37,720	2.0%	15.7%	6.8%	6.1%		
Metro Area ²	1,563,245	1,543,872	1,791,080	1,913,050	2,032,660	-19,373	247,208	121,970	119,610	-1.2%	16.0%	6.8%	6.3%		

¹ East Metro includes all of Ramsey and Washington counties, the eastern tw o-thirds of Dakota county, and the eastern one-third of Anoka county.

² 7-County metro area, which includes the counties of Anoka, Carvery, Dakota, Hennepin, Ramsey, Scott, and Washington

Source: Metropolitan Council

Background Report - May 24, 2017

City of Lauderdale Comprehensive Plan 2040

Age of the Population

The age profile of a community has important ramifications on demand for housing, goods and services, as well as social cohesion. Figures 5 and 6 along with Table 2 present data on the age profile of Lauderdale residents. Because of the significant difference in the demographic profile of residents who live north of Larpenteur compared to those who live south of Larpenteur, these areas are identified separately in the data presented. Overall, Lauderdale has a younger profile than compared to Ramsey County or the metro area. This is largely due to a concentration of apartment buildings south of Larpenteur that cater primarily to students at the University of Minnesota and other nearby colleges and universities.

The influence of nearby colleges and universities can be seen in the high proportion of persons ages 25 to 34, many of which are graduate students who tend to be slightly older than traditional undergraduate students. A strong presence of students in Lauderdale helps explain why the proportion of school-age children (age 5 to 17) is so low compared to the county or the metro area.

The age profile of residents who live north of Larpenteur, however, is older than the county and metro area and given recent trends is becoming older at an increasingly faster rate. As of 2015, the median age of persons in this part of Lauderdale is 44.5 years, which is an increase of 6.5 years since 2010.







Table 2: Age Distribution of the Population 2000-2020

				Change 2	2000-2015	C)istributio	n
Age Group	2000	2010	2016	No.	Pct.	2000	2010	2015
LAUDERDAL	E - Total							
Under 5	132	176	155	23	17.6%	5.6%	7 4%	6.4%
5 to 17	267	244	158	-109	-40.8%	11.3%	10.3%	6.5%
18 to 24	385	315	363	-22	-5.8%	16.3%	13.2%	14.9%
25 to 34	548	607	609	61	11 1%	23.2%	25.5%	25.0%
35 to 44	366	322	307	-59	-16.0%	15.5%	13.5%	12.6%
45 to 54	290	239	208	-82	-28.4%	12.3%	10.0%	8.5%
55 to 64	171	200	284	113	65.9%	7.2%	10.0%	11.6%
65 to 74	11/	137	204	120	105.5%	1.2%	5.8%	9.6%
75 to 84	71	77	78	7	10.0%	3.0%	3.0%	3.0%
85+	20	25	10	24	117 5%	0.0%	1 1%	1.8%
Total	2 364	2 3 70	2 440	76	3 20%	100.0%	100.0%	100.0%
Median Age	31.6	2,379	31.5	-0.1	J.Z /0	100.070	100.070	
			01.0	0.7				
LAUDERDAL	E - North of	Larpentei	ir 50	10	00.00/	F 40/	0.40/	4 00/
Under 5	71	76	52	-19	-26.2%	5.4%	6.1%	4.6%
5 to 17	1/6	132	81	-95	-53.9%	13.5%	10.6%	7.1%
18 to 24	120	102	127	(5.5%	9.2%	8.2%	11.1%
25 to 34	225	246	152	-73	-32.3%	17.2%	19.8%	13.3%
35 to 44	208	160	176	-32	-15.4%	15.9%	12.9%	15.4%
45 to 54	204	159	88	-116	-56.9%	15.6%	12.8%	7.7%
55 to 64	121	173	228	107	88.7%	9.3%	14.0%	20.0%
65 to 74	97	106	152	55	57.0%	7.4%	8.5%	13.3%
75 to 84	66	63	47	-19	-28.1%	5.1%	5.1%	4.2%
85+	17	23	38	21	121.0%	1.3%	1.9%	3.3%
Total	1,305	1,240	1,142	-163	-12.5%	100.0%	100.0%	100.0%
Median Age	38.1	39.0	44.5	6.4				
LAUDERDAL	E - South o	f Larpente	ur					
Under 5	61	100	103	42	68.6%	5.8%	8.8%	7 9%
5 to 17	91	112	77	-14	-15.3%	8.6%	9.8%	5.9%
18 to 24	265	213	236	-29	-10.8%	25.0%	18.7%	18.2%
25 to 34	323	361	457	13/	/1 /%	30.5%	31.7%	35.2%
35 to 44	158	162	131	_27	-16.8%	14.9%	1/ 2%	10.1%
45 to 54	86	80	120	-27	30.1%	8 1%	7.0%	0.1%
55 to 64	50	64	55	5	10.7%	4.7%	5.6%	1 3%
65 to 74	17	31	82	65	382.7%	1.6%	2.7%	6.3%
75 to 84	5	1/	31	26	513.0%	0.5%	1.2%	2.4%
85+	3	14	6	20	07.7%	0.3%	0.2%	0.5%
Total	1 050	1 1 2 0	1 208	230	22.6%	100.0%	100.0%	100.0%
Modion Ago	1,039	1,139	1,290	239	22.070	100.078	100.070	100.070
Median Age	27.9	21.1	27.0	-0.1				
RAMSEY CO	UNTY							
Under 5	34,956	35,137	38,191	3,235	9.3%	6.8%	6.9%	7.1%
5 to 17	95,728	83,356	87,891	-7,837	-8.2%	18.7%	16.4%	16.3%
18 to 24	57,998	61,429	59,775	1,777	3.1%	11.3%	12.1%	11.1%
25 to 34	76,638	77,119	87,306	10,668	13.9%	15.0%	15.2%	16.1%
35 to 44	80,271	60,933	63,674	-16,597	-20.7%	15.7%	12.0%	11.8%
45 to 54	67,314	70,570	69,160	1,846	2.7%	13.2%	13.9%	12.8%
55 to 64	38,628	58,915	66,112	27,484	71.2%	7.6%	11.6%	12.2%
65 to 74	28,726	30,351	36,690	7,964	27.7%	5.6%	6.0%	6.8%
75 to 84	21,906	20,392	20,971	-935	-4.3%	4.3%	4.0%	3.9%
85+	8,870	10,438	10,884	2,014	22.7%	1.7%	2.1%	2.0%
Total	511,035	508,640	540,653	29,618	5.8%	100.0%	100.0%	100.0%
Median Age	33.7	34.6	34.6	0.9				
		٨						
Under 5	188 236	104 320	203 004	14 768	7.8%	7 1%	6.8%	6 7%
	500,200	506 621	200,00 4	16 959	2 20/	10.20/	17 00/	17 20/
19 to 24	244 226	262 462	320,150	10,000	10.0%	19.3%	0.20/	0.00/
25 to 24	244,220	400 044	450,000	20,070	11.970	9.2%	J.∠70	15 10/
25 to 34	411,155	420,311	409,929	40,774	11.9%	17.0%	14.7 70	10.1%
45 to 54	409,324	440 750	400,977	-00,347	-14.0%	17.8%	15.7%	13.2%
40 10 04	200,092	440,753	443,553	174,000	22.0%	13.8%	10.5%	14.0%
00 10 04	200,980	320,007	375,908	72.045	07.0%	7.0%	F 70/	12.4%
05 t0 /4	130,615	103,425	203,560	12,945	55.8%	4.9%	5.7%	0.7%
75 10 84	90,292	97,442	106,169	15,877	17.6%	3.4%	3.4%	3.5%
dD+	34,338	45,883	51,035	16,697	48.6%	1.3%	1.6%	1.7%
Iotal	2,642,056	2,849,567	3,041,195	399,139	15.1%	100.0%	100.0%	100.0%
Median Age	34.2	36.0	36.5	2.3				

Sources: US Census; Metropolitan Council; Perkins+Will

Housing Tenure

Housing tenure is important to track because it provides insight into the potential of a community to respond to a changing age profile or shocks to the economy, such as a recession. For example, many older households often transition out of homeownership into rental housing as they require more assistance with activities of daily living. Figures 7 and 8 along with Table 3 provide detailed information of housing tenure in Lauderdale.

The homeownership rate in Lauderdale is just under 50%. This is well below the homeownership rate of the County and the metro area. This is because of a high concentration of apartment buildings located south of Larpenteur Avenue. In this part of Lauderdale the homeownership rate is below 20%. In contrast, the areas north of Larpenteur Avenue have a very high rate of homeownership, which is close to 90%.

Homeownership is often closely correlated with age of the household. Younger households tend to rent because they are early in their working years or are in school and do not have the income or savings to afford homeownership. However, in many communities, homeownership can decline among older households as they transition into more maintenance-free living arrangements. Because Lauderdale does not have any apartments that cater to older adults, homeownership does not decline with older households in the City.



Figure 7: Lauderdale Housing Tenure by Age of Householder 2015

Figure 8: Homeownership Rate 2000-2015





		2000			2010				Numeric Change '10-'15			Percent Change '10-'15			
Age Group	Total	Rent	Own	Total	Rent	Own	Total	Rent	Own	Total	Rent	Own	Total	Rent	Own
LAUDERD	ALE - Total														
Under 25	168	151	17	132	125	7	106	106	0	-26	-19	-7	-20%	-15%	-100%
25-34	300	217	83	334	250	84	367	320	47	33	70	-37	10%	28%	-44%
35-44	241	117	124	180	102	78	210	110	100	30	8	22	17%	8%	28%
45-54	188	62	126	171	60	111	113	56	57	-58	-4	-54	-34%	-7%	-49%
55-64	117	19	98	145	27	118	212	40	172	67	13	54	46%	48%	46%
65-74	75	2	73	95	13	82	104	4	100	9	-9	18	9%	-69%	22%
75-84	47	1	46	53	1	52	35	6	29	-18	5	-23	-34%	500%	-44%
85+	14	2	12	20	2	18	29	0	29	9	-2	11	45%	-100%	61%
All HHs	1,150	571	579	1,130	580	550	1,176	642	534	46	62	-16	4%	11%	-3%
LAUDERD	ALE - North	of Larp	enteur												
Under 25	32	18	14	19	14	5	0	0	0	-19	-14	-5	-100%	-100%	-100%
25-34	110	39	71	120	49	71	47	5	42	-73	-44	-29	-61%	-90%	-41%
35-44	127	14	113	82	15	67	100	10	90	18	-5	23	22%	-33%	34%
45-54	126	19	107	108	10	98	57	25	32	-51	15	-66	-47%	150%	-67%
55-64	84	3	81	107	5	102	172	13	159	65	8	57	61%	160%	56%
65-74	63	0	63	74	3	71	100	3	97	26	0	26	35%	0%	37%
75-84	42	0	42	44	1	43	29	0	29	-15	-1	-14	-34%	-100%	-33%
85+	13	2	11	19	1	18	29	0	29	10	-1	11	53%	-100%	61%
All HHs	597	95	502	573	98	475	534	56	478	-39	-42	3	-7%	-43%	1%
		of I am													
Lindor 25	4LE - 3000	133 I UI Laip	enteur 2	113	111	2	106	76	30	7	35	28	6%	320%	1/00%
25.34	100	179	12	214	201	13	320	280	40	106	-33	20	-070 50%	-32 /0	208%
25-14	130	103	11	214	201	11	110	200	40	100	79	5	12%	8%	200 %
45-54	62	43	19	63	50	13	56	46	10	-7	-4	-3	_11%	-8%	-23%
55-64	33	16	17	38	22	16	40	35	5	2	13	-11	5%	59%	-69%
65 - 74	12	2	10	21	10	11	40	4	0	-17	-6	_11	-81%	-60%	-100%
75-84	5	1	4	9	0	9	6	0	6	-3	0	-3	-33%	#DIV/0	-33%
85+	1	0	1	1	1	0	0	0	0	-1	-1	0	-100%	-100%	#DIV/0!
All HHs	553	476	77	557	482	75	642	535	107	85	53	32	15%	11%	43%
PAMSEV															
Under 25	13 772	11 919	1 853	12 103	10 752	1 351	10 691	9 662	1 029	-1 412	-1 090	-322	-12%	-10%	-24%
25-34	39 519	22 040	17 479	37 941	22 798	15 143	41 310	26 636	14 674	3 369	3 838	-469	9%	17%	-3%
35-44	46 044	14 704	31 340	34 260	13 611	20,649	33 689	14 624	19 065	-571	1 013	-1 584	-2%	7%	-8%
45-54	40.337	9.312	31.025	41.387	12.147	29,240	39.017	12,209	26.808	-2.370	62	-2.432	-6%	1%	-8%
55-64	23.476	4.684	18,792	36,424	8,689	27.735	38,629	9,733	28,896	2.205	1.044	1,161	6%	12%	4%
65-74	18,249	3,851	14,398	19,485	4,291	15,194	22,746	4,698	18,048	3,261	407	2,854	17%	9%	19%
75-84	14,641	4,388	10,253	13,937	3,725	10,212	13,210	3,632	9,578	-727	-93	-634	-5%	-2%	-6%
85+	5,198	2,620	2,578	7,154	3,230	3,924	7,565	3,546	4,019	411	316	95	6%	10%	2%
All HHs	201,236	73,518	127,718	202,691	79,243	123,448	206,857	84,740	122,117	4,166	5,497	-1,331	2%	7%	-1%
7-COUNTY		PFΔ													
Under 25	56 489	46 699	9 790	49 736	41 789	7 947	42 727	37 764	4 963	-7 009	-4 025	-2 984	-14%	-10%	-38%
25-34	205 413	91 342	114 071	201 952	99 716	102 236	211 750	112 759	98 991	9 798	13 043	-3 245	-1470	13%	-3%
35-44	262 167	58 438	203 729	213 981	59 303	154 678	211 287	67 401	143 886	-2 694	8 098	-10 792	-1%	14%	-7%
45-54	213 167	36 077	177 090	253 783	51 379	202 404	245 053	52 855	192 198	-8 730	1 476	-10 206	-3%	3%	-5%
55-64	120 788	18 205	102 583	196 950	34 355	162 595	216 177	41.383	174 794	19 227	7 028	12 199	10%	20%	8%
65-74	82.521	14,491	68.030	103,345	17,998	85.347	122,149	21,409	100.740	18,804	3,411	15.393	18%	19%	18%
75-84	60,685	17,109	43.576	66,268	16,185	50.083	67.247	16.330	50.917	979	145	834	1%	1%	2%
85+	20.224	10,127	10,097	31.734	14,549	17,185	33.764	14.841	18,923	2.030	292	1,738	6%	2%	10%
All HHs	1,021,454	292,488	728,966	1,117,749	335,274	782,475	1,150,154	364,742	785,412	32,405	29,468	2,937	3%	9%	0%

Table 3: Housing Tenure by Age of Householder 2000-2015

Source: US Census

16

Background Report - May 24, 2017

City of Lauderdale Comprehensive Plan 2040

Household Type

Changing family and household structures can also have a profound effect on housing and other community needs. For example, decreasing household size has a direct impact on the amount (square footage) of housing a household needs. Also, the presence of children not only impacts local schools and parks, but also the types of retailers that can be supported and the nature of housing demanded.

In 2015, Lauderdale had a significantly higher proportion of single-person households than compared to Ramsey County or the metro area. Over 40% of households in Lauderdale are single-person households. This is largely due to impact of nearby colleges and universities that attract students to Lauderdale. Given the strong presence of single-person households and a rapidly aging population north of Larpenteur Avenue, Lauderdale is experiencing a decline in the number of households with children. This is in contrast to Ramsey County and metro area trends in which households with children have started to increase after years of declines.



Figure 9: Household Type 2015





18

Table 4: Household Type 2000-2015

				Change	e '10-'15	Distribution			
Household Type	2000	2010	2015	Number	Percent	2010	2015	Change	
LAUDERDALE - Total									
Married with children	171	191	158	-33	-17.3%	16.9%	13.4%	-3.5%	
Married without children	257	234	246	12	5.1%	20.7%	20.9%	0.2%	
Single-parent family	71	34	45	11	32.4%	3.0%	3.8%	0.8%	
Other family*	52	71	65	-6	-8.5%	6.3%	5.5%	-0.8%	
Single	455	437	497	60	13.7%	38.7%	42.3%	3.6%	
Roommate	144	163	165	2	1.2%	14.4%	14.0%	-0.4%	
Total Households	1,150	1,130	1,176	46	4.1%	100%	100%	0%	
LAUDERDALE - North	of Larpente	ur							
Married with children	96	89	77	-12	-13.5%	15.5%	13.2%	-2.4%	
Married without children	165	153	155	2	1.3%	26.7%	26.5%	-0.2%	
Single-parent family	27	16	7	-9	-56.3%	2.8%	1.2%	-1.6%	
Other family*	44	47	14	-33	-70.2%	8.2%	2.4%	-5.8%	
Single	220	223	253	30	13.5%	38.9%	43.2%	4.3%	
Roommate	45	45	79	34	75.6%	7.9%	13.5%	5.7%	
Total Households	597	573	585	12	2.1%	100%	100%	0%	
LAUDERDALE - South	of Larpente	ur							
Married with children	75	102	81	-21	-20.6%	18.3%	13.7%	-4.6%	
Married without children	92	81	91	10	12.3%	14.5%	15.4%	0.9%	
Single-parent family	25	18	38	20	111.1%	3.2%	6.4%	3.2%	
Other family*	27	24	51	27	112.5%	4.3%	8.6%	4.3%	
Single	235	214	244	30	14.0%	38.4%	41.3%	2.9%	
Roommate	99	118	86	-32	-27.1%	21.2%	14.6%	-6.6%	
Total Households	553	557	591	34	6.1%	100%	100%	0%	
RAMSEY COUNTY									
Married with children	40,807	34,574	38,122	3,548	10.3%	17.1%	18.4%	1.4%	
Married without children	47,666	48,816	48,290	-526	-1.1%	24.1%	23.3%	-0.7%	
Single-parent family	19,184	19,800	22,269	2,469	12.5%	9.8%	10.8%	1.0%	
Other family*	12,359	14,609	11,816	-2,793	-19.1%	7.2%	5.7%	-1.5%	
Single	64,342	67,181	68,719	1,538	2.3%	33.1%	33.2%	0.1%	
Roommate	16,878	17,711	17,641	-70	-0.4%	8.7%	8.5%	-0.2%	
Total Households	201,236	202,691	206,857	4,166	2.1%	100%	100%	0%	
7-COUNTY METRO ARI	EA								
Married with children	256,655	244,687	256,022	11,335	4.6%	21.9%	22.3%	0.4%	
Married without children	263,626	298,723	307,664	8,941	3.0%	26.7%	26.7%	0.0%	
Single-parent family	84,246	95,127	110,124	14,997	15.8%	8.5%	9.6%	1.1%	
Other family*	53,632	68,959	56,945	-12,014	-17.4%	6.2%	5.0%	-1.2%	
Single	281,086	319,030	331,010	11,980	3.8%	28.5%	28.8%	0.2%	
Roommate	82,209	91,223	88,389	-2,834	-3.1%	8.2%	7.7%	-0.5%	
Total Households	1,021,454	1,117,749	1,150,154	32,405	2.9%	100%	100%	0%	

* Other Family households can consist of households with adult siblings, parents with adult children, or householders with parents

Source: US Census

Household Income

20

Household income is important to track because it is strongly correlated with age and also directly affects the spending power of area residents and their ability to support retail and afford new forms of housing. Figures 11 and 12 as well as Table 5 present data on the median household income of Lauderdale and the surrounding region.

Lauderdale has a low median household income. As of 2015, it is just over \$40,000 (Figure 11). This is roughly 50% lower than the metro area median income. Much of this difference can be explained by a significant student population in Lauderdale many of which have no direct income and often rely on family members for financial assistance. In contrast, the households north of Larpenteur Avenue have a median household income much closer to the metro area median.





Background Report - May 24, 2017

City of Lauderdale Comprehensive Plan 2040



Figure 12: Median Household Income 2000-2015

Source: US Census



				%	Change	
Household Age	2000	2010	2015	'00-'10	'10-'15	'00-'15
LAUDERDALE - Total						
Households under 25	\$24,083	\$36,579	\$24,667	51.9%	-32.6%	2.4%
Households 25-44	\$39,100	\$50,603	\$42,627	29.4%	-15.8%	9.0%
Households 45-64	\$58,700	\$50,000	\$44,185	-14.8%	-11.6%	-24.7%
Households 65+	\$33,750	\$59,615	\$61,500	76.6%	3.2%	82.2%
All Households	\$39,268	\$47,142	\$43,071	20.1%	-8.6%	9.7%
LAUDERDALE - North of	Larpenteu	r				
Households under 25	\$33,125		\$58,333			76.1%
Households 25-44	\$50,577		\$65,500			29.5%
Households 45-64	\$60,652		\$44,000			-27.5%
Households 65+	\$33,750		\$62,550			85.3%
All Households	\$51,635	\$56,981	\$59,615			15.5%
LAUDERDALE - South of	Larpenteu	r				
Households under 25	\$22,667		\$23,065			1.8%
Households 25-44	\$27,500		\$36,929			34.3%
Households 45-64	\$56,591		\$44,327			-21.7%
Households 65+	\$25,500		\$34,500			35.3%
All Households	\$27,340	\$46,326	\$36,510			33.5%
RAMSEY COUNTY						
Households under 25	\$26,713	\$24,499	\$27,075	-8.3%	10.5%	1.4%
Households 25-44	\$48,987	\$53,679	\$59,005	9.6%	9.9%	20.5%
Households 45-64	\$59,681	\$67,440	\$69,922	13.0%	3.7%	17.2%
Households 65+	\$29,617	\$36,646	\$41,993	23.7%	14.6%	41.8%
All Households	\$45,722	\$51,915	\$56,104	13.5%	8.1%	22.7%
7-COUNTY METRO AREA	N					
Households under 25	\$29,818	\$32,159	\$31,434	7.9%	-2.3%	5.4%
Households 25-44	\$58,616	\$69,652	\$74,243	18.8%	6.6%	26.7%
Households 45-64	\$67,861	\$77,813	\$84,804	14.7%	9.0%	25.0%
Households 65+	\$31,233	\$38,589	\$44,133	23.6%	14.4%	41.3%
All Households	\$54,807	\$64,471	\$69,233	17.6%	7.4%	26.3%

Table 5: Median Household Income by Age of Householder 2000-2015

Sources: US Census; Perkins+Will

Employment

Despite Lauderdale's small geographic size it contains a number of employment areas in addition to its residential districts. Employment in a community can influence not only its tax base and use of land, but can also impact the types of housing demanded and support of certain types of retail. Figures 13 and 14 along with Table 6 present data on employment broken down by industry sectors.

Since 2000 Lauderdale's employment base has fluctuated with the economy. There currently are a little over 600 jobs in the City. However, employment has been as high as 900 in recent years. Nearly half of the current employment base is in the Education and Health Care sector. However, this has not always been the case. In the recent past, "production"-based jobs (such as manufacturing) have had a much higher proportion of jobs. It should be noted that major employment districts just beyond Lauderdale's border also have an impact on the City. To the southeast is the Saint Paul campus of the University of Minnesota and just to the west is Mid-City Industrial district of Minneapolis. In both of these districts, employment is in the thousands.



Figure 13: Lauderdale Employment Change by Industry 2000-2015

* Knowledge = Consists of "knowledge-based" industry sectors, such as Information, Finance, and Professional Services/Managment ** PDR = Production, Distribution, and Repair industry sectors (i.e., Manufacturing, Construction, Transportation, Utilities, etc.) Sources: Minnesota Department of Employment and Economic Development, QCEW dataset; Perkins+Will



Figure 14: Employment Profile by Industry 2015

* Knowledge = Consists of "knowledge-based" industry sectors, such as Information, Finance, and Professional Services/Managment ** PDR = Production, Distribution, and Repair industry sectors (i.e., Manufacturing, Construction, Transportation, Utilities, etc.) Sources: Minnesota Department of Employment and Economic Development, QCEW dataset; Perkins+Will

Background Report - May 24, 2017 City of Lauderdale Comprehensive Plan 2040

Table 6: Employment by Industry 2000-2015

LAUDERDALE		Employment Counts				Distribution				neric Cha	nge	Percentage Change		
Industry	2000	2005	2010	2015	2000	2005	2010	2015	'00-'05	'05-'10	'10-'15	'00-'05	'05-'10	'10-'15
PDR**	581	454	185	149	83.0%	50.2%	25.7%	24.2%	-127	-269	-36	-21.9%	-59.3%	-19.5%
Retail	16	6	3	13	2.3%	0.7%	0.4%	2.1%	-10	-3	10	-60.7%	-54.6%	349.0%
Knowledge*	34	47	146	115	4.8%	5.2%	20.3%	18.7%	13	99	-31	39.9%	210.1%	-21.2%
Eds/Meds	0	349	325	301	0.0%	38.6%	45.3%	49.0%	349	-24	-24		-6.8%	-7.5%
Hospitality	0	0	4	1	0.0%	0.0%	0.6%	0.1%	0	4	-4			-85.7%
Gov't	9	6	16	18	1.3%	0.7%	2.2%	2.9%	-3	9	2	-30.5%	149.6%	12.7%
Other	60	42	39	18	8.6%	4.6%	5.5%	3.0%	-19	-2	-21	-30.9%	-5.0%	-53.4%
Total	700	904	718	614	100.0%	100.0%	100.0%	100.0%	204	-186	-104	29.1%	-20.6%	-14.5%
RAMSEY COUNTY Employment Counts					Distrit	oution		Nun	neric Cha	nge	Percentage Change			
Industrv	2000	2005	2010	2015	2000	2005	2010	2015	'00-'05	'05-'10	'10-'15	'00-'05	'05-'10	'10-'15
PDR**	79,542	72,005	59,167	62,391	23.9%	21.9%	18.8%	19.1%	-7,537	-12,838	3,224	-9.5%	-17.8%	5.4%
Retail	34,912	31,560	26,452	27,309	10.5%	9.6%	8.4%	8.3%	-3,352	-5,108	857	-9.6%	-16.2%	3.2%
Knowledge*	89,704	85,039	81,287	79,773	26.9%	25.9%	25.8%	24.4%	-4,665	-3,752	-1,514	-5.2%	-4.4%	-1.9%
Eds/Meds	67,250	75,844	84,569	92,131	20.2%	23.1%	26.8%	28.2%	8,594	8,725	7,562	12.8%	11.5%	8.9%
Hospitality	26,047	27,784	26,924	28,600	7.8%	8.5%	8.5%	8.7%	1,737	-860	1,676	6.7%	-3.1%	6.2%
Govt	23,604	24,633	26,111	26,013	7.1%	7.5%	8.3%	8.0%	1,029	1,478	-98	4.4%	6.0%	-0.4%
Other	11,980	11,874	11,023	10,980	3.6%	3.6%	3.5%	3.4%	-106	-851	-43	-0.9%	-7.2%	-0.4%
Total	333,039	328,739	315,533	327,197	100.0%	100.0%	100.0%	100.0%	-4,300	-13,206	11,664	-1.3%	-4.0%	3.7%
7-COUNTY ME	TRO AREA	Employme	ent Counts		Distribution				Nun	neric Cha	nge	Percentage Change		
Industry	2000	2005	2010	2015	2000	2005	2010	2015	'00-'05	'05-'10	'10-'15	'00-'05	'05-'10	'10-'15
PDR**	468,424	426,911	356,457	392,961	28.8%	26.3%	22.9%	23.1%	-41,513	-70,454	36,504	-8.9%	-16.5%	10.2%
Retail	181,371	178,263	157,279	168,012	11.1%	11.0%	10.1%	9.9%	-3,108	-20,984	10,733	-1.7%	-11.8%	6.8%
Knowledge*	451,059	434,882	430,823	456,173	27.7%	26.8%	27.6%	26.9%	-16,177	-4,059	25,350	-3.6%	-0.9%	5.9%
Eds/Meds	274,382	311,016	348,911	392,590	16.9%	19.2%	22.4%	23.1%	36,634	37,895	43,679	13.4%	12.2%	12.5%
Hospitality	137,828	151,232	147,182	163,371	8.5%	9.3%	9.4%	9.6%	13,404	-4,050	16,189	9.7%	-2.7%	11.0%
Gov't	58,384	63,200	65,974	68,131	3.6%	3.9%	4.2%	4.0%	4,816	2,774	2,157	8.2%	4.4%	3.3%
Other	56,212	55,992	52,403	56,250	3.5%	3.5%	3.4%	3.3%	-220	-3,589	3,847	-0.4%	-6.4%	7.3%
Total	1,627,660	1,621,496	1,559,029	1,697,488	100.0%	100.0%	100.0%	100.0%	-6,164	-62,467	138,459	-0.4%	-3.9%	8.9%

**PDR = Production, Distribution, and Repair industry sectors (i.e., Manufacturing, Construction, Transportaton, Utilities, etc.)

*Know ledge = Consists of "know ledge-based" industry sectors, such as Information, Finance, and Professional Services/Management

Sources: Minnesota Department of Employment and Economic Development; US Census (LEHD dataset); Met Council; Perkins+Will
Housing

Building on the previous socio-economic section, this section provides data specific to housing conditions in Lauderdale. It is intended to provide a better understanding of where important gaps in the supply of housing may exist.

Metropolitan Council Housing Assessment

In support of each community updating their comprehensive plan, the Metropolitan Council has prepared an existing housing assessment that provides specific housing data required for the plan and integral to determining the need for certain types of housing, especially affordably priced housing. Table 7 presents this data.

Table 7: Metropolitan Council Existing Housing Assessment for the City of Lauderdale (February 2017)

Units affordable to househo	olds with	Units affordable	to households with	Units aff	ordable to households with	
373		income 51/	100	392		
		·				
Owners	hip Units			Renta	I Units	
2,	764			20)4	
Single-family Units	Mul	tifamily Units	Manufactured H	lomes	Other Housing Units	
2,490		50	428		0	
PUBLICLY SUBSIDIZED UNI All publicly subsidized units	rS ⁴ Publ	icly subsidized enior units	Publicly subsidize	ed units sabilities	Publicly subsidized units All others	
0		0	0		0	
		N D0 ⁵	;			
JUNERAL COST DUDBENED	HUUSER		to 50% of AMI	Inc	ome 51% to 80% of AMI	
HOUSING COST BURDENED Income at or below 30%	of AMI	Income 31%		67		
HOUSING COST BURDENED Income at or below 30% 200	of AMI	Income 31%	151		67	

³ Source: US Census Bureau, 2011-2015 American Community Survey five-year estimates; counts adjusted tobetter match the Council's 2015 housing stock estimates

⁴ Source: HousingLink Streams data (covers projects whose financing closed by December 2014), http://www.housinglink.org/streams

⁵ Housing cost burden refers to households whose housing costs are at least 30% of their income. Source: U.S. Department of Housing and Urban Development, 2009-2013 Comprehensive Housing Affordability Strategy (CHAS) data, with counts adjusted to better match Metropolitan Council 2015 household estimates.

Background Report - May 24, 2017

City of Lauderdale Comprehensive Plan 2040

Year Housing Built

The age of housing is often a good proxy for its overall condition and value; older homes require more-frequent and costlier repairs, and their size and design may not match current cultural preferences. Although older housing stock can many times have aesthetic and historic value, if the homes are not wellmaintained they are at significant risk of deferred maintenance, which could result in declining values and potential blight. Therefore, many communities closely track the condition of their older housing stock and support programs that aid homeowners in their upkeep and overall maintenance. Nearly two-thirds (63%) of Lauderdale's housing stock north of Larpenteur Avenue is more than 60 years old (Figure 15). Most significant homes repairs that are critical to the home's longevity, such as a new roof or furnace, begin to occur when a home is 25-30 years old. Therefore, a significant portion of Lauderdale's housing stock is likely in need of continuous repairs and updates.

South of Larpenteur Avenue, the housing stock is younger and generally is between 30 and 60 years old. Almost all of this stock is in small to medium size apartment buildings. Many of these buildings are on the verge of needing important maintenance and depending on the wear and tear from renters may require close observation to make sure they do not incur too much deferred maintenance.



Figure 15: Year Housing Structure Built 2016

Sources: US Census; Met Council

Table 8: Year Housing Structure Built 2016

							0	Distribution		
	L	AUDERDALE L	AUDERDALE		7-COUNTY		LAUDERDALE	LAUDERDALE		7-COUNTY
	LAUDERDALE	- North of	- South of	RAMSEY	METRO	LAUDERDALE	- North of	- South of	RAMSEY	METRO
Year Built	- Total	Larpenteur	Larpenteur	COUNTY	AREA	- Total	Larpenteur	Larpenteur	COUNTY	AREA
2010 or later*	3	3	0	5,807	63,920	0.2%	0.5%	0.0%	2.6%	5.1%
2000-2009	7	6	0	15,157	160,119	0.5%	1.1%	0.0%	6.8%	12.8%
1990-1999	128	25	105	15,656	168,283	10.6%	4.3%	17.1%	7.0%	13.4%
1980-1989	289	109	182	26,308	182,888	24.0%	18.6%	29.5%	11.8%	14.6%
1970-1979	140	20	124	32,270	186,473	11.7%	3.4%	20.1%	14.5%	14.9%
1960-1969	173	53	123	24,991	129,086	14.4%	9.0%	19.9%	11.3%	10.3%
1950-1959	221	136	83	31,214	130,991	18.4%	23.3%	13.4%	14.1%	10.4%
1940-1949	38	36	0	12,625	50,459	3.1%	6.2%	0.0%	5.7%	4.0%
Pre-1940	203	196	0	58,045	182,727	16.9%	33.5%	0.0%	26.1%	14.6%
Total Units	1,201	584	617	222,073	1,254,946	100%	100%	100%	100%	100%
Median Year	1968	1954	1978	1963	1976					

* Includes data from the Met Council residential building permit database

Sources: US Census; Metropolitan Council

Housing Structure Type

The type of housing structure can influence not only affordability but also overall livability. Having a range of housing structures can provide residents of a community options that best meet their needs as they shift from one life stage to another. For example, retirees often desire multifamily housing not only for the ease of maintenance, but also for security reasons. For those fortunate to travel south during the winter, multifamily residences are less susceptible to home maintenance issues or burglary concerns because of on-site management. For those with health concerns, multifamily residences often have neighbors that can also provide oversight should an acute health problem occur.

Overall, the profile of Lauderdale's housing stock closely matches that of Ramsey County with roughly equal proportions of single-family residences, townhomes, small apartment buildings, and large apartment buildings. However, the stock north of Larpenteur Avenue contains a much higher proportion of single-family residences than the county or metro area proportions. South of Larpenteur Avenue the housing stock is dominated by multifamily residences.



Figure 16: Housing Structure Type 2016

Sm Bldg = 2-19 units; Lg Bldg = 20+ units Sources: US Census: Met Council; Perkins+Will

Table 9: Housing Structure Type 2016

LAUDERDALE - Tota	al				C	Distributio	n by Type	е	Di	stribution	by Tenur	е
Structure Type	Total	Owned	Rented	Vacant	Total	Owned	Rented	Vacant	Total	Owned	Rented	Vacant
1 deteched unit	49E	416	E1	10	40.49/	00 60/	0 /0/	10.0%	100.00/	OE 70/	10 50/	2 00/
1, detached unit	400	410	10	10	40.4%	02.0%	0.4%	19.9%	100.0%	70.00/	10.3%	3.0%
1, attached unit	00	50	10	15	5.7% 4.00/	9.8%	3.0%	0.0%	100.0%	12.9%	Z1.1%	0.0%
2 units	51	0	30	15	4.2%	0.0%	0.0%	15.9%	100.0%	0.0%	71.2%	28.8%
3 or 4 units	30	15	22	0	3.0%	2.9%	3.6%	0.0%	100.0%	40.5%	59.5%	0.0%
5 to 9 units	106	52	54	0	8.8%	10.3%	8.9%	0.0%	100.0%	49.2%	50.8%	0.0%
10 to 19 units	174	0	134	40	14.5%	0.0%	22.2%	43.6%	100.0%	0.0%	76.9%	23.1%
20 to 49 units	235	0	219	16	19.6%	0.0%	36.2%	17.4%	100.0%	0.0%	93.2%	6.8%
50 or more	46	0	46	0	3.8%	0.0%	7.5%	0.0%	100.0%	0.0%	100.0%	0.0%
Mobile Home	0	0	0	0	0.0%	0.0%	0.0%	0.0%				
Boat, RV, Van, etc.	0	0	0	0	0.0%	0.0%	0.0%	0.0%				
Total Units	1,201	503	605	92	100%	100%	100%	100%	100%	42%	50%	8%
LAUDERDALE - Nor	th of Larpen	teur			C	Distributio	n by Type	9	Di	stribution	by Tenur	e
Structure Type	Total	Owned	Rented	Vacant	Total	Owned	Rented	Vacant	Total	Owned	Rented	Vacant
1 detached unit	415	361	37	17	71.0%	80 1%	36 4%	51 4%	100.0%	87 0%	8.9%	4 1%
1 attached unit	30	25	6	0	5.2%	5.4%	5.6%	0.0%	100.0%	81.3%	18.8%	0.0%
2 unite	38	20	22	16	6.5%	0.4%	21.5%	18.6%	100.0%	01.0%	57.5%	12 5%
3 or 1 unite	20	10	10	0	5.0%	2.3%	18 7%	0.0%	100.0%	35.5%	64 5%	0.0%
5 to 0 units	69	55	13	0	11 6%	10 10/	12 10/	0.0%	100.0%	20.070 20.6%	10 /04	0.0%
10 to 10 units	00	55	13	0	0.00/	12.1%	0.00/	0.0%	100.0%	00.0%	19.470	0.0%
	0	0	0	0	0.0%	0.0%	0.0%	0.0%	400.00/	0.00/	400.00/	
20 to 49 units	5	0	5	0	0.8%	0.0%	4.7%	0.0%	100.0%	0.0%	100.0%	0.0%
50 or more	0	0	0	0	0.0%	0.0%	0.0%	0.0%				
Mobile Home	0	0	0	0	0.0%	0.0%	0.0%	0.0%				
Boat, RV, Van, etc.	0	0	0	0	0.0%	0.0%	0.0%	0.0%				
Total Units	584	451	101	33	100%	100%	100%	100%	100%	77%	17%	6%
	th of Larner	tour			г	Distributio	n hy Type	_	Die	stribution	hy Tenur	·0
Structure Type	Total	Owned	Rented	Vacant	Total	Owned	Rented	Vacant	Total	Owned	Rented	Vacant
otractare Type	Total	Owneu	Renteu	vacan	Total	Owneu	Rented	vacant	Total	Owneu	Rented	vacant
1, detached unit	34	24	10	0	5.5%	44.6%	2.1%	0.0%	100.0%	69.4%	30.6%	0.0%
1, attached unit	36	24	12	0	5.8%	44.6%	2.4%	0.0%	100.0%	65.8%	34.2%	0.0%
2 units	18	0	18	0	2.9%	0.0%	3.6%	0.0%	100.0%	0.0%	100.0%	0.0%
3 or 4 units	10	6	5	0	1.7%	10.7%	0.9%	0.0%	100.0%	54.5%	45.5%	0.0%
5 to 9 units	43	0	43	0	7.0%	0.0%	8.6%	0.0%	100.0%	0.0%	100.0%	0.0%
10 to 19 units	184	0	141	42	29.8%	0.0%	28.0%	71.4%	100.0%	0.0%	76.9%	23.1%
20 to 49 units	243	0	226	17	39.4%	0.0%	44.9%	28.6%	100.0%	0.0%	93.0%	7.0%
50 or more	48	0	48	0	7.8%	0.0%	9.5%	0.0%	100.0%	0.0%	100.0%	0.0%
Mobile Home	0	0	0	0	0.0%	0.0%	0.0%	0.0%				
Boat RV Van etc	0	0	0	0	0.0%	0.0%	0.0%	0.0%				
Total Units	617	53	504	59	100%	100%	100%	100%	100%	9%	82%	10%
	•		•••	•••	,	,	,	,		• / •		,.
RAMSEY COUNTY				<u> </u>		Distributio	n by Type	<u> </u>	Di	stribution	by Tenur	e
Structure Type	Total	Owned	Rented	Vacant	Total	Owned	Rented	Vacant	Total	Owned	Rented	Vacant
1. detached unit	114.687	99,460	10.827	4,400	52.6%	81.4%	12.8%	39.4%	100.0%	86.7%	9.4%	3.8%
1. attached unit	16,945	10.726	5.560	659	7.8%	8.8%	6.6%	5.9%	100.0%	63.3%	32.8%	3.9%
2 units	9 962	1 868	7 017	1 077	4.6%	1.5%	8.3%	9.6%	100.0%	18.8%	70.4%	10.8%
3 or 1 unite	6 284	670	1 964	650	2.0%	0.5%	5.0%	5.8%	100.0%	10.0%	70.1%	10.3%
5 to 9 units	7 361	1 210	5 700	442	2.370	1.0%	6.7%	1.0%	100.0%	16.6%	77.4%	6.0%
10 to 10 unite	14.070	514	12 549	1 009	6.5%	0.4%	1/ 90/	0.0%	100.0%	3 70/	PO 20/	7 20%
10 to 19 units	14,070	1 644	12,040	1,000	0.0%	0.4%	14.0%	9.0%	100.0%	0.1%	09.270	7.Z70 6.40/
20 to 49 units	27,460	2 252	13,214	1,149	10.070	0.70/	10.070 26.60/	14 10/	100.0%	9.1/0 10.00/	04.370	0.4 /0 E 00/
SU OF INOIR	27,400	3,352	22,520	1,000	12.070	2.170	20.0%	14.170	100.0%	12.270	02.070	0.0%
	3, 152	2,031	319	202	1.4%	2.2%	0.4%	1.8%	100.0%	03.0%	10.1%	0.4%
Boal, RV, Van, elc.	30	33	3	0	0.0%	0.0%	0.0%	0.0%	100.0%	91.7%	8%	0%
Total Units	218,024	122,117	84,740	11,167	100%	100%	100%	100%	100%	56%	39%	5%
					_							
7-COUNTY METRO	AREA					Distributio	n by Type	9	Di	stribution	by Tenur	e
Structure Type	lotal	Owned	Rented	Vacant	Iotal	Owned	Rented	Vacant	lotal	Owned	Rented	Vacant
1, detached unit	705,956	632,367	50,228	23,361	58.5%	80.5%	13.8%	41.3%	100.0%	89.6%	7.1%	3.3%
1. attached unit	136,368	93.048	37.318	6.002	11.3%	11.8%	10.2%	10.6%	100.0%	68.2%	27.4%	4.4%
2 units	32,815	6.727	23,053	3.035	2.7%	0.9%	6.3%	5.4%	100.0%	20.5%	70.3%	9.2%
3 or 4 units	26 100	5 410	18 481	2 209	2.2%	0.7%	5 1%	3.9%	100.0%	20.7%	70.8%	8.5%
5 to 9 units	20,100	5 610	22 420	1 668	2.2.0	0.7%	6.1%	2 9%	100.0%	18 9%	75 5%	5.6%
10 to 19 unite	50 252	3 355	43 160	3 1/2	2.0%	0.7%	11 0%	6 1%	100.0%	6.7%	86 5%	6.0%
20 to 40 units	76 602	7 767	40,400	5 202	-+.2/0 6/10/	0.470 1 00/	17 /0/_	0.1/0	100.0 /0	10 10/	82 00/2	6 0%
50 or more	132 121	18 629	104 067	10 /26	0.47/0 11.00/	1.U/0 2./0/	28 50/	3.470 18.40/	100.0%	1/1 00/	78 20%	7 20/
Mobilo Lome	155,151	10,020	104,007	1 4 1 0 7	1 0.070	2.470 1 CO/	20.0%	0.470	100.0%	14.U70	10.270	7.070
	15,300	12,395	1,844	1,127	1.3%	1.0%	0.5%	2.0%	100.0%	0U.1%	12.0%	1.3%
Doal, KV, Van, etc.	353	105	248	0	0.0%	0.0%	0.1%	0.0%	100.0%	29.1%	70%	0%
		705 449	-10.4 740	EC EOA	4 0 0 0/	4000/	100%	100%	100%	CEV/	-200/	E0/

Sources: US Census: Met Council; Perkins+Will

Background Report - May 24, 2017

City of Lauderdale Comprehensive Plan 2040

Housing Units Permitted for Construction

Building permits can provide insight into important development trends. However, due to Lauderdale's small size and limited land available for new development, new housing is entirely based on tear downs and new construction. According to building permit figures from the Metropolitan Council, Lauderdale has constructed six new housing units (all single-family) in the past 15 years.



Figure 17: Housing Units Permitted for Construction 2001-2015

Source: Metropolitan Council

31

Home Sales Trends

According to data from the Minneapolis Association of Realtors, the median home sales price for Lauderdale in 2016 was \$187,500 (Figure 18). This was well below the metro area median home sales price of \$232,000. This indicates that the owner-occupied housing stock in Lauderdale is relatively affordable compared to the rest of the region. This is still below the peak median sales price in 2008. Although prices have improved in the last several years (with 2014 being a notable exception), the median sales price has yet to return to prebust pricing. The broader metro-wide market, however, appears to have regained all of the lost value from the bust and is actually now achieving new pricing peaks.

Figure 18: Median Home Sales Price 2007-2016



Source: Minneapolis Area Association of Realtors



Figure 19: Annual Homes Sold through MLS 2011-2016

Source: Minneapolis Area Association of Realtors

33



Rental Housing Trends

Figures 20 and 21 present data on the condition of the rental market in Lauderdale. Currently, the vacancy rate among Lauderdale's apartments is just below 10%. This is well above the metro area and Ramsey County vacancy rate. Despite vacancies being much higher than the region, average rents have been increasing in recent years and currently average just over \$900 per month. Average rents in Lauderdale are also well below the County of metro area average rent, again, indicating that the cost of housing in Lauderdale is relatively affordable when compared to most other areas in the region.





Background Report - May 24, 2017

City of Lauderdale Comprehensive Plan 2040



Figure 21: Market Rate Rental Housing Price Trends 2007-2017

Source: CoStar

35

Travel and Commuting

A significant portion of the population commutes to work and travels outside of the community for employment as shown in Table 11. Figures in this table reflect that Lauderdale residents are centrally located within the MSA and are adjacent to Hennepin County, as well as connected to major freeway access with direct routes to employment within Ramsey, Hennepin, Anoka, Washington and Dakota Counties. Commuting time is important to economic development and competitiveness because accessibility to jobs is directly correlated to quality of life.

Place of Work	Percentage
Worked in state of residence	98.6%
Worked in county of residence	46.3%
Worked outside county of residence	52.3%
Worked outside state of residence	1.4%
Living in a place	100.0%
Worked in place of residence	6.2%
Worked outside place of residence	93.8%

Table 10: Place of Work

Source: 2011-2015 American Community Survey 5-Year Estimates

The mean travel time to work for Lauderdale residents is 19.5 minutes as demonstrated in Table 12. Given the drive time across Lauderdale is only several minutes and more than 85% percent of residents spend 10 minutes or more traveling to work indicates the vast majority of workers are working outside the City of Lauderdale.

Travel Time to Work	Percentage
Less than 10 minutes	14.3%
10 to 14 minutes	24.5%
15 to 19 minutes	15.1%
20 to 24 minutes	19.3%
25 to 29 minutes	7.7%
30 to 34 minutes	12.1%
35 to 44 minutes	0.8%
45 to 59 minutes	1.5%
60 or more minutes	4.6%
Mean travel time to work (minutes)	19.5

Source: 2011-2015 American Community Survey 5-Year Estimates

Background Report - May 24, 2017

City of Lauderdale Comprehensive Plan 2040

In addition to commute times, the way in which people travel to work, or the mode of transportation, is important to understand and consider when preparing land use plans and identifying opportunities to improve infrastructure. As demonstrated in Table 13 the majority (63.9%) of residents drive to work alone and travel to work by car, truck or van. However, approximately 7.5 percent of residents carpool to work, fourteen percent take public transportation, 8 percent walked and 4 percent worked at home.

Means of Transportation to Work (Workers 16 years and over)	Percentage
Car, truck, or van	71.4%
Drove alone	63.9%
Carpooled	7.5%
In 2-person carpool	6.4%
In 3-person carpool	0.0%
In 4-or-more person carpool	1.1%
Workers per car, truck, or van	1.06
Public transportation (excluding taxicab)	14.0%
Walked	8.0%
Bicycle	1.6%
Taxicab, motorcycle, or other means	1.0%
Worked at home	4.1%

Table 12 : Mode of Transportation to Work

Source: 2011-2015 American Community Survey 5-Year Estimates

Land Use, Redevelopment & Zoning

An important part of the planning process is to understand the existing land uses and development patterns within a community. The existing land uses help to define not only the character of the community, but is also correlated to the demographic and housing information contained within previous sections of this report. Additionally, the land uses and development patterns provide insight into areas that may be underutilized or underdeveloped that could benefit from redevelopment and reinvestment. 37

Existing Land Use Patterns

The City's existing land use distribution is diverse and includes everything from single family residential to Industrial uses. The City's existing land use pattern has not changed significantly since adoption of the 2030 Plan. As with many communities over the past 10-years, development and redevelopment was mostly stagnant in the City as a result of the Great Recession. While the Great Recession is officially defined as occurring between 2007 and 2009, the recovery has been slow and places like Lauderdale remained mostly unchanged during much of the last decade. As such, the Existing Land Uses in the community are generally consistent with the ELU map contained within the adopted 2030 Plan.

The existing land use pattern is segmented in most cases by physical boundaries which results in clear demarcation of land uses. Generally, west of Highway 280 are utility and industrial uses, south of Larpenteur and East of Highway 280 is dominated by commercial, institution and multi-family uses, and north of Larpenteur and east of Highway 280 is predominantly single-family residential uses.

Planned and Future Land Uses

The adopted 2030 Plan included a future land use plan for the community which was identified on Map 3-7: 2030 Land Use Map. As a fully developed community many of the land uses anticipated were simply a continuation of the existing land use patterns. For example, the land uses north of Larpenteur Avenue were guided for single-family residential uses consistent with the existing neighborhood pattern. However, there were some areas of the community that were anticipated to change, particularly some of the underdeveloped areas located along the Larpenteur Avenue corridor.

Since the last plan update there has been some redevelopment in the community which is summarized below:

• FinnSisu constructed a new store in 2010 at 2436 Larpenteur Avenue, which is located in the Larpenteur Corridor Plan Area.

Background Report - May 24, 2017 City of Lauderdale Comprehensive Plan 2040

• Single-family tear downs/major remodels have recently occurred. While this was not contemplated in the 2030 Plan, the changes impact existing neighborhoods.

Redevelopment

Mixed-Use

During the planning process for the 2030 Plan the City identified the Larpenteur Avenue corridor as an opportunity area for redevelopment and identified this area with a Land Use Overlay designation. The Larpenteur Avenue corridor is the main east-west corridor through the community and has the potential to be an important part of enhancing the City's small-town character. However, the current plan acknowledges that many of the properties within the corridor are underutilized, in some cases in disrepair, and that the corridor lacks the desired charm due to the lack of walkability, vitality and scale. Since the 2030 Plan adoption only one parcel has redeveloped, and the other parcels in the corridor have been left generally untouched. The following summary of existing conditions in the areas guided for Mixed-Use provide a baseline for discussion during this process.

• The existing land use pattern along Larpenteur is a hodge-podge of uses that includes single-family residential properties, large multi-family complexes and commercial uses. There is no vertical or site mixed-uses along the corridor.

- Large parking lots and expansive building setbacks from the road rightof-way contributes to the lack of pedestrian scale along the street.
- One parcel has redeveloped, FinnSisu, but it is out of context and scale when considered in relation to adjacent parcels.
- Brandychase Condominiums, Rosehill Estates and City Gables are located on the east end of the Larpenteur corridor and are not part of the Mixed-Use designation. However, the population of these higher density residential areas could directly support increased commercial/ retail uses in the corridor particularly with improved pedestrian connections and a more hospitable streetscape.
- Some of the existing businesses have reinvested in their properties, but the reinvestments in some cases may not be consistent with the long-term vision for mixed-uses and higher intensity development within the Mixed-Use corridor. Two such properties include:
 - » Corval Group
 - » Children's Home Society of Minnesota, Lutheran Social Services



Industrial Areas

The industrial and light manufacturing businesses in the City are generally located west of Highway 280. The structures in this area were constructed primarily between the 1940s and 1950s and as a result in some cases are falling into disrepair and contain structural obsolescence. Many of the businesses that are in this area have been in the community for decades, and it is unknown what future succession plans exist for many of the users. This planning process will reach out directly to business owners of the industrial properties to better understand long-term goals of the users and to identify any opportunities for redevelopment and reinvestment to ensure this area of the community remains sustainable. Some characteristics of this area of note are:

- Large power substation located southwest of the Highway 280 and Larpenteur Avenue intersection.
- Improved interchange at Highway 280 and Larpenteur Avenue provides better, safer, access to businesses on west side of 280.
- Active rail spur/railroad in area.
- Adjacent to extensive industrial, light manufacturing, distribution, and office uses in Minneapolis.

<u>Zoning</u>

The City's zoning districts were not updated after the adoption of the 2030 Plan. However, due to the relatively small geographic area of the community the zoning districts and maps created as part of the 2020 Plan update (1998 Comprehensive Plan) are relevant and generally support the Planned Land Uses identified within the 2030 Plan. The Mixed-Use land use designation is the only land use without a corresponding zoning district which was a new land use designation created during the 2030 Plan update. The City will evaluate whether the Mixed-Use land use designation is appropriate during this planning process and will identify implementation measures to ensure a corresponding zoning district is created after the 2040 Plan is adopted. In the 2020 and 2030 Plans the City identified a Community Business (C-1) zoning district, but did not identify a corresponding land use designation. Several of the properties zoned C-1 are located in the areas guided for Mixed-Use; however, the zoning district does not directly support the objectives of the Mixed-Use land use designation as described in the 2030 Plan. During this planning process the land use designations will be discussed and objectives identified so that corresponding zoning districts can be created and/or updates to the existing zoning districts completed. This process will ensure that the zoning is consistent

Background Report - May 24, 2017 City of Lauderdale Comprehensive Plan 2040 with the use designations which is a requirement of the Metropolitan Land Planning Act. The following Table identifies the 2030 Planned Land Use categories and the corresponding zoning district.

Land Use Designation	Corresponding Zoning District
Medium Density Residential (MDR)	Suburban Residential (R-1) Urban Residential (R-2)
High Density Residential (HDR)	Multiple Residential (R-3)
Mixed Use (MU)	None
None	Community Business (B-1)
Industrial	Industrial (I-1)
Park & Recreation	Conservation (C-1)
Open Space	Suburban Residential (R-1)

Table 16 Zoning Districts

Since adoption of the 2030 Plan the City has created and adopted a Planned Unit Development (PUD) ordinance. The PUD zoning district permits properties to be re-zoned by ordinance to PUD during a development review process. There are three areas that are zoned PUD in the community per the 1996 Zoning Map (Brandychase, Rose Hill/City Gables and Burnvedt).

Transportation

Roadways

The City's road network provides access to the City's residents, commercial areas, and the greater region. Each roadway is classified according to the types of traffic and traffic volumes which is shown on Table 17.

Table 17: Functional Classification of Roads

Road Classification	Road Name	Jurisdiction
Principal Arterial	Highway 280	State Highway

41

A-Minor Augmentor	Larpenteur Avenue	County Road
Major Collector	Eustis Street	County Road
	Roselawn Avenue West	-
City/Local Street	Ryan Street Summer Street Spring Street Lone Street Idaho Avenue Hoyt Avenue Walnut Street Malvern Street Carl Street Pleasant Street Lake Street Fulham Street	City Streets

Highway 280 runs north-south connecting I-94 and I-35W/ Highway 36. The
 Larpenteur Avenue interchange was upgraded and reconstructed since the 2030
 Plan and now provides safer and more efficient access to the City of Lauderdale.

Transportation Area Zones (TAZs)

There are four Transportation Area Zones (TAZs) in the City of Lauderdale that are generally segmented by Highway 280 and Larpenteur Avenue. The TAZs are used to plan for roadway improvements to ensure that the road system is adequate to support the anticipated population, households and employment projections.

Transit

The Metropolitan Council's Transit Market Area identifies the City fully within Market Area II which is described as "high to moderately high population and employment densities and typically has a traditional street grid comparable to Market Area I. Much of Market Area II is also

Background Report - May 24, 2017 City of Lauderdale Comprehensive Plan 2040 categorized as an Urban Center and it can support many of the same types of fixed-route transit as Market Area I, although usually at lower frequencies or shorter service spans."

The City is currently served by bus route 30, which connects to the Westgate Light Rail Station (Green Line). The Green Line provides access to both Downtown Minneapolis and St. Paul. The City is also served by bus route 61 which runs east-west and connects to Downtown St. Paul to the east and Minneapolis to the west. Route 61 also provides a connection to the A-Line (Bus Rapid Transit) which connects to the Blue Line LRT which provides access to the Minneapolis/St. Paul Airport. Both bus routes run along Larpenteur Avenue, with multiple stops located along the corridor.

Airport

The closest international and regional airport is the Minneapolis/St. Paul International Airport located approximately 12 miles south of the City.

Bike Routes

The 2015 System Statement introduces the Metropolitan Council's desire to plan for a Regional Bicycle Transportation Network (RBTN). The network of bikeways would connect users to regional and sub-regional job centers and offer increased modal choice. This system would also connect into the expanding Minneapolis trail system (Grand Rounds, River Boulevard trails, etc.) The Metropolitan Council has identified a RBTN alignment on the southwest border of the city along Como Avenue.

Railroads

The Minnesota Commercial Railway Company owns and operates the railroad that runs adjacent to Highway 280 and bisects the industrial area in the community. The railroad is active, and has an interchange/stop near the Lauderdale border in the City of Minneapolis.

Parks, Trails, Open Space & Natural Resources

Parks, Trails & Open Space

The City's parks, trails and open space network in the community is fairly robust given the relatively small size of the community. There are approximately 11 acres of land in preserved park or open space in the community, and such lands include both active and passive recreational opportunities to the residents of the community.

In addition to the dedicated park and open space land in the City of Lauderdale, the community is also blessed with regional amenities that are adjacent to the community. The City is bordered on the east by the University of Minnesota's Les Bolstad Golf Course, on the north by Midland Hills Country Club (golf course), and is approximately 5-miles from Como Park which contains approximately 385-acres of parks, trails and open space to the region.

City Parks

The City maintains two (2) parks with active recreational uses, and two (2) natural areas with passive recreational opportunities. A summary of each park/natural area is provided:

Community Park

The Community park was purchased in

Background Report - May 24, 2017

City of Lauderdale Comprehensive Plan 2040

1985 from the Roseville School District under the condition that the land be used only for public recreation. The park is approximately 7.17 acres, and provides a variety of recreational opportunities to the residents of Lauderdale and adjacent communities. The programming in the Community Park has evolved over the years, slowly changing to meet the needs of the community and desires of the community. The following summary of current facilities located within the park is identified below:

- » two tennis courts
- » two basketball courts
- » dog park, playground
- » a ball field
- » lighted hockey rink and pleasure rink
- » sledding hill
- » archery range with two target bales
- » picnic shelter
- » dedicated dog park area
- Skyview Park

The City purchased the land for Skyview Park in 2002 from Ramsey County. The park is located at the terminus of Walnut Street, and does not have street frontage. The following amenities are located in the park:

- » playground
- » picnic table
- » view of the Minneapolis skyline

• Nature Area (south of Larpenteur Avenue at the end of Idaho)

The Lauderdale Nature area is located south of the Rosehill Townhomes and is approximately 2.79 acres. The area is zoned conservation and will be protected into perpetuity. The nature area includes a storm water management pond (known as Gasparre Pond), but also includes passive recreational opportunities to the residents of the Rosehill Townhomes and the City Gabels apartment complex. There is a wooded area on the south end of the nature area that extends onto adjacent properties owned by the Luther Seminary and single family properties which is known as Breck Woods. The City has an easement over the area for purposes of a retention pond, but does not own the property and the pond was created to provide stormwater management and was constructed as a part of a Tax Increment Finance housing development.

• Walsh Lake Park

The City owns four lots/parcels on the northwest side of Walsh Lake and is approximately 0.69 acres. The land is mostly under water and the only access to the parcels is from a path on the east side of Ryan Avenue and a narrow piece of land on the north end of Pleasant Street. There are no city improvements on the property, and it is generally used for open space, passive recreation and bird watching.

Natural Resources

The City is fully developed and there are no areas identified by the Minnesota Department of Natural Resources or the Metropolitan Council as regionally significant with respect to ecological quality. However, there are some natural areas which have been protected through city acquisition and the development process. As identified previously, the City owns approximately 3.48 acres of natural areas in the Lauderdale Nature Area and Walsh Lake Park.

Lakes, Wetlands and Watershed Districts/ Management Organizations

Walsh Lake is located on the far northeastern corner of the property, and is partially located in the City of Lauderdale and the City of Roseville. It is the only DNR lake in the community. There are no streams or rivers located in the community.

The National Wetland Inventory identifies Walsh Lake and Gasparre Pond on the public waters inventory. There are no other wetlands identified on the NWI.

There are two different agencies, in addition to the City, which have jurisdiction of the wetlands and surface water management in the City. The agencies are as follows:

• Rice Creek Watershed District (RCWD): Includes all land north of Larpenteur Avenue. • Mississippi Watershed Management Organization (MWMO): Includes all land south of Larpenteur Avenue.

Community Facilities

The City owns and maintains several facilities. These facilities vary in size, function and condition. In addition to City owned facilities, there are a variety of facilities owned and operated by other governmental agencies and non-profit organizations that serve Lauderdale residents. The following list identifies important facilities categorized by City/Government, Parks and Recreation, and Schools and Church/Faith Based Facilities.

City/Government

- » City Hall 1891 Walnut Street Lauderdale, MN 55113
- » Lauderdale Fire Department 2077 Larpenteur Avenue W St. Paul, MN 55113

» Post Office

There are no post offices located within the City of Lauderdale. Two post offices serve the City of Lauderdale, and the City has an outgoing mailbox located at City hall.

St. Paul Como Post Office – 2286 Como Avenue, St. Paul, MN 55108

Roseville Post office – 2000 West County Road B-2, Roseville, MN 55113

Background Report - May 24, 2017

City of Lauderdale Comprehensive Plan 2040

Schools

Lauderdale is served by the Roseville Area School District (ISD #623)

Lauderdale's students currently attend:

- » Brimhall Elementary School 1744 West County Road B Roseville, MN 55113
- » Roseville Area Middle School 15 East County Road B2 Roseville, MN 55113
- » Roseville Area High School 1240 West County Road B2 Roseville, MN 55113

Luther Theological Seminary Campus extends into Lauderdale along the southern city border.

Faith Based Facilities

- » Peace Lutheran Church 1744 Walnut Street St Paul, MN 55113
- Twin City Chinese Church
 1795 Eustis Street Lauderdale, MN
 55113
 (Colliers advertises building is for sale)

APPENDIX

B. Glossary of Terms



VISION & GOAL SETTING

Definitions & Glossary

The terms Vision, Goal and Strategy can mean different things to people and may not always be viewed with the same level of importance or commitment. Throughout the Comprehensive Plan update the terms Vision, Goal and Strategy will have the following meaning and definition:

Vision: An aspirational description of what a community would like to achieve or accomplish in the long-term future. It is intended to serve as a clear guide for choosing current and future courses of action (the Goals and Strategies support the Vision).

Goal: A general statement of a desired objectives indicating broad social, economic or physical conditions to which the community officially agrees to try to achieve in various ways, one of which is the implementation of the Comprehensive Plan.

Strategy: An officially adopted course of action or position to implement the community goals.

Goals and strategies assign various roles, commitments, and responsibilities to the city of Lauderdale. To assist with defining the city's role for each *goal and strategy*, the following key terms are defined and indicate the city's corresponding responsibility:

Create: Bring about the desired goal, with city staff involved in all levels, from planning to implementation, and which may involve city financial assistance.

Continue: Follow past and present procedures to maintain the desired goal, usually with city staff involved in all levels, from planning to implementation.

Encourage: Foster the desired goal through city policies, which may involve city financial assistance.

Endorse: Subscribe to the desired goal by adopting supportive city policies.

Enhance: Improve the current goal through the use of policies, which may include financial support, and the involvement of city staff at all levels of planning.

Explore: Investigate the stated method of achieving the desired goal, which may involve city staff and financial resources to research and analyze such method.

Identify: Catalogue and confirm resource(s) or desired item(s), which may involve city staff and may require financial resources.

Maintain: Preserve the desired state of affairs through the use of city policies. Financial assistance should be provided if needed.

Recognize: Acknowledge the identified state of affairs and take actions or implement policies to preserve or change them.

Prevent: Stop described event through the use of appropriate city policies, staff, action and, if needed, finances.

Promote: Advance the desired state through the use of city policies and staff activity at all levels of planning.

Protect: Guard against a deterioration of the desired state through the use of city policies, staff and, if needed, financial assistance.

Provide: Take the lead role in supplying the needed financial and staff support to achieve the desired goal. The city is typically involved in all aspects from planning to implementation to maintenance.

Strengthen: Improve and reinforce the desired goal through the use of city policies, staff and financial assistance, if needed.

Support: Supply the needed staff support, policies and financial assistance at all levels to achieve the desired goal.

Sustain: Uphold the desired state through city policies, financial resources and staff action to achieve the goal.

Work: Cooperate and act in a manner to create the desired goal through the use of city staff, actions and policies.

No commitment of financial	May include financial investment,	Commitment to financial investment
investment, staff resources and	staff resources and policy direc-	(if needed), staff resources and policy
policy directives	tives	directives
Continue	Create	Prevent
Endorse	Encourage	Protect
Identify	Enhance	Provide
Reserve	Explore	Strengthen
Recognize	Maintain	Support
Promote		Sustain
Work		

This page is intentionally left blank.

APPENDIX

C. Jurisdictional Review Matrix and Comments



2040 Lauderdale Comprehensive Plan						
Adjacent Jurisdiction	Recipient	Respondent				
County of Hennepin	Catharine Walker					
County of Ramsey	Max Holdenhusen					
City of Falcon Heights	Sack Thongvahn, Paul Moretto	Justin Markon				
City of Minneapolis	Tina Beech					
City of Roseville	Kari Collins, Bryan Lloyd	Bryan Lloyd				
City of St. Paul	Lucy Thompson					
Department of Transportation		Karen Scheffing				
Department of Natural Resources		Martha Vickery				
Roseville Area School District	Aldo Sicoli					
Capitol Regions Watershed District	Anna Eleria					
Mississippi Watershed Management Organization	Dan Kalmon					
Rice Creek Watershed District	Lauren Sampedro	Lauren Sampedro				



rom	Schoffing Karon (DOT) zbaron schoffing@state mn.us>
rom: Sent:	Tuesday July 17 2018 12:17 PM
o:	Heather Butkowski
с:	Sherman, Tod (DOT); Wiltgen, Jennifer (DOT); Craig, E (DOT); Fossand, Bryce (DOT); Parzyck, Rebecca (DOT); Gedstad, Gayle (DOT); Turner Bargen, Mackenzie M (DOT); Muhic, P Cameron (DOT); Juran, Rylan (DOT); Gade, Dale (DOT); Jacobson, Nancy (DOT)
ubject:	CPA18-057 Lauderdale Comprehensive Plan
leather	
InDOT has reviewed the o	City of Lauderdale's 2040 Comp plan update and has no comments. Please contact me if you
ave any questions	
hanks	
aren	
aren Scheffing	
rincipal Planner	
500 W County Road B2	
toseville MN 55113	
51-234-7784	

1

Community of Lauderdale
2040 Comprehensive Plan Update
Adjacent and Affected Jurisdiction Review and Comment Form
Date: _12/6/18
Adjacent or Affected Jurisdiction Name: MN DNR Please check the appropriate box:
We have reviewed the proposed Plan Update, do not have any comments, and are therefore waiving further review.
 We have reviewed the proposed Plan Update and offer the following comments (attach additional sheets if necessary)
The mission of the Minnesota Department of Natural Resources is to work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life. With these things in mind, we appreciate the opportunity to provide comments on Lauderdale's draft 2040 comprehensive plan. We support the city's strategy to "continue to plan for the enhancement and maintenance of the City's parks, open spaces and natural resources as a priority within the capital improvement plan and city budget."
The following comments suggest additional ways to further these goals in your Comprehensive Plan:
Wildlife. Consider adding policies that take wildlife into consideration as transportation and redevelopment projects occur, especially those near wetlands and natural areas. To enhance the health and diversity of wildlife populations, encourage private and public developments to retain or restore natural areas planted with native species. One larger area is better than several small "islands" or patches; and connectivity of habitat is important.
Animals such as frogs and turtles need to travel between wetlands and uplands throughout their life cycle. Consult <u>DNR's Best Practices for protection of species</u> and <u>Roadways and Turtles Flyer</u> for self-mitigating measures to incorporate into design and construction plans.
 Examples of more specific measures include: Preventing entrapment and death of small animals especially reptiles and amphibians, by specifying biodegradable erosion control netting ('bio-netting' or 'natural netting' types (category 3N or 4N)), and specifically not allow plastic mesh netting. (p. 25) Providing wider culverts or other passageways under paths, driveways and roads while still considering impacts to the floodplain. Including a passage bench under bridge water crossings. (p. 17) because typical bridge riprap can be a barrier to animal movement along streambanks. Curb and storm water inlet designs that don't inadvertently direct small mammals and reptiles into the storm sewer. (p. 24). Installing "surmountable curbs" (Type D or S curbs) allows animals (e.g., turtles) to climb over and exit roadways.



Traditional curbs/gutters tend to trap animals on the roadway. Another option is to install/create curb breaks every, say, 100 feet (especially important near wetlands).

- o Using smart salting practices to reduce impacts to downstream aquatic species.
- Fencing could be installed near wetlands to help keep turtles off the road (fences that have a j-hook at each end are more effective than those that don't).

