West St. Paul

2040 Comprehensive Plan

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CHAPTER 1: INTRODUCTION

PURPOSE OF THE PLAN

The 2040 Comprehensive Plan (Plan) provides an opportunity to establish a vision for how the community will grow and develop over the next 20 years and is intended to be reflective of the desires of the entire community. It analyzes various topics related to development including land use, housing and neighborhoods, economic development, transportation, utilities, and parks & trails, among others. This Plan aims to build off of the goals and policies identified in the 2030 Comprehensive Plan so that momentum may be continued.

Minnesota Statute requires that cities within the 7-county Metropolitan Area update their comprehensive plans every ten years. Comprehensive plans are reviewed by the Metropolitan Council, which is responsible for managing and planning for the growth of the Twin Cities region. The purpose of the update is to ensure that local plans are consistent with forecasts and policy plans prepared by the Metropolitan Council. In addition, regularly updating the comprehensive plan allows for communities to adjust their goals based on emerging trends and changing demographic needs.

A comprehensive plan does not ensure any change by itself. It must be implemented on a daily basis by elected officials, commission members, city staff and other stakeholders. The Plan is intended to inform decision making related to official controls, such as the zoning and subdivision ordinances, as well as guide future investment through the capital improvement plan (CIP). As such, it is an important document in shaping the city's future and should be referenced regularly.

HOW TO USE THIS PLAN

The Plan is meant to be a living document, grounded in real challenges and opportunities. It is meant to be revisited often and revised as conditions change. The City will use the continuous input of the public, whether through formal or informal means, to make sure that the vision, goals and policies are still relevant.

Based on the priorities voiced in through public input, as well as demographic, physical, social and economic changes affecting the City, the Plan is divided into the following chapters:

2 – Vision and Goals

3 – Community Profile

4 – Land Use

5 – Housing

6 – Economic Development

7 – Transportation

8 – Parks and Recreation

9 – Sustainability

10 –Water Supply

11 –Sanitary Sewer

12 –Surface Water

13 – Implementation

Each chapter includes an overview of the existing conditions related to the topic, the related Goals, a summary of "what we heard" from the public, and "for the future" action items.

The Community Profile, provides detailed background information regarding demographics, housing, economy, environment, transportation, and land use for the City of West St Paul, Dakota County, and in some cases comparable cities. This information can be used in the context of land use and development decisions, as well as a stand-alone document.

Appointed and elected officials use the City's Master Plan as a guide when making decisions with limited resources about land use, housing, transportation, equity, quality of life, and sustainability. Traditionally, decision-makers reference the Comprehensive Plan when deciding what uses should be allowed on a parcel of land; allocating resources for infrastructure investments; preserving and improving parks, open spaces, and trail connections; and enhancing the quality of life for all residents. Overall, the Plan is meant to provide specific guidance for local officials to accomplish the vision set forth through the planning process.

PLANNING HISTORY

The first step in this planning process was to review previous planning efforts undertaken by the City of West St. Paul.

Smith Avenue Revitalization Plan, 2011

Smith Avenue represents an important commercial and residential corridor within the cities of St. Paul and West St. Paul. The Smith Avenue Revitalization Plan is the vision for this corridor from the Mississippi River in St. Paul to Dodd Road in West St. Paul. The planning process began in 2009 and involved the Riverview Economic Development Association (REDA), the Neighborhood Development Alliance (NeDA), West Side Citizens Organization (WSCO), City of Saint Paul's Department of Planning and Economic Development (PED) and City of West Saint Paul. The process was led by a task force that included residents, property owners, and business owners. The purpose was to develop a vision and series of objectives and strategies for the economic, environmental, and physical well-being of the corridor for the next 10 to 15 years. Objectives and strategies focused on community character, commercial vitality, land use, transportation, parks and recreation, housing, and historic preservation.

Robert Street Renaissance Plan and Redevelopment Design Framework 2017 (2000)

This document is currently being updated from the original version adopted in 2000. The document acknowledges that Robert Street serves as the main commercial corridor in the City of West St. Paul and is currently in transition. Growth in Woodbury, Eagan, and Mendota Heights along with Highway 52 has caused regional retail destinations to disperse, and Robert Street is no longer the primary retail option for Dakota County. The Renaissance Plan, therefore, focuses on how Robert Street can re-invent itself as a beloved place for the community.

This document provides a framework for redevelopment activities and is intended to shape the future of the corridor in a manner that creates identifiable places, has a balanced mix of retail and housing, attracts new businesses, residents and visitors, provides gathering places, and is safe for getting around via multiple modes of transportation. The plan creates four distinct character areas or "neighborhoods", mixed use places, as well as provides strategies to "bridge" Robert Street and organize and reinvent retail development.

2030 Comprehensive Plan, 2009

The 2030 Comprehensive Plan served as the guiding document for all city policy for the past ten years. This plan addresses various topics related to the development of West St. Paul including land use, transportation, community facilities, community issues, economic development, and intergovernmental cooperation. A policy plan chapter lists goals and policies related to these topic areas. The vision for the plan focused on striving to insure a safer, more pleasant and more economical environment for residential, commercial, industrial and

public activities and to promote the public health, safety and general welfare of the citizens of West St. Paul.

THRIVE 2040 OUTCOMES

The City's Plan must also use the Metropolitan Council's Thrive 2040 Outcomes as "lenses" through which we view the city's future. Each chapter of the Plan works to achieve a balance between the following Thrive 2040 Outcomes:

1. Stewardship: responsible management of natural and financial resources and making strategic investments in the future.
2. Prosperity: investing in infrastructure and amenities that attract and retain successful businesses, a talented workforce and, consequently, wealth.
3. Equity: connecting all residents to opportunity. This includes viable housing, transportation and recreation opportunities.
4. Livability: creating and renewing vibrant places and underlying infrastructure that build community identity; investing in parks and affordable housing; and collaborating with neighbors.
5. Sustainability: protecting regional vitality for generations to come. This includes promoting wise use of water; climate change mitigation, adaptation and resilience efforts.

CHAPTER 2: VISION AND GOALS

The vision and goals for the City of West St. Paul were developed first and foremost with the input of the community in mind. Therefore, this Chapter begins with a review of what the City heard from its residents during a series of neighborhood meetings held during the winter of 2017.

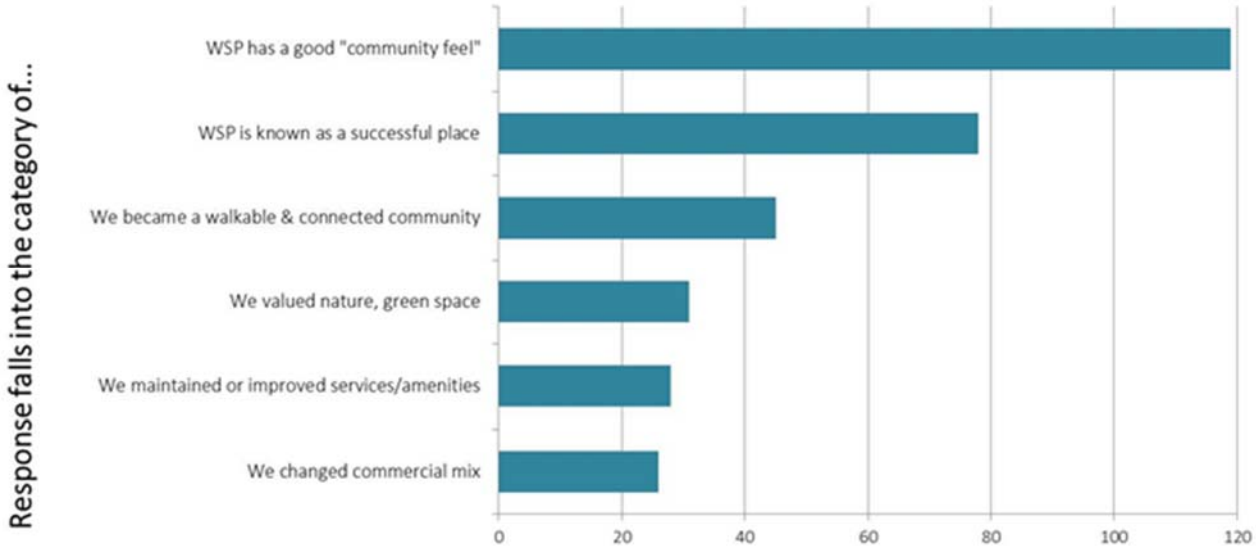
The vision and goals will be used throughout this Plan as a basis for the more specific strategies and actions in each topic chapter.

WHAT WE HEARD

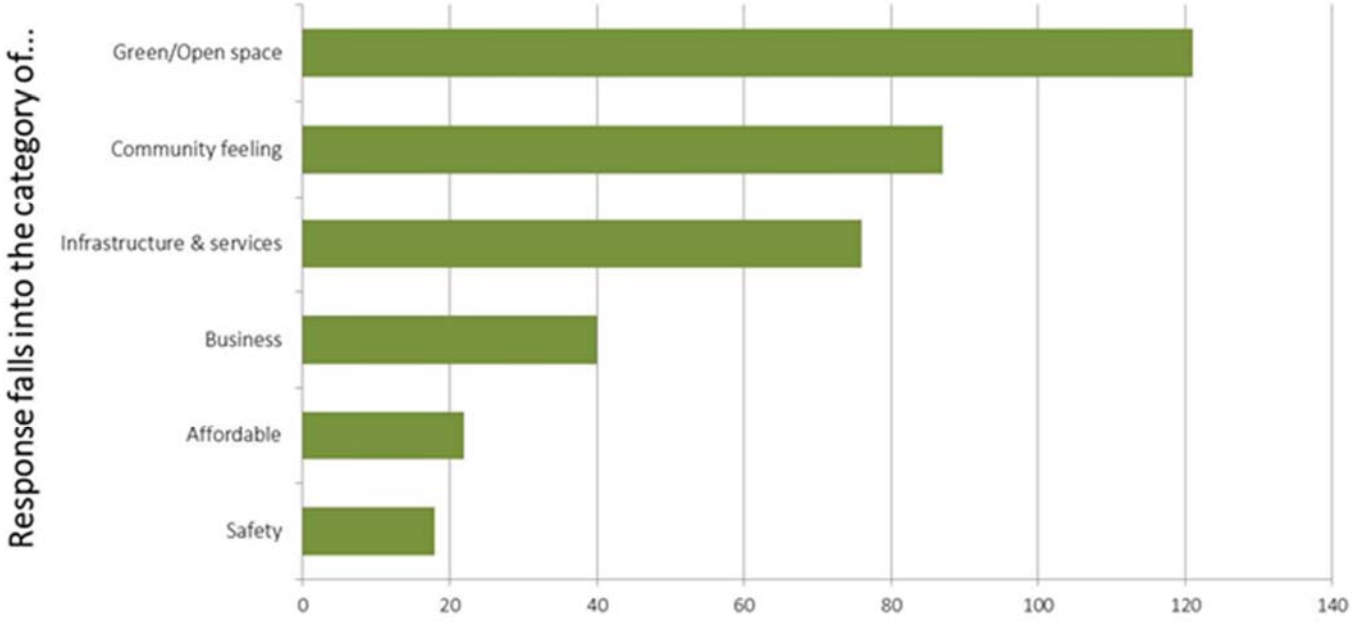
Residents of West St. Paul provided a significant amount of input via ward-based meetings and an online survey that were used in the development of the vision and goals for this Plan. Highlights of that input are included here.