Native Species. Encourage developers of private and public areas to landscape with native flowers, grasses, shrubs and tree species. Species such as monarchs rely on these plants, and it does not take many plants to attract butterflies, other beneficial pollinators as well as migrating and resident birds. Adding more native plants into landscaping, not only enhances the health and diversity of pollinators and wildlife populations, these plants can also help filter and store storm water – as noted in your storm water implementation plan with regard to the Seminary Pond area.

For more information consult DNR's <u>pollinator page</u>. Plant lists and suggestions for native plants can be incorporated into:

- o Street tree planting plans
- City gateway features
- o Along ponds and waterways.
- Small nature play areas in children's parks
- Along the edges of ballfield complexes.

Community Forestry. The loss of tree canopy due to threats such as emerald ash borer and oak wilt has negative impacts on the county's health and environment, and a planned community forest can provide numerous community benefits. The first step to achieving a resilient community forest is conducting a tree inventory. The second step is developing a community forestry management plan that includes strategies for managing trees, especially ash, and encouraging a diverse tree canopy on private and public lands. It would be worth mentioning if Lauderdale has developed a forestry management plan, along with plans for implementation, as part of a strategy to meet environmental goals and policies.

Groundwater. The Surface Water chapter states that details on groundwater are in the city's storm water plan. It should be mentioned in the Comprehensive Plan that Lauderdale is within the North and East Metro Groundwater Management Area (GWMA), designated by the Minnesota DNR. The North and East Metro GWMA includes all of Washington County, all of Ramsey County, and a portion of Anoka and Hennepin Counties. The GWMA Plan will guide the DNR's efforts to manage groundwater appropriations sustainably in this area over the next five years. The Plan establishes sustainability goals to help appropriation permit holders plan for their future water use and ensure that groundwater supplies remain adequate to meet human needs while protecting lakes, streams and wetlands. The DNR's data layer "<u>Pollution Sensitivity of Near Surface Materials</u>" would provide a good visualization of the need to consider groundwater issues as redevelopment in the city occurs.

Natural Resources Inventory. Your plan includes a goal to "Explore ways to incorporate the Minnesota Land Cover Classification System (MLCCS), natural resources inventory, national wetland inventory and other available tools into development and redevelopment planning." It would be helpful to include in the Comprehensive Plan a map of natural features, using those tools. The



inventory map could be included in the Parks, Trails and Open Space chapter, including boundaries and labels for all the parks and open spaces described in that chapter. If not a separate map, then it is possible to include the wetlands inventory as an underlay for the Existing and Future Land Use Map.

Reviewer: _Martha Vickery, DNR Lands and Minerals regional coordinator, Central Region_____

Date 12/6/18_____

Signature of Reviewer _____





August 13, 2018

Heather Butkowski City of Lauderdale 1891 Walnut Street Lauderdale, MN 55113

Re: 2040 Lauderdale Comprehensive Plan Comments

Dear Ms. Butkowski,

The Rice Creek Watershed District (RCWD) has reviewed the City of Lauderdale's draft 2040 Comprehensive Plan, dated June 11, 2018. The RCWD offers the following comments below:

- 1. Chapter 7 Surface Water Management:
 - a. RCWD received a draft of the City's Local Surface Water Management Plan (LSWMP) on May 21, 2018, which appears similar to the version contained in the City's draft 2040 Comprehensive Plan. RCWD submitted comments on this LSWMP on July 6, 2018. On page 110 the City states the LSWMP has been adopted in 2018, however this is not yet the case since it has not been approved. Please ensure the City revises Chapter 7 Surface Water Management of the 2040 Comprehensive Plan to address RCWD's comments from July 6, 2018 and submit the revisions to RCWD for formal review. The final version of the City's 2040 Comprehensive Plan Chapter 7 must be the LSWMP version that is approved by the watershed districts/management organizations.
 - b. Page 110, second paragraph: Recommend revising the definition of SWPPP; Stormwater Pollution Prevention Plan.
 - c. Page 112, Amendments: The City mentions the LSWMP will be incorporated into the City's 2040 Comprehensive Plan, however this statement is not necessary since it is already incorporated into the Comprehensive Plan.
 - d. Page 117, Existing and Potential Water Resource Problems: The City quotes sections of the LSWMP, however this is not necessary as the LSWMP must be fully incorporated into the City's 2040 Comprehensive Plan. The LSWMP in its entirety must either be in Chapter 7 or as an appendix to the 2040 Comprehensive Plan.
 - e. Map 7-3: Recommend outlining the City boundary and labeling the impaired waters on the map to add clarity.

The RCWD appreciates the opportunity to comment on the City's Comprehensive Plan and looks forward to collaboration in the future. Please contact me with any questions at 763-398-3078 or lsampedro@ricecreek.org.

Sincerely,

ampedno ann

Lauren Sampedro District Technician Rice Creek Watershed District

4325 Pheasant Ridge Drive NE #611	Blaine, MN 55449	T: 763-398-3070	F: 763-398-3088	www.ricecreek.org

BOARD OF MANAGERS	Barbara A. Haake Ramsey County	Michael J. Bradley Ramsey County	Patricia L. Preiner Anoka County	Steven P. Wagamon Anoka County	John J. Waller Washington County	



Heather Butkowski

From:	Justin Markon
Sent:	Wednesday, October 31, 2018 8:28 AM
То:	Heather Butkowski
Cc:	jhaskamp@swansonhaskamp.com
Subject:	RE: Falcon Heights 2040 Comprehensive Plan

Hello Heather,

Thank you for sending the plan. We have reviewed it, and Falcon Heights does not have any comments.

-Justin

Justin Markon

Community Development Coordinator City of Falcon Heights Office: 651-792-7613 Fax: 651-792-7610

"The City that Soars" "Families, Fields and Fair"

From: Heather Butkowski
Sent: Friday, October 12, 2018 9:29 AM
To: Ryan Krzos <RKrzos@wsbeng.com>
Cc: Justin Markon <justin.markon@falconheights.org>; Jennifer Haskamp (jhaskamp@swansonhaskamp.com)
<jhaskamp@swansonhaskamp.com>
Subject: RE: Falcon Heights 2040 Comprehensive Plan

Dear Justin,

Welcome to Falcon Heights. Here is the link to our draft Comp Plan.

http://www.lauderdaleplan2040.com/

This was initially sent out on June 14.

Take care, Heather

From: Ryan Krzos <<u>RKrzos@wsbeng.com</u>>
Sent: Friday, October 12, 2018 9:19 AM
To: Heather Butkowski <<u>Heather.Butkowski@lauderdalemn.org</u>>
Cc: Justin Markon <<u>justin.markon@falconheights.org</u>>
Subject: RE: Falcon Heights 2040 Comprehensive Plan



Heather Butkowski

From:	Brvan Llovd
Sent:	Thursday, November 08, 2018 2:46 PM
То:	Heather Butkowski
Subject:	RE: Invitation to Review Roseville's Draft 2040 Comprehensive Plan
No worries, Heathe	erespecially since this reminds me that Lauderdale might still be waiting for

No worries, Heather...especially since this reminds me that Lauderdale might still be waiting for feedback from Roseville as well! I thought I had responded to everyone's plans a while back, but I can't find an email record of a response to you. As you might imagine, the long and the short of Roseville's review is that there isn't anything about Lauderdale's comp plan update that we would ask you to reconsider or change.

Apologies for our tardiness, and good luck on the home stretch! Bryan

From: Heather Butkowski
Sent: Thursday, November 8, 2018 10:10 AM
To: Bryan Lloyd <Bryan.Lloyd@cityofroseville.com>
Subject: RE: Invitation to Review Roseville's Draft 2040 Comprehensive Plan

Dear Bryan,

I apologize I didn't get this to your sooner. I learned about some MnDOT plans for 280 that I didn't know about. I appreciate that info.

Take care, Heather

From: Bryan Lloyd Sent: Tuesday, May 22, 2018 2:20 PM To: Bryan Lloyd <<u>Bryan.Lloyd@cityofroseville.com</u>> Subject: Invitation to Review Roseville's Draft 2040 Comprehensive Plan

Hello.

The City of Roseville has completed its draft 2040 Comprehensive Plan update. Your agency is on Roseville's list of affected jurisdictions to review its draft comprehensive plan.

Pursuant to Minnesota Statute 473.858 Subd. 2 and the Metropolitan Council, the City of Roseville is distributing its proposed 2040 Comprehensive Plan for your review and comment. A PDF of the full plan is attached to this email, but links to individual chapters (as well as the appendices identified within the plan) can be found at <u>www.cityofroseville.com/CompPlan</u>. Please note that we do consider this document a draft, and we will be considering various revisions in the coming weeks. If any such changes prove to be substantive, we will be sure to alert you to them.

Your organization has until November 22, 2018, to review Roseville's 2040 Comprehensive Plan, but we hope that you will be able to complete your review before then, so that Roseville has as much time as possible to respond thoughtfully to your comments before we submit the final plan to the Metropolitan Council at the end of this year. Please complete and return the attached form to me via email, or by mailing it to me at the address below. If another representative in your agency is responsible for coordinating reviews of comprehensive plans, please forward this information to that individual and let me know who should be contacted in the future.



This page is intentionally left blank.

APPENDIX

D. Resolution


LAUDERDALE COUNCIL ACTION FORM

Action Rec	quested
Consent	
Public Hearing	
Discussion	X

Action Resolution

Work Session

Meeting Date

January 22, 2019

ITEM NUMBER <u>Comprehensiv</u>

Comprehensive Plan Submit.

STAFF INITIAL

APPROVED BY ADMINISTRATOR

DESCRIPTION OF ISSUE AND PAST COUNCIL ACTION:

The Comprehensive Plan (Comp Plan) was sent to neighboring jurisdictions for review on June 12, 2018. That six-month period ended on December 12, 2018. The Metropolitan Council (MC) did a preliminary review of our plan during this time to make sure we were on the same page with them and to expedite the adoption process.

At the last meeting, the Council took comments from the public which are reflected in the minutes and new language was added to the Land Use chapter pages 20-21 regarding the Seminary site. The new language is underlined. The Surface Water Management chapter was also amended as the MC now asks that the entire LSWMP be included as part of the Comp Plan. A summary still exists as Chapter 7 and the entire LSWMP will be Appendix B. The city engineer addressed the MC's questions regarding our inflow and infiltration program in Chapter 8. To be environmentally friendly, staff did not reprint the entire Comp Plan for the meeting. We included only those portions that were amended. The full document is available at: http://www.lauderdaleplan2040.com/documents/.

OPTIONS:

STAFF RECOMMENDATION:

Motion to adopt Resolution 012219B A Resolution Authorizing the Submittal of Lauderdale's 2040 Comprehensive Plan Update to the Metropolitan Council for Review.



RESOLUTION NO. 012219B

CITY OF LAUDERDALE COUNTY OF RAMSEY STATE OF MINNESOTA

A RESOLUTION AUTHORIZING THE SUMBITTAL OF LAUDERDALE'S 2040 COMPREHENSIVE PLAN UPDATE TO THE METROPOLITAN COUNCIL FOR REVIEW

WHEREAS, Minnesota Statutes section 473.864 requires each local governmental unit to review and, if necessary, amend its comprehensive plan at least once every ten years to ensure its comprehensive plan conforms to metropolitan system plans; and

WHEREAS, the City Council, Comprehensive Plan Steering Committee, City staff, and community members have prepared a proposed Comprehensive Plan update in accordance with the requirements of the Metropolitan Land Planning Act and Metropolitan Council guidelines and procedures; and

WHEREAS, Minnesota Statutes section 473.858 requires a local governmental unit to submit its proposed comprehensive plan to the Metropolitan Council after consideration by but before final approval by the governing body of the local governmental unit; and

NOW THEREFORE BE IT RESOLVED, based on its review of the proposed Comprehensive Plan, the recommendations of the Comprehensive Plan Steering Committee, City staff, and the entire public record, the Lauderdale City Council authorizes the submittal of Lauderdale's 2040 Comprehensive Plan update to the Metropolitan Council for review.

ADOPTED by the City Council of Lauderdale this 22nd day of January, 2019.

Man siel Mary Gaasch, Mayor

ATTEST

Heather Butkowski, City Administrator



This page is intentionally left blank.

APPENDIX

E. Minutes



Page 1 of 5

January 22, 2019

Call to Order

Mayor Gaasch called the Regular City Council meeting to order at 7:30 p.m.

Roll Call

Councilors present: Roxanne Grove, Andi Moffatt, Jeff Dains, Kelly Dolphin, and Mayor Mary Gaasch. Councilor absent: None.

Staff present: Heather Butkowski, City Administrator; Jim Bownik, Assistant to the City Administrator; and Miles Cline, Deputy City Clerk.

Approvals

Mayor Gaasch asked if there were any additions to the meeting agenda. There being none, Councilor Moffatt moved and seconded by Councilor Grove to approve the agenda. Motion carried unanimously.

Mayor Gaasch asked if there were any corrections to the meeting minutes. There being none, Councilor Grove moved and seconded by Councilor Moffatt to approve the minutes of the January 8, 2019, city council meeting. Motion carried unanimously.

Mayor Gaasch asked if there were any questions on the claims. There being none, Councilor Dolphin moved and seconded by Councilor Dains to approve the claims totaling \$49,364.50. Motion carried unanimously.

Consent

Councilor Dains moved and seconded by Councilor Moffatt to approve the Consent Agenda thereby acknowledging the December Financial Report and the Fourth Quarter Investment Report and approving the transfer of funds from the 414 Development Fund to the 415 Housing Development Fund – Resolution No. 012219A

Informational Presentations/Reports

A. City Council Updates

Councilor Grove stated that she would be unable to attend the Ramsey County League of Local Governments meeting on February 7. Mayor Gaasch shared that she attended a Regional Council of Mayor's meeting on affordable housing. She also attended Metro Cities and League of Minnesota Cities' board meetings as well as presented at a League of Women's Voters meeting.

Public Hearings

A. Park Dedication Ordinance

Butkowski explained that the City does not have a park dedication ordinance. With the redevelopment of 1795 Eustis Street and possibly land owned by Luther Seminary, a park



Page 2 of 5

January 22, 2019

dedication ordinance will help the City provide the park and open space improvements needed to accommodate the additional population.

Over the past year, staff and consultants have been working on the analysis necessary for the adoption of a park dedication ordinance. The Comprehensive Plan Steering Committee and residents provided feedback on the park and open space needs for the community. The city engineer created a Park Capital Improvement Plan to estimate the cost of the necessary improvements. Staff, consultants, and the city attorney drafted a park dedication ordinance. The ordinance specifies how the City would handle the dedication of land or cash in-lieu of land.

After discussion on the topic, Mayor Gaasch opened the floor to public comment at 7:51 p.m.

Wayne Sisel, 1567 Fulham Street, approached the Council. He asked if there was a minimum lot size requirement for park development.

Steve Ahlgren, 1563 Fulham Street, approached the Council. He asked the Council if there was a park versus urban woods distinction in the ordinance.

Jennifer Haskamp, of Swanson Haskamp Consulting, briefly approached the dais to answer the residents' questions. She said all new lots would contribute land or cash in-lieu. In the case of a residential lot split, the City would ask for cash in-lieu to support improvements to an existing park. The ordinance does not differentiate types of parks. Seeing that there were no further questions or comments, Mayor Gaasch closed the floor at 7:57 p.m.

Councilor Moffatt made a motion to adopt Ordinance No. 19-01 Adding Chapter 11-3 to the Code of Ordinances regarding Park Dedication. This was seconded by Councilor Dolphin and carried unanimously.

Councilor Dolphin made a motion to adopt the Capital Improvement Plan for Lauderdale Parks prepared by Stantec Consulting Services. This was seconded by Councilor Grove and carried unanimously.

Discussion/Action Items

A. Transmission of Comprehensive Plan to Metropolitan Council – Resolution No. 012219B Butkowski noted that the Comprehensive Plan (Comp Plan) was sent to neighboring jurisdictions for review on June 12, 2018. That six-month period ended on December 12, 2018. The Metropolitan Council (MC) did a preliminary review of the plan during this time.

At the last meeting, the Council took comments from the public which are reflected in the minutes and new language was added to the Land Use chapter regarding the Luther Seminary



Page 3 of 5

January 22, 2019

site. The Surface Water Management chapter was amended as the MC now asks that the entire Local Surface Water Management Plan (LSWMP) be included as part of the Comp Plan. A summary still exists as Chapter 7 and the entire LSWMP will be Appendix B. The city engineer addressed the MC's questions regarding the City's inflow and infiltration program in Chapter 8.

Councilor Grove made a motion to adopt Resolution 012219B – A Resolution Authorizing the Submittal of Lauderdale's 2040 Comprehensive Plan Update to the Metropolitan Council for Review. This was seconded by Councilor Dolphin and carried unanimously.

B. Adoption of Local Surface Water Management Plan

Along with the Comp Plan, the City's LSWMP is also ready for adoption. Coordination of the LSWMP was a bit of an undertaking as three watershed districts reviewed and commented on the plan. Those comments were incorporated into the final document.

Councilor Dains made a motion to adopt the Local Surface Water Management Plan with the map correction identified. This was seconded by Councilor Grove and carried unanimously.

C. High Density Residential – Conservation (HDR-C) Zoning Ordinance Butkowski said that Swanson Haskamp Consulting completed the text for the High Density Residential—Conservation (HDR-C) zoning district proposed in the 2040 Comprehensive Plan. The process included community surveys and input opportunities to bring the community's attention to the wooden land being sold by Luther Seminary. The city attorney reviewed the draft since the previous meeting. The Council discussed the revisions and established February 12 for the date of the public hearing.

D. Special Assessment Policy Manual Revisions

The city attorney made the changes to the hardship deferral language in Section 12 of the revised Special Assessment Policy discussed at the last meeting. The policy is ready for adoption or further revision at the Council's discretion.

Councilor Moffatt made a motion to adopt the revised City of Lauderdale – Special Assessment Policy Manual. This was seconded by Councilor Grove and carried unanimously.

E. City Administrator Employment Contract

The Council discussed the performance of Administrator Butkowski in a closed session during the last meeting. Therefore, at this meeting the Council provided a summary of its conclusions regarding her evaluation.

The Council gave a very positive review of Butkowski's performance and commended her for accomplishing a number of things the City Council has wanted to achieve.



Page 4 of 5

January 22, 2019

Councilor Moffatt made a motion to enter into an Employment Agreement Contract with Heather Butkowski-Hinrichs which shall serve from January 1, 2019 through December 31, 2020. The agreement includes an automatic two-year extension period through 2022 based on the same terms unless otherwise noted. This was seconded by Councilor Dains and carried unanimously.

F. Set Date for Tour of Real Estate Equities Property

Staff inquired of Real Estate Equities about touring one of their properties to get a sense of the management of their buildings and their construction style. They suggested a tour of the recently renovated Pioneer Press building in downtown St. Paul. Staff suggests sometime between now and late February to do the tour in advance of their community meeting on March 19.

The Council selected February 15, 2019 at 3:00 p.m. as the date of the tour. Staff will post notice of it as a "Special Meeting."

Set Agenda for Next Meeting

Administrator Butkowski stated that the February 12 council meeting may include the 2019 Infrastructure Improvement Project plans and specifications, a small cell ordinance, garbage hauler licenses, and a public hearing for the HDR-C zoning ordinance.

Work Session

A. Opportunity for the Public to Address the City Council Mayor Gaasch opened the floor to anyone in attendance that wanted to address the Council. There being no interested parties to speak, Mayor Gaasch closed the floor.

B. Community Development Update

Butkowski stated that she has a meeting on January 30 with the Real Estate Equities engineer to discuss 1795 Eustis Street. DSM Excavating capped the sewer line off of Como Avenue as was previously authorized by the Council. April 16 was established as the community preconstruction meeting for the 2019 Infrastructure Improvement Project.

C. Communication Plan for 2019 Projects

Butkowski noted that 2019 will be a big year with multiple City lead projects and non-city lead projects happening. Communication will be the key to successful projects. Staff are working to get as many people on the email distribution list as possible. We also anticipate more information coming through the Council as you communicate community members.

Mayor Gaasch wanted to discuss Council communication strategies that are cognizant of the open meeting law. The Council discussed a number of strategies including encouraging



Page 5 of 5

January 22, 2019

residents to make use of the email address that goes to all council members and making use of the construction management services provided by the city engineer on construction projects.

Adjournment

Councilor Moffatt moved and seconded by Councilor Grove to adjourn the meeting at 9:19 p.m. Motion carried unanimously.

Respectfully submitted,

Miles Cline

Miles Cline Deputy City Clerk



APPENDIX

F. City of Lauderdale Capital Improvement Plan





CITY OF LAUDERDALE

CAPITAL IMPROVEMENT PLAN

2019-2028

Adopted December 11, 2018

CITY OF LAUDERDALE CAPITAL IMPROVEMENT PLAN FUNDING SOURCE SUMMARY



FUND	TITLE	2019	2020	2021	2022	2023	2024	2025		2026	2027	2028	Total
226	Communications		\$ 30,000										\$ 30,000
401	General Capital	\$ 70,000	\$ 15,000	\$ 40,000	\$ 40,000					\$40,000			\$ 205,000
403	Street Improvement				\$ 175,000							\$2,200,000	\$2,375,000
404	Park Improvement	\$ 65,000											\$ 65,000
414	Development	\$ 20,000											\$ 20,000
602	Sanitary Sewer		\$ 150,000		\$ 150,000								\$ 300,000
603	Storm Water	\$ 10,000	\$ 80,000										000 ' 06 \$
	GRAND TOTAL	\$ 165,000	\$ 275,000	\$ 40,000	\$ 365,000	- ب	÷	<u>م</u>	v 	40,000	۰ ب	\$ 2,200,000	\$3,085,000

CITY OF LAUDERDALE
CAPITAL IMPROVEMENT PLAN
PROJECT SUMMARY BY YEAR AND FUNDING SOURCE



								ł
YEAR	PROJECT	226	401	403	FUND 404	414	602	603
2019			2					
	Lawn Mower		\$ 10,000					
	City Hall - Replace Roof		\$ 60,000					
	Skyview Park Improvements				\$ 60,000			
	Community Park Improvements				\$ 5,000			
	1821/1825 Eustis Demolition					\$ 20,000		
	Invasive Species Management							Ş 10,000
2020								
	Council Chambers Technology	\$ 30,000						
	Public Works Garage - Replace Roof		\$ 15,000					
	Sewer Lining Project						\$ 150,000	
	Seminary Pond Project							\$ 80,000
2021								
	2001 John Deere Tractor 3520		\$ 40,000					
2022	2012 Eard E350 Truck and Dlaw		\$ 40 000					
	sour roud room ruck and rick Sealcoating - All City streets		000 01	\$ 175,000				
	Sewer Lining Project						\$ 150,000	
2023								
2024								
2025								
2026	2016 Ford F350 Truck and Plow		\$ 40,000					
2027								
2028				\$2,200,000				
	TOTALS	\$ 30,000	\$ 205,000	\$2,375,000	\$ 65,000	\$ 20,000	\$ 300,000	\$ 90,000





PROJECT					7	EAR	4					- Svill
	2019	2020	2021	2022	2023	2024	2025	202	6	2027	2028	1000
Council Chambers Technology	ې. ۱	\$ 30,000	۰ ۲	ۍ ۲	ې. ۲	۰ ۲	ۍ ۲	۲. ۲	ې ب	1	Ş	1
TOTALS	Ś	\$ 30,000	¢.	۰ ب	۰. بې	۰. ۲	ŝ	۰ بې	ې ب	'	\$	

CITY OF LAUDERDALE CAPITAL IMPROVEMENT PLAN FUND 401 - GENERAL CAPITAL IMPROVEMENT



PROJECT			27							YEA	8	1							
	2	019		2020		2021	~	2022	2023		2024		2025		2026		2027		2028
Lawn Mower 10 year schedule	Ş 1	10,000	Ś	T	\$	1	\$	I	Ś	1	ۍ بې				10	۰ ج	,	Ś	I
City Hall - replace roof 20 year schedule	\$ D	50,000	\cdot	I	$\dot{\mathbf{v}}$	L.	\$,	٠ <u>۶</u>	I	۰ <u>۶</u>	1		1	10	ۍ ۱	·	ۍ ۲	ı
Replace Public Works Garage Roof 25 year schedule	\cdot	T	Ś	15,000	Ś	,	\$,	÷	i -	،	1		1	10	۰ ۲		۰ ب	ı
Replace 2001 John Deere Tractor 3520 10 year schedule	Ś	L	\mathbf{v}	I	\$	40,000	Ś	ĩ	Ŷ	Т	٠ <u>۶</u>	1		1	10	ጭ י		Ŷ	ı
Replace 2012 Ford F350 Truck and Plow 10 year schedule	Ś	ı	Ŷ	I	Ś	ı	\$	40,000	Ŷ	Ţ	‹	1		1	10-	ς, γ		ۍ ۲	ı
Replace 2016 Ford F350 Truck and Plow 10 year schedule	۰¢-	1	Ŷ	'	Ś	'	Ś		Ŷ	т	\$	1		1	\$ 40,00	\$ 0		ۍ ۲	'
TOTALS	ŝ	70,000	ŝ	15,000	Ş	40,000	ŝ	40,000	Ş		Ş	1	10	1	\$ 40,00	\$ 0		\$.	ı

CITY OF LAUDERDALE CAPITAL IMPROVEMENT PLAN FUND 403 - STREET IMPROVEMENT



PROJECT								YEAR							
	2019		2020	2021	2022		2023	2024		2025	202	9	2027		2028
Eustis/Malvern Street Alley Improvements	÷	ب جې	'	÷	\$ -	ې ۲		Ş	, Ş		Ŷ	ۍ ۲		ۍ ۲	I
Roselawn & Eustis Street Reconstruction	Ŷ	ې ب	I	ጭ	۰ ۲	ې ۲	ļ	\$	ې ب	·	Ŷ	ې ب		ŝ	I
Sealcoating - all City streets 6 year schedule (last one 2016)	Ś	ۍ ۱	I	Ś	- \$175,0	\$ 00	ŗ	۰ ۲	ι Υ	·	Ŷ	۰ ۲		ŝ	2,200,000
TOTALS	\$	۲¢-		÷	- \$175,0	\$ 00		~	, v		ŝ	, S		\$	2,200,000





PROJECT								YEAR						
	~	2019	2020	202:	F	2022	2023	20	24	2025	2026	2	2027	2028
Skyview Park Improvements	ŝ	60,000 \$,	÷	ې ۲	J	Ŷ	ŝ	، ک	ı	Ŷ	ې ۲	ı	Ş
Community Park Improvements	Ś	5,000 \$	'	Ŷ	۰ ۲	T	ş	\$ '	÷ ,	1	ş	ۍ ۲	1	۔ ج
TOTALS	Ś	65,000 \$	'	Ś	۲. ا	I	Ş	ŝ	, Ş		Ş	, Ş		\$

CITY OF LAUDERDALE CAPITAL IMPROVEMENT PLAN FUND 414 - Development



PROJECT						YEAR						
	2019	2020	2021	2022	202	3 2(024	2025	2026	2	:027	2028
1821/1825 Eustis Demolition	\$ 20,000	۰ ب	Ŷ	Ŷ	ŝ	ې ۲	T	·	Ŷ	ې ب	ı	ۍ ۲
TOTALS	\$ 20,000	۰ ج	٠ بې	۰. ۲	۰ بې	ې ۲	ı	ŝ	Ŷ	ې ۲	ı	\$





PROJECT						YEAR						1
	2019	2020	2021	2022	2023	3 2(124	2025	2026	202	7	2028
2018 Sewer Lining Project	÷	۰ ۲	ې دې	۲. مې	۰ ۲	ۍ ۱	÷ ,	1	Ŷ	\$ '	۰ ب	ı
2020 Sewer Lining Project	Ś	- \$ 150,000	Ş	۰ ب	۰ ب	ۍ ۲	ۍ ۲	ı	Ŷ	ۍ ۱	ب ب	ı
2022 Sewer Lining Project	۰. م	۰ ب	ۍ ۱	- \$ 150,00	\$ 0	۲ ک	ۍ ۱	ſ	Ŷ	ۍ ۱	ې ۲	1
TOTALS	- vs	- S	\$- -	- \$150,00	\$ 0	ې ۲	י י	1	ŝ	Ş.	بې ۲	ı





PROJECT					YE	AR					
	2019	2020	2021	2022	2023	2024	2025	2026	202	2	2028
Invasive Species Management	\$ 10,000	۰ ۲	1	1	, Ş	÷	\$ S	Ş	ŝ	۰ ۲	1
Seminary Pond Project	۰ ۱	\$ 80,000 \$,	\$	ş	۔ ج	\$	۰ ۲	ۍ ۲	'
TOTALS	\$ 10,000	\$ 80,000 \$	1	1	Ŷ.	÷	۰ ب	\$	ŝ	ې ۲	

CITY OF LAUDERDALE TECHNOLOGY REPLACEMENT PLAN 2019 - 2028



Department	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Funding Source(s)
City Administrator	1,500	0	0	0	1,500	0	0	0	1,500	0	Fund 101 - Operating
Assistant City Administrator	750	0	0	0	1,000	0	0	0	1,000	1,000	Fund 101 - Operating
Deputy City Clerk	0	0	0	1,000	0	0	0	1,000	0	0	Fund 101 - Operating
Public Works Coordinator	0	0	0	1,000	0	0	0	1,000	0	0	Fund 101 - Operating
Public Works Maintenance	0	750	0	0	0	1,000	0	0	0	1,000	Fund 101 - Operating
City Hall Front Counter	0	0	1,000	0	0	0	1,000	0	0	0	Fund 101 - Operating
Council Chambers/Cable TV	750	0	0	0	1,000	0	0	0	1,000	0	Fund 101 - Operating
City Hall Copier	Lease	0	0	0	Lease	0	0	0	Lease	Lease	Fund 101 - Operating
TOTAL	3,000	750	1,000	2,000	3,500	1,000	1,000	2,000	3,500	2,000	

NOTES

Computers are replaced on 4-year schedule.

Copier is leased on 4-year schedule.



APPENDIX

E. Capital Improvement Plan for Lauderdale Parks



Capital Improvement Plan for

Lauderdale Parks

City of Lauderdale, Minnesota

January 2019 Project No. 193801702





Stantec Consulting Services Inc. 2335 Highway 36 West, St. Paul MN 55113-3819

January 18, 2019 File: 193801702

Attention: Heather Butkowski, City Administrator City of Lauderdale 1891 Walnut Street Lauderdale, Minnesota 55113

Re: 2019 Capital Improvement Plan - Parks

Dear Heather:

Enclosed for your review is the 2019 Parks Capital Improvement Plan. The plan discusses future improvements at four park or redevelopment sites: Community Park, Skyview Park, the undeveloped Luther Seminary site, and the Larpenteur Avenue redevelopment site.

This Capital Improvement Plan discusses potential future improvements at each site, as well as estimated costs. These costs are preliminary in nature and should be revised at which point any of the potential improvements move into the final planning and design stages.

If you would like to further discuss this plan, please feel free to contact me at the email or phone number below.

Respectfully submitted,

Kellie M. Schlegel

Kellie Schlegel PE

Associate Phone: (612) 712-2125 Mobile: (651) 775-5622 Kellie.Schlegel@stantec.com

Table of Contents

Introduction	2
Site 1: Community Park	4
Site 2: Skyview Park	6
Site 3: Seminary Site	8
Site 4: Larpenteur Avenue Redevelopment Site	10
Estimated Proposed Costs	12

Figures

Figure 1:	Overall Location Map	}
Figure 2:	Community Park Improvements	;
Figure 3:	Skyview Park Improvements	,
Figure 4:	Seminary Site Improvements)
Figure 5:	Larpenteur Avenue Redevelopment Site Improvements11	

Appendices

- A Preliminary Cost Estimates
- B Community Park Proposed Buildings
- C Skyview Park Proposed Playground Equipment



Introduction

The City of Lauderdale requested the preparation of a Parks Capital Improvements Plan to identify future improvements its four park or redevelopment site locations, as well as potential costs. The proposed improvements and associated costs are preliminary in nature and should be used for preliminary planning and budgeting purposes only. Should the City choose to implement any of these improvements, further study will be required to prepare more detailed cost estimates and identify additional required improvements at each site.

An overall location map that shows the four sites can be found in Figure 1.





PARKS LOCATION MAP

CITY OF LAUDERDALE, MINNESOTA PARKS CAPITAL IMPROVEMENT PLAN

FIGURE: 1



DATE 01/17/2019

PROJ. NO. 193801702

Community Park

Existing Conditions

Community Park is located in the northeast corner of Lauderdale at the corner of Roselawn Avenue W and Fulham Street. It is the largest park in Lauderdale at approximately 7.3 acres. There are several amenities in Community Park including playground equipment, tennis courts, basketball courts, turf fields, a ballfield, fenced-in dog park, skating rink with dasher boards, an open-air picnic shelter, and an enclosed restroom/warming house building. Two on-site parking lots serve these facilities. There are no enclosed storage areas within Community Park.

The current restroom/warming house building is located off Fulham Street adjacent to a small bituminous parking lot. It functions as a warming house for skating rink users, as well as a restroom facility for park users. The building is aging and in need of improvements.

Proposed Improvements

The City wishes to improve the restroom and warming house facilities, as well as add an enclosed building for maintenance and storage for its Public Works equipment. Proposed improvements include removing the existing restroom/warming house and constructing two new buildings: a park shelter building and a storage/maintenance building.

The park shelter building would be approximately 40' x 24' in size, with an optional attached 20' x 24' open-air picnic area. The building would include a warming/gathering room that is approximately 400 square feet in size. This room would have a sink and could be reserved for small gatherings. The restrooms would be accessible from the interior of the building. A small mechanical room is also included.

The storage/maintenance building would be approximately 30' x 24' and include two overhead garage doors, a man door, 4' concrete apron, trench drains and a flammable waste trap. The building would serve as a storage area for public works equipment, including trucks, mowers, and other mobile equipment.

Associated improvements include replacing the existing sanitary sewer service as it is shallow and susceptible to damage, and replacing a portion of the existing bituminous parking lot.

Figure 2 shows the general nature of the proposed improvements to Community Park.

See Appendix B for preliminary building elevations and floor plans.





COMMUNITY PARK IMPROVEMENTS

CITY OF LAUDERDALE, MINNESOTA PARKS CAPITAL IMPROVEMENT PLAN

FIGURE: 2



50

DATE 01/08/2019

PROJ. NO. 193801702

Skyview Park

Existing Conditions

Skyview Park is located on the western side of Lauderdale, just south of Ione Street at Walnut Street. It is approximately 0.2 acres in size and consists of an existing playground container with equipment, which is aging and in need of repair. There is a small access path off the corner of Ione Street and Walnut Street. The park is immediately adjacent to an existing home at 1738 Walnut Street.

Proposed Improvements

The City wishes to improve Skyview Park by installing new playground equipment and expanding the size of the park. Proposed improvements include purchasing the property at 1738 Walnut Street, removing the existing house and garage, and replacing the existing playground container and equipment.

The proposed playground container would be approximately 58' x 70' in size and include playground equipment and swings to accommodate a variety of users. A new 8' wide path would be constructed from the road to the container to provide access.

The City has received sketches for the proposed playground equipment, as well as a cost estimate. These costs are included in this CIP.

Figure 3 shows the general nature of the proposed Improvement to Skyview Park.

See Appendix C for the proposed playground sketches.





SKYVIEW PARK IMPROVEMENTS

CITY OF LAUDERDALE, MINNESOTA PARKS CAPITAL IMPROVEMENT PLAN

FIGURE: 3



DATE 01/08/2019

PROJ. NO. 193801702

Seminary Site

Existing Conditions

The property at 1598 Eustis Street is currently owned by the Luther Seminary and is approximately 6.3 acres in size. It is located in the southeast corner of the City and is currently accessible from Hoyt Avenue to the south. The Seminary is currently working with developers to develop a portion of the lot with residential units. The northerly portion of the lot is generally wooded and likely undevelopable. The City does not currently own any portion of this lot.

Proposed Improvements

The City of Lauderdale has expressed an interest in providing some open space and trails over a portion of this undevelopable area. The proposed improvements are very preliminary in nature due to the fact that a proposed development has not been approved. The proposed improvements include approximately 1800 linear feet of eight-foot wide bituminous trail. Associated improvements include site grading and restoration to accommodate the trial installation. The proposed location of these trails is unknown.

See Figure 4 for the location of this site.







SEMINARY SITE IMPROVEMENTS

CITY OF LAUDERDALE, MINNESOTA PARKS CAPITAL IMPROVEMENT PLAN

FIGURE: 4



DATE 01/08/2019

PROJ. NO. 193801702

Larpenteur Avenue Redevelopment Site

Existing Conditions

Eustis Street to the south of Larpenteur Avenue is in poor condition and is currently owned by Ramsey County. The roadway grade is steep, and there are only small segments of this corridor that contain sidewalk to accommodate pedestrians and other non-vehicular users. Eustis Street and Larpenteur Avenue are both Metro Transit bus routes, and there are bus stops at both the north and south ends of the site along Eustis Street.

Proposed Improvements

The City of Lauderdale has expressed an interest in improving pedestrian access along Eustis Street between Larpenteur Avenue and Idaho Street. In the event that the properties that are identified in this site are redeveloped in the future, and that jurisdiction of Eustis Street is transferred to Lauderdale, the city would like to see these pedestrian improvements incorporated into the redevelopment as a dedicated pedestrian walkway either within the right of way or adjacent properties that is accessible to the public.

See Figure 5 for the location of this site.





LARPENTEUR AVE REDEVELOPMENT SITE IMPROVEMENTS

CITY OF LAUDERDALE, MINNESOTA PARKS CAPITAL IMPROVEMENT PLAN

FIGURE: 5



DATE 01/17/2019

PROJ. NO. 193801702
Estimated Project Costs

Preliminary cost estimates have been prepared for the work for each site as described in this CIP. Detailed cost estimates for each site are included in Appendix A. Estimated indirect costs include engineering, legal, fiscal, and contract administration. A summary of the total estimated project costs is show below.

Lauderdale Community Park				
	+======			
Warming House/Storage Facility	\$500,000			
Site/Utility Improvements	\$100,000			
Subtotal - Construction	\$600,000			
Contingencies - 20%	\$120,000			
Indirect Costs - 25%	\$150,000			
Total Estimated Project Cost - Community Park	\$870,000			
Skyview Park				
Property acquisition	\$180,000			
Demolition of existing house and equipment	\$40,000			
Playground equipment	\$50,000			
Site improvements (container, sidewalks, grading, etc)	\$30,000			
Subtotal - Construction	\$300,000			
Contingencies - 20%	\$60,000			
Indirect Costs - 25%	\$75,000			
Total Estimated Project Cost - Skyview Park	\$435,000			
Seminary Site				
Trail Improvements	\$110,000			
Subtotal - Construction	\$110,000			
Contingencies - 20%	\$22,000			
Indirect Costs - 25%	\$28,000			
Total Estimated Project Cost - Seminary Site	\$160,000			
Larpenteur Ave Redevelopment Site				
Pedestrian Improvements	\$160,000			
Subtotal - Construction	\$160,000			
Contingencies - 20%	\$30,000			
Indirect Costs - 25%	\$40,000			
Total Estimated Project Cost - Larpenteur Ave Site	\$230,000			

Table 1	- Preliminary	Project	Costs
---------	---------------	---------	-------



APPENDIX A

Preliminary Cost Estimates

Lauderdale Parks CIP Community Park Preliminary Cost Estimate Appendix A-1: Warming House/Maintenance Shelter & Associated Site Improvements

Item Name	Units	QTY	Unit Price	Total Price
Mobilization	LS	1	\$7,000	\$7,000
Shelter Demolition	LS	1	\$20,000	\$20,000
Remove Bit Parking Lot	SF	3600	\$5	\$18,000
Bituminous Parking Lot	SF	4000	\$5	\$20,000
Utility Services	LS	1	\$15,000	\$15,000
Site Grading/Restoration	LS	1	\$10,000	\$10,000
Park Shelter Building	SF	1440	\$260	\$374,400
Maintenance Building	SF	720	\$175	\$126,000
Subtotal - Construction				\$590,400
Contingencies - 20%				\$118,080
Indirect Costs - 25%				\$147,600
Total Estimated Project Cost				\$856,080

Item Name	Units	QTY	Unit Price	Total Price
Property Acquisition	LS	1	\$180,000	\$180,000
House/Playground Demolition	LS	1	\$40,000	\$40,000
Mobilization	LS	1	\$5,000	\$5,000
Playground Equipment	LS	1	\$50,000	\$50,000
Playground Container/Fill	LS	1	\$10,000	\$10,000
Class 5 Agg Base	TN	100	\$10	\$1,000
Bituminous Wear Course	TN	40	\$110	\$4,400
Restoration	LS	1	\$5,000	\$5,000
Erosion Control	LS	1	\$2,000	\$2,000
Subtotal - Construction				\$297,400
Contingencies - 20%				\$59,480
Indirect Costs - 25%				\$74,350
Total Estimated Project Cost				\$431,230

Lauderdale Parks CIP Seminary Site Preliminary Cost Estimate Appendix A-3: Trail Improvements

Item Name	Units	QTY	Unit Price	Total Price
Mobilization	LS	1	\$10,000	\$10,000
Clearing & Grubbing	LS	1	\$20,000	\$20,000
Site Grading	LS	1	\$10,000	\$10,000
Class 5 Agg Base	TN	800	\$14	\$11,200
Bituminous Wear Course	TN	300	\$110	\$33,000
Restoration	LS	1	\$15,000	\$15,000
Erosion Control	LS	1	\$10,000	\$10,000
Subtotal - Construction				\$109,200
Contingencies - 20%				\$21,840
Indirect Costs - 25%				\$27,300
Total Estimated Project Cost				\$158,340

Lauderdale Parks CIP Larpenteur Avenue Site Preliminary Cost Estimate Appendix A-4: Pedestrian Improvements

Item Name	Units	QTY	Unit Price	Total Price
Mobilization	LS	1	\$10,000	\$10,000
Traffic Control	LS	1	\$4,000	\$4,000
Site Grading	LS	1	\$10,000	\$10,000
Class 5 Agg Base	TN	500	\$14	\$7,000
Bituminous Wear Course	TN	200	\$110	\$22,000
Retaining Wall	SF	1500	\$50	\$75,000
Restoration	LS	1	\$20,000	\$20,000
Erosion Control	LS	1	\$10,000	\$10,000
Subtotal - Construction				\$158,000
Contingencies - 20%				\$31,600
Indirect Costs - 25%				\$39,500
Total Estimated Project Cost				\$229,100

APPENDIX B

Community Park – Proposed Buildings



CITY OF LAUDERDALE, MINNESOTA	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA	Ctanter Ctanter
OITY PARKS CIP	PRINT NAME: BRUCE P. PAULSON	
PROPOSED PARK SHELTER		2335 Highway 36 W
FLOOR PLAN	SIGNATURE:	St. Paul, MN 55113
ΛTE	DATE: DECEMBER 20, 2018 LIC. NO. 20910	www.stantec.com





THE CONTRACTOR SHALL VERIEY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE TH DRAWING - ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO STANTEC WITHOUT DELAY. THE COPYRIGHTS TO ALL DESIGNS AND DRAWINGS ARE THE PROPERTY OF STANTEC. REPRODUC OR USE FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY STANTEC IS FORBIDDEN.

> t Date: 12/18/2018 - 12:49pm wing name: V:\1938\active\193801702\Design\Parks CIP\193801702-AA201.dwg ffs: 193801702_BORDFR: 193801702XENA



1 PROPOSED PARK MAINTENANCE BUILDING FLOOR PLAN

2' 4'

			2335 Highway 36 W	St. Paul, MN 55113	www.stantec.com
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS DEEDADED BY ME OD TINDED ANY DIRECT SUBEDVISION	AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA	PRINT NAME: BRUCE P. PAULSON		SIGNATURE:	DATE: DECEMBER 20, 2018 LIC. NO. 20910
	CILY OF LAUDERDALE, MINNESOLA	CITY PARKS CIP	PROPOSED PARK MAINTENANCE BUILDING	FLOOR PLAN	
NO	REVIS	SION		DA	ATE .
SUR	VEY				
DRA DES CHI	avvn IGNED ECKED PROVE	D			BPP
	_		-	_	





JPUSEI	וחוצ ר	ELEVATION		
2'	4'	8'		

25	1EET	NUP	VIBER
A	В	2	0

APPENDIX C

Skyview Park – Proposed Playground Equipment



18-1929A.MID





The second s

ROPE , BOULDERS & SHADE







*PLAYGROUND SUPERVISION REQUIRED

_ 0 .5 1.0 2.0 3.0 M

10'

	ど	PLĄ	wo	RLD	
	MIDWI 86	EST PLA 32 Eagle Savage,	AYSCAP e Creek C MN 553	PES, INC. Circle 78	
		EQUIPI	ment size: N/A		
	_	USI 57'-7''	e zone: x 69'-4'		
	 AR 4,001	^{EA:} SqFt.	РЕ 2	TRIMETER: 54 Ft.	PARK
	_	FALL 8	HEIGHT: Ft.		IEV
	user ca 5	APACITY: 8	AG	e group: 5-12	SKY
	ADA SCHEDULE Kednied blook	Total Elevate Total Ground Accessible Elevated Activities 0 0 0	d Play Activities -Level Play Acti Accessible Ground-Level Activities 0 18	xities: 19 Accessible Ground-Level Play Types 0 6	
	✓ AS ✓ CP	TM F148 SC #325	87-17	E	
	PROJE 18-192	CT NO: 9 A.MID	3/3	SCALE: 8 2"=1'-0"	
Neters	DRAW D.ECKE DA' 13-JUJN	/N BY: NSTINE TE: E-2018	Pa	aper Size	



APPENDIX

H.Local Surface Water Management Plan



Local Surface Water Management Plan City of Lauderdale

October 2018



EXECUT	TIVE SUMMARY	I
SECTIO	N 1 – PURPOSE AND SCOPE	. 1
1.1	PURPOSE	. 1
1.2	SCOPE	. 1
SECTIO	N 2 – LAND AND WATER RESOURCES INVENTORY	. 3
2.1	LOCATION AND HISTORY	. 3
2.2	Topography	. 3
2.3	SOILS AND GEOLOGY	. 6
2.4	GROUNDWATER	. 6
2.5	CLIMATE	. 6
2.6	WATER RESOURCES	. 8
2.7	NATURAL RESOURCES	10
2.8	DRAINAGE SYSTEMS	11
2.9	PLANNING AND LAND USE	12
SECTIO	N 3 – REGULATORY SETTING	15
3.1	OVERVIEW	15
3.2	CITY SERVICES	16
3.3	RAMSEY COUNTY (RCD)	16
3.4	WATERSHED MANAGEMENT ORGANIZATIONS (WMO)	16
3.5	METROPOLITAN COUNCIL	18
3.6	STATE BOARD OF WATER AND SOIL RESOURCES (BWSR)	18
3.7	MINNESOTA POLLUTION CONTROL AGENCY (MPCA)	18
3.8	MINNESOTA DEPARTMENT OF NATURAL RESOURCES (DNR)	19
3.9	MINNESOTA DEPARTMENT OF HEALTH (MDH)	19
3.10	MINNESOTA ENVIRONMENTAL QUALITY BOARD (EQB)	19
3.11	MINNESOTA DEPARTMENT OF TRANSPORTATION (MNDOT)	20
3.12 2.12	U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)	20
3.13 2.14	U.S. ARMY CORP OF ENGINEERS (USACE)	20
3.14	NATURAL EMERGENCY WANAGEMENT AGENCY (LEWA)	20
3.15	US GEOLOGICAL SURVEY (USGS)	20
3.10	U.S. FISH AND WILDLIFE SERVICE (USEB)	20
SECTIO	N 4 – RELATED STUDIES, PLANS AND REPORTS	21
4.1	CUTY OF LAUDEDDALE 1007 AND 2000 LOCAL SUDDACE WATED MANAGEMENT DI ANG	21
4.1	CITY OF LAUDERDALE – 1997 AND 2008 LOCAL SURFACE WATER MANAGEMENT PLANS	21
4.2	CKWD WATERSHED MANAGEMENT PLAN – AMENDED 2015	21
ч .э Д Л	NOW WATERSTED MANAGEMENT I LAN – AMENDED 2010	-∠_ 22
т. т 45	THE BRIDAL VEIL CREEK SUBWATERSHED DESK STUDY - 2006	2∠ 73
4.5 4.6	CRWD FLISTIS STREET REGIONAL MODELING TECHNICAL REPORT - 2016	23 74
4.7	RAMSEY COUNTY GROUNDWATER QUALITY AND PROTECTION DRAFT PLAN – AMENDED 2010	24
SECTIO	N 5 – WATER RESOURCES RELATED AGREEMENTS	25
51		20
5.1	CONVEY ANCE	23



5.2	WATERSHED MANAGEMENT	25
SECTI	ON 6 – CURRENT ASSESSMENT	27
6.1	OFFICIAL CONTROLS	27
6.2	HYDROLOGIC AND HYDRAULIC MODEL	27
6.3	WETLAND MANAGEMENT	
6.4	IMPAIRED WATERS AND TMDLS	29
6.5	NPDES PERMITTING PROCESS	30
6.7	COMPARISON OF REGULATORY STANDARDS	31
6.8	WATER RESOURCE RELATED PROBLEMS AND POSSIBLE CORRECTIVE ACTIONS	31
SECTI	ON 7 – GOALS AND POLICIES	35
7.1	SUMMARY	
7.2	LAND DEVELOPMENT AND REDEVELOPMENT	
7.3	Resource Management	
7.4	CITYWIDE PROGRAM ELEMENTS	40
7.5	SUPPORT OF OTHER AGENCIES	41
SECTI	ON 8 – IMPLEMENTATION	43
8.1	OVERVIEW	43
8.2	IMPLEMENTATION ACTIVITIES	43
8.3	OTHER FUTURE IMPLEMENTATION ACTIVITIES	43
8.4	POTENTIAL FUNDING	46
SECTI	ON 9 – ADMINISTRATION	47
9.1	REVIEW AND ADOPTION PROCESS	47
9.2	Amendments to Plan and Future Updates	47

LIST OF TABLES

Table 2.1	Lauderdale Population	3
Table 2.2	Average Monthly Precipitation, 1971-2000	6
Table 2.3	24-Hour Rainfall Depths and Frequency	7
Table 2.4	Impaired Waters Receiving Discharge from Lauderdale	9
Table 3.1	Regulatory Controls	15
Table 6.1	Surface Water Management Related Codes	27
Table 6.2	Natural Resources and Water Quality Problems	32
Table 6.3	Flooding and Stormwater Rate Control Problems	33
Table 7.1	TP Removal Factors for BMPs	37
Table 8.1	Implementation Projects	43
Table 8.2	Ordinance-Related Implementation Measures	45

LIST OF FIGURES AND APPENDICES

Figure 2.1	Location Map	3
Figure 2.2	Jurisdictional Boundaries of the Watershed Management Organizations in Laude	erdale6
Figure 2.3	Existing Land Use	
Figure 2.4	Future Land Use per the 2040 Comprehensive Plan	14
Figure 2.5	MLCCS Land Cover Map	Appendix E
Map 1	Stormwater System Map	Appendix A
Appendix A	Stormwater Management System Information	
A and D	Weter December 2 Deleted Associate	

- Appendix B Water Resources Related Agreements
- Appendix C CRWD Wetland Inventory Data
- Appendix D Watershed District Standards
- Appendix E MLCCS Land Cover Map



city of lauderdale - local surface water management plan Executive Summary

This Local Surface Water Management Plan (LSWMP) will serve as a comprehensive planning document to guide the City of Lauderdale in conserving, protecting, and managing its surface water resources. This plan has been created to meet the requirements detailed in Minnesota Statutes 103B (Metropolitan Surface Water Management Act), Minnesota Rules 8410, and the requirements of the local watershed management organizations. This document provides an inventory of water resource related information including the results of assessments conducted by other governmental units, both local and state. From this inventory and assessment, Lauderdale sets forth its goals and policies and implementation program.

The plan is organized as follows:

- Section 1 offers an introduction to and purpose of this Plan, and includes organizational information on the location of components within this document.
- Section 2 of this Plan provides an inventory of land and water resources within the City, including a description of the physical setting, available and pertinent water resources data, and land use maps.
- Section 3 documents the regulatory agencies and their role in the City's surface water management.
- Section 4 describes past studies and plans related to surface water management in Lauderdale.
- Section 5 identifies the stormwater management agreements between Lauderdale and other entities.
- Section 6 provides a current assessment of surface water management in Lauderdale, including hydrologic modeling, the NPDES permitting process, and a regulatory standards comparison. This section also includes the identification of issues and corrective actions, including flooding and stormwater rate control problems.
- Section 7 lists the goals and policies identified to address surface water management needs in the City, relating to land development and resource management.
- Section 8 summarizes capital projects currently planned with known funding sources to implement the goals and policies listed in Section 6, as well as potential activities and funding mechanisms.
- Section 9 outlines the continued administration of this plan with respect to plan updates and amendments.

The appendices provide additional detail:

- Appendix A provides technical detail for the City's stormwater infrastructure.
- Appendix B includes texts of the water resources agreements in which the City engages.
- Appendix C provides wetland inventory data from Capitol Region Watershed District.
- Appendix D provides watershed district standards from the three districts having jurisdiction within the City.



This page intentionally left blank



1.1 PURPOSE

This Local Surface Water Management Plan will serve as a comprehensive planning document to guide the City of Lauderdale in conserving, protecting, and managing its surface water resources. This plan has been created to meet the requirements detailed in Minnesota Statutes 103B and Minnesota Rules 8410, administered by the Minnesota Board of Water and Soil Resources. This plan is also consistent with the goals and policies of the Metropolitan Council's *2040 Water Resources Policy Plan*, and the three watershed management organizations having jurisdiction within the City: the Mississippi Watershed Management Organization (MWMO), the Capitol Region Watershed District (CRWD), and the Rice Creek Watershed District (RCWD). This plan may be periodically amended to remain current with local practices and policies.

1.2 SCOPE

This Plan serves multiple purposes including statutory and rule compliance. Minnesota Statute 103B.235 defines content for Local Surface Water Management Plans. According to the statute's text, each local plan, in degree of detail required in the watershed plan, shall:

- (1) describe existing and proposed physical environment and land use;
- (2) define drainage areas and the volumes, rates, and paths of stormwater runoff;
- (3) identify areas and elevations for stormwater storage adequate to meet performance standards established in the watershed plan;
- (4) define water quality and quality protection methods adequate to meet performance standards established in the watershed plan;
- (5) identify regulated areas; and,
- (6) set forth an implementation program, including a description of official controls and, as appropriate, a capital improvement program.

Minnesota Rules 8410, administered by the Board of Water and Soil Resources, provide more detail on local plan content. Though the BWSR guidance applies specifically to watershed management organizations, this guidance has historically been used to frame expectations for municipal plans. According to Rules 8410, local plans must provide or address:

- (1) Executive summary
- (2) Land and water resource inventory
- (3) Impact on other units of government
- (4) Establishment of goals and policies
- (5) Assessment of problems
- (6) Implementation program
- (7) Implementation priorities
- (8) Plan contents; amendments
- (9) Annual reporting requirements



The reader will find that Lauderdale has structured its LSWMP to provide the information required by 8410 without holding strictly to the outline contained in the rules. Through this document, the City provides signposts identifying where a statutory or rulemaking requirement might be addressed.

The Lauderdale LSWMP must address requirements of the Minnesota Pollution Control Agency's Municipal Separate Storm Sewer System (MS4) program. This program is designed to reduce the sediment and pollution that enters groundwater and surface waters to the maximum extent practicable. The MS4 program is regulated through the National Pollutant Discharge Elimination System (NPDES) permits. These NPDES permits require the development of Storm Water Pollution Prevention Programs (SWPPP).

The Lauderdale LSWMP must also satisfy Metropolitan Council requirements as contained in their 2040 Water Resources Policy Plan. These requirements build on those of Minnesota Rules 8410.

Beyond state level requirements and those of Metropolitan Council, this plan must be consistent with those of the watershed organizations having jurisdiction in the City. Often, watershed districts outline specific content for local plans that go beyond that required by statute and rule.

This plan is organized as follows:

Section 2 describes the physical setting; the history, natural resources and land uses within the City.

Sections 3 through 5 describe the regulatory agencies having jurisdiction in Lauderdale, and past studies and agreements related to surface water resources.

Section 6 summarizes the inventories, assessments, and modeling completed for this plan, and provides a current assessment of surface water management in Lauderdale.

Section 7 lists the goals and policies identified to address surface water management needs in the City.

Section 8 summarizes current ordinances and capital projects planned to implement the goals and policies listed in Section 7.

Section 9 outlines the continued administration of this plan.



Section 2 – Local surface water management plan

2.1 LOCATION AND HISTORY

The City of Lauderdale is a fully developed city located in Ramsey County, with a residential population around 2,400, and a total land area of 270 acres. Bordering communities include Minneapolis, St. Paul, Falcon Heights, and Roseville, as shown in Figure 2.1. Its proximity to Minneapolis, St. Paul and the University of Minnesota campuses makes Lauderdale a convenient residential location. Residents and businesses have easy access to State Highway 280, Interstate 35W and Interstate 94. Location and access will continue to keep Lauderdale's business and residential population stable. Population projections are shown in Table 2.1.

Year	Population	Households
2010	2,379	1,130
2020	2,490	1,200
2030	2,500	1,200
2040	2,520	1,200

TABLE 2.1 – LAUDERDALE POPULATION

Source: Metropolitan Council 2040 Water Resources Policy Plan

Measuring slightly less than one-half square mile in area, Lauderdale has retained its independent character, despite its proximity to larger cities. Most of the City's infrastructure was developed in the 1950s. The City completed a group of major reconstruction projects in 2003, to replace and update most of the streets, sewers and waterlines. Stormwater management practices were used to create drainage capabilities throughout the residential portion of the city, thereby integrating these areas into surrounding established systems.

2.2 TOPOGRAPHY

Lauderdale's topography is highest in the center of the city. Approximately 100 acres of Falcon Heights drains into Lauderdale via two ravines. Runoff within the City drains to one of three areas, either to Walsh Lake in the northeast corner, or via two storm sewer outlets in the south end of the City. The City is located within the jurisdictional boundaries of three watersheds: The Mississippi Watershed Management Organization (MWMO), the Rice Creek Watershed District (RCWD), and the Capitol Region Watershed District (CRWD). See Figure 2.2 for watershed boundaries.

Rice Creek watershed receives stormwater from Lauderdale only when a pump on the north end of Walsh Lake is operating. When the pump is not running, runoff from the northern part of Lauderdale flows west to the Highway 280 drainage system, which flows south to the southwest corner of the City and the Bridal Veil tunnel system in the City of Minneapolis.



FIGURE 2.1 - LOCATION MAP







FIGURE 2.2 – JURISDICTIONAL BOUNDARIES OF THE WATERSHED MANAGEMENT ORGANIZATIONS IN LAUDERDALE

Runoff from the southeast portion of Lauderdale, including additional acreage from Falcon Heights draining into Lauderdale, discharges via storm sewer connected to the St. Anthony tunnel. This system flows south, before discharging into the Mississippi River. This portion of Lauderdale is located within the CRWD.



2.3 SOILS AND GEOLOGY

The Soil Conservation Service (SCS) published the *Soil Survey of Washington and Ramsey Counties, Minnesota* in 1980. The *Soil Survey* provides mapping and physical properties for soil types found in the area. The *Soil Survey* was added to the digital Soil Survey Geographic (SSURGO) Database in 2005.

The *Soil Survey* assigns each soil type to a hydrologic soil group, according to the soil's ability to infiltrate water during long-duration storms. The four hydrologic soil groups are: Group A - high infiltration, Group B - moderate infiltration, Group C - slow infiltration, and Group D - very slow infiltration. Most of the soil types in Lauderdale are classified in Hydrologic Soil Group B. This group is characterized by moderately well to well-drained soils, fine to moderately coarse textures, and moderate infiltration rates.

The geology of Ramsey County is dominated by unconsolidated glacial sediments, including outwash and till ranging in thickness from five to four hundred feet. These sediments were deposited during the Quaternary geologic period, and are underlain by Paleozoic bedrock. The bedrock units that underlie the City include Decorah Shale, Platteville-Glenwood Formation, St. Peter Sandstone, Prairie du Chien Group, and Jordan Sandstone.

2.4 GROUNDWATER

Lauderdale's drinking water is supplied by St. Paul Regional Water Services. Most of this water is obtained from the Mississippi River, while a small percentage is obtained from deep groundwater wells. The Ramsey Conservation District leads efforts to protect this groundwater supply, by monitoring groundwater elevations and maintaining an inventory of contamination sites. Because drinking water in the City of Lauderdale is provided by St. Paul Regional Water Services, the city has not prepared a Wellhead Protection Plan.

2.5 CLIMATE

Climate data for the Twin Cities are published by the National Weather Service (NWS) station at Chanhassen, MN. The NWS is a branch of the National Oceanic and Atmospheric Administration (NOAA). Table 2.2 provides a summary of average precipitation data for the Twin Cities area.

Mont	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annua
inche	0.89	0.84	1.79	2.67	3.46	4.52	3.85	4.15	2.79	2.24	1.71	1.12	30.03

TABLE 2.2 – AVERAGE MONTHLY PRECIPITATION	, 1971-2016
---	-------------

Rainfall frequency estimates are used as design tools in water resource projects. Rainfall frequencies are summarized in the National Oceanographic and Atmospheric Administration's (NOAA) Atlas 14-Point Precipitation Frequency Estimates. Previously, Technical Paper No. 40, Rainfall Frequency Atlas of the United States (NOAA), was used to determine rainfall frequency estimates. The use of Atlas 14 estimates provides an advantage to Technical Paper No. 40, as estimates are based on data from denser networks with longer periods of record, and regional frequency analyses and new spatial interpolation techniques are used. Table 2.3 lists rainfall frequencies applicable to the City of Lauderdale.



Recurrence Interval (yrs)	24-hr Rainfall Depth (in)
2	2.83
5	3.54
10	4.24
50	6.34
100	7.43

TABLE 2.3 – 24-HOUR RAINFALL DEPTHS AND FREQUENCY



2.6 WATER RESOURCES

2.6.1 WALSH LAKE

Walsh Lake is located on the north boundary of Lauderdale, and is identified on the USFWS National Wetland Inventory (NWI) and the DNR Public Waters Inventory (PWI).

The NWI Cowardin system lists Walsh Lake as PABG. This is an aquatic system defined as a palustrine waterbody with an aquatic bed that is intermittently exposed. Walsh Lake is considered a Type 4 wetland by FWS Circular 39. Type 4 or PABG wetlands are deep marshes, where the soil is usually covered with water during the spring and summer seasons. Vegetation includes cattails, reeds, bulrushes, spikerushes, and wild rice. Pondweed, naiads, coontail, watermilfoils, waterweeds, duckweeds, or spatterdocks may grow in open areas of the wetland. Walsh Lake supports stands of cattail and a dense layer of duckweed. This basin is identified on the PWI as 214W. This identification does not reveal the nature of the system but is used for record keeping. The Minnesota Department of Natural Resources has regulatory jurisdiction over the lakes, wetlands, and watercourses defined as public waters within the State.

Walsh Lake was identified in the RCWD Southwest Urban Lake Study (2009) report as a lake that had insufficient water quality monitoring data. The RCWD report recommended that Walsh Lake be added to the RCWD monitoring program. Recommendations for in-lake data collection include bathymetric data collection, water quality collection to obtain total phosphorus and chlorophyll data, and macrophyte/aquatic invertebrate data. The City will continue to coordinate with the RCWD to improve water quality in Walsh Lake as a Management Action Plan (MAP) has been created for the Lake as part of the RCWD's 2009 Southwest (SW) Urban Lakes Study.

2.6.2 SEMINARY POND

Seminary Pond is located in the southeast corner of the City. The western portion of this pond (0.79 acres) is listed on the NWI, Cowardin system as PEM1C, while the eastern portion of this pond (0.94 acres) is listed as PF01C. The designation of PEM1C indicates that this is a seasonally-flooded palustrine system supporting persistent emergent vegetation. FWS Circular 39 characterizes the western portion of the pond as a Type 3 wetland. A Type 3 or PEM1C wetland is characterized by saturated soil that is often covered with only a few inches of water. Common vegetation for these systems includes cattail, pickerelweed, sedges, rushes, arrowhead, and smartweed. However, this particular wetland does not support any of these species.

The eastern portion of the pond, designated as PF01C, is a seasonally-flooded, palustrine system, that is characterized with broad-leaved deciduous vegetation (i.e. trees or shrubs, with relatively wide, flat leaves), such as black ash. FWS Circular 39 characterizes the eastern portion of the pond as a Type 7 wetland, where typical trees are tamarack, white cedar, red maple, and black ash. The dominant species in Seminary Pond is reed canary grass, and purple loosestrife is common. Both plants are invasive species that will choke out native species. To allow native plants the chance to reclaim the site, management strategies such as a controlled burn, herbicide treatment, or mowing the area would help suppress these invasive species.

In 2017, Barr Engineering submitted a wetland delineation report to the City and the US Army Corps of Engineers (USACE) for Seminary Pond. This report details the CRWD's plans to improve water quality and flood control performance of the existing storm pond, by excavating the pond to deepen it, and create a permanent pool of water. In addition, an iron-enhanced filtration bench around the edge of the proposed wet pond would be added; the purpose of this bench would be two-fold; its first function would be to remove



dissolved phosphorus, and the second to increase the height of the berm, thereby reducing the chance of flooding. This study indicates that no wetland functions would decrease as a function of this project. For more information, this technical memorandum can be requested from the CRWD.

2.6.3 GASPERRE POND

Gasperre Pond is located in the southeast corner of the City. In the previous 2008 Lauderdale Water Plan, this pond was not listed as a delineated wetland under this section, but it has recently been added to NWI and PWI lists. The pond is classified as PUBG, which is an intermittently exposed, palustrine ecosystem with an unconsolidated bottom. It supports hydrophytic vegetation (vegetation adopted for wetland conditions).

2.6.4 IMPAIRED WATERS

None of the water bodies within Lauderdale are listed on the Minnesota Pollution Control Agency's list of impaired waters; lakes and streams in the state that do not meet federal water quality standards. However, drainage from Lauderdale ultimately discharges into multiple impaired water bodies: Pike Lake, South Long Lake, North Long Lake, Rice Creek, and the Mississippi River. Table 2.4 includes information about these impaired waters and Section 3.7 includes discussion on impaired waters and the TMDL process.

Impaired Water	Year Listed	Affected Use	Pollutant or Stressor	TMDL Start	TMDL Expected Completion	TMDL Approved
	1998	Aquatic consumption	Mercury in fish tissue	N/A	N/A	2008
62-0067-02	2002	Aquatic recreation	Nutrient/eutrophication biological indicators	N/A	N/A	2015
	2014	Aquatic life	Chloride	N/A	N/A	2016
North Long Lake 62-0067-01	2008	Aquatic consumption	Mercury in fish tissue	N/A	N/A	2008
Pike Lake	2002	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	N/A	N/A	2015
62-0069-00	2014	Aquatic life	Chloride	N/A	N/A	2016
	1998	Aquatic consumption	Mercury in fish tissue	N/A	N/A	2007
Mississippi River – Crow River to Upper St.	1998	Aquatic consumption	PCB in fish tissue	1998	2025	N/A
Anthony Falls 07010206-509	2006	Aquatic recreation	Fecal coliform	2020	2024	N/A
	2016	Aquatic Life	Nutrient/eutrophication biological indicators	2016	2018	N/A
Mississippi River – Upper St. Anthony Falls to St. Croix River 07010206-814	2016	Aquatic life	Nutrient/eutrophication biological indicators	2016	2018	N/A
Mississippi River –	2002	Aquatic	Fecal coliform	2018	2022	N/A

TABLE 2.4 – IMPAIRED WATERS RECEIVING DISCHARGE FROM LAUDERDALE

City of Lauderdale Local Surface Water Management Plan



Lower St. Anthony Falls		recreation				
to Lock & Dam #1 07010206-503	2002	Aquatic consumption	Mercury in fish tissue	N/A	N/A	2007
Rice Creek – Between	2006	Aquatic life	Aquatic macroinvertebrate bioassessments	2020	2024	N/A
Long Lake and Locke	2014	Aquatic recreation	E. coli	N/A	N/A	2014
07010200-384	2014	Aquatic life	Fishes bioassessments	2020	2024	N/A

2.7 NATURAL RESOURCES

The City of Lauderdale is a fully developed city. There are undeveloped areas that have natural resource significance. The first is Community Park located south of Roselawn Avenue, west of Fulham Street. The second is the Lauderdale Nature Area, located south of Larpenteur Avenue along the east city boundary.

The Minnesota Department of Natural Resources, Minnesota County Biological Survey did not have on record any rare, threatened or endangered species within the City.

2.7.1 COMMUNITY PARK

Community Park contains areas being used for passive and active recreational activities. The park contains a diverse population of Minnesota trees. Much like the state of Minnesota, this park contains evergreens on the north portion and leaved deciduous trees in the south portion. The mature trees provide nesting and food sources for many bird species.

The coniferous trees found in the north portion are approximately 70 years of age and were most likely planted. Native species represented in this stand include, white spruce, white pine and the Minnesota state tree the red or Norway pine. Scotch pine, a popular non-native evergreen, is also located within the stand. The dominant tree in the stand is the red pine. The understory of the dense coniferous stand is comprised of a sparse cover of dandelion, wood sorel, creeping charlie, Kentucky blue-grass and plantain. The sparseness of understory coverage is typical of a northern coniferous forest but because of the manicured nature of the park, many native ground story species are not found here.

The south portion of the park includes a diverse population of deciduous trees. Species found include green ash, basswood, hackberry, American elm, black locust and sugar maple. All of these species are native to Minnesota except for the black locust. Black locust is commonly found in the state but originally was brought to the area from the eastern U.S. by Native Americans who used the wood for bows. The dominant tree in this stand is green ash. The average diameter is 15" with an approximate age of 85 years. Red cedar, which is found across the southern portions of the state, is also found in the south portion of this park. Ground cover species found within this portion of the park are the same as the north.

2.7.2 LAUDERDALE NATURE AREA

The area identified as the Lauderdale Nature Area encompasses approximately nine acres and is located south of Larpenteur Avenue west of the south portion of the University golf course and east of the Luther Seminary. Many tree and habitat types are represented within the plot. Floodplain forest is found along the bottoms of the ravines and adjacent to the Gasperre Pond. Small areas of Mesic oak forest and wetland are also found. The



topography of the area consists of two ravines separated by an abandoned railway embankment. Steep slopes and eroding intermittent creek beds can be found within the plot.

The tree species found within the Floodplain Forest community are as follows; green ash, black willow, cottonwood, silver maple and boxelder. Most of the boxelders were less than 10" DBH. The largest representative species found were the cottonwoods with some measuring over 30" DBH. Green ash was found to be the dominant species within the plot with the average DBH of 18" and an average age of 75 years. The shrub layer of the plot consisted of buckthorn, boxelder, elderberry and dogwoods. Buckthorn, an invasive species, is well-established within the plot. The ground cover found within the area consists of the following species; Jack-in-the-pulpit, wild geranium, Virginia creeper and wild violet.

The ridge tops in the Nature Area are dominated by Mesic Oak Forest. Trees within these areas consist of red oak, burr oak and black locust. The oaks are native to Minnesota but the black locust, originally from the east coast, has established itself in forests such as this across the eastern part of the state. The ground cover species found within this community did not vary much from the one found in the previous community.

Animal life found included a host of bird species such as warblers, black-capped chickadee, American crow and blue jays. Very little sign of mammalian life was found within the area except for deer, grey squirrels, raccoon and woodchucks. Because of the isolated nature of the area, larger mammals are likely not found here.

2.8 DRAINAGE SYSTEMS

Lauderdale is divided among three watershed management organizations, although most of the City's runoff discharges southerly into two separate storm sewer tunnel systems: Bridal Veil Tunnel (through the Mississippi Watershed Management Organization) and St. Anthony Tunnel (through Capitol Region Watershed District). It is only when a lift station is operating in Walsh Lake that runoff from Lauderdale discharges north to the Rice Creek Watershed District; otherwise the water discharges westerly to Trunk Highway 280 right-of-way through two pipes (12-inch and 18-inch diameter) with invert elevations of 925.5 ft. The lift station does not operate until water reaches an elevation of 926.0 ft. The lift station is operated and maintained by the City of Roseville and information regarding the pumping frequency can be requested through the City of Roseville Public Works Department. See Figure 2.2 for a map of these jurisdictional boundaries.

Many sections of Lauderdale's drainage system were rebuilt between 2000 and 2003. Map 1 shows the layout of the drainage system, including storm sewers, open channels, and ponding areas; in the south portion of the City, a few ponds have been constructed to enhance water quality and control runoff rates.

A storm drainage report prepared in 1979 recommended developing stormwater holding basins to control stormwater in the southerly portions of the City. These improvements were implemented in conjunction with development of this area. One of these improvements included a stormwater pond located in what is currently the Lauderdale Nature Area. This was developed in 1984. Another area that was identified was the Luther Seminary land south of the Lauderdale Nature Area. Thus, Seminary Pond was completed in 1994 as a part of the Rose Condominium Development. Stormwater pond improvements near the U of M golf course were completed in conjunction with the Larpenteur Avenue reconstruction in 1997. Additionally, the west berm was raised and the EOF was defined in 2006.



MnDOT has initiated improvements to the drainage system within the right-of-way of Highway 280. A stormwater detention basin was completed in 2006 on land previously occupied by the Goodwill facility. In Summer 2016, MnDOT constructed another detention pond north of Lauderdale (east of the Broadway St NE/ Highway 280 intersection), to increase drainage capacity along the highway.

2.9 PLANNING AND LAND USE

Lauderdale's last comprehensive plan was adopted in 2007. The City's next comprehensive plan, in which this Local Surface Water Management Plan is included as a section, includes updates to the goals and policies related to water and natural resources. The total area of Lauderdale is approximately 270 acres. Current land uses within the City are shown in Figure 2.3. Land uses proposed for the 2040 Comprehensive Plan are shown in Figure 2.4.



FIGURE 2.3 – EXISTING LAND USE







FIGURE 2.4 - FUTURE LAND USE PER THE 2040 COMPREHENSIVE PLAN


3.1 OVERVIEW

This section describes the City's current surface water resources management programs and practices and the agencies and organizations having roles in the City's management of these resources. Table 3.1 summarizes the City's and other agencies' respective regulatory controls related to water resources management and protection. Acronyms used in Table 3.1 are described in Sections 3.2-3.16.

Official Control	Responsibility	Mechanism
Erosion and Sediment Control	City, CRWD, RCWD, RCD	 City Code 8-4-9 F – Site erosion control City Code 8-4-9 F – Site sediment control City Code 8-4-9 – Project approval standards NPDES General Permit – SWPPP MCM 4 – Construction site stormwater runoff control NPDES General Permit – SWPPP MCM 5 – Post-construction stormwater management CRWD – Rule F RCWD – Rule D Ramsey Conservation District – Site inspections
Shoreland	City	City Code 8-4-9 L.4 – Redevelopment around Walsh Lake shall follow MnDNR standards
Floodplain	City, CRWD, RCWD	 Lauderdale is currently within an unmapped area CRWD – Rule D RCWD – Rule E
Wetlands	City, DNR, USACE, CRWD, RCWD	 City Code 8-4-9 L.3 – Wetland protection standards NPDES General Permit – SWPPP MCM 5 – Post-construction stormwater management NPDES General Permit – SWPPP MCM 6 – Pollution prevention DNR – Public Waters Work Permit USACE – Section 404, Clean Water Act CRWD – Rule E RCWD – Rule F
Illicit Discharge	City, CRWD	 City Code 8-2-2-9 – Discharge of surface water prohibited NPDES General Permit – SWPPP MCM 3 – Illicit discharge detection and elimination CRWD – Rule G RCWD – Rule H
Water Quality	City, CRWD, RCWD	 City Code 8-4-9 – Project approval standards City Code 8-4-10 – Lawn fertilizer regulations NPDES General Permit CRWD – Rule C RCWD – Rule C
Water Quantity	City, CRWD, RCWD	 City Code 8-4-7 C – Final site condition requirements City Code 8-4-9 – Project approval standards NPDES General Permit – SWPPP MCM 1 – Public education and outreach NPDES General Permit –SWPPP MCM 4 – Construction site stormwater runoff control CRWD – Rule C RCWD – Rules C, I and J
Acronyms a	re aetinea in Sect	IONS 3.2-3.17 OF THIS MIAN.

 TABLE 3.1 - REGULATORY CONTROLS



3.2 CITY SERVICES

Residential streets, sanitary and storm sewers, waterlines, stormwater facilities, and park lands within Lauderdale are maintained by the City. Drinking water within the City of Lauderdale is supplied by the St. Paul Regional Water Services utility or the City of Minneapolis Water Department. Wastewater is collected in the City sewer system and discharged to collection systems in St. Paul and Minneapolis. The City adopted the Storm Water drainage Utility (see City Code 8-3) in 1994 to pay for the maintenance, operation, and improvement of the City's stormwater management system.

City staff coordinates with watershed management organizations and other outside agencies in water resource management and conservation. A collection of City residents and council members manage comprehensive planning for Lauderdale. The City's current regulations are available on the City's website.

3.3 RAMSEY COUNTY (RCD)

Ramsey County was created in 1849, and is one of Minnesota's original nine counties. The County provides many services to Lauderdale residents, including health services and property records. County government also includes the Ramsey Conservation District (RCD), which encourages the protection of natural resources.

Ramsey County adopted the *Ramsey County Groundwater Protection Plan* in May 1996, which was updated in 2010. Information about this plan can be found in Section 4.7.

3.4 WATERSHED MANAGEMENT ORGANIZATIONS (WMO)

In 1955, the Minnesota State Legislature established the Watershed Act. This act provided the means to create watershed districts, special purpose units of local government with broad authority to regulate land use planning, flood control and conservation issues, for the purpose of protecting and managing water resources. There are currently 46 watershed districts in the state, and 14 in the seven-county metropolitan area. Watershed districts have the authority to:

- Adopt rules with the power of the law to regulate, conserve and control the use of water resources within the district;
- Contract with units of government, as well as private and public corporations, to carry out water resources management projects;
- Hire staff and contract with consultants;
- Assess properties for benefits received and levy taxes to finance direct administration;
- Accept public and private grant funds, and encumber debt;
- Acquire property necessary for projects;
- Construct and operate drainage systems, dams, dikes, reservoirs and waters supply systems; and
- Enter upon lands within and without the district to conduct investigations.

In 1982, the legislature approved the Metropolitan Surface Water Management Act, Chapter 103B of Minnesota Statutes. This act requires all local governments within the seven-county metropolitan area to address surface water management through participation in a Watershed Management Organization (WMO). A WMO can be organized as a watershed district, as a Joint Powers Agreement (JPA) among municipalities, or as a function of county government. There are 36 joint powers WMOs and ten watershed districts within the seven-county metropolitan area. These entities prepare watershed plans to:



- Protect, preserve, and use natural surface and groundwater storage and retention systems;
- Minimize public capital expenditures needed to correct flooding and water quality problems;
- Identify and plan for means to effectively protect and improve surface and groundwater quality;
- Establish more uniform local policies and officials controls for surface and groundwater management;
- Prevent erosion of soil into surface water systems;
- Promote groundwater recharge;
- Protect and enhance fish and wildlife habitat and water recreational facilities; and
- Secure the other benefits associated with the proper management of surface and groundwater.

The City of Lauderdale is located within the jurisdictional boundaries of three watersheds: The Mississippi Water Management Organization (MWMO), the Rice Creek Watershed District (RCWD), and the Capitol Region Watershed District (CRWD). See Figure 2.2 for the boundaries of these three watershed districts. These agencies each have authority for review and approval of this Local Surface Water Management Plan. Lauderdale requests the water districts to continue implementing their rules and regulations, and to issue permits within the community.

3.4.1 RICE CREEK WATERSHED DISTRICT (RCWD)

The Rice Creek Watershed District encompasses approximately 185 square miles of Anoka, Hennepin, Ramsey, and Washington counties in Minnesota. Portions of the district can be found in the following municipalities: Arden Hills, Birchwood Village, Blaine, Centerville, Circle Pines, Columbia Heights, Columbus, Dellwood, Falcon Heights, Forest Lake, Fridley, Grant, Hugo, Lauderdale, Lexington, Lino Lakes, Mahtomedi, May Township, Mounds View, New Brighton, Scandia, Roseville, Shoreview, Spring Lake Park, St. Anthony, White Bear Lake, White Bear Township, and Willernie.

The current RCWD Watershed Management Plan was adopted in January 2010 and amended in November 2016. The current watershed rules were adopted in December 2016.

The City defers to the current RCWD stormwater management permitting program for all areas that are within the jurisdiction of the RCWD. The City requires applicants to provide documentation that they have obtained the necessary permits from the watershed. Figure 2.2 identifies the jurisdictional boundaries of RCWD within the City of Lauderdale.

3.4.2 THE MISSISSIPPI WATERSHED MANAGEMENT ORGANIZATION (MWMO)

The Mississippi Watershed Management Organization contains 40 square miles, of fully developed urban lands and waters. The MWMO's boundaries include the Mississippi River as it runs through Minneapolis, as well as adjacent areas that drain to the river. Member groups include portions of Columbia Heights, Fridley, Lauderdale, Hilltop, Minneapolis, St. Anthony Village, St. Paul, and the Minneapolis Park and Recreation Board.

The current Joint and Cooperative Agreement for the MWMO was executed by member communities in 2002. The current MWMO Watershed Plan was amended in 2016, and includes stormwater management standards to be implemented by member communities.



3.4.3 THE CAPITOL REGION WATERSHED DISTRICT (CRWD)

Established in 1998, the Capitol Region Watershed District covers 41 square miles and includes portions of Falcon Heights, Lauderdale, Maplewood, Roseville, and St. Paul. The District is located within Ramsey County and has a population of 225,000 people. The Mississippi River forms the western and southern borders of the district, and is the predominant water resource to which the entire district drains. Como Lake, Crosby Lake, Loeb Lake, and Lake McCarrons are also located within the District.

The current CRWD Watershed Management Plan was completed in September 2010. The current watershed rules were adopted in September 2006, and revised in April 2015.

3.5 METROPOLITAN COUNCIL

Established by the Minnesota Legislature in 1967, the Metropolitan Council is the regional planning organization for the Twin Cities, seven-county area. The Council manages public transit, housing programs, wastewater collection and treatment, regional parks and regional water resources. Council members, of which there are seventeen members, are appointed by the Minnesota Governor.

The Metropolitan Council reviews municipal comprehensive plans, including this Local Surface Water Management Plan. The Council adopted the *2040 Water Resources Management Policy Plan* in 2015, establishing expectations to be met in local plans. The Council's goals focus on water quality standards and pollution control, "to reduce the effects of nonpoint source pollution on the region's wetlands, lakes, streams and rivers."

3.6 STATE BOARD OF WATER AND SOIL RESOURCES (BWSR)

The Minnesota Board of Water and Soil Resources works through local government agencies to implement Minnesota's water and soil conservation policies. The BWSR is the administrative agency for soil and water conservation districts, watershed districts, watershed management organizations and county water managers. The BWSR is responsible for implementation of the Metropolitan Surface Water Management Act and the Wetland Conservation Act. Staff members are located in eight field offices throughout the state.

First established in 1937 as the State Soil Conservation Committee, the agency became part of the University of Minnesota in the 1950s, transferred to the Department of Natural Resources in 1971, and then transferred to the Department of Agriculture in 1982. In 1987 the State Legislature established the current Board of Water and Soil Resources. The Board consists of 17 members, appointed by the governor to four-year terms. Multiple state and local agencies are represented on the Board. In 1992, the BWSR adopted rules (8410), establishing the required content for Local Surface Water Management Plans.

3.7 MINNESOTA POLLUTION CONTROL AGENCY (MPCA)

The MPCA is the state's lead environmental protection agency. Created by the State Legislature in 1967, the MPCA is responsible for monitoring environmental quality and enforcing environmental regulations to protect land, air, and water in the state of Minnesota. The MPCA regulates the City's management of wastewater, stormwater and solid waste. The MPCA administers the federal Clean Water Act (CWA) in Minnesota.

The MPCA is the permitting authority in Minnesota for the Municipal Separate Storm Sewer Systems (MS4) program under the National Pollutant Discharge Elimination System (NPDES), the federal program



administered by the Environmental Protection Agency to address polluted stormwater runoff. Certain MS4s in Minnesota are subject to stormwater regulation under the Clean Water Act and Minnesota Rule 7090. There are multiple ways for a City or township to be subject to the MPCA's stormwater regulation under the MPCA's general permit. The MPCA regulates the entire jurisdiction of a city (or township) that is located fully or partially within an urbanized area as determined by the latest Decennial Census and that owns or operates an MS4. Consequently, Lauderdale has developed a stormwater pollution prevention program (SWPPP) to address six minimum control measures: 1) public education, 2) public involvement, 3) illicit discharge detection and elimination, 4) construction site runoff control, 5) post-construction runoff control, and 6) pollution prevention in municipal operations. As the SWPPP is reviewed and updated as necessary on an annual basis, a copy of the SWPPP is not included in this LSWMP as it would eventually become outdated.

In addition to the NPDES program, the MPCA is required to publish a list of impaired waters; lakes and streams in the state that are not meeting federal water quality standards. For each water body on the list, the MPCA is required to conduct a study to determine the allowable Total Maximum Daily Load (TMDL) for each pollutant that exceeds the standards. The 2016 MPCA list of impaired waters identifies 2,660 TMDL reports needed for 1,808 lakes, rivers and streams in the state. Local governments are required to incorporate completed TMDL studies into their Local Surface Water Management Plans and review their SWPPPs to determine if additional BMPs are needed to comply with the TMDL waste load allocation. At this time, there are no listed waters within the City of Lauderdale. Table 2.4 identifies impaired waters that ultimately received discharge from the City of Lauderdale.

In response to these multiple regulatory activities, the MPCA published the *Minnesota Stormwater Manual*, providing stormwater management tools and guidance. The Manual presents a unified statewide approach to stormwater practices.

3.8 MINNESOTA DEPARTMENT OF NATURAL RESOURCES (DNR)

Originally created in 1931 as the Department of Conservation, the DNR has regulatory authority over the natural resources of the state. DNR divisions specialize in waters, forestry, fish and wildlife, parks and recreation, land and minerals, and related services. The Division of Waters administers programs in lake management, shoreland management, dam safety, floodplain management, wild and scenic rivers, the Public Waters Inventory (PWI), and permitting of development activity within public waters.

3.9 MINNESOTA DEPARTMENT OF HEALTH (MDH)

The MDH manages programs to protect public health, including implementation of the Safe Drinking Water Act (SDWA). The MDH has regulatory authority for monitoring water supply facilities such as water wells, surface water intakes, water treatment, and water distribution systems. The MDH is also responsible for the development and implementation of the wellhead protection program. It should be noted that the City does not have jurisdictional areas within the source water protection area for surface water intakes identified in the source water assessments conducted by the Minnesota Department of Health.

3.10 MINNESOTA ENVIRONMENTAL QUALITY BOARD (EQB)

The EQB is comprised of five citizen members and the heads of ten state agencies that play an important role in Minnesota's environment and development. The EQB develops policy, creates long-range plans and reviews proposed projects that may significantly influence Minnesota's environment.



3.11 MINNESOTA DEPARTMENT OF TRANSPORTATION (MNDOT)

Within the City, MnDOT administers several state highway systems. MnDOT approval is required for any construction activity within state right-of-ways. MnDOT also administers a substantial amount of funding for transportation projects completed in the City. Anticipated activities of MnDOT are periodically published in their State Transportation Improvement Plan (STIP).

3.12 U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

The EPA develops and enforces the regulations that implement environmental laws enacted by Congress, however the MPCA bears responsibility for implementing many of the resulting programs within Minnesota. The NPDES program and the Impaired Waters List are both the result of the Clean Water Act, administered by the EPA.

3.13 U.S. ARMY CORP OF ENGINEERS (USACE)

Under Section 404 of the Clean Water Act, including subsequent modifications, the EPA and the USACE regulate the placement of fill into all wetlands of the U.S. In 1993, there was a modification of the definition of "discharge of dredged material" to include incidental discharges associated with excavation. This modification meant that any excavation done within a wetland required the applicant to go through Section 404 permitting procedures. In 1998, however, this decision was modified so that excavation in wetlands is now regulated by the USACE only when it is associated with a fill action.

3.14 FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

FEMA manages federal disaster mitigation and relief programs, including the National Flood Insurance Program (NFIP). This program includes floodplain management and flood hazard mapping. Lauderdale is within an unmapped area and does not contain any designated regulatory floodplains.

3.15 NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

The Natural Resources Conservation Service (NRCS) is a division of the U.S. Department of Agriculture. Formerly named the Soil Conservation Service (SCS), the NRCS provides technical advice and engineering design services to local conservation districts across the nation. The *Soil Survey of Washington and Ramsey Counties Minnesota* was published by the Soil Conservation Service in 1977. The SCS also developed hydrologic calculation methods that are widely used in water resources design.

3.16 U.S. GEOLOGICAL SURVEY (USGS)

The USGS provides mapping and scientific study of the nation's landscape and natural resources. USGS maps provide the basis for many local resource management efforts.

3.17 U.S. FISH AND WILDLIFE SERVICE (USFWS)

The USFWS works to conserve and protect the nation's fish, wildlife, plants and habitat. The USFWS developed the National Wetlands Inventory (NWI) beginning in 1974, to support federal, state and local wetland management work.



4.1 CITY OF LAUDERDALE – 1997 AND 2008 LOCAL SURFACE WATER MANAGEMENT PLANS

Under Minnesota Statute 103B.235, the City of Lauderdale most recently published Local Surface Water Management Plans in 1997 and 2008. Both the 1997 and 2008 LSWMP versions describe existing and proposed land use, define drainage areas and stormwater runoff characteristics, define water quality protection methods, identify regulated areas, and set forth an implementation program for the City.

Specifically, the 1997 LSWMP version served as a guide for the repair and upgrade of the City's storm drainage system. This LSWMP included an extensive Capital Improvement Plan (CIP) for stormwater management system upgrades, which the city implemented. In addition, the plan included descriptions and costs for the City's four phase street and utility reconstructions.

The LSWMP is a compilation of information from a number of sources including: Lauderdale's 1979 Drainage Report, various utility plans, Ramsey County, past consulting engineers' work, MnDOT, and City staff field inspections, surveys and recommendations. A comprehensive stormwater modeling analysis including stormwater quantity, storm sewer capacity, and water quality calculations is also presented in the plan.

4.2 CRWD WATERSHED MANAGEMENT PLAN – AMENDED 2015

The Capitol Region Watershed District (CRWD) Watershed Management Plan (WMP) was completed in 2010, and associated watershed rules were amended in April 2015. At the beginning of the management plan process, stakeholders were asked to identify concerns pertinent to manage the watershed. The identification of these issues allowed the CRWD to formulate goals and implementation strategies for the watershed management plan. The issues discussed in the WMP are grouped into the following topics:

- Education and Outreach
- Urban Stormwater Management
- Monitoring and Data Assessment
- Future Trends
- Funding and Organization
- Regulations and Enforcement
- Ecosystem Health

The implementation plan was structured around these issues to protect and improve the District's water resources. Important water resources identified by the District are: the Mississippi River, Como Lake, Lake McCarrons, Loeb Lake, Crosby Lake, Trout Brook Storm Sewer, historic streams, wetlands, groundwater, and springs.

The CRWD WMP requires that cities address the following in their Local Surface Water Management Plan:

 Stormwater Pollution Prevention Program (SWPPP) policies, goals and actions, in accordance with MPCA requirements;



- Impaired waters, TMDLs and Lake Management Plan;
- The local unit of government's stormwater management requirements, including erosion and sediment controls;
- Responsibilities for maintenance and repair of public and private stormwater management systems;
- Flood control and water quality issues;
- Spill containment; and
- A plan for implementing these components.

4.3 RCWD WATERSHED MANAGEMENT PLAN – AMENDED 2016

The 2010 Rice Creek Watershed District (RCWD) Watershed Management Plan (WMP) provides the guidance and implementation strategies for the RCWD to manage its water and natural resources set forth in Minnesota Statutes 103B.235 and Minnesota Rule 8410. The 2010 WMP was amended in November 2016 to update and extend the implementation programs identified in the 2010 plan. This WMP will be amended in 2020 to incorporate new goals for the District.

The WMP incorporates components of previous plans, as well as numerous recent assessments and studies that inform water management within the District. The RCWD organizes its 2010 WMP into eight management categories that address requirements set forth in Minnesota Rule 8410, and that highlight the District's prioritized goals. These management categories are:

- 1. Education, Data and Information
- 2. Lakes
- 3. Wetlands
- 4. Drainage Systems and Waterways
- 5. Excess Runoff
- 6. District Facilities
- 7. Open Space
- 8. Groundwater

The above management goals fit into the District's strategic plan, which set guiding principles for the District rather than focusing on individual capital improvements and projects. Goals include to:

- Repair and maintain drainage systems for agriculture drainage;
- Support and implement environmental education programs;
- Work with counties and cities to ensure groundwater conservation measures are implemented;
- Maintain habitat for native wildlife through healthful water and land;
- Develop and maintain land and water conservation initiatives, through use of conservation easements, cost-share agreements, and management agreements; and
- Promote research that promotes and refines conservation efforts within the district.

Chapter V, Goal and Policies, details the methods by which the District's objectives and policies will be implemented. Figure 2.2 identifies the jurisdictional boundaries of RCWD within the City of Lauderdale.

4.4 MWMO WATERSHED MANAGEMENT PLAN – AMENDED 2016

The Mississippi Watershed Management Organization (MWMO) 2011 Watershed Management Plan (WMP) was amended in 2016. Water resources management issues addressed in the WMP include groundwater

City of Lauderdale Local Surface Water Management Plan



quality protections and improvement, in addition to the goals of surface water protection and water quality improvement. The plan uses information and data from past studies and actions to address a variety of issues determined as significant by the MWMO's Task Force, Citizen Advisory Committee (CAC), Technical Advisory Committee (TAC), and the Board of Commissioners.

The MWMO WMP directs its member organizations to implement the MWMO's Standards Language or an equivalence to it.. In addition, local governments are responsible for:

- Maintaining existing and proposed storm drain conveyance systems, including stormwater detention ponds, sewers, inlet, and outlet drainage structures;
- Issuing building and grading permits;
- And, performing inspections to ensure compliance during construction.

The MWMO also provides education within the community, a robust water quality monitoring department, and technical support in the realm of water resource planning and implementation. Lauderdale will seek opportunities to partner with the MWMO through the following project and activity areas:

- 1. Capital Projects
- 2. Communications and Outreach
- 3. Monitoring
- 4. Planning
- 5. Watershed Assessment

The MWMO does not issue permits or provide approval letters for construction projects but relies on the existing permitting and enforcement bodies of its member communities. However, if the MWMO determines that a member organization is not carrying out its enforcement and permitting responsibilities, the MWMO may at its discretion assume the permitting and enforcement responsibilities and hold the member organization accountable for costs associated with activities they failed to perform." 1

4.5 THE BRIDAL VEIL CREEK SUBWATERSHED DESK STUDY - 2006

The MWMO, in partnership with Ramsey Conservation District, and in consultation with St. Anthony Park Community Council started monitoring three wetlands (a.k.a Kosota Pond) in 2008 to collect baseline water quality and macroinvertebrate data. MWMO also collected bathymetry data on all three wetlands. All of the data are now being organized in a watershed bulletin document by MWMO's water guality monitoring staff and will be available to the City and St. Anthony Park Community Council's environmental committee.

MWMO is measuring flows in the Bridal Veil Creek Subwatershed and intermittently monitors water guality at the outfall of the river when access to the outfall is possible.

This study was funded by a grant from the MWMO to the St. Anthony Park Community Council to conduct a comprehensive review of information available on the Bridal Veil Creek (BVC) watershed. The purpose of the study was to undertake a desk review and analysis of all known, prior hydrologic and drainage studies; environmental and biological inventories, histories, pollution and ecosystem studies and reports; and other relevant materials and information in the BVC watershed to be summarized in a narrative report.

¹ Excerpts from the Mississippi Watershed Management Organization Watershed Management Plan – Amended in 2016 City of Lauderdale Project No: 193803904 Stantec Local Surface Water Management Plan

One dominant theme in the watershed is the interest by local community groups to clean up the watershed, establish greenways, reduce water pollution, restore natural areas and improve quality of life by enhancing recreational opportunities. In order to achieve this goal, watershed management, landscape-level planning and ecological restoration at ecosystem and site scales will be necessary. This study recommends a multi-scale approach to ecological restoration and management, including actions at the following levels:

- Landscape scale involves land use planning to improve connectivity of natural areas and enhance recreational opportunities.
- Community scale involves active management of selected natural areas.
- Site scale involves individual yards and roadsides, native landscaping and exotic species control as well as site specific stormwater management techniques.²

4.6 CRWD EUSTIS STREET REGIONAL MODELING TECHNICAL REPORT – 2016

In March 2016, the CRWD produced a regional modeling report to assess capacity and potential flooding concerns of a concrete swale drainage system located near 1568 Eustis Street, in Lauderdale. City staff stated that the parking lot adjacent to the concrete swales frequently floods during heavy rain events. To assess the performance of the concrete swale drainage system, a hydraulic model was created using XP-SWMM. In addition, water quality performance of several wet and dry ponds in the City's system was assessed using the P8 (Program for Predicting Pollution Particle Passage through Pits, Puddles and Ponds) Urban Catchment Model. The water quality components assessed were total suspended solids (TSS) and total phosphorus (TP).

Based on model results, several mitigation alternatives were proposed in the study:

- Expansion of Seminary Pond and sheet pile wall;
- Expansion of Gasperre Pond;
- Construction of an earthen berm in the ravine close to the swales;
- Convert Seminary Pond from dry to wet pond and install rain gardens north of Larpenteur Avenue.

Recommendations included in this study involving the City of Lauderdale are identified in the Assessment (Section 6) and Implementation (Section 8) sections of this LSWMP.

4.7 RAMSEY COUNTY GROUNDWATER QUALITY AND PROTECTION DRAFT PLAN – AMENDED 2010

Ramsey County produced the *Ramsey County Groundwater Protection Draft Plan* in May 1996, which was amended in 2010. This plan suggests roles and responsibilities of county and local governments in groundwater management in the County. There are several recommendations outlined in the county plan that include:

- participation in wellhead protection programs,
- sensitive geologic area programs,
- well sealing programs, and
- aquifer protection programs³.

The City will continue to coordinate the implementation of the plan's recommendation with Ramsey County and the local WMOs.



² Summarized excerpts from the Bridal Veil Creek Subwatershed Desk Study, 2006

³ Excerpts from the Ramsey County Groundwater Protection Plan

5.1 CONVEYANCE

Multiple interagency stormwater conveyance agreements have been made by the City of Lauderdale. In March of 1954, Lauderdale entered into an agreement with Roseville and the Minnesota Highway Department authorizing the discharge of stormwater through the Highway 280 system (Minnesota Highway Department Agreement No. C-1245). In March of 1973, the City entered into an agreement with Roseville to share the cost of operating improvement 72-15, consisting of an additional gravity outlet and pump station in Walsh Lake. Copies of these conveyance agreements are included in Appendix B for reference.

5.2 WATERSHED MANAGEMENT

The *Joint and Cooperative Agreement for the Mississippi Watershed Management Organization* was executed by the Minneapolis Park and Recreation Board and the cities of Minneapolis, Columbia Heights, Fridley, Hilltop, St. Paul, St. Anthony Village and Lauderdale in January 2002, and was updated most recently in 2012. This agreement established the authority and responsibilities of the MWMO Board. A copy of the latest agreement (2012) is included in Appendix B for reference.



This page intentionally left blank



6.1 OFFICIAL CONTROLS

Codes and ordinances (official controls) are necessary tools supporting implementation of this Local Surface Water Management Plan. Many of the stated goals and policies specifically reference City codes that exist or need to be created. The City's MS4 permit includes a summary of ordinances required to comply with NPDES requirements.

After adoption of this Local Surface Water Management Plan, all applicable portions of City Code will need to be updated to achieve consistency with local watershed plans. Per Minnesota Statute, this implementation step must be completed within 180 days after adoption of this plan. In addition, over time, codes must be updated to remain consistent with City goals, policies, and practices. Table 6.1 assesses the status of City codes related to surface water management.

Code Section	Description	Status
7-4-2 A	Permit Requirement	No update is necessary
8-2-2-9	Discharge of Surface Water Prohibited	Update as needed as required by MS4 permit
8-2-2-10	Prohibited Discharge Inspection	Update as needed as required by MS4 permit
8-3	Storm Water Utility	No update is necessary
8-4-6	Storm Water Management Plan Approval Procedures	Update as needed to comply with local WMO plan approval procedures
8-4-7	Plan Review Procedure	Update as needed to comply with local WMO plan review procedural requirements
8-4-8	Approval Standards	Update as needed to comply with local WMO plan approval standards
8-4-9 F	Site Erosion Control	Update as needed as required by MS4 permit
8-4-9 G	Site Sediment Control	Update as needed as required by MS4 permit
8-4-9 J	Storm Water Management Criteria for Permanent Facilities	Update as needed as required by MS4 permit and to comply with local WMO Rules
8-4-9 K	Design Standards	Update as needed to comply with local WMO design standards
8-4-9 L	Wetlands	Update as needed to comply with local WMO wetland management standards
8-5	Stormwater Illicit Discharge and Illicit Connection to the Storm Sewer System	Update as needed as required by MS4 permit

|--|

6.2 HYDROLOGIC AND HYDRAULIC MODEL

The City is divided into three major drainage districts as shown in Map 1 in Appendix A, namely Walsh Lake, Highway 280, and St. Anthony major drainage districts. The Walsh Lake and St. Anthony major drainage districts are further divided into numbered sub-districts, to account for specific watershed features that impact the functionality of the stormwater system, such as: stormwater basins, low points, or ditches.



The 2008 Lauderdale Local Surface Water Management Plan included a summary of results from HydroCAD and XPSWMM models, which in combination provide hydrologic and hydraulic modeling for the full extent of the City, with the exception of the major drainage to Highway 280. For the purposes of this LSWMP, the Highway 280 major drainage district is not modelled in detail as the City is not responsible for the design, maintenance, and daily operations of the MnDOT Highway 280 stormwater system. The City has a long-standing agreement with MnDOT (detailed in Appendix B) to allow flow from Lauderdale to discharge to MnDOT right-of-way, pending MnDOT review and approval. Should there be questions about the hydrologic and hydraulic context of this area, the MnDOT Water Resources Engineering Department maintains a detailed stormwater model of the Highway 280 stormwater system. Some hydrologic characteristics of the Highway 280 major drainage district are included in Appendix A.

The St. Anthony major drainage district (southern portion of the City) is modelled in the HydroCAD model. The XPSWMM model focuses on the northern portion of the City. This model was created as part of the City's four phase street and utility reconstruction project completed between 2000 and 2004. The City used the XPSWMM model to accurately represent the hydraulic characteristics of the complex storm sewer pipe network tributary to Walsh Lake. The XPSWMM modeling program has the capability to model complex pipe systems. Appendices A and D to this LSWMP provide the tributary areas, high water levels, storage volumes, and stormwater pond discharge rates out of these basins. The stormwater infrastructure characteristics within the City have changed very little since 2008. Thus, the hydrologic and hydraulic results presented in Appendix A of this LSWMP are very similar to those in the 2008 Plan. The major change is the use of NOAA Atlas 14 rainfall precipitation frequency estimates, resulting in a much larger 100-yr storm event.

In addition to these modeling efforts, Barr Engineering completed the Eustis Street Regional Modeling Report in March 2016. The purpose of this report was to determine the capacity and flooding concerns of a concrete swale drainage system near 1568 Eustis Street; this system consists of two concrete swales which drain into two outlet pipes. The concern about this area stems from the fact that the parking lot adjacent to the concrete swales frequently floods, requiring apartment building tenants to avoid a portion of the parking lot. The XP-SWMM analysis indicates that the parking lot near 1568 Eustis Street is partially inundated during the 100year, 24-hour design event. There are several design alternatives that Barr evaluated as part of the Eustis report, including the construction of an earthen berm in ravine, the expansion of Gasperre Pond, the expansion of Seminary Pond and construction of a sheet pile wall, and the expansion of Seminary Pond and Earthen Berm. Two other alternatives that were analyzed include expansion of storage in the concrete and grass swales, or a combined flood mitigation alternative, which would include some combination of previously listed alternatives. The full study can be requested from Capitol Region Watershed District.

6.3 WETLAND MANAGEMENT

In 1999, all wetlands within the Capitol Region Watershed District were inventoried and their functions and values were assessed. This inventory included two wetlands in Lauderdale, namely Gasperre Pond (N202923-1-A) and Seminary Pond (N202923-2-A). The assessment information can be found in Appendix F of the Capitol Region Watershed District 2010 Watershed Management Plan. Wetland functions evaluated included Vegetative Diversity/Integrity, Maintenance of Hydrologic Regime, Flood and Stormwater Storage/Attenuation, Water Quality/Shoreline Protection, Groundwater Interaction, Wildlife Habitat, Fisheries Habitat, and Aesthetics/Recreation.

The City will include the completion of a wetland inventory and assessment for the remaining wetlands in Lauderdale, namely Walsh Lake, in the City's implementation item discussed in Section 8. An estimated cost

City of Lauderdale Local Surface Water Management Plan



for the completion of the wetland inventory and assessment is included in Section 8. Some level of financial assistance from the local WMOs could also be requested. Within the RCWD boundary, the RCWD is identified as the Local Government Unit (LGU) responsible for the administration and enforcement of the Wetland Conservation Act (WCA). Within other areas of the City (within CRWD and MWMO boundaries), the City acts as the LGU. The WCA requires anyone proposing to drain, fill, or excavate a wetland first to try to avoid disturbing the wetland; second, to try to minimize any impact on the wetland; and, finally, to replace any lost wetland acres, functions, and values. Certain wetland activities are exempt from the act, allowing projects with minimal impact or projects located on land where certain pre-established land uses are present to proceed without regulation.

In 2017, Barr submitted a wetland delineation report to the City of Lauderdale and the USACE for Seminary Pond. This pond was originally constructed as a dry basin to provide flood mitigation benefits. CRWD is hoping to improve water quality and flood control performance of this pond by deepening it and converting it to a wet pond. In addition to adding an iron enhanced filtration bench to remove dissolved phosphorus. Seminary Pond is a regulated wetland under the Wetland Conservation Act. Thus, Barr prepared both an existing and proposed conditions Minnesota Routine Assessment Methodology (MNWRAM) based on the proposed design to determine effects of converting this pond to a wet pond and adding proposed features. Findings are further discussed in a technical memorandum entitled "Seminary Pond Wetland Function Assessment Comparison" which can be requested from the CRWD. In summary, the results of this report indicate that there are no wetland functions that would decrease as a result of the project.

6.4 IMPAIRED WATERS AND TMDLS

Section 303(d) of the Federal Clean Water Act requires that states create impaired waters lists for waterbodies that do not meet water quality standards due to the presence of a particular pollutant or stressor. Impaired waters lists are published biannually, following monitoring and assessment of the waterbody. Total Maximum Daily Loads (TMDLs), developed for impaired water bodies, specify the maximum pollutant amount that the waterbody can receive to meet water quality standards. A TMDL is the sum of waste load allocations, load allocations, and a margin of safety. Waste load allocations are expressed in numeric form, and municipal stormwater sources fall under waste load allocations because they are regarded as point sources. Load allocations are those loads that do not fall under NPDES permit areas.

There are no waterbodies within the City of Lauderdale currently identified on the Minnesota Impaired Waters List. However, five waterbodies in adjacent communities receiving discharge from Lauderdale are currently identified on the state list of Impaired Waters: South Long Lake, North Long Lake, Pike Lake, Mississippi River, and Rice Creek. Two sections of the Mississippi River are impaired; the first is the section from Crow River to Upper Saint Anthony Falls, and the second is the section from Lower St. Anthony Falls to Lock and Dam #1. The section of Rice Creek that is listed is between Long Lake and Locke Lake, which is part of the Upper Mississippi River TMDL, and the City is a regulated MS4 on this TMDL. Information for impaired waters identified in adjacent communities receiving flows from Lauderdale are identified in Table 2.4 in Section 2.6.4. The absence of a waterbody from the 303(d) list does not necessarily mean the waterbody is meeting its designated use(s). It may be that it has either not been sampled or there is not enough data to make an impairment determination.

As part of the NPDES program, the City of Lauderdale is required to review all discharges from their MS4 system to impaired waters, as defined by the current USEPA approved 303(d) list. As a part of this review they are required to do the following:



- 1. Review the Impaired Waters List to determine whether there are any impaired waters located within five miles of the City's boundaries that receive discharge from the City's MS4. For waters that are impaired only for mercury, the review process stops here.
- 2. Identify the location(s) of discharge(s) from the City's MS4 to the impaired waters. Discharges may include pipes, outlets, ditches, swales, street gutters, or other discrete conveyances for stormwater runoff.
- 3. Delineate the watershed area within the City's jurisdiction that discharges to each impaired water.
- 4. Prepare an impaired water evaluation addressing the hydrology, land use, and other characteristics of each watershed area delineated.
- 5. Prepare an impaired waters report. This report will address the results of the impaired waters evaluation along with a determination of whether changes to the City's SWPPP are warranted to reduce the impact from the City's MS4 stormwater discharge to each impaired water.
- 6. The City will incorporate the changes identified in the impaired waters report into the City's SWPPP and be reported through the annual reporting process.

At some point, a strategy would be developed that would lead to attainment of the applicable water quality standard for these impaired waters. The process of developing this strategy is commonly known as the Total Maximum Daily Load (TMDL) process and involves the following phases: 1) Assessment and listing, 2) TMDL study, 3) Implementation plan development and implementation, and 4) Monitoring effectiveness of implementation efforts.

Responsibility for implementing the requirements of the Federal Clean Water Act falls to the U.S. Environmental Protection Agency. In Minnesota, the EPA delegates much of the program responsibility to the Minnesota Pollution Control Agency (MPCA). Information on the MPCA program can be obtained at the following web address: <u>http://www.pca.state.mn.us/water/tmdl/index.html.</u>

Discussion regarding the directives for impaired waters and ultimately TMDL studies addressing the impairments for the waterbodies listed in Table 2.4 is presented in the implementation section (Section 8) of the LSWMP. This section will identify how the City intends to be involved in these directives and the City's strategy for implementing these directives.

6.5 NPDES PERMITTING PROCESS

The MPCA has designated the City of Lauderdale as an NPDES Phase II MS4 community (MN Rules 7090). The NPDES State Disposal System (SDS) General Permit (MNR040000) for discharges of stormwater associated with Municipal Separate Stormwater Systems (MS4s) was issued initially in 2003, and the permit is updated every five years. At the time of the 2018 LSWMP update for the City of Lauderdale, the 2013 Draft MS4 permit is still in effect. As new MS4 general permits are issued, the City will update its Stormwater Pollution Prevention Plan (SWPPP) and LSWMP as necessary. The City's SWPPP will address six minimum control measures:

- 1. Public education and outreach
- 2. Public participation/involvement
- 3. Illicit discharge detection and elimination
- 4. Construction site stormwater runoff control
- 5. Post-construction stormwater runoff control
- 6. Pollution prevention in municipal operations

City of Lauderdale Local Surface Water Management Plan



The City's SWPPP contains several best management practices within each of the listed control measures. These were identified using a self-evaluation and input process with City staff.

Many of the goals and policies discussed in this Local Water Management Plan are directly related to requirements listed in the NPDES program. As a result, the Goals and Policies section of this plan repeatedly references items listed in the City's SWPPP. Per the requirements of the MS4 Permit, the City will review their SWPPP and update as necessary on an annual basis.

The City will coordinate water resource educations effort with outside agencies to complete the City's goals as outlined in their MS4 SWPPP, which may include fulfilling their public education requirements by obtaining educational information and assistance from local WMO's.

6.6 SUMMARY OF STORMWATER MANAGEMENT GOALS AND POLICIES

A summary of the stormwater management policies, including those policies identified in the RCWD, CRWD, and MWMO Watershed Management Plans being applicable to Lauderdale, is included in Chapter 7. Where a specific watershed policy directly impacts the City of Lauderdale, the policy will be incorporated into the City's stormwater management policies in Section 7 of this LSWMP.

6.7 COMPARISON OF REGULATORY STANDARDS

The City will be responsible for implementation and enforcement of watershed management standards within the MWMO jurisdictional boundary except MnDOT projects. Standards applied will be equivalent to the MWMO's standards listed in the appendix. The City is also committed to coordinating project review efforts to facilitate RCWD and CRWD permit process. See Figure 2.2 for the location of the jurisdictional boundaries for these WMOs.

Each WMO has established standards governing stormwater management and protection of natural resources. The governing document for these standards for each WMO is identified as follows:

- Rice Creek Watershed District Rules- adopted December 14, 2016
- Capitol Region Watershed District Rules adopted September 6, 2006 and revised April 1, 2015 MWMO Watershed Management Plan Section 3.1.3 – adopted 2011-2021 (11-09-2016 Amended Version)

6.8 WATER RESOURCE RELATED PROBLEMS AND POSSIBLE CORRECTIVE ACTIONS

An assessment of specific existing and potential water resource-related problems is summarized below. These problems have been identified based on current information available to the City and includes problems identified in any of the documents listed in Section 4 (related studies, plans, and reports). Possible corrective actions have been listed for each problem and those to which the City commits itself are incorporated into an implementation program (Section 8).

In addition to these specific problems, the WMPs for the three WMOs having jurisdiction in Lauderdale also identify general stormwater management issues that apply across the jurisdiction or to a smaller sub-area of their jurisdiction. The City will be incorporating corrective actions to address the applicable general issues



into the LSWMP goals and policies (Section 7) and/or stormwater management standards (Section 8), which conform to the goals and policies and stormwater management standards of the WMOs.

	Problem, Issue, or Concern	Possible Corrective Action
6.7.1.1	Degraded water quality within Walsh Lake	 Harvesting aquatic weeds as necessary. Cooperate with the efforts of the Rice Creek Watershed District to implement water quality treatment measures to improve the water quality of Walsh Lake; these include enhancing areas upstream to include depressional storage or the creation of raingardens or biofiltration areas, using green areas better to provide treatment. The City will coordinate with BCWD to implement these items.
6.7.1.2	Disconnection of historic Bridal Veil Creek natural corridor	 Cooperate with the efforts of organizations such as the MWMO, Southeast Como Improvement Association (SECIA), St. Anthony Park Community Council (SAPCC), and MnDNR to re-establish a natural corridor between Bridal Veil Pond and the Seminary Pond area.
6.7.1.3	Lack of native upland and wetland plant diversity in the Seminary Pond area	 Cooperate with the efforts of organizations such as the MWMO, CRWD, SECIA, SAPCC and MnDNR to initiate a native plant restoration project in the Seminary Pond area to control exotic plant species and improve native plant diversity.
6.7.1.4	Absence of natural stream section downstream of Seminary Pond	 Cooperate with the efforts of organizations such as the MWMO, CRWD, SECIA, SAPCC and MnDNR to replace the existing concrete channel with a natural channel design.
6.7.1.5	Loss of natural infiltration characteristics within the Bridal Veil Creek system	 Cooperate with the efforts of organizations such as the MWMO, SECIA, SAPCC and MnDNR to locate and construct infiltration BMPs in the vicinity of Seminary Pond.
6.7.1.6	Erosion issues in the ravine draining into Seminary Pond from Fulham Street	 Coordinate funding with the City of Falcon Heights to stabilize the existing ravine section using bioengineering techniques.
6.7.1.7	Address potential for high TSS volumes in Walsh Lake and Seminary Pond	• Train street, service, public works, building, and parks and recreation staff to identify sources of illicit discharge.
6.7.1.8	Degraded water quality within Seminary Pond	 Convert pond from dry to wet pond and install iron- enhanced sand filter bench.

 TABLE 6.2 – NATURAL RESOURCES AND WATER QUALITY PROBLEMS



	Problem, Issue, or Concern	Possible Corrective Action
6.7.2.1	Existing conveyance system on Eustis Street between Larpenteur Avenue and Pond 1	• With the reconstruction of Eustis Street, the existing system should be replaced by a continuous storm sewer system tying into the existing storm sewer south of Pond 1. Coordinate with CRWD as a potential partner to address.
6.7.2.2	Risk of flooding homes along Pleasant Street, adjacent to Walsh Lake	 Work with the City of Roseville to rehabilitate or replace existing lift station – to be financed by Roseville. Analyze the possibility of grading an overland EOF to the west.
6.7.2.3	Risk of street and parking lot flooding adjacent to Eustis Street between Como Avenue and Idaho Avenue where the outlet of Seminary Pond is located	 Analyze the system to see if storage alternatives or a different channel configuration could eliminate the street and parking lot flooding. Expand storage in Gasparre and Seminary Ponds where available Coordinate with CRWD as a potential partner to address.

TABLE 6.3 – FLOODING AND STORMWATER RATE CONTROL PROBLEMS



This page intentionally left blank



city of lauderdale - local surface water management plan Section 7 – Goals and Policies

7.1 SUMMARY

Surface water management issues within the City are primarily defined by the requirements of current or pending programs. The goals and policies outlined in this plan are grouped by their relationship to the key issues listed below:

- Section 7.2 Land Development and Redevelopment Goals and policies to prevent flooding and adverse impacts to water resources from land disturbance and impervious surfaces.
- Section 7.3 Resource Management Goals and policies for managing Lauderdale's wetlands, lakes, and groundwater, to preserve the functions and values of these resources.
- Section 7.4 Citywide Program Elements Goals and policies for managing water resources and drainage systems on a citywide scale, to effectively achieve surface water management goals.
- Section 7.5 Support of Other Agencies Goals and policies to coordinate local surface water management with the work of watershed management organizations and state agencies.

The goals and policies listed below are consistent with the NPDES MS4 General Permit and the City of Lauderdale's SWPPP. These goals are also in alignment with those identified by the WMOs in their WMPs.

7.2 LAND DEVELOPMENT AND REDEVELOPMENT

Overall Goal: Manage land disturbance from new development, redevelopment, street reconstruction projects, or any other public or private land disturbing activity that creates new impervious or fully reconstructed surfaces to prevent flooding and adverse impacts to water resources through the cooperation with the stormwater management standards identified by the WMOs with jurisdiction in Lauderdale. To make this process effective, the City will strive through an up-front stormwater assessment and planning process to incorporate best management practices that focus on treating runoff at the source and not in typical end of pipe treatments. The incorporation of these Best Management Practices will coincide with the guidance provided in the Minnesota Stormwater Manual.

The upfront stormwater assessment and planning processes implemented at the project submittal stage will include guidance and recommendations for projects to include volume management features at the most ideal locations throughout a projects corridor. At a minimum, the City will look to provide pretreatment of stormwater before it enters the existing stormwater system. Volume management will apply to projects that disturb greater than 1 acre of land or 10,000 sq ft of land adjacent to a water body (wetland, stream, public water, public water wetland).

7.2.1 RUNOFF RATE

Goal: Control the rate of stormwater runoff from development to reduce downstream flooding and erosion.

Policy: The City will enforce their stormwater management ordinance (see Section 8-4) to ensure that the peak rate of runoff from regulated land development or redevelopment does not exceed existing rates for the 2-year, 10-year, and 100-year rainfall events. Rate control below existing rates may be necessary where downstream capacity issues are identified, which will require coordination with the local WMOs.

City of Lauderdale Local Surface Water Management Plan



Policy: The City will require that the maximum duration for rainfall critical event analysis shall be 24 hours. The City will require the use of the hydrograph method of analysis, the MSE Type III storm distribution, and NOAA Atlas-14 rainfall data.

Policy: For new construction, the City will ensure that stormwater features have emergency overflow spillways sufficiently stabilized to convey flows greater than the 100-year critical storm event.

7.2.2 FLOOD PREVENTION AND FLOODPLAIN MANAGEMENT

Goal: Provide adequate storage and conveyance of runoff and control development in flood prone areas to protect the public safety and minimize property damage.

Policy: The City will require that the low floor elevation of new structures provide a minimum of 2-feet of freeboard above the 100-year High Water Level (HWL) or 1-foot of freeboard above the emergency overflow of an adjacent pond.

Policy: While no designated floodplains exist in Lauderdale, consistent with the policy in Section 3.4 (General Compliance Requirements) of the MWMO WMP, the City requires that encroachment into floodways that reduces conveyance capacities or expedites flood flows not be allowed.

7.2.3 RUNOFF VOLUME

Goal: Reduce pollutant loads and impacts to water bodies and encourage groundwater recharge, by reducing the volume of stormwater runoff from development and redevelopment areas.

Policy: The City will review and update City code as necessary to ensure that volume control standards are consistent with current engineering practices and current regulations of local and state agencies having jurisdiction within the City.

Policy: For all projects except Public Linear Projects within RCWD or MWMO, calculate water quality treatment volume by multiplying the area of new or reconstructed impervious surface by 1.1 inches, and divide by a total phosphorus removal factor (values indicated below in Table 7.1). For Public Linear Projects within RCWD or MWMO, the required water quality treatment volume is the area of new impervious surface multiplied by 0.75 inches. For all projects within CRWD, stormwater runoff shall be retained onsite in the amount equivalent to 1.1 inches of runoff over the impervious surfaces of development.

Policy: Per the MS4 Permit, new development and redevelopment projects with land disturbances of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, within the permittee's jursidiction and that discharge to the City's MS4 must be in compliance with the Post-Construction Stormwater Management requirements of Part III D.5 of the MS4 Permit. Refer to the MS4 Permit for further information.



TABLE 7.1 – TP REMOVAL FACTORS FOR BMPS

BMP	BMP Design Variation	TP Removal Factor
Infiltration	Infiltration Feature	1.00
Water Reuse	Irrigation	1.00
Biofiltration	Underdrain	0.65
Filtration	Sand or rock filter	0.50
Stormwater Wetlands	Shallow Wetland	0.40
Stornwater Wetlands	Pond/Wetland	0.55
Stormwater Bonds	Wet Pond	0.50
Stoffiwater Follus	Multiple Pond	0.60

Goal: Reduce the volume of stormwater runoff from existing developed areas.

Policy: The City will coordinate efforts with the local WMO to minimize impervious surfaces where feasible when reconstructing streets and other paved surfaces and provide volume control mitigation per WMO requirements.

Policy: Where practical, the City will encourage the use of infiltration systems that promote water conservation and reuse to reduce discharge volumes and conserve groundwater in existing developed areas, taking into consideration site limitations such as soil conditions, depth to groundwater, safety, snow removal, and maintenance issues.

7.2.4 NUTRIENT AND SEDIMENT LOADING

Goal: Reduce the nutrient and sediment loads discharged from land development or redevelopment.

The following policies are consistent with SWPPP minimum control measure MCM 5 (post-construction storm water management) and MCM 6 (pollution prevention/good housekeeping for municipal operations).

Policy: The City will strive for the non-degradation of receiving waters within the City by enforcing current stormwater management standards, in cooperation with the local WMOs' stormwater management standards.

Policy: The City will defer the enforcement of nutrient and sediment load requirements to those of either the RCWD or CRWD. Under no circumstances shall overall treatment of a development or redevelopment site fall below 50% post-development removal for phosphorous and 90% post-development removal for total suspended solids.

Policy: The City will require that developments incorporate non-point source pollution reduction BMPs to achieve 90% total suspended solids removal from the runoff generated by a Nationwide Urban Runoff Program (NURP) water quality storm (2.5" rainfall), or on an annual basis.

Policy: The City will review and update the stormwater management ordinance (see City Code Section 8-4) as necessary to ensure that water quality treatment standards are consistent with current engineering practices and current regulations of local and state agencies having jurisdiction within the City.



Policy: The City will enforce their stormwater management ordinance (see City Code Section 8-4) requiring outlet skimming up to the 1-year storm event HWL in all new stormwater ponds.

7.2.5 EROSION AND SEDIMENT CONTROL

Goal: Prevent sediment from construction sites from entering the City's surface water resources.

The following policies are consistent with SWPPP MCM 4 (construction site stormwater runoff and control) and MCM 5 (post-construction stormwater management).

Policy: The City will implement, update and enforce the Erosion and Sediment Control Ordinance (*Title 8, Chapter 4 – Stormwater Management*) as outlined in the NPDES, MS4 permit.

Policy: The City will require that erosion and sediment control practices are consistent with the standards identified in the current MPCA Construction General Permit and the Minnesota Stormwater Manual.

Policy: The City will require that a wetland assessment be prepared for any project that includes a wetland not already assessed. Minnesota Routine Assessment Methodology (current version) is the required method of assessment for evaluating wetland functions and values.

7.3 RESOURCE MANAGEMENT

Goal: Protect the City's wetlands, lakes, streams, groundwater, and natural areas to preserve the functions and values of these resources for future generations through the Wetland Conservation Act, buffer standards, groundwater protection rules and coordination with outside agencies.

7.3.1 WETLAND MANAGEMENT

Goal: Protect and preserve wetlands to maintain or improve their function and value.

Policy: RCWD will administer WCA LGU responsibilities within its district boundary to ensure no net loss of wetland functions and values. The City will administer WCA LGU responsibilities within other areas of the City, within the CRWD and MWMO boundaries.

Policy: The City will require that runoff from development and redevelopment projects be pre-treated prior to discharge to wetlands.

Policy: The City will work to improve the wetland functions and values of Seminary Pond, which will partially be accomplished through the Seminary Pond Improvement Project.

Policy: The City will require that, prior to development activities or public projects, a wetland delineation must be completed, including a field delineation and report detailing the findings of the delineation.

Policy: The City will require that a wetland assessment be prepared for any project that includes a wetland not already assessed. Minnesota Routine Assessment Methodology (current version) is the required method of assessment for evaluating wetland functions and values.



7.3.2 LAKE MANAGEMENT

Goal: Improve water quality and protect resource values of lakes.

Policy: The City will cooperate with the RCWD to identify possible activities to improve water quality in Walsh Lake.

Policy: The City will identify potential partnerships with CRWD to address water quality improvements for Seminary Pond.

7.3.3 STREAM MANAGEMENT

Goal: Improve water quality, provide wildlife habitat and protect the resource value of streams.

Policy: The City will support the efforts of the MWMO to restore the historic natural stream section within the Bridal Veil Creek system in the vicinity of Seminary Pond.

7.3.4 GROUNDWATER RECHARGE AND PROTECTION

Goal: Protect groundwater resources and groundwater-dependent surface water and natural resources.

Policy: The City will cooperate with Ramsey County, the Minnesota Department of Health, and the local WMOs to identify and protect critical groundwater resources areas.

Policy: The City will cooperate with other agencies once the Ramsey County Groundwater Protection Plan is adopted, to implement recommendations identified in this report.

Policy: The City will support the efforts of the MWMO to restore lost infiltration features within the Bridal Veil Creek system. Where possible, the City will partner with the MWMO to utilize grant funding programs and other opportunities to work with the MWMO. These include, the Capital Project Grant program, which is a new grant set up to target innovative stormwater management, watershed assessments (i.e. developing management goals for the Bridal Veil Creek and identifying opportunities to improve their ecological function), and coordination over TMDL implementation within the MWMO.

7.3.5 NATURAL AREA MANAGEMENT

Goal: Protect and enhance natural areas within the City to provide wildlife habitat and water resource benefits.

Policy: The City will support programs to maintain and restore the resource value of natural areas and enhance water based recreational opportunities.

Policy: The City will support the efforts of the MWMO to re-establish a natural corridor between Bridal Veil Pond and the Seminary Pond area.

Policy: The City will work to control noxious invasive plants within the City, in cooperation with Ramsey County for the control of Japanese knotweed in the Gasperre/Seminary Pond areas of Lauderdale.



7.4 CITYWIDE PROGRAM ELEMENTS

Overall Goal: Manage water resources and drainage systems on a citywide scale, including monitoring and maintenance of drainage systems, targeted pollution prevention, public education, system reconstruction projects, and equitable collection of supporting funds.

7.4.1 POLLUTION PREVENTION

Goal: Detect and address urban pollutants discharged to storm sewers.

The following policies are consistent with SWPPP MCM 3 (illicit discharge detection and elimination) and MCM 6 (pollution prevention/good housekeeping for municipal operations).

Policy: The City will enforce its ordinance requiring that animal waste is disposed of on public property.

Policy: The City will actively implement the NPDES Stormwater Pollution Prevention Plan as stated in the most current version of the MS4 permit.

Policy: The City will maintain an effective spill response plan.

Policy: The City will complete employee training in the operation, maintenance and inspection of stormwater facilities, as included in the SWPPP.

Policy: The City will monitor stormwater system facilities for pollutants as outlined in the City's SWPPP.

Policy: Illicit connections and discharges to the City of Lauderdale's Municipal Separate Storm Sewer System (MS4) are prohibited. Refer to the City of Lauderdale's City Ordinances *Title 8, Chapter 5- Stormwater Illicit Discharge and Illicit Connections to the Storm Sewer System*, for further information.

7.4.2 MONITORING AND MAINTENANCE

Goal: Maintain the function and effectiveness of stormwater management structures through monitoring and maintenance.

The following policies are consistent with SWPP MCM 3 (illicit discharge detection and elimination), MCM 5 (post-construction stormwater management), and MCM 6 (pollution prevention/good housekeeping for municipal operations).

Policy: The City will continue to conduct street sweeping twice annually, as consistent with the City's SWPPP.

Policy: The City will continue inspection and maintenance of the city's stormwater conveyance and ponding system as outlined in the City's SWPPP.

Policy: The City will inspect and monitor the construction and installation of all new stormwater facilities and require that such facilities be surveyed to create as-built drawings.



7.4.3 PUBLIC EDUCATION

Goal: Inform and educate residents about stormwater pollution, the effects of urban runoff and the need to protect natural resources.

The following policies are consistent with SWPPP MCM 1 (public education and outreach).

Policy: The City will implement a public education and outreach program as identified in the City's NPDES permit.

Policy: The City will coordinate public education work with the Ramsey Conservation District and local WMOs.

Policy: The City will promote citizen and volunteer efforts to protect, restore and enhance local water and natural resources.

Policy: The City will use available opportunities through its newsletter, public meetings, website, Comprehensive Plan, or interpretive elements at parks and open space sites to inform its residents about the value of local water resources, the effects of stormwater runoff, and opportunities for stewardship of water and natural resources.

Policy: The City will continue to have signs at the entrances to public parks and well-travelled walkways, highlighting the importance of disposing of pet waste.

7.4.4 Funding

Goal: Secure adequate funding to support implementation of the Local Surface Water Management Plan.

Policy: The City will fund implementation of the plan with revenue from the stormwater utility. The City will periodically review utility rates to ensure that funding is adequate and fees are equitably distributed.

Policy: The City will seek grant funds or other resources to assist with special projects or implementation of plan goals.

7.5 SUPPORT OF OTHER AGENCIES

Overall Goal: Cooperate and coordinate local surface water management with the work of local WMOs and state agencies.

Goal: Facilitate WMO review of development projects and enforcement of watershed standards.

Policy: The City will coordinate development review activities with the appropriate local WMO. The City will defer to the CRWD and RCWD for review and enforcement of stormwater management standards for construction projects in accordance with the permit programs of these organizations. The City will review, permit and enforce watershed standards on development projects in the MWMO, and provide MWMO the opportunity to review projects being considered for a variance. The City will notify and include the applicable WMO in development concept reviews. This policy is consistent with SWPPP MCM 4 (construction site stormwater runoff control) and MCM 5 (post-construction stormwater management).



Goal: Cooperate with other organizations to complete management plans and studies for water resources in Lauderdale.

Policy: The City will work with local WMOs, Ramsey County, and others when appropriate and as resources are available to participate in resource management plans or studies that benefit water and natural resources in Lauderdale.

Goal: Cooperate with other organizations working to protect groundwater resources.

Policy: The City will cooperate with the County and WMOs to implement the recommendations of the Ramsey County Groundwater Quality and Protection Plan, to protect groundwater quality by reducing the potential for transport of stormwater pollutants into the groundwater, and maintaining the functions of groundwater recharge areas.

Goal: Cooperate with watershed districts in addressing existing TMDLs and new TMDL as they are identified for the Mississippi River.

Policy: The City will cooperate with the Mississippi Watershed Management Organization and Capitol Region Watershed District in an assessment of current and future demands on the stormwater infrastructure and how it might affect future Capitol Improvement Projects (CIP). These evaluations could include:

- Analyzing the effect of a proposed project on the downstream conveyance system and drainage area.
- Identify any future problems that may arise from additional project related stormwater demands on the system.
- An analysis on potential stormwater Best Management Practices they may be included with CIP projects that will reduce volume demands on the stormwater conveyance system and drainage areas and pretreat water entering the system.

Policy: The City will continue to enforce its pet waste policies, in an effort to help meet the goals of the Upper Mississippi River Bacteria TMDL.



city of lauderdale - local surface water management plan Section 8 – Implementation

8.1 OVERVIEW

The City has developed an implementation program based on the information developed in earlier sections of this Local Surface Water Management Plan. This program reflects the needs and concerns of many stakeholders including the City Council, City Staff, citizens, watershed management organizations, and funding capabilities.

This Section summarizes the implementation items identified in Sections 6 and 7 of this LSWMP, prioritizes these items, and presents a preliminary cost estimate to complete the items based on the best available information. It should be noted that estimated costs presented in the section are preliminary only and a presented for long-term budget planning purposes.

8.2 IMPLEMENTATION ACTIVITIES

The City's current, overall Capital Improvement Plan includes several projects that address issues identified in Section 6 and goals and policies identified in Section 7. A summary of those projects is provided in Table 8.1, showing proposed start year, priority level, and budgeted cost. Project effectiveness will be measured by assessing whether or not these projects have been implemented by the date listed in this table. The City will use the implementation project information presented in Table 8.1 to update their current CIP, as necessary. The City updates the Capital Improvement Plan on an annual basis.

8.3 OTHER FUTURE IMPLEMENTATION ACTIVITIES

This section includes other future implementation activities not identified in Table 8.1 above. These activities generally include coordination efforts other agencies or potential future activities that have yet to be finalized. These future implementation activities identified below are relevant to overall stormwater management within the City and should be considered in future Capital Improvement Plan discussions. Specific information regarding the most current local WMO cost share programs can be found on their websites, as follows:

- Rice Creek Watershed District: <u>www.ricecreek.org/grants</u>
- Capitol Region Watershed District: <u>www.capitolregionwd.org/our-work/grants</u>
- Mississippi Watershed Management Organization: <u>www.mwmo.org/stewardshipfund.html</u>

8.3.1 COORDINATE WITH THE RCWD TO ADDRESS DEGRADED WATER QUALITY IN WALSH LAKE

As part of the 2002 Utility and Street Improvement Project, the City removed approximately 500 cubic yards of sediment that had deposited near pond inlets. The City is interested in partnering with the RCWD to complete both in-lake vegetation management and water quality retrofit projects aimed at improving the water quality of Walsh Lake. The RCWD identifies specific programs on their website (<u>www.ricecreek.org</u>) that could be applied toward partnering with Lauderdale, including:

- RCWD Urban Stormwater Remediation Cost-Share Program
- RCWD Water Quality Grant Program



Activity #	Activity	Activity Description	Proposed Start	Priority Level	Budgeted Cost	Responsibility
1	Wetland Inventory and Assessment	Complete a Wetland Inventory and Assessment of wetlands in Lauderdale – cost will depend on level of detail, deliverables, and cost participation from the local WMOs	2018	Medium	\$3,500	City
2	Seminary Pond Ravine Stabilization	Stabilize the eroding ravine section upstream of Seminary Pond toward Fulham Street using bioengineering techniques – outside funding from various organizations should be sought	2020	Low	\$80,000	City and Watershed District(s)
3	Eustis Street Storm Sewer Improvements	Replace the existing overland conveyance system on Eustis St. between Larpenteur Ave.and Pond 1 with a continuous storm sewer system	2019	Medium	To be negotiated with the county.	City and Ramsey County
4	Reduce Walsh Lake Flood Risk	Reduce the flood risk to homes along Pleasant Street, adjacent to Walsh Lake – rehabilitation or replacement of the existing lift station (at the City of Roseville's cost) should be done prior to other improvements	2018	Medium	\$20,000	Cities of Lauderdale and Roseville
5	Review and Update City Code	Review city code and update as necessary to comply with local WMO and state stormwater management standards and rules	Ongoing	Medium	\$3,000	City
6	Complete Staff Training	Complete city staff training in the operation, maintenance and inspection of stormwater facilities	2018	Medium	\$1,000	City
7	General Inspection and Maintenance Program	 General inspection and maintenance of the City's stormwater management system: Annual street sweeping Inspection and maintenance of ditches, ravines, and storm sewer Inspection and maintenance of stormwater basins and outfalls Inspection and maintenance of structural pollution devices 	Ongoing	High	\$50,000	City
8	Public Education and Outreach Program	Develop and maintain a public education and outreach program to provide stormwater management education opportunities for City residents	Ongoing	High	\$5,000 annually	City
9	Sanitary Infiltration/ Inflow Program	Continue program to detect and address infiltration or inflow connections into the sanitary sewer system	Ongoing	Medium	\$21,000	City
10	Seminary Pond Improvements	Convert Seminary Pond from a dry to wet pond with iron enhanced sand filter for TP removal	2022	High	\$500,000	City and Capitol Region Watershed District
11	Park Pollinator Project	Plant native grasses on big hill in park on Roselawn Avenue	2018	Medium	10,000	City/County
12	Invasive Species Project	Control invasive species in the Nature Area	2018	Medium	\$10,000	City

TABLE 8.1 – IMPLEMENTATION PROJECTS



Activity #	Activity	Activity Description	Proposed Start	Priority Level	Budgeted Cost	Responsibility
1	Illicit Discharge Detection and Elimination Ordinance	Review city code and update to address the NPDES illicit discharge detection and elimination ordinance requirements as necessary	Ongoing	High	\$2,000	City
2	Site Erosion Control Ordinance	Review city code and update to address the NPDES construction site erosion control ordinance requirements as necessary	Ongoing	High	\$3,000	City
3	Stormwater Management Ordinance	Review city code and update to address the NPDES stormwater management ordinance requirements as necessary	Ongoing	High	\$3,000	City

TABLE 8.2 – ORDINANCE-RELATED IMPLEMENTATION MEASURES

8.3.2 FUTURE TOTAL MAXIMUM DAILY LOAD (TMDL) STUDIES

As discussed in Section 2.6.4, there are currently no water bodies within Lauderdale that are listed on the Minnesota Pollution Control Agency's list of impaired waters; lakes and streams in the state that do not meet federal water quality standards. However, drainage from Lauderdale ultimately discharges into a number of impaired waters: Pike Lake, North Long Lake, South Long Lake, Rice Creek, and the Mississippi River.

The City recognizes that the responsibility for completion and implementation of the TMDL studies lies with the primary stakeholders contributing to the impairment. The City intends to cooperate with the watersheds in the development of the TMDL studies, acknowledging that the watersheds will take the lead on these studies. It is the intention of the City to fully implement the items/actions identified in future TMDL Implementation Plans, funding the implementation items/actions as necessary.

8.3.3 NATIVE PLANT RESTORATION PROJECTS

Native plant restoration in the Seminary Pond area to control exotic plant species and improve native plant diversity is identified as an implementation item in the *Bridal Veil Creek Subwatershed Desk Study* published by the MWMO. Seminary Pond is located within Capitol Region Watershed District. The City will likely look to coordinate with this CRWD and other organizations to possibly combine native plant restoration projects in the Seminary Pond area with a stormwater project. The City is willing to provide assistance to these organizations as necessary once specific projects are identified.