The word cloud above shows the results of the exercise where residents were asked to describe the City in three words.

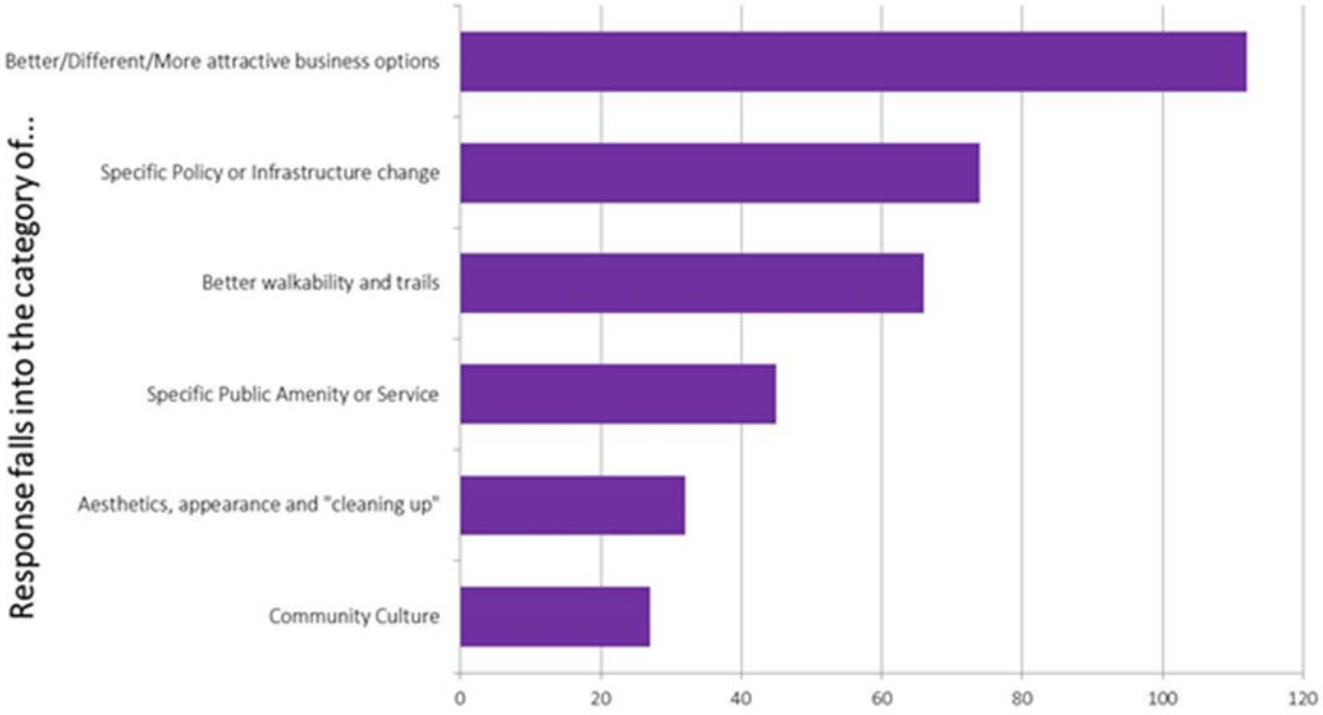
Think about the City as you would like to describe it to someone 20 years from now…what would you hope to say?



What are the top 3 things you would like to preserve about the CIty?



What are the top 3 things you would change about the City?



VISION

The City's Vision provides the basis for the goals of the Comprehensive Plan, as well as the actions that will move the City forward. The following vision was created based on existing plans and policies, the input of the community, and feedback from city officials:

> The City of West St Paul strives to insure a safe, pleasant and affordable environment for residential, commercial, industrial and public activities and to promote the public health, safety and general welfare of the its citizens. West St. Paul will be a friendly, safe, walkable and well-connected City for its residents and visitors. As we grow, adapt and change, we will preserve green spaces, high quality infrastructure and the community feeling that makes West St. Paul a desirable City.

CITYWIDE GOALS

In order to achieve the vision, the City's sets forth the following goals that permeate the rest of the Plan. The City's goals are to:

1. Provide a balance of spaces for residents to live, work and play.
2. Gather and consider input from residents, business owners and customers in development and redevelopment opportunities.
3. Enhance public services and amenities, such as parks, trails, and community centers, with the goal of creating a strong sense of place in West St Paul.
4. Attain and maintain a secure tax base consisting of high quality residential, commercial and industrial properties.
5. Develop, update and enforce standards for development/redevelopment that enhance public health, provide for affordable housing, increase pedestrian safety and promote a high quality of living.
6. Maintain and provide a quality public realm that creates a safe living environment for all residents.
7. Actively encourage and utilize citizen participation in the local decision-making process.
8. Protect both the general welfare and the individual choices of the citizens of West Saint Paul.
9. Utilize best planning and management practices to provide the most efficient public services.
10. Encourage sustainable development and best management practices to protect the environment for future generations.
11. Advocate and support with municipal investment a safe, high quality visual environment throughout the City and particularly along major transportation corridors.
12. Preserve historical, natural and cultural resources that contribute to the high quality of life in West St Paul, such as the Dodge Nature Center.
13. Continue investment in municipal spaces that enhance community pride.
14. Effectively utilize technology and education resources as tools in achieving this vision.

More specific goals related to each of the Plan's elements are presented in the subsequent chapters.

CHAPTER THREE: COMMUNITY PROFILE

This community profile contains information about existing conditions in the City of West St. Paul. It is meant to provide context for the rest of the Plan, and can also be used as a standalone reference. Some of the information in this chapter is repeated in subsequent chapters, as relevant.

THE LAND

Existing Land Use

Existing land use can be thought of as what *actually exists* on the ground at the present time, regardless what has been planned or what zoning regulations exist. The most accurate depiction of what land uses currently exist in West St. Paul comes from the Metropolitan Council's 2010 Generalized Land Use map, which uses a combination of aerial photography, county parcel data and community "ground truthing" to provide current land use types by acreage.

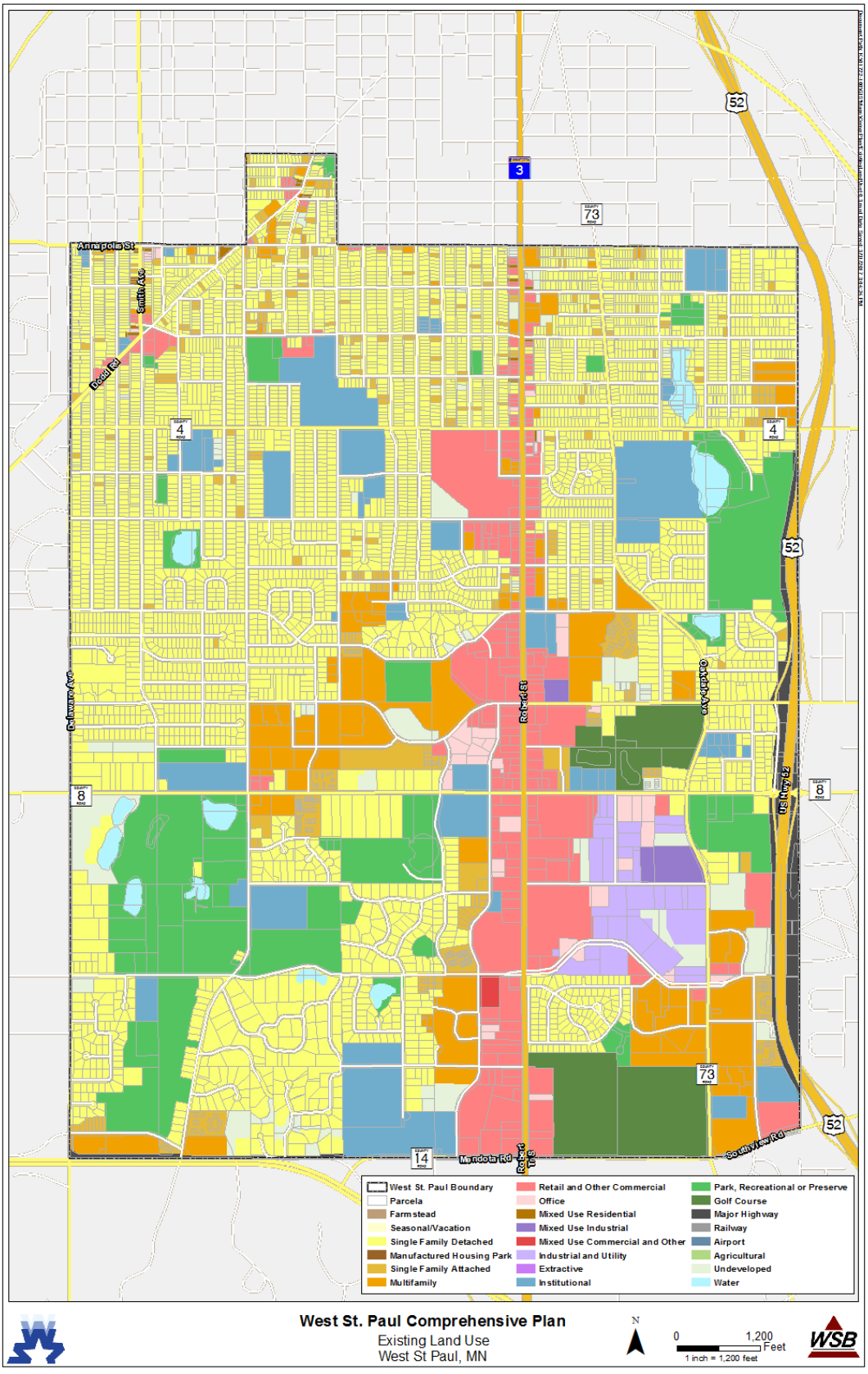
Existing land use types, by their acreage and percent of total acreage in the city, are shown in the table below. As a fully-developed inner-ring suburb community, very little land in the City remains undeveloped.