8.3.4 REESTABLISHMENT OF NATURAL CORRIDOR

Reestablishing a natural corridor between Bridal Veil Pond and the Seminary Pond area is identified as an implementation item in the *Bridal Veil Creek Subwatershed Desk Study* published by the MWMO. The City will look for the MWMO and other organizations to initiate a project to reestablish the natural corridor between Bridal Veil Pond and the Seminary Pond area, as this action is regional in nature and will require substantial funding for land acquisition and site modifications. The City is willing to provide assistance to these organizations as necessary once specific projects are identified.

8.3.5 REDEVELOPMENT WATER QUALITY STANDARDS

Develop redevelopment water quality standards that seek to improve the existing water quality treatment capabilities of the site being redeveloped beyond current City redevelopment standards. A number of programs are identified in the local WMOs implementation plans that could provide partnering funds to address redevelopment water quality standards. A few of the available programs are as follows:

City of Lauderdale Local Surface Water Management Plan



- MWMO Stewardship Fund Program (Action, Planning or Mini Grants)
- CRWD Urban Redevelopment
- CRWD Stewardship Grant Program (for those projects that go above and beyond the required redevelopment stormwater standards)

8.3.6 URBAN WATER QUALITY RETROFIT PROJECTS

The City will look for opportunities in developed areas to install retrofit water quality improvement BMPs to improve the overall water quality in the City. A number of programs are identified in the local WMOs implementation plans that could provide partnering funds to locate, design, and install retrofit BMPs. A few of the available programs are as follows:

- MWMO Greening for Water Quality Program
- MWMO Stewardship Fund Program
- MWMO Water Reuse and Conservation Program
- RCWD Urban Stormwater Remediation Cost-Share Program
- RCWD Water Quality Grant Program
- CRWD Stewardship and Special Grant Programs

8.4 POTENTIAL FUNDING

Implementation of the proposed studies, programs, and improvements identified in this plan will affect City finances. To quantify this effect, a review of the ability of the City to fund these studies, programs, and improvements is required.

Below is a listing of various sources of revenue that the City will attempt to utilize:

- Existing stormwater utility
- Grant and partnership monies possibly secured from various agencies for projects
- General fund
- Project funds could be obtained from watershed district levies as provided for in Minnesota Statutes Chapter 103D.905 for those projects being completed by or in cooperation with the RCWD or CRWD.
- Special assessments for local improvements performed under authority of Minnesota Statutes Chapter 429.
- Revenue generated by Watershed Management Special Tax Districts provided for under Minnesota Statutes Chapter 473.882.
- Other sources potentially including tax increment financing, tax abatement, state aid, and others.

The City's stormwater utility is the primary source for the studies, programs, and improvements identified in this Plan.



city of lauderdale - local surface water management plan Section 9 – Administration

9.1 REVIEW AND ADOPTION PROCESS

Review and adoption of this Local Surface Water Management Plan will follow the procedure outlined in Minnesota Statutes 103B.235:

'After consideration but before adoption by the governing body, each local government unit shall submit its water management plan to the watershed management organization[s] for review for consistency with the watershed plan. The organization[s] shall have 60 days to complete its review.'

'Concurrently with its submission of its local water management plan to the watershed management organization, each local government unit shall submit its water management plan to the Metropolitan Council for review and comment. The council shall have 45 days to review and comment upon the local plan. The council's 45-day review period shall run concurrently with the 60-day review period by the watershed management organization. The Metropolitan Council shall submit its comments to the watershed management organization and shall send a copy of its comments to the local government unit.'

'After approval of the local plan by the watershed management organization[s], the local government unit shall adopt and implement its plan within 120 days, and shall amend its official controls accordingly within 180 days.'

9.2 AMENDMENTS TO PLAN AND FUTURE UPDATES

This Local Surface Water Management Plan will be incorporated into the City's 2040 Comprehensive Plan update and will be applicable until 2028, at which time an updated plan will be required. This timeline marks a change from previous updates; previously, Local Surface Water Management Plan updates were done when the water districts or water management organizations updated their Watershed Management Plans. Periodic amendments may be required to incorporate changes in local practices. In particular, changes to the three applicable Watershed Management Plans may require revisions to this plan. Plan amendments will be incorporated by following the review and adoption steps outlined above.



APPENDIX

I. Intercommunity Service Agreement



JOINT POWERS AGREEMENT PACAL SANITARY SEWER LINE

This Joint Powers Agreement (the "Agreement") is made by and between the city of Roseville ("Roseville"), a municipal corporation under the laws of Minnesota, and the city of Lauderdale ("Lauderdale"), a municipal corporation under the laws of Minnesota.

RECITALS

WHEREAS, Roseville presently maintains sanitary sewer and related equipment, including a lift station, on the east side of TH 280; and

WHEREAS, the sanitary sewer and related equipment presently serve the Paper Calmenson property, as hereinafter defined; and

WHEREAS, the Minnesota Department of Transportation ("MnDOT") is in the process of letting State Project Numbers 6241-51 and 6242-67, which will involve MnDOT's acquisition of the sanitary sewer and related equipment which presently serves the Paper Calmenson property; and

WHEREAS, Lauderdale owns and operates a sanitary sewer line on the west side of TH 280 which is available to serve the Paper Calmenson property; and

WHEREAS, Lauderdale is willing to cooperate with Roseville and provide sanitary sewer service to the Paper Calmenson property on the terms set forth herein.

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

- 1. <u>Construction of Roseville Facilities; Connection to Launderdale Line</u>. Roseville intends to construct a new sanitary sewer line serving the Paper Calmenson property ("PaCal Property") as that site is outlined in the attached Exhibit A. Lauderdale grants to Roseville a right and license to connect into an existing Lauderdale Trunk Sewer line (the "Trunk Sewer"), also identified in Exhibit A. Roseville shall provide the plans for this project to Lauderdale for review and design approvals for the point at which the new sewer line connects to the Trunk Sewer. Roseville shall pay the full cost of constructing its facilities and for connecting to the Trunk Sewer.
- 2. <u>Connection Fee</u>. Roseville, upon completion and connection of the new sanitary sewer line to the Trunk Sewer, will pay Lauderdale the sum of \$87,500 as a connection charge. This charge is based on a presumed redevelopment capacity of the PaCal Property of a flow of 115 gpm. If actual redevelopment of the PaCal Property exceeds this flow presumption, the parties agree to equitably adjust this fee.
- 3. <u>Preventative Maintenance</u>. Given the flow contribution of the new sanitary sewer line to the Trunk Sewer, the parties agree to share in the preventative maintenance cleaning cost

CALL HOLD - L

of the Trunk Sewer and the manholes as identified in Exhibit A once every five years. Lauderdale agrees to contribute \$15,000 to the cost for cleaning, to be performed by Roseville, which sum shall be deducted from the connection fee payment described in paragraph 2 above. Lauderdale's contribution shall be considered as payment in full for preventative maintenance every five years through 2110.

Major Maintenance. In the event major maintenance of the Trunk Sewer is required in the future, the parties agree that they will share in the cost of the work on a percentage basis, with Roseville's share based on the percentage of allocated capacity (16.5%) of the Trunk Sewer and Lauderdale's share being 83.5%. For purposes of this paragraph, "major maintenance" is defined as any maintenance except routine cleaning and televising provided for under paragraph 3 above. Both parties shall approve, in writing, the plans for major maintenance of the Trunk Sewer.

4.

5.

Ownership. Roseville shall own the line and associated structures constructed within its corporate limits and shall maintain them in good operating order. Roseville shall pursue the licensure necessary to maintain the Roseville line. Lauderdale shall retain ownership of the Trunk Sewer and associated structures existing within its corporate limits.

- 6. <u>Ordinances Governing Use</u>. Roseville shall maintain ordinances governing sanitary sewer service to the PaCal Property which are consistent with Lauderdale's ordinances. After written notice to Roseville, per the requirements of paragraph 13, Lauderdale shall have the right to terminate sanitary sewer service for violations of Lauderdale's ordinances associated with the PaCal Property.
- 7. <u>Plan Review</u>. Lauderdale shall have the right to review plans for any private or public improvement projects on the PaCal Property that will utilize the Trunk Sewer. The plan review shall be for the sole purposes of determining consistency with Lauderdale sanitary sewer ordinances, calculating the appropriate fees pursuant to the ordinances, and ensuring that the capacity of the Trunk Sewer will not be exceeded. To the extent Roseville can recover plan review fees from the developers, Roseville shall reimburse Lauderdale for its administrative and consultant expenses in reviewing the plans.
- 8. <u>Capacity: Lauderdale Discretion</u>. Lauderdale represents that it will maintain through the term of this Agreement the capacity required for sanitary sewer service to the PaCal Property, subject to the capacity limitations specified in this Agreement. Notwithstanding anything else herein, nothing in this Agreement shall be construed to limit or restrict Lauderdale's ability to make decisions regarding its facilities and service in the reasonable exercise of its discretion as the owner and operator of its utilities.
- 9. <u>Service Interruption</u>. In the event sanitary sewer service must be interrupted for necessary non-emergency maintenance, Lauderdale shall give Roseville seven days' notice. Notice shall include a plan for maintenance and alternative service to be provided, if any, and the period of time service shall be interrupted, which plan and time period shall be reasonable in light of the circumstances. In case of emergencies, Lauderdale shall give Roseville immediate notice and provide a reasonable plan for

2

giounie d giocunie d
maintenance as soon as possible. Roseville shall be responsible for notifying PaCal Property users of service interruptions.

- 10. <u>User Fees</u>. PaCal Property users served by the Trunk Sewer must pay the fees and charges established by Roseville. Sanitary sewer flows from the PaCal Property shall be determined by water meter readings made by Roseville. Roseville shall pay the sanitary sewer user fees charged by the Metropolitan Council to Lauderdale quarterly based on Roseville's water meter readings.
- 11. <u>SAC Fees</u>. Roseville shall pay directly to Metropolitan Council a Service Availability Charge (SAC) fee upon redevelopment of the PaCal Property for each residential equivalency unit determined by the Metropolitan Council to be in excess of current usage. Roseville shall also be responsible for its proportionate share of any fees, costs or surcharges imposed on Lauderdale regarding the Trunk Sewer by the Metropolitan Council or any other permitting or regulatory authority.
- 12. <u>Amendment of Ordinances</u>. In the event Lauderdale amends its ordinance regarding user fees, Lauderdale shall give Roseville written notice 60 days prior to the effective date of such rate change or when such notice is provided to other Lauderdale users, whichever is earlier. Roseville shall have the same right as any Lauderdale user to challenge bills received from Lauderdale.
- 13. <u>Remedies</u>. In the event either party breaches any of its obligations under this Agreement, the non-breaching party shall have the right to bring an action at law for its available remedies, including termination of this Agreement, but only after giving 30 days' written notice of the breach to the breaching party and opportunity to cure the breach. If the breaching party does not cure the breach within the 30 day notice period, the non-breaching party may commence an action after giving 10 days' written notice to the breaching party that it intends to bring such action. Nothing herein shall limit the causes of action or equitable rights that the non-breaching party may assert pursuant to this Agreement.
- 14. <u>Termination by Roseville</u>. Roseville reserves the right to terminate this Agreement without cause for the purpose of providing its own sanitary sewer utilities to the PaCal Property.
- 15. <u>Term</u>. This Agreement shall be perpetual unless terminated in accordance with its terms.
- 16. <u>Indemnity</u>. Roseville shall defend, indemnify and hold harmless Lauderdale, its officers, employees and agents for any claims arising from Roseville's use or maintenance of sanitary sewer lines and related facilities within the boundaries of Roseville. Lauderdale shall defend, indemnify and hold harmless Roseville, its officers, employees and agents for any claims arising from Lauderdale's use or maintenance of the Trunk Sewer.

3

- 17. <u>Modification</u>. This Agreement may be modified only by written agreement of both parties.
- 18. <u>Notice</u>. All notices required by this Agreement shall be in written form and shall be deemed delivered upon placement in the United States mail, certified and return receipt requested, or by personal delivery:

As to Lauderdale:

City of Lauderdale 1891 Walnut Street Lauderdale, MN 55113 Attn: City Administrator

As to Roseville:

City of Roseville 2660 Civic Center Drive Roseville, MN 55113 Attn: City Manager

or to such other address or party as the parties may notify one another pursuant to this Agreement.

19. Governing Law. This Agreement shall be construed by the law of Minnesota.

- 20. <u>Severability</u>. In case any one or more of the provisions contained in this Agreement shall be held invalid, illegal or unenforceable in any respect by a court of competent jurisdiction, the validity, legality and enforceability of the remaining provisions contained herein and any other application thereof shall not in any way be affected or impaired thereby.
- 21. <u>Entire Agreement</u>. This Agreement and the attached exhibit shall constitute the entire agreement between Roseville and Lauderdale, and supersedes any other written or oral agreements between Roseville and Lauderdale on matters covered hereby.
- 22. <u>Counterparts</u>. This Agreement may be simultaneously executed in any number of counterparts, all of which shall constitute one and the same instrument.

23. <u>Effective Date</u>. The effective date of this Agreement shall be the date on which it is executed by the second party to sign. This Agreement shall not become effective until it has been executed by both parties to the Agreement.

4

ile ite sa Manaria

CITY OF LAUDERDALE

By ſ. Its Mayor

Ocultur ву∦

Its City Administrator

Dated: 4-23-09

CITY OF ROSEVILLE

5

unna By__ Its By_ lanager Its_ Dated:__

entra gyraena Entra g



APPENDIX

J. Saint Paul Regional Water Services Water Supply Plan



SAINT PAUL REGIONAL WATER SERVICES WATER SUPPLY PLAN







TABLE OF CONTENTS

Introduction to Water Supply Plan	. 3
General Information	.4

1.0	Water Supply System Description and Evaluation	5
Α.	Analysis of Water Demand	5
В.	Treatment and Storage Capacity	9
C.	Water Sources	14
D.	Future Demand Projections	17
E.	Resource Sustainability	18
F.	Capital Improvement Plan (CIP)	25

2.0	Emergency Preparedness Procedures	.27
Α.	Federal Emergency Response Plan	. 27
В.	Operational Contingency Plan	. 27
C.	Emergency Response Procedures	. 27
D.	Procedure for Augmenting Water Supplies	. 29
E.	Allocation and Demand Reduction Procedures:	. 30
F.	Enforcement	.34

3.0	Water Conservation Plan	36
Α.	Triggers for Allocation and Demand Reduction Actions	39
В.	Conservation Objectives and Strategies	40
C.	Regulation	47
D.	Retrofitting Programs	48
E.	Education and Information Programs	49

4.0. It	ems for Metropolitian Area Communities	50
A.	Water Demand Projections through 2040	50
В.	Potential Water Supply Issues	50
C.	Proposed Alternative Approaches to Meet Extended Water Demand Projections	50

lossary51	51
Acronyms and Abbreviations	54

List of Appendices

Appendix 1: Well Records and Maintenance Summaries
Appendix 2: Water Level Monitoring Plan
Appendix 3: Water Level Graphs
Appendix 4: Capital Improvement Plan
Appendix 5: Emergency Telephone List
Appendix 6: Cooperative Agreements for Emergency Services
Appendix 7: Municipal Critical Water Deficiency Ordinance
Appendix 8: Annual Per Capita Water Demand Graph (2004-2014)
Appendix 9: Water Rate Structure
Appendix 10: Adopted Regulations to Reduce Demand or Improve Water Efficiency
Appendix 11: Implementation Checklist

INTRODUCTION TO WATER SUPPLY PLAN

The Water Supply Plan serves as a tool to aid local water suppliers to implement long term water sustainability and conservation measures as well as to ensure preparedness for critical emergency events. The Water Supply Plan has been drafted to fulfill statutory obligations under Minnesota Statute 473.859.

Additional Benefits for completing the Water Supply Plan are listed below:

- Create eligibility for funding requests to the Minnesota Department of Health (MDH) for the Drinking Water Revolving Fund.
- Allow water suppliers to submit requests for new wells or expanded capacity of existing wells.
- Simplify the development of county comprehensive water plans and watershed plans.
- Fulfill the contingency plan provisions required in the MDH wellhead protection and surface water protection plans.

The Water Supply Plan is composed of four parts.

PART 1: WATER SUPPLY SYSTEM DESCRIPTION AND EVALUATION

This segment assesses Saint Paul Regional Water Services (SPRWS) water supply and distribution system to ensure current and future demand can be sufficiently met.

PART 2: EMERGENCY RESPONSE PROCEDURES

This segment outlines emergency response procedures and actions needed in in the event of an emergency.

PART 3: WATER CONSERVATION PLAN

This segment reviews strategies and programs focused on managing water demand to ensure a sustainable water supply.

PART 4: METROPOLITAN COUNCIL ITEMS

This segment relates to requirements by Minnesota Statute 473.859 to aid comprehensive plan requirements to communities in the seven county Twin Cities Metropolitan Area.

General Information

Table 1. General information regarding this WSP

Requested Information	Description
DNR Water Appropriation Permit Number(s)	756230,756227,776229,756228,756229
Ownership	Public
Metropolitan Council Area	Ramsey County
Street Address	1900 Rice St
City, State, Zip	Saint Paul MN, 55405
Contact Person Name	Steve Schneider
Title	General Manager
Phone Number	651-266-6274
MDH Supplier Classification	Municipal

Part 1. Water Supply System and Evaluation

A. Analysis of Water Demand

Saint Paul Regional Water Services (SPRWS) provides retail service to the cities of Saint Paul, Falcon Heights, Lauderdale, Maplewood, Mendota, Mendota Heights and West Saint Paul. SPRWS provides wholesale service to the cities of Little Canada, Roseville and Arden Hills.

Table 2 summarizes the water demand in the past 10 years.

Table 2 - Historic Water Demand

Year	Pop. Served	Total Connect ions	Residential Water Delivered (MG)	C/I/I Water Deliver ed (MG)	Water used for Non- essential (MG)	Wholesale Deliveries (MG)	Total Water Delivered (MG)	Total Water Pumped (MG)	Hydrant Permit Water Delivered (MG)	Water Supplier Services (MG)	Percent Unmetered / Unaccount ed	Average Daily Demand (MGD)	Max. Daily Demand (MGD)	Date of Max. Demand	Resident ial Per Capita Demand (GPCD)	Total per capita Demand (GPCD)
2005	416,759	95,524	6,533	5,705	114	2,389	14,918	16,139	3.5	174	7.6%	45	94	07/16/2005	51.72	106.09
2006	416,374	95,827	6,563	5,906	163	2,509	15,326	16,681	3.5	179	8.1%	46	92	07/30/2006	51.82	109.76
2007	418,213	95,693	6,781	6,046	168	2,561	15,750	17,656	3.5	191	10.8%	48	93	07/07/2007	53.27	115.66
2008	418,765	95,616	6,410	5,821	184	2,462	15,065	17,045	3.5	184	11.6%	47	87	07/30/2008	50.26	111.51
2009	419,919	96,320	6,336	5,758	176	2,472	14,922	16,422	3.5	177	9.1%	45	86	07/13/2009	49.79	107.15
2010	415,203	96,042	5,715	5,510	116	2,157	13,685	14,769	27	160	7.3%	41	72	08/29/2010	44.96	97.46
2011	417,089	95,568	5,669	5,554	118	2,215	13,740	15,358	18	166	10.5%	42	71	06/08/2011	44.59	100.88
2012	418,035	95,357	6,171	5,657	163	2,373	14,578	16,175	40	175	9.9%	44	77	07/04/2012	48.56	106.01
2013	424,660	95,400	5,754	5,417	124	2,200	13,699	15,841	31	173	13.5%	43	84	08/27/2013	44.44	102.20
2014	432,911	95,431	5,414	5,196	95	2,001	12,903	15,094	31	166	14.5%	41	68	08/27/2014	40.73	95.52
2015	435,473	95,456	5,211	5,202	95	1.991	12,685	14,508	22	166	12.5%	40	63	08/15/2015	39.05	91.28
Avg. 2010 - 2015	423,895	95,549	5,656	5,422	118	2,156	13,549	15,291	28	168	11.4%	42	73	N/A	43.72	98.89

MG – Million Gallons MGD – Million Gallons per Day GPCD – Gallons per Capita per Day

Notes:

- 1. "Population Served" is the estimated population served by Utility (Wholesale & Retail).
- 2. "Total Connections" include fire protection accounts. Wholesale accounts are not included here.
- 3. "Water used for Non-essential" is water from accounts solely used for lawn sprinkling.
- 4. "Total Water Delivered" is the water that is billed in the year. It includes the metered water usage, i.e., "residential water delivered", "C/I/I water delivered", "wholesale deliveries", "water discharge from hydrants with permits, SPRWS buildings water usage, and estimated water consumption for firefighting and training, street flushing and sprinkling, and ice rink flooding.
- 5. "Total Water Pumped" is the water pumped into the distribution system. Process water used for filter backwash, chemical feed, etc. has been excluded.
- 6. "Unmetered/Unaccounted" is "Total Water Pumped" "Total Water Delivered".
- 7. "Average Daily Demand" "Total Water Pumped" / 365 (366) days. It includes the unaccounted water.
- 8. "Residential gallons/capita/day = ("Residential Water Delivered" + "Estimated Residential Wholesale Delivery")/"Population Served" / 365 Days. "Estimated Residential Wholesale Delivery" = "Wholesale Deliveries" * "Residential Consumption Rate".
- 9. "Total gallons / capita / day" = "Total Water Pumped" / "Population Served" / 365 Days.
- 10. SPRWS customer categories are currently structured based on billing structure. Accounts that are billed monthly are identified as C/I/I, while accounts billed quarterly are identified as residential. Billing structure is primarily based on meter size. Services whose meter size is <1.5" are identified as quarterly, while service whose meter size 1.5" or greater are identified as C/I/I.

Table 3 - Large Volume Users

Table 3 lists top 10 customers as it pertains to water consumption. Wholesale customers have been excluded from the table.

Customer	Customer Category	Amount Used (Gallons per Year)	Percent of Total Annual Water Delivered	Implementing Water Conservation Measures
1. 3M	Industrial	241,901,704	1.96%	UNKNOWN
2. WALDORF CORP	Industrial	172,757,332	1.40%	UNKNOWN
3. UNIVERSITY OF MN	Institutional	118,372,496	.96%	UNKNOWN
4. CITY OF ST. PAUL – PARKS & REC	Institutional	78,436,028	.64%	UNKNOWN
5. REGIONS HOSPITIAL	Institutional	65,303,392	.53%	UNKNOWN
6. METRO COUNCIL	Institutional	59,145,108	.48%	UNKNOWN
7. UNIVERSITY OF ST THOMAS	Institutional	51,335,998	.42%	UNKNOWN
8. UNITED HOSPITAL	Institutional	39,377,712	.32%	UNKNOWN
9. DISTRICT ENERGY	Industrial	37,506,964	.30%	UNKNOWN
10. HEALTH SYSTEMS COOPERATIVE LAUNDRIES	Commercial	35,945,888	.29%	UNKNOWN

B. Treatment and Storage Capacity

Water Treatment Plant

Water Treatment Plant Capacity

Figure B-1 shows the layout of the McCarrons Water Treatment Plant. Since the water treatment plant was built in 1920-1922, it has been enlarged and modernized at frequent intervals to provide up-to-date treatment techniques that ensure high quality drinking water. The phases involved in the treatment process are described below.

Raw Water

The raw water is first treated in the supply lakes through oxygenation and the addition of ferric chloride to reduce algae growth. From the lakes, the water is conveyed by two 90-inch conduits to the treatment plant, where it is metered for flow rate. This measurement, combined with the chemical, bacteriological, and physical characteristics, is used to determine the optimal way to treat the water.

Mixing Basins

Raw water entering the plant has an average content of natural mineral "hardness compounds" of 170 milligrams per liter (or, about 10 grains per gallon). As the water enters two rapid mixer chambers, chemicals are added: lime to soften the water and aluminum sulfate as a primary coagulant. Chemical reactions begin to change certain type of the hardness compounds from soluble to insoluble precipitates called "floc." Floc absorbs color and entangles bacteria and other suspended matter. As the floc settles, the hardness is reduced, resulting in a finished water hardness of approximately 64 to 85 milligrams per liter (or, 4 to 5 grains per gallon).

Flocculators

From the mixing chambers, the water passes through three basins called flocculators. Large, motor-driven paddles rotate slowly, causing the floc to come into contact with all suspended matter. The long, narrow basins ensure that the softening and coagulation agents have sufficient time to complete the chemical reaction and prevent the floc from settling. Ferric chloride is added as a flocculant aid.

Clarifiers

Water from the flocculators enters into one of five clarifiers. These large basins are designed to reduce the velocity of the water, allowing the floc to settle rapidly to the bottom and the water to go on for further treatment. The settled floc is called spent lime and is scraped into a pit. Eventually, the spent lime flows to the dewatering facilities.

Recarbonation Chamber

As the water flows through, it enters the recarbonation chamber. Carbon dioxide gas is added to lower the pH and reduce the caustic alkalinity caused by softening. At the front of this basin, fluoride is added for dental health.

Secondary Settling Basins

Water flows through the secondary settling basins very slowly to further clarify the water before it is ready for filtration.

Filters

Twenty-four biologically active filter units are available, with a combined capacity of filtering 120 million gallons of water a day. The filters use 36 inches of granular activated carbon on top of 4 inches of sand. During filtration, the settled water is conveyed by flumes to the top of the filters, where it passes down through the media. The filtered water is collected in the clearwells under the filters via underdrain system and piped to the finished water reservoir. The filters trap remaining particles from the water, and also absorb taste and odor causing compounds. This absorption results from the action of both the granular activated carbon and the bacteria that grows on the carbon.

Finished Water Reservoir

Water in the finished water reservoir is treated with chlorine to kill harmful bacteria in the water. After a short residence time, ammonia is added to the water. The ammonia combines with the chlorine to form chloramines, which serves as the stable disinfectant in the distribution system. Finally, caustic soda is added to the water to bring it to the desired finish pH. After a short time in the reservoir, the water is ready to be pumped to the distribution system.

Dewatering Facilities

Filter presses capture 100 percent of the spent lime solids. This treatment residual is classified as an agricultural liming material. It is transported from the plant and used for soil treatment in a wide geographic area. In 2015, the treatment plant produced approximately 18,897 tons of dry solid cake from the spent lime.

Laboratory Control

The water from the Mississippi River and the lake systems, as well as the raw water entering the plant, is continuously subjected to bacteriological, biological, physical, and chemical analyses by professional laboratory staff. These analyses help determine the treatment required for softening and disinfection. They also help determine if SPRWS' lake management strategies are effectively controlling algae, and they disclose any factors that may lead to deterioration of water quality, so that preventative measures may be taken.

Before the finished water leaves the plant, on-line analyzers ensure compliance with the federal Surface Water Treatment Rule. The water in the distribution system is routinely examined for temperature, pH, chlorine residual and bacteriological content in accordance with standards set by the U.S. Environmental Protection Agency (USEPA) and the Minnesota Department of Health (MDH).

In addition to these analyses, SPRWS convenes a "Taste and Odor Panel" which meets on a weekly basis. The panel of SPRWS employees uses samples of both raw water and distributed water for detection of unwanted tastes and odors. The process can give SPRWS' laboratory advance warning of any problems in the water system.

Table 4 - Water treatment capacity and treatment processes

Treatment Site ID (Plant Name or Well ID)	Year Constructed	Treatment Capacity (GPD)	Treatment Method	Treatment Type	Annual Amount of Residuals	Disposal Process for Residuals	Do You Reclaim Filter Backwash Water?
McCarrons Water Treatment Plant	1920-1922	120,000,000	Lime Softening, Recarbonation, Granular Activated Carbon, Sand Filtration & Chlorine	Lime Softening Surface Water Treatment	18,897 Tons of Dry Spent Lime	Distributed to Agricultural Service Company	No
Total		120,000,000					



Figure.B-1. SPRWS McCarrons Water Treatment Plant Layout

- 1. Lime Room
- 2. Mixing Basins
- 3. Flocculators
- 4. Clarifiers
- 5. Recarbonation Chamber
- 6. Secondary Settling Basins
- 7. Filters
- 8. Finished Water Reservoir

Water Storage Facilities

SPRWS current storage and treatment capacity exceeds the current average water demand as well as the projected average water demands for the next 30 years. As indicated in Table 2, water demand has been decreasing for the past decade. Due to decreasing demand, SPRWS has recently decommissioned several storage facilities due to excess storage capacity.

Table	5 -	Storage	Capacity
-------	-----	---------	----------

Structure Name	Type of Storage Structure	Year Constructed	Primary Material	Storage Capacity (Gallons)
Highland Tank #2	Elevated Storage	1959	WELDED STEEL	1,000,000
Highland Tank #3	Elevated Storage	1989	WELDED STEEL	1,500,000
St. Anthony Tank	Elevated Storage	2001	WELDED STEEL	750,000
Fairground Tank	Elevated Storage	1986	WELDED STEEL	1,500,000
Cope Ave. Tank	Elevated Storage	1987	WELDED STEEL	1,500,000
Cottage Ave. Standpipe	Elevated Storage	1949	WELDED STEEL	2,000,000
Ferndale Tank	Elevated Storage	1987	WELDED STEEL	1,000,000
Sterling Tank	Elevated Storage	1988	WELDED STEEL	500,000
McKnight Ave. Standpipe	Elevated Storage	1955	WELDED STEEL	2,300,000
Stillwater Ave. Standpipe	Elevated Storage	1958	WELDED STEEL	1,500,000
West St. Paul Tank	Elevated Storage	1968	WELDED STEEL	500,000
Mendota Heights Tank	Elevated Storage	1979	WELDED STEEL	2,000,000
Sub-Total				16,050,000
Dale St. Reservoir	Ground Storage	2012	CONCRETE	10,000,000
Snelling Ave. Reservoir #2	Ground Storage	1959	CONCRETE	10,000,000
Hillcrest Reservoir	Ground Storage	1955	CONCRETE	10,000,000
Westside Reservoir	Ground Storage	1963	CONCRETE	6,000,000
Low Service Reservoir	Ground Storage	1922	CONCRETE	16,000,000
Sub-Total				52,000,000
Total Storage Capacity				68,050,000

C. Water Sources

Saint Paul Regional Water Services has two principal sources of supply and three reserve/emergency sources.

Principal/Emergency:

- 1. Mississippi River
- 2. Watershed of Vadnais Lake (28 Sq. Miles)

Reserve/Emergency Sources:

- 1. Wells B-K
- 2. Rice Creek Chain of Lakes
- 3. Otter & Bald Eagle Lakes

See Appendix 1 for copies of well records and maintenance summaries for SPRWS wells.

Resource Type (Groundwater, Surface water, Interconnection)	Resource Name	MN Unique Well # or Intake ID	Year Installed	Capacity (Gallons per Minute)	Well Depth (Feet)	Status of Normal and Emergency Operations (active, inactive, emergency only, retail/wholesale interconnection))	Does this Source have a Dedicated Emergency Power Source? (Yes or No)
Surface Water	Pleasant Lake	756227	N/A	See 1.C.1.1	N/A	Active	N/A - Gravity Fed
Surface Water	Deep Lake	756227	N/A	See 1.C.1.1	N/A	Emergency Only	N/A - Gravity Fed
Surface Water	Sucker Lake	756227	N/A	See 1.C.1.1	N/A	Active	N/A - Gravity Fed
Surface Water	Charles Lake	756227	N/A	See 1.C.1.1	N/A	Active	N/A - Gravity Fed
Surface Water	Vadnais Lake	756227	N/A	See 1.C.1.1	N/A	Active	N/A - Gravity Fed
Surface Water	Peltier Lake	756228	N/A	See 1.C.1.1	N/A	Emergency Only	NO
Surface Water	Centerville Lake	756228	N/A	See 1.C.1.1	N/A	Emergency Only	NO
Surface Water	Bald Eagle & Otter Lakes	756229	N/A	See 1.C.1.1	N/A	Inactive	N/A - Gravity Fed
Surface Water	Mississippi River	756230	N/A	See 1.C.1.1	N/A	Active	NO
Groundwater	Well B	133312	1977	2350	438	Active	NO
Groundwater	Well C	127292	1977	4000	442	Active	NO
Groundwater	Well D	151583	1981	4100	450	Active	NO
Groundwater	Well E	151579	1983	3600	463	Active	NO
Groundwater	Well F	706803	2005	3300	465	Active	NO
Groundwater	Well G	706802	2005	1850	465	Active	NO
Groundwater	Well H	753666	2012	3425	464	Active	NO
Groundwater	Well I	753667	2012	3225	465	Active	NO
Groundwater	Well J	759568	2012	3425	465	Active	NO
Groundwater	Well K	759569	2012	3425	425	Active	NO
Interconnections	South Saint Paul					Emergency Only	NO
Interconnections	Inner Grove Heights					Emergency Only	NO
Interconnections	Woodbury					Emergency Only	NO

Table 6.1 - Water Sources and Status

Saint Paul Water Sources

The City of St. Paul obtains the majority of its public water supply from the Mississippi River. Water is pumped from a pumping station on the Mississippi River in Fridley to a chain of four reservoir lakes. The Mississippi River pumping station has a total capacity of 85 million gallons per day. From the river, water is pumped to Charlie Lake in North Oaks; water then flows by canal to Pleasant Lake, then on to Sucker Lake by conduit, and finally to Vadnais Lake by canal. Lambert Creek, in the Vadnais Lake watershed area, also contributes a significant amount of water supply to Vadnais Lake. Water is withdrawn from the final reservoir lake, Vadnais Lake, which supplies raw water to the treatment plant.

The Vadnais Lake Reservoir system has a water surface area of 1600 acres and contains a total volume of approximately 8 billion gallons. In addition, when the lakes are at optimum elevations, a supply of 3.6 billion gallons is available. Saint Paul Regional Water Services reservoir system has approximately 1 month storage volume based on average daily demand.

The Rice Creek chain of lakes, located approximately 18 miles north of St. Paul, includes Centerville and Peltier Lakes, as well as Rice Creek with its upstream tributary streams and lakes. This system has a watershed area of 201 square miles. These lakes have a reservoir storage area in excess of 800 acres and an available water supply of 2.3 billion gallons. As a backup source, water from the Rice Creek chain may be pumped to Deep Lake in the reservoir system by the Centerville Pumping Station, which has a pumping capacity of capacity of 40 million gallons per day. Historically the Rice Creek chain has had poor water quality with high levels of algae and nutrients. During drought, the water supply is inadequate. In addition, the 42-inch raw water conduit is in poor condition. In its current state, the Rice Creek chain is no longer considered a viable source & continues to service as only an emergency backup water source.

Refer to Table 6.2 for contributions of different sources to total water supply in the years of 2005 through 2015.

	Mississippi River	Vadnais Lake Watershed	Deep Wells	Rice Creek Watershed	Otter & Bald Eagle Lakes	Total
2005	11,791	3,501	1,520	0	0	16,811
2006	12,255	2,603	2,375	0	0	17,233
2007	13,788	3,097	1,411	0	0	18,296
2008	13,690	2,442	1,560	0	0	17,693
2009	14,691	1,869	461	0	0	17,021
2010	11,986	2,577	1,235	0	0	15,798
2011	11,913	3,702	303	0	0	15,918
2012	12,983	2,254	1,372	0	0	16,608
2013	11,573	3,563	725	0	0	15,861
2014	8,122	5,093	2,339	0	0	15,554
2015	10,793	3,995	0	0	0	14,787

Table 6.2 - Contributions of Different Water Sources (MGD)





D. Future Demand Projections

Water Use Trends

Overall the trend in per capita demand over the past 10 years is decreasing despite population growth in communities SPRWS serves. This trend hold true for average daily demand as well as maximum daily demand. The decrease in demand is likely due to variety of factors such as climate, changes in population demographics, as well as increased conservation measures. This recent trend reflects water supply demand projections outlined in the Twin Cities Metropolitan Area Master Water Supply Plan (2015). Accurate projected population and demand figures are often difficult to determine based on the ever evolving variables that determine these figures. Projected maximum daily demand is even more complex given the relationship between sprinkling and climate. SPRWS expects sprinkling to further decrease given present and future conservation practices and increases in water rates. Minnesota climate is also trending to be wetter which would further decrease the need for sprinkling. Therefore, Table 7 was prepared based on projections specified in the Twin Cities Metropolitan Area Master Water Supply Plan (2015) in conjunction with recent trends experienced by SPRWS. Specifically for per capita use, SPRWS determined the rate if population grew without changing total water use as the most appropriate. This projection reflects recent trends for water consumption experienced by SPRWS.

Year	Projected Total Population (Saint Paul)	Projected Population Served	Projected Total Per Capita Water Demand (GPCD)	Projected Average Daily Demand (MGD)	Projected Maximum Daily Demand (MGD)
2016	304,442	441,699	87	38	62
2017	309,180	446,721	88	39	66
2018	311,120	448,109	90	42	73
2019	313,060	449,497	89	42	73
2020	315,000	450,887	87	42	73
2021	316,420	452,454	86	42	73
2022	317,840	454,022	86	42	73
2023	319,260	455,589	85	42	73
2024	320,680	457,156	85	42	73
2025	321,000	458,724	84	42	73
2030	329,200	466,560	82	42	73
2040	344,100	494,430	76	42	73

Table 7. Projected annual water demand

GPCD – Gallons per Capita per Day

MGD – Million Gallons per Day

E. Resource Sustainability

Monitoring

Management plans such as monitoring water levels, pumping rates, surface water flows and aquifer testing are important strategies SPRWS has established to ensure a sustainable water supply. Daily water level readings have been taken for Pleasant Lake and Vadnais Lake, which are SPRWS's primary source water reservoirs. In addition, since 2006 SPRWS has also been measuring and recording levels for the production wells on a routine basis. See Appendix II for SPRWS Well Monitoring Program.

MN Unique Well # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
133312	Production Well	Routine water utility	Bi-weekly	Gauge Tape & Grab
		readings & water		Sampling
		quality sampling*		
127292	Production Well	Routine water utility	Bi-weekly	Gauge Tape & Grab
		readings & water		Sampling
		quality sampling*		
151583	Production Well	Routine water utility	Bi-weekly	Gauge Tape & Grab
		readings & water		Sampling
		quality sampling*		
151579	Production Well	Routine water utility	Bi-weekly	Gauge Tape & Grab
		readings & water		Sampling
		quality sampling*		
706803	Production Well	Routine water utility	Continuous &	SCADA & Grab
		readings & water	Bi-weekly	Sampling
		quality sampling*		
706802	Production Well	Routine water utility	Continuous &	SCADA & Grab
		readings & water	Bi-weekly	Sampling
		quality sampling*		
753666	Production Well	Routine water utility	Continuous &	SCADA & Grab
		readings & water	Bi-weekly	Sampling
		quality sampling*		
753667	Production Well	Routine water utility	Continuous &	SCADA & Grab
		readings & water	Bi-weekly	Sampling
		quality sampling*		
759568	Production Well	Routine water utility	Continuous &	SCADA & Grab
		readings & water	Bi-weekly	Sampling
		quality sampling*		
759569	Production Well	Routine water utility	Continuous &	SCADA & Grab
		readings & water	Bi-weekly	Sampling
		quality sampling*		
756227	Source Water	Routine water utility	Daily/Monthly	Gauge Tape & Grab
Pleasant Lake	Reservoir	readings & water		Sampling
		quality sampling		
75(2)7	Course Mistor		Deilu /Di wara bi	Course Terrs 9, Curst
/5622/	Source water	Koutine water utility	Dally/BI-weekly	Gauge Tape & Grab
vadnais Lake	Keservoir	readings & water		Sampling
		quality sampling		

Table 8. Information about source water quality monitoring

MN Unique Well # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
756230	Source Water Intake	Routine water utility readings & water quality sampling	Bi-weekly	Grab sampling

* Water quality sampling is conducted when wells are active.

Water Level Data

SPRWS reservoirs are managed for routine augmentation from the Mississippi River. SPRWS attempts to maintain normal operating levels to ensure water supply is adequate for emergency scenarios such as a drought. When climatologic condition indicates a possible drought condition developing, these reservoirs lakes are maintained at their normal operating levels for a long as possible into the summer period. The historical high and low water elevations in Pleasant Lake and Vadnais Lake are shown in Table 9.1 demonstrating the lakes have been managed to maintain stable water elevations.

Table 9.1. Pleasant Lake & Vadnais Lake Historical Data

Pleasa	nt Lake Level		Vadna	is Lake Level	
	High Lake Level	Low Lake Level		High Lake Level	Low Lake Level
Year	M.S.L.	M.S.L.	Year	M.S.L.	M.S.L.
2006	894.03	891.94	2006	883.94	882.79
2007	894.21	890.89	2007	883.51	881.99
2008	894.14	891.25	2008	883.92	880.63
2009	893.17	890.91	2009	883.99	881.65
2010	894.16	891.07	2010	883.85	882.01
2011	894.14	891.47	2011	884.24	881.49
2012	894.24	891.66	2012	883.96	881.80
2013	893.97	891.40	2013	885.05	882.03
2014	894.57	891.66	2014	884.43	879.69
2015	894.19	891.35	2015	884.15	880.59

SPRWS also maintains ten wells as a supplemental water source, in the event that surface water from the Mississippi River and/or Lake Vadnais was to become temporary unavailable. Variation in water level, also known as "drawdown" occurs when wells are actively being pumped, but does return to the "static" water level after termination of pumping. See Appendix III for water level graphs for SPRWS wells B-K.

Table 9.2. Well Level Data

Unique Well Number or Well ID	Aquifer Name	Seasonal Variation (Feet)	Long-term Trend in water level data	Water level measured during well/pumping maintenance
133312 – Well B	PDC-Jordan	2015 – 3.3' 2014 –111.5' 2013 – 17.5'	Stable	See Appendix 3
127292 – Well C	PDC-Jordan	2015 – 3.62' 2014 – 60.2' 2013 – 17.3'	Stable	See Appendix 3
151583 – Well D	PDC-Jordan	2015 – 3.4' 2014 – 71.8' 2013 – 69.1'	Stable	See Appendix 3
151579 – Well E	PDC-Jordan	2015 – 3.3' 2014 – 14.5' 2013 – 75.8'	Stable	See Appendix 3
706803 – Well F	PDC-Jordan	2015 – 1.8' 2014 – 18.3' 2013 – 15.5'	Stable	See Appendix 3
706802 – Well G	PDC-Jordan	2015 – 17.5' 2014 – 14.5' 2013 – 15.5'	Stable	See Appendix 3
753666 – Well H	PDC-Jordan	2015 – .5' 2014 – 79.9' 2013 – No Data	Stable	See Appendix 3
753667 – Well I	PDC-Jordan	2015 – 3.4' 2014 – 86.4' 2013 – No Data	Stable	See Appendix 3
759568 – Well J	PDC-Jordan	2015 – 2.6' 2014 – 96.9' 2013 – No Data	Stable	See Appendix 3
759569 – Well K	PDC-Jordan	2015 – .7' 2014 – 16.8' 2013 – No Data	Stable	See Appendix 3

Potential Water Supply Issues & Natural Resource Impacts

SPRWS recognizes the importance and challenges of achieving a sustainable water supply for the Twin Cities Metropolitan Area. In 2016, SPRWS reduced permitted groundwater appropriation withdrawals from 16.8 billion gallons to 2.5 billion gallons. This action, in conjunction with actions described in the conservation segment of this plan, demonstrates SPRWS efforts to address issues that exist within the North and East Metro Groundwater Management Area. Table 10 summarizes SPRWS resource types and the associated risks to natural resources.

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
River	Mississippi River	Flow/water level decline	Monitoring	Resource Protection Thresholds are identified as outlined in the Minnesota Statewide Drought Plan	Change to groundwater pumping & Increase conservation	 SPRWS raw water withdrawals from the Mississippi River are a minute amount compared to the total flow volume at the Fridley Intake/Pumping Station. See Figure 10.1. Thresholds where withdrawals from the Mississippi River may be restricted to protect high priority water consumers such as energy & water suppliers are outlined in the Minnesota Statewide Drought Plan. DNR is responsible for monitoring & communicating drought conditions. SPRWS will implement conservation measures as required by Minnesota Statewide Drought Plan. See Emergency Demand Reduction Conditions, Triggers and Actions in Part II of the plan.
Calcareous fen	Gun Club Lake Fen	Natural resource impacts	Other	See "How Changes to Thresholds are Monitored"	N/A	SPRWS well activity and the impacts to Gun Club Lake Fen are not an issue at this time. The Mississippi River mitigates the impacts of SPRWS well activity to the Calcareous Fen.
Lake	Vadnais Lake Reservoir System	Flow/water level decline & degrading water quality	Monitoring	See "How Changes to Thresholds are Monitored"	Other	The Vadnais Lake Reservoir system is managed for routine augmentation from the Mississippi River. The reservoirs levels are maintained at a fixed level to ensure storage volumes are adequate in case of emergency situations. The Mississippi River shall continue to be optimized as the source of augmentation unless restricted as noted in the Minnesota Statewide Drought Plan. Daily water level readings have been taken for Pleasant Lake and Vadnais lake which are SPRWS primary source reservoirs. In addition, SPRWS monitors

Table 10. Natural resource impacts

- 1

1

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
						water quality by sampling. At this time, there are no known natural resource impacts to the Vadnais Lake Reservoir System by water withdrawals from SPRWS.
Watershed	Lambert Creek	Degrading water quality trends	Monitoring	See "How Changes to Thresholds are Monitored"	Other	Numerous studies and water quality data collected by SPRWS and Vadnais Lake Area Water Management Organization (VLAWMO) have identified Total Phosphorus (TP) as a major risk to the Lambert Creek Watershed. To address this issue, VLAWMO has invested in numerous retrofit projects such as adding storage and/or improving water quality by excavating pond bottoms, modifying risers, raising embankments, and/or modifying flow routing and using bio- filtration techniques to decrease TP.
Aquifer	Prairie du Chien	Water level decline	Monitoring & Aquifer testing	See Well Monitoring Program	See Well Monitoring Program	SPRWS monitors water level data for Wells B-K to ensure wells are at adequate levels. In the summer of 2014, SPRWS performed a pumping test to determine well drawdown interference when all ten SPRWS wells operate simultaneously. The SPRWS wells were operated for a period of two weeks providing 45MG/D of water supply. Based on the observations from the aquifer pumping test, none of the wells appeared to be in immediate danger of exceeding the available drawdown limits. Therefore in the event that surface water from the Mississippi River and/or Lake Vadnais was to become temporarily unavailable, the well field would serve as a viable emergency water supply.
Native Plant Communities & Rare Species	Marshes, Forested Rich Peatland & Rare Species Associated with Groundwater	Natural resource impact	Other	See "How Changes to Thresholds are Monitored"	Other	SPRWS is aware of native plant communities and rare species that are associated with groundwater with in the North & East Metro Groundwater Management Area. Due to this resource being managed/monitored by the DNR, SPRWS will rely on monitoring and communication from the DNR to protect these designated vulnerable populations. At this time, there is no known impact on these vulnerable populations based on SPRWS activities.

Figure 10.1. – Mississippi River Flow



SPRWS observed an average daily demand of 40 MGD from 2010- 2015, which is equivalent to 62 CFS. Average flow (CFS) for the Mississippi River at USGS Station No. 05288500 from 1995-2015 was 11,045 CFS. Based on these averages, SPRWS average annual intake is approximately 0.5% of the total average flow available from the Mississippi River.

Wellhead Protection (WHP) and Source Water Protection (SWP) Plans Table 11. Status of Wellhead Protection and Source Water Protection Plans

Plan Type	Status	Date Adopted	Date for Update
WHP	Completed, in the process of updating.	03/11/2008	12/2017
SWP	Completed, in the process of updating.	02/01/2008	TBD

WHP – Wellhead Protection Plan SWP – Source Water Protection Plan

F. Capital Improvement Plan (CIP)

Adequacy of Water Supply System

SPRWS, like many Midwest water utilities, is addressing aging infrastructure and declining water use. In 2014, The Board of Water Commissioners established a strategic goal of improving the asset management capability in order to identify major capital improvements that will be needed over the next 40 years. A copy of the SPRWS Capital Improvement Plan (CIP) can be found in Appendix 4. Table 12 illustrates the current status of the water supply system, and a synopsis of upcoming capital projects.

System Component	Planned action	Anticipated Construction Year	Notes
Mississippi River Intake Station	Repair	2017	Repairs to the foundation of the Mississippi River Intake Station
Raw Water Conduits	Repair	2015-2028	Assessments & Repairs to the Raw Water Conduits
Wells	No planned action		
Water Storage Facilities	Demolition	2017	Removal of Highland Reservoir
 Water Treatment Facilities Softening Basins Recarbonation Basins New Ozone System 	Repair/Replacement Expansion/Addition	2018-2021	New lime softening basins, recarbonation basins & ozone system.
Distribution Systems	Repair/Replacement	Ongoing	
Pressure Zones	No planned action		

Proposed Future Water Sources

SPRWS past investments in securing a diverse water supply has positioned itself well to provide and maintain a viable water supply to the City of Saint Paul and the neighboring communities it serves. At this time, SPRWS does not anticipate requiring an alternative water source by the year 2040.

2.0 Emergency Preparedness Procedures

An Emergency Preparedness and Response (ERP) plan was prepared by CTE Engineers, Inc. for SPRWS in July 2003 to meet requirements specified by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002. The ERP is a critical asset to guide water utility response, recover and remediation actions required by manmade emergencies, technological failures or natural disasters.

A. Federal Emergency Response Plan

Section 1433(b) of the Safe Drinking Water Act, (Public Law 107-188, Title IV- Drinking Water Security and Safety) requires community water suppliers serving over 3,300 people to prepare an Emergency Response Plan.

Do you have a federal emergency response plan? Yes 🗆 No

If yes, what was the date it was certified? July 28th, 2003

Emergency Response Plan	Contact Person	Contact Phone	Contact Email
Role		Number	
Emergency Response Lead	STEVE	651-266-6280	STEVE.SCHNEIDER@CI.STPAUL.MN.US
	SCHNEIDER		
Alternate Emergency	JIM	651-266-1650	JIM.GRAUPMANN@CI.STPAUL.MN.US
Response Lead	GRAUPMANN		

Table 15. Emergency Preparedness Plan contact information

B. Operational Contingency Plan

All utilities should have a written operational contingency plan that describes measures to be taken for water supply mainline breaks and other common system failures as well as routine maintenance.

Do you have a written operational contingency plan? Yes \Box No

C. Emergency Response Procedures

Water suppliers must meet the requirements of MN Rules 4720.5280. Accordingly, the Minnesota Department of Natural Resources (DNR) requires public water suppliers serving more than 1,000 people to submit Emergency and Conservation Plans. Water emergency and conservation plans that have been approved by the DNR, under provisions of Minnesota Statute 186 and Minnesota Rules, part 6115.0770, will be considered equivalent to an approved WHP contingency plan.

Emergency Response Contacts

SPRWS Emergency Response Contacts are provided in Appendix 5. This document contains SPRWS key emergency response contacts, as well as appropriate local, state and federal emergency contacts. The Emergency Response Contact document is updated annually to ensure accuracy due to staff or responsibility changes.

Current Water Sources and Service Area

SPRWS maintains a geographic information system (GIS) database that illustrates water facilities in municipalities served by SPRWS. GIS maps are available as a web application that can be accessed at the office as well as in the field by mobile device. The GIS maps illustrate SPRWS facilities such as water treatment facilities, distribution/supply water mains and water storage facilities. In addition, record drawings such as as-builts and inspection documents are linked to GIS in order aid SPRWS staff in planned or emergency work. The GIS database

is regularly copied to backup servers to ensure redundancy. These records can be accessed in an online or offline environment at any day or time.

Do records and maps exist? Yes 🗆 No

Can staff access records and maps from a central secured location in the event of an emergency? Yes \Box No

Does the appropriate staff know where the materials are located? Yes □ No

28

Procedure for Augmenting Water Supplies

Table 16. Interconnections with other water supply systems to supply water in an emergency

Other Water Supply System Owner	Capacity (GPM & MGD)	Note Any Limitations On Use	
SOUTH ST. PAUL	UNKNOWN	SEE 16.1	
WOODBURY	UNKNOWN	SEE 16.1	
INVER GROVE HEIGHTS	UNKNOWN	SEE 16.1	
MINNEAPOLIS	UNKNOWN	SEE 16.1	

GPM – Gallons per minute MGD – million gallons per day

16.1 Limits on Emergency Interconnections

Augmentation to Systems NOT on SPRWS System

SPRWS has permitted emergency interconnections from its system to the South Saint Paul system at the intersection of Annapolis and Stickney Streets, to the Woodbury system at the intersection of Brookview Drive and Century Avenue, and to the Inver Grove Heights system on Mendota Road, approximately 300 feet west of Christensen Avenue. The purpose of the interconnections to these communities is exclusively for emergency situations to supply water for a small area near each interconnection.

Augmentation to SPRWS System

There currently exists no interconnection from a separate independent water system to SPRWS system for water supply of a size that would help SPRWS as a whole. An isolated supply could be the interconnections to South Saint Paul, Woodbury, Inver Grove Heights, and Minneapolis for a small area near each interconnection.

Saint Paul and Minneapolis Interconnection

In 2003, Saint Paul Regional Water Services and the City of Minneapolis hired CTE Engineers, Inc. to conduct an interconnection study. This was a cursory study, the purpose of which was to look at alternatives, costs and other issues of an interconnection between the two utilities. The study indicated that the overall cost of a proposal was \$40,000,000. The study was never formally adopted, as discrepancies existed as to cost allocation and funding issues. Discussions regarding the interconnection between City of Minneapolis and Saint Paul Regional Water Services have discontinued.

An interconnection was constructed opportunistically with the City of Minneapolis with the Light Rail Construction Project as a possible contingency should water loss be experienced by Minneapolis and St. Paul customers within the immediate service area. The interconnection is not designed, nor was intended to service as a viable alternative to the City of Minneapolis or the City of Saint Paul, in the event of a system wide water loss. In fact, the interconnection consists of an empty vault, in which a spacer could be installed in an event of an emergency where water is to be supplied to a small service area.

Table 17. Alternative Water Sources	
-------------------------------------	--

Alternative Water Source Name	Capacity (GPM)	Capacity (MGD)	Treatment Needs	Note Any Limitations On Use
Wells B-K (See Table 6)	31,200	45	See Section 1.B	See 17.1
Rice Creek Watershed	See 17.2	See 17.2	See Section 1.B	See 17.2
Otter and Bald Eagle Lakes	See 17.3	See 17.3	See Section 1.B	See 17.3
Headwaters Reservoirs	See 17.4	See 17.4	See Section 1.B	See 17.4

Alternative Sources of Water

17.1 <u>Wells</u>

SPRWS has a favorable situation for the utilization of groundwater for drought conditions. SPRWS has constructed 10 wells along two 90-inch raw water conduits that run approximately 4½ miles from Vadnais Lake to the McCarrons Treatment Plant. SPRWS wells can supply 45 MG/D of water and serves as a viable water supply source in the event that surface water from the Mississippi River and/or Lake Vadnais was to become temporarily unavailable. After the drought situation is over the groundwater could recover as the surface water is again the primary source.

This source could be depleted by long-term continuous utilization. For short-term emergency use groundwater could be limited to the duration of the emergency situations

The use of groundwater for emergency situations by a surface water supplier is logical and practical. SPRWS also has the added advantage of a full service treatment plant. This would allow SPRWS to take advantage of groundwater that may require more treatment than would normally be available to a surface water dependent system.

17.2 <u>Rice Creek Watershed</u>

The Rice Creek chain of lakes, located approximately 18 miles north of St. Paul, includes Centerville and Peltier Lakes, as well as Rice Creek with its upstream tributary streams and lakes. This system has a watershed area of 201 square miles. These lakes have a reservoir storage area in excess of 800 acres and an available water supply of 2.3 billion gallons. As a backup source, water from the Rice Creek chain may be pumped to Deep Lake in the reservoir system, which has a pumping capacity of capacity of 40 million gallons per day. Historically the Rice Creek chain has had poor water quality with high levels of algae and nutrients. During drought water supply is inadequate. In addition, the 42-inch raw water conduit is in poor condition. In its current state this source is no longer being considered as a viable alternative option.

17.3 Otter and Bald Eagle Lakes

These lake sources are directly connected to the Centerville 54-inch conduit via a conduit intake on Otter Lake. The pipe from Otter Lake to the 54-inch conduit has deteriorated which allows water from wetlands that have undesirable water to mix with the Otter Lake water. In its current state this source is no longer being considered as a viable alternative option.
17.4 <u>Headwaters Reservoirs</u>

The Headwaters Reservoirs are an alternate source of water supply; however, they are controlled by the Army Corps of Engineers under the federal government. The Army Corps of Engineers has repeatedly stated that any actions it undertakes relative to the operation of the Headwaters Reservoir structures or the river itself are done in cooperation with and not dictated by the State. This means that even in extreme conditions the Corps will not necessarily rule in favor of the State if a request for release is made, especially if its evaluation shows that an increase above the agreed normal operation release rate of 270 cfs is likely to cause a negative impact on one of their priority users in the Headwaters area. According to the Corps of Engineers, any additional release beyond the Corps' normal operation plan of 270 cfs should be considered only in an emergency and only after conservation programs and other sources of supplemental water supply are considered. The report from the Corps of Engineers also found that the existing flow discharge rate of 270 cfs from the headwaters project lakes is adequate for present needs. This means that it is unlikely that the Corps will increase the amount of discharge on a routine basis. In addition, a major issue with relying upon additional releases from the Headwaters Reservoirs System is the travel time of 20-24 days is required for release water to flow the approximate 400 miles to reach the Metropolitan Area.

Allocation and Demand Reduction Procedures:

Six statutory water use priorities have been established by the State's Legislature to allow for emergency planning – M.S. 103 G.261.

103G.261. WATER ALLOCATION PRIORITIES.

(1) first priority, domestic water supply, excluding industrial and commercial uses of municipal water supply, and use for power production that meets the contingency planning provisions of section <u>103G.285</u>, <u>subdivision 6</u>;

(2) second priority, a use of water that involves consumption of less than 10,000 gallons of water per day;

(3) third priority, agricultural irrigation, and processing of agricultural products involving consumption in excess of 10,000 gallons per day;

(4) fourth priority, power production in excess of the use provided for in the contingency plan developed under section <u>103G.285</u>, <u>subdivision 6</u>;

(5) fifth priority, uses, other than agricultural irrigation, processing of agricultural products, and power production, involving consumption in excess of 10,000 gallons per day; and

(6) sixth priority, nonessential uses

In case of severe water shortages, water, from a supply basis, would be allocated by the stated first through sixth priorities. The SPRWS water-use priority system mandated under this law made domestic consumption first priority. C/I/I water use involving less than 10,000 gallons per day is identified as second priority and water use involving more than 10,000 gallons per day is third priority. Lowest priority is given to water consumption for nonessential uses such as lawn sprinkling. Priorities 3-4 outlined in M.S. 103 G.261 do not directly apply to the SPRWS system.

The general re-allocation of water during emergency situations will follow the demand reduction procedures outlined in Table 18. Circumstances requiring implementation of these restrictions will, by their nature, require extreme measures. Re-allocation of water must take into account critical demand factors and critical category needs. For example, the category "medical facilities", including hospitals, nursing homes, clinics, laboratories, etc., will be maintained in an emergency with the only reduction being control of Priority Six usage, i.e., non-essential use. Demand reductions will follow Minnesota Statutes 103G.261 and will be evaluated and analyzed on a case-by-case basis by SPRWS' management team.

Customer Category	Allocation Priority	Average Daily Demand (GPD)	Short-Term Emergency Demand Reduction Potential (GPD)
Residential	1	15,470,042	7,843,311
Wholesale	1	5,907,477	2,995,091
C/I/I (<10,000)	2	8,639,083	4,380,015
C/I/I (>10,000)	3	5,995,536	3,039,797
Non-Essential	4	324,441	164,492
TOTAL	NA	36,717,773	18,422,646

Table 18. SPRWS Water Use Priorities

GPD - Gallons per Day

Emergency Situation	Emergency Water Reduction Trigger(s)	SPRWS Action(s)
Moderate Drought (Stage 1)	A significant portion of the Mississippi Headwater Watershed is under the classification of "Drought Watch" phase in accordance with the Statewide Drought Plan	Request voluntary water conservation measures to reduce any unnecessary use of water. Verify that flows have dropped below average for summer conditions; in anticipation of low flows, begin to pump surplus river flow into reservoir
Severe Drought (Stage 2)	A significant portion of the Mississippi Headwater Watershed is under the classification of "Severe Drought" phase in accordance with the Statewide Drought Plan. Flow at Anoka Dam at or below 2,000 CFS for five consecutive days.	Implement appropriate water use reduction actions as needed such as to reduce water use to 50% above winter demand.
Extreme Drought (Stage 3)	A significant portion of the Mississippi Headwater Watershed is under the classification of "Extreme Drought" phase in accordance with the Statewide Drought Plan. Flow at Anoka Dam at or below 1,500 CFS for five consecutive days.	Implement appropriate water use reduction actions as needed to reduce water use to 25% above winter demand. Begin coordination with City of Minneapolis to optimize river withdrawals
Exceptional Drought (Stage 4)	A significant portion of the Mississippi Headwater Watershed is under the classification of "Exceptional Drought" phase in accordance with the Statewide Drought Plan. Flow at Anoka Dam at or below 1,000 CFS for five consecutive days.	Implement ban on any non-essential use of water and caution all customers that consumption must be no more than their base winter consumption. Continue optimizing river versus supplemental source use. Work with Drought Task Force in regards to reductions defined in Minnesota Statues 103G.261
Contamination	Surface water from the Mississippi River and/or Lake Vadnais was to become temporarily unavailable.	Supply augmentation through Wells B-K. SPRWS Wells supply 45 MG/D of water and serves as a viable water supply source in the event that surface water from the Mississippi River and/or Lake Vadnais was to become temporarily unavailable.

Notification Procedures

Table 20. Plan to inform customers regarding conservation requests, water use restrictions, and suspensions

Notification Trigger(s)	Methods	Update Frequency	Partners
Short-term demand reduction declared (< 1 year)	 Website Social media Press release (TV, radio, newspaper) Emergency phone call program to customers 	DailyWeeklyMonthly	 KARE WCCO KSTP KMSP MPR FM St. Paul Pioneer Press Star Tribune
Long-term Ongoing demand reduction declared	 Website Social media Press release (TV, radio, newspaper) Emergency phone call program to customers 	DailyWeeklyMonthly	 KARE WCCO KSTP KMSP MPR FM St. Paul Pioneer Press Star Tribune
Governor's Critical water deficiency declared	 Website Social media Press release (TV, radio, newspaper) Emergency phone call program to customers 	DailyWeeklyMonthly	 KARE WCCO KSTP KMSP MPR FM St. Paul Pioneer Press Star Tribune

Enforcement

Prior to a water emergency, municipal water suppliers must adopt regulations that restrict water use and outline the enforcement response plan. The enforcement response plan must outline how conditions will be monitored to know when enforcement actions are triggered, what enforcement tools will be used, who will be responsible for enforcement, and what timelines for corrective actions will be expected.

Affected operations, communications, and enforcement staff must then be trained to rapidly implement those provisions during emergency conditions.

Important Note:

Disregard of critical water deficiency orders, even though total appropriation remains less than permitted, is adequate grounds for immediate modification of a public water supply authority's water use permit (2013 MN Statutes 103G.291)

Does the city have a critical water deficiency restriction/official control in place that includes provisions to restrict water use and enforce the restrictions? (This restriction may be an ordinance, rule, regulation, policy under a council directive, or other official control) Yes \Box No

If yes, attach the official control document to this WSP as Appendix 7.

If no, the municipality must adopt such an official control within 6 months of submitting this WSP and submit it to the DNR as an amendment to this WSP.

Irrespective of whether a critical water deficiency control is in place, does the public water supply utility, city manager, mayor, or emergency manager have standing authority to implement water restrictions? Yes \square No

If yes, cite the regulatory authority reference: See Appendix 7.

3.0 Water Conservation Plan

Progress since 2006 - Is this your community's first Water Supply Plan? Yes No

Table 21. Implementation of previous ten-year Conservation Plan

2006 Plan Commitments	Action Taken?
Change Water Rates Structure to provide conservation pricing – See 21.1	Yes
Water Supply System Improvements (e.g. leak repairs, valve replacements, etc.) – See 21.1	Yes
Educational Efforts – See Table 31	Yes
New water conservation ordinances	No
Rebate or retrofitting Program (e.g. for toilet, faucets, appliances, showerheads, dish	No
washers, washing machines, irrigation systems, rain barrels, water softeners, etc.	
	No
Enforcement	
Describe Other: Meter Replacement Project, Leak Detection Survey, Water Audit – See	Yes
Section 21	

What are the results you have seen from the actions in Table 21 and how were results measured?

Results due to actions listed in table 21 are difficult to identify due to the many variables that determine water consumption. Overall the trend in per capita demand over the past 10 years is decreasing. The decrease in demand is likely due to variety of factors such as climate, changes in population demographics as well as actions listed in table 21. Average residential GPCD use for the last 5 years has decreased to 43.65. This is significantly lower than the residential GPCD in 2002, which was 75 GPCD for Twin Cities Metropolitan area. In addition, the decreasing trend is evident across all SPRWS customer categories.

21.1 SPRWS Conservation Plan Commitments

Rate Structure:

SPRWS has been using a conservation rate structure that is based on higher seasonal rates in summer to curtail peak demand ever since 1994. Current rates are listed below.

	St Paul, Falcon Heights Maplewood, West St. Paul	Mendota Heights, Lilydale Mendota, Sunfish Lake* Newport*, Roseville*, South Saint Paul*	
Winter	\$2.52	\$3.02	
Summer	\$2.62	\$3.14	

SPRWS 2016 Water Rates (Unit: dollars per 100 CF)

*Communities where SPRWS provides water to a portion of the city

Water rates are evaluated and change periodically to cover increased costs for water treatment, chemicals, electric power, fuel, maintenance of the supply and distribution systems, and other general expenses. Changes in water rates are proposed by resolution of the Board of Water Commissioners and put into effect upon confirmation by the Saint Paul city council. Table 21.2 below shows the change in City of Saint Paul water rates over the last 10 years.





Note: Water rates decreased in 2013 due to an implementation of a fixed fee to the SPRWS rate structure. This additional fee decreased the volume rate.

Water Supply System Improvements:

SPRWS has adopted an aggressive main replacement program since 1985. The program is in place to replace mains when they meet certain criteria based on risk based model. This is intended to prevent main breaks and therefore water and revenue loss. In addition, SPRWS is aggressively replacing all lead services lines in the distribution system due to health concerns and standards on lead level in water.





* Breaks on hydrant branches were included in yearly main break totals starting in 2015

Education and Information Programs:

Programs are outlined in Education and Information Programs section of this plan.

Leak Detection Survey:

A complete water leak detection survey was conducted in 2016 for the entire SPRWS distribution system. A total of 253 possible leaks were identified during the length of the study. SPRWS is currently investigating the identified possible leaks, and conducting repairs as needed.

Water Audit:

A comprehensive water audit was conducted in 2015 for Saint Paul Regional Water Services for water pumped from the McCarrons Treatment Plant to the distribution system. The goal of this audit was to identify improvements needed to reduce future water loss in the distribution system. Results of the water audit are outlined in Conservation Objectives and Strategies section of this plan.

A. Triggers for Allocation and Demand Reduction Actions

Table 22. Short and long-term demand reduction conditions, triggers and actions

Objective	Triggers	Actions
Protect Surface Water Flows	 Low river flow conditions Reports of declining wetland and lake levels 	 Increase promotion of conservation measures
Short-term demand reduction (less than 1 year	 Extremely high seasonal water demand (more than double winter demand) Loss of treatment capacity Lack of water in storage State drought plan Well interference 	 Enforce the critical water deficiency ordinance to restrict or prohibit lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. Supply augmentation through utilizing alternative sources of water (SPRWS Wells B-K) Allocate and reduce water usage as outlined in the Minnesota Statewide Drought Plan
Long-term demand reduction (>1 year)	No Action Planned	
Governor's "Critical Water Deficiency Order" declared	 Governor's "Critical Water Deficiency Order" declared 	 Implement mandatory water use reduction actions with a goal of reducing water use to January levels. Limit water used based on highest priorities as defined in Minnesota Statutes 103.261. Implement measures consistent with an emergency declaration.

B. Conservation Objectives and Strategies

Objective 1: Reduce Unaccounted (Non-Revenue) Water loss to Less than 10%

Is your ten-year average (2005-2014) unaccounted Water Use in Table 2 higher than 10%? ✓ Yes □ No

What is your leak detection monitoring schedule?

Periodic as needed, no less than a 5 year interval – Future leak detection survey's to be conducted at known "at risk" areas within the SPRWS Distribution System

What is the date of your most recent water audit? 2015

Frequency of water audits:	yearly	\Box other (specify frequen	су)
Leak detection and survey:	\Box every year	\Box every other year	periodic as needed

Year last leak detection survey completed: 2015

Based on the results of the 2015 water audit, SPRWS has examined solutions in order to achieve <10% loss. Discussions with SPRWS production staff has revealed possible meter inaccuracies as it relates to a high service pump. Since this pump was used to deliver 12.5% of water supplied in 2014, any inaccuracies in measuring the volume of water pumped may have a significant effect on the water audit. In addition, SPRWS recently completed a leak detection survey and is in the process of addressing these leaks, ultimately eliminating the resulting losses. SPRWS is also considering establishing better methods and procedures to estimate water usage for distribution system activities such as flushing during water main installation & maintenance activities that is currently not metered.

Metering

Table 23. Information about customer meters

SPRWS currently maintains approximately 94,000 meters. Between the years of 2010-2013, SPRWS replaced existing water meters with Neptune Water meters. Table 23 shows numbers and maintenance schedules of customer meters of SPRWS.

Customer Category	Number of Customers	Number of Metered	Number of Automated	Meter testing intervals	Average age/meter
U ,		Connections	Meter	(years)	replacement
			Readers		schedule (years
Residential	85,757	89,227	88,990	As needed	3/ 25
C/I/I – Meter < 3"	2,641	3,820	3,818	5	3 / 25
C/I/I – Meter <u>></u> 3"	549	657	657	1	3 / 25
Wholesale	2	4	4	.25	3 / 25
Irrigation meters	150	285	285	1	3 / 25
(Seasonal)					
TOTALS	89,089	93,993	93,754	NA	NA

Table 24. Water source meters

SPRWS uses Venturi meters & Magnetic meters at all water sources. Venturi meters are flow measurement instruments, which use a converging section of pipe to cause an increase in the flow velocity, which results in a decrease of pressure. Based on these two factors, a flow rate can be determined. Magnetic meters use a magnetic field in order to determine flow rates based on Faraday's Law.

	Type & Number of Meters	Meter testing schedule (years)	Number of Automated Meter Readers	Average age/meter replacement schedule (years
Fridley Station Intakes	2 – Venturi	Calibrated as needed	2	74 / 20 (pressure transmitters on venturi meters)
Wells	6 – Magnetic Flow Meters	TBD	6	7 / TBD
Treatment Plant (Raw Water Intake)	4 – Venturi	Calibrated as needed	4	18/20 (pressure transmitters on venturi meters)

Objective 2: Achieve Less than 75 Residential Gallons per Capita Demand (GPCD)

Is your average 2010-2015 residential per capita water demand in Table 2 more than 75?
Yes No

2005 – 2014 ten-year average residential per capita water demand - 48.28 g/person/day

Despite the growth in population and service connections, no increase in water consumption is observed. Based on the data collected from 2005 through 2014, it can be seen that water consumption is declining. See Figure 25.1. Various factors affect per capita daily consumption, including climate and community demographics. The practice of sprinkling is more intense in newer communities that are establishing lawns and shrubs. In the older and more established communities, demand is steady or declining. In addition, high-efficiency plumbing fixtures have become more common as well as an increase awareness regarding water conservation measures among SPRWS customers.





Table 25. Strategies and timeframe to reduce residential per capita demand

Strategy to reduce residential per capita demand	Timeframe for completing work
Revise city ordinance/codes to permit water reuse options,	In effect
especially for non-potable purposes like irrigation, groundwater	
recharge, and industrial use.	
City of Saint Paul Department of Safety and Inspections in	
partnership with Minnesota Department of Health reviews water	
reuse proposals on a case to case basis to ensure health and	
safety of residents of the City of Saint Paul.	
Revise ordinances to limit irrigation. Describe the restricted	In effect
irrigation plan:	
Chapter 91. Sec. 91.05. – Sprinkling Restrictions	
The use of water for lawn sprinkling purposes shall at all times be	
subject to the express condition that the board of water	
commissioners may, at any time when in its opinion the condition	
of the public water supply demands it, limit the time during each	
day when water may be used for sprinkling purposes; and the	
board may forbid the use of water for lawn sprinkling for any	
period not exceeding thirty (30) days at one time.	
Revise outdoor irrigation installations codes to require high	In effect
efficiency systems (e.g. those with soil moisture sensors or	
programmable watering areas) in new installations or system	
replacements.	
Chapter 01 Sec. 01.02 Water Concernation	
<u>Chapter 91. Sec. 91.03. – Water Conservation</u>	
All adjoinduct lawin sprinkler systems connected to the public	
However, systems which were installed prior to the effective date	
of this chapter may continue in operation at their current	
locations	
Make water system infrastructure improvements	In effect
See Appendix 4.	
Offer free or reduced cost water use audits for residential	In effect
customers.	
SPRWS technical staff provides field audits for elderly	
customers experiencing unexplained high-water usage.	
SPRWS also participates in the annual "Water's Off"	
program, with Saint Paul plumbers, designed to renovate	
poor plumbing in nomes of the elderly and needy. SPRWS	
providės junas and walvės plumbing permits.	
Implement a potification system to inform systemers when water	In effect
availability conditions change	
מימוומטווונץ נטוועונוטווא נוומווצר.	
Provide rehates or incentives for installing water efficient	No longer in effect Program expired
i rovide reputes of meentives for instailing water entitellt	no longer in encett i rogiani expired

Strategy to reduce residential per capita demand	Timeframe for completing work
appliances and/or fixtures indoors (e.g., low flow toilets, high	
efficiency dish washers and washing machines, showerhead and	
faucet aerators, water softeners, etc.)	
Identify supplemental Water Resources	In effect
See Table 17	
Conduct audience-appropriate water conservation education and outreach.	In effect
SPRWS provides conservation education and outreach by presenting at schools and other organizations to discuss and demonstrate drinking water sources, treatment and water conservation. SPRWS also conducts facility tours & two open houses at the Highland Water Tower to provide community	
education regarding water resource management.	
Other plans	In effect
SPRWS' billing unit reviews individual account consumption and notes unusual increases. The customer is sent a notice (high note) of the increase and is advised to look for leaks if there is no other explanation for the increase.	
Approximately 6,000 notices are sent each year. The quick action results in a significant reduction in water wasted.	

Objective 3: Achieve at least a 1.5% per year water reduction for Institutional, Industrial, Commercial, and Agricultural GPCD over the next 10 years or a 15% reduction in ten years.

Between the years 2004-2014, water consumption for C/I/I decreased 2.0% on an average yearly basis. As mentioned before, high-efficiency plumbing fixtures well as an increase awareness of conservation among SPRWS customers due to education and higher water rates, has led to a decrease in consumption. At this time, no additional strategies or timeliness to reduce C/I/I demand are planned.

Objective 4: Achieve a Decreasing Trend in Total Per Capita Demand

Despite the growth in population and service connections, no increase in water consumption among any customer category is observed. Based on the data collected from 2005 through 2014, it can be seen that water consumption is declining. Various factors affect per capita daily consumption, including climate and community demographics. For example, the practice of sprinkling is more intense in newer communities that are establishing lawns and shrubs. In the older and more established communities, demand is steady or declining. In addition, high-efficiency plumbing fixtures have become more common as well as increased awareness among SPRWS customers regarding water conservation measures due to education and higher water rates.

Objective 5: Reduce Peak Day Demand so that the Ratio of Average Maximum day to the Average Day is less than 2.6

Is the ratio of average 2005-2014 maximum day demand to average 2005-2014 average day demand reported in Table 2 more than 2.6? <u>No</u>

Ratio of maximum day demand to average day demand for the ten year average (2005 – 2014): 1.87

Objective 6: Implement a Conservation Water Rate Structure and/or a Uniform Rate Structure with a Water Conservation Program

Current Water Rates

A copy of the 2016 water rate structure in the City of Saint Paul and the suburbs is included in Attachment C. The water rate structure supports water conservation in customers, which can be seen from the declining water use trend over the last 10 years.

Volume included in base rate or service charge: Volume indicated as "Billing Units".

Frequency of billing: Monthly or Quarterly based on customer category.

Water Rate Evaluation Frequency: Every year

Date of last rate change: January 1, 2016

Table 27. Rate structures for each customer category (Select all that apply and add additional rows as needed)

Customer	Conservation Billing Strategies	Conservation Neutral	Non-Conserving Billing
Category	in Use *	Billing Strategies in Use **	Strategies in Use ***
Residential	Seasonal rates Service charge not based on water volume		
Commercial/ Industrial/ Institutional	Monthly Billing Seasonal rates Service charge not based on water volume		

Objective 7: Additional strategies to Reduce Water Use and Support Wellhead Protection Planning

SPRWS adheres to the City of Saint Paul Stormwater Management Program in order to reduce the discharge of treated water to surface waters including lakes, streams, wetlands and rivers. SPRWS is also partnering with the City of Saint Paul and other municipalities SPRWS serves to update respective Comprehensive Plans.

Objective 8: Tracking Success: How will you track or measure success through the next ten years?

SPRWS will closely review subsequent future AWWA water audits, in order to achieve unaccounted (Non-Revenue) Water loss to Less than 10%. In addition, total per capita water use, residential per capita water use and C/I/I water use will be closely monitored in order to identify trends. Data and analyses will be shared with the appropriate DNR District Hydrologist, to discuss possible improvements and successful actions as it relates to water conservation.

A. Regulation

Copies of adopted regulations are included in Appendix 10.

Table 29. Regulations for short-term reductions in demand and long-term improvements in water efficienci	Table 29.	Regulations for	short-term	reductions in	demand a	nd long-term	n improvements i	n water	efficienci
--	-----------	-----------------	------------	---------------	----------	--------------	------------------	---------	------------

Regulations Utilized	When is it applied (in effect)?
Water efficient plumbing fixtures required	New Development
Watering restriction requirements (time of day, allowable days, etc.)	Only during declared Emergencies
Water waste prohibited (for example, having a fine for irrigators	Ongoing
spraying on the street)	

B. Retrofitting Programs

Education and incentive programs aimed at replacing inefficient plumbing fixtures and appliances can help reduce per capita water use, as well as energy costs. SPRWS and the City of Saint Paul have and will continue to partner with local stakeholders to promote sustainability design features to achieve water conservation goals. An example of demonstrating that partnership is the innovative rainwater capture system at CHS Field and the integrated trench system on University Ave in the City of Saint Paul.

The CHS Field rain recapture project was a joint effort with the City of Saint Paul, The Saint Paul Saints, Capitol Region Watershed District, and the Metropolitan Council. This system reduced the sites demand for potable water and reduced runoff to the Mississippi River. The captured water then is used to irrigate the ball field and grounds, as well as for some of the stadium's toilets. The installation of tree trenches along University Ave has achieved similar conservation goals, allowing water to infiltrate and irrigate approximately 1,000 tress, preventing run off from reaching the Mississippi River. These programs have contributed to the reduction of demand as demonstrated by our decreasing water demand.

Other programs aimed at reducing water use are listed in Table 30.

Table 30. Retrofitting Programs

Water Use Targets	Outreach Methods	Partners
Low flush toilets	Educational Guides & Information	Xcel Energy
Toilet leak tablets	Free distribution of toilet leak	Neighborhood Energy Connection
Low flow showerheads	tablets.	
Faucet aerators	Rebate for low flow showerheads	
	and faucet aerators	
Water conserving actions as it pertains to washing machines, dish washers	Educational Guides & Information	
Rain gardens & Rain barrels	Educational Guides & Information	Watershed Districts & Agencies County Agencies

In the early 1990's, SPRWS implemented a Water Conservation Pilot Program to study the benefits to retrofit showerheads and toilet devises. The results showed showerheads installations were cost-effective while toilet devices were not. Accordingly, SPRWS developed a program with Northern States Power to offer high-efficiency showerheads to all customers of SPRWS.

A program to increase the efficiency of flushometer-type toilets and urinals in municipal buildings was initiated in 1994. The program spanned the cities of Saint Paul, Falcon heights, Lauderdale, and West Saint Paul. At the same time, SPRWS replaced flushometers in selected St. Paul public school buildings.

C. Education and Information Programs

Table 31 lists current and future education efforts provided by SPRWS. All these efforts are ongoing.

Table 3	1. Current	Education	Programs
---------	------------	-----------	----------

Education Methods	General summary of topics	#/Year	Frequency
Billing inserts or tips	Contents include newsletter "Customer Service	4	Ongoing
printed on the actual bill	Connections", solicitation for WaterWorks and		
	direct pay, etc.		
Consumer Confidence	Provided in the spring, online with information in	1	Ongoing
Reports	the newsletter and bill message box		
Press releases to	Regular news releases for the open house at the	3	Ongoing
traditional local news	Highland Water Tower held twice a year, the		
outlets (e.g., newspapers,	annual Consumer Confidence Report (Water		
radio and TV)	Quality Report), and others as needed.		
Presentations to	SPRWS provides staff to school and other	4	Ongoing
community groups	organizations to discuss and demonstrate		
	drinking water sources, supplies and treatment.		
Facility tours	Information provided to groups that tour the	20	Ongoing
	water treatment plant.		
Displays and exhibits	Display cases and brochures available in the		Ongoing
	Administration Building at the McCarrons Center		
Information kiosk at utility	Display cases and brochures available in the		Ongoing
and public buildings	Administration Building at the McCarrons Center		
K-12 Education programs	SPRWS provides staff to school and other		Ongoing
(Project Wet, Drinking	organizations to discuss and demonstrate		
Water Institute,	drinking water sources, supplies and treatment.		
presentations)			
Community education	Two open houses at the Highland water tower	2-3	Seasonal
classes	annually and one at McCarrons Center bi-annually.		
Targeted efforts (large	SPRWS' billing unit reviews individual account	6,000	Ongoing
volume users, users with	consumption and notes unusual increases. The		
large increases)	customer is sent a notice (high note) of the		
	increase and is advised to look for leaks if there is		
	no other explanation for the increase.		
Emergency conservation	Necessary Conservation Measures		Only during
notices			declared
			Emergencies
Digital Public Outreach	SPRWS provides extensive information on our		Ongoing
	website in regards to a variety of topic as well as		
	utilizing social media for notifications		

Future Education Programs:

SPRWS will be participating in National Drinking Water Week in May of 2017. Educational and outreach programs will be initiated to increase the awareness of drinking water. Educational programs will include open houses at SPRWS facilities for schools, employee education, and public outreach via social media and press releases. In addition, the City of Saint Paul has partnered with Ramsey-Washington Metro Watershed District to participate in WaterFest 2017. WaterFest is a celebration focusing on water quality, wildlife, and special ecological features of the watershed.

4.0 Items for Metropolitan Area Communities

Minnesota Statute 473.859 requires WSPs to be completed for all local units of government in the seven-county Metropolitan Area as part of the local comprehensive planning process.

Much of the information in Parts 1-3 addresses water demand for the next 10 years. However, additional information is needed to address water demand through 2040, which will make the WSP consistent with the Metropolitan Land Use Planning Act, upon which the local comprehensive plans are based.

This Part 4 provides guidance to complete the WSP in a way that addresses plans for water supply through 2040.

A. Water Demand Projections through 2040

Complete Table 7 in Part 1D by filling in information about long-term water demand projections through 2040. Total Community Population projections should be consistent with the community's system statement, which can be found on the Metropolitan Council's website and which was sent to the community in September 2015.

Projected Average Day, Maximum Day, and Annual Water Demands may either be calculated using the method outlined in *Appendix 2* of the *2015 Master Water Supply Plan* or by a method developed by the individual water supplier.

B. Potential Water Supply Issues

Complete Table 10 in Part 1E by providing information about the potential water supply issues in your community, including those that might occur due to 2040 projected water use.

The *Master Water Supply Plan* provides information about potential issues for your community in *Appendix 1 (Water Supply Profiles).* This resource may be useful in completing Table 10.

You may document results of local work done to evaluate impact of planned uses by attaching a feasibility assessment or providing a citation and link to where the plan is available electronically.

C. Proposed Alternative Approaches to Meet Extended Water Demand Projections

Complete Table 12 in Part 1F with information about potential water supply infrastructure impacts (such as replacements, expansions or additions to wells/intakes, water storage and treatment capacity, distribution systems, and emergency interconnections) of extended plans for development and redevelopment, in 10-year increments through 2040. It may be useful to refer to information in the community's local Land Use Plan, if available.

Table 14 was removed from Water Supply Plan as SPRWS does not anticipating needing an alternative water source by the year 2040.

GLOSSARY

Agricultural/Irrigation Water Use - Water used for crop and non-crop irrigation, livestock watering, chemigation, golf course irrigation, landscape and athletic field irrigation.

Average Daily Demand - The total water pumped during the year divided by 365 days.

Calcareous Fen - Calcareous fens are rare and distinctive wetlands dependent on a constant supply of cold groundwater. Because they are dependent on groundwater and are one of the rarest natural communities in the United States, they are a protected resource in MN. Approximately 200 have been located in Minnesota. They may not be filled, drained or otherwise degraded.

Commercial/Institutional Water Use - Water used by motels, hotels, restaurants, office buildings, commercial facilities and institutions (both civilian and military). Consider maintaining separate institutional water use records for emergency planning and allocation purposes. Water used by multifamily dwellings, apartment buildings, senior housing complexes, and mobile home parks should be reported as Residential Water Use.

Commercial/Institutional/Industrial (C/I/I) Water Sold - The sum of water delivered for commercial/institutional or industrial purposes.

Conservation Rate Structure - A rate structure that encourages conservation and may include increasing block rates, seasonal rates, time of use rates, individualized goal rates, or excess use rates. If a conservation rate is applied to multifamily dwellings, the rate structure must consider each residential unit as an individual user. A community may have a separate conservation rate that only goes into effect when the community or governor declares a drought emergency. These higher rates can help to protect the city budgets during times of significantly less water usage.

Date of Maximum Daily Demand - The date of the maximum (highest) water demand. Typically this is a day in July or August.

Declining Rate Structure - Under a declining block rate structure, a consumer pays less per additional unit of water as usage increases. This rate structure does not promote water conservation.

Distribution System - Water distribution systems consist of an interconnected series of pipes, valves, storage facilities (water tanks, water towers, reservoirs), water purification facilities, pumping stations, flushing hydrants, and components that convey drinking water and meeting fire protection needs for cities, homes, schools, hospitals, businesses, industries and other facilities.

Flat Rate Structure - Flat fee rates do not vary by customer characteristics or water usage. This rate structure does not promote water conservation.

Industrial Water Use - Water used for thermonuclear power (electric utility generation) and other industrial use such as steel, chemical and allied products, paper and allied products, mining, and petroleum refining.

Low Flow Fixtures/Appliances - Plumbing fixtures and appliances that significantly reduce the amount of water released per use are labeled "low flow". These fixtures and appliances use just enough water to be effective, saving excess, clean drinking water that usually goes down the drain.

Maximum Daily Demand - The maximum (highest) amount of water used in one day.

Metered Residential Connections - The number of residential connections to the water system that have meters. For multifamily dwellings, report each residential unit as an individual user.

Percent Unmetered/Unaccounted For - Unaccounted for water use is the volume of water withdrawn from all sources minus the volume of water delivered. This value represents water "lost" by miscalculated water use due to inaccurate meters, water lost through leaks, or water that is used but unmetered or otherwise undocumented. Water used for public services such as hydrant flushing, ice skating rinks, and public swimming pools should be reported under the category "Water Supplier Services".

Population Served - The number of people who are served by the community's public water supply system. This includes the number of people in the community who are connected to the public water supply system, as well as people in neighboring communities who use water supplied by the community's public water supply system. It should not include residents in the community who have private wells or get their water from neighboring water supply.

Residential Connections - The total number of residential connections to the water system. For multifamily dwellings, report each residential unit as an individual user.

Residential Per Capita Demand - The total residential water delivered during the year divided by the population served divided by 365 days.

Residential Water Use - Water used for normal household purposes such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens. Should include all water delivered to single family private residences, multi-family dwellings, apartment buildings, senior housing complexes, mobile home parks, etc.

Smart Meter - Smart meters can be used by municipalities or by individual homeowners. Smart metering generally indicates the presence of one or more of the following:

- Smart irrigation water meters are controllers that look at factors such as weather, soil, slope, etc. and adjust watering time up or down based on data. Smart controllers in a typical summer will reduce water use by 30%-50%. Just changing the spray nozzle to new efficient models can reduce water use by 40%.
- Smart Meters on customer premises that measure consumption during specific time periods and communicate it to the utility, often on a daily basis.
- A communication channel that permits the utility, at a minimum, to obtain meter reads on demand, to ascertain whether water has recently been flowing through the meter and onto the

premises, and to issue commands to the meter to perform specific tasks such as disconnecting or restricting water flow.

Total Connections - The number of connections to the public water supply system.

Total Per Capita Demand - The total amount of water withdrawn from all water supply sources during the year divided by the population served divided by 365 days.

Total Water Pumped - The cumulative amount of water withdrawn from all water supply sources during the year.

Total Water Delivered - The sum of residential, commercial, industrial, institutional, water supplier services, wholesale and other water delivered.

Ultimate (Full Build-Out) - Time period representing the community's estimated total amount and location of potential development, or when the community is fully built out at the final planned density.

Unaccounted (Non-revenue) Loss - See definitions for "percent unmetered/unaccounted for loss".

Uniform Rate Structure - A uniform rate structure charges the same price-per-unit for water usage beyond the fixed customer charge, which covers some fixed costs. The rate sends a price signal to the customer because the water bill will vary by usage. Uniform rates by class charge the same price-per-unit for all customers within a customer class (e.g. residential or non-residential). This price structure is generally considered less effective in encouraging water conservation.

Water Supplier Services - Water used for public services such as hydrant flushing, ice skating rinks, public swimming pools, city park irrigation, back-flushing at water treatment facilities, and/or other uses.

Water Used for Nonessential Purposes - Water used for lawn irrigation, golf course and park irrigation, car washes, ornamental fountains, and other non-essential uses.

Wholesale Deliveries - The amount of water delivered in bulk to other public water suppliers.

Acronyms and Initialisms

- AWWA American Water Works Association
- **C/I/I** Commercial/Institutional/Industrial
- **CIP** Capital Improvement Plan
- **GIS** Geographic Information System
- **GPCD** Gallons per capita per day
- GWMA Groundwater Management Area North and East Metro, Straight River, Bonanza,
- **MDH** Minnesota Department of Health
- MGD Million gallons per day
- **MG** Million gallons
- MGL Maximum Contaminant Level
- MnTAP Minnesota Technical Assistance Program (University of Minnesota)
- MPARS MN/DNR Permitting and Reporting System (new electronic permitting system)
- MRWA Minnesota Rural Waters Association
- **SWP** Source Water Protection
- WHP Wellhead Protection

Appendix I

Well Records and Maintenance Summaries







"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water S	ervices Date:	12/4/2007
Vadnais Heights MN	/ell/Pump Name:	G
This report is not to be used to determine compliance with any code to evaluate the operating performance of the well and pump at the t	es, regulations, laws, or rules. Its s ime of the inspection.	ole purpose is to attempt
1. Check Wiring & Connections-	iood	● Good ○ Fair ○ Poor
2. Check Starter Overload Protection-	Good	● Good O Fair O Poor
3. Check Voltage Supply- L 1-4 494 L 2-5 495 L 3	-6	● Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 483 L 2-5 489 L 3	-6 483 60	● Good ○ Fair ○ Poor
5. Check Motor Amps- L1 L2 L3 L3 L3 L3 L3 L3	134.0 Utilization 94%	● Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 <u>Good</u> I	_2CoodL3Good	● Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 <u>Good</u> L2	2-3 Good L1-3 Good	● Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M	1800	Good O Fair O Poor
9. Check Temperature-Motor Good Well Re	oom Good	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good Bottom Good	Pump Prelube OK	● Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor Good Pump Good	Right Angle Dr NA	● Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump Good	Right Angle Dr NA	● Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing-	Good	● Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- Good Pu	mp Foot Valve NA	Good O Fair O Poor
15. Check Start/Stop CycleGood Air Relief/Va	acuum Breaker <u>Good</u>	● Good ○ Fair ○ Poor
16. Check Condition Of Water Goo	d	● Good ○ Fair ○ Poor
17. Check Pumping Rate 2500 G.P.M.	O C.F.P.M. Pump Throttled? <u>NO</u>	● Good ○ Fair ○ Poor
18. Check Water Levels-Static 32' Pumping 181' Yiel Comments:	d Good GPM Per Foot of Draw Down	● Good ○ Fair ○ Poor

erating prop

Your 24 Hour Full Service Well & Pump Company

Report By: Tim McCarthy

Nation's Oldest • Northwest's Largest Water Producers



A

MAIN OFFICE, SHOP, YARD & WAREHOUSE • 590 CITATION DRIVE • SHAKOPEE, MN 55379-1887

"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

<u>"18 POINT PUMP PERFORMANCE INSPECTION REPORT"</u>

Vadnais Heights Station - Saint Paul Regional Water Services Date:

12/4/2007

 Vadnais Heights MN
 Well/Pump Name:
 F

 This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.
 F

1. Check Wiring & Connections-	Good	● Good ○ Fair ○ Poor
2. Check Starter Overload Protection-	Good	● Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 485 L 2	2-5_490_L3-6_486_	● Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 478 L 2	2-5 480 L 3-6 479 60	● Good ○ Fair ○ Poor
5. Check Motor Amps- L1 L2	163.0 L3 154.0 Utilization 92%	● Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L	.1 <u>Good</u> L2 <u>Good</u> L3 <u>Good</u>	● Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings-	L1-2 <u>Good</u> L2-3 <u>Good</u> L1-3 <u>Good</u>	● Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M	1800	Good O Fair O Poor
9, Check Temperature-Motor Good	Well Room Good	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good	Bottom Good Pump Prelube OK	● Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor Good P	Pump <u>Good</u> Right Angle Dr <u>NA</u>	● Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump	Good Right Angle Dr NA	● Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing-	Good	● Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve	Good Pump Foot Valve NA	Good O Fair O Poor
15. Check Start/Stop Cycle- Good	Air Relief/Vacuum Breaker Good	● Good ○ Fair ○ Poor
16. Check Condition Of Water	Good	● Good ○ Fair ○ Poor
17. Check Pumping Rate	Is The G.P.M. O C.F.P.M. Pump Throttled? <u>NO</u>	● Good ○ Fair ○ Poor
18. Check Water Levels-Static 33' Pumpin	g 105' Yield Good GPM Per Foot of Draw Down	● Good ○ Fair ○ Poor

This unit appears to be operating properly at this time.

Your 24 Hour Full Service Well & Pump Company

Report By: Tim McCarthy

Nation's Oldest . Northwest's Largest Water Producers



"There is No Substitute for Experience" Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

<u>"18 POINT PUMP PERFORMANCE INSPECTION REPORT"</u> Vadnais Heights Station - Saint Paul Regional Water Services

12/4/2007

Е

Date:

Well/Pump Name: Vadnais Heights MN This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection. ● Good ○ Fair ○ Poor 1. Check Wiring & Connections-Good ● Good ○ Fair ○ Poor 2. Check Starter Overload Protection-_____ Good 3. Check Voltage Supply- L 1-4 481 L 2-5 475 L 3-6 472 ● Good ○ Fair ○ Poor

Hertz 4. Check Voltage Running- L 1-4 474 L 2-5 468 L 3-6 464 ● Good ○ Fair ○ Poor 60 5. Check Motor Amps- L1 _______ L2 ______ L3 ______ L3 _____ Utilization ____92% Good O Fair O Poor ● Good ○ Fair ○ Poor 6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good 7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good ● Good ○ Fair ○ Poor ● Good ○ Fair ○ Poor 1800 8. Check Pump & Motor Operating R.P.M.-9. Check Temperature-Motor Good Well Room Good ● Good ○ Fair ○ Poor ● Good ○ Fair ○ Poor 10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK 11. Check Bearing Noise-Motor Slight Pump Good Right Angle Dr NA ● Good ○ Fair ○ Poor 12. Check Vibration-Motor Good Pump Good Right Angle Dr NA ● Good ○ Fair ○ Poor 13. Check Discharge Head Packing Box Bearing- Good O Fair O Poor 14. Check Discharge Line Check Valve- Good Pump Foot Valve NA ● Good ○ Fair ○ Poor 15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good ● Good ○ Fair ○ Poor ● Good ○ Fair ○ Poor 16. Check Condition Of Water-Good Is The ● G.P.M. O C.F.P.M. Pump Throttled? <u>NO</u> ● Good O Fair O Poor 17. Check Pumping Rate-GPM Per Foot Pumping 95' Yield Good ● Good ○ Fair ○ Poor 18. Check Water Levels-Static 38' of Draw Down Comments:

This unit appears to be operating properly at this time, however, it has been in service at least 5 years since it was last removed from the well for repair.

Your 24 Hour Full Service Well & Pump Company

Report By: Tim McCarthy

Nation's Oldest . Northwest's Largest Water Producers



"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water Services 12/4/2007 Date: D Well/Pump Name: Vadnais Heights MN This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good		Good O Fair	O Poor
2. Check Starter Overload Protection-	Good		Good O Fair	O Poor
3. Check Voltage Supply- L 1-4 478	L 2-5 483 L 3-6 478		Good O Fair	O Poor
4. Check Voltage Running- L 1-4	L2-5 471 L3-6 470		Good O Fair	O Poor
5. Check Motor Amps- L1	L2L3Utiliza	tion <u>91%</u>	Good O Fair	O Poor
6. Check Resistance Between Line & Gro	und-L1 <u>Good</u> L2 <u>Good</u> L	Good O	Good OFair	O Poor
7. Check Resistance Between Motor Wind	dings- L1-2 <u>Good</u> L2-3 <u>Good</u> L1	3 Good 🔘	Good OFair	O Poor
8. Check Pump & Motor Operating R.P.M.			Good O Fair	O Poor
9. Check Temperature-Motor	Good Well Room Go	od O) Good O Fair	O Poor
10. Check Bearing Lube-Motor Top Goo	dBottomGoodPump Prelube	ок 🔘	Good O Fair	O Poor
11. Check Bearing Noise-Motor Good	Pump Good Right Angle Dr	<u>NA</u>	Good O Fair	
12. Check Vibration-Motor Good	Pump <u>Good</u> Right Angle Dr	<u>NA</u>	Good O Fair	O Poor
13. Check Discharge Head Packing Box Be	earingGood	0	Good O Fair	O Poor
14. Check Discharge Line Check Valve	Good Pump Foot Valve	<u>NA @</u>	Good O Fair	O Poor
15. Check Start/Stop CycleGoo	dAir Relief/Vacuum Breaker	Good O	Good O Fair	O Poor
16. Check Condition Of Water-	Good		Good O Fair	O Poor
17. Check Pumping Rate-	Is G.P.M. OC.F.P.M. Pump 1	ne nrottled? <u>NO</u>) Good O Fair	O Poor
18. Check Water Levels-Static 32' P Comments:	Pumping Good Yield Good GPM	Per Foot 🧕 w Down) Good O Fair	O Poor

This pump and motor was operating properly and the motor suddenly failed. It appears the windings grounded out.

Your 24 Hour Full Service Well & Pump Company

Report By: Tim McCarthy



"*There is No Substitute for Experience*" Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

<u>"18 POINT PUMP PERFORMANCE INSPECTION REPORT"</u>

Vadnais Heights Station - Saint Paul Regional Water Services Date:

12/4/2007

Vadnais Heights MN

Well/Pump Name:

С

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good	● Good ○ Fair ○ Poor
2. Check Starter Overload Protection- Good	● Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 481 L 2-5 482 L 3-6 480	● Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 476 L 2-5 477 L 3-6 468 60	● Good ○ Fair ○ Poor
5. Check Motor Amps- L1 136.0 L2 144.0 L3 146.0 Utilization 82%	● Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 <u>Good</u> L2 <u>Good</u> L3 <u>Good</u>	● Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 <u>Good</u> L2-3 <u>Good</u> L1-3 <u>Good</u>	● Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M1800	● Good ○ Fair ○ Poor
9. Check Temperature-Motor Good Well Room Good	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK	● Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor <u>Good</u> Pump <u>Good</u> Right Angle Dr <u>NA</u>	● Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA	● Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- Good	● Good ○ Fair ○ Poor
14. Check Discharge Line Check ValveGoodPump Foot ValveNA	● Good ○ Fair ○ Poor
15. Check Start/Stop CycleGoodAir Relief/Vacuum BreakerGood	● Good ○ Fair ○ Poor
16. Check Condition Of Water Good	● Good ○ Fair ○ Poor
17. Check Pumping Rate-	● Good ○ Fair ○ Poor
18. Check Water Levels-Static 27' Pumping 65' Yield Good GPM Per Foot	● Good ○ Fair ○ Poor

This unit appears to be operating properly at this time, however, it has been in service at least 5 years since it was last removed from the well for repair.

Your 24 Hour Full Service Well & Pump Company

Report By: Tim McCarthy





"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

"18 POINT PIIMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Region	al Water Services Date:	12/4/2007
Vadnais Heights MN	Well/Pump Name:	В
This report is not to be used to determine compliance v to evaluate the operating performance of the well and p	with any codes, regulations, laws, or rules. Its pump at the time of the inspection.	s sole purpose is to attempt
1. Check Wiring & Connections-	Good	● Good ○ Fair ○ Poor
2. Check Starter Overload Protection-	Good	<u> </u>
3. Check Voltage Supply- L 1-4 493 L 2-5	468 L 3-6 477	● Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 466 L 2-5	464 L 3-6 470 60	● Good ○ Fair ○ Poor
5. Check Motor Amps- L1128.0 L2123.	.0 L3 <u>115.0</u> Utilization <u>102%</u>	Good O Fair O Poor
6. Check Resistance Between Line & Ground- L1	Good L2 Good L3 Good	● Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2	Good L2-3 Good L1-3 Good	Good O Fair O Poor
8. Check Pump & Motor Operating R.P.M	1800	● Good ○ Fair ○ Poor
9. Check Temperature-Motor Good	Well Room Good	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top <u>Good</u> Botto	om <u>Good</u> Pump Prelube <u>OK</u>	● Good ● Fair ● Poor
11. Check Bearing Noise-Motor Good Pump	Good Right Angle Dr NA	● Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump	Good Right Angle Dr NA	● Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing	Good	● Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve Good	dPump Foot Valve NA	● Good ○ Fair ○ Poor
15. Check Start/Stop CycleGood	Air Relief/Vacuum Breaker Good	● Good ○ Fair ○ Poor
16. Check Condition Of Water	Good	● Good ○ Fair ○ Poor
17. Check Pumping Rate-	Is The G.P.M. O C.F.P.M. Pump Throttled?	O O Good O Fair O Poor
18. Check Water Levels-Static 33' Pumping	113' Yield Good GPM Per Foot	● Good ○ Fair ○ Poor
Comments: This unit appears to be operating properly at this time, ho	wever, the pump has been in service at least 5	years since it was last removed

from the well for repair.

Your 24 Hour Full Service Well & Pump Company

Report By: Tim McCarthy

Nation's Oldest • Northwest's Largest Water Producers





"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

<u>"18 POINT PUMP PERFORMANCE INSPECTION REPORT"</u>

Vadnais Heights Station - Saint Paul Regional Water Services

Vadnais Heights MN

12/4/2007

Α

Date:

Well/Pump Name:

This report is not to be used to determine compl	liance with any codes, regulations, laws, or ru	les. Its sole purpose is to attempt
to evaluate the operating performance of the we	Il and pump at the time of the inspection.	
1. Check Wiring & Connections-	Good	● Good ○ Fair ○ Poor

2. Check Starter Overload Protection- Good		● Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 245 L 2-5 245 L 3-6	Ê	● Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 237 L 2-5 237 L 3-6	Hertz60	● Good ○ Fair ○ Poor
5. Check Motor Amps- L1 11.0 L2 10.0 L3 L	Utilization <u>105%</u>	Good O Fair O Poor
6. Check Resistance Between Line & Ground- L1 Fair L2 Fair	L3 Fair	O Good Fair O Poor
7. Check Resistance Between Motor Windings- L1-2 <u>Good</u> L2-3 <u>Good</u>	L1-3 Good	● Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M 3450		● Good ○ Fair ○ Poor
9. Check Temperature-Motor Good Well Room	Good	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Pre	lube <u>NA</u>	● Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor <u>Good</u> Pump <u>Good</u> Right Angle	e DrNA	● Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump Good Right Angle D	n NA	● Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box BearingNA		● Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve Good Pump Foot Valve	Good	● Good ○ Fair ○ Poor
15. Check Start/Stop CycleGoodAir Relief/Vacuum Breaker	Good	● Good ○ Fair ○ Poor
16. Check Condition Of Water Good		● Good ○ Fair ○ Poor
17. Check Pumping RateNot Metered O C.F.P.M. Pur	IS The mp Throttled? <u>NO</u>	● Good ○ Fair ○ Poor
18. Check Water Levels-Static 27' Pumping 29' Yield Good G	SPM Per Foot of Draw Down	● Good ○ Fair ○ Poor

This unit appears to be operating properly at this time.

Report By: Tim McCarthy

Your 24 Hour Full Service Well & Pump Company

Nation's Oldest . Northwest's Largest Water Producers





"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

"18 POINT PUMP PERFORMANCE INSPECTION REPORT

Fridley Pumping Station	- Saint Paul Regional Water Services	Dete	1/11/2008
Thuley Fullping Station	- Same Faul Neylonal Water Services	Date.	4/14/2000

Fridley MN

Well/Pump Name:

1

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good		● Good ○ Fair	O Poor
2. Check Starter Overload Protection-	Good		● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-4 2	245 L 2-5 245 L 3-6		<u> </u>	O Poor
4. Check Voltage Running- L 1-4	2 41 L 2-5 241 L 3-6		● Good ○ Fair	O Poor
5. Check Motor Amps- L1	L29.9 L3	Utilization 116%	● Good ○ Fair	O Poor
6. Check Resistance Between Line & 0	Ground- L1 <u>Good</u> L2 <u>Go</u>	od L3 Good	• Good O Fair	O Poor
7. Check Resistance Between Motor V	Vindings- L1-2 <u>Good</u> L2-3 <u>Go</u>	ood L1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating R.F	^D .M 3450		<u> </u>	O Poor
9. Check Temperature-Motor	Good Well Room	Good	● Good ○ Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom Good Pun	np Prelube NA	<u>● Good</u> ○ Fair	O Poor
11. Check Bearing Noise-Motor Go	od Pump <u>Good</u> Right	Angle Dr NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor Good	Pump Good Right A	ngle Dr NA	● Good ○ Fair	O Poor
13. Check Discharge Head Packing Box	x BearingN	A	• Good • Fair	O Poor
14. Check Discharge Line Check Valve	- Good Pump Foot	Valve Good	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle	Air Relief/Vacuum B	reaker <u>Good</u>	● Good ○ Fair	O Poor
16. Check Condition Of Water	Good		● Good ○ Fair	O Poor
17. Check Pumping RateNot	Metered G,P.M. O C.F.P.M	Is The I. Pump Throttled? <u>NO</u>	● Good ○ Fair	O Poor
18. Check Water Levels-Static No Comments:	Pumping No Access Yield Good	GPM Per Foot of Draw Down	. ● Good O Fair	O Poor

This unit appears to be operating properly at this time, however, the pit has 10" of standing water in it and the pump has been in service over 5 years since it was last removed from the well for repair. The pit should be drained and the manhole should be sealed to prevent stagnant water contamination.

Your 24 Hour Full Service Well & Pump Company

Report By: Tim McCarthy



"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water Services 12/22/2008 Date: Well/Pump Name: Vadnais Heights MN

Α

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good		● Good ○ Fair	O Poor
2. Check Starter Overload Protection	n Goo	d	● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-4_	244 L 2-5 244 L 3-6		Good O Fair	O Poor
4. Check Voltage Running- L 1-4_	234 L 2-5 235 L 3-6		Good O Fair	O Poor
5. Check Motor Amps- L11.0	L2 L3	Utilization105%	<u>● Good</u> ○ Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 L2	Fair L3 Fair	O Good	O Poor
7. Check Resistance Between Motor	r Windings- L1-2 <u>Good</u> L2-3	Good L1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating F	R.P.M3	450	● Good ○ Fair	O Poor
9. Check Temperature-Motor	Good Well Room	Good	● Good ○ Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom Good	Pump Prelube NA	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Good	Right Angle Dr NA	Good O Fair	O Poor
12. Check Vibration-Motor Good	<mark>d</mark> Pump Good Rig	ht Angle Dr NA	● Good ○ Fair	O Poor
13. Check Discharge Head Packing E	Box Bearing	NA	● Good ○ Fair	O Poor
14. Check Discharge Line Check Val	veGoodPump	Foot Valve <u>Good</u>	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle	Good Air Relief/Vacuu	m Breaker <u>Good</u>	● Good ○ Fair	O Poor
16. Check Condition Of Water	Good		● Good ○ Fair	
17. Check Pumping RateNo	ot Metered ● G.P.M. O C	Is The F.P.M. Pump Throttled? <u>NO</u>	● Good ○ Fair	O Poor
18. Check Water Levels-Static Block Comments:	Access Access Yield (Access Yield (Access Yield (Good GPM Per Foot of Draw Down	● Good ○ Fair	O Poor

This unit appears to be operating properly at this time, however, the pump has been in service 5 years since it was last removed from the well for repair which increases the likelihood it may fail without warning.

Report By: Tim McCarthy

Your 24 Hour Full Service Well & Pump Company





"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

<u>"18 POINT PUMP PERFORMANCE INSPECTION REPORT"</u>

Vadnais Heights Station - Saint Paul Regional Wate	er Services Date:	12/22/2008
Vadnais Heights MN	Well/Pump Name:	В

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Go	od	● Good ○ Fair ○ Poor
2. Check Starter Overload Protection	G	ood	● Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4	472 L2-5 <u>467</u> L3-6	6	Good O Fair O Poor
4. Check Voltage Running- L 1-4	464 L 2-5 460 L 3-6		● Good ○ Fair ○ Poor
5. Check Motor Amps- L1116.0	L2124.0 L3	117.0 Utilization 99%	● Good ○ Fair ○ Poor
6. Check Resistance Between Line &	Ground- L1 <u>Good</u> L2	Good L3 Good	● Good ○ Fair ○ Poor
7. Check Resistance Between Motor	Windings- L1-2 <u>Good</u> L2-	3 <u>Good</u> L1-3 <u>Good</u>	● Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R	P.M.~	1800	● Good ○ Fair ○ Poor
9. Check Temperature-Motor	Good Well Roo	Good	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top	Good Bottom Good	Pump Prelube OK	● Good ○ Fair ○ Poor
11. Check Bearing Noise-MotorG	ood Pump Good	Right Angle Dr NA	● Good ○ Fair ○ Poor
12. Check Vibration-Motor Good	Pump Good	Right Angle DrNA	● Good ○ Fair ○ Poor
13. Check Discharge Head Packing Bo	ox Bearing	Good	● Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve	e- Good Pun	p Foot Valve NA	● Good ○ Fair ○ Poor
15. Check Start/Stop Cycle	Good Air Relief/Vac	uum Breaker <u>Good</u>	● Good ○ Fair ○ Poor
16. Check Condition Of Water-	Good		● Good ○ Fair ○ Poor
17. Check Pumping RateNot	Metered	Is The C.F.P.M. Pump Throttled? <u>NO</u>	● Good ○ Fair ○ Poor
18. Check Water Levels-Static 30'	Pumping 107' Yield	Good GPM Per Foot of Draw Down	● Good ○ Fair ○ Poor

This unit appears to be operating properly at this time, however, the pump has been in service at least 5 years since it was last removed from the well for repair.

Report By: Tim McCarthy

Your 24 Hour Full Service Well & Pump Company





"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

RMANCE INSPECT **18 POINT PUMP PER** MON REPURT"

Vadnais Heights Station - Saint Paul Regional Water Services Date:

12/22/2008

Vadnais	Heights	MN
---------	---------	----

Well/Pump Name:

С

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good	<u> </u>	ir O Poor
2. Check Starter Overload Protection-		Good	● Good ○ Fa	ir O Poor
3. Check Voltage Supply- L 1-4_4	81 L 2-5 478 L	3-6 <u>481</u>		ir O Poor
4. Check Voltage Running- L 1-4 4	75 L 2-5 474 L	3-6 <u>470</u>	60 Good O Fa	ir O Poor
5. Check Motor Amps- L1135.0	L2 136.0 L3_	129.0 Utilization	77% OGood OFa	ir O Poor
6. Check Resistance Between Line & C	Ground- L1 <u>Good</u>	L2 Good L3	Good Good OFa	iir O Poor
7. Check Resistance Between Motor V	Vindings- L1-2 <u>Good</u> L	2-3 <u>Good</u> L1-3	Good OFa	nir O Poor
8. Check Pump & Motor Operating R.F	P.M.~	1800	● Good ○ Fa	<u>iir O Poor</u>
9. Check Temperature-Motor	Good Well F	Room Good	Good O Fa	air O Poor
10. Check Bearing Lube-Motor Top	Good Bottom Good	Pump Prelube		air O Poor
11. Check Bearing Noise-Motor Go	ood Pump Good	Right Angle Dr		air O Poor
12. Check Vibration-Motor <u>Good</u>	Pump <u>Good</u>	Right Angle Dr N	A O Good O Fa	air O Poor
13. Check Discharge Head Packing Bo	x Bearing	Good	● Good ── Fa	air O Poor
14. Check Discharge Line Check Valve	GoodP	ump Foot Valve N		air O Poor
15. Check Start/Stop Cycle	Good Air Relief	/acuum Breaker Go	od © Good O Fa	air O Poor
16. Check Condition Of Water	Go	bd	● Good O F	air O Poor
17. Check Pumping Rate- Not	Metered O.P.M.	Is The O C.F.P.M. Pump Throttl	ed? <u>NO</u> @GoodOF	air O Poor
18. Check Water Levels-Static 28'	Pumping 64' Yi	eld Good GPM Per F	oot <u>Good O F</u> wn	air O Poor

This unit appears to be operating properly at this time, however, the pump has been in service over 5 years since it was last removed from the well for repair.

Report By: Tim McCarthy

Your 24 Hour Full Service Well & Pump Company




"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water Services Date:	5/1/2008
Vadnais Heights MN Well/Pump Name:	D
This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its so to evaluate the operating performance of the well and pump at the time of the inspection.	ble purpose is to attempt
1. Check Wiring & Connections- Good	● Good ○ Fair ○ Poor
2. Check Starter Overload Protection Good	● Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 478 L 2-5 480 L 3-6 478	● Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 471 L 2-5 470 L 3-6 474 60 50	● Good ○ Fair ○ Poor
5. Check Motor Amps- L1 160.0 L2 167.0 L3 161.0 Utilization 92%	● Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 <u>Good</u> L2 <u>Good</u> L3 <u>Good</u>	● Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 <u>Good</u> L2-3 <u>Good</u> L1-3 <u>Good</u>	● Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M1800	● Good ○ Fair ○ Poor
9. Check Temperature-Motor <u>Good</u> Well Room <u>Good</u>	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK	● Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA	● Good ○ Fair ○ Poor
12. Check Vibration-Motor Slight Pump Good Right Angle Dr NA	● Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing Good	● Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA	● Good ○ Fair ○ Poor
15. Check Start/Stop CycleGoodAir Relief/Vacuum BreakerGood	● Good ○ Fair ○ Poor
16. Check Condition Of Water Good	● Good ○ Fair ○ Poor
Is The 17. Check Pumping Rate Not Metered G.P.M. O C.F.P.M. Pump Throttled? <u>NO</u>	● Good ○ Fair ○ Poor
18. Check Water Levels-Static 30' Pumping 93' Yield Good GPM Per Foot of Draw Down	● Good ○ Fair ○ Poor

This unit appears to be operating properly at this time, however, the pump has been in service at least 5 years since it was last removed from the well for repair. The motor was repaired recently.

Your 24 Hour Full Service Well & Pump Company

Report By: Tim McCarthy





"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

<u>"18 POINT PUMP PERFORMANCE INSPECTION REPORT"</u>

Vadnais Heights Station - Saint Paul	Regional Water Services	Date:	12/22/2008
Vadnais Heights MN	Well/Pum	p Name:	Е

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good	● Good ○ Fair ○ Poor
2. Check Starter Overload Protection- Good	● Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 482 L 2-5 472 L 3-6 477	● Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 467 L 2-5 462 L 3-6 469 60	● Good ○ Fair ○ Poor
5. Check Motor Amps- L1 L2 L3 Utilization94%	● Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good	● Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 <u>Good</u> L2-3 <u>Good</u> L1-3 <u>Good</u>	● Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M 1800	Good O Fair O Poor
9. Check Temperature-Motor <u>Good</u> Well Room <u>Good</u>	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top <u>Good</u> Bottom <u>Good</u> Pump Prelube <u>OK</u>	● Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor <u>Good</u> Pump <u>Good</u> Right Angle Dr <u>NA</u>	● Good ○ Fair ○ Poor
12. Check Vibration-Motor <u>Good</u> Pump <u>Good</u> Right Angle Dr <u>NA</u>	Good O Fair O Poor
13. Check Discharge Head Packing Box Bearing Good	● Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve Good Pump Foot Valve NA	● Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- <u>Good</u> Air Relief/Vacuum Breaker <u>Good</u>	● Good ○ Fair ○ Poor
16. Check Condition Of Water Good	Good O Fair O Poor
Is The 17. Check Pumping Rate Not MeteredO G.P.M. O C.F.P.M. Pump Throttled?_ <u>NO</u>	● Good ○ Fair ○ Poor
18. Check Water Levels-Static 34' Pumping 96' Yield Good GPM Per Foot of Draw Down	Good O Fair O Poor
This unit appears to be operating properly at this time, however, the pump has been in service at least 5 year	irs since it was installed in the

This unit appears to be operating properly at this time, however, the pump has been in service at least 5 years since it was installed in the well.

Report By: Tim McCarthy

Your 24 Hour Full Service Well & Pump Company





"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

<u>'18 POINT PUMP PERFORMANCE INSPECTION REPORT"</u>

Vadnais Heights Station - Saint Paul Regional Water Services Date:

12/22/2008

vadnais Heights IVIN	Vadnais	Heights	MN
----------------------	---------	---------	----

Well/Pump Name:

F

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		● Good ○ Fair	O Poor
2. Check Starter Overload Protection-		Good		Good O Fair	O Poor
3. Check Voltage Supply- L 1-4	182 L 2-5 <u>486</u>	L 3-6 <u>484</u>	l la sta	Good O Fair	O Poor
4. Check Voltage Running- L 1-4	180 L 2-5 477	L 3-6 <u>477</u>	Henz 60	● Good ○ Fair	O Poor
5. Check Motor Amps- L1 150.0	L2 150.0 L	3152.0 Utilizatio	on <u>89%</u>	Good O Fair	O Poor
6. Check Resistance Between Line &	Ground- L1 <u>Good</u>	L2 Good L3	Good	● Good ○ Fair	
7. Check Resistance Between Motor	Windings- L1-2 <u>Good</u>	L2-3 <u>Good</u> L1-3	Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating R.	P.M	1800		● Good ○ Fair	O Poor
9. Check Temperature-Motor	Good We	I Room Good		Good O Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom Go	od Pump Prelube	ОК	● Good ○ Fair	O Poor
11. Check Bearing Noise-MotorG	ood Pump <u>Goo</u>	dRight Angle Dr	NA	● Good ○ Fair	
12. Check Vibration-Motor Good	Pump Good	Right Angle Dr	NA	● Good ○ Fair	O Poor
13 Check Discharge Head Packing Bo	x Bearing	Good		● Good ○ Fair	O Poor
14. Check Discharge Line Check Valve	Good	Pump Foot Valve	NA	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle	Good Air Relie	f/Vacuum Breaker	Good	Good O Fair	O Poor
16. Check Condition Of Water-	G	ood		Good O Fair	O Poor
17. Check Pumping Rate	<u>3506</u>	Is Th M. OC.F.P.M. Pump Thr	e ottled? <u>NO</u>	● Good ○ Fair	O Poor
18. Check Water Levels-Static 34'	Pumping 111'	field Good GPM Pe	r Foot Down	● Good O Fair	O Poor

This unit appears to be operating properly at this time.

Report By: Tim McCarthy

Your 24 Hour Full Service Well & Pump Company





"There is No Substitute for Experience"

Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water ServicesDate:Vadnais Heights MNWell/Pump Name:

1**1/24/**2008 G

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good	● Good ○ Fair ○ Poor
2. Check Starter Overload Protection	٦	Good	● Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4_	497 L 2-5 495 L	3-6	● Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4_	487 L 2-5 488 L	3-6 <u>487</u> 60	Good O Fair O Poor
5. Check Motor Amps- L1139.0	L2 132.0 L3	135.0 Utilization 95%	● Good ○ Fair ○ Poor
6. Check Resistance Between Line	& Ground- L1 <u>Good</u>	L2GoodL3Good	● Good ○ Fair ○ Poor
7. Check Resistance Between Motor	r Windings- L1-2 <u>Good</u> L	.2-3 <u>Good</u> L1-3 <u>Good</u>	● Good ○ Fair ○ Poor
8. Check Pump & Motor Operating F	R.P.M	1800	● Good ○ Fair ○ Poor
9. Check Temperature-Motor	Good Well F	Room Good	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top _	Good Bottom Good	Pump Prelube OK	● Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor	Good Pump Good	Right Angle Dr NA	● Good ○ Fair ○ Poor
12. Check Vibration-Motor Good	dPump Good	Right Angle DrNA	● Good ○ Fair ○ Poor
13. Check Discharge Head Packing E	Box Bearing-	Good	● Good ○ Fair ○ Poor
14. Check Discharge Line Check Val	veP	ump Foot Valve NA	● Good ○ Fair ○ Poor
15. Check Start/Stop Cycle	Good Air Relief	/acuum Breaker <u>Good</u>	● Good ○ Fair ○ Poor
16. Check Condition Of Water	Go	od	● Good ○ Fair ○ Poor
17. Check Pumping Rate	2220	IS The O C.F.P.M. Pump Throttled? <u>NC</u>	● Good ○ Fair ○ Poor
18. Check Water Levels-Static 30 Comments:	' Pumping 171 ' Yie	eld Good GPM Per Foot of Draw Down	● Good ○ Fair ○ Poor

This unit appears to be operating properly at this time.

Report By: Tim McCarthy

Your 24 Hour Full Service Well & Pump Company

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul RegionalDate:5/4/2011Vadnais Heights MNWell/Pump Name:A

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connectio	ons-	Good			Good	O Fair	OPoor
2. Check Starter Overload Pr	rotection-	Goo	d		Good	O Fair	OPoor
3. Check Voltage Supply-	L 1-4 244 L 2-5	242 L 3-6	自	Hortz	Good	O Fair	O Poor
4. Check Voltage Running-	L 1-4 235 L 2-5	236 L 3-6	- R	60	Good	O Fair	O Poor
5. Check Motor Amps- L1	12.0 L2 10	. 0 L3	Utilizat	on <u>110%</u>	Good	O Fair	O Poor
6. Check Resistance Betwee	n Line & Ground- L1	Fair L2	Fair L3	Fair	O Good	🖲 Fair	O Poor
7. Check Resistance Betwee	n Motor Windings- L1-2	Good L2-3	Good L1-3	Good	Good	() Fair	O Poor
8. Check Pump & Motor Ope	erating R.P.M	3	450		Good	O Fair	OPoor
9. Check Temperature-Motor	rGood	Well Room	Goo	d	Good	() Fair	O Poor
10. Check Bearing Lube-Moto	or Top <u>Good</u> Botto	om Good	Pump Prelube	NA	Good	O Fair	O Poor
11. Check Bearing Noise-Mote	or <u>Good</u> Pump	GoodF	Right Angle Dr	NA	Good 🔘	O Fair	O Poor
12. Check Vibration-Motor	Good Pump	Good Rig	ht Angle Dr	NA	🖲 Good	O Fair	O Poor
13. Check Discharge Head Pa	acking Box Bearing		NA		🖲 Good	O Fair	OPoor
14. Check Discharge Line Che	eck Valve Goo	dPump	Foot Valve	Good	O Good	() Fair	O Poor
15. Check Start/Stop Cycle	Good	Air Relief/Vacuu	m Breaker	Good	O Good	() Fair	O Poor
16. Check Condition Of Water	r	Good			O Good	🔿 Fair	O Poor
17. Check Pumping Rate	Not Metered	● G.P.M. ○ C	Is Th F.P.M. Pump Th	rottled? <u>NO</u>	Good	() Fair	
18. Check Water Levels-Static Comments:	Access A Blocked Pumping B	Access Nocked Yield	Good GPM Pe	er Foot / Down	Good	() Fair	O Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water ServicesDate:5/4/2011Vadnais Heights MNWell/Pump Name:B

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Go	od	🖲 Good	🔿 Fair	O Poor
2. Check Starter Overload Protection-	ood	le Good	() Fair	O Poor
3. Check Voltage Supply- L 1-4 471 L 2-5 469 L 3-6	<u>466</u>	Good	O Fair	O Poor
4. Check Voltage Running- L 1-4 460 L 2-5 461 L 3-6		O Good	O Fair	O Poor
5. Check Motor Amps- L1 L2 L3 L3	116.0 Utilization 98%	Good	O Fair	O Poor
6. Check Resistance Between Line & Ground- L1 Good L2	Good L3 Good	Good	O Fair	O Poor
7. Check Resistance Between Motor Windings- L1-2 <u>Good</u> L2-3	3 Good L1-3 Good	Good	O Fair	O Poor
8. Check Pump & Motor Operating R.P.M	1800	Good	O Fair	O Poor
9. Check Temperature-Motor <u>Good</u> Well Roc	om <u>Good</u>	Good	🔿 Fair	O Poor
10. Check Bearing Lube-Motor Top <u>Good</u> Bottom <u>Good</u>	Pump Prelube OK	O Good	🔿 Fair	O Poor
11. Check Bearing Noise-Motor <u>Good</u> Pump <u>Good</u>	_Right Angle DrNA	O Good	O Fair	O Poor
12. Check Vibration-Motor <u>Good</u> Pump <u>Good</u> F	Right Angle DrNA	Good	() Fair	O Poor
13. Check Discharge Head Packing Box Bearing	Good	O Good	O Fair	O Poor
14. Check Discharge Line Check Valve- Good Pur	np Foot Valve NA	O Good	O Fair	O Poor
15. Check Start/Stop CycleGoodAir Relief/Vac	cuum Breaker <u>Good</u>	O Good	() Fair	O Poor
16. Check Condition Of Water Good		Good	() Fair	O Poor
17. Check Pumping RateNot Metered	Is The C.F.P.M. Pump Throttled? <u>NO</u>	Good	() Fair	O Poor
18. Check Water Levels-Static 27' Pumping 109' Yield Comments:	Good GPM Per Foot ———————————————————————————————————	Good	() Fair	O Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water ServicesDate:5/4/2011Vadnais Heights MNWell/Pump Name:C

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good	O Fair	O Poor
2. Check Starter Overload Protection)	Good		Good	O Fair	O Poor
3. Check Voltage Supply- L 1-4_	477 L 2-5 498	L 3-6 478	Hortz	Good	<u>O</u> Fair	O Poor
4. Check Voltage Running- L 1-4	467 L 2-5 471	L 3-6 <u>468</u>	60	Good	O Fair	O Poor
5. Check Motor Amps- L1157.0	L2152.0 L	.3Utilizat	ion 90%	Good	O Fair	OPoor
6. Check Resistance Between Line	& Ground- L1 Good	L2_Good_L3	Good	Good	O Fair	O Poor
7. Check Resistance Between Moto	Windings- L1-2 Good	L2-3 <u>Good</u> L1-3	Good	Good 🖲	() Fair	O Poor
8. Check Pump & Motor Operating F	R.P.M	1800		Good	O Fair	O Poor
9. Check Temperature-Motor	Good We	Il Room <u>Goo</u>	d	O Good	() Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom Go	od Pump Prelube	ОК	Good 🖲	() Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Goo	dRight Angle Dr	NA	Good	O Fair	O Poor
12. Check Vibration-Motor Good	Pump Good	Right Angle Dr	NA	Good	() Fair	O Poor
13. Check Discharge Head Packing E	Box Bearing	Good		Good	O Fair	O Poor
14. Check Discharge Line Check Val	/eGood	_Pump Foot Valve	NA	Good	() Fair	O Poor
15. Check Start/Stop Cycle	Good Air Relie	ef/Vacuum Breaker	Good	Good	() Fair	O Poor
16. Check Condition Of Water	(Good		Good	O Fair	O Poor
17. Check Pumping RateNo	ot Metered G.P.I	Is TI M. OC.F.P.M. Pump Th	ne rottled? <u>NO</u>	Good	() Fair	O Poor
18. Check Water Levels-Static 26 Comments:	Pumping 66'	Yield Good GPM P ———————————————————————————————————	er Foot v Down	Good	() Fair	O Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station -	Date:	5/4/2011
Vadnais Heights MN	Well/Pump Name:	D
This report is not to be used to determine complia to evaluate the operating performance of the well	nce with any codes, regulations, laws, or ru and pump at the time of the inspection.	les. Its sole purpose is to attempt
1. Check Wiring & Connections-	Good	● Good ○ Fair ○ Poor
2. Check Starter Overload Protection-	Good	● Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 479 L 2-	-5 <u>482</u> L 3-6 <u>479</u>	● Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 467 L 2	-5 470 L 3-6 469 🐔	Hertz 60
5. Check Motor Amps- L1 L2	167.0 L3 158.0 Utilization	92% Good Fair Poor
6. Check Resistance Between Line & Ground- L1	1 L2 L3	ood
7. Check Resistance Between Motor Windings- L	_1-2 <u>Good</u> L2-3 <u>Good</u> L1-3 <u>G</u>	Sood
8. Check Pump & Motor Operating R.P.M	1800	● Good ○ Fair ○ Poor
9. Check Temperature-Motor Good	Well Room Good	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top <u>Good</u> B	Bottom <u>Good</u> Pump Prelube C	OK
11. Check Bearing Noise-Motor <u>Good</u> Pu	ump Good Right Angle Dr N	IA
12. Check Vibration-Motor <u>Good</u> Pump	Good Right Angle Dr NA	Good O Fair O Poor
13. Check Discharge Head Packing Box Bearing-	Good	● Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve	Good Pump Foot Valve NA	Good O Fair O Poor
15. Check Start/Stop Cycle Good	Air Relief/Vacuum Breaker Goo	od 🕘 Good 🔿 Fair 🔿 Poor
16. Check Condition Of Water	Good	● Good ○ Fair ○ Poor
17. Check Pumping RateNot Metered	Is The ● G.P.M. 〇 C.F.P.M. Pump Throttle	d? NO Good Fair Poor
18. Check Water Levels-Static 29' Pumping Comments:	g 61' Yield Good GPM Per Fo	ot <u> Good</u> Fair O Poor Nn

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

 Vadnais Heights Station - Saint Paul Regional Water Services
 Date:
 5/4/2011

 Vadnais Heights MN
 Well/Pump Name:
 E

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good	() Fair	O Poor
2. Check Starter Overload Protection-		Good		Good	() Fair	O Poor
3. Check Voltage Supply- L 1-4	482 L 2-5 480	L 3-6 480	- (1)	Good	O Fair	O Poor
4. Check Voltage Running- L 1-4	473 L 2-5 474	L 3-6 472		Good	O Fair	O Poor
5. Check Motor Amps- L1151.0	L2 152.0	L3 154.0	Utilization 90%	Good	O Fair	O Poor
6. Check Resistance Between Line &	Ground- L1 Goo	d L2 Good	L3 Good	Good	() Fair	O Poor
7. Check Resistance Between Motor	Windings- L1-2 Go	od L2-3 Good	L1-3 Good	Good	🔿 Fair	O Poor
8. Check Pump & Motor Operating R.	P.M	1800		🖲 Good	O Fair	O Poor
9. Check Temperature-Motor	Good	Well Room	Good	Good	() Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom	Good Pump F	Prelube OK	Good	O Fair	O Poor
11. Check Bearing Noise-MotorG	ood Pump	Good Right An	gle DrNA	Good	O Fair	O Poor
12. Check Vibration-Motor <u>Good</u>	PumpGod	d Right Angle	e DrNA	Good	🔿 Fair	O Poor
13. Check Discharge Head Packing Bo	ox Bearing	Good		Good	O Fair	OPoor
14. Check Discharge Line Check Valve	e- Good	Pump Foot Va	lve NA	🖲 Good	🔿 Fair	O Poor
15. Check Start/Stop Cycle	Good Air I	Relief/Vacuum Breal	ker <u>Good</u>	Good	() Fair	O Poor
16. Check Condition Of Water-		Good		Good	O Fair	O Poor
17. Check Pumping Rate	r Is Broken@	G.P.M. OC.F.P.M. F	Is The Pump Throttled? <u>NO</u>	O Good	Fair	O Poor
18. Check Water Levels-Static 33' Comments:	Pumping 98'	Yield Good	GPM Per Foot of Draw Down	Good	() Fair	O Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water ServicesDate:5/4/2011Vadnais Heights MNWell/Pump Name:F

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good	O Fair	O Poor
2. Check Starter Overload Protection)	Good		O Good	O Fair	O Poor
3. Check Voltage Supply- L 1-4	487 L 2-5 48	L 3-6 488	- 😫 Hotz	O Good	() Fair	O Poor
4. Check Voltage Running- L 1-4	482 L 2-5 486	L 3-6 487		Good	🔿 Fair	O Poor
5. Check Motor Amps- L1156.0	L2 154.0	L3 158.0	Utilization 92%	O Good	🔿 Fair	O Poor
6. Check Resistance Between Line &	& Ground- L1 Go	od L2 Goo	d L3 Good	Good	O Fair	O Poor
7. Check Resistance Between Motor	Windings- L1-2	ood L2-3 Goo	d L1-3 Good	Good	O Fair	O Poor
8. Check Pump & Motor Operating R	R.P.M	1800		O Good	🔿 Fair	O Poor
9. Check Temperature-Motor	Good	Well Room	Good	Good	() Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom	Good Pump	Prelube OK	O Good	() Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump	Good Right A	Angle Dr NA	O Good	O Fair	O Poor
12. Check Vibration-Motor Good	IPump Go	od Right Ang	le Dr NA	Good	() Fair	O Poor
13. Check Discharge Head Packing E	ox Bearing	Good	k	Good	O Fair	O Poor
14. Check Discharge Line Check Val	/e- Good	Pump Foot V	/alveNA	Good	() Fair	O Poor
15. Check Start/Stop Cycle	Good Air	Relief/Vacuum Bre	aker Good	Good (() Fair	O Poor
16. Check Condition Of Water		Good		Good	() Fair	
17. Check Pumping Rate	4110	G.P.M. O C.F.P.M.	Is The Pump Throttled? <u>NO</u>	Good	() Fair	O Poor
18. Check Water Levels-Static 31' Comments:	Pumping 113	Yield Good	GPM Per Foot of Draw Down	Good	() Fair	O Poor

This unit appears to be operating properly at this time.

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station -	Saint Paul Regional Water Services	Date:	5/4/2011	
Vadnais Heights MN	Well/Pum	p Name:	G	

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good	Good	Fair O Poor
2. Check Starter Overload Protection-	Good	Good O	Fair O Poor
3. Check Voltage Supply- L 1-4 494	_ L 2-5 _ 496 L 3-6 _ 492	Good O	Fair O Poor
4. Check Voltage Running- L 1-4 484	_ L 2-5 483 L 3-6 482 70 60	Good O	Fair O Poor
5. Check Motor Amps- L1 131.0	_2 130.0 L3 130.0 Utilization _92%	Good O	Fair O Poor
6. Check Resistance Between Line & Grou	nd-L1 Good L2 Good L3 Good	Good O	Fair O Poor
7. Check Resistance Between Motor Windi	ngs- L1-2 <u>Good</u> L2-3 <u>Good</u> L1-3 <u>Good</u>	Good O	Fair O Poor
8. Check Pump & Motor Operating R.P.M	1800	Good	Fair O Poor
9. Check Temperature-Motor G	ood Well Room Good	Good O	Fair O Poor
10. Check Bearing Lube-Motor Top Goo	dBottomGoodPump PrelubeOK	Good O	Fair O Poor
11. Check Bearing Noise-Motor <u>Good</u>	Pump <u>Good</u> Right Angle Dr <u>NA</u>	Good O	Fair O Poor
12. Check Vibration-Motor Good	Pump Good Right Angle Dr NA	Good	Fair O Poor
13. Check Discharge Head Packing Box Bea	aring Good	Good	Fair O Poor
14. Check Discharge Line Check Valve-	Good Pump Foot Valve NA	● Good 〇	Fair O Poor
15. Check Start/Stop CycleGood	Air Relief/Vacuum Breaker <u>Good</u>	● Good 〇	Fair O Poor
16. Check Condition Of Water	Good	● Good 〇	Fair O Poor
17. Check Pumping Rate- 2088	Is The ● G.P.M. O C.F.P.M. Pump Throttled? <u>NO</u>	● Good 〇	Fair O Poor
18. Check Water Levels-Static 29' Pu	umping 121' Yield Good GPM Per Foot of Draw Down	● Good 〇	Fair O Poor

This unit appears to be operating properly at this time.

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water Services Date: 4/2/2012

Well/Pump Name:

G

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good	O Fair	O Poor
2. Check Starter Overload Protection-		Good		Good	O Fair	O Poor
3. Check Voltage Supply- L 1-4 4	92 L 2-5 493	L 3-6 492	Lieda	Good	🔿 Fair	O Poor
4. Check Voltage Running- L 1-4 4	85 L 2-5 487	L 3-6 487 🐔	60	Good	O Fair	O Poor
5. Check Motor Amps- L1128.0	L2 129.0 L	3 128.0 Utilization	90%	Good	🔿 Fair	O Poor
6. Check Resistance Between Line &	Ground- L1 Good	L2L3	Good	Good) Fair	O Poor
7. Check Resistance Between Motor V	Vindings- L1-2 Good	L2-3 <u>Good</u> L1-3	Good	Good) Fair	O Poor
8. Check Pump & Motor Operating R.F	P.M	1800		Good () Fair	O Poor
9. Check Temperature-Motor	Good Well	Room Good		Good	() Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom Go	od Pump Prelube	?	Good (🔾 Fair	O Poor
11. Check Bearing Noise-Motor Go	od Pump Good	dRight Angle Dr	NA	Good) Fair	OPoor
12. Check Vibration-Motor <u>Good</u>	Pump Good	Right Angle Dr	A	Good	🔾 Fair	O Poor
13. Check Discharge Head Packing Box	Bearing	Good		Good () Fair	O Poor
14. Check Discharge Line Check Valve-	Good	Pump Foot Valve		Good () Fair	O Poor
15. Check Start/Stop Cycle	Air Relief	Wacuum Breaker G	bod	Good () Fair	OPoor
16. Check Condition Of Water	G	ood		Good () Fair	O Poor
17. Check Pumping Rate2	@ G.P.M	Is The O C.F.P.M. Pump Throt	led? NO	Good () Fair	O Poor
18. Check Water Levels-Static 33' Comments:	Pumping Y	ield Good GPM Per I	Foot own	● Good () Fair	O Poor

This unit is operating properly at this time, however, the pump has been in service for over 5 years. The casing grout and the discharge line show signs of start up water hammer and/or ground heaving.