TABLE 3-1: EXISTING LAND USE IN WEST ST. PAUL

Land Use	Total Acres	Percent
Single Family Detached	1,517	47%
Park and Recreational	447	14%
Multifamily	377	12%
Retail and Other Commercial	305	10%
Institutional	239	7%
Agricultural and Undeveloped	88	3%
Major Roadways	69	2%
Industrial and Utility	65	2%
Open Water	37	1%
Office	36	1%
Mixed Use	22	1%
Total Land (acres)	**3,202**	

Source: Metropolitan Council Generalized Land Use (2010)

MAP 3-1 EXISTING LAND USE (SOURCE: METROPOLITAN COUNCIL EXISTING LAND USE 2016)



Existing Residential Land Use

The primary land use type in West St. Paul is residential. Nearly 60 percent of the city's land is devoted to the combined residential uses of single family detached housing, attached housing, and multifamily housing. Of these, single family detached housing remains the most prominent residential use by area.

Existing Commercial and Industrial Land Use

Retail, office and industrial land uses make up 13 percent of West St. Paul by area. Commercial uses are prominent along the length of the Robert Street corridor, although there are other commercial nodes in the city such as the Smith-Dodd intersection, the Dodd-Allen intersection and some areas adjacent to Highway 52.

Existing Public Land Use

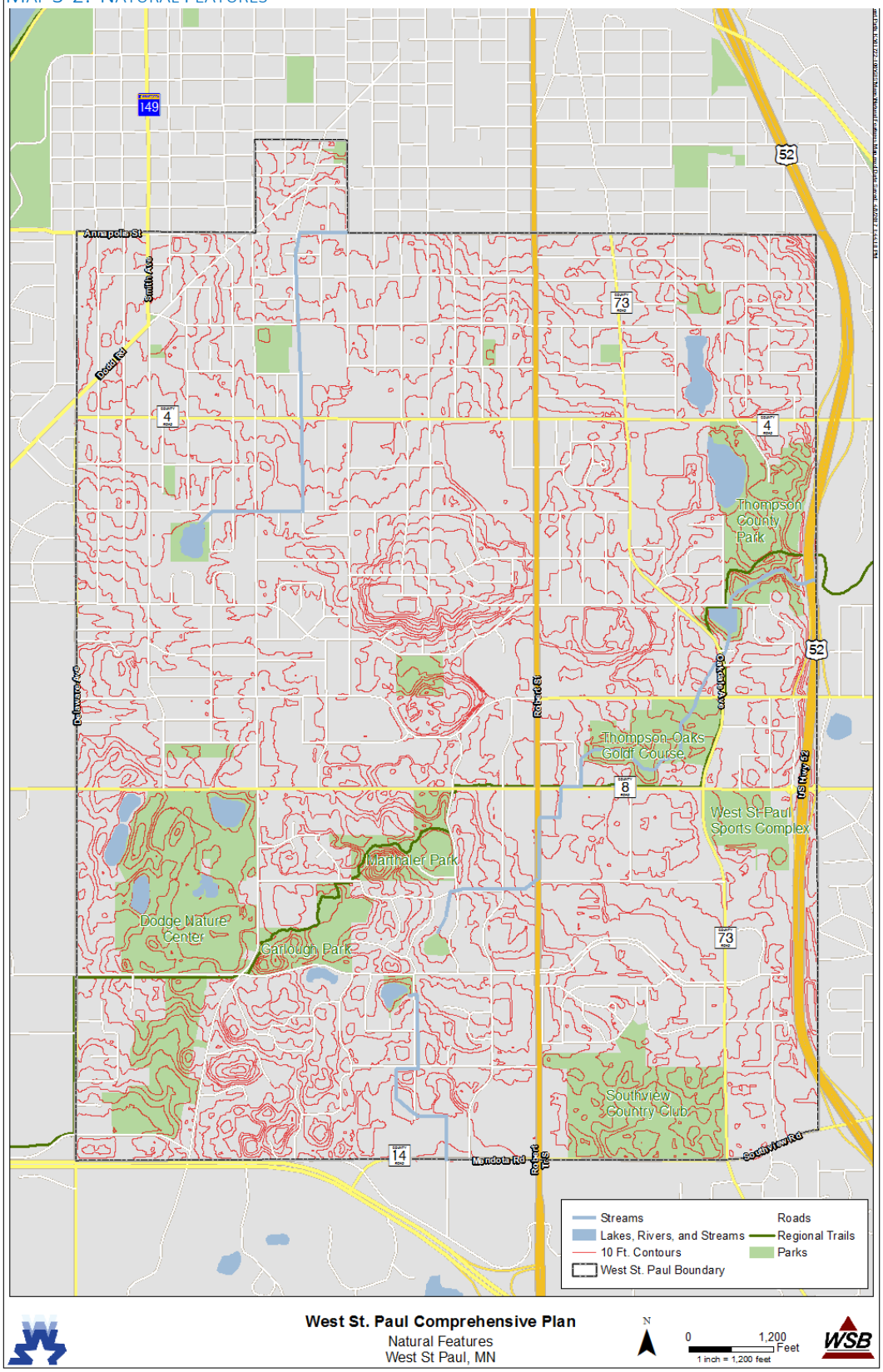
Civic buildings and public uses make up seven percent of the city by area, while Parks and Recreational uses make up an additional 14 percent of the city's land. Park and recreation areas include Thompson County Park, Thompson Oaks Golf Course, Marthaler Park, Garlough Park, Southview Country Club, and the Dodge Nature Center.

Natural Features

West St. Paul is a built out and largely urbanized community, but retains natural features that define the community and shape land development. Around 14 percent of its land area is devoted to parks, recreational or preserve features, the largest of which is the Dodge Nature Center in the southwestern corner of the city.

West St. Paul has 37 acres of open water, the largest of these being Thompson Lake and Lilly Lake in the northwest portion of the city. West St. Paul does have some significant steep slopes, as shown on the natural resources map, that impact development feasibility and direct the flow of water. Some of the steepest slope areas are in the center of the city (the area south of Signal Hills shopping center), in Marthaler and Garlough Parks, and in the southwestern residential areas of the city.

MAP 3-2: NATURAL FEATURES

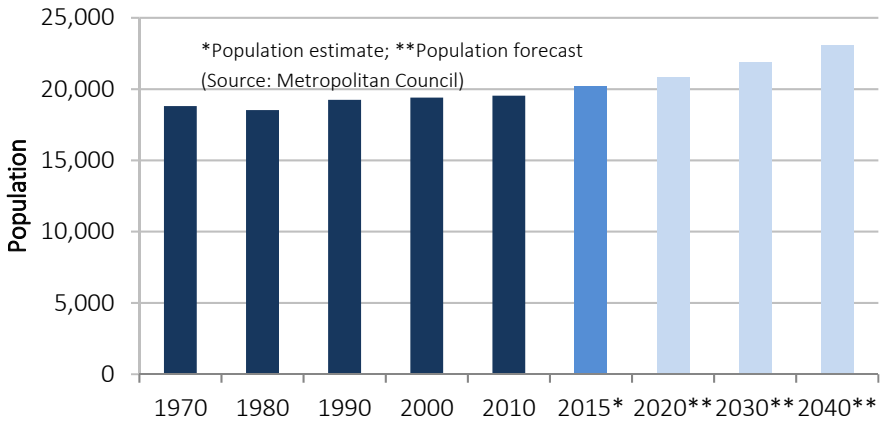


THE PEOPLE

Population

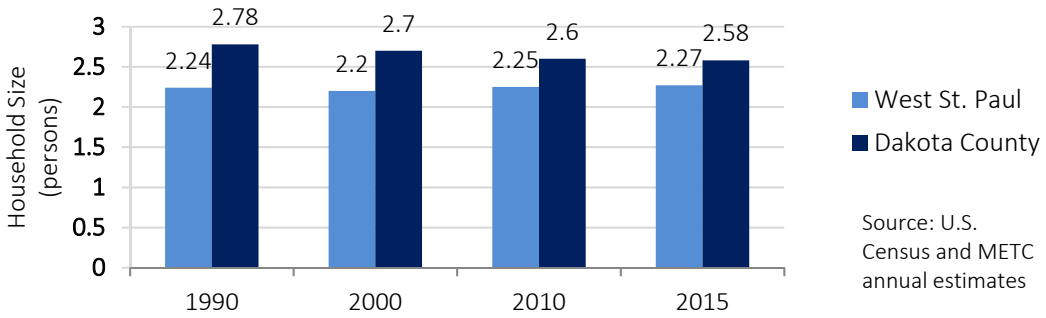
As of the 2010 US Census, the population of West St. Paul was 19,540, and the most recent estimates from 2015 put the population at 20,222. The population of West St. Paul has remained relatively steady since 1970. According to forecasts by the Metropolitan Council, by 2040 the population of West St. Paul is projected to increase to 23,100.

FIGURE 3-1: HISTORIC AND FUTURE POPULATION OF WEST ST. PAUL



The average household size in West St. Paul has remained constant over the past three decades, and low by comparison to the Dakota County average household size. As regional trends predict a trend toward smaller household sizes over the next 25 years, cities across the region (especially those located in urban areas) will need to consider accommodating increases in population through redevelopment at higher housing densities.

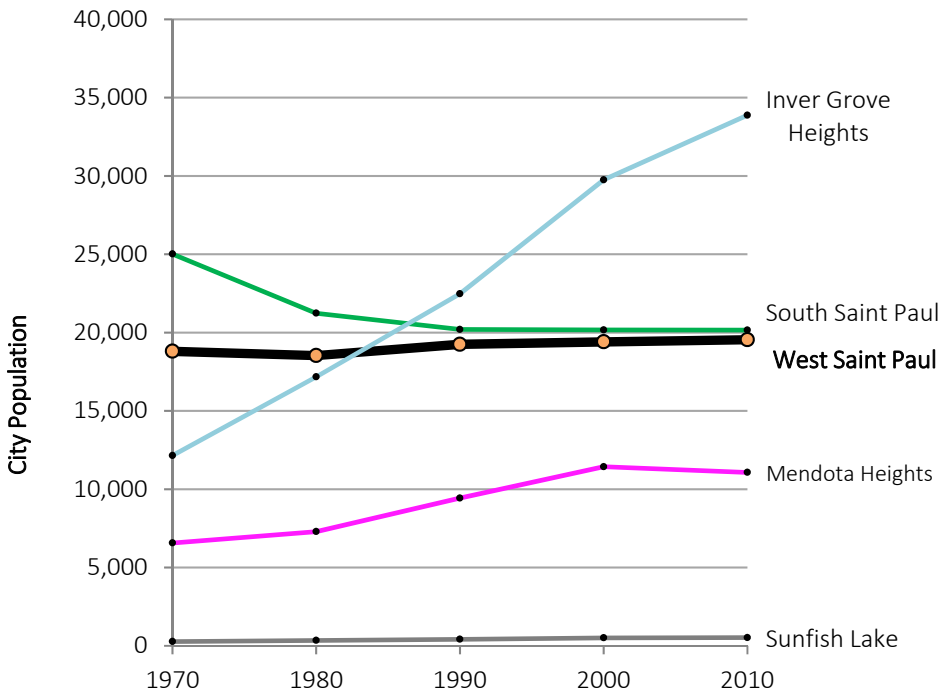
FIGURE 3-2: AVERAGE HOUSEHOLD SIZE



Source: U.S. Census and METC annual estimates

West St. Paul's population has remained fairly constant in comparison to its neighboring communities over the period since 1970. Although West St. Paul is very similar in population size to South St. Paul, it has not experienced the same population decline. West St. Paul is poised to experience some significant population growth over the next three decades, but not on the same scale as the explosive growth that Inver Growth Heights has experienced over the past 40 years.