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Wa	ter Services Date:	4/2/2012
Vadnais Heights MN	Well/Pump Name:	F

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good		Good	() Fair	O Poor
2. Check Starter Overload Protection- Good		Good	O Fair	O Poor
3. Check Voltage Supply- L 1-4 483 L 2-5 481 L 3-6 483	Ĥ	Good	() Fair	O Poor
4. Check Voltage Running- L 1-4 481 L 2-5 480 L 3-6 482	E Hertz	O Good	O Fair	O Poor
5. Check Motor Amps- L1154.0 L2154.0 L3 Utili	zation 91%	O Good	() Fair	OPoor
6. Check Resistance Between Line & Ground- L1 <u>Good</u> L2 <u>Good</u>	L3 Good	Good	O Fair	O Poor
7. Check Resistance Between Motor Windings- L1-2 <u>Good</u> L2-3 <u>Good</u> L	.1-3 <u>Good</u>	Good	O Fair	O Poor
8. Check Pump & Motor Operating R.P.M1800		Good	() Fair	O Poor
9. Check Temperature-Motor Good Well Room G	ood	Good	O Fair	O Poor
10. Check Bearing Lube-Motor Top <u>Good</u> Bottom <u>Good</u> Pump Prelube	eOK	Good	O Fair	O Poor
11. Check Bearing Noise-Motor <u>Good</u> Pump <u>Good</u> Right Angle Dr	NA	Good	O Fair	O Poor
12. Check Vibration-Motor <u>Good</u> Pump <u>Good</u> Right Angle Dr	NA	Good	O Fair	O Poor
13. Check Discharge Head Packing Box Bearing Good		Good	O Fair	O Poor
14. Check Discharge Line Check ValveGoodPump Foot Valve	NA	Good	() Fair	O Poor
15. Check Start/Stop CycleGoodAir Relief/Vacuum Breaker	Good	Good	() Fair	O Poor
16. Check Condition Of Water Good		Good	() Fair	O Poor
ls ۲7. Check Pumping Rate 3440 G.P.M. O C.F.P.M. Pump	The Throttled? <u>NO</u>	Good	🔿 Fair	O Poor
18. Check Water Levels-Static Good Pumping Good Yield Good GPM Comments: of Dr	Per Foot aw Down	<u>Good</u>	<u>O</u> Fair	O Poor

This unit is operating properly at this time, however, the pump has been in service for over 5 years.

Report By: Tim McCarthy

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water Services Date:

Well/Pump Name:

4/2/2012 D

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good		Good	() Fair	O Poor
2. Check Starter Overload Protectio	nGood		Good	() Fair	O Poor
3. Check Voltage Supply- L 1-4_	485 L 2-5 489 L 3-6 485		Good	() Fair	O Poor
4. Check Voltage Running- L 1-4_	473 L 2-5 476 L 3-6 473		Good	O Fair	O Poor
5. Check Motor Amps- L1156.0) L2 163.0 L3 147.0 U	Itilization 88%	O Good	Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Cood L2 Good	L3 Good	Good	() Fair	O Poor
7. Check Resistance Between Moto	r Windings- L1-2 <u>Good</u> L2-3 <u>Good</u>	L1-3 Good	Good	O Fair	O Poor
8. Check Pump & Motor Operating F	R.P.M		Good	O Fair	O Poor
9. Check Temperature-Motor	Good Well Room	Good	Good	() Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom Good Pump Prel	ube <u>OK</u>	Good	() Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Good Right Angle	Dr NA	Good	O Fair	O Poor
12. Check Vibration-Motor Good	dPump Good Right Angle Dr	NA	Good	O Fair	O Poor
13. Check Discharge Head Packing E	Box Bearing Good		Good	() Fair	O Poor
14. Check Discharge Line Check Valv	ve Good Pump Foot Valve	NA	Good	() Fair	O Poor
15. Check Start/Stop Cycle	Good Air Relief/Vacuum Breaker	Good	Good	() Fair	O Poor
16. Check Condition Of Water	Good		Good	() Fair	
17. Check Pumping Rate No	ot Metered	Is The p Throttled? NO	Good	() Fair	O Poor
18. Check Water Levels-Static 30' Comments:	Pumping 93' Yield Good GF	PM Per Foot Draw Down	Good	O Fair	O Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Wat	ter Services	Date:	4/2/2012	
Vadnais Heights MN	Well/Pum	p Name:	С	

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good		Good	O Fair	O Poor
2. Check Starter Overload Protection-	Good		Good	O Fair	O Poor
3. Check Voltage Supply- L 1-4_47	76 L 2-5 481 L 3-6 474	A	Good	() Fair	O Poor
4. Check Voltage Running- L 1-4_47	73 L 2-5 474 L 3-6 471		Good	() Fair	O Poor
5. Check Motor Amps- L1 148.0	L2L3L3L	Utilization 87%	Good	() Fair	O Poor
6. Check Resistance Between Line & G	Ground- L1 Good L2 Good	L3 Good	Good	⊖ Fair	O Poor
7. Check Resistance Between Motor W	/indings- L1-2 Good L2-3 Good	L1-3 Good	Good	() Fair	O Poor
8. Check Pump & Motor Operating R.P.	.M1800		Good	() Fair	O Poor
9. Check Temperature-Motor	Good Well Room	Good	Good	O Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom Good Pump Pre	lube OK	Good	O Fair	O Poor
11. Check Bearing Noise-Motor God	od Pump <u>Good</u> Right Angle	e Dr <u>NA</u>	Good	() Fair	O Poor
12. Check Vibration-Motor <u>Good</u>	Pump Good Right Angle D)rNA	Good	() Fair	O Poor
13. Check Discharge Head Packing Box	BearingNA		Good	O Fair	O Poor
14. Check Discharge Line Check Valve-	Good Pump Foot Valve	NA	Good	() Fair	O Poor
15. Check Start/Stop CycleG	ood Air Relief/Vacuum Breaker	Good	Good	() Fair	O Poor
16. Check Condition Of Water	Good		O Good	O Fair	O Poor
17. Check Pumping RateNot M	letered @ G.P.M. O C.F.P.M. Pur	Is The mp Throttled? NO	Good	O Fair	O Poor
18. Check Water Levels-Static 52'	Pumping 61' Yield Good G	PM Per Foot f Draw Down	Good	() Fair	O Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water ServicesDate:4/2/2012Vadnais Heights MNWell/Pump Name:B

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good	Good	() Fair	O Poor
2. Check Starter Overload Protection- Good	Good	O Fair	O Poor
3. Check Voltage Supply- L 1-4_469_L 2-5_471_L 3-6_466_	Good	() Fair	O Poor
4. Check Voltage Running- L 1-4 459 L 2-5 460 L 3-6 457 60	Good	O Fair	O Poor
5. Check Motor Amps- L1 122.0 L2 118.0 L3 114.0 Utilization 98%	Good	() Fair	O Poor
6. Check Resistance Between Line & Ground- L1 <u>Good</u> L2 <u>Good</u> L3 <u>Good</u>	Good	() Fair	OPoor
7. Check Resistance Between Motor Windings- L1-2 <u>Good</u> L2-3 <u>Good</u> L1-3 <u>Good</u>	Good	O Fair	O Poor
8. Check Pump & Motor Operating R.P.M 1800	Good	() Fair	O Poor
9. Check Temperature-Motor Good Good Good	Good	() Fair	O Poor
10. Check Bearing Lube-Motor Top <u>Good</u> Bottom <u>Good</u> Pump Prelube <u>OK</u>	Good	() Fair	O Poor
11. Check Bearing Noise-Motor <u>Good</u> Pump <u>Good</u> Right Angle Dr <u>NA</u>	Good	O Fair	O Poor
12. Check Vibration-Motor <u>Good</u> Pump <u>Good</u> Right Angle Dr <u>NA</u>	Good	() Fair	O Poor
13. Check Discharge Head Packing Box Bearing Good	Good	() Fair	O Poor
14. Check Discharge Line Check ValveGoodPump Foot ValveNA	Good	() Fair	O Poor
15. Check Start/Stop CycleGoodAir Relief/Vacuum BreakerGood	Good	() Fair	O Poor
16. Check Condition Of Water Good	Good	O Fair	O Poor
Is The 17. Check Pumping Rate Not Metered @ G.P.M. O C.F.P.M. Pump Throttled?_ NO	Good	O Fair	O Poor
18. Check Water Levels-Static 30' Pumping 109' Yield Good GPM Per Foot Comments: of Draw Down	le Good	() Fair	O Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station - Saint Paul Regional Water	Services Date: 4/2/2012	
Vadnais Heights MN	Well/Pump Name: A	

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good	● Good ○ Fair ○ F	Poor
2. Check Starter Overload Protection- Good	● Good ○ Fair ○ f	Poor
3. Check Voltage Supply- L 1-4 244 L 2-5 243 L 3-6	● Good ○ Fair ○ F	Poor
4. Check Voltage Running- L 1-4 235 L 2-5 236 L 3-6 60	● Good ○ Fair ○ F	Poor
5. Check Motor Amps- L1 11.5 L2 11.0 L3 Utilization 113%	● Good ○ Fair ○ F	Poor
6. Check Resistance Between Line & Ground- L1 Fair L2 Fair L3 Fair	O Good Fair O F	Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good		Poor
8. Check Pump & Motor Operating R.P.M 3450	● Good ○ Fair ○ F	Poor
9. Check Temperature-Motor <u>Good</u> Well Room <u>Good</u>	Good O Fair O F	Poor
10. Check Bearing Lube-Motor Top <u>Good</u> Bottom <u>Good</u> Pump Prelube <u>NA</u>	● Good ○ Fair ○ F	Poor
11. Check Bearing Noise-Motor <u>Good</u> Pump <u>Good</u> Right Angle Dr <u>NA</u>	● Good ○ Fair ○ F	Poor
12. Check Vibration-Motor <u>Good</u> Pump <u>Good</u> Right Angle Dr <u>NA</u>	Good O Fair O F	Poor
13. Check Discharge Head Packing Box BearingNA	● Good ○ Fair ○ F	Poor
14. Check Discharge Line Check ValveGoodPump Foot ValveGood	Good O Fair O F	Poor
15. Check Start/Stop CycleGoodAir Relief/Vacuum BreakerGood	● Good ○ Fair ○ F	Poor
16. Check Condition Of Water Good	● Good ○ Fair ○ F	Poor
Is The 17. Check Pumping Rate Not Metered	● Good ─ Fair ─ F	Poor
18. Check Water Levels-Static Access Blocked Pumping Blocked Yield Good OFM Per Foot of Draw Down	<u> </u>	Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Fridley Pumping Station - Saint Paul Regional Water ServicesDate:4/2/2012Fridley MNWell/Pump Name:1

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good	O Fair	O Poor
2. Check Starter Overload Protectio	n	Good		Good	() Fair	O Poor
3. Check Voltage Supply- L 1-4_	248 L 2-5 248	L 3-6	自	Good	() Fair	O Poor
4. Check Voltage Running- L 1-4_	244 L 2-5 244	L 3-6	Hertz 60	Good	() Fair	O Poor
5. Check Motor Amps- L1 9.5	L2 9.2	_ L3	Utilization 114%	Good	O Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Goo	d L2 Good	L3 Good	Good	() Fair	O Poor
7. Check Resistance Between Moto	r Windings- L1-2 Go	od L2-3 Good	L1-3 Good	Good	O Fair	O Poor
8. Check Pump & Motor Operating F	R.P.M	3450		Good	O Fair	O Poor
9. Check Temperature-Motor	Good	Well Room	Good	Good	O Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom	Good Pump P	relube NA	Good	() Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump	Good Right Ang	gle DrNA	Good	⊖ Fair	O Poor
12. Check Vibration-Motor Good	IPumpGoo	d Right Angle	Dr NA	Good	O Fair	O Poor
13. Check Discharge Head Packing E	Box Bearing	NA		Good	() Fair	O Poor
14. Check Discharge Line Check Val	/e- Good	Pump Foot Val	ve Good	Good	O Fair	O Poor
15. Check Start/Stop Cycle	Good Air F	Relief/Vacuum Break	er Good	Good	O Fair	O Poor
16. Check Condition Of Water		Good		Good	() Fair	O Poor
17. Check Pumping Rate No	ot Metered@	G.P.M. OC.F.P.M. P	Is The Pump Throttled? NO	Good	() Fair	O Poor
18. Check Water Levels-Static Block	ss Access ed ^{Pumping} Blocke	d Yield Good	GPM Per Foot of Draw Down	Good	() Fair	O Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/4/2013

Vadnais Heights MN

Well/Pump Name:

В

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good	Good O Fair	O Poor
2. Check Starter Overload Protection- Good	● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-4_465_L 2-5_468_L 3-6_471_	● Good ○ Fair	O Poor
4. Check Voltage Running- L 1-4 461 L 2-5 465 L 3-6 463 60	● Good ○ Fair	O Poor
5. Check Motor Amps- L1 L2 L2 L3 Utilization 98%	● Good ○ Fair	O Poor
6. Check Resistance Between Line & Ground- L1 <u>Good</u> L2 <u>Good</u> L3 <u>Good</u>	● Good ○ Fair	O Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating R.P.M 1800	_	O Poor
9. Check Temperature-Motor Good Good Good	<u> </u>	O Poor
10. Check Bearing Lube-Motor Top <u>Good</u> Bottom <u>Good</u> Pump Prelube <u>OK</u>	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor <u>Good</u> Pump <u>Good</u> Right Angle Dr NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor <u>Good</u> Pump <u>Good</u> Right Angle Dr <u>NA</u>	● Good ○ Fair	O Poor
13. Check Discharge Head Packing Box Bearing Good	Good O Fair	O Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA	● Good ○ Fair	O Poor
15. Check Start/Stop CycleGoodAir Relief/Vacuum BreakerGood	● Good ○ Fair	O Poor
16. Check Condition Of Water Good	🖲 Good 🔿 Fair	O Poor
Is The 17. Check Pumping Rate Meter Is Brokenම G.P.M. O C.F.P.M. Pump Throttled?NO	● Good ○ Fair	O Poor
18. Check Water Levels-Static 25' Pumping 100' Yield Good GPM Per Foot of Draw Down	● Good ○ Fair	O Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/4/2013

Vadnais Heights MN

Well/Pump Name:

С

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good	O Fair	O Poor
2. Check Starter Overload Protection	n	Good		Good	O Fair	O Poor
3. Check Voltage Supply- L 1-4_	482 L 2-5 478	L 3-6 484		O Good	() Fair	O Poor
4. Check Voltage Running- L 1-4_	468 L 2-5 472	L 3-6 467		Good	() Fair	O Poor
5. Check Motor Amps- L1154.	0L2 150.0	L3 146.0	Utilization 87%	Good	() Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Good	L2 Good	L3 Good	Good	() Fair	O Poor
7. Check Resistance Between Moto	or Windings- L1-2 Good	L2-3 Good	L1-3 Good	Good	() Fair	O Poor
8. Check Pump & Motor Operating	R.P.M	1800		Good	() Fair	O Poor
9. Check Temperature-Motor	Good V	/ell Room	Good	Good	O Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom	Good Pump Pre	elube OK	Good	() Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Go	ood Right Angl	e Dr NA	Good	O Fair	O Poor
12. Check Vibration-Motor Goo	dPumpGood	Right Angle [DrNA	O Good	O Fair	O Poor
13. Check Discharge Head Packing I	Box Bearing	Good		Good	() Fair	O Poor
14. Check Discharge Line Check Val	veGood	Pump Foot Valve	eNA	Good	O Fair	O Poor
15. Check Start/Stop Cycle	Good Air Re	lief/Vacuum Breake	rGood	Good	O Fair	O Poor
16. Check Condition Of Water		Good		Good	O Fair	O Poor
17. Check Pumping RateNo	t Metered * 🛛 🛞 G.	P.M. OC.F.P.M. Pu	Is The mp Throttled? NO	Good	O Fair	O Poor
18. Check Water Levels-Static 25 Comments:	Pumping 82'	Yield Good G	GPM Per Foot of Draw Down	Good	() Fair	O Poor

This unit is operating properly at this time however, the pump has been in service for over 5 years. * = Estimated flow of 3630 gpm.

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date:_____

Vadnais Heights MN

Well/Pump Name:

6/4/2013 D

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good		Good O Fair	OPoor
2. Check Starter Overload Protection	nGood		● Good ○ Fair	OPoor
3. Check Voltage Supply- L 1-4	<u>483</u> L 2-5 <u>490</u> L 3-6 <u>485</u>		● Good ○ Fair	OPoor
4. Check Voltage Running- L 1-4	471 L 2-5 474 L 3-6 473		🖲 Good 🔿 Fair	OPoor
5. Check Motor Amps- L1 155.0	L2 165.0 L3 147.0 Utiliza	tion 88%	🖲 Good 🔿 Fair	OPoor
6. Check Resistance Between Line 8	& Ground- L1 <u>Good</u> L2 <u>Good</u> L3	Good	🖲 Good 🔿 Fair	OPoor
7. Check Resistance Between Motor	r Windings- L1-2 <u>Good</u> L2-3 <u>Good</u> L1-	3 Good	● Good ○ Fair	OPoor
8. Check Pump & Motor Operating R	R.P.M1800		🖲 Good 🔾 Fair	OPoor
9. Check Temperature-Motor	Good Well Room Goo	bd	● Good ○ Fair	OPoor
10. Check Bearing Lube-Motor Top	Good Bottom Good Pump Prelube	ок	● Good ○ Fair	OPoor
11. Check Bearing Noise-Motor	Good Pump Good Right Angle Dr	NA	🖲 Good 🔿 Fair	OPoor
12. Check Vibration-Motor Good	Pump Good Right Angle Dr	NA	🖲 Good 🔿 Fair	OPoor
13. Check Discharge Head Packing B	Box Bearing- Good		🖲 Good 🔿 Fair	OPoor
14. Check Discharge Line Check Valv	/eGoodPump Foot Valve	NA	● Good ○ Fair	
15. Check Start/Stop Cycle	Good Air Relief/Vacuum Breaker	Good	● Good ○ Fair	O Poor
16. Check Condition Of Water-	Good		● Good ○ Fair	O Poor
17. Check Pumping RateNo	Is T • t Metered	he prottled? NO	● Good ○ Fair	OPoor
18. Check Water Levels-Static Goo	d Pumping Good Yield Good GPM F	Per Foot w Down	● Good ○ Fair	OPoor

This unit is operating properly at this time however, the pump has been in service for over 5 years. Estimated flow of 4000 gpm.

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/4/2013

Vadnais Heights MN

Well/Pump Name:

Е

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good	Good () Fair	OPoor
2. Check Starter Overload Protection-	Good	● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-4 485 L	2-5_487_L3-6_484_	Good O Fair	O Poor
4. Check Voltage Running- L 1-4 476 L	2-5 479 L 3-6 476 60	● Good ○ Fair	O Poor
5. Check Motor Amps- L1 L2	156.0 L3 146.0 Utilization 87%	● Good ○ Fair	O Poor
6. Check Resistance Between Line & Ground- L	L1 Good L2 Good L3 Good	● Good ○ Fair	O Poor
7. Check Resistance Between Motor Windings-	L1-2 Good L2-3 Good L1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating R.P.M	1800	● Good ○ Fair	O Poor
9. Check Temperature-Motor Good	Well Room Good	🖲 Good 🔿 Fair	O Poor
10. Check Bearing Lube-Motor Top <u>Good</u>	Bottom <u>Good</u> Pump Prelube OK	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor <u>Good</u> P	Pump <u>Good</u> Right Angle Dr <u>NA</u>	● Good ○ Fair	O Poor
12. Check Vibration-Motor <u>Good</u> Pump	p Good Right Angle Dr NA	● Good ○ Fair	O Poor
13. Check Discharge Head Packing Box Bearing-	- Good	Good O Fair	O Poor
14. Check Discharge Line Check Valve	Good Pump Foot Valve NA	● Good ○ Fair	O Poor
15. Check Start/Stop CycleGood	Air Relief/Vacuum Breaker Good	● Good ○ Fair	O Poor
16. Check Condition Of Water	Good	● Good ◯ Fair	O Poor
17. Check Pumping RateNot Metered	Is The G.P.M. OC.F.P.M. Pump Throttled? <u>NO</u>	● Good ○ Fair	O Poor
18. Check Water Levels-Static 32' Pumpin Comments:	ngYield Good GPM Per Foot of Draw Down	● Good ○ Fair	O Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date:____

6/4/2013

Vadnais Heights MN

Well/Pump Name:

D

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection. 1. Check Wiring & Connections-Good ● Good ○ Fair ○ Poor 2. Check Starter Overload Protection-Good ● Good ○ Fair ○ Poor 3. Check Voltage Supply- L 1-4 483 L 2-5 490 L 3-6 485 ● Good ○ Fair ○ Poor Hertz 4. Check Voltage Running- L 1-4 471 L 2-5 474 L 3-6 473 60 ● Good ○ Fair ○ Poor 5. Check Motor Amps- L1 155.0 L2 165.0 L3 147.0 Utilization 88% ● Good ○ Fair ○ Poor 6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good ● Good ○ Fair ○ Poor 7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good ● Good ○ Fair ○ Poor 8. Check Pump & Motor Operating R.P.M.-1800 ● Good ○ Fair ○ Poor 9. Check Temperature-Motor Good Well Room Good ● Good ○ Fair ○ Poor 10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK ● Good ○ Fair ○ Poor 11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA ● Good ○ Fair ○ Poor 12. Check Vibration-Motor Good Pump Good Right Angle Dr NA ● Good ○ Fair ○ Poor 13. Check Discharge Head Packing Box Bearing- Good ● Good ○ Fair ○ Poor 14. Check Discharge Line Check Valve- Good Pump Foot Valve NA ● Good ○ Fair ○ Poor 15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good ● Good ○ Fair ○ Poor 16. Check Condition Of Water-Good ● Good ○ Fair ○ Poor Is The 17. Check Pumping Rate- Not Metered G.P.M. O C.F.P.M. Pump Throttled? NO O Good O Fair O Poor Yield Good GPM Per Foot 18. Check Water Levels-Static 27' 87' Pumping ● Good ○ Fair ○ Poor of Draw Down Comments: This unit is operating properly at this time however, the pump has been in service for over 5 years. Estimated flow of 4000 gpm.

590 Citation Drive - Suite I, Shakopee MN 55379-1862

Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date:____

Well/Pump Name:

6/4/2013 F

Vadnais Heights MN

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt

to evaluate the operating performance of	o evaluate the operating performance of the well and pump at the time of the inspection.					
1. Check Wiring & Connections-	Goo	d	● Good ○ Fair ○ Poor			
2. Check Starter Overload Protection	Go	od	Good O Fair O Poor			
3. Check Voltage Supply- L 1-4 486	L 2-5 <u>489</u> L 3-6	487	● Good ○ Fair ○ Poor			
4. Check Voltage Running- L 1-4 486	L 2-5 489 L 3-6	486 700 Hertz	● Good ○ Fair ○ Poor			
5. Check Motor Amps- L1 152.0	L2L3	52.0 Utilization 91%	● Good ○ Fair ○ Poor			
6. Check Resistance Between Line & Gr	ound- L1 <u>Good</u> L2	Good L3 Good	● Good ○ Fair ○ Poor			
7. Check Resistance Between Motor Wir	ndings- L1-2 <u>Good</u> L2-3	Good L1-3 Good	● Good ○ Fair ○ Poor			
8. Check Pump & Motor Operating R.P.M	Л	1800	● Good ○ Fair ○ Poor			
9. Check Temperature-Motor	Good Well Room	Good	Good O Fair O Poor			
10. Check Bearing Lube-Motor TopG	ood Bottom Good	Pump Prelube OK	● Good ○ Fair ○ Poor			
11. Check Bearing Noise-Motor Good	dPumpGood	Right Angle Dr NA	● Good ○ Fair ○ Poor			
12. Check Vibration-Motor <u>Good</u>	_PumpGoodRig	ght Angle Dr NA	● Good ○ Fair ○ Poor			
13. Check Discharge Head Packing Box E	Bearing	Good	● Good ○ Fair ○ Poor			
14. Check Discharge Line Check Valve	Good Pump	Foot Valve NA	● Good ○ Fair ○ Poor			
15. Check Start/Stop CycleGo	odAir Relief/Vacu	um Breaker <u>Good</u>	● Good ○ Fair ○ Poor			
16. Check Condition Of Water	Good		● Good ○ Fair ○ Poor			
17. Check Pumping Rate32	32 @ G.P.M. O G	Is The C.F.P.M. Pump Throttled?_ <u>NO</u>	● Good ○ Fair ○ Poor			
18. Check Water Levels-Static 28'	Pumping 140' Yield	Good GPM Per Foot of Draw Down	● Good ○ Fair ○ Poor			



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Vadnais Heights MN

Date:_____ Well/Pump Name: 6/2/2014 B

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good O Fair	O Poor
2. Check Starter Overload Protection	on-	Good		Good O Fair	O Poor
3. Check Voltage Supply- L 1-4_	466 L 2-5 471	L 3-6 467		● Good ○ Fair	O Poor
4. Check Voltage Running- L 1-4_	461 L 2-5 457	L 3-6 462	Hertz 60	● Good ○ Fair	O Poor
5. Check Motor Amps- L1 126.	0 L2 120.0	L3 115.0 Utilizatio	n 100%	🖲 Good 🔿 Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Good	L2 Good L3	Good	Good O Fair	O Poor
7. Check Resistance Between Moto	or Windings- L1-2 Good	_L2-3GoodL1-3	Good	Good O Fair	O Poor
8. Check Pump & Motor Operating	R.P.M	1800		Good O Fair	O Poor
9. Check Temperature-Motor	Good	ell Room Good		Good O Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom G	ood Pump Prelube	ок	Good O Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Go	odRight Angle Dr	NA	Good O Fair	O Poor
12. Check Vibration-Motor Goo	d Pump Good	Right Angle Dr	NA	Good O Fair	O Poor
13. Check Discharge Head Packing	Box Bearing	Good		● Good ○ Fair	O Poor
14. Check Discharge Line Check Va	veGood	Pump Foot Valve	NA	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle	Good Air Reli	ef/Vacuum BreakerG	ood	Good O Fair	O Poor
16. Check Condition Of Water		Good		● Good ◯ Fair	O Poor
17. Check Pumping Rate	2600	Is The M. OC.F.P.M. Pump Throt	tled? NO	● Good ○ Fair	O Poor
18. Check Water Levels-Static 28 Comments:	' Pumping 108 '	Yield Good GPM Per	Foot Iown		O Poor

590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Vadnais Heights MN

Well/Pump Name:

Date:

С

6/2/2014

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good () Fair	O Poor
2. Check Starter Overload Protection-	•	Good		Good () Fair	O Poor
3. Check Voltage Supply- L 1-4	483 L 2-5 478	L 3-6 482		Good () Fair	O Poor
4. Check Voltage Running- L 1-4	474 L 2-5 472	L 3-6 476	Hertz 60	Good () Fair	O Poor
5. Check Motor Amps- L1 149.0	L2 146.0	L3Uti	lization 84%	Good () Fair	O Poor
6. Check Resistance Between Line &	Ground- L1 Good	L2 Good	L3Good	Good () Fair	O Poor
7. Check Resistance Between Motor	Windings- L1-2 Good	L2-3 Good	L1-3 Good	Good () Fair	O Poor
8. Check Pump & Motor Operating R.	P.M	1800		Good () Fair	O Poor
9. Check Temperature-Motor	Good We	ell Room	Good	Good () Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom G	ood Pump Prelul	be OK	● Good () Fair	O Poor
11. Check Bearing Noise-MotorG	ood Pump Go	odRight Angle [Dr NA	Good () Fair	O Poor
12. Check Vibration-Motor Good	Pump Good	Right Angle Dr	NA	Good () Fair	O Poor
13. Check Discharge Head Packing Bo	x Bearing	Good		Good () Fair	O Poor
14. Check Discharge Line Check Valve	Good	Pump Foot Valve	NA	Good () Fair	O Poor
15. Check Start/Stop Cycle	Good Air Rel	ef/Vacuum Breaker	Good	Good () Fair	O Poor
16. Check Condition Of Water		Good		Good () Fair	O Poor
17. Check Pumping Rate	2875 • G.P	I M. OC.F.P.M. Pump.	s The Throttled? <u>NO</u>	Good () Fair	O Poor
18. Check Water Levels-Static 23'	Pumping 62'	Yield Good GPI	M Per Foot Draw Down	● Good () Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/2/2014

Vadnais Heights MN

Well/Pump Name:

D

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good	Good O Fair O Poor
2. Check Starter Overload Protection-	Good	● Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 482 L 2-	-5 486 L 3-6 480	Good O Fair O Poor
4. Check Voltage Running- L1-4 468 L2-	-5 472 L 3-6 467 Hertz 60	● Good ○ Fair ○ Poor
5. Check Motor Amps- L1 L2	167.0 L3 159.0 Utilization 91%	● Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1	Good L2 Good L3 Good	Good O Fair O Poor
7. Check Resistance Between Motor Windings- L	.1-2 Good L2-3 Good L1-3 Good	● Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M	1800	Good O Fair O Poor
9. Check Temperature-Motor Good	Well Room Good	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top <u>Good</u> B	Bottom Good Pump Prelube OK	Good O Fair O Poor
11. Check Bearing Noise-Motor <u>Good</u> Pu	mp <u>Good</u> Right Angle Dr NA	Good O Fair O Poor
12. Check Vibration-Motor <u>Good</u> Pump	Good Right Angle Dr NA	Good Fair Poor
13. Check Discharge Head Packing Box Bearing	Good	Good O Fair O Poor
14. Check Discharge Line Check ValveG	Bood Pump Foot Valve NA	● Good ○ Fair ○ Poor
15. Check Start/Stop CycleGood	Air Relief/Vacuum Breaker Good	Good ○ Fair ○ Poor
16. Check Condition Of Water	Good	● Good ○ Fair ○ Poor
17. Check Pumping Rate 4800	Is The G.P.M. OC.F.P.M. Pump Throttled? <u>NO</u>	● Good ○ Fair ○ Poor
18. Check Water Levels-Static 30' Pumping Comments:	98' Yield Good GPM Per Foot of Draw Down	● Good ○ Fair ○ Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date:_____

Vadnais Heights MN

Well/Pump Name:

6/2/2014 E

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good O	Fair O Poor
2. Check Starter Overload Protection)	Good		● Good 〇	Fair O Poor
3. Check Voltage Supply- L 1-4	485 L 2-5 487	L 3-6 484		Good O	Fair O Poor
4. Check Voltage Running- L 1-4	477 L 2-5 475	L 3-6 474	Hertz 60	Good O	Fair () Poor
5. Check Motor Amps- L1 159.0	L2 162.0	_3 154.0 Utilizat	on 93%	Good O	Fair O Poor
6. Check Resistance Between Line &	Ground- L1 <u>Good</u>	L2 Good L3	Good	Good O	Fair () Poor
7. Check Resistance Between Motor	Windings- L1-2 Good	_ L2-3 L1-3	Good	Good O	Fair O Poor
8. Check Pump & Motor Operating R	P.M	1800		● Good O	Fair O Poor
9. Check Temperature-Motor	Good We	II Room Goo	ł	Good O	Fair O Poor
10. Check Bearing Lube-Motor Top	Good Bottom G	ood Pump Prelube_	ок	● Good 〇	Fair O Poor
11. Check Bearing Noise-MotorG	Good Pump Goo	odRight Angle Dr	NA	Good O	Fair O Poor
12. Check Vibration-Motor <u>Good</u>	PumpGood	Right Angle Dr	NA	Good O	Fair O Poor
13. Check Discharge Head Packing B	ox Bearing	Good		Good OI	Fair O Poor
14. Check Discharge Line Check Valv	eGood	_Pump Foot Valve	NA	Good OI	Fair O Poor
15. Check Start/Stop Cycle	Good Air Relie	ef/Vacuum Breaker	Good	Good ○ I	Fair O Poor
16. Check Condition Of Water	(Good		Good ○ I	air O Poor
17. Check Pumping Rate	3500	Is Th M. OC.F.P.M. Pump Thr	e ottled? <u>NO</u>	Good O	Fair O Poor
18. Check Water Levels-Static 44'	Pumping 99'	Yield Good GPM Pe	r Foot Down	Good O I	Fair O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/2/2014

Vadnais Heights MN

Well/Pump Name:

F

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections	;- 	Good		🖲 Good 🔿 Fair	O Poor
2. Check Starter Overload Prot	ection-	Good		● Good ○ Fair	O Poor
3. Check Voltage Supply-	1-4 485 L 2-5	490 L 3-6 488	}	Good O Fair	O Poor
4. Check Voltage Running- L	1-4484 L 2-5	488 L 3-6 482	Hertz 60	● Good ◯ Fair	O Poor
5. Check Motor Amps- L1	152.0 L2 153	.0 L3 157.0	Utilization 91%	Good O Fair	O Poor
6. Check Resistance Between I	Line & Ground- L1	Good L2 Go	od L3 Good	● Good ○ Fair	O Poor
7. Check Resistance Between I	Motor Windings- L1-2	Good L2-3 Go	ood L1-3 Good	Good O Fair	O Poor
8. Check Pump & Motor Operat	ting R.P.M	1800		Good O Fair	O Poor
9. Check Temperature-Motor	Good	Well Room	Good	● Good ○ Fair	O Poor
10. Check Bearing Lube-Motor T	op <u>Good</u> Botto	m <u>Good</u> Pum	p Prelube OK	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump	Good Right	Angle Dr NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor	Good Pump	Good Right Ar	agle DrNA	● Good O Fair	O Poor
13. Check Discharge Head Pack	ing Box Bearing	Goo	d	● Good ○ Fair	O Poor
14. Check Discharge Line Check	Valve- Good	Pump Foot	ValveNA	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle	Good	Air Relief/Vacuum Br	eaker Good	● Good ○ Fair	O Poor
16. Check Condition Of Water		Good		_ ● Good ○ Fair	O Poor
17. Check Pumping Rate	3500	_ ◎ G.P.M. ○ C.F.P.M	Is The Pump Throttled? <u>NO</u>	● Good ● Fair	O Poor
18. Check Water Levels-Static	32' Pumping	115' Yield Good	GPM Per Foot - of Draw Down	● Good ○ Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Vadnais Heights MN

Well/Pump Name:

Date:

6/2/2014 G

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connection	ns	Good		● Good ○ Fair	O Poor
2. Check Starter Overload Pr	otection	Good		Good O Fair	O Poor
3. Check Voltage Supply-	L 1-4 486 _ L 2-5 494	L 3-6 496		● Good ○ Fair	O Poor
4. Check Voltage Running-	L 1-4_478_L 2-5_479	L 3-6 486	Hertz 60	● Good ○ Fair	O Poor
5. Check Motor Amps- L1	131.0 L2 129.0	L3 143.0 Utiliza	tion 95%	O Good 🔘 Fair	O Poor
6. Check Resistance Betweer	n Line & Ground- L1 Goo	dL2GoodL3	Good	● Good ○ Fair	O Poor
7. Check Resistance Between	n Motor Windings- L1-2 <u>Go</u>	od L2-3 Good L1-	3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Oper	rating R.P.M	1800		Good O Fair	O Poor
9. Check Temperature-Motor	Good	Well Room Goo	d	● Good ○ Fair	O Poor
10. Check Bearing Lube-Motor	Top <u>Good</u> Bottom	Good Pump Prelube	ок	● Good ○ Fair	O Poor
11. Check Bearing Noise-Moto	r <u>Good</u> Pump	Good Right Angle Dr	NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor	Good Pump Goo	d Right Angle Dr	NA	● Good ○ Fair	O Poor
13. Check Discharge Head Pa	cking Box Bearing	Good		● Good ○ Fair	O Poor
14. Check Discharge Line Che	ck ValveGood	Pump Foot Valve	NA	🖲 Good 🔿 Fair	O Poor
15. Check Start/Stop Cycle	Good Air F	Relief/Vacuum Breaker	Good	Good O Fair	O Poor
16. Check Condition Of Water-		Good		● Good ○ Fair	O Poor
17. Check Pumping Rate	2147	Is T G.P.M. OC.F.P.M. Pump Th	he rottled? <u>NO</u>	● Good ○ Fair	O Poor
18. Check Water Levels-Static Comments:	29' Pumping No Acce	ss Yield Good GPM P	er Foot v Down	Good Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 *"THERE'S NO SUBSTITUTE FOR EXPERIENCE"*



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Vadnais Heights MN

Well/Pump Name:

Date:

6/3/2014 H

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good O Fair	O Poor
2. Check Starter Overload Protection	n	Good		● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-4_	491 L 2-5 497	L 3-6 490		Good O Fair	O Poor
4. Check Voltage Running- L1-4_	376 L 2-5 376	L 3-6 376	Hertz 50	● Good ○ Fair	O Poor
5. Check Motor Amps- L1 160.	0 L2 163.0	L3162.0 Utilizati	on_ 73%	● Good ─ Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Good	L2 Good L3	Good	Good O Fair	O Poor
7. Check Resistance Between Moto	r Windings- L1-2 Good	_ L2-3 L1-3	Good	🖲 Good 🔿 Fair	O Poor
8. Check Pump & Motor Operating I	R.P.M	Variable		● Good ○ Fair	O Poor
9. Check Temperature-Motor	Good	ell Room Good		Good O Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom G	ood Pump Prelube	ок	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Go	odRight Angle Dr	NA	Good O Fair	O Poor
12. Check Vibration-Motor Goo	dPump Good	Right Angle Dr	NA	Good O Fair	O Poor
13. Check Discharge Head Packing I	Box Bearing	Good		Good O Fair	O Poor
14. Check Discharge Line Check Val	veGood	_Pump Foot Valve	NA	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle	Good Air Reli	ef/Vacuum Breaker	Good	Good O Fair	O Poor
16. Check Condition Of Water		Good		● Good ○ Fair	O Poor
17. Check Pumping Rate	3000	Is The M. OC.F.P.M. Pump Thre	e ottled? Yes	● Good ○ Fair	O Poor
18. Check Water Levels-Static 28 Comments:	Pumping 86'	Yield Good GPM Pe	r Foot Down	Good O Fair	O Poor

This pump appears to be operating satisfactorily at this time.



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 *"THERE'S NO SUBSTITUTE FOR EXPERIENCE"*



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/3/2014

Vadnais Heights MN

Well/Pump Name:

1

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good O Fair	O Poor
2. Check Starter Overload Protection	٦	Good		Good O Fair	O Poor
3. Check Voltage Supply- L 1-4	489 L 2-5 491	L 3-6 491		● Good ○ Fair	O Poor
4. Check Voltage Running- L 1-4	355 L 2-5 357	L 3-6 357	Hertz 49	● Good ○ Fair	O Poor
5. Check Motor Amps- L1144.0	L2144.0 L	3144.0Utilizatio	n 65%	Good O Fair	O Poor
6. Check Resistance Between Line &	Ground- L1 Good	L2GoodL3	Good	Good O Fair	O Poor
7. Check Resistance Between Motor	Windings- L1-2 Good	L2-3 Good L1-3	Good	🖲 Good 🔿 Fair	O Poor
8. Check Pump & Motor Operating R	R.P.M	Variable		Good O Fair	O Poor
9. Check Temperature-Motor	Good Wel	I Room Good		● Good ○ Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom Go	od Pump Prelube	ок	● Good ○ Fair	O Poor
11. Check Bearing Noise-MotorG	Good Pump Goo	dRight Angle Dr	NA	Good O Fair	O Poor
12. Check Vibration-Motor <u>Good</u>	Pump Good	Right Angle Dr	NA	Good O Fair	O Poor
13. Check Discharge Head Packing B	ox Bearing	Good		Good O Fair	O Poor
14. Check Discharge Line Check Valv	eGood	Pump Foot Valve	NA	Good O Fair	O Poor
15. Check Start/Stop Cycle	Good Air Relie	f/Vacuum Breaker	Good	• Good O Fair	O Poor
16. Check Condition Of Water	G	iood			O Poor
17. Check Pumping Rate	2996	Is The 1. OC.F.P.M. Pump Thro	ttled? Yes	Good O Fair	O Poor
18. Check Water Levels-Static 29 Comments:	Pumping 89'	field Good GPM Per of Draw I	Foot Down	● Good ○ Fair	O Poor

This unit appears to be operating properly at this time.



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/3/2014

Vadnais Heights MN

Well/Pump Name:

J

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good	Good O Fair	O Poor
2. Check Starter Overload Protection-	Good	● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-4 489 L 2-5	5 493 L 3-6 487	● Good ○ Fair	O Poor
4. Check Voltage Running- L 1-4 242 L 2-5	5 241 L 3-6 242 Hertz 32	● Good ○ Fair	O Poor
5. Check Motor Amps- L1 92.0 L2 8	88.0 L3 89.0 Utilization 40%	Good O Fair	O Poor
6. Check Resistance Between Line & Ground- L1	Good L2 Good L3 Good	● Good ○ Fair	O Poor
7. Check Resistance Between Motor Windings- L1-	-2 <u>Good</u> L2-3 <u>Good</u> L1-3 <u>Good</u>	Good O Fair	O Poor
8. Check Pump & Motor Operating R.P.M	Variable	● Good ○ Fair	O Poor
9. Check Temperature-Motor Good	Well Room Good	🖲 Good 🔿 Fair	O Poor
10. Check Bearing Lube-Motor Top <u>Good</u> Bo	ottom <u>Good</u> Pump Prelube OK	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor <u>Good</u> Pum	np Good Right Angle Dr NA	● Good ○ Fair	
12. Check Vibration-Motor <u>Good</u> Pump	Good Right Angle Dr NA	● Good ● Fair	O Poor
13. Check Discharge Head Packing Box Bearing	Good	● Good ○ Fair	O Poor
14. Check Discharge Line Check ValveGo	oodPump Foot ValveNA	Good O Fair	O Poor
15. Check Start/Stop Cycle Good	Air Relief/Vacuum Breaker Good	● Good ○ Fair	O Poor
16. Check Condition Of Water	Sandy	O Good	O Poor
17. Check Pumping Rate1505	Is The G.P.M. O C.F.P.M. Pump Throttled? <u>Yes</u>	Good Fair	O Poor
18. Check Water Levels-Static 28' Pumping	32' Yield Good GPM Per Foot of Draw Down	● Good ○ Fair	O Poor

This unit appears to be operating properly at this time the pump is only operated between 32 & 36 hertz so is won't sand lock.

590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date:

Vadnais Heights MN

Well/Pump Name:

6/3/2014 K

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good		Good O Fair	O Poor
2. Check Starter Overload Protection	Good		Good O Fair	O Poor
3. Check Voltage Supply- L 1-4_49	5 L 2-5 500 L 3-6 500		Good O Fair	O Poor
4. Check Voltage Running- L 1-4388	8 L 2-5 388 L 3-6 388	Hertz 52	● Good ○ Fair	O Poor
5. Check Motor Amps- L1	L2L3Uti	ilization 75%	Good O Fair	O Poor
6. Check Resistance Between Line & Gr	round- L1 Good L2 Good	L3 Good	● Good ○ Fair	O Poor
7. Check Resistance Between Motor Wir	ndings- L1-2 Good L2-3 Good	L1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating R.P.M	M Variable		Good O Fair	O Poor
9. Check Temperature-Motor	Good Well Room	Good	● Good ○ Fair	O Poor
10. Check Bearing Lube-Motor TopG	ood Bottom Good Pump Prelu	beOK	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor Good	dPumpGoodRight Angle [Dr NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor Good	_PumpGoodRight Angle Dr_	NA	Good O Fair	O Poor
13. Check Discharge Head Packing Box E	Bearing Good		Good O Fair	O Poor
14. Check Discharge Line Check Valve	Good Pump Foot Valve	NA	● Good ○ Fair	O Poor
15. Check Start/Stop CycleGo	odAir Relief/Vacuum Breaker	Good		O Poor
16. Check Condition Of Water	Good			O Poor
17. Check Pumping Rate330	06● G.P.M. О С.F.P.M. Ритр	s The Throttled? <u>Yes</u>	● Good ○ Fair	O Poor
18. Check Water Levels-Static 51'	Pumping 92' Yield Good GPI	M Per Foot Draw Down	● Good ○ Fair	O Poor

This pump appears to be operating satisfactorily at this time.



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Fridley Pumping Station (SPRWS)

Date: 6/3/2014

Fridley MN

Well/Pump Name:

1

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good	● Good ○ Fair ○ Poor
2. Check Starter Overload Protection-	Good	● Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 247 L 2-5	247 L 3-6	Good O Fair O Poor
4. Check Voltage Running- L 1-4 L 2-5	Hertz	● Good ○ Fair ○ Poor
5. Check Motor Amps- L1 L2	10.2 L3 10.3 Utilization 126%	O Good
6. Check Resistance Between Line & Ground- L1	Good L2 Good L3 Good	Good O Fair O Poor
7. Check Resistance Between Motor Windings- L1-	-2 <u>Good</u> L2-3 <u>Good</u> L1-3 <u>Good</u>	Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M	3450	Good O Fair O Poor
9. Check Temperature-Motor Good	Well Room Good	Good O Fair O Poor
10. Check Bearing Lube-Motor Top <u>Good</u> Bo	ttom <u>Good</u> Pump Prelube <u>NA</u>	Good O Fair O Poor
11. Check Bearing Noise-Motor <u>Good</u> Pum	p Good Right Angle Dr NA	● Good ○ Fair ○ Poor
12. Check Vibration-Motor <u>Good</u> Pump	Good Right Angle Dr NA	Good O Fair O Poor
13. Check Discharge Head Packing Box Bearing	NA	Good O Fair O Poor
14. Check Discharge Line Check ValveGo	oodPump Foot Valve Good	Good O Fair O Poor
15. Check Start/Stop CycleGood	Air Relief/Vacuum BreakerGood	Good O Fair O Poor
16. Check Condition Of Water	Good	Good O Fair O Poor
17. Check Pumping RateNot Metered	Is The G.P.M. OC.F.P.M. Pump Throttled? NO	● Good ○ Fair ○ Poor
18. Check Water Levels-Static No Comments: No Access Pumping N	lo Access Yield Good GPM Per Foot of Draw Down	● Good ○ Fair ○ Poor

This unit is operating properly at this time however, the pump has been in service over 5 years since it was repaired by McCarthy Well Co.



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Vadnais Heights MN

Date:_____ Well/Pump Name: 3/25/2015 A

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connectio	ns-	Good			Good O	Fair O Poor
2. Check Starter Overload Pr	otection-	Good	d		Good O	Fair O Poor
3. Check Voltage Supply-	L 1-4L 2-5	240 L 3-6			● Good 〇	Fair O Poor
4. Check Voltage Running-	L 1-4 L 2-5	236 L 3-6		Hertz 60	Good O	Fair O Poor
5. Check Motor Amps- L1	11.0 L2 10.	0L31	0.5 Utilization	n 105%	Good O	Fair O Poor
6. Check Resistance Betwee	n Line & Ground- L1	Fair L2_	Fair L3	Fair	O Good O	Fair O Poor
7. Check Resistance Betwee	n Motor Windings- L1-2	Good L2-3	Good L1-3	Good	Good O	Fair O Poor
8. Check Pump & Motor Ope	rating R.P.M	34	50		Good O	Fair O Poor
9. Check Temperature-Motor	Good	Well Room	Good		Good O	Fair O Poor
10. Check Bearing Lube-Moto	r Top <u>Good</u> Botto	m Good I	Pump Prelube	NA	Good O	Fair O Poor
11. Check Bearing Noise-Moto	or <u>Good</u> Pump	Good R	ight Angle Dr	NA	Good O	Fair O Poor
12. Check Vibration-Motor	Good Pump	Good Righ	nt Angle Dr	NA	Good O	Fair O Poor
13. Check Discharge Head Pa	acking Box Bearing		NA		● Good 〇	Fair O Poor
14. Check Discharge Line Che	eck ValveGood	Pump F	oot ValveG	ood	● Good 〇	Fair O Poor
15. Check Start/Stop Cycle	Good	Air Relief/Vacuur	n Breaker G	ood	● Good 〇	Fair O Poor
16. Check Condition Of Water	-	Good			Good O	Fair O Poor
17. Check Pumping Rate	Not Metered	_● G.P.M. ○ C.F	Is The P.M. Pump Throi	tled? NO	Good O	Fair O Poor
18. Check Water Levels-Static Comments:	Access A Blocked Pumping Blocked	ocked Yield G	ood GPM Per of Draw D	Foot Jown	Good	Fair O Poor
	Son					
------	-----------					
4	SINCE					
4	186015					
- 93	Contra la					

590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"

1

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date:____

Vadnais Heights MN

Well/Pump Name:

3/25/2015 B

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good		● Good O Fair	O Poor
2. Check Starter Overload Protection-	Good		● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-4 467	L 2-5 468 L 3-6 467		● Good ○ Fair	O Poor
4. Check Voltage Running- L 1-4 461	_ L 2-5L 3-6	Hertz 60	● Good ○ Fair	O Poor
5. Check Motor Amps- L1116.0L	.2L3124.0Utiliza	tion <u>100%</u>	🖲 Good 🔿 Fair	O Poor
6. Check Resistance Between Line & Grou	nd- L1 <u>Good</u> L2 <u>Good</u> L3	Good	● Good ○ Fair	O Poor
7. Check Resistance Between Motor Windi	ngs- L1-2 <u>Good</u> L2-3 <u>Good</u> L1-	3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating R.P.M	1800		🖲 Good 🔿 Fair	O Poor
9. Check Temperature-MotorG	ood Well Room Goo	d	● Good ○ Fair	O Poor
10. Check Bearing Lube-Motor Top Goo	dBottom Good Pump Prelube	ок		O Poor
11. Check Bearing Noise-Motor Good	Pump Good Right Angle Dr	NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor Good I	Pump Good Right Angle Dr	NA	● Good ○ Fair	O Poor
13. Check Discharge Head Packing Box Bea	aring Good		● Good ○ Fair	O Poor
14. Check Discharge Line Check Valve	Good Pump Foot Valve	Good	● Good ○ Fair	O Poor
15. Check Start/Stop CycleGood	Air Relief/Vacuum Breaker	Good	● Good ○ Fair	O Poor
16. Check Condition Of Water	Good		● Good ○ Fair	
17. Check Pumping RateMeter Is Bro	Is T ■ G.P.M. O C.F.P.M. Pump Th	ne rottled? <u>NO</u>	O Good	O Poor
18. Check Water Levels-Static 24' Pu	mping 107' Yield Good GPM P	er Foot v Down	● Good ○ Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 3/25/2015

Vadnais Heights MN

Well/Pump Name:

С

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good	● Good ○ Fair ○ Poor
2. Check Starter Overload Protection-	Good	● Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 478 I	L 2-5 480 L 3-6 479	Good O Fair O Poor
4. Check Voltage Running- L 1-4_472_	L 2-5 473 L 3-6 475	Hertz 60 © Good 〇 Fair 〇 Poor
5. Check Motor Amps- L1 L2	136.0 L3 140.0 Utilization	78% Good Fair Poor
6. Check Resistance Between Line & Ground-	L1 Good L2 Good L3	Good O Good O Fair O Poor
7. Check Resistance Between Motor Windings	- L1-2 <u>Good</u> L2-3 <u>Good</u> L1-3	Good Good Fair Poor
8. Check Pump & Motor Operating R.P.M	1800	● Good ○ Fair ○ Poor
9. Check Temperature-Motor Good	Well Room Good	● Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top <u>Good</u>	_BottomGoodPump Prelube	OK
11. Check Bearing Noise-Motor <u>Good</u>	Pump <u>Good</u> Right Angle Dr	NA O Good O Fair O Poor
12. Check Vibration-Motor <u>Good</u> Pun	np Good Right Angle Dr	NA
13. Check Discharge Head Packing Box Bearin	g	Good O Fair O Poor
14. Check Discharge Line Check Valve	Good Pump Foot Valve N	IA O Good O Fair O Poor
15. Check Start/Stop Cycle Good	Air Relief/Vacuum BreakerG	Dod O Good O Fair O Poor
16. Check Condition Of Water	Good	Good O Fair O Poor
17. Check Pumping RateMeter Is Broke	Is The en	led? NO Good Fair Poor
18. Check Water Levels-Static 22' Pump Comments:	ing 63' Yield Good GPM Per F	own



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date:______ 3/25/2015

Vadnais Heights MN

Well/Pump Name:

D

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good O Fair	O Poor
2. Check Starter Overload Protection	۱	Good		● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-4_	483 L 2-5 482	L 3-6 484		Good O Fair	O Poor
4. Check Voltage Running- L1-4_	471 L 2-5 473	L 3-6 472	Hertz 60	● Good ○ Fair	O Poor
5. Check Motor Amps- L1 162.0	L2 162.0	L3164.0U	tilization 92%	● Good ○ Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Good	L2 Good	L3Good	● Good ○ Fair	O Poor
7. Check Resistance Between Moto	Windings- L1-2 Good	L2-3 Good	L1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating F	R.P.M	1800		● Good ○ Fair	O Poor
9. Check Temperature-Motor	Good	ell Room	Good	Good O Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom	Bood Pump Prel	ube <u>OK</u>	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Go	ood Right Angle	Dr NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor Good	Pump Good	Right Angle Dr	NA	Good O Fair	O Poor
13. Check Discharge Head Packing E	Box Bearing	Good		Good O Fair	O Poor
14. Check Discharge Line Check Val	/e- Good	Pump Foot Valve	NA	Good O Fair	O Poor
15. Check Start/Stop Cycle	Good Air Re	lief/Vacuum Breaker	Good	Good O Fair	O Poor
16. Check Condition Of Water		Good		● Good O Fair	O Poor
17. Check Pumping Rate	er is Broken 🕘 G.I	P.M. OC.F.P.M. Pum	Is The p Throttled? <u>NO</u>	● Good O Fair	O Poor
18. Check Water Levels-Static 27' Comments:	Pumping 71'	Yield Good GF	PM Per Foot Draw Down	● Good ○ Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 *"THERE'S NO SUBSTITUTE FOR EXPERIENCE"*



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Vadnais Heights MN

Well/Pump Name:

Date:

3/25/2015 E

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		● Good O Fair	O Poor
2. Check Starter Overload Protectio	n	Good		Good O Fair	O Poor
3. Check Voltage Supply- L 1-4_	489 L 2-5 487	L 3-6 487		● Good ○ Fair	O Poor
4. Check Voltage Running- L 1-4_	480 L 2-5 482	L 3-6 480	Hertz 60	● Good ○ Fair	O Poor
5. Check Motor Amps- L1155.0	L2 160.0	L3(Jtilization 93%	● Good ○ Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Good	L2 Good	L3 Good	● Good ○ Fair	O Poor
7. Check Resistance Between Moto	r Windings- L1-2 <u>Good</u>	L2-3 Good	_ L1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating F	R.P.M	1800		Good O Fair	O Poor
9. Check Temperature-Motor	Good	ell Room	Good	Good O Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom	Bood Pump Pre	lube NA	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Go	ood Right Angle	e Dr NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor Good	JPumpGood	Right Angle D	r <u>NA</u>	● Good ○ Fair	O Poor
13. Check Discharge Head Packing I	Box Bearing	Good		● Good ○ Fair	O Poor
14. Check Discharge Line Check Val	veGood	Pump Foot Valve	NA	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle	Good Air Re	lief/Vacuum Breaker	Good	● Good ○ Fair	O Poor
16. Check Condition Of Water		Good		Good O Fair	O Poor
17. Check Pumping Rate	er is Broken @ G.i	P.M. OC.F.P.M. Pur	Is The mp Throttled? <u>NO</u>	● Good ○ Fair	O Poor
18. Check Water Levels-Static 30 Comments:	Pumping 92'	Yield Good G	PM Per Foot f Draw Down	● Good ○ Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 3/25/2015

Vadnais Heights MN

Well/Pump Name:

F

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Bood	Good O Fair O Poor
2. Check Starter Overload Protection		Good	Good O Fair O Poor
3. Check Voltage Supply- L 1-4	496 L 2-5 498 L 3	-6 498	Good O Fair O Poor
4. Check Voltage Running- L 1-4	490 L 2-5 492 L 3	-6 490	Hertz 60
5. Check Motor Amps- L1 155.0	L2 156.0 L3	157.0 Utilization	92%
6. Check Resistance Between Line &	Ground- L1 <u>Good</u> I	_2GoodL3Go	ood
7. Check Resistance Between Motor	Windings- L1-2 Good L2	2-3 <u>Good</u> L1-3 <u>G</u>	ood 🔘 Good 🔿 Fair 🔿 Poor
8. Check Pump & Motor Operating R	.P.M	1800	Good O Fair O Poor
9. Check Temperature-Motor	Good Well R	oom <u>Good</u>	Good O Fair O Poor
10. Check Bearing Lube-Motor Top	Good Bottom Good	Pump PrelubeO	K
11. Check Bearing Noise-MotorG	ood Pump Good	Right Angle DrNA	Good O Fair O Poor
12. Check Vibration-Motor Good	Pump Good	Right Angle Dr NA	Good O Fair O Poor
13. Check Discharge Head Packing B	ox Bearing	Good	● Good ○ Fair ○ Poor
14. Check Discharge Line Check Valv	eGoodPu	mp Foot ValveNA	Good O Fair O Poor
15. Check Start/Stop Cycle	Good Air Relief/Va	acuum Breaker Good	Good O Fair O Poor
16. Check Condition Of Water	Goo	d	● Good ○ Fair ○ Poor
17. Check Pumping Rate	r Is Broken O.P.M.	Is The C.F.P.M. Pump Throttled	? NO Good Fair Poor
18. Check Water Levels-Static 30'	Pumping 128' Yiel	d Good GPM Per Foo of Draw Dowr	Good O Fair O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 3/25/2015

Vadnais Heights MN

Well/Pump Name:

G

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good		● Good ○ Fair	O Poor
2. Check Starter Overload Protection-	Good		● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-4 493	L 2-5 492 L 3-6 494		Good O Fair	O Poor
4. Check Voltage Running- L 1-4 484	L 2-5 485 L 3-6 485	Hertz 60	● Good ○ Fair	O Poor
5. Check Motor Amps- L1	L2 133.0 L3 132.0 L	Jtilization 94%	● Good ○ Fair	O Poor
6. Check Resistance Between Line & Grou	und- L1 <u>Good</u> L2 <u>Good</u>	L3 Good	Good O Fair	O Poor
7. Check Resistance Between Motor Wind	lings- L1-2 Good L2-3 Good	L1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating R.P.M.			● Good ○ Fair	O Poor
9. Check Temperature-Motor G	Good Well Room	Good	● Good ○ Fair	O Poor
10. Check Bearing Lube-Motor TopGoo	od Bottom <u>Good</u> Pump Prel	ube OK	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor Good	Pump <u>Good</u> Right Angle	Dr NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor Good	PumpGoodRight Angle D	r <u>NA</u>	● Good ○ Fair	O Poor
13. Check Discharge Head Packing Box Be	earing Good		• Good • Fair	O Poor
14. Check Discharge Line Check Valve	Good Pump Foot Valve	NA	• Good • Fair	O Poor
15. Check Start/Stop CycleGoo	dAir Relief/Vacuum Breaker	Good	● Good ○ Fair	O Poor
16. Check Condition Of Water	Good	4	• Good O Fair	O Poor
17. Check Pumping Rate2278	8● G.P.M. ○ C.F.P.M. Pun	np Throttled? NO	• Good O Fair	O Poor
18. Check Water Levels-Static 25' P	Pumping 163' Yield Good G	PM Per Foot f Draw Down	● Good ○ Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date:

3/25/2015

Vadnais Heights MN

Well/Pump Name:

Η

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good		● Good ○ Fair	O Poor
2. Check Starter Overload Protection	Good		🖲 Good 🔿 Fair	O Poor
3. Check Voltage Supply- L 1-4 497	L 2-5 498 L 3-6 497		● Good ○ Fair	O Poor
4. Check Voltage Running- L 1-4	L 2-5 414 L 3-6 414	Hertz 54	● Good ○ Fair	O Poor
5. Check Motor Amps- L1 L2	187.0 L3 185.0	Utilization <u>84%</u>	● Good ○ Fair	O Poor
6. Check Resistance Between Line & Ground	d- L1 <u>Good</u> L2 <u>Good</u>	L3 Good	● Good ○ Fair	O Poor
7. Check Resistance Between Motor Winding	gs- L1-2 <u>Good</u> L2-3 Good	L1-3Good	Good O Fair	O Poor
8. Check Pump & Motor Operating R.P.M	Variable		● Good ○ Fair	O Poor
9. Check Temperature-Motor Goo	odWell Room	Good	• Good O Fair	O Poor
10. Check Bearing Lube-Motor Top Good	Bottom Good Pump Pr	elube OK	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor <u>Good</u>	_PumpGoodRight Ang	le DrNA	● Good ○ Fair	O Poor
12. Check Vibration-Motor <u>Good</u> Pu	ump Good Right Angle	Dr NA	● Good ○ Fair	O Poor
13. Check Discharge Head Packing Box Bear	ing Good		Good O Fair	O Poor
14. Check Discharge Line Check Valve	Good Pump Foot Valv	ve None	Good O Fair	O Poor
15. Check Start/Stop Cycle Good	Air Relief/Vacuum Break	er Good	● Good ○ Fair	O Poor
16. Check Condition Of Water	Good		• Good O Fair	O Poor
17. Check Pumping Rate 3327	● G.P.M. ○ C.F.P.M. P	Is The ump Throttled? Yes	Good O Fair	O Poor
18. Check Water Levels-Static 27' Pun Comments:	nping 110' Yield Good	GPM Per Foot of Draw Down	● Good ○ Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 **"THERE'S NO SUBSTITUTE FOR EXPERIENCE"**

A

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 3/25/2015

Vadnais Heights MN

Well/Pump Name:

Ĩ

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connection	IS-	Good		● Good ○ Fair	O Poor
2. Check Starter Overload Pro	otection-	Good		Good O Fair	O Poor
3. Check Voltage Supply-	_ 1-4492 L 2-5	493 L 3-6 495		● Good ○ Fair	O Poor
4. Check Voltage Running- L	_ 1-4 404 L 2-5	404 L 3-6 404	Hertz 53	● Good ○ Fair	O Poor
5. Check Motor Amps- L1	171.0 L2 169	0.0 L3 168.0	Utilization 76%	● Good ○ Fair	O Poor
6. Check Resistance Between	Line & Ground- L1	Good L2 Good	L3 Good	● Good ○ Fair	O Poor
7. Check Resistance Between	Motor Windings- L1-2	Good L2-3 Good	L1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Oper	ating R.P.M	Variable		● Good ○ Fair	O Poor
9. Check Temperature-Motor	Good	Well Room	Good	Good O Fair	O Poor
10. Check Bearing Lube-Motor	Top <u>Good</u> Botto	om <u>Good</u> Pump Pr	elubeOK	Good O Fair	O Poor
11. Check Bearing Noise-Moto	r <u>Good</u> Pump	Good Right Ang	le Dr NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor	Good Pump	Good Right Angle I	Dr NA	● Good ○ Fair	O Poor
13. Check Discharge Head Pac	cking Box Bearing	Good		● Good ○ Fair	O Poor
14. Check Discharge Line Che	ck Valve- Goo	dPump Foot Valv	e None	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle	Good	_Air Relief/Vacuum Breake	er <u>Good</u>	● Good ○ Fair	O Poor
16. Check Condition Of Water-		Good		● Good ○ Fair	O Poor
17. Check Pumping Rate	3414	● G.P.M. ○ C.F.P.M. Pu	Is The ump Throttled? <u>Yes</u>	● Good ○ Fair	O Poor
18. Check Water Levels-Static Comments:	26' Pumping	89' Yield Good (GPM Per Foot of Draw Down	● Good ○ Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"

A

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 3/25/2015

Vadnais Heights MN

Well/Pump Name:

J

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		● Good ○ Fair	O Poor
2. Check Starter Overload Protection	۱- <u></u>	Good		● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-4_	494 L 2-5 494	L 3-6 494			O Poor
4. Check Voltage Running- L 1-4	260 L 2-5 260	L 3-6 260	Hertz 34	● Good ○ Fair	O Poor
5. Check Motor Amps- L194.0	L2 94.0	L3Utiliz	ation 42%	🖲 Good 🔿 Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Good	L2 Good L	.3 Good	● Good ○ Fair	O Poor
7. Check Resistance Between Moto	Windings- L1-2 Good	L2-3 Good L	1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating F	R.P.M	Variable		● Good ○ Fair	O Poor
9. Check Temperature-Motor	Good We	ell RoomG	ood	● Good ○ Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom G	ood Pump Prelube	e OK	🖲 Good 🔿 Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Go	odRight Angle Dr	NA		O Poor
12. Check Vibration-Motor Good	Pump Good	Right Angle Dr	NA	Good O Fair	O Poor
13. Check Discharge Head Packing E	Box Bearing	Good		● Good O Fair	O Poor
14. Check Discharge Line Check Val	veGood	_Pump Foot Valve	None	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle	Good Air Reli	ef/Vacuum Breaker	Good	● Good ○ Fair	O Poor
16. Check Condition Of Water		Good		● Good ○ Fair	O Poor
17. Check Pumping RateMet	er is Broken@ G.P	Is M. OC.F.P.M. Pump	Throttled? Yes	● Good ○ Fair	O Poor
18. Check Water Levels-Static 29 Comments:	Pumping 59'	Yield Good GPM	Per Foot aw Down	● Good) Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 3/25/2015

Vadnais Heights MN

Well/Pump Name:

K

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good O Fair	O Poor
2. Check Starter Overload Protection	n	Good		Good O Fair	O Poor
3. Check Voltage Supply- L 1-4_	493 L 2-5 495	L 3-6 496		Good O Fair	O Poor
4. Check Voltage Running- L 1-4_	423 L 2-5 423	L 3-6 423	Hertz 55	● Good ○ Fair	O Poor
5. Check Motor Amps- L1170.0	DL2 169.0	L3 172.0 Utilization		Good O Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 <u>Good</u>	L2 Good L3	Good	● Good ○ Fair	O Poor
7. Check Resistance Between Moto	r Windings- L1-2 Good	_L2-3_ Good _L1-3_	Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating	R.P.M	Variable		● Good ○ Fair	O Poor
9. Check Temperature-Motor	Good We	Il Room Good		Good O Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom G	ood Pump Prelube	ок	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Goo	od Right Angle Dr	NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor Goo	d Pump Good	Right Angle Dr	A	● Good ○ Fair	O Poor
13. Check Discharge Head Packing	Box Bearing	Good		● Good ○ Fair	O Poor
14. Check Discharge Line Check Val	veGood	_Pump Foot ValveN	one	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle	Good Air Reli	ef/Vacuum BreakerG	bod	Good O Fair	O Poor
16. Check Condition Of Water	(Good		● Good ○ Fair	O Poor
17. Check Pumping Rate	3650 • G.P.	Is The M. OC.F.P.M. Pump Throt	led? Yes	● Good ○ Fair	O Poor
18. Check Water Levels-Static 46 Comments:	' Pumping 90'	Yield Good GPM Per I	Foot own	● Good ○ Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 *"THERE'S NO SUBSTITUTE FOR EXPERIENCE"*



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Fridley Pumping Station (SPRWS)

Date: 3/25/2015

Fridley MN

Well/Pump Name:

1

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connection	ns-	Good			Good	() Fair	O Poor
2. Check Starter Overload Pr	otection-	Good			Good	O Fair	O Poor
3. Check Voltage Supply-	L 1-4L 2-5	246 L 3-6			Good	O Fair	O Poor
4. Check Voltage Running-	L1-4 242 L2-5	242 L 3-6		Hertz 60	Good (O Fair	O Poor
5. Check Motor Amps- L1	10.2 L2 10.	1L310.2	Utilization_	124%	Good	O Fair	O Poor
6. Check Resistance Betwee	n Line & Ground- L1	Fair L2 F	air L3	Fair	O Good	🖲 Fair	O Poor
7. Check Resistance Between	n Motor Windings- L1-2	Good L2-3 G	ood L1-3	Good	Good	<u> </u>	O Poor
8. Check Pump & Motor Oper	rating R.P.M	3450			Good) Fair	O Poor
9. Check Temperature-Motor	Good	Well Room	Good		Good	O Fair	O Poor
10. Check Bearing Lube-Motor	r Top <u>Good</u> Botto	m <u>Good</u> Pur	np Prelube	NA	Good	() Fair	O Poor
11. Check Bearing Noise-Moto	or <u>Good</u> Pump	Good Righ	t Angle Dr	NA	Good () Fair	O Poor
12. Check Vibration-Motor	Good Pump	Good Right A	ngle Dr N	Α	Good	O Fair	O Poor
13. Check Discharge Head Pa	cking Box Bearing	N	Α		Good () Fair	O Poor
14. Check Discharge Line Che	eck ValveGood	Pump Foo	t Valve Go	od	Good () Fair	O Poor
15. Check Start/Stop Cycle	Good	Air Relief/Vacuum E	reaker <u>Go</u>	od	Good () Fair	O Poor
16. Check Condition Of Water	-	Good			Good () Fair	O Poor
17. Check Pumping Rate	Not Metered	_● G.P.M. ○ C.F.P.I	Is The M. Pump Throttle	ed? <u>NO</u>	Good () Fair	O Poor
18. Check Water Levels-Static Comments:	Access Pumping Blocked	ccess ocked Yield Good	d GPM Per Fo of Draw Do	oot wn	Good () Fair	O Poor

This unit is operating properly at this time however, the pump has been in service over 5 years since it was repaired by McCarthy Well Co.

590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/8/2016

Vadnais Heights MN

Well/Pump Name:

А

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good	() Fair	O Poor
2. Check Starter Overload Protection-		Good		Good	O Fair	O Poor
3. Check Voltage Supply- L 1-4_2	44 L 2-5 244	L 3-6		Good	O Fair	O Poor
4. Check Voltage Running- L 1-4 2	35 L 2-5 235	L 3-6	Hertz 60	Good	O Fair	O Poor
5. Check Motor Amps- L110.7	L2 11.5	L311.1	Utilization 111%	Good	O Fair	O Poor
6. Check Resistance Between Line & C	Ground- L1 Poor	L2 Poor	L3 Poor	O Good	O Fair	Poor
7. Check Resistance Between Motor W	/indings- L1-2 Good	L2-3 Good	L1-3 Good	Good	() Fair	O Poor
8. Check Pump & Motor Operating R.P	P.M	3450		Good	O Fair	O Poor
9. Check Temperature-Motor	Good	ell Room	Good	Good	() Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom C	Sood Pump Pre	elube NA	Good	() Fair	O Poor
11. Check Bearing Noise-Motor Go	od Pump Go	Right Angl	e Dr NA	Good	O Fair	O Poor
12. Check Vibration-Motor Good	Pump Good	Right Angle	Dr <u>NA</u>	Good	O Fair	O Poor
13. Check Discharge Head Packing Box	Bearing	NA		Good	O Fair	O Poor
14. Check Discharge Line Check Valve-	Good	Pump Foot Valve	e Good	Good	() Fair	
15. Check Start/Stop CycleG	Air Re	lief/Vacuum Breake	r <u>Good</u>	Good	O Fair	O Poor
16. Check Condition Of Water		Good		Good	() Fair	O Poor
17. Check Pumping RateNot N	letered () G.F	P.M. OC.F.P.M. Pu	Is The mp Throttled? NO	Good	() Fair	O Poor
18. Check Water Levels-Static Good	Pumping Good	Yield Good G	GPM Per Foot of Draw Down	Good	() Fair	O Poor

This unit is operating properly at this time however, the pump has been in service over 5 years since it was repaired by McCarthy Well Co.



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/8/2016

Vadnais Heights MN

Well/Pump Name:

В

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good	() Fair	O Poor
2. Check Starter Overload Protection)	Good		Good	O Fair	O Poor
3. Check Voltage Supply- L 1-4	473 L 2-5 478 L	3-6 472		Good	O Fair	O Poor
4. Check Voltage Running- L 1-4	467 L 2-5 469 L	3-6 468	Hertz 60	Good	O Fair	O Poor
5. Check Motor Amps- L1117.0	L2 120.0 L3	118.0 Utilization	99%	Good	O Fair	O Poor
6. Check Resistance Between Line &	Ground- L1 <u>Good</u>	L2GoodL3	Good	O Good	O Fair	O Poor
7. Check Resistance Between Motor	Windings- L1-2 Good	L2-3 <u>Good</u> L1-3	Good	O Good	O Fair	O Poor
8. Check Pump & Motor Operating R	P.M	1800		Good	O Fair	O Poor
9. Check Temperature-Motor	Good	Room Good	2	Good	🔿 Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom Goo	dPump Prelube	ок	O Good	O Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Good	Right Angle Dr	NA	Good	O Fair	O Poor
12. Check Vibration-Motor Good	PumpGood	Right Angle DrN	A	Good	O Fair	O Poor
13. Check Discharge Head Packing B	ox Bearing	Good		O Good	() Fair	O Poor
14. Check Discharge Line Check Valv	eGoodF	Pump Foot ValveN	Α	Good	🔿 Fair	O Poor
15. Check Start/Stop Cycle	Good Air Relief/	Vacuum Breaker Go	od	Good	() Fair	O Poor
16. Check Condition Of Water	Go	ood		l Good	O Fair	O Poor
17. Check Pumping RateNo	t Metered	O C.F.P.M. Pump Throttl	ed? <u>NO</u>	🔘 Good	() Fair	O Poor
18. Check Water Levels-Static 21' Comments:	Pumping 101' Yi	eld Good GPM Per F ———— of Draw Do	oot own	Good	() Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Vadnais Heights MN

Date:_____ Well/Pump Name: 6/8/2016 C

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good	O Fair	O Poor
2. Check Starter Overload Protection-		Good		Good	O Fair	O Poor
3. Check Voltage Supply- L 1-4	181 L 2-5 483	L 3-6 484		Good	O Fair	
4. Check Voltage Running- L1-4 4	74 L 2-5 473	L 3-6 473	Hertz 60	Good	O Fair	O Poor
5. Check Motor Amps- L1 132.0	L2 136.0	L3 <u>130.0</u> (Utilization 77%	Good	() Fair	O Poor
6. Check Resistance Between Line & 0	Ground- L1 <u>Good</u>	L2Good	L3 Good	Good	() Fair	O Poor
7. Check Resistance Between Motor V	Vindings- L1-2 <u>Good</u>	L2-3 Good	L1-3 Good	Good	O Fair	O Poor
8. Check Pump & Motor Operating R.F	P.M	1800		Good	() Fair	O Poor
9. Check Temperature-Motor	Good W	ell Room	Good	Good	() Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom G	ood Pump Prel	lubeOK	Good (() Fair	O Poor
11. Check Bearing Noise-MotorGo	od Pump Go	od Right Angle	Dr <u>NA</u>	O Good	() Fair	O Poor
12. Check Vibration-Motor <u>Good</u>	Pump Good	Right Angle Di	rNA	Good	() Fair	O Poor
13. Check Discharge Head Packing Box	Bearing	Good		Good	O Fair	O Poor
14. Check Discharge Line Check Valve-	Good	Pump Foot Valve	Good	Good	O Fair	O Poor
15. Check Start/Stop Cycle	Air Rel	ef/Vacuum Breaker	Good	Good	() Fair	O Poor
16. Check Condition Of Water		Good		O Good	() Fair	O Poor
17. Check Pumping RateNot N	Metered O.P	.M. OC.F.P.M. Pun	Is The np Throttled? <u>NO</u>	Good	O Fair	O Poor
18. Check Water Levels-Static 19' Comments:	Pumping 60'	Yield Good GI	PM Per Foot f Draw Down	Good	O Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/8/2016

Vadnais Heights MN

Well/Pump Name

D

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good () Fair	O Poor
2. Check Starter Overload Protection	»n	Good		Good () Fair	O Poor
3. Check Voltage Supply- L 1-4_	484 L 2-5 484	L 3-6 488		Good () Fair	O Poor
4. Check Voltage Running- L1-4_	472 L 2-5 474	L 3-6 476	Hertz 60	Good) Fair	O Poor
5. Check Motor Amps- L1 159.	0L2 165.0	L3Utiliz	zation 92%	Good () Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Good	L2 Good I	_3 Good	Good () Fair	O Poor
7. Check Resistance Between Moto	or Windings- L1-2 Good	L2-3 Good L	1-3 Good	Good () Fair	O Poor
8. Check Pump & Motor Operating	R.P.M	1800		Good () Fair	O Poor
9. Check Temperature-Motor	Good	ell Room G	ood	Good () Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom G	ood Pump Prelube	eOK	Good () Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Go	od Right Angle Dr	NA	Good () Fair	O Poor
12. Check Vibration-Motor Goo	dPump Good _	Right Angle Dr	NA	Good () Fair	O Poor
13. Check Discharge Head Packing I	3ox Bearing	Good		Good () Fair	O Poor
14. Check Discharge Line Check Val	veGood	Pump Foot Valve	NA	Good () Fair	
15. Check Start/Stop Cycle	Good Air Rel	ief/Vacuum Breaker	Good	Good () Fair	O Poor
16. Check Condition Of Water		Good		Good () Fair	
17. Check Pumping RateN	ot Metered G.P	ls .M. OC.F.P.M. Pump⊺	The Fhrottled?_ NO _	Good) Fair	O Poor
18. Check Water Levels-Static 24 Comments:	'Pumping 84'	Yield Good GPM	Per Foot aw Down	● Good () Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Vadnais Heights MN

Date:_____ Well/Pump Name: 6/8/2016 E

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good	● Good ○ Fair	O Poor
2. Check Starter Overload Protection-	Good	● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-483 L 2-5	481 L 3-6 484	● Good ○ Fair	O Poor
4. Check Voltage Running- L 1-4 475 L 2-5	474 L 3-6 475 Hertz 60	● Good ○ Fair	O Poor
5. Check Motor Amps- L1 L2 L2 L2	6.0 L3 159.0 Utilization 93%	● Good ○ Fair	O Poor
6. Check Resistance Between Line & Ground- L1	Good L2 Good L3 Good	● Good O Fair	O Poor
7. Check Resistance Between Motor Windings- L1-2	Good L2-3 Good L1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating R.P.M	1800		O Poor
9. Check Temperature-Motor Good	Well RoomGood	● Good ○ Fair	O Poor
10. Check Bearing Lube-Motor Top <u>Good</u> Botto	om <u>Good</u> Pump Prelube OK	● Good ◯ Fair	O Poor
11. Check Bearing Noise-Motor <u>Good</u> Pump	GoodRight Angle DrNA	● Good ○ Fair	O Poor
12. Check Vibration-Motor <u>Good</u> Pump	Good Right Angle Dr NA	● Good) Fair	O Poor
13. Check Discharge Head Packing Box Bearing	Good	● Good ○ Fair	O Poor
14. Check Discharge Line Check ValveGoo	dPump Foot ValveNA	🖲 Good 🔿 Fair	O Poor
15. Check Start/Stop Cycle Good	_Air Relief/Vacuum Breaker Good	● Good ○ Fair	O Poor
16. Check Condition Of Water	Good	● Good ◯ Fair	O Poor
17. Check Pumping RateNot Metered	Is The ● G.P.M. O C.F.P.M. Pump Throttled?_ NO	● Good ○ Fair	O Poor
18. Check Water Levels-Static 26' Pumping Comments:	84' Yield Good GPM Per Foot of Draw Down	● Good ○ Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/8/2016

Vadnais Heights MN

Well/Pump Name:

F

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good	Good O Fair	O Poor
2. Check Starter Overload Protection-	Good	● Good ○ Fair	O Poor
3. Check Voltage Supply- L 1-4 488 L 2-5	491 L 3-6 490	● Good ○ Fair	O Poor
4. Check Voltage Running- L 1-4 482 L 2-5	485 L 3-6 484 60	● Good ○ Fair	O Poor
5. Check Motor Amps- L1 L2 L2 15	52.0 L3 156.0 Utilization 92%	● Good ○ Fair	O Poor
6. Check Resistance Between Line & Ground- L1	Good L2 Good L3 Good	● Good ○ Fair	O Poor
7. Check Resistance Between Motor Windings- L1-2	2 Good L2-3 Good L1-3 Good	● Good ○ Fair	O Poor
8. Check Pump & Motor Operating R.P.M	1800	● Good ○ Fair	O Poor
9. Check Temperature-Motor Good	Well Room Good	● Good ○ Fair	O Poor
10. Check Bearing Lube-Motor Top <u>Good</u> Bot	tom <u>Good</u> Pump Prelube <u>OK</u>	● Good O Fair	O Poor
11. Check Bearing Noise-Motor <u>Good</u> Pump	Good Right Angle Dr NA	● Good ○ Fair	O Poor
12. Check Vibration-Motor <u>Good</u> Pump	Good Right Angle Dr NA	● Good ○ Fair	O Poor
13. Check Discharge Head Packing Box Bearing	Good	● Good ○ Fair	O Poor
14. Check Discharge Line Check ValveGod	odPump Foot Valve NA	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle Good	Air Relief/Vacuum Breaker <u>Good</u>	● Good ○ Fair	O Poor
16. Check Condition Of Water	Good		O Poor
17. Check Pumping Rate Meter Is Broken	Is The G.P.M. O C.F.P.M. Pump Throttled? NO	● Good ○ Fair	O Poor
18. Check Water Levels-Static 25' Pumping	103' Yield Good GPM Per Foot of Draw Down	● Good ○ Fair	O Poor

This unit is operating properly at this time however, the pump has been in service for over 5 years since it was installed in the well.



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/8/2016

Vadnais Heights MN

Well/Pump Name:

G

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Good		Good C) Fair	O Poor
2. Check Starter Overload Protection	Good		Good C) Fair	O Poor
3. Check Voltage Supply- L 1-4 48	87 L 2-5 490 L 3-6 488		Good C) Fair	O Poor
4. Check Voltage Running- L 1-4	80 L 2-5 482 L 3-6 486	Hertz 60	Good C) Fair	O Poor
5. Check Motor Amps- L1 134.0	_ L2 135.0 L3 134.0 Utilizati	on 95%	Good C) Fair	O Poor
6. Check Resistance Between Line & G	Ground- L1 <u>Good</u> L2 <u>Good</u> L3	Good	Good C) Fair	O Poor
7. Check Resistance Between Motor W	/indings- L1-2 <u>Good</u> L2-3 <u>Good</u> L1-3	Good	Good C) Fair	O Poor
8. Check Pump & Motor Operating R.P.	.M1800		Good C) Fair	O Poor
9. Check Temperature-Motor	Good Well Room Good	1	Good C) Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom Good Pump Prelube	ОК	Good C) Fair	O Poor
11. Check Bearing Noise-Motor Goo	odPumpGoodRight Angle Dr	NA	Good C) Fair	O Poor
12. Check Vibration-Motor <u>Good</u>	Pump Good Right Angle Dr	NA	Good C) Fair	O Poor
13. Check Discharge Head Packing Box	BearingGood		Good C) Fair	O Poor
14. Check Discharge Line Check Valve-	GoodPump Foot Valve	NA	Good C) Fair	O Poor
15. Check Start/Stop CycleG	aood Air Relief/Vacuum Breaker	Good	Good C) Fair	O Poor
16. Check Condition Of Water	Good		Good C) Fair (O Poor
17. Check Pumping RateNot N	Is Th Metered Is G.P.M. O C.F.P.M. Pump Thr	e ottled?_ NO	Good C) Fair	O Poor
18. Check Water Levels-Static Access	Pumping No Access Yield Good GPM Pe	r Foot Down	Good O) Fair (O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date:

6/8/2016

Vadnais Heights MN

Well/Pump Name:

H

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-	Ā	Good			Good	() Fair	O Poor
2. Check Starter Overload Protection	n	Good			Good	O Fair	O Poor
3. Check Voltage Supply- L 1-4_	490 L 2-5 49	91 L 3-6	491		Good	O Fair	O Poor
4. Check Voltage Running- L1-4_	340 L 2-5 3 4	10 L 3-6	340	Hertz 45	Good	O Fair	O Poor
5. Check Motor Amps- L1 142.0	D L2 140.0	L3141	I.0 Utilization	64%	Good	O Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Go		Good L3	Good	Good	O Fair	O Poor
7. Check Resistance Between Moto	or Windings- L1-2	iood L2-3	Good L1-3	Good	Good	() Fair	O Poor
8. Check Pump & Motor Operating	R.P.M	Varia	able		Good	O Fair	O Poor
9. Check Temperature-Motor	Good	Well Room	Good		Good	O Fair	O Poor
10. Check Bearing Lube-Motor Top_	Good Bottom	Good P	ump Prelube	ок	Good	() Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump	Good Ri	ght Angle Dr	NA	Good	() Fair	O Poor
12. Check Vibration-Motor Goo	dPumpG	ood Right	Angle Dr	A	Good	O Fair	O Poor
13. Check Discharge Head Packing I	Box Bearing		Good		Good	() Fair	O Poor
14. Check Discharge Line Check Val	ve- Good	Pump Fo	oot ValveN	Α	Good	() Fair	
15. Check Start/Stop Cycle	Good Ai	r Relief/Vacuum	Breaker Go	od	Good	O Fair	O Poor
16. Check Condition Of Water		Good			Good	O Fair	O Poor
17. Check Pumping Rate	924(G.P.M. O C.F.	Is The P.M. Pump Throttl	ed? Yes	Good	O Fair	O Poor
18. Check Water Levels-Static 24 Comments:	Pumping 84	Yield Go	od GPM Per F of Draw Do	oot	Good	() Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/8/2016

Vadnais Heights MN

Well/Pump Name:

1

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good O Fair	O Poor
2. Check Starter Overload Protection	on	Good		Good O Fair	O Poor
3. Check Voltage Supply- L 1-4_	493 L 2-5 491	L 3-6 494		● Good ○ Fair	O Poor
4. Check Voltage Running- L 1-4_	340 L 2-5 341	L 3-6 340	Hertz 45	● Good ● Fair	O Poor
5. Check Motor Amps- L1136.	0 L2 135.0	L3136.0(Jtilization 61%	● Good ● Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Good	L2 Good	L3Good	Good O Fair	O Poor
7. Check Resistance Between Moto	or Windings- L1-2 Good	L2-3 Good	_ L1-3 Good	Good O Fair	O Poor
8. Check Pump & Motor Operating	R.P.M	Variable		Good O Fair	O Poor
9. Check Temperature-Motor	Good	/ell Room	Good	Good O Fair	O Poor
10. Check Bearing Lube-Motor Top	Good Bottom	Good Pump Pre	lube OK	● Good ○ Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump G	ood Right Angle	e Dr <u>NA</u>	● Good ○ Fair	
12. Check Vibration-Motor Goo	dPump Good	Right Angle D	r NA	Good O Fair	O Poor
13. Check Discharge Head Packing I	Box Bearing	Good		● Good ○ Fair	O Poor
14. Check Discharge Line Check Val	ve- Good	Pump Foot Valve	NA	● Good ○ Fair	O Poor
15. Check Start/Stop Cycle	Good Air Re	lief/Vacuum Breaker	Good	● Good ○ Fair	O Poor
16. Check Condition Of Water		Good		● Good ○ Fair	O Poor
17. Check Pumping Rate	920 G.	P.M. OC.F.P.M. Pur	Is The mp Throttled? Yes	● Good ○ Fair	O Poor
18. Check Water Levels-Static 22 Comments:	Pumping 85'	Yield Good G	PM Per Foot f Draw Down	● Good ○ Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"



"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Date: 6/8/2016

Vadnais Heights MN

Well/Pump Name:

J

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good	() Fair	O Poor
2. Check Starter Overload Protectio	n	Good		Good	O Fair	
3. Check Voltage Supply- L 1-4_	488 L 2-5 490	L 3-6 490		Good	O Fair	O Poor
4. Check Voltage Running- L1-4_	295 L 2-5 300	L 3-6 <u>301</u>	Hertz 38	Good	⊖ Fair	O Poor
5. Check Motor Amps- L1 107.0	L2 108.0	L3	Utilization 48%	Good	O Fair	O Poor
6. Check Resistance Between Line	& Ground- L1 Good	L2 Good	L3Good	Good	O Fair	O Poor
7. Check Resistance Between Moto	r Windings- L1-2 <u>Good</u>	L2-3 Good	L1-3 Good	Good	O Fair	O Poor
8. Check Pump & Motor Operating F	R.P.M	Variable		Good	O Fair	O Poor
9. Check Temperature-Motor	Good	ell Room	Good	Good	() Fair	O Poor
10. Check Bearing Lube-Motor Top _	Good Bottom C	ood Pump Pre	elube <u>OK</u>	Good	O Fair	O Poor
11. Check Bearing Noise-Motor	Good Pump Go	od Right Angle	e DrNA	Good	O Fair	O Poor
12. Check Vibration-Motor Good	IPumpGood	Right Angle D	0r NA	Good	O Fair	O Poor
13. Check Discharge Head Packing E	ox Bearing	Good		Good	O Fair	O Poor
14. Check Discharge Line Check Valv	/eGood	Pump Foot Valve	NA NA	Good	() Fair	O Poor
15. Check Start/Stop Cycle	Good Air Re	ief/Vacuum Breaker	rGood	Good) Fair	O Poor
16. Check Condition Of Water		Good		Good) Fair	O Poor
17. Check Pumping Rate	2315	P.M. OC.F.P.M. Pur	Is The mp Throttled? <u>Yes</u>	Good () Fair	O Poor
18. Check Water Levels-Static 27' Comments:	Pumping 80'	Yield Good G	PM Per Foot of Draw Down	Good	O Fair	O Poor



590 Citation Drive - Suite I, Shakopee MN 55379-1862 Phone 952-854-5333 ~ Fax 952-445-1950 "THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Vadnais Heights Station (SPRWS)

Vadnais Heights MN

Date:_____ Well/Pump Name: 6/8/2016 K

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections-		Good		Good OF	air O Poor
2. Check Starter Overload Protection	on	Good			
3. Check Voltage Supply- L 1-4_	495 L 2-5 490	L 3-6 493		Good OF	air O Poor
4. Check Voltage Running- L 1-4	455 L 2-5 456	L 3-6 455	Hertz 60		air O Poor
5. Check Motor Amps- L1201.	0L2 198.0	L3Utilization	on <u>90%</u>	Good OF	air O Poor
6. Check Resistance Between Line	& Ground- L1 Good	L2 Good L3	Good	Good OF	air () Poor
7. Check Resistance Between Moto	or Windings- L1-2 Good	_L2-3GoodL1-3	Good	● Good ○ Fa	air O Poor
8. Check Pump & Motor Operating	R.P.M	Variable		Good OF	air O Poor
9. Check Temperature-Motor	Good We	ell Room Good		Good O Fa	nir O Poor
10. Check Bearing Lube-Motor Top	Good Bottom G	ood Pump Prelube	ок	Good O Fa	hir O Poor
11. Check Bearing Noise-Motor	Good Pump Go	odRight Angle Dr	NA	Good O Fa	ir O Poor
12. Check Vibration-Motor Goo	d Pump Good	Right Angle Dr	NA	Good O Fa	ir O Poor
13. Check Discharge Head Packing	Box Bearing	Good		Good O Fa	ir O Poor
14. Check Discharge Line Check Va	lveGood	_Pump Foot Valve	NA	Good OFa	ir O Poor
15. Check Start/Stop Cycle	Good Air Reli	ef/Vacuum Breaker	Good	Good OFa	ir () Poor
16. Check Condition Of Water		Good		Good O Fa	ir O Poor
17. Check Pumping Rate	4140 G .P.	Is The M. OC.F.P.M. Pump Thre	e ottled? <u>Yes</u>	● Good ○ Fa	ir O Poor
18. Check Water Levels-Static 47 Comments:	"Pumping89'	Yield Good GPM Pe	⁻ Foot Down	● Good ○ Fa	ir O Poor

This unit appears to be operating properly at this time.

Saint Paul Regional Water Services Local Water Supply Plan - 2016

Appendix II

Water Level Monitoring Plan





SAINT PAUL REGIONAL WATER SERVICES WELL MONITORING PROGRAM December 28, 2018

Saint Paul Regional Water Services (SPRWS) monitors water level data for wells B-K to ensure wells are at adequate levels. All SPRWS production wells are manually measured on a bi-weekly basis, while readings from wells F-K can be monitored instantaneously by SCADA.

Per recommendation of SPRWS Water Supply Plan, SPRWS will be installing data loggers at wells B-E, with integration to SCADA, to ensure sufficient data is collected to ensure a sustainable water supply. Quarterly hand readings will also occur to verify the accuracy of the monitoring equipment to ensure equipment is calibrated correctly. This data will be submitted annually to the DNR ground water level coordinator.

In the summer of 2014, SPRWS performed a pumping test to determine well drawdown interference when all ten SPRWS wells operate simultaneously. The SPRWS wells were operated for a period of two weeks providing 45MG/D of water supply. Based the report recommendations, in the event that SPRWS needs to rely on the well field for a period that exceeds two weeks, the following actions shall be taken.

- 1. Contingency plans shall be made to supply Five Star Mobile Home Park with emergency water, in the event their well becomes inoperable.
- 2. Wells shall be closely monitored to ensure that pumping levels remain with safe limits. Wells that do not have SCADA will be monitored by daily measurements.

The following report summarizes the findings of the aquifer pumping test to verify that all of the SPRWS wells can operate simultaneously under emergency conditions without significant interference or excessive drawdown.

Saint Paul Regional Water Services Local Water Supply Plan - 2016

Appendix III

Water Level Graphs













*Note: Significant water level variation is associated with SPRWS well activity.













Saint Paul Regional Water Services Local Water Supply Plan - 2016

Appendix IV

Capital Improvement Plan




Final Report

Saint Paul Regional Water Services Master Plan

Prepared for Saint Paul Regional Water Services

August 2014

CH2MHILL®

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

Print Name: Koger Scharf Signature: Nam Sha Date 8/21/14 License# 50023

Purpose

The Saint Paul Regional Water Services (SPRWS) Board has established a strategic goal of improving the asset management capability of the SPRWS (Strategic Goal No. 3). This Master Plan has been developed in support of that goal. The Master Plan identifies the major capital improvements that will be needed over the 40 year planning horizon and a road map for orderly implementation.

This Master Plan focused on water supply, treatment, and pumping facilities. SPRWS has completed an assessment of their water distribution system infrastructure, including elevated tanks and distribution pipes, prior to this Master Plan in a separate report (Water Main Prioritization Technical Memorandum, AECOM 2014). The cost estimates from that report are included in this Master Plan.

Goals

SPRWS established the following major goals for this Master Plan:

- Provide a road map of improvements needed over the next 40 years to maintain a reliable, viable utility.
- Anticipate the future water demands and drinking water regulations that need to be met.
- Provide recommendations on how to improve water quality.
- Prioritize the projects that are identified.
- Provide information for the SPRWS Board on costs needed to maintain a reliable, viable utility.

Background

The SPRWS serves a population of approximately 415,000 people located in the City of Saint Paul and neighboring communities including Falcon Heights, Lauderdale, West Saint Paul, Maplewood, Mendota Heights, Mendota, Lilydale, Little Canada, Roseville, and Arden Hills.

The SPRWS obtains most of its source water from the Mississippi River, which is pumped from the Fridley Pump Station and travels through a chain of lakes located about 6 miles north of St. Paul. All water is treated at one water plant, the McCarrons Water Treatment Plant, located in the City of Maplewood. The treatment process includes lime softening, recarbonation, granular activated carbon (GAC) and sand filtration, and chlorine/chloramines for disinfection.

The distribution system serving these areas consists of about 1,100 miles of water mains, 130 million gallons (MG) of water storage, 10 booster stations, and 5 pressure zones. Annual average water use is about 45 million gallons per day (mgd). Peak daily demand is around 80 mgd.

Like many Midwest water utilities, SPRWS is addressing aging infrastructure and declining water use. This Master Plan is intended to outline needed improvements to maintain a reliable, viable water utility for the next 40 years. Recommended improvements were systematically assigned a weighted benefit score by SPRWS based on the following criteria:

- Reduce the risk of asset failure to maintain reliable service to customers
- Enhance water quality
- Improve operation and maintenance
- Maintain excellent customer service
- Provide sustainable and efficient facilities

Approach

The following approach was used to meet the Master Plan goals:

- 1. Establish levels of service that SPRWS wants to provide to its customers.
- 2. Create an asset hierarchy, organizing major treatment, pumping, storage and conveyance assets.
- 3. Develop a risk assessment scoring system for assets, considering the consequence of failure and likelihood of failure. Then score each asset based on risk.
- 4. Conduct a condition assessment of some higher risk assets to provide more information on condition and likelihood of failure.
- 5. Conduct a process and capacity evaluation of the McCarrons water plant.
- 6. Develop a list of improvement projects, based on risk, the condition assessment and the process evaluation.
- 7. Develop project evaluation criteria and rank the projects on the basis of benefits.
- 8. Estimate costs for each project, study, and condition assessment.
- 9. Develop a prioritized implementation plan based on project benefits and costs.
- 10. Develop an asset inventory tool to capture the asset information in a database that can be easily updated, and used for future capital improvement planning.
- 11. Summarize the Master Plan results into a final report.

This approach is shown graphically in Exhibit ES-1.



EXHIBIT ES-1 Project Approach Flow Chart

Results

Condition Assessment

A condition assessment of selected water supply, treatment and pumping assets was conducted by professionals in electrical, mechanical, structural and controls infrastructure. CH2M HILL worked closely with SPRWS staff to identify the highest risk assets to assess.

Overall results indicated that although many assets are old, they are well maintained. Exhibit ES-2 shows that 91% of the mechanical and electrical assets evaluated were in very good or good condition. This is a testament to the excellent maintenance procedures practiced by SPRWS. Many assets are beyond their predicted useful life and still operating satisfactorily. For example, the average age of the McCarron's pump station pumps is over 40 years and a typical useful life of pumping equipment is 30 years. Although SPRWS is getting good value from their assets by taking care of the equipment, over the next 20 or 40 years replacement or major repair will be required.

The original portions of the McCarron's water plant are about 80 years old, including concrete structures and some softening basins. Certain components are aging and in need of improvements to maintain performance and reliability. There are several concrete channels where all the water needs to travel. Failure of these channels could interrupt water service (single points of failure). Repairs and redundant channels will improve reliability.



Raw water is pumped from the Mississippi river to a chain of lakes, and conveyed by gravity from the lakes to the McCarron's water plant through concrete and steel conduits that are 60 to over 80 years old. To ensure these raw water conduits remain in good condition for many years to come, an active condition assessment and repair program is recommended. This program consists of concrete conduit joint testing and inspections, concrete conduit joint repairs, and steel conduit inspections. Exterior assessment of both the concrete and steel conduits would be performed as well. Depending on the results of the inspection and repair programs, additional conduit repairs may be required. SPRWS should be prepared for the possibility that inspection program findings or an increase in the rate of joint failures may alter this re-inspection date or the repair/renewal approach. Establishing the baseline condition of the concrete conduits will be key to the long term asset management plan for these unique pipelines as they approach 100 years of service. The intent of the condition assessment and repair program is to proactively identify potential issues and resolve them as quickly as possible. This approach also reduces the risk for catastrophic failure and the high costs associated with replacement.

EXHIBIT ES-3

Capacity and Treatment Process Assessment

The capacity and treatment process performance of the SPRWS water supply and treatment facilities was evaluated. Based on water demand projections by the Metropolitan Council in 2010, SPRWS water supply and treatment facilities have adequate capacity to serve their current service area to year 2050 and beyond. SPRWS has about 20 mgd excess water supply and treatment capacity in 2050 to serve other customers (Exhibit ES-3). If additional customers are added and water demand exceeds 120 mgd, future expansion of the water supply and treatment facilities would be required.





Water quality produced by SPRWS is excellent and meets or exceeds current regulations. Since implementation of granular activated carbon (GAC) filters in 2006, customer taste and odor related complaints have been nearly eliminated. SPRWS has also gone beyond meeting regulations by striving to achieve the high performance goals of American Water Works Association Partnership for Safe Water program. SPRWS is close to meeting the highest performance goals in this voluntary program, and will be one of a few water utilities to do so.

The lime softening process is essential for maintaining SPRWS high performance goals for water quality. Some softening basins are 80 years old and in need of repairs. The lime softening basins limit water plant capacity to 120 mgd. Newer lime softening technologies are available to improve performance, efficiency and reliability. New lime softening and recarbonation facilities can also eliminate the single points of failure and provide several paths for water to flow, greatly improving reliability.

In planning for the future, new water treatment technologies may be needed to meet future regulations or water quality goals. An ozone disinfection treatment system is recommended as a means to provide safer, higher quality water while positioning for new regulations. Ozone improves the taste and smell of the water, provides an excellent pathogen barrier (including *Cryptosporidium*), and can remove many contaminants that may be regulated in the future. Ozone works well with the existing GAC filters, improving their performance and extending GAC life.

Finally, SPRWS has one water plant for the entire service area. The water plant has been producing water for many years, is well operated and maintained and has inherent reliability. However, there is no backup water

treatment plant or potable water supply in case of a disaster. Continuing to improve reliability and upgrade this water plant is essential for maintaining excellent customer service.

Project Prioritization

In accordance with the ISO 55000 asset management guide, the Master Plan team chose five criteria by which each projects' benefit was evaluated with a clear line of sight to the existing SPRWS Strategic Goals. Supply, treatment, and pumping projects were prioritized by benefit so that projects with the highest benefit score receive the greatest priority. The total benefit score of each of the 37 projects is shown in Exhibit ES-4. Each bar represents a project, with its height equaling its total benefit. The colors within each bar represent the extent to which the project contributes to achieving each benefit criterion.

New softening basins, new recarbonation basins, replacement of the electrical switchgear and rehabilitation of raw water conduits represent the top 4 priority projects for SPRWS.

In some cases, a study or condition assessment was recommended to more fully define the project. The recommended studies and condition assessments are shown in Exhibit ES-5.





EXHIBIT ES-5

Recommended Studies and Condition Assessments

Studies	Description
Lime Sludge Study	Evaluate sludge pumping and handling efficiency.
GAC Treatment Assessment	Evaluate effectiveness and remaining life of GAC for taste and odor and other contaminants.
Strategic Asset Management Plan	Review exiting asset management practices and refine approaches based current best practices
Distribution System Model Calibration and Future Demand Analysis	Calibrate and field verify hydraulic calculations in the hydraulic model. Assess impacts of future water system demands.
Single Coagulant Evaluation	Determine if one coagulant can be used in the lime softening process instead of two.
Existing Softening Bypass Evaluation	Determine the conditions and implications of stopping lime softening and using coagulation only.
Source Water Study	Determine the best use of surface and groundwater supplies. Evaluate early contaminant warning systems.
Centerville and Otter Lake Fate	Determine the long term plan for this water supply and facilities.
McCarrons Yard Piping	Evaluate ways to simplify yard piping and Improve hydraulics.
McCarrons channels	Assess condition of critical concrete channels in the McCarrons water plant.
McCarron's Piling Evaluation	Assess condition of foundation piling.
Condition Assessment on Submerged Structures	Assess condition of submerged basins and structures.
Raw Water Conduit Condition Assessment	Assess condition of raw water conduits from the Mississippi River to the lakes.
Condition Assessment for Buried Storage Tanks	Assess the condition of several key buried storage tanks.

Cost Estimates

Conceptual level cost estimates were prepared for each recommended project and study. The total cost of all 37 projects and their related studies is about \$172 million. From the perspective of benefits, the top 4 ranked projects have a total cost of about \$74 million (Exhibit ES-6) and include new softening basins, new recarbonation basins, new electrical switchgear, and continued inspection and repair of the raw water conduits.

New softening basins are the most expensive project with a total estimated cost of about \$60 million, but also provide the most benefit to SPRWS over the next 40 years. New recarbonation basins and carbon dioxide feed systems cost about \$9.4 million total and greatly improve reliability of the water plant. New electrical switchgear costs about \$5 million and replaces critical aging facilities. Estimated annual costs for the raw water conduit inspections and repairs is about \$5.2 million over 40 years.

The cumulative cost of all projects, in priority order left to right based on benefit score, is shown in Exhibit ES-7. The top 15 priority projects have a cumulative cost of about \$113 million.

Safe drinking water is essential for public health and economic prosperity. The economy in the SPRWS service area generates about \$41 million in wages each day (Metropolitan Council data). The capital cost of the recommended improvements to the SPRWS water supply and treatment system over the next 40 years is less than one week of wages generated in the service area.



EXHIBIT ES-6 Highest Benefit Projects and Estimated Project Costs

EXHIBIT ES-7 Cumulative Cost of Prioritized Projects



Projects

Water supply and treatment infrastructure is expensive to build. If the McCarron's water plant were replaced today, the capital cost would be about \$500 million. Spending less than \$200 million over the next 40 years to maintain and improve this important asset provides good value to water customers.

Implementation Plan

The implementation plan lays out a schedule for when projects could be done. Ideally, projects with the highest benefits should be implemented earlier in the schedule. Annual capital expenditures and rate impacts need to be considered. As with any long range plan, conditions and priorities may change over time and adjustments can be made.

New softening basins represent the largest water treatment capital expenditure, but also the highest benefit for the SPRWS treatment system in the next 40 years. The existing lime softening treatment basins were some of the original infrastructure installed at the McCarrons water plant and will surpass a 100 year life in the next 25 years. The condition and critical function of these facilities increases risk to SPRWS should they fail.

Replacing the existing lime softening and recarbonation facilities with new facilities increase reliability and are easier to maintain. It will also improve water quality, solids handling and process efficiency. Eliminating some of the existing basins to make room for new softening basins will provide additional space on site for other facilities.

Ozone provides a number of water quality benefits, including extending the useful life of GAC, providing a strong disinfection barrier (including *Cryptosporidium*), and addressing future contaminants such as algal toxins and new disinfection byproducts. When new recarbonation facilities are installed, it would be cost effective to add ozone contact basins, since they both could be incorporated into one structure. The implementation plan recommends that new lime softening basins, recarbonation and ozone be installed at the same time.

Two implementation approaches for the softening, recarbonation and ozone facilities were developed:

The first approach has new softening, recarbonation and ozone facilities constructed earlier and completed in two phases. The first phase (80 mgd softening, 120 mgd recarbonation and ozone) would start in 2018 and be completed by 2021. The second phase (40 mgd softening) would start in 2029 and be completed by 2033.

The second approach has new softening, recarbonation and ozone facilities constructed later (starting in 2029 and finishing in 2033) and completed in one phase (120 mgd).

The implementation plan that constructs new facilities earlier (starting in 2018) is recommended for the following reasons:

- The risk of water treatment and production failure is reduced earlier by adding the new infrastructure in parallel with old infrastructure.
- The total cost of softening related improvement projects is about \$8 million lower because some rehabilitation projects to existing facilities are eliminated when new facilities are implemented earlier.
- The high capital cost for improvements are divided up into two phases, which reduces the amount of borrowing required for each phase of the project.
- All construction is not done at the same time (separated into two phases), reducing the risk of service interruption because fewer facilities are taken out of service during construction.
- Construction phasing is simpler and allows lessons learned from the first phase to be applied to the second phase, both construction and operations.

The recommended implementation plan for all projects, including softening, recarbonation and ozone installed earlier, is shown in Exhibit ES-8. For comparison, the implementation plan with those facilities installed later is shown in Exhibit ES-9.

EXHIBIT ES-8

Project Implementation Plan with New Softening and Recarbonation Basins Earlier

				Legend:	Stu	ıdy		1	Note: All costs re	ported as \$M								
					Condition A	Assessment		1	tbd = to be deter	mined								
					Des	sign 												
					Constr	uction												
Project Benet Scor	it 2014	4 20	015	2016	2017	2018	201	.9	2020	2021	2022	2023	2024- 2028	2029- 2033	2034- 2043	2044- 2053	Total Project Cost (\$M)	Cumulative Cost (\$M)
New Softening Basins 46.2				\$ 0.05		\$ 2.7	ę	\$ 14.5	\$ 14.5	\$ 7.3				\$ 20.2			\$ 59.3	\$59
New Recarbonation Basins 44.8						\$ 0.4	3	\$ 1.9	\$ 1.9	\$ 0.9							\$ 5.0	\$ 64
Replace 13.8 kV and both 2.4 kV Switchgear 40.8		\$ 0.3	\$ 2.3	\$ 2.3									\$ 1.4				\$ 6.3	\$71
Raw Water Conduit Useful Life Extension 39.1		\$ 0.2	\$ 0.1	\$ 0.2 \$ 0.1	\$ 0.2 \$ 0.1	\$ 0.2 \$ 0.1	\$ 0.2	\$ 0.1	\$ 0.1	\$ 0.	1 \$ 0.1	\$ 0.	1 \$ 0.1			\$ 2.6	\$ 5.2	\$ 76
Replace Fridley PS Sump Pump/Motor 38.4		\$ 0.01	\$ 0.1	\$ 0.1													\$ 0.2	\$ 76
Demolish Highland Reservoir 1 37.7					\$ 0.2 \$ 0.1	\$ 0.9											\$ 1.2	\$77
Rehabilitate Figure 8 37.0				\$ 0.1	\$ 0.1	\$ 0.8											\$ 1.0	\$ 78
McCarrons Yard Piping Improvements 34.8										\$ 0.4 \$ 2	.2 \$ 2.2						\$ 4.9	\$ 83
Hazel Park BS MCC Replacement 34.8		\$ 0.01	\$ 0.1														\$ 0.1	\$ 83
Fridley Pump Station Foundation Improvements 29.6			\$ 0.1	tbd	tbd												\$ 0.1	\$ 83
Backwash Waste Line Redundancy 29.6										<mark>\$ 0</mark> .	2 \$ 0.9						\$ 1.1	\$ 84
Booster Stations Piping Redundancy Improvements 29.6										\$ 0.03 \$ 0.	4	\$ 0.03 \$ 0.	4				\$ 0.8	\$ 85
Solids Handling Improvements 29.2				\$ 0.1	\$ 0.1	\$ 0.8											\$ 0.9	\$ 86
Replace Rapid Mixer Motors 22.3				\$ 0.08 \$ 0.5	\$ 0.5												\$ 1.1	\$ 87
New Ozone System and Contactors 20.8						\$ 1.8		\$ 9.4	\$ 9.4	\$ 4.7							\$ 25.4	\$ 113
CT/Finished Water Reservoir Rehabilitation 18.5					\$ 0.2								\$ 2.7				\$ 2.9	\$ 115
Vadnais Conduit #1 Butterfly Valve Actuator 16.9		\$ 0.02	\$ 0.2	\$ 0.2													\$ 0.4	\$ 116
New CO2 Pressurized Solution Feed 16.9				\$ 0.6	\$ 3.8												\$ 4.4	\$ 120
Low Service Reservoir Replacement 16.9									\$ 0.2 \$ 1.1	\$ 7.	2 \$ 7.2						\$ 15.7	\$ 136
McCarrons Pump Station Improvements 15.1				\$ 0.2 \$ 1.0	\$ 1.0												\$ 2.2	\$ 138
Replace GAC in McCarrons Filters 13.0			Ś 0.3			Ś 0.7		\$ 0.7	\$ 0.7	\$ 0.	7 \$ 0.7	Ś 0.	7		\$ 4.2		\$ 8.7	\$ 147
Softener Clarifier Improvements 12.6						•			•	•							s - :	\$ 147
Replace Chemical Storage Tanks 11.2	_	\$ 0.03	Ś 0.2	\$ 0.2					\$ 0.0 \$ 0.2	\$ 0.2			\$ 0.4		Ś 1.7		\$ 3.0	\$ 150
Repair/Replace Lime Slakers/Feeders 9.5				\$ 0.1 \$ 0.4	\$ 0.4						\$ 0.1	\$ 0.	9	\$ 1.0	\$ 1.0	\$ 1.0	\$ 4.8	\$ 155
Backwash PRV Removal 9.5		\$ 0.01	\$ 0.1												-		\$ 0.1	\$ 155
Backwash Water Treatment Improvements 9.5										\$ 0.	1 \$ 1.2						\$ 1.3	\$ 156
Centerville/Otter Lake Improvements 7.4			tbd			tbd tbd											\$ - !	\$ 156
Alum Rotodip Replacement 7.4		\$ 0.02	\$ 0.1	\$ 0.1													\$ 0.3	\$ 156
Replace Flocculator VFDs 7.4		\$ 0.04	\$ 0.2	\$ 0.2													\$ 0.5	\$ 157
West Sludge Holding Tank Replacement 7.4			•	•							\$ 0.1 \$ 0.7						\$ 0.7	\$ 157
Fridley PS Pump #6 Replacement 5.2	_				-									Ś 1.6			\$ 1.6	\$ 159
McCarron Low Service Pump Replacement 5.2														\$ 1.1			\$ 1.1	\$ 160
McCarron High Service Pump Replacement 5.2														· \$ 2.6	\$ 2.6		\$ 5.3 s	\$ 165
Booster Pump Replacement Program 5.2											\$ 0.0	Ś 0.	5 \$ 0.5	\$ 0.5	\$ 1.0	\$ 1.0	\$ 3.6	<u> </u>
East Terminal Chamber Gate 3 Replacement 3.8				\$ 0.0 \$ 0.1										+	7		\$ 0.1	\$ 169
Filter 13-24 Valve Replacement 3.8		-		· · · · · · · · · · · ·							\$ 0.1	\$ 0.	9 \$ 0,9				\$ 2.0	\$ 171
McCarrons Foundation CA and Improvements			\$ 0.7	thd thd							· · · ·	V V					\$ 0.2	\$ 171
Strategic Asset Management Plan			Ş 0.2	\$ 03													\$ 0.2	\$ 172
Distribution System Canacity Evaluation NA				\$ 0.1													\$ 0.1	\$ 172
Total Cost by Year - Supply Treatment and Pumpl	ng	Ś	4.6	\$ 72	\$ 67	\$ 84	Ś	27	\$ 28	\$ 7	5 \$ 13	\$ 3	6 \$ 12	Ś 5	\$ 11	\$ 05	<i>y</i> 0.1	, 1,2
Cumulative Cost - Supply, Treatment, and Pump	ng	¢		\$ 12	\$ 18	\$ 27	¢	54	\$ 20	\$ 10	5 \$ 130	\$ 12	2 \$ 130	\$ 157	\$ 167	\$ 172		
	ч 6	Ŷ	5	ļ - 12	÷ 10	÷ 21	,	54	÷ 02	<i>y</i> 10	5 1 1 2 0	¥ 12	J J 130	÷ 15/	÷ 10/	\$ 172		
Total Cost by Year - Including Distribution System Pipes and Elevated Tar	ks	\$	82	\$ 66	\$ 60	\$ 58	\$	74	\$ 73	\$ 6	9 \$ 53	\$ 4	4 \$ 39	\$ 35	\$ 21	\$ 14		
Cumulative Cost - Including Distribution System Pipes and Elevated Tar	ks	\$	82	\$ 149	\$ 209	\$ 267	\$	341	\$ 414	\$ 48	3 \$ 536	\$ 58	0 \$ 774	\$ 950	\$ 1,160	\$ 1,300		

EXHIBIT ES-9

Project Implementation Plan with New Softening and Recarbonation Basins Installed Later

			Legend:	St	udy		Note: All costs re	ported as \$M								
				Condition	Assessment		tbd = to be deteri	mined								
				De	sign											
				Const	ruction											
Project	Benefit Score 201	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024- 2028	2029- 2033	2034- 2043	2044- 2053	Total Project Cost (\$M)	Cumulative Cost (\$M)
New Softening Basins	46.2		\$ 0.05									\$ 59.3			59.4	\$ 59
New Recarbonation Basins	44.8											\$ 5.0			5.0	\$ 64
Replace 13.8 kV and both 2.4 kV Switchgear	40.8	\$ 0.3 \$ 2.	3 \$ 2.3								\$ 1.4			5	6.3	\$ 71
Raw Water Conduit Useful Life Extension	39.1	\$ 0.2 \$ 0.	1 \$ 0.2 \$ 0.1	\$ 0.2 \$ 0.1	\$ 0.2 \$ 0.1	\$ 0.2 \$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1			\$ 2.6	5.2	\$ 76
Replace Fridley PS Sump Pump/Motor	38.4	\$ 0.01 \$ 0.	1 \$ 0.1											ļ	0.2	\$ 76
Demolish Highland Reservoir 1	37.7			\$ 0.2 \$ 0.1	\$ 0.9										i 1.2	\$ 77
Rehabilitate Figure 8	37.0		\$ 0.1	\$ 0.1	\$ 0.8										5 1.0	\$ 78
McCarrons Yard Piping Improvements	34.8							\$ 0.4 \$ 2.2	\$ 2.2						4.9	\$ 83
Hazel Park BS MCC Replacement	34.8	\$ 0.01 \$ 0.	1											4	0.1	\$ 83
Fridley Pump Station Foundation Improvements	29.6	\$ 0.	1 tbd	tbd											0.1	\$ 83
Backwash Waste Line Redundancy	29.6							\$ 0.2	\$ 0.9					5	1.1	\$ 84
Booster Stations Piping Redundancy Improvements	29.6							\$ 0.03 \$ 0.4		\$ 0.03 \$ 0.4					0.8	\$ 85
Solids Handling Improvements	29.2		\$ 0.1	\$ 0.1	\$ 0.8										. 0.9	\$ 86
Replace Rapid Mixer Motors	22.3		\$ 0.08 \$ 0.5	\$ 0.5					\$ 0.08	\$ 1.0					2.2	\$ 88
New Ozone System and Contactors	20.8											\$ 25.4			25.4	\$ 114
CT/Finished Water Reservoir Rehabilitation	18.5			\$ 0.2							Ś 2.7				2.9	\$ 117
Vadnais Conduit #1 Butterfly Valve Actuator	16.9	\$ 0.02 \$ 0.	2 \$ 0.2												0.4	\$ 117
New CO2 Pressurized Solution Feed	16.9		\$ 0.6	\$ 3.8								\$ 4.4			8.7	\$ 126
I ow Service Reservoir Replacement	16.9		• • • • •	V 0.0			\$ 0.2 \$ 1.1	\$ 7.2	\$ 7.2			•			15.7	\$ 141
McCarrons Pump Station Improvements	15.1		\$ 02 \$ 10	\$ 10			· ··· · ···	¥ 7.1	¥ 7.=						22	\$ 144
Replace GAC in McCarrons Filters	13.0	\$ 0.	3	·	\$ 0.7	\$ 0.7	\$ 0.7	\$ 0.7	\$ 0.7	\$ 0.7			\$ 4.2		8.7	\$ 152
Softener Clarifier Improvements	12.6		\$ 0.1 \$ 0.8	\$ 0.8	1			• •••	\$ 0.1	\$ 0.8			•		2.6	\$ 155
Benlace Chemical Storage Tanks	11.2	\$ 0.03 \$ 0.	2 \$ 0.2	V 0.0			\$ 0.0 \$ 0.2	\$ 0.2	V U	V 0.0	\$ 0.4		\$ 1.7		3.0	\$ 158
Renair/Renlace Lime Slakers/Feeders	9.5	· · · · · ·	\$ 0.1 \$ 0.4	\$ 0.4			· ··· ···	· ···	\$ 0.1	\$ 0.9	v	\$ 1.0	\$ 1.0	\$ 1.0	4.8	\$ 163
Backwash PRV Removal	95	\$ 0.01 \$ 0	1	V 0.4					V U .1	÷ 0.5		V 1.0	<i>v</i> 1.0	<i>v</i> 1.0	4.5	\$ 163
Backwash Water Treatment Improvements	95	<i>v</i> 0.01 <i>v</i> 0.	-					\$ 01	\$ 12						13	\$ 164
Centerville/Otter Lake Improvements	7.4	thd			thd thd			V 0.1	Ŷ 1.2						1.5	\$ 164
Alum Rotodin Replacement	7.4	\$ 0.02 \$ 0	1 \$ 01												03	\$ 164
Replace Elocculator VEDs	7.4	\$ 0.04 \$ 0.	2 \$ 0.2						\$ 0.04	\$ 0.5					11	\$ 165
West Sludge Holding Tank Penlacement	7.4	, , , , , , , , , , , , , , , , , , , 	2 9 0.2						\$ 0.1 \$ 0.7	÷ 0.5					0.7	\$ 165
Fridley BS Burne #6 Poplacement	5.2								9 0.1 9 0.7			¢ 16			16	\$ 160
McCarron Low Service Rump Replacement	5.2											\$ 1.0			1.0	\$ 168 \$ 169
McCarron High Service Pump Replacement	5.2											\$ 1.1	\$ 26			\$ 174
Booster Dump Replacement Program	5.2								\$ 0.0	\$ 0.5	\$ 0.5	\$ 0.5	\$ 1.0	\$ 10 9	3.5	\$ 174 \$ 178
East Terminal Chamber Gate 3 Renlacement	3.2		\$ 0.0 \$ 0.1						\$ 0.0	÷ 0.5	Ş 0.5	÷ 0.5	9 1.0	÷ 1.0	0.1	\$ 178
Elast Terminal Chamber Gate 5 Replacement	2.0		\$ 0.0 \$ 0.1						\$ 0.1	¢ 0.0	\$ 0.0				30	\$ 178 \$ 190
Piler 15-24 Valve Replacement	5.0	ć o	2 that that						3 0.1	\$ 0.9	\$ 0.9				2.0	\$ 180
Strategic Accet Management Dian	NA	ş 0.													0.2	\$ 180
	NA		3 0.3												0.3	\$ 180
Distribution System Capacity Evaluation	d Dumenia e	<u> </u>	\$ 0.1	¢ 75	¢ 26	ć 11	¢	ć 12	¢ 14	ć 50	¢ 12	ć 20	ć 11	; ;	, 0.1	\$ 180
Cumulative Cest. Supply, Treatment, and	d Pumping	\$ 4.	5 3 8.1 5 ¢ 13	\$ 7.3	\$ 3.0	3 1.1 ¢ 25	\$ 2.3	3 12	\$ 14	\$ 5.9	\$ 1.2	\$ 20	\$ 1.1	\$ 0.5		
Cumulative Cost - Supply, Treatment, and	u Pumping	Ş	5 3 13	ə 20	\$ 24	ə 25	ə 21	\$ 39	ə 52	ə 58	ə 64	\$ 165	\$ 1/6	2 180		
Total Cost by Year - Including Distribution System Pipes and Eleve	ated Tanks	\$ 8	2 \$ 67	\$ 61	\$ 53	\$ 48	\$ 47	\$ 56	\$ 53	\$ 47	\$ 39	\$ 50	\$ 21	\$ 14		
Cumulative Cost - Including Distribution System Pipes and Eleva	ated Tanks	\$ 8	2 \$ 150	\$ 211	\$ 264	\$ 312	\$ 359	\$ 415	\$ 469	\$ 515	\$ 709	\$ 960	\$ 1,170	\$ 1,300		

AECOM prepared a Water Main Prioritization Technical Memorandum in 2014 to assess the distribution pipelines in SPRWS's water system. In addition, a condition assessment study was completed on the SPRWS elevated water storage tanks in 2013 by Tank Industry Consultants. The estimated annual project costs associated with rehabilitation and replacement of the elevated water storage tanks and distribution pipelines are included in Exhibits 9 and 10 to show the total SPRWS water system costs.

Exhibit ES-10 shows the total cost per year for supply, treatment, pumping and distribution system projects, assuming that the softening basins are implemented early.

Exhibit ES-11 shows the cumulative costs for supply, treatment, pumping, and distribution system projects. As shown, the total distribution system capital costs over 40 years are about 5 times more than projects for water supply, treatment, and pumping projects.

EXHIBIT ES-10





EXHIBIT ES-11

Cumulative Capital Costs for Supply, Treatment, Pumping, and Distribution System Projects



Saint Paul Regional Water Services Local Water Supply Plan - 2016

Appendix V

Emergency Telephone List





SAINT PAUL REGIONAL WATER SERVICES EMERGENCY RESPONSE CONTACTS								
Department	Name	Phone Numbers						
General Manager's Office	General Manager Steve Schneider							
	Asst. Gen. Manager Jim Graupmann							
Production Division	Production Division Manager Jim Bode							
	Water Quality Supervisor Che Fei Chen							
Distribution Division	Distribution Division Manager Brad Eilts							
	Asst. Dist. Division Manager Kou Vang							
Engineering Division	Engineering Division Manager Dave Wagner							
Business Division	Business Division Manager Steve Gleason							
Business Division	Public Information Officer Jodi Wallin							
	Customer Service Office Manager Marie Weinhandl							

STATE AND LOCAL EMERGENCY RESPONSE CONTACTS							
Agency Name	Contact	Phone	Email	Other			
Minnesota Duty	PRIMARY						
Officer	CONTACT						
Minnesota Department	Emergency number						
of Health							
Minnesota Department	Lucas Martin,						
of Health	District Engineer						
Minnesota Department	Karla Peterson,						
of Health	Drinking water						
	protection manager						
Minnesota Department	Dave Schultz,						
of Health	Supervisor,						
	St. Cloud (Back-up)						
Ramsey County Public	Robert Einweck,						
Health	Preparedness						
	Manager						
Ramsey County Public	Arthur McIntyre,						
Health	Logistics Planner						

Agency Name	Contact	Phone	Email	Other
Department of Safety &	Ricardo Cervantes,	266-9101		
Inspections (DSI)	Director			
Department of Safety &	Assistant	266-9123		
Inspections (DSI)	Director			
	Robert Humphrey			
St. Paul Mayor	Chris Coleman	266-8523		
Deputy Mayor	Kristin Beckmann	266-8569		
Mayor's	Tonya	266-8518		
Communication	Tennessen			
Director				
Mayor's Press	Ashley Aram	266-8571		
Secretary				
Emergency	Rick Larkin	266-5490		
Management				
Emergency	Mike Lovas	775-8451		
Management		245 1220		
Emergency	Mike Sand	245-1328		
Nanagement	Time Deetler	224 7911		
Fire Department	Tim Butler	224-7811	+	
Fire Dept. PIO/fire	Steve Zaccard	228-0201		
Delice Department	Todd Artall	266 5597		
SDDD DIO	Miles Emester	200-3387	+	
	Stave Linders	200-3039		
Dublic Works	Dave Hunt	200-3733		
FUDIIC WOIKS	Dave Hull	200-0134		

Public Works	Joe Ellickson			
Public Works	Kathy Lantry			
Ramsey County Sheriff	Randy Gustafson			
Communication				
Coordinator				
Ramsey County	Shannon Palmen			
Emergency Services	Gina Jacobson			
	Denise McMullan			
Citizen Services Line	Mayard Vinge			
8989				
City Webmaster	Tim VanCleave			

Table 2B INITIATION OF AGENCY NOTIFICATION: WEST SAINT PAUL							
Agency Name	Contact	Phone	Email	Other			
Mayor	David Meisinger						
Dakota County Sheriff	Tim Leslie County Sheriff						
South Metro Fire	Fire station #1 and						
Department	adm.						
South Metro Fire Dept.	Mike Pott Fire						
	Chief						
Police	Bud Shaver, chief						
Department	of police						
Public Works	Ross Beckwith,						
	director						
Non-Emergency Police							

Table 2C INITIATION OF AGENCY NOTIFICATION: MAPLEWOOD									
Agency Name	Contact	Phone	Email	Other					
Mayor	Nora Slawik								
Ramsey County Sheriff	Randy Gustafson								
Ramsey County	Shannon Palmen								
Emergency Services	Gina Jacobson								
	Denise McMullan								
Fire Department	Steve Lukin, Chief								
Police Department	Paul Schnell								
Public Works	Mike Thompson,								
	director								

Table 2D INITIATION OF	AGENCY NOTIFICATION	FALCON HEIGHTS	Encell	Other			
Agency Name	Contact	Phone	Email	Other			
Mayor	Peter Lindstrom						
Ramsey County Sheriff	Randy Gustafson						
Ramsey County	Shannon Palmen						
Emergency Services	Gina Jacobson						
	Denise McMullan						
Fire Department	Rich Hinrichs Fire						
-	Chief						
Fire Marshall	Mike Arcand						
St. Anthony Police	John Ohl, chief of						
Department	police						
Public Works	Tim Pittman						

Table 2E INITIATION OF AGENCY NOTIFICATION: MENDOTA HEIGHTS									
Agency Name	Contact	Phone	Email	Other					
Mayor	Sandra Krebsbach								
Dakota County Sheriff	Tim Leslie								
	County Sheriff								
Fire Department	John Maczko Fire								
	Chief								
Police Department	Kelly McCarthy								
Non-emergency Police									
Public Works	John Mazzitello								
	PW Director								

Table 2F INITIATION OF AGENCY NOTIFICATION: MENDOTA									
Agency Name	Contact	Phone	Email	Other					
Mayor	Brian Mielke								
Dakota County Sheriff	Tim Leslie County Sheriff								
Fire Department									
Police Department NON-Emergency	Mike Achenbrener, Chief of police								
Public Works									

Table 2G INITIATION OF AGENCY NOTIFICATION: LILYDALE				
Agency Name	Contact	Phone	Email	Other
Mayor	Anita Pampusch			
Dakota County Sheriff	Tim Leslie			
	County Sheriff			
Fire Department				
Police Department	Mike Aschenbrener			
Public Works				
Administrator				

Table 3 Media Contact Directory				
Media Outlet Name	Contact	Telephone	Email	Twitter
KARE 11 TV	News Desk			
WCCO 4 TV	News Desk			
WCCO 830 am radio	News Desk			
KSTP 5 TV	News Desk			
FOX 9 TV	News Desk			
Minnesota Public Radio (MPR)	News Desk			
Pioneer Press newspaper	News Desk			
Star Tribune newspaper	News Desk			
MinnPost	News room			
Villager				

Table 4 INITIATION OF NOTIFICATION: HOSPITALS AND SCHOOLS				
Agency Name	Contact	Phone	Email	Other
Children's Hospital	Pam Schultz,			
	Emergency			
	Manager			
Regions Hospital	Amy Peterson,			
	Safety &			
	Emergency			
	Preparedness			
	Coordinator			
United Hospital, Allina	Danielle Gathje,			
Hospitals and Clinics	Emergency			
	Management Safety			
	Specialist			
Saint Paul Public	Laura Olson,			
Schools	Security and			
	Emergency			
	Management			
Saint Paul Public	Shannon McNulty,			
Schools	Emergency			
	Preparedness			
	Coordinator			

Agency Name	Contact	Phone	Email	Other
Xcel Energy - Electric	Electric Emergencies			
Xcel Energy - Gas	Gas Emergencies			
Century Link	Internet & Phone Emergencies			
Gopher State One Call		612-454-0002		
MNDOT				

Saint Paul Regional Water Services Local Water Supply Plan - 2016

Appendix VI

Cooperative Agreements for Emergency Services





FINANCE #02-11846-I

AGREEMENT FOR EMERGENCY WATER SERVICE BETWEEN THE CITY OF INVER GROVE HEIGHTS AND THE BOARD OF WATER COMMISSIONERS

. .

This AGREEMENT, made and entered into on this 26° day of July, 2001, by and between the BOARD OF WATER COMMISSIONERS, SAINT PAUL, MINNESOTA, a municipal corporation of the State of Minnesota, hereafter referred to as the "Board," and the CITY OF INVER GROVE HEIGHTS, a municipal corporation of the State of Minnesota, hereafter referred to as "Inver Grove Heights";

WITNESSETH:

WHEREAS, Inver Grove Heights has requested a connection to the Board's water system to provide Inver Grove Heights with water under limited emergency conditions; and

WHEREAS, the Board also desires such a connection to the Inver Grove Heights Water System to provide the Board with water under limited emergency conditions; and

WHEREAS, the Board and Inver Grove Heights have determined that such a connection is feasible and in both parties' interest;

NOW, THEREFORE in consideration of the respective covenants contained herein the Board and Inver Grove Heights do hereby agree as follows:

ARTICLE I

EMERGENCY WATER SERVICE

Each party shall allow for emergency water service to the other party subject to the rules and regulations enacted by either party now and in the future, and in accordance with the terms of this agreement. Any use of the water service for a period of greater than 30 days shall be

deemed a non-emergency, in which case either party may exercise the right to install a meter on the connection and charge a non-emergency rate as provided for in article IV.

· · · · ·

ARTICLE II

CONSTRUCTION

Inver Grove Heights agrees that the construction of the connection to allow for said emergency water service shall be at its sole expense. Furthermore, the construction shall comply with the most recent revision of the Water Utility's "Standards for the Installation of Water Mains" and shall be constructed in accordance with plans approved in writing and in advance by both parties' staff. The Board reserves the right to have an inspector, at its expense, on site during construction to protect its interests.

ARTICLE III

USE OF THE CONNECTION

The parties agree that no use of the connection will occur without prior approval from the general manager/City Administrator or designee of the other party. Upon proper notice, both parties' staff will proceed to the site of the connection to set up and open the valve that will supply water to the adjacent system. Both parties agree that the system will be flushed before water is supplied between the two systems, and understand that the individual utilities cannot guarantee any pressure and volume, as that is determined by the availability of the same from each system. The supplying utility reserves the right to limit the maximum daily use. Neither party guarantees the quality of the water, although each party agrees to make practical attempts to maintain water quality. The parties agree that their use of the water shall at all times conform

to rules for usage in the adjacent system. Both parties agree that their general manager/city administrator or designee has sole discretion regarding whether approval to use the water and the connection shall be granted, and that the general manager/City Administrator or designee may consider factors such as the nature and extent of the emergency and the current status, quality and availability of the water system, in deciding whether to grant such approval.

a 1 a 1

× 1 % % %

ARTICLE IV

WATER RATES

Charges for use of the emergency connection and all water shall be \$150.00 per day for each and every day or portion thereof that the connection is in use. This charge will apply to the entity that requested the service, be it Inver Grove Heights or the Board. In the event of nonemergency usage as referenced in Article I, charges for use of the connection and all water shall be at the Board's or City's current outside City rate that is in effect on the dates of usage.

ARTICLE V

MAINTENANCE OF CONNECTION

Inver Grove Heights agrees that it shall provide and pay for all routine and necessary maintenance or repairs of the connection at its sole expense.

ARTICLE VI

AREA SUPPLIED

Inver Grove Heights agrees that the area to be supplied with water from this emergency connection shall extend no further into their system than the area represented on Exhibit A,

attached hereto and incorporated herein by reference. The following roads will represent the borders of the emergency supply area: Mendota Road (north border), Highway 494 (south border), Highway 52 (east border), Highway 110 (west border). The scope of the area to be supplied with water from the emergency connection may not be modified without the express written and prior approval of the Board's general manager and the City Administrator or their designees.

1 N. . N

ARTICLE VII

INDEMNIFICATION

.

The Board shall forever indemnify and save harmless, protect and defend Inver Grove Heights, its employees and agents from any or all liability, suits or demands, including the legal defense thereof, for bodily injuries, including death, or property damages, including loss of use, arising out of any activity by the Board or the Board's employees and agents under this agreement. Likewise, Inver Grove Heights shall forever indemnify and save harmless, protect and defend the Board, its employees and agents from any or all liability, suits or demands, including the legal defense thereof, for bodily injuries, including death, or property damages, including loss of use, arising out of any activity by Inver Grove Heights or Inver Grove Heights's employees and agents under this agreement.

ARTICLE VIII

EFFECTIVE DATE

This agreement shall be effective on $\frac{26}{26}$, 2001, or upon the date that the final required signature is obtained, whichever occurs later, and shall remain in effect for a

period of ten (10) years from that date, or until this agreement has been canceled or terminated, whichever occurs first. Both parties shall have a continuing obligation, however, to comply with the indemnification provisions of this agreement contained in Article VII.

· · ·

ARTICLE IX

AGREEMENT AMENDMENTS

Inver Grove Heights and the Board agree that from time to time changes to this agreement may be necessary. The parties agree that any such changes shall be in the form of written amendments to this agreement and shall be valid only when duly approved and executed by both parties.

ARTICLE X

TERMINATION OF AGREEMENT

Irrespective of any other condition contained herein, the parties agree that this agreement may be canceled by either party at any time with 30 days notice to the other party.

ARTICLE XI

NOTICE

......

Any notice required or permitted to be given by either party is given when mailed by U.S. Mail, postage prepaid, as follows:

If to Board:

General Manager Board of Water Commissioners 400 Commerce Building 8 East Fourth Street Saint Paul, Minnesota 55101 If to Inver Grove Heights:

Mayor City of Inver Grove Heights 8150 Barbara Avenue Inver Grove Heights, Minnesota 55077

• <u>*</u> • • •

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed on the day and year first above written.

.

APPROVED:

alte a star

Bernie R. Bullert, General Manager

Approved as to Form:

Ø. 11e

Assistant City Attorney

BOARD OF WATER COMMISSIONERS

By

mes C. Reiter, President

Janet Lindgren, Secretary

COUNTERSIGNED: By

Peter Hames, Director, Office of Financial Services

THE CITY OF INVER GROVE HEIGHTS

hoty 7. Ken **City Attorney**

By M

By City Administrator

\81000\09000\Documents\Emergency Water Service Agreement.doc

• "i • • "

BOARD OF WATER COMMISSIONERS

RESOLUTION - GENERAL FORM

No.__4788

COMMISSIONER	Cardinal	
COMMISSIONEN		

ه و م و

DATE July 10, 2001

WHEREAS, the City of Inver Grove Heights has requested a connection to the Board's distribution system at Mendota Road and Oakdale Avenue for use in emergency situations; and

WHEREAS, such a connection potentially could be used to supply the Board's system from the Inver Grove Heights system; and

WHEREAS, Inver Grove Heights is willing to pay all costs associated with design and construction of this connection; and

WHEREAS, plans for construction of this connection have been approved by Board staff and an agreement has been drafted to govern the terms and conditions of the construction and use of the connection; and

WHEREAS, the agreement has been reviewed and approved as to form by the City Attorney's Office; now, therefore, be it

RESOLVED, that the agreement substantially in the form submitted between the Board and the City of Inver Grove Heights for emergency water service is hereby approved and that the proper officers of the Board are hereby directed to execute said agreement.

Water Commissioners

Yeas Anfang Nays Cardinal Harris Vice President Haselmann President Reiter Adopted by the Board of Water Commissioners

<u>July 10, kgz 2001</u>

Hanet Sindgree SECY.

In favor 5

Opposed 0

**** · **

EXHIBIT A

10 KG 1

* • •

. . . .

(Boundaries of Emergency Service Area)



AGREEMENT FOR THE CONVEYANCE OF A PORTION OF SOUTH ST. PAUL'S WATER SYSTEM LYING WEST OF T. H. 52 AND NORTH OF BUTLER AVENUE TO THE BOARD OF WATER COMMISSIONERS OF THE CITY OF SAINT PAUL

This AGREEMENT, made and entered into on this 2^{k} day of July, 2002, by and between the BOARD OF WATER COMMISSIONERS OF THE CITY OF SAINT PAUL, a municipal corporation of the State of Minnesota (the "Board"), and the CITY OF SOUTH ST. PAUL, a municipal corporation of the State of Minnesota ("South St. Paul"), each of the forgoing entities being sometimes referred to individually as "party" or collectively as "parties".

WITNESSETH:

WHEREAS, the Board has been providing water services to properties located within the City of South St. Paul lying east of T. H. 52 and north of Butler Avenue ("Premises") continuously since 1982, pursuant to the terms of a June 23, 1982 Agreement For Water Service between the Board and South St. Paul; and

WHEREAS, the Board and South St. Paul desire to enter into an agreement whereby the Board will provide water services to properties located within the Premises, and whereby South St. Paul will convey title to its water facilities located within the Premises ("Water Facilities") to the Board, and whereby South St. Paul will permit the Board to maintain its Water Facilities located within South St. Paul's streets and easements.