FIGURE 3-3: POPULATION OF WEST ST. PAUL COMPARED TO SURROUNDING COMMUNITIES, 1970-2010

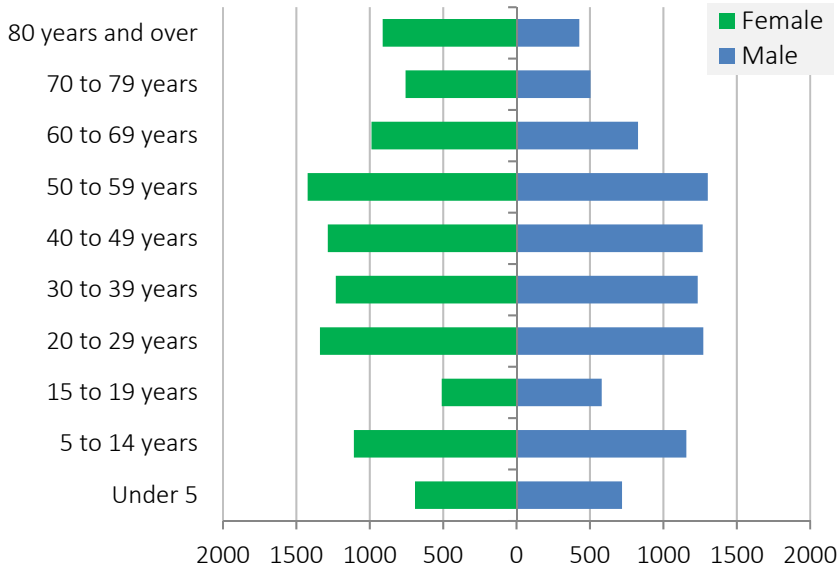


Source: U.S. Census (population by place)

Age demographics

Consistent with most other communities across the region, West St. Paul's population as an increasing number of people in the older cohorts. FIGURE 3-4 shows the significantly large cohorts that make up the age groups ranging from 20 to 60 years old. The largest segment of the city's population is in the 50 to59 age range. Over the next 25 years, it will be important for West St. Paul to plan for alternative housing options for these residents as they age so that they can remain in the community. It will also remain important that West St. Paul seek ways to be competitive in attracting younger residents.

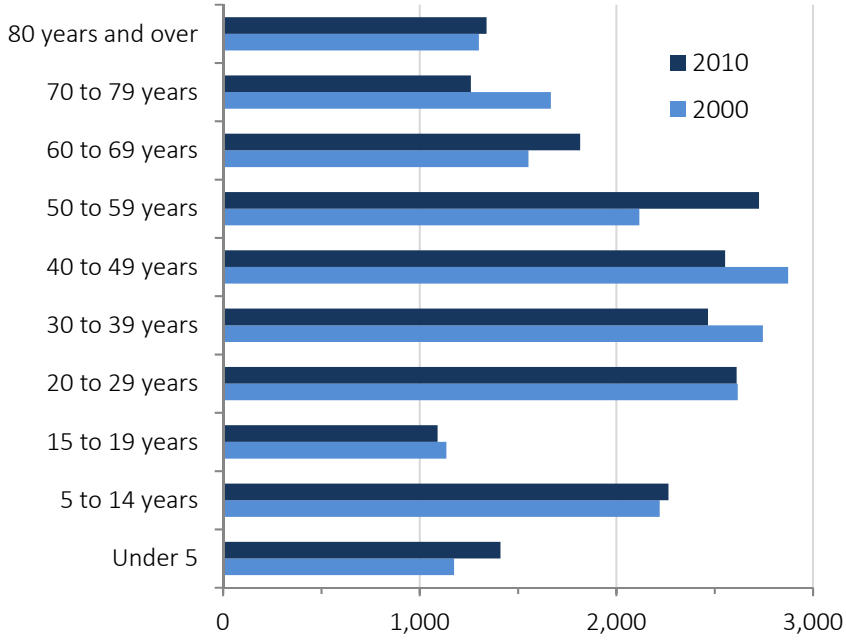
FIGURE 3-4: AGE OF WEST ST. PAUL RESIDENTS, 2010



Source: U.S. Census (2010)

Looking at the changes in age demographics from 2000 to 2010, the greatest gains were in the categories of very young children and "empty nester" adults, while there were losses in population amongst 30- to 50-year-olds.

FIGURE 3-5: AGE COHORT CHANGES OF WEST ST. PAUL RESIDENTS, 2000-2010



Source: U.S. Census (2000 and 2010)

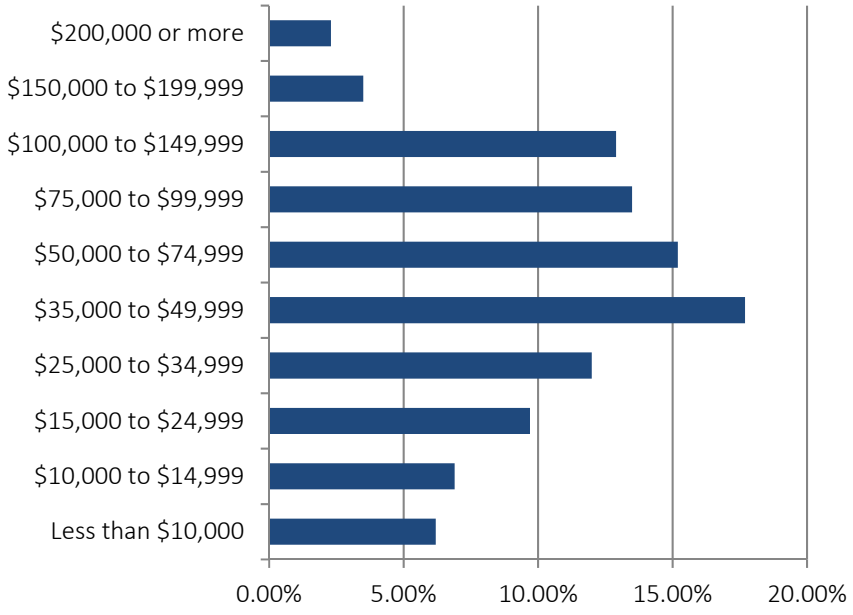
Household Income

Compared to its surrounding communities and Dakota County on the whole, West St. Paul has a lower median household income and average household income. However, Census data indicates that West St. Paul's median household income has been increasing over the past few decades. While the average household income in West St. Paul is just over $63,000 annually, the city's income distribution indicates that less than half of the households in West St. Paul have incomes at that level. In 2015, the ACS estimated that around 12 percent of West St. Paul's population lives below the poverty line.

TABLE 3-2: HOUSEHOLD INCOME BY PLACE

	Median household income ($)	Average household income ($)
West St. Paul	**$47,710**	**$63,867**
St. Paul	$48,757	$67,612
South St. Paul	$55,607	$63,000
Inver Grove Heights	$65,108	$87,369
Dakota County	$75,567	$93,456
Mendota Heights	$95,353	$143,931
Sunfish Lake	$169,375	$272,586

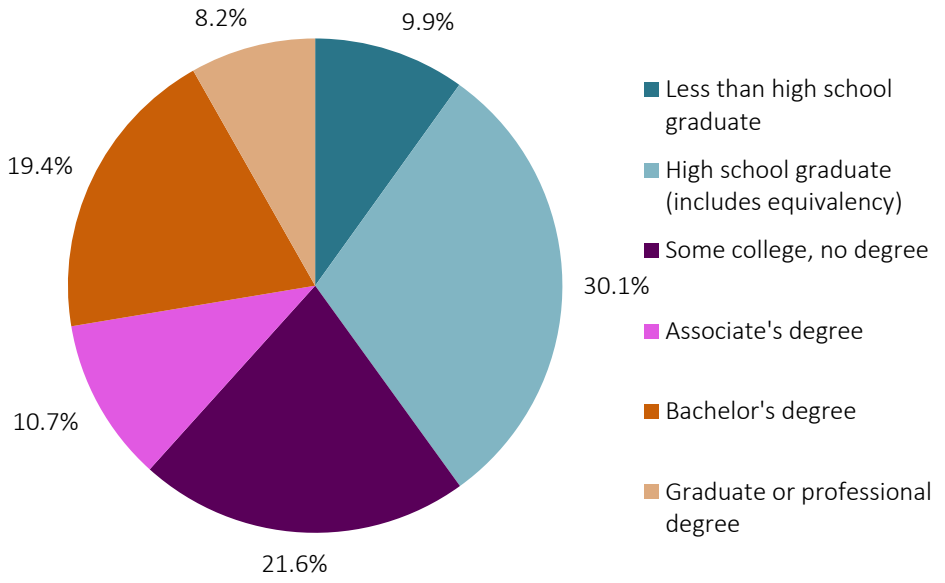
FIGURE 3-6: WEST ST. PAUL INCOME DISTRIBUTION BY INCOME BRACKET



Education

There is a broad range of educational experience levels among West St. Paul residents. Nearly 60 percent of residents have at least some college experience. West St. Paul is fortunate to have numerous colleges and universities nearby, as well as a wide range of employers in the area hiring college graduates.

FIGURE 3-7: EDUCATIONAL ATTAINMENT LEVEL OF WEST ST. PAUL RESIDENTS



Source: ACS 2010-2014 Estimates

What People Do for Work

According to 2014 ACS data, there are just over 9,000 employed persons living in West St. Paul. Nearly one quarter of the working population of West St. Paul residents are employed in educational services, health care and social assistance jobs, and 13 percent work in retail trade. Around eight percent of working West St. Paul residents use public transit, bicycling or walking as a means of commuting to work, and the average commute time for all working residents is 23 minutes. Convenience and centrality is a major factor cited by West St. Paul residents in why they choose to live and stay in the city.