NOW THEREFORE, in consideration of the respective covenants contained herein and for valuable consideration, the parties do hereby agree as follows:

ARTICLE I

Section 1. EFFECTIVE DATE

This agreement is effective on August 1, 2002, or after execution by the designated officials as authorized by resolutions of the Board and the City of South St. Paul City Council, whichever occurs later.

Section 2. EXISTING CONTRACTS SUPERSEDED

As of the effective date of this Agreement all previous water service agreements and contracts existing between the Board and South St. Paul shall be and are hereby superseded.

ARTICLE II

Section 1. BOARD TO EXTEND SERVICE TO SOUTH ST. PAUL

The Board will extend its water service to properties located within the Premises subject to the rules and regulations enacted by the Board of Water Commissioners and in accordance with the terms of this Agreement.

South St. Paul does hereby concur in the Board's extension of its water service and does hereby grant permission to the Board to construct, operate, maintain, repair and replace water mains and other appurtenances necessary therefore within the streets and rights-of-way of the City of South St. Paul situated within the Premises, including the following streets:

Waterloo Avenue, Napoleon Circle and Lewis Street

and as may in the future be added by South St. Paul City Council resolution.

Section 2. SURFACING AND EXCAVATION ORDINANCE OF SOUTH ST. PAUL

The Board shall abide by Section 805 of South St. Paul's Municipal Code when performing work in South St. Paul's rights-of-way. South St. Paul agrees to waive all permit fees required by said Section 805.

Section 3. EXISTING MAINS AND APPURTENANCES OWNED BY SOUTH ST. PAUL

In conjunction with the City of West St. Paul 2002 Street Reconstruction Project, Contract 021, the Board shall perform the following water facility work in accordance with Board standards:

 Cut off and abandon in place the existing 6-inch water main on the east side of Waterloo Avenue between Stanley Street and Lewis Street.

- Remove and dispose of hydrants on the east side Waterloo Avenue at Stanley Street, Roeller Street, Napoleon Circle, and Lewis Street.
- Install a new 6-inch water main and hydrant in Napoleon Circle from new water main on the west side of Waterloo Avenue. Abandon existing 4-inch water main in place. Remove and dispose of hydrant at east end of Napoleon Circle.
- 4. Upgrade or replace existing service connections to 507, 508, 516, and 521 Napoleon Circle within street right-of-way as needed and reconnect each to new water main.
- 5. Install approximately 65 feet of 6-inch water main in Lewis Street from new water main on the west side of Waterloo Avenue and connect to existing 6-inch water main.
- 6. Install new service connections to 1570, 1588, 1608, and 1620 Waterloo Avenue from the new water main on the west side of Waterloo Avenue to east right-of-way line of Waterloo Avenue.
- Provide temporary water service to the above addressed properties during construction as needed.
- Reconnect existing service connections to 1514, 1518, 1522, 1524, 1530, 1538, 1548, 1554 and 1560 Waterloo Avenue to from new water main on the west side of Waterloo Avenue.

South St. Paul shall reimburse the Board for all actual costs related to performing work on items 1 through 7 above.

Upon the effective date of this Agreement, or upon the completion of the above work, whichever is later, the Board shall assume the maintenance and repair of all the existing water mains, fire hydrants, service connections and appurtenances, including street repair and turf maintenance on water service related property, presently owned by South St. Paul within the Premises.

Section 4. SOUTH ST. PAUL TO CONVEY TITLE TO WATER FACILITIES

South St. Paul shall, by resolution of its City Council, and by appropriate deed of conveyance acceptable to the Board, convey to the Board all of its right, title and interest to all water mains, fire hydrants, service connections and appurtenances owned by South St. Paul.

3
ARTICLE III

Section 1. WATER RATES

Water rates and charges made by the Board shall be the same as those charged to properties located within the City of Saint Paul, as established from time to time by the Board and the City of Saint Paul.

ARTICLE IV

Section 1. CONSOLIDATION OR ACQUISITION

In the event that the Board ceases to operate in its present form due either to consolidation with a local or regional authority or to an acquisition of its assets by another entity, it is the intent of the Board and South St. Paul to protect the right of South St. Paul properties to the continued supply of an adequate water service as well as to adequately compensate South St. Paul for its previous investments in the water facilities locate within its boundaries.

Therefore, to the extent legally permissible the Board shall insure that in the event of any such consolidation or acquisition South St. Paul may either terminate this agreement or negotiate a new water service agreement with the authority or entity.

In the event that South St. Paul elects not to terminate this Agreement, the Board shall require that the alternate authority or new owner assume the Board's contractual obligations as set forth in this Agreement, and shall require that South St. Paul be compensated for the amortized value of the facilities and real estate previously conveyed to the Board pursuant to Article II, Section 4, of this Agreement.

Section 2. SOUTH ST. PAUL TERMINATION

In the event South St. Paul should elect to terminate this agreement, then and in that event it is hereby agreed that:

a) The election to terminate shall be specified in writing to the Board.

- b) The Board shall for the sum of \$1.00, reconvey title to the facilities and real estate previously conveyed by South St. Paul pursuant to Article II, Section 4, of this Agreement; and
- c) The Board shall convey to South St. Paul and be compensated for the depreciated value of all water mains and other water service facilities, including water meters, fire hydrants, and other appurtenances, constructed by the Board to serve the South St. Paul system from and after the date of the execution of this Agreement.
- d) The Notice of Termination shall specify the effective date of termination, which in any event shall not occur until at least one (1) year following the date to election to terminate.

ARTICLE V

NEW WATER SYSTEM DEVELOPMENT

Section 1. MAINS CONSTRUCTED BY SOUTH ST. PAUL

When South St. Paul installs new water mains, service connections, and/or appurtenances for the distribution of water within the Premises, all construction shall be in accordance with the specifications and standards of the Board. Plans of all extensions to the water system by South St. Paul shall be submitted for approval to the Board before advertising for bids, awarding contracts or beginning actual construction. This initial construction for water system expansion shall be considered development costs and shall be provided at no expense to the Board. South St. Paul agrees to provide the Board with "as-built plans" of all extensions of the water system within the Premises.

Section 2. NEW FACILITIES; FURNISHED BY BOARD

The Board may construct and maintain new water service facilities and appurtenances, including any and all extensions of such facilities and appurtenances. Title to all such facilities shall be held by the Board.

Section 3. WARRANTY

The Board and South St. Paul further agree that as South St. Paul constructs and contracts for the construction of new mains, services, and/or appurtenances to be connected to the system and supplied with

water by the Board, that the Board shall not be responsible for the maintenance or repairs to such newly constructed additions to the water supply system until one (1) year from the date the same have been placed in operation, or until the Board has notified South St. Paul in writing of the acceptance of such installation, whichever date is earlier. At such time that the Board assumes responsibility for the maintenance and repair of said new water system facilities, South St. Paul shall convey said facilities to the Board according to the conditions of Article II, Section 4.

Section 4. STANDARDS

Water mains, services, and appurtenances shall be in conformity with the established standards, rules, and regulations as are in effect at the execution of the agreement or as may thereafter be established by the Board.

South St. Paul and Board staffs shall meet as may be requested by either party to discuss standards relating to water system construction. Where differences in standards are not resolved at the staff level, the Board shall have the ultimate authority for determining such standards.

Section 5. SERVICE CONNECTION APPLICATIONS

New applications for water service connections installed from mains installed by South St. Paul shall be made to and through the Board, and each applicant shall furnish the Board a certified street address established by South St. Paul. An initial \$75.00 administrative fee shall be paid by the new customer to the Board for each service connection to reimburse the Board its costs to establish a new account. No new service connection work shall be performed by South St. Paul or its agent until the Board's application process has been completed and inspection of the installation work scheduled by the Board.

Section 6. SERVICE CONNECTIONS-INSTALLED BY BOARD

It is agreed that all service connections, except in designated projects, from the main to the property line shall be installed by the Board under rules identical with those in effect in the City of Saint Paul or as may hereafter be modified by the Board. The charges for such service connections shall be in accordance with the schedule of charges established from time to time by the Board for customers outside the city limits of Saint Paul, provided, however, that the Board shall not charge South St. Paul customers more than the charges made to any customer in Saint Paul for like service. New applications for water service connections shall be made to and through the Board, and each applicant shall furnish the Board a certified street address established by South St. Paul.

Section 7. SERVICE CONNECTION GUARANTEE BY BOARD

The Board shall make all necessary repairs and maintenance to that part of the service connection located within the public right-of-way, under rules identical with those in effect in the City of Saint Paul. This requirement shall apply to all existing and future service connections constructed to Saint Paul standards. Service connections from private mains or a system not served by the Board's water supply shall not be guaranteed.

Section 8. PIPING, FIXTURE, ETC.

South St. Paul shall, by the enactment of suitable rules, regulations, or ordinances, require that all interior piping, fixtures, accessories, or on premises piping in any manner connected to the public water system supplied by the Board, shall be of the same materials, installed in the same manner and meet the same standards as are required for the same or similar work in the City of Saint Paul, currently the Minnesota Department of Health Minnesota Plumbing Code, Chapter 4715.

Section 9. RIGHT TO INSPECT

The Board, through its officers, agents, and employees, shall have the right at all times to examine, inspect, and test any materials or workmanship used or to be used in connection with the waterworks system within the Premises and supplied with water by the Board or connections thereto, for the purpose of determining whether or not they comply with the foregoing provisions. For the same purpose the Board shall have the right to examine and inspect the materials and workmanship and method of installation of house plumbing connecting with said waterworks system.

ARTICLE VI

RIGHT OF WAY

Section 1. RIGHT OF WAY

Any and all expenses or costs accruing to the water system within the Premises in connection with the maintenance, reconstruction, grinding, overlaying or paving of public streets, alleys or rights-of-way resulting from the action of South St. Paul, County of Dakota or State of Minnesota as such changes affect the water system shall be the responsibility of South St. Paul.

South St. Paul's proposed changes in the elevation of public streets, alleys, or rights-of-way over the water system shall be reviewed by the Board. The Board and South St. Paul agree that the Board's standards pertaining to elevation changes shall apply. Where elevation changes are greater than the parameters outlined in the Board's standards, any and all expenses or costs accruing to the water system within the Premises shall be the responsibility of South St. Paul.

ARTICLE VII

METERS AND METER READING

Section 1. BOARD TO FURNISH METERS

The Board shall furnish, install, retain title to and maintain all customers' water meters.

Section 2. BILLING AND COLLECTION

The Board shall have full responsibility for reading water meters, pursuant to the rules, regulations, statutes and policies of the Board. The Board shall bill South St. Paul a lump sum for the customers served with an itemized listing of consumption by address. South St. Paul shall be responsible for the billing and collection of accounts from the individual properties.

ARTICLE VIII

Section 1. RULES AND REGULATIONS

The use and distribution of water within the Premises, derived from the supply furnished from the Board, shall at all times be governed by rules, regulations, policies, and conditions which the Board has

heretofore adopted for the City of Saint Paul, or which it may hereafter adopt concerning the preservation, regulation and protection of its water supply, including water waste, water conservation, sprinkling restrictions and water use for air conditioning equipment; and as more fully detailed in Board of Water Commissioners--Water Code and Saint Paul Water Utility Standards for Installation of a Water Mains, as revised.

South St. Paul shall enact such rules, regulations, policies, and conditions into ordinances, make them legally effective and binding within sixty (60) days after the execution of this contract, and shall provide a copy thereof to the Board within 60 days of the execution of this agreement. South St. Paul shall also enact any amendments thereto adopted by the Board within sixty (60) days after being notified of such adoption, and shall adopt suitable penalties for the violation of rules, regulations, policies and conditions, and shall strictly enforce such rules, regulations and requirements.

Section 2. BOARD'S JURISDICTION WITHIN THE PREMISES

It is further agreed that the Board, through its officers, agents and employees, shall have the same authority and jurisdiction in the enforcement of such rules and regulations within the Premises that the Board has in the City of Saint Paul.

Section 3. SOUTH ST. PAUL'S PERMITTING AUTHORITY

South St. Paul does issue permits to other governmental and private agencies for the installation of natural gas, telephone, cable and other facilities. South St. Paul shall cooperate with the Board to assure no location conflicts occur. South St. Paul and the Board agree to cooperate to the fullest extent possible in protecting the water system and performing the terms and conditions of this agreement.

ARTICLE IX

FIRE PROTECTION SERVICE AND HYDRANT USE

Section 1. HYDRANTS

Hydrant use for purposes other than fire fighting by South St. Paul shall be subject to the same rules and regulations applied by the Board in the City of Saint Paul. The Board shall provide the same type of hydrant it provides in the City of West St. Paul, currently a right-opening Waterous Pacer with one (1) large and one (1) small nozzle having Saint Paul Standard threads.

Section 2. INSPECTION OF HYDRANTS

An annual inspection of all standard public hydrants located within the Premises will be conducted by Board crews. Repair and maintenance work required on all standard public hydrants within the Premises shall be conducted by the Board in the same manner as that the same work is conducted in the City of Saint Paul.

Section 3. PAINTING OF HYDRANTS

The Board shall paint the public hydrants within the Premises, and shall do so in accordance with the Board's established standards for such work. South St. Paul may designate a hydrant cap color code to distinguish dead end mains, circulating mains and selected criteria.

Section 4. RELOCATIONS AND ADJUSTMENTS

Where relocations or adjustments of fire hydrants are necessary due to public works projects, or for other reasons, the Board shall perform the required work and South St. Paul shall reimburse the Board for all costs and expenses thereof.

Section 5. FIRE USE

South St. Paul shall not be required to pay for water used for municipal fire fighting within the Premises.

Section 6. STREET CLEANING

South St. Paul agrees to not use water taken from water facilities within the Premises for street sprinkling, street flushing, sewer maintenance and/or any related uses.

Section 7. LOCATION MARKERS

Where it is necessary for the location of fire hydrants to be marked with flags, signage, etc. for fire fighting or other purposes, South St. Paul shall pay for said markers and shall assume the costs thereof including installation, maintenance, and liability.

Section 8. SNOW REMOVAL

Any snow removal from and around fire hydrants for any purpose, shall be performed by South St. Paul at its sole expense.

ARTICLE X

AGREEMENT AMENDMENTS

Section 1. AGREEMENT AMENDMENTS

South St. Paul and the Board agree that from time to time changes to this agreement may be necessary. South St. Paul and the Board agree that said changes shall be in the form of written addendums to this agreement and shall be valid only when duly approved by and executed on behalf of the respective parties.

ARTICLE XI

BOARD'S DUTY TO SUPPLY WATER

Section 1. CAUSE FOR TERMINATION

The Board is responsible to provide an adequate quantity of water to properties located within the Premises, and to provide normal maintenance and repair to all of the facilities operated by Board in the supply of water, pursuant to the same terms, conditions and policies that it follows for the provision of the same properties located within the City of Saint Paul.

Section 2. NOTICE TO BOARD

In the event that South St. Paul should deem that the Board has failed in its obligations to supply an adequate water supply and normal maintenance of the facilities within the Premises, or should find cause that the Board is failing in its provision of services, South St. Paul shall notify the Board in writing setting forth the specific details of any such failures. Notices shall be sent by certified mail to the parties at the following addresses:

South St. Paul City Manager 125 3d Ave. N. South St. Paul, MN 55075

11

Board of Water Commissioners attn: Saint Paul Regional Water Services General Manager 400 Commerce Building 8 4th Street East St. Paul, MN 55101

Section 3. CORRECTIVE ACTION

Board shall undertake to correct the specified faults within 60 days from the date it receives the written notification. South St. Paul shall be notified in writing within the specified 60 day period what necessary corrective actions have been taken, if any, and any explanation if the Board disagrees with any of South St. Paul's complaints.

Section 4. MEDIATION

Following the specified 60 day period, if South St. Paul deems that sufficient corrective actions have not been taken, it may require that its complaints be submitted to mediation by a panel 3 persons. South St. Paul and Board may each appoint a representative to the panel, and those two appointed representatives shall select the third member. The panel shall provide a reasonable opportunity to both South St. Paul and Board to express its opinions and facts regarding whether the Board is adequately and reasonably performing its obligations under this agreement.

The panel shall submit its findings, conclusions and recommendations, including any time frames for cures of the complaint, if needed, to South St. Paul and the Board within 60 days. The decision of the panel shall be binding. The Board shall cure the complaint in the time frame specified in the panel's recommendation, if a cure is recommended.

Section 5. OPTION TO TERMINATE; ONE YEAR NOTICE

In addition to the cure provided in Article VI, Section 4, South St. Paul may elect to terminate this Agreement by giving written notice to that effect to the Board. Notice of termination shall specify the effective date of termination, which in any event shall not occur until at least one (1) year following the date of election to terminate.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the

day and year first above written.

Approved:

Sullet

Bernie R. Bullert, General Manager

Approved as to Form:

Assistant City Attorney

BOARD OF WATER COMMISSIONERS OF THE CITY OF SAINT PAUL

By Jim/Reiter, President

inet Lindgren, Secretar

Bv

Peter Hames, Director, Office of Financial Services

Approved as to form and execution:

City Attorney

CITY OF SOUTH ST. PAUL

By Kathleen A.) Gaylord, Mayor

in By Christy M. Wilcox. Citv

BOARD OF WATER COMMISSIONERS

RESOLUTION - GENERAL FORM

No. 4840

COMMISSIONER Cardinal

DATE July 9, 2002

WHEREAS, the Board of Water Commissioners ("Board") has been providing water services to properties located within the City of South St. Paul ("South St. Paul") lying west of T. H. 52 and north of Butler Avenue ("Premises") continuously since 1982, pursuant to the terms of a June 23, 1982 Agreement For Water Service between the Board and South St. Paul; and

WHEREAS, the Board and South St. Paul desire to enter into an agreement whereby the Board will continue to provide water services to those properties located within the Premises, and whereby South St. Paul will convey title to its water facilities located within the Premises ("Water Facilities") to the Board, and whereby the Board will maintain said facilities so conveyed; and

WHEREAS, staff has prepared an Agreement For the Conveyance of a Portion of South St. Paul's Water System Lying West of T.H. 52 and North of Butler Avenue to the Board, and the assistant city attorney has approved said Agreement as to form, and the Saint Paul Regional Water Services General Manager does recommend approval of said Agreement; now, therefore, be it

RESOLVED, that the Agreement For the Conveyance of a Portion of South St. Paul's Water System Lying West of T.H. 52 and North of Butler Avenue between the Board of Water Commissioners and the City of South St. Paul is hereby approved and that the proper officers are hereby authorized to execute said Agreement on behalf of the Board

Water Commissioners

Yeas Cardinal Harris President Reiter

Nays

Adopted by the Board of Water Commissioners

1**X6**X 2002 July 9,

Janet Gendegre

In favor____4

Opposed___0

AGREEMENT FOR EMERGENCY WATER SERVICE BETWEEN THE CITY OF WOODBURY AND THE BOARD OF WATER COMMISSIONERS

ŧ.

This AGREEMENT, made and entered into on this 12^{44} day of <u>letabus</u>, 1999, by and between the **BOARD OF WATER COMMISSIONERS, SAINT PAUL, MINNESOTA**, a municipal corporation of the State of Minnesota, hereafter referred to as "Board" or "Water Utility," and the **CITY OF WOODBURY**, a municipal corporation of the State of Minnesota, hereafter referred to as "Woodbury";

WITNESSETH:

WHEREAS, Woodbury has requested a connection to the Board's water system to provide Woodbury with water under limited emergency conditions; and

WHEREAS, the Board also desires such a connection to the Woodbury Water System to provide the Board with water under limited emergency conditions; and

WHEREAS, Water Utility staff and Woodbury have determined that such a connection is feasible and in both parties' interest;

NOW, THEREFORE in consideration of the respective covenants contained herein the Board and Woodbury do hereby agree as follows:

ARTICLE I

EMERGENCY WATER SERVICE

Each party shall allow for emergency water service to the other party subject to the rules and regulations enacted by either party now and in the future, and in accordance with the terms of this agreement. Any use of the water service for a period of greater than 30 days shall be deemed a non-

P:VIMGMISC/WOODBURY WPD December 1, 1999

8-1999-N-01

emergency, in which case either party may exercise the right to install a meter on the connection and charge a non-emergency rate as provided for in article IV.

ARTICLE II

CONSTRUCTION

Woodbury agrees that the construction of the connection to allow for said emergency water service shall be at its sole expense. Furthermore, the construction shall comply with the most recent revision of the Water Utility's "Standards for the Installation of Water Mains" and shall be constructed in accordance with plans approved in writing and in advance by both parties' staff. The Board reserves the right to have an inspector, at its expense, on site during construction to protect its interests.

ARTICLE III

USE OF THE CONNECTION

The parties agree that no use of the connection will occur without prior approval from the general manager or designee of the other party. Upon proper notice, both parties' staff will proceed to the site of the connection to set up and open the valve which will supply water to the adjacent system. Both parties agree that the system will be flushed before water is supplied between the two systems, and understand that the individual utilities cannot guarantee any pressure and volume, as that is determined by the availability of the same from each system. The supplying utility reserves the right to limit the maximum daily use. Neither party guarantees the quality of the water, although each party agrees to make practical attempts to maintain water quality. The

2

parties agree that their use of the water shall at all times conform to rules for usage in the adjacent system. Both parties agree that their general manager or designee has sole discretion regarding whether approval to use the water and the connection shall be granted, and that the general manager or designee may consider factors such as the nature and extent of the emergency and the current status, quality and availability of the water system, in deciding whether to grant such approval.

ARTICLE IV

WATER RATES

Charges for use of the emergency connection and all water shall be \$150.00 per day for each and every day or portion thereof that the connection is in use. This charge will apply to the entity that requested the service, be it Woodbury or the Board. In the event of non-emergency usage as referenced in Article I, charges for use of the connection and all water shall be at the Board's current outside City rate that is in effect on the dates of usage.

ARTICLE V

MAINTENANCE OF CONNECTION

Woodbury agrees that it shall provide and pay for all routine and necessary maintenance or repairs of the connection at its sole expense.

ARTICLE VI

AREA SUPPLIED

Woodbury agrees that the area to be supplied with water from this emergency connection shall extend no further into their system than the intersection of Edgewood Avenue and Meadow Lane without the express written and prior approval of the Board's general manager or designee.

3

ARTICLE VII

INDEMNIFICATION

The Board shall forever indemnify and save harmless, protect and defend Woodbury, its employees and agents from any or all liability, suits or demands, including the legal defense thereof, for bodily injuries, including death, or property damages, including loss of use, arising out of any activity by the Board or the Board's employees and agents under this agreement. Likewise, Woodbury shall forever indemnify and save harmless, protect and defend the Board, its employees and agents from any or all liability, suits or demands, including the legal defense thereof, for bodily injuries, including death, or property damages, including loss of use, arising out of any activity by Woodbury or Woodbury's employees and agents under this agreement.

ARTICLE VIII

EFFECTIVE DATE

This agreement shall be effective on September 1, 1999, or upon the date that the final required signature is obtained, whichever occurs later, and shall remain in effect until September 1, 2009, or until this agreement has been canceled or terminated, whichever occurs first. Both parties shall have a continuing obligation, however, to comply with the indemnification provisions of this agreement contained in Article VII.

ARTICLE IX

AGREEMENT AMENDMENTS

Woodbury and the Board agree that from time to time changes to this agreement may be necessary. The parties agree that any such changes shall be in the form of written amendments to this agreement and shall be valid only when duly approved and executed by both parties.

ARTICLE X

TERMINATION OF AGREEMENT

۰,

Irrespective of any other condition contained herein, the parties agree that this agreement may be canceled by either party at any time with 30 days notice to the other party.

ARTICLE XI

NOTICE

4

Any notice required or permitted to be given by either party is given when mailed by U.S. Mail,

postage prepaid, as follows:

If to Board:

General Manager Board of Water Commissioners 400 Commerce Building 8 East Fourth Street Saint Paul, Minnesota 55101 If to Woodbury:

Mayor City of Woodbury 8301 Valley Creek Road Woodbury, Minnesota 55125 4.

٠.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed on the day and year first above written.

APPROVED:

Bernie R. Bullert, General Manager

Approved as to Form:

Assistant City Attorney

BOARD OF WATER COMMISSIONERS

Bv

ŝ.

Michael J. Harris, President

Βv

ahet Lindgren, Secretary

COUNTERSIGNED:

peph m Re By

Joseph M. Reid, Director, Office of Financial Services

City Attorney

ł

THE CITY OF WOODBURY

By Mayor

By

BOARD OF WATER COMMISSIONERS

RESOLUTION - GENERAL FORM

No. 4669

COMMISSIONER Reiter

DATE October 12, 1999

WHEREAS, the City of Woodbury has requested a connection to the Board's distribution system at Century Avenue and Brookview Drive for use in emergency situations; and

WHEREAS, such a connection potentially could be used to supply the Board's system from the Woodbury system; and

WHEREAS, Woodbury is willing to pay all costs associated with design and construction of this connection; and

WHEREAS, plans for construction of this connection have been approved by Board staff and an agreement has been drafted to govern the terms and conditions of the construction and use of the connection; and

WHEREAS, the agreement has been reviewed and approved as to form by the City Attorney's Office; now, therefore, be it

RESOLVED, that the agreement substantially in the form submitted between the Board and the City of Woodbury for emergency water service is hereby approved and that the proper officers of the Board are hereby directed to execute said agreement.

Water Commissioners

Yeas Arcand Nays Kittridge Reiter Vice President Haselmann President Harris Adopted by the Board of Water Commissioners

October 12, 19 99

ð

1999-N-02

In favor <u>5</u>

Opposed 0

Agreement # 02- 1121-I

AMENDMENT NO. 1 to AGREEMENT BETWEEN

BOARD OF WATER COMMISSIONERS and CITY OF WOODBURY

This **AMENDMENT NO. 1 TO AGREEMENT** entered into this 12th day of January 2010, by and between the **BOARD OF WATER COMMISSIONERS, SAINT PAUL, MINNESOTA**, a municipal corporation of the State of Minnesota (the "Board"), and the **CITY OF WOODBURY** a municipal corporation of the State of Minnesota ("Woodbury").

WITNESSETH:

WHEREAS, Woodbury and the Board entered into an agreement dated October 12, 1999 for the provision of emergency water service by the Board to properties within Woodbury (the "Agreement"); and

WHEREAS, Article IX of the Agreement allows for amendments to the Agreement; and

WHEREAS, the parties desire at this time to amend the Agreement to extend the term of the Agreement.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the parties mutually agree to amend the Agreement as follows:

1. ARTICLE IV is hereby amended as shown below. New language is indicated by underline and deleted language is indicated by strikethrough.

ARTICLE IV

WATER RATES

Effective January 1, 2010, charges Charges for use of the emergency connection and all water shall be \$150.00 per day equivalent to the charge for one hundred (100) Saint Paul Regional Water Services billing units of water per day, each billing unit being one hundred (100) cubic feet, at the Board's outside City rate in effect on the dates of use for each and every day or portion thereof that the connection is in use. This charge will apply to the entity that requested the service, be it Woodbury or the Board. In the event of non-emergency use as referenced in Article I, charges for use of the connection and all water shall be at the Board's current outside City rate that is in effect on the dates of use.

1

2. ARTICLE IX is hereby amended as shown below. New language is indicated by underline and deleted language is indicated by strikethrough.

ARTICLE IX

EFFECTIVE DATE

This agreement shall be effective on September 1, 1999, or upon the date that the final required signature is obtained, whichever occurs later and as to the Amendment No. 1, the same shall be effective January 1, 2010, and the entire agreement as amended shall remain in effect until September 1, 2009 January 1, 2030, or until this agreement has been canceled or terminated, whichever occurs first. Both parties shall have a continuing obligation, however, to comply with the indemnification provisions of this agreement contained in Article VII.

3. Except as modified herein, the terms of the Agreement shall remain in full force and effect.

[Remainder of this page left intentionally blank.]

IN WITNESS WHEREOF, the parties hereto have caused this Amendment No. 1 to Agreement to be executed as of the day and year first above written.

Approved:

Stephen'P. Schneider, General Manager Saint Paul Regional Water Services

BOARD OF WATER COMMISSIONERS

By

Patrick Harris, President

By Mollie Boyellins, Secretary

Misa

Assistant City Attorney

Approved as to Form:

By Margaret Kelly, Director

Office of Financial Services

PPROVED AS TO FORM:

By

Mayor

CITY OF WOODBURY

B City Administrator

BOARD OF WATER COMMISSIONERS

RESOLUTION --- GENERAL FORM

No. 7057

PRESENTED BY Helgen

DATE January 12, 2010

WHEREAS, the Board of Water Commissioners and the City of Woodbury entered into an agreement dated October 12, 1999 for the purpose of providing each party with an emergency water supply ("Agreement"); and

WHEREAS, the parties desire to amend the Agreement to extend the term to January 1, 2030 and to revise the charges for volume of water used; and

WHEREAS, staff has prepared an Amendment No. 1 to Agreement which provides said extension and charge revision; and

WHEREAS, the assistant city attorney has approved said Amendment No. 1 to as to form; now, therefore, be it

RESOLVED, that the Board of Water Commissioners does hereby approve Amendment No. 1 to Agreement with the City of Woodbury, and that the proper officers are hereby authorized and directed to execute said Amendment No. 1 on behalf of the Board.

Water Commissioners

Yeas Anfang Nays Carter, III Helgen Kleindl President Harris Adopted by the Board of Water Commissioners

January 12, 2010

SECY

In favor_5___Opposed_0__

RESOLUTION NO. 09–234

RESOLUTION OF THE CITY OF WOODBURY, WASHINGTON COUNTY, MINNESOTA

APPROVING AMENDMENT NO. 1 TO THE AGREEMENT BETWEEN THE ST. PAUL BOARD OF WATER COMMISSIONERS AND THE CITY OF WOODBURY

WHEREAS, the City of Woodbury and the St. Paul Board of Water Commissioners (Board) entered into an agreement dated October 12, 1999 for the provision of emergency water service by the Board to properties within Woodbury (Agreement); and

WHEREAS, Article IX of the Agreement allows for amendments to the Agreement; and

WHEREAS, the parties desire at this time to amend the Agreement to extend the term of the Agreement.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Woodbury, Washington County, Minnesota as follows:

- 1. Amendment No. 1 to the October 12, 1999 Agreement between the St. Paul Board of Water Commissioners and the City of Woodbury is hereby approved.
- 2. The Mayor and City Administrator are hereby authorized to execute said Amendment No. 1.

This Resolution was declared duly passed and adopted and was signed by the Mayor and attested to by the City Administrator this 9^{th} day of December, 2009.

Attest:

Clinton P. Gridley, City Administrator

liam //Hargis/Mayor

(SEAL)

STATE OF MINNESOTA) COUNTY OF WASHINGTON) ss CITY OF WOODBURY)

I, Kimberlee K. Blaeser, being the duly qualified and acting City Clerk of the City of Woodbury, Minnesota, DO HEREBY CERTIFY that I have compared the attached and foregoing **Council Resolution No. 09-234**, **"APPROVING AMENDMENT NO. 1 TO THE AGREEMENT BETWEEN THE ST. PAUL BOARD OF WATER COMMISSIONERS AND THE CITY OF WOODBURY"**, with the original thereof on file in my office, and that the same is a true and complete transcript of the resolution of the City Council of said municipality at a meeting duly called and held on the 9th day of December 2009.

WITNESS my hand and the seal of said City this 18th day of December 2009.

ubule KBlass

Kimberlee K. Blaeser City Clerk

(SEAL)

Attachment: Resolution No. 09-234

Saint Paul Regional Water Services Local Water Supply Plan - 2016

Appendix VII

Municipal Critical Water Deficiency Ordinance





Appendix VII - Official Control Document

Chapter 91. - Water Code—Miscellaneous Provisions

Sec. 91.03. - Water conservation.

No person shall allow water to be wasted through any faucet or fixture or keep water running longer than necessary. The board of water commissioners shall discourage any wastage of water and may, when in its judgment deemed necessary, turn off any water service and require remedial action as it may in its judgment be deemed proper and necessary.

(Code 1956, § 252.03; C.F. No. 93-905, § 16, 7-15-93; C.F. No. 97-1419, § 5, 12-22-97)

Sec. 91.05. - Sprinkling restrictions.

The use of water for lawn sprinkling purposes shall at all times be subject to the express condition that the board of water commissioners may, at any time when in its opinion the condition of the public water supply demands it, limit the time during each day when water may be used for sprinkling purposes; and the board may forbid the use of water for lawn sprinkling for any period not exceeding thirty (30) days at one time.

(Code 1956, § 252.06)

Saint Paul Regional Water Services Local Water Supply Plan - 2016

Appendix VIII

Annual Per Capita Water Demand (2004-2014)





Appendix 8 – Annual Per Capita Demand (2004-2014)



Linear Trend for Residential Per Capita Demand = -1.08

Linear Trend for Comercial/Industrial/Institutional Per Capita Demand = -0.64

Saint Paul Regional Water Services Local Water Supply Plan - 2016

Appendix IX

Water Rate Strucuture





Water usage is based on the meter reading for the current period. ESTIMATE indicates we were unable to read the meter. If your current bill is estimated, call Meter Office at 651-266-6850 to schedule an appointment as we need to get inside and troubleshoot the metering problem. **Note:** 100 cu. ft. of water equals 1 unit or 748 gallons.

Billing Periods

Accounts are billed quarterly for residential and monthly for commercial.

NOTE: "Due Date" means date to be received by the SPRWS. The SPRWS is not responsible for late payments caused by a delay in the mail service.

Water Rate Settings

Water rates are changed periodically to cover increased costs for water treatment, chemicals, electric power, fuel, maintenance of the supply and distribution systems, and other general expenses. Changes in water rates are proposed by resolution of the Board of Water Commissioners and put into effect upon confirmation by the Saint Paul City Council.

Water Usage Charges

Winter*	\$2.52 per 100cu.ft.
Summer**	\$2.62 per 100cu.ft.

For accounts with 1-inch and smaller meters: * Winter rates apply to bills sent during January

through May, and December.

** Summer rates apply to bills sent during June through November.

For accounts with 1 1/2 -inch and larger meters:

* Winter rates apply to bills sent during January through April, November and December.

** Summer rates apply to bills sent during May through October.

Water Service Base Fee

The water service base fee covers such costs as general administration, billing, accounting, customer service, etc.

Meter Size	Service Base Fee	R-O-W Fee	Bill Cycle
< 1"	\$15.00	\$4.50	per quarter
1"	\$37.50	\$11.25	per quarter
1 1/2"	\$75.00	\$22.50	per quarter
1 1/2"	\$25.00	\$7.55	per month
2"	\$40.00	\$12.08	per month
3"	\$80.00	\$24.16	per month
4"	\$125.00	\$37.75	per month
6"	\$250.00	\$75.50	per month
8"	\$400.00	\$120.80	per month
10"	\$575.00	\$173.65	per month
12"	\$1,075.00	\$324.65	per month

Sewer Rate Settings

Sanitary sewer service charges are established annually by the Saint Paul City Council. If you have any questions regarding your sanitary sewer charges please call:

Saint Paul Public Works

Sewer Division 651-266-6244

Sanitary Sewer Charges consist of a base charge and a water volume charge.

Base Charge: A fixed charge as determined by water meter size is applied during each regular billing cycle. Base charge is shown below.

Volume Charge: The volume of used metered water in bill units multiplied by the applicable rate in the table below.

First 100,000 cu. ft. per month	\$3.90 per 100 cu. ft.
Next 400,000 cu. ft. per month	\$3.85 per 100 cu. ft
Over 500,000 cu. ft. per month	\$3.81 per 100 cu. ft

For single and two-family homes, the volume charge for the first quarterly billing of the year is based on the measured water consumption prorated to a 91-day standard. Sewer charges for each of the last three quarters are based on the prorated water consumption, except they will not exceed the figure used in the first quarter. For all other properties, the sewer volume charge is based on the actual water consumption for each billing period.

Minimum Volume Charge:

For properties with low or no water consumption, minimum volume charges are applied based on the size of the water meter as shown in the table below. The minimum sewer bill is the base charge plus the minimum volume charge.

Meter Size	Min Vol Charge	Base Charge	Bill Cycle
< 1"	\$7.20	\$3.00	per quarter
1"	\$12.60	\$8.31	per quarter
1 1/2"	\$26.40	\$11.73	per quarter
1 1/2"	\$8.80	\$3.91	per month
2"	\$20.00	\$4.95	per month
3"	\$42.00	\$7.00	per month
4"	\$104.00	\$8.75	per month
6"	\$200.00	\$12.37	per month
8"	\$344.00	\$15.65	per month
10"	\$492.00	\$18.77	per month
12"	\$680.00	\$22.48	per month
Over 12"	\$1000.00	\$22.48	per month

Sales Tax

A 6.875% state sales tax is applied to non-residential accounts plus a 0.5% local sales tax is applied to non-residential accounts in the City of Saint Paul.

Transit Tax

A 0.25% transit tax is applied to non-residential accounts.

Minnesota Safe Drinking Water Act

The Minnesota Department of Health via the Federal Safe Drinking Water Act (Statute 144.3831) requires we charge 53 cents per month or \$1.59 per quarter for testing public water supplies.

R-O-W Recovery Fee

The Right of Way Recovery Fee is collected to reimburse the city of Saint Paul for costs it incurs due to water utility infrastructure that delivers water to your property. The R-O-W recovery fee is based on your meter size.

Meter Reading Fee: Per reading fee for the properties that have an exterior-mounted, non-radio metering system (Touchpad)

Water Main Replacement Surcharge

A charge of 20 cents per billing unit is added to pay for the replacement of water main.

Bill Problems

If you dispute this bill, please call **651-266-6350**. You are entitled to a hearing before an impartial hearing officer who will make a recommendation regarding resolution of your concerns.

Payment Responsibility

Property owners are responsible for all water bills issued against their property. If a property owner desires to have the bills sent to a tenant, the SPRWS will agree to do so; however, all charges for water and sewer services are a continuing statutory lien against the property until they are paid. Unpaid charges that are delinquent as of November 15th of each year may be certified to the County Auditor, at the SPRWS' discretion, to be collected with the real estate taxes for the property.

Late Charge

Water bills are considered delinquent if not paid within 30 days, at which time a 5% late charge will be added to your bill.

Returned Checks

A \$30.00 fee will be charged for all returned check and "Automatic Withdrawal" returns.

The Saint Paul Regional Water Services

SPRWS is a publicly owned corporation operating as a self-supporting non-profit entity. It is financed solely by the sales of water and fees for other services. It receives no other outside financial support or tax subsidy.

EMERGENCY SERVICE	651-266-6868
Call: 7:30 a.m 4:30 p.m.	Mon - Fri
TDD Hearing Impaired	651-266-6299
Customer Service	651-266-6350

Water usage is based on the meter reading for the current period. ESTIMATE indicates we were unable to read the meter. If your current bill is estimated, call Meter Office at 651-266-6850 to schedule an appointment as we need to get inside and troubleshoot the metering problem. **Note:** 100 cu. ft. of water equals 1 unit or 748 gallons.

Billing Periods

Accounts are billed quarterly for residential and monthly for commercial.

NOTE: "Due Date" means date to be received by the SPRWS. The SPRWS is not responsible for late payments caused by a delay in the mail service.

Water Rate Settings

Water rates are changed periodically to cover increased costs for water treatment, chemicals, electric power, fuel, maintenance of the supply and distribution systems, and other general expenses. Changes in water rates are proposed by resolution of the Board of Water Commissioners and put into effect upon confirmation by the Saint Paul City Council.

Water Usage Charges

 Winter*
 \$2.52 per 100cu.ft.

 Summer**
 \$2.62 per 100cu.ft.

For accounts with 1-inch and smaller meters: * Winter rates apply to bills sent during January

through May, and December.

** Summer rates apply to bills sent during June through November.

For accounts with 1 1/2 -inch and larger meters:

* Winter rates apply to bills sent during January through April, November and December.

** Summer rates apply to bills sent during May through October.

Water Service Base Fee

The water service base fee covers such costs as general administration, billing, accounting, customer service, etc.

Meter Size	Service Base Fee	Bill Cycle
< 1"	\$15.00	per quarter
1"	\$37.50	per quarter
1 1/2"	\$75.00	per quarter
1 1/2"	\$25.00	per month
2"	\$40.00	per month
3"	\$80.00	per month
4"	\$125.00	per month
6"	\$250.00	per month
8"	\$400.00	per month
10"	\$575.00	per month

About Sewer Charges

Saint Paul Regional Water Services handles only the billing services for Falcon Heights sewer customers.

Sewer Rate Settings

Sanitary sewer and miscellaneous service charges are established annually by your City Council. If you have any questions about your rates, please call:

City of Falcon Heights 651-792-7600

Sanitary Sewer Rates

The sanitary sewer fee for residential units is \$28.75 per quarter plus \$0.0207896 per cubic foot of water usage during the 3 winter months of approximately November-January, prorated to a 91 day standard. For apartment residential units, the fee is \$9.58 per unit per month plus \$0.0207896 per cubic foot of water usage during the winter month of approximately November prorated to a 30 day standard. For residential units, this will serve as the maximum fee for all other billing periods throughout the year, but the actual amount billed may be lower depending on water usage.

For commercial units, the fee is 0.0207896 per cubic foot of water usage during each month.

Storm Sewers Rates

A flat rate is charged for each billing period as follows:

\$22.00 per residential unit guarterly

\$205.32 per acre for apartment buildings and for commercial properties

quarterly

Street Lighting Fee

A fee is charged for each billing period:

\$6.00 per residential unit quarterly

\$0.02 per lineal foot frontage for commercial properties monthly

Recycling fee: A recycling fee of \$9.75 per residential unit is charged each billing period on all residential accounts.

Water/Hydrant charge: A 6 percent surcharge on current water charges (Water Service Base Fee and Water Usage Charge) is collected each billing cycle by Saint Paul Regional Water Services on behalf of the City of Falcon Heights.

Sales Tax

A 6.875% state sales tax is applied to non-residential accounts.

Transit Tax

A 0.25% transit tax is applied to non-residential accounts.

Minnesota Safe Drinking Water Act

The Minnesota Department of Health via the Federal Safe Drinking Water Act (Statute 144.3831) requires we charge 53 cents per month or \$1.59 per quarter for testing public water supplies.

Meter Reading Fee: Per reading fee for the properties that have an exterior-mounted, non-radio metering system (Touchpad)

Water Main Replacement Surcharge

A charge of 20 cents per billing unit is added to pay for the replacement of water main.

Bill Problems

If you dispute this bill, please call **651-266-6350.** You are entitled to a hearing before an impartial hearing officer who will make a recommendation regarding resolution of your concerns.

Payment Responsibility

Property owners are responsible for all water bills issued against their property. If a property owner desires to have the bills sent to a tenant, the SPRWS will agree to do so; however, all charges for water and sewer services are a continuing statutory lien against the property until they are paid. Unpaid charges that are delinquent as of November 15th of each year may be certified to the County Auditor, at the SPRWS' discretion, to be collected with the real estate taxes for the property.

Late Charge

Water bills are considered delinquent if not paid within 30 days, at which time a 5% late charge will be added to your bill.

Returned Checks

A \$30.00 fee will be charged for all returned check and "Automatic Withdrawal" returns.

The Saint Paul Regional Water Services

SPRWS is a publicly owned corporation operating as a self-supporting non-profit entity. It is financed solely by the sales of water and fees for other services. It receives no other outside financial support or tax subsidy.

EMERGENCY SERVICE	651-266-6868
Call: 7:30 a.m 4:30 p.m.	Mon - Fri
TDD Hearing Impaired	651-266-6299
Customer Service	651-266-6350

Water usage is based on the meter reading for the current period. ESTIMATE indicates we were unable to read the meter. If your current bill is estimated, call Meter Office at 651-266-6850 to schedule an appointment as we need to get inside and troubleshoot the metering problem. **Note:** 100 cu. ft. of water equals 1 unit or 748 gallons.

Billing Periods

Accounts are billed quarterly for residential and monthly for commercial.

NOTE: "Due Date" means date to be received by the SPRWS. The SPRWS is not responsible for late payments caused by a delay in the mail service.

Water Rate Settings

Water rates are changed periodically to cover increased costs for water treatment, chemicals, electric power, fuel, maintenance of the supply and distribution systems, and other general expenses. Changes in water rates are proposed by resolution of the Board of Water Commissioners and put into effect upon confirmation by the Saint Paul City Council.

Water Usage Charges

 Winter*
 \$2.52 per 100cu.ft.

 Summer**
 \$2.62 per 100cu.ft.

For accounts with 1-inch and smaller meters: * Winter rates apply to bills sent during January through May, and December.

** Summer rates apply to bills sent during June through November.

For accounts with 1 1/2 -inch and larger meters:

* Winter rates apply to bills sent during January through April, November and December.

** Summer rates apply to bills sent during May through October.

Water Service Base Fee

The water service base fee covers such costs as general administration, billing, accounting, customer service, etc.

Meter Size	Service Base Fee	Bill Cycle
< 1"	\$15.00	per quarter
1"	\$37.50	per quarter
1 1/2"	\$75.00	per quarter
1 1/2"	\$25.00	per month
2"	\$40.00	per month
3"	\$80.00	per month
4"	\$125.00	per month
6"	\$250.00	per month
8"	\$400.00	per month
10"	\$575.00	per month

About Sewer Charges

Saint Paul Regional Water Services handles only the billing services for Lauderdale sewer All other aspects of the sewer customers. utility continue to be operated and maintained by the City of Lauderdale. Sanitary sewer charges pay for the operation, maintenance, and capital cost of Lauderdale's sewer system, and for treatment costs levied by the Metropolitan Council, Environmental Services Division.

Sewer Rate Settings

Sanitary sewer and miscellaneous service charges are established annually by your City Council. If you have any questions about your rates, please call:

City of Lauderdale 651-792-7650

Sanitary Sewer Rates

Residential Properties:

A flat rate of \$52.77 per residential unit will be assessed per quarter.

Commercial Properties:

The sanitary sewer charge per month will be based on \$2.60 per unit of water consumption, with a minimum monthly charge of \$13.00.

Storm Sewer Rates

A flat rate of \$15.27 per REF (Residential Equivalency Factor) will be assessed for all properties per quarter.

Sales Tax

A 6.875% state sales tax is applied to non-residential accounts.

Transit Tax

A 0.25% transit tax is applied to non-residential accounts.

Meter Reading Fee

Per reading fee for the properties that have an exterior-mounted, non-radio metering system (Touchpad)

Minnesota Safe Drinking Water Act

The Minnesota Department of Health via the Federal Safe Drinking Water Act (Statute 144.3831) requires we charge 53 cents per month or \$1.59 per quarter for testing public water supplies.

Water Main Replacement Surcharge

A charge of 20 cents per billing unit is added to pay for the replacement of water main.

Bill Problems

If you dispute this bill, please call **651-266-6350.** You are entitled to a hearing before an impartial hearing officer who will make a recommendation regarding resolution of your concerns.

Payment Responsibility

Property owners are responsible for all water bills issued against their property. If a property owner desires to have the bills sent to a tenant, the SPRWS will agree to do so; however, all charges for water and sewer services are a continuing statutory lien against the property until they are paid. Unpaid charges that are delinquent as of November 15th of each year may be certified to the County Auditor, at the SPRWS' discretion, to be collected with the real estate taxes for the property.

Late Charge

Water bills are considered delinquent if not paid within 30 days, at which time a 5% late charge will be added to your bill.

Returned Checks

A \$30.00 fee will be charged for all returned check and "Automatic Withdrawal" returns.

The Saint Paul Regional Water Services

SPRWS is a publicly owned corporation operating as a self-supporting non-profit entity. It is financed solely by the sales of water and fees for other services. It receives no other outside financial support or tax subsidy.

Customer Service	651-266-6350
TDD Hearing Impaired	651-266-6299
Call: 7:30 a.m 4:30 p.m.	Mon - Fri
EMERGENCY SERVICE	651-266-6868

Water usage is based on the meter reading for ESTIMATE indicates we the current period. were unable to read the meter. If your current bill is estimated, call Meter Office at 651-266-6850 to schedule an appointment as we need to get inside and troubleshoot the metering problem. Note: 100 cu. ft. of water equals 1 unit or 748 gallons.

Billing Periods

Accounts are billed quarterly for residential and monthly for commercial.

Date" NOTE "Due means date be to received by the SPRWS. The SPRWS is not responsible for late payments caused by a delay in the mail service.

Water Rate Settings

increased costs for water treatment, chemicals, electric power, fuel, maintenance of the supply and distribution systems, and other general Changes in water rates are expenses. proposed by resolution of the Board of Water Commissioners and put into effect upon confirmation by the Saint Paul City Council.

Water Consumption Charges

Winter* \$2.52 per 100cu.ft. Summer** \$2.62 per 100cu.ft.

For accounts with 1-inch and smaller meters:

Winter rates apply to bills sent during January through May, and December.

** Summer rates apply to bills sent during June through November.

For accounts with 1 1/2 -inch and larger meters:

Winter rates apply to bills sent during January through April, November and December.

** Summer rates apply to bills sent during May

Water Service Base Fee

The water service base fee covers such general administration, billing, costs as accounting, customer service, etc.

About Sewer Charges

Saint Paul Regional Water Services handles only the billing services for West St. Paul sewer customers. All other aspects of the sewer utility continue to be operated and maintained by the City of West St. Paul.

Sewer Rate Settings

Sanitary sewer and miscellaneous service charges are established annually by your City Council. If you have any questions about your rates, please call:

City of West Saint Paul 651-552-4100

Sanitary Sewer Rates

Charges for sanitary sewer services are based upon water consumption and charges from Metropolitan Council Environmental Services. Rates are approved by the West St Paul City Council.

Water rates are changed periodically to cover For single and two-family homes, the sewer charges are prorated to a 91 day standard and charged at \$3.85 per unit. In addition, a demand charge of \$20.00 per quarter is Sewer charges are charged. based on consumption during the first calendar quarter of the year. If subsequent quarters' consumption is less, the lesser amount is charged. A minimum use of 3 units per quarter is charged.

> For all other properties, the sewer charge is based upon actual consumption at \$4.25 per unit. Minimum charge is \$12.75 per month.

Storm Sewer Charge

A flat rate per REF(residential equivalency factor) is charged for each billing period as follows:

\$12.50 per quarter for residential properties \$4.17 per month for commercial properties

Water Usage Surcharge

A 1 percent surcharge on current water charges (Water Service Base Fee and Water Usage Charge) is collected each billing cycle by the Saint Paul Regional Water Services on behalf of the City of West St Paul.

Sales Tax

A 6.875% state sales tax is applied to non-residential accounts.

Transit Tax

А 0.25% transit tax is applied to non-residential accounts.

Minnesota Safe Drinking Water Act

The Minnesota Department of Health via the Federal Safe Drinking Water Act (Statute 144.3831) requires we charge 53 cents per month or \$1.59 per quarter for testing public water supplies.

Meter Reading Fee: Per reading fee for the properties that have an exterior-mounted, non-radio metering system (Touchpad)

Water Main Replacement Surcharge

A charge of 20 cents per billing unit is added to pay for the replacement of water main.

Bill Problems

If you dispute this bill, please call 651-266-6350. You are entitled to a hearing before an impartial hearing officer who will make a recommendation regarding resolution of your concerns.

Payment Responsibility

Property owners are responsible for all water bills issued against their property. If a property owner desires to have the bills sent to a tenant, the SPRWS will agree to do so; however, all charges for water and sewer services are a continuing statutory lien against the property until they are paid. Unpaid charges that are delinquent as of November 1st of each year may be certified to the County Auditor, at the SPRWS' discretion, to be collected with the real estate taxes for the property.

Late Charge

Water bills are considered delinquent if not paid within 30 days, at which time a 5% late charge will be added to your bill.

Returned Checks

A \$30.00 fee will be charged for all returned check and "Automatic Withdrawal" returns.

The Saint Paul Regional Water Services

SPRWS is a publicly owned corporation operating as a self-supporting non-profit entity. It is financed solely by the sales of water and fees for other services. It receives no other outside financial support or tax subsidy.

Customer Service	651-266-6350
TDD Hearing Impaired	651-266-6299
Call: 7:30 a.m 4:30 p.m.	Mon - Fri
EMERGENCY SERVICE	651-266-6868

Water usage is based on the meter reading for the current period. ESTIMATE indicates we were unable to read the meter. If your current bill is estimated, call Meter Office at 651-266-6850 to schedule an appointment as we need to get inside and troubleshoot the metering problem. **Note:** 100 cu. ft. of water equals 1 unit or 748 gallons.

Billing Periods

Accounts are billed quarterly for residential and monthly for commercial.

NOTE: "Due Date" means date to be received by the SPRWS. The SPRWS is not responsible for late payments caused by a delay in the mail service.

Water Rate Settings

Water rates are changed periodically to cover increased costs for water treatment, chemicals, electric power, fuel, maintenance of the supply and distribution systems, and other general expenses. Changes in water rates are proposed by resolution of the Board of Water Commissioners and put into effect upon confirmation by the Saint Paul City Council.

Water Usage Charges

 Winter*
 \$2.52 per 100cu.ft.

 Summer**
 \$2.62 per 100cu.ft.

For accounts with 1-inch and smaller meters: * Winter rates apply to bills sent during January

through May, and December.

** Summer rates apply to bills sent during June through November.

For accounts with 1 1/2 -inch and larger meters:

* Winter rates apply to bills sent during January through April, November and December.

Water Service Base Fee

The water service base fee covers such costs as general administration, billing, accounting, customer service, etc.

Meter Size	Service Base Fee	Bill Cycle
< 1"	\$15.00	per quarter
1"	\$37.50	per quarter
1 1/2"	\$75.00	per quarter
1 1/2"	\$25.00	per month
2"	\$40.00	per month
3"	\$80.00	per month
4"	\$125.00	per month
6"	\$250.00	per month
8"	\$400.00	per month
10"	\$575.00	per month

About Sewer Charges

Saint Paul Regional Water Services handles only the billing services for Maplewood sewer customers. All other aspects of the sewer utility continue to be operated and maintained by the City of Maplewood. Sanitary sewer charges pay for the operation, maintenance, and capital cost of Maplewood's sewer system, and for treatment costs levied by the Metropolitan Council, Environmental Services Division.

Sewer, Recycling, Surcharge and Environmental Utility Rates

Sanitary sewer, recycling, surcharge, and environmental utility (storm sewer) rates are established annually by your City Council. If you have any questions about the rates, please call:

City of Maplewood 651-249-2400

Sanitary Sewer Rates

Sanitary sewer charges for Maplewood on one and two family residential accounts are based on the water consumption during the first quarter of the year, pro-rated to a 91-day standard. Sewer charges in subsequent quarters cannot be higher than the first quarter but can be lower if water consumption decreases.

Sewer charges for commercial accounts are based on actual consumption. The sanitary sewer rate for all accounts is \$2.94 per unit of water. The minimum charges for sewer per billing period is \$16.50 for residential accounts and \$5.50 for commercial accounts.

Recycling charge

The recycling charge for residential accounts billed quarterly will be \$9.78 per residential unit; for residential accounts billed monthly, the charge is \$3.26 per property unit.

Surcharge

A 7.0% surcharge on current water charges (Water Service Base Fee and Water Usage Charge) is being added by the City of Maplewood to finance water system modifications not funded by SPRWS. These modifications are the result of development and reconstruction projects taking place in Maplewood.

Environmental utility rates for storm water management:

The Single Family rate is \$23.10 per household per **quarter**. Per acre/**monthly** rates are: Multi-family - \$48.58, Institutional - \$59.02, Commercial - \$75.65. If you are paying a lower rate it's because you are receiving an EUF credit.

Sales Tax

A 6.875% state sales tax is applied to non-residential accounts.

Transit Tax

A 0.25% transit tax is applied to non-residential accounts.

Minnesota Safe Drinking Water Act

The Minnesota Department of Health via the Federal Safe Drinking Water Act (Statute 144.3831) requires we charge 53 cents per month or \$1.59 per quarter for testing public water supplies.

Meter Reading Fee: Per reading fee for the properties that have an exterior-mounted, non-radio metering system (Touchpad)

Water Main Replacement Surcharge

A charge of 20 cents per billing unit is added to pay for the replacement of water main.

Bill Problems

If you dispute this bill, please call **651-266-6350.** You are entitled to a hearing before an impartial hearing officer who will make a recommendation regarding resolution of your concerns.

Payment Responsibility

Property owners are responsible for all water bills issued against their property. If a property owner desires to have the bills sent to a tenant, the SPRWS will agree to do so; however, all charges for water and sewer services are a continuing statutory lien against the property until they are paid. Unpaid charges that are delinquent as of November 15th of each year may be certified to the County Auditor, at the SPRWS' discretion, to be collected with the real estate taxes for the property.

Late Charge

Water bills are considered delinquent if not paid within 30 days, at which time a 5% late charge will be added to your bill.

Returned Checks

A \$30.00 fee will be charged for all returned check and "Automatic Withdrawal" returns.

The Saint Paul Regional Water Services

SPRWS is a publicly owned corporation operating as a self-supporting non-profit entity. It is financed solely by the sales of water and fees for other services. It receives no other outside financial support or tax subsidy.

Customer Service	651-266-6350
TDD Hearing Impaired	651-266-6299
Call: 7:30 a.m 4:30 p.m.	Mon - Fri
EMERGENCY SERVICE	651-266-6868

Water usage is based on the meter reading for A 6.875% state sales tax is applied to ESTIMATE indicates we non-residential accounts. the current period. were unable to read the meter. If your current bill is estimated. call Meter Office at 651-266-6850 to schedule an appointment as we need to get inside and troubleshoot the metering problem. Note: 100 cu. ft. of water equals 1 unit or 748 gallons.

Billing Periods

Accounts are billed quarterly for residential and monthly for commercial.

NOTE: "Due Date" means date to be received by the SPRWS. The SPRWS is not Returned Checks responsible for late payments caused by a delay in the mail service.

Water Rate Settings

Water rates are changed periodically to cover increased costs for water treatment, chemicals, electric power, fuel, maintenance of the supply and distribution systems, and other general expenses Changes in water rates are proposed by resolution of the Board of Water Commissioners and put into effect upon confirmation by the Saint Paul City Council.

Water Consumption Charges

Winter* \$3.02 per 100cu.ft. Summer** \$3.14 per 100cu.ft.

For accounts with 1-inch and smaller meters: Winter rates apply to bills sent during January through May, and December.

** Summer rates apply to bills sent during June through November.

For accounts with 1 1/2 -inch and larger meters:

Winter rates apply to bills sent during January through April, November and December.

Water Service Base Fee

The water service base fee covers such costs as general administration, billing, accounting, customer service, etc.

Meter Size	Service Base Fee	Bill Cycle
< 1"	\$18.00	per quarter
1"	\$45.00	per quarter
1 1/2"	\$90.00	per quarter
1 1/2"	\$30.00	per month
2"	\$48.00	per month
3"	\$96.00	per month
4"	\$150.00	per month
6"	\$300.00	per month
8"	\$480.00	per month
10"	\$690.00	per month

Sales Tax

Transit Tax

applied A 0.25% transit tax is non-residential accounts.

Late Charge

Water bills are considered delinquent if not paid within 30 days of the Bill Date, at which time a 5% late charge will be added to your bill.

A \$30.00 fee will be charged for all returned check and "Automatic Withdrawal" returns.

Water - Surcharge

A 10% surcharge on current water charges (Water Service Base Fee and Water Usage Charge) is collected each billing cycle by the Saint Paul Regional Water Services on behalf of the City of Mendota Heights for funding modifications to the water system required to facilitate Mendota Heiahts development or reconstruction projects.

Water Main Replacement Surcharge

A charge of 20 cents per billing unit is added to pay for the replacement of water main.

Minnesota Safe Drinking Water Act

The Minnesota Department of Health via the Federal Safe Drinking Water Act (Statute 144.3831) requires we charge 53 cents per month or \$1.59 per guarter for testing public to water supplies.

Meter Reading Fee

Per reading fee for the properties that have exterior-mounted, non-radio an meterina system (Touchpad)

Bill Problems

If you dispute this bill, please call 651-266-6350. You are entitled to a hearing before an impartial hearing officer who will recommendation make а regarding resolution of your concerns.

Payment Responsibility

Property owners are responsible for all water bills issued against their property. lf a property owner desires to have the bills sent to a tenant, the SPRWS will agree to do so; however, all charges for water and sewer against the property until they are paid. Unpaid charges that are delinquent as of November 15th of each year may be certified to the County Auditor, at the SPRWS' discretion, to be collected with the real estate taxes for the property.

Pay using Automatic Withdrawal

You can pay your water bill directly from your bank account. For further information call customer service at the numbers below.

The Saint Paul Regional Water Services

SPRWS is a publicly owned corporation operating as a self-supporting non-profit entity. It is financed solely by the sales of water and fees for other services. It receives no other outside financial support or tax subsidy.

EMERGENCY SERVICE	651-266-6868
Call: 7:30 a.m 4:30 p.m.	Mon - Fri
TDD Hearing Impaired	651-266-6299
Customer Service	651-266-6350

Water usage is based on the meter reading for A 6.875% state sales tax is applied to ESTIMATE indicates we non-residential accounts. the current period. were unable to read the meter. If your current bill is estimated, call Meter Office at 651-266-6850 to schedule an appointment as we need to get inside and troubleshoot the metering problem. Note: 100 cu. ft. of water equals 1 unit or 748 gallons.

Billing Periods

Accounts are billed quarterly for residential and monthly for commercial.

NOTE: "Due Date" means date to be received by the SPRWS. The SPRWS is not Returned Checks responsible for late payments caused by a delay in the mail service.

Water Rate Settings

Water rates are changed periodically to cover increased costs for water treatment, chemicals, electric power, fuel, maintenance of the supply and distribution systems, and other general expenses Changes in water rates are proposed by resolution of the Board of Water Commissioners and put into effect upon confirmation by the Saint Paul City Council.

Water Consumption Charges

Winter*	\$3.02 per 100cu.ft.
Summer**	\$3.14 per 100cu.ft.

For accounts with 1-inch and smaller meters: Winter rates apply to bills sent during January

through May, and December. ** Summer rates apply to bills sent during June through November.

For accounts with 1 1/2 -inch and larger meters: Winter rates apply to bills sent during January

through April, November and December.

Water Service Base Fee

The water service base fee covers such costs as general administration, billing, accounting, customer service, etc.

Meter Size	Service Base Fee	Bill Cycle
< 1"	\$18.00	per quarter
1"	\$45.00	per quarter
1 1/2"	\$90.00	per quarter
1 1/2"	\$30.00	per month
2"	\$48.00	per month
3"	\$96.00	per month
4"	\$150.00	per month
6"	\$300.00	per month
8"	\$480.00	per month
10"	\$690.00	per month

Sales Tax

Transit Tax

A 0.25% transit applied tax is non-residential accounts.

Late Charge

Water bills are considered delinquent if not paid within 30 days of the Bill Date, at which time a 5% late charge will be added to your bill.

A \$30.00 fee will be charged for all returned check and "Automatic Withdrawal" returns.

Minnesota Safe Drinking Water Act

The Minnesota Department of Health via the Federal Safe Drinking Water Act (Statute 144.3831) requires we charge 53 cents per month or \$1.59 per guarter for testing public to water supplies.

Meter Reading Fee

Per reading fee for the properties that have exterior-mounted, non-radio an meterina system (Touchpad)

Bill Problems

If you dispute this bill, please call 651-266-6350. You are entitled to a hearing before an impartial hearing officer who will a recommendation make regarding resolution of your concerns.

Payment Responsibility

Property owners are responsible for all water bills issued against their property. lf a property owner desires to have the bills sent to a tenant, the SPRWS will agree to do so; however, all charges for water and sewer services are a continuing statutory lien against the property until they are paid. Unpaid charges that are delinquent as of November 15th of each year may be certified to the County Auditor, at the SPRWS' discretion, to be collected with the real estate taxes for the property.

Pay using Automatic Withdrawal

You can pay your water bill directly from your bank account. For further information call customer service at the numbers below.

The Saint Paul Regional Water Services

SPRWS is a publicly owned corporation operating as a self-supporting non-profit entity. It is financed solely by the sales of water and fees for other services. It receives no other outside financial support or tax subsidy.

EMERGENCY SERVICE	651-266-6868
Call: 7:30 a.m 4:30 p.m.	Mon - Fri
TDD Hearing Impaired	651-266-6299
Customer Service	651-266-6350
Water Usage

Water usage is based on the meter reading for A 6.875% state sales tax is applied to ESTIMATE indicates we non-residential accounts. the current period. were unable to read the meter. If your current bill is estimated, call Meter Office at 651-266-6850 to schedule an appointment as we need to get inside and troubleshoot the metering problem. Note: 100 cu. ft. of water equals 1 unit or 748 gallons.

Billing Periods

Accounts are billed quarterly for residential and monthly for commercial.

NOTE: "Due Date" means date to be received by the SPRWS. The SPRWS is not Returned Checks responsible for late payments caused by a delay in the mail service.

Water Rate Settings

Water rates are changed periodically to cover increased costs for water treatment, chemicals, electric power, fuel, maintenance of the supply and distribution systems, and other general expenses Changes in water rates are proposed by resolution of the Board of Water Commissioners and put into effect upon confirmation by the Saint Paul City Council.

Water Consumption Charges

Winter*	\$3.02 per 100cu.ft.
Summer**	\$3.14 per 100cu.ft.

For accounts with 1-inch and smaller meters: Winter rates apply to bills sent during January

through May, and December. ** Summer rates apply to bills sent during June through November.

For accounts with 1 1/2 -inch and larger meters: Winter rates apply to bills sent during January

through April, November and December.

Water Service Base Fee

The water service base fee covers such costs as general administration, billing, accounting, customer service, etc.

Meter Size	Service Base Fee	Bill Cycle
< 1"	\$18.00	per quarter
1"	\$45.00	per quarter
1 1/2"	\$90.00	per quarter
1 1/2"	\$30.00	per month
2"	\$48.00	per month
3"	\$96.00	per month
4"	\$150.00	per month
6"	\$300.00	per month
8"	\$480.00	per month
10"	\$690.00	per month

Sales Tax

Transit Tax

A 0.25% transit applied tax is non-residential accounts.

Late Charge

Water bills are considered delinquent if not paid within 30 days of the Bill Date, at which time a 5% late charge will be added to your bill.

A \$30.00 fee will be charged for all returned check and "Automatic Withdrawal" returns.

Minnesota Safe Drinking Water Act

The Minnesota Department of Health via the Federal Safe Drinking Water Act (Statute 144.3831) requires we charge 53 cents per month or \$1.59 per guarter for testing public to water supplies.

Meter Reading Fee

Per reading fee for the properties that have exterior-mounted, non-radio an meterina system (Touchpad)

Bill Problems

If you dispute this bill, please call 651-266-6350. You are entitled to a hearing before an impartial hearing officer who will a recommendation make regarding resolution of your concerns.

Payment Responsibility

Property owners are responsible for all water bills issued against their property. lf a property owner desires to have the bills sent to a tenant, the SPRWS will agree to do so; however, all charges for water and sewer services are a continuing statutory lien against the property until they are paid. Unpaid charges that are delinquent as of November 15th of each year may be certified to the County Auditor, at the SPRWS' discretion, to be collected with the real estate taxes for the property.

Pay using Automatic Withdrawal

You can pay your water bill directly from your bank account. For further information call customer service at the numbers below.

The Saint Paul Regional Water Services

SPRWS is a publicly owned corporation operating as a self-supporting non-profit entity. It is financed solely by the sales of water and fees for other services. It receives no other outside financial support or tax subsidy.

WATER SERVICES PHONE NUMBERS

EMERGENCY SERVICE	651-266-6868
Call: 7:30 a.m 4:30 p.m.	Mon - Fri
TDD Hearing Impaired	651-266-6299
Customer Service	651-266-6350

Saint Paul Regional Water Services Local Water Supply Plan - 2016

Appendix X

Adopted Regulations to Reduce Demand or Improve Water Efficiency





Appendix X- Regulation

Chapter 91. - Water Code—Miscellaneous Provisions

Sec. 91.03. - Water conservation.

Plumbing fixtures installed in any new building or any retrofitted building shall be of water conserving type and shall meet requirements of the state building code. The board of water commissioners may implement a plan to promote and encourage replacement of nonconserving faucets, shower heads and toilets.

All automatic lawn sprinkler systems connected to the public water system must be equipped with water conserving devices. However, systems which were installed prior to the effective date of this chapter may continue in operation at their current locations.

No person shall allow water to be wasted through any faucet or fixture or keep water running longer than necessary. The board of water commissioners shall discourage any wastage of water and may, when in its judgment deemed necessary, turn off any water service and require remedial action as it may in its judgment be deemed proper and necessary.

(Code 1956, § 252.03; C.F. No. 93-905, § 16, 7-15-93; C.F. No. 97-1419, § 5, 12-22-97)

Saint Paul Regional Water Services Local Water Supply Plan - 2016

Appendix XI

Implementation Checklist





Action Item	Action Taken	Timeframe
Conservation Water Rates Structure – Explore additional conservation billing strategies to encourage water conservation.	Yes	Ongoing
Water Supply System Improvements.	Yes	Ongoing
Educational Efforts – Continue to provide public information and outreach programs to reach conservation goals.	Yes	Ongoing
Rebate or retrofitting program – Continue to partner with organizations to promote water conservation practices.	Yes	Ongoing
Continue to achieve less than 75 Residential GPCD and to sustain a decreasing trend in GPCD across all customer categories.	Yes	Ongoing
Monitoring Water Usage and Loss – Implement and continue to perform leak detection surveys & water audits. Increase frequency at known "at risk" areas in order to achieve a decreasing trend for unaccounted water loss.	Yes	Ongoing
Revise city comprehensive plan for water resource management.	Yes	Ongoing
Consumer Water Audits – Explore marketing water audits for interested customers.	No	TBD
Metering – Pursue establishing better methods and procedures to estimate water usage for SPRWS distribution system activities.	No	TBD
Update water conservation regulations and enforcement strategies. SPRWS to create an Emergency Response Management Supervisor to address these issues.	No	TBD