TABLE 3-3: THE INDUSTRIES IN WHICH THE EMPLOYED CIVILIAN POPULATION OF WEST ST. PAUL WORK

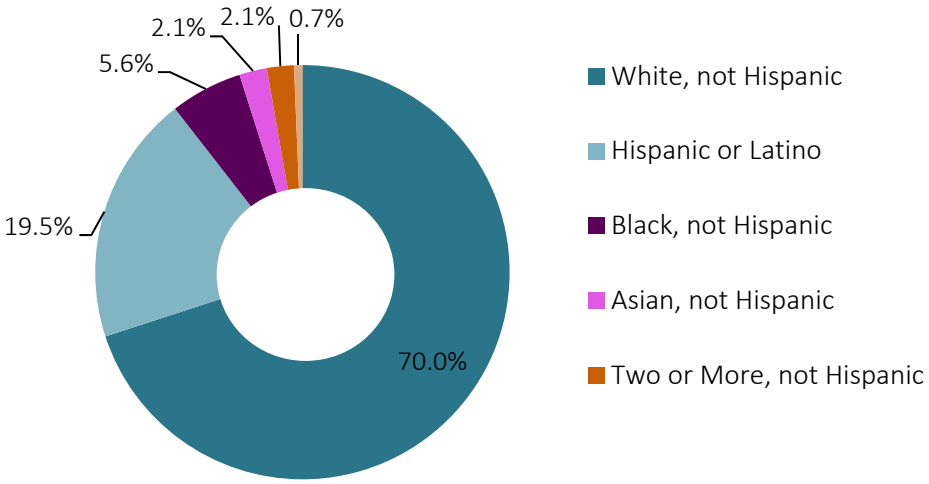
INDUSTRY	Number	Percent
Educational services, and health care and social assistance	2,021	22.0%
Retail trade	1,198	13.1%
Professional, scientific, and management, and administrative and waste management services	1,054	11.5%
Arts, entertainment, and recreation, and accommodation and food services	888	9.7%
Manufacturing	879	9.6%
Transportation and warehousing, and utilities	667	7.3%
Finance and insurance, and real estate and rental and leasing	651	7.1%
Public administration	559	6.1%
Wholesale trade	362	3.9%
Construction	333	3.6%
Other services, except public administration	321	3.5%
Information	193	2.1%
Agriculture, forestry, fishing and hunting, and mining	51	0.6%

Source: ACS 2010-2014 Estimates

Race

West St. Paul is becoming a more racially diverse city. Although White non-Hispanic individuals make up a majority 70 percent of the population, individuals of Hispanic or Latino origin account for a large segment of the remainder of the population at 19.5 percent. In 2000, West St. Paul's population was 83 percent White and 10 percent Hispanic or Latino. Regional trends indicate that in the Twin Cities metro area overall, residents of color will continue to comprise a greater share of our region's population, increasing from 24 percent in 2010 to 41 percent in 2040.

FIGURE 3-8: WEST ST. PAUL RACIAL DEMOGRAPHICS



THE NEIGHBORHOODS

Housing Types

Housing is the predominant land use in West St. Paul. Estimates from the Metropolitan Council indicate that there were 9,174 housing units in West St. Paul in 2015. Around half of the housing units in West St. Paul are single family detached homes. Fully 40 percent of housing units are located in multifamily buildings of five or more units, and the remaining 10 percent of units are attached townhomes or are located in duplex, triplex or quadplex structures.

TABLE 3-4: HOUSING BY TYPE IN WEST ST. PAUL

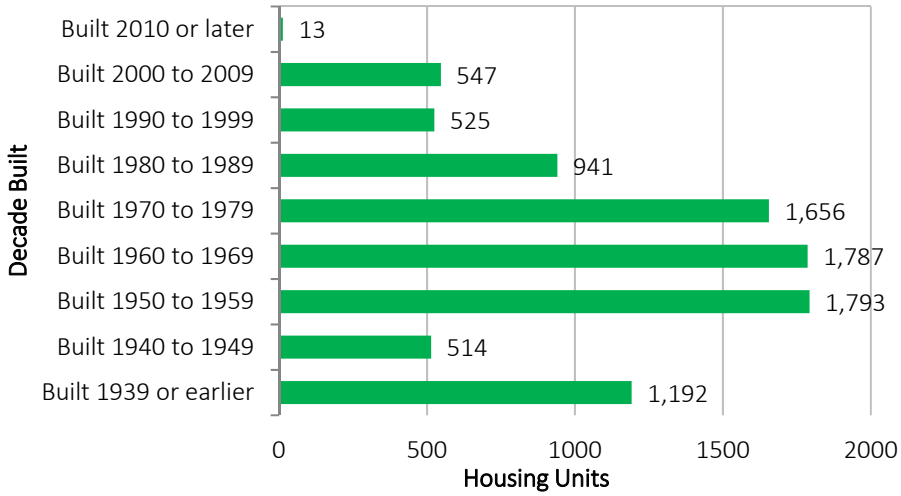
Unit Type	Units	Percent
Single Family Detached	4,633	51%
Multifamily (5 units or more)	3,705	40%
Townhomes	451	5%
Duplex, triplex, quad	385	4%
Total:	**9,174**	

Source: Metropolitan Council Housing Stock Estimates (2015)

Housing Age

The age of West St. Paul's housing stock is very typical for an inner-ring suburb of the Twin Cities. Less than one-fifth of the housing was built prior to 1950, indicating the significance of the post-war housing boom for the City. The majority (three-fifths) of West St. Paul's housing was built between 1950 and 1980. A challenge facing the city is the need to balance property upkeep and upgrades to older housing while maintaining the community's naturally-occurring affordability.

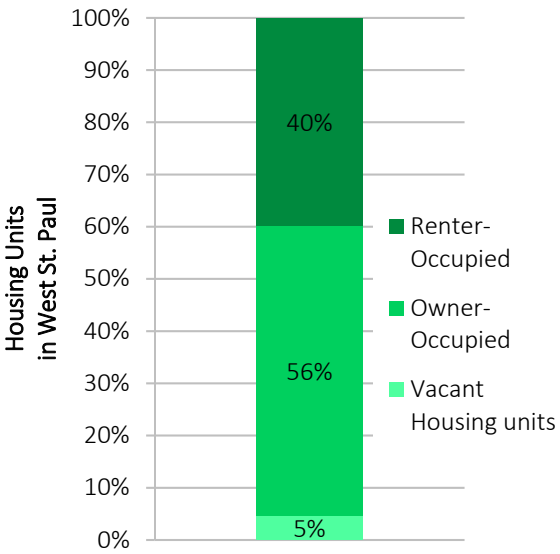
FIGURE 3-9: AGE OF WEST ST. PAUL HOUSING STOCK



Source: ACS 2010-2014 Estimates

Housing Tenure

FIGURE 3-10: WEST ST. PAUL HOUSING UNITS

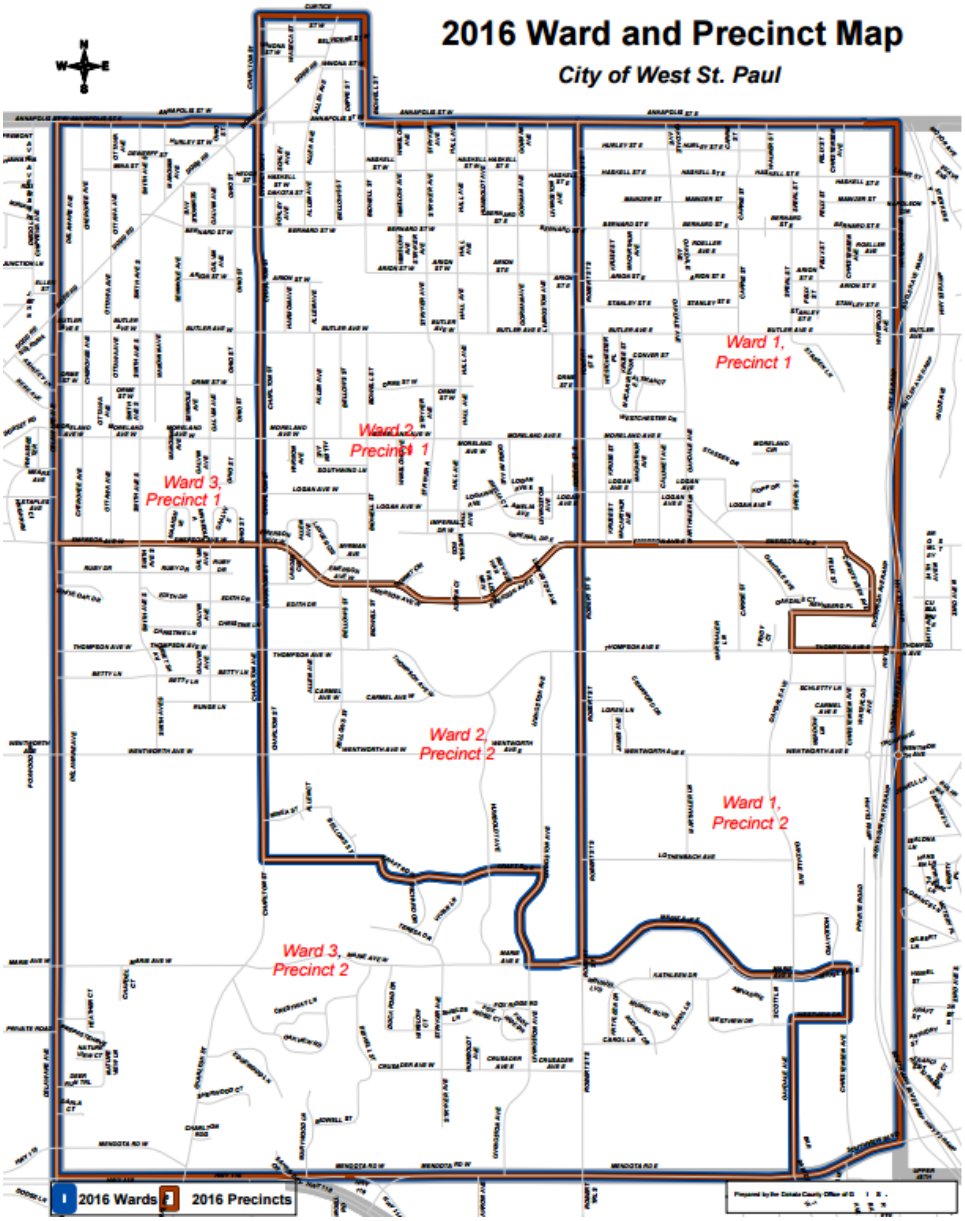


West St. Paul has a higher proportion of rental housing than many of its neighboring communities. Availability of rental housing has been a longstanding feature of the community. Around 40 percent of West St. Paul housing units are renter-occupied, and that percentage has remained largely the same since 1990.

Neighborhood Organization

West St. Paul organizes community engagement and annual resident meetings around its ward boundaries, which are shown on the map below. While the wards are political boundaries linked to city council representation, the ward structure has also served the purpose of creating de-facto "neighborhoods" for the purpose of hosting annual city meetings and organizing city events.

MAP 3-3: WARDS AND PRECINCTS



THE ECONOMY

The Metropolitan Council Estimates approximately 7,927 jobs in the City of West St. Paul in 2015. Average annual wages for 2015 are estimated at $38,347. This is $15,964 less than the average for Dakota County. A large reason for this disparity is likely due to the fact that Retail Trade represents the largest employment industry in West St. Paul and these are typically low wage jobs. More than one fifth of West St. Paul's jobs are in Retail Trade, while only 13 percent of Dakota County jobs on the whole are devoted to Retail Trade.

TABLE 3-5: JOBS LOCATED IN WEST ST. PAUL, BY INDUSTRY SOURCE: METROPOLITAN COUNCIL.

Industry	Employment Total
Retail Trade	1,698
Health Care and Social Assistance	1,509
Accommodation and Food Services	1,136
Public Administration	666
Manufacturing	550
Other Services, Ex. Public Admin	481
Educational Services	372
Administrative and Waste Services	354
Construction	180
Finance and Insurance	165
Transportation and Warehousing	149
Arts, Entertainment, and Recreation	130
Professional and Technical Services	130
Management of Companies and Enterprises	120
Information	118
Real Estate and Rental and Leasing	102
Wholesale Trade	63
All Other Industries	4
Total:	**7,927**

The Robert Street corridor is the commercial hub of West St. Paul, running the length of the city. West St. Paul faces the challenge of encouraging updates and redevelopment of its older and more outmoded buildings and businesses along Robert Street to meet the needs of a modern community. Robert Street redevelopment is the subject of West St. Paul's Renaissance Plan, originally adopted in 2000. The plan is currently being updated and is scheduled for adoption in 2017.

Past and Future Growth

Forecasts for West St. Paul

The Metropolitan Council has developed growth forecasts for West St. Paul by decade, addressing the projected population, number of households, and number of jobs.

The total population of the City of West St. Paul is expected to grow by 3,560 people by the year 2040. That growth is expected to be spread fairly evenly across the intervening decades. The City can expect a growth of around 1,500 households and over 1,800 jobs over the next 25 years. As an inner-ring developed suburb, accommodation of population growth as well as economic development will largely be achieved through strategic redevelopment opportunities that allow for new or denser configurations of housing and employment within the community.

Table 3-6: West St. Paul's Forecasted growth in population, households and employment

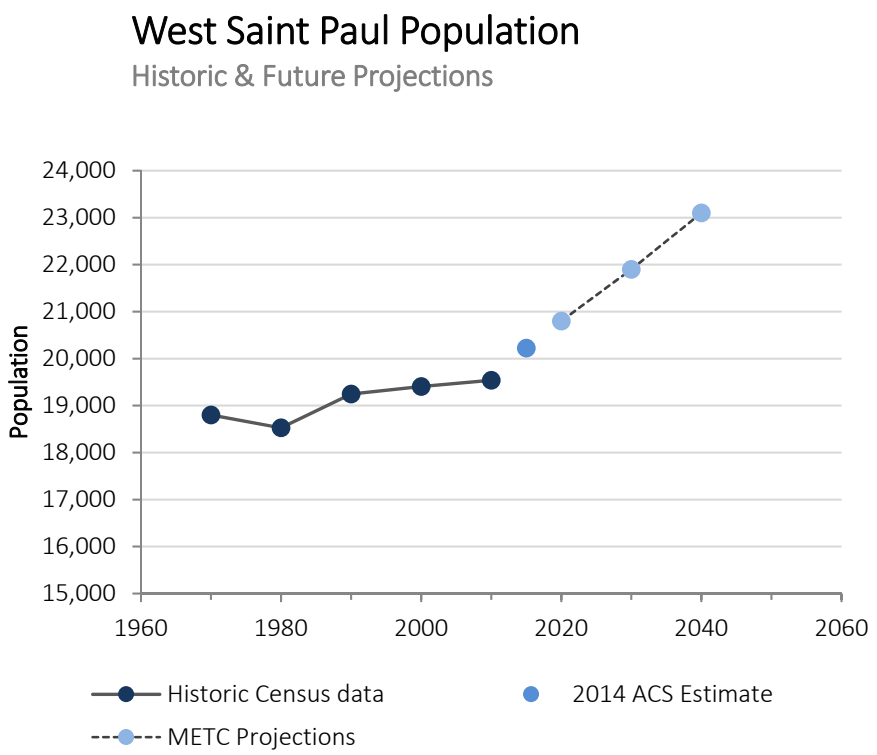
West St. Paul forecast, 2010-2040

Source: 2010 U.S. Census & Metropolitan Council Forecasts

Forecast Year	Population	Households	Employment
2010	19,540	8,529	7,471
2020	20,800	9,200	8,400
2030	21,900	9,600	8,800
2040	23,100	10,100	9,300
2010-2040 change	**+3,560**	**+1,571**	**+1,829**

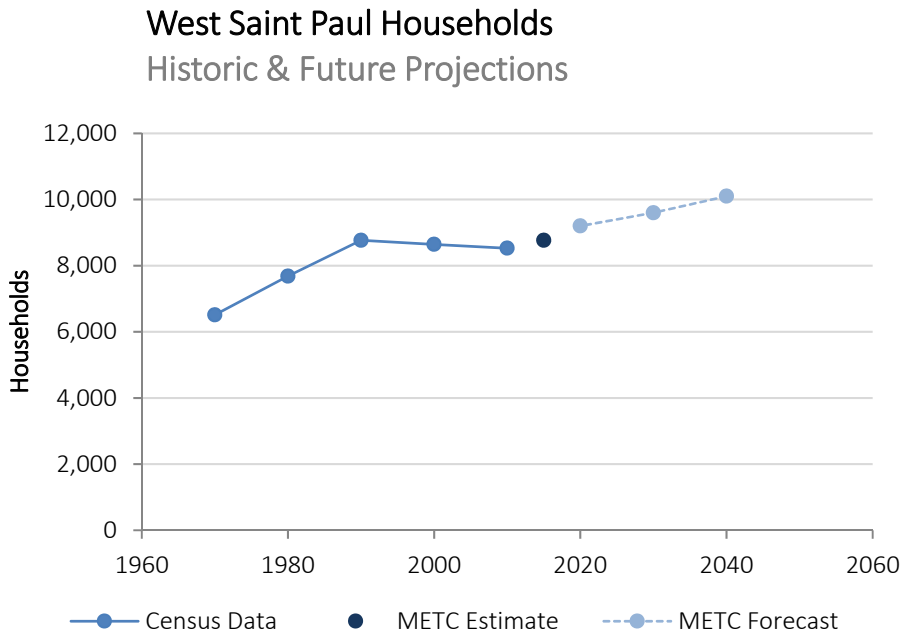
Decadal population growth is expected to increase at a rate of about 1,200 persons per decade over the next 25 years. Historically, the population has grown at a rate of around 250 persons per year since 1970. As such, these projections predict a significant increase in the population growth rate in West St. Paul during the planning horizon.

FIGURE 3-115: HISTORIC AND PROJECTED POPULATION



West St. Paul's overall housing stock declined in the years from 1990 to 2010, but is expected increase by about 15 percent from 2015 to 2040 to 10,100 households in 2040.

FIGURE 3-126: HISTORIC AND PROJECTED HOUSEHOLDS



Regional Context: Community Designation

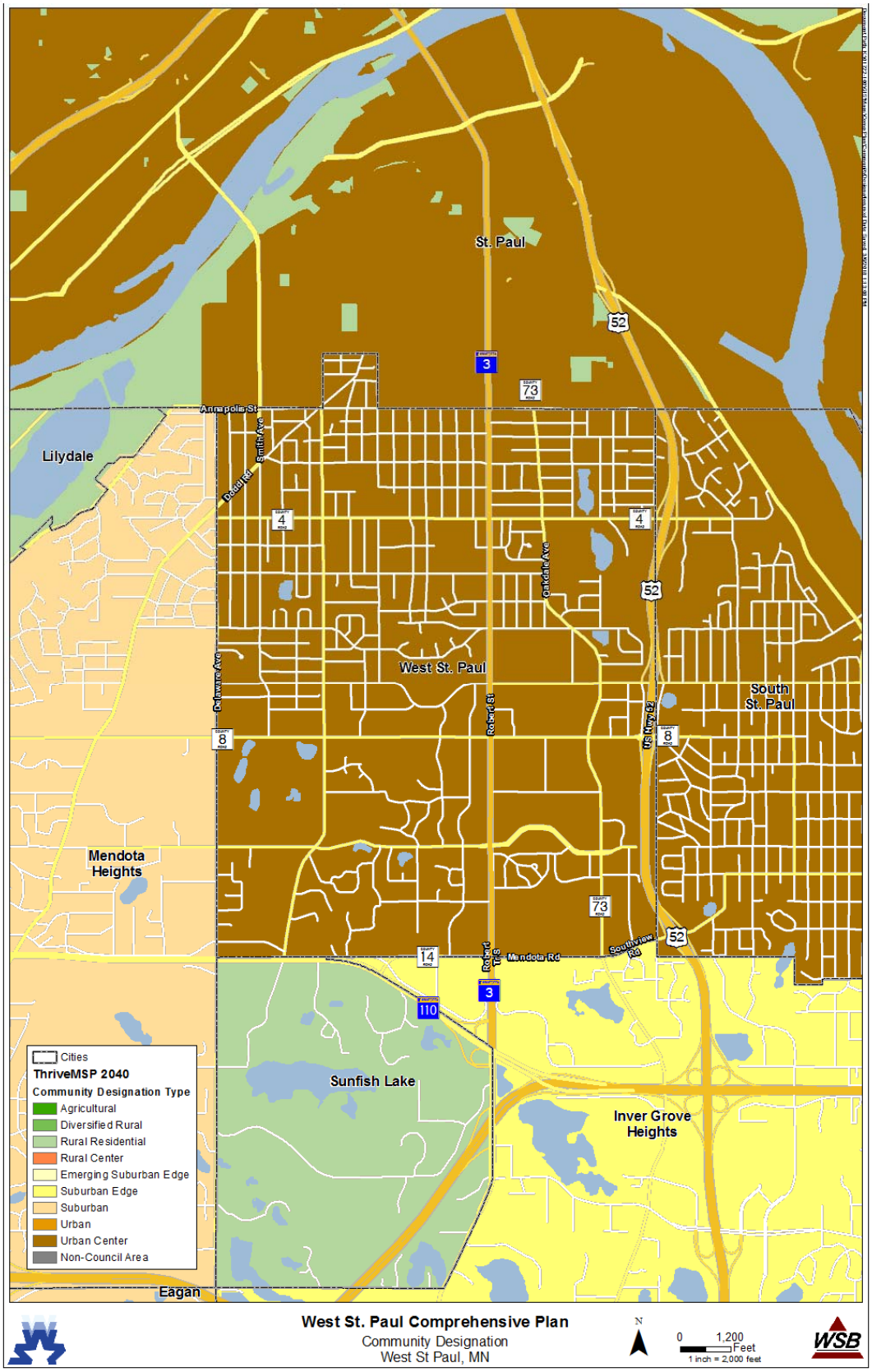
In *Thrive* 2040, the Metropolitan Council groups jurisdictions within the metro with similar characteristics based on urban or rural character for the application of the regional policies outlined in *Thrive*. As shown in MAP 3-4, West St. Paul's "Urban Center" designation translates to specific expectations in terms of development density and incorporation of transit services as a transition city between the urban core and more auto-dependent suburban communities.

Comprehensive planning often involves planning for people and jobs that are not yet here. The Council develops population, housing and employment forecasts as a component of a city's System Statement to help set realistic goals and policies to plan for the future needs and trajectories of the community over the decades to come. The Council's forecasts have been incorporated into this plan update.

Community Designation: The Metropolitan Council identifies West St. Paul as an **Urban Center** community. Urban Center communities include the largest, most centrally located, and most economically diverse cities in the region. Anchored by Minneapolis and St. Paul, the Urban Center also includes adjoining cities that share similar development characteristics such as street grids planned before World War II.

Urban communities are expected to plan for forecasted population and household growth at average densities of **at least 20 units per acre** for new development and redevelopment. In addition, Urban Center communities are expected to target opportunities for more intensive development near regional transit investments at densities and in a manner articulated in the *2040 Transportation Policy Plan*

MAP 3-4: METROPOLITAN COUNCIL COMMUNITY DESIGNATION



West St. Paul's 2040 Comprehensive Plan update will incorporate regional policy and metro-wide goals while also integrating important local goals, objectives and preferred outcomes. Both the regional Thrive 2040 outcomes as well as the local goals and priorities identified in Chapter 2 will form the foundational lens of this comprehensive plan, guiding decision-making and informing the content of each subsection. The chapters that follow will build on this community profile and an understanding of who and what is here now to create a vision for who and what this community will be by the year 2040.

CHAPTER FOUR: LAND USE

A key purpose of a Comprehensive Plan is to incorporate forecasted population growth, housing needs, and development opportunities into future land use decisions. The Future Land Use Map is the primary way to do that. Updating the city's land use plan offers West St. Paul the opportunity to anticipate the physical landscape and development patterns that will best meet the needs of the community. City officials can then make forward-thinking decisions that direct land use in a way that moves the city closer to the goals in Chapter 2.

As an inner-ring suburb community adjacent to a large metropolitan city, the land in West St. Paul is largely "built out". Only three percent of West St. Paul's land remains undeveloped. However, when opportunities for redevelopment and change arise, the future land use plan offers targeted guidance on the specific redevelopment locations and land uses that will fit with the community's vision.

WHAT WE HEARD

During the series of neighborhood meetings held at the beginning of the planning process, residents discussed many things that they would like to preserve and change about the City that helped inform the future land use plan. For example, as shown in Figures 4-1 through 4-4, preserving green/open spaces and community "feel" were quite important to residents. Also, increasing the amount of safe connections for people walking, biking, or using transit as well as attracting new business to the community were high priorities.

When asked how they would describe West St. Paul as it exists today, many people mentioned that the city has a lot of potential, but that it is "aging" and "needs updating". Run-down businesses and the need for "upgrades" were cited. The words "potential", "growing" and "improving" were top responses as well. Residents desire West St. Paul to be more of a destination place, with revitalized commercial areas and a healthy economy.

FIGURE 4-1

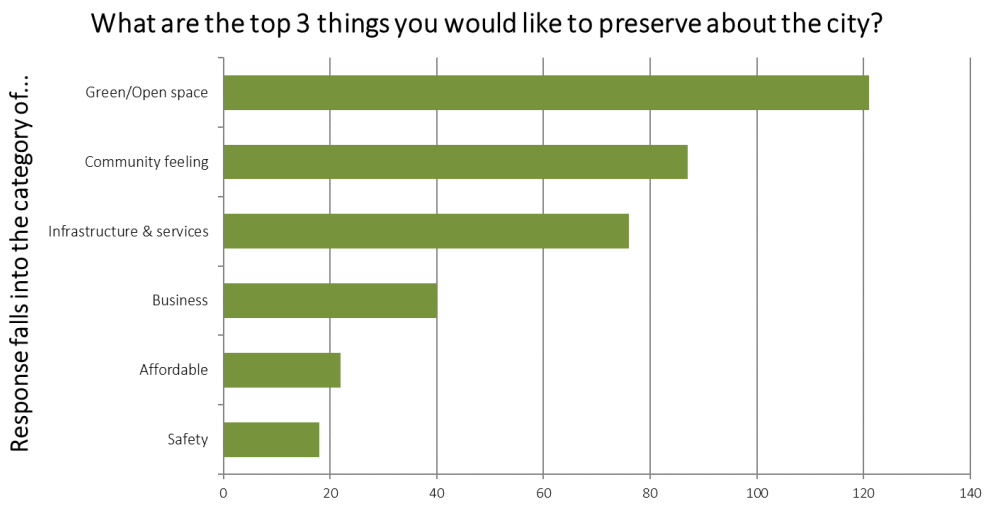


FIGURE 4-2

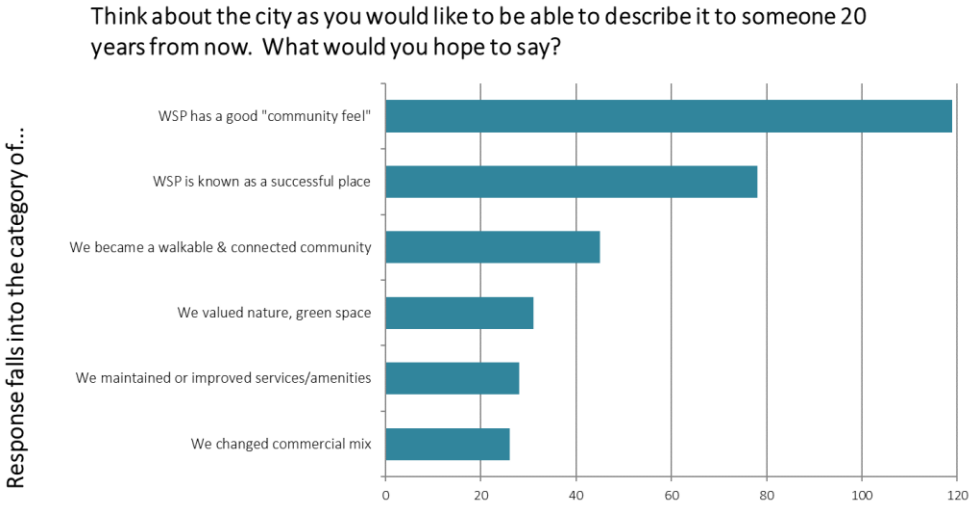


FIGURE 4-3

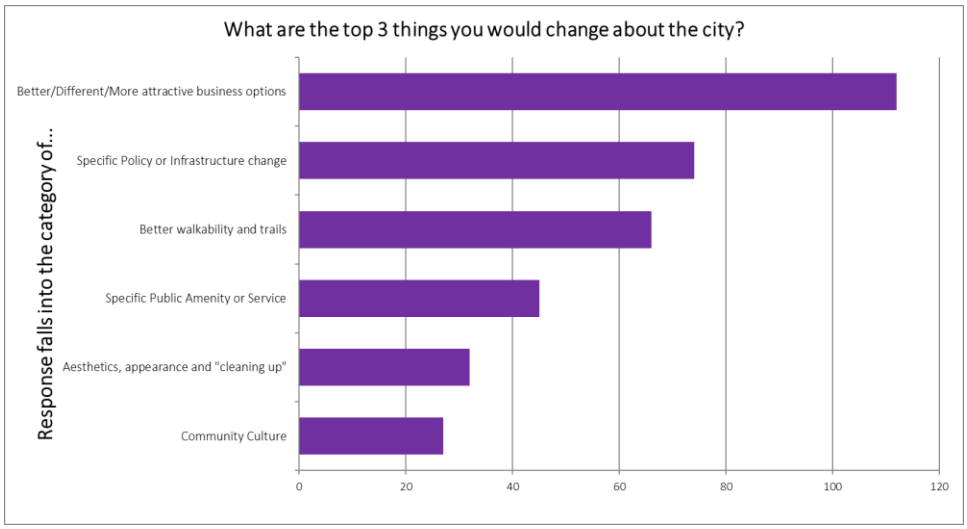
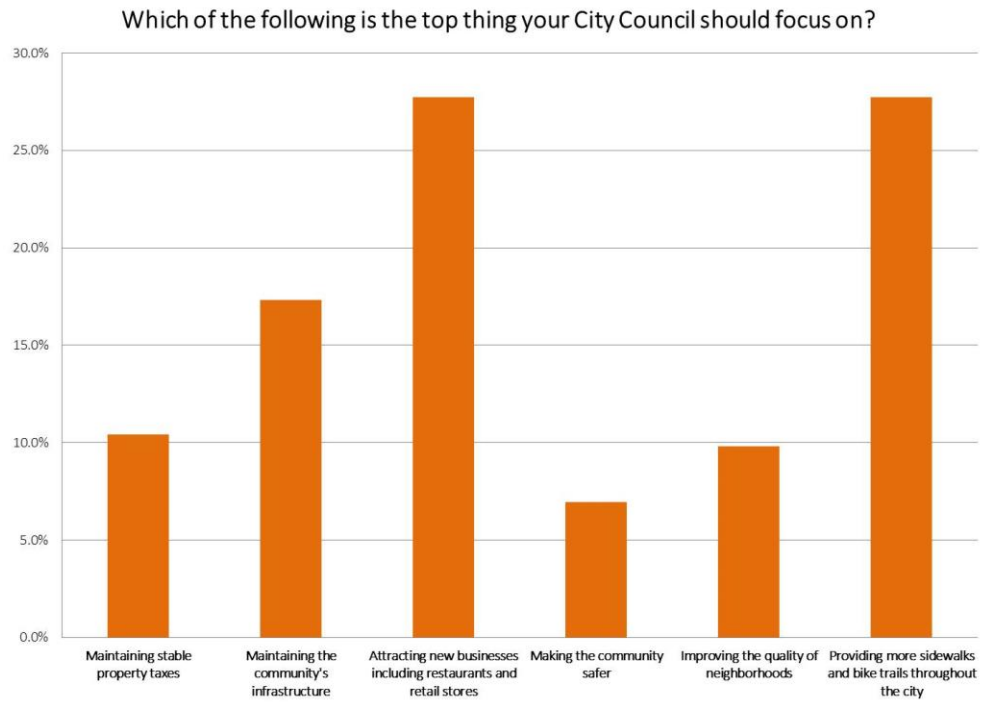


FIGURE 4-4



CITYWIDE GOALS

Several of the Citywide Goals established in Chapter 2 relate to the topic of land use, including:

1. Provide a balance of spaces for residents to live, work, and play.
2. Attain and maintain a secure tax base consisting of high quality residential, commercial, and industrial properties.
3. Develop, update, and enforce standards for development/redevelopment that enhance public health, provide for affordable housing, increase pedestrian safety, and promote a high quality of living.

EXISTING LAND USE

Existing land use information from the Metropolitan Council's 2010 Generalized Existing Land Use inventory is shown in Table 4-1 and Map 4-1. West St. Paul is dominated by single-family detached uses which make up just under half of the city's land area. Parks, multi-family residential, and retail/commercial uses all contribute between 10 and 14 percent of the city's land area. A more detailed discussion of the various use categories follows.

TABLE 4-1: EXISTING LAND USE. SOURCE: 2010 METROPOLITAN COUNCIL GENERALIZED LAND USE

Land Use	Total Acres	Percent
Single Family Detached	1,517	47%
Park and Recreational	447	14%
Multifamily	377	12%
Retail and Other Commercial	305	10%
Institutional	239	7%
Agricultural and Undeveloped	88	3%
Major Roadways	69	2%
Industrial and Utility	65	2%
Open Water	37	1%
Office	36	1%
Mixed Use	22	1%
TOTAL	3,202	100%

Existing Residential Land Use

The primary land use type in West St. Paul is residential. Nearly 60 percent of the city's land is devoted to the combined residential uses of single family detached housing, attached housing, and multifamily housing. Of these, single family detached housing remains the most prominent residential use by area.

Existing Commercial and Industrial Land Use

Retail, office, and industrial land uses make up 13 percent of West St. Paul by area. Commercial uses are prominent along the length of the Robert Street corridor, although there are a few other commercial nodes such as the Smith-Dodd intersection, the Dodd-Allen intersection, and some areas adjacent to Highway 52.

Existing Public Land Use

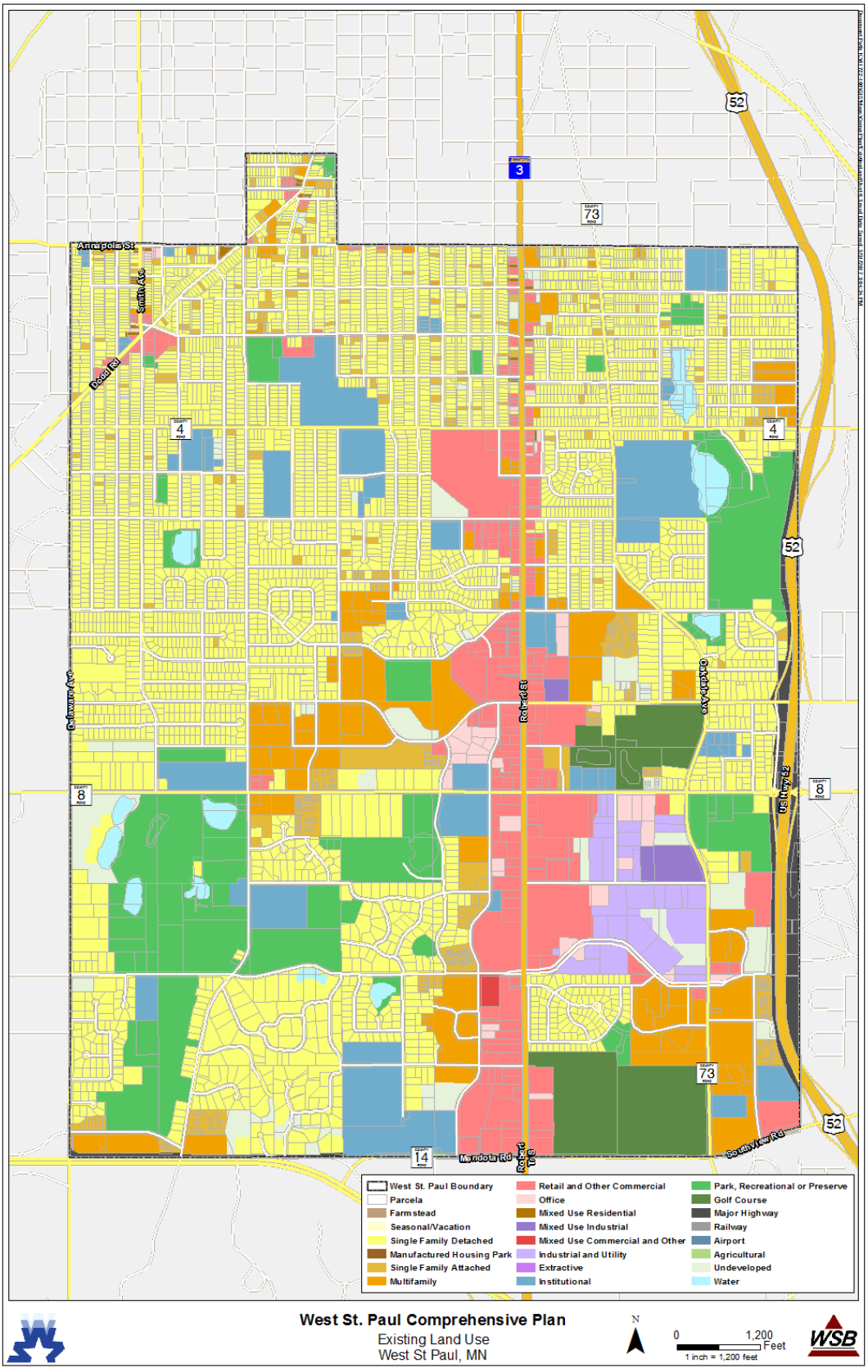
Civic buildings and public uses make up seven percent of the city by area, while Parks and Recreational uses make up an additional 14 percent of the city's land. Park and recreation areas include Thompson County Park, Thompson Oaks Golf Course, Marthaler Park, Garlough Park, Southview Country Club, and the Dodge Nature Center.

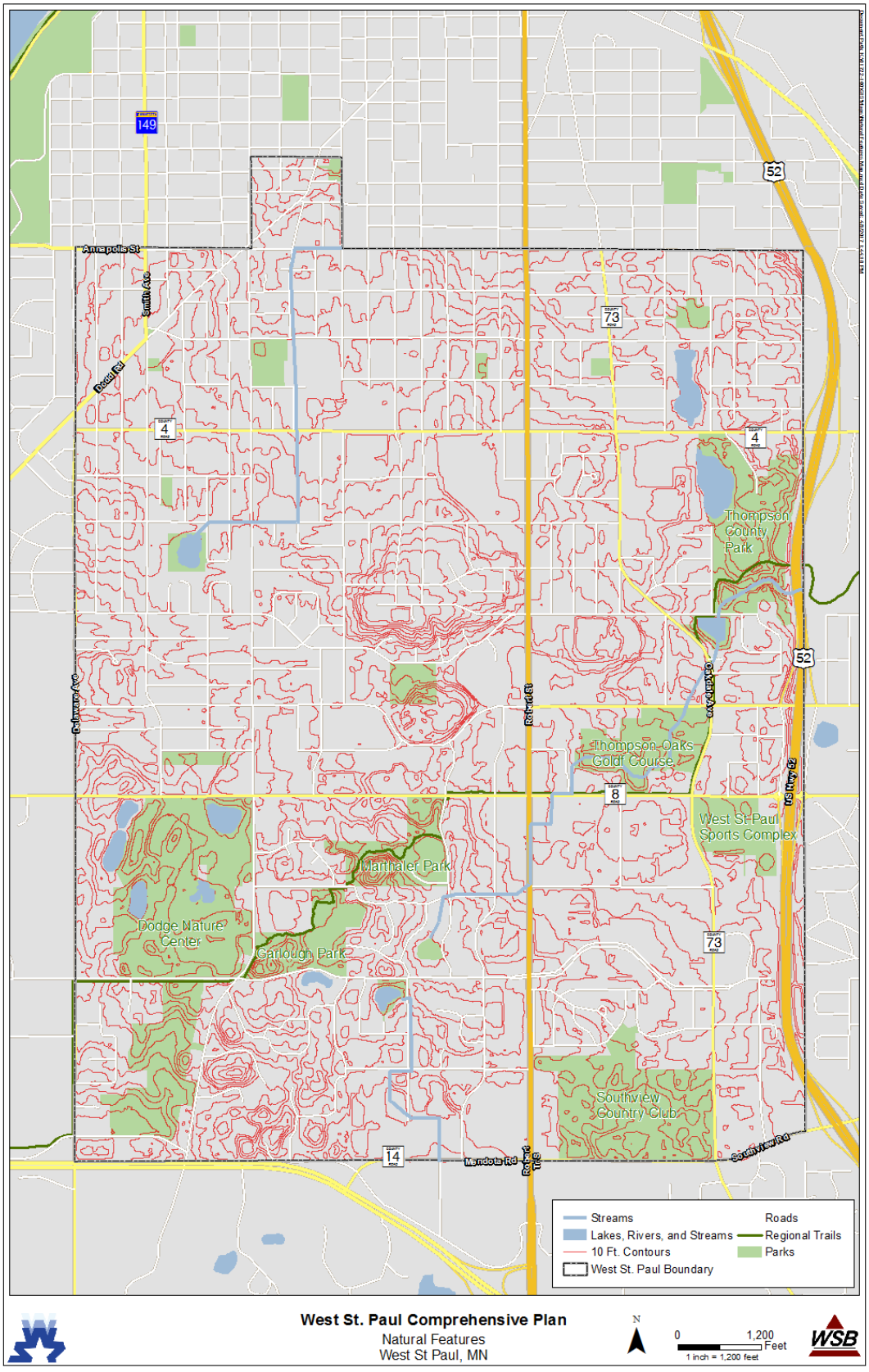
Natural Features

West St. Paul is a built out and largely urbanized community, but retains natural features that define the community and shape land development. Around 14 percent of its land area is devoted to parks, recreational or preserve features, the largest of which is the Dodge Nature Center in the southwestern corner of the city.

West St. Paul has 37 acres of open water, the largest of these being Thompson Lake and Lilly Lake in the northwest portion of the city. West St. Paul does have some significant steep slopes, as shown on the natural features map (Map 4-2), that impact development feasibility and direct the flow of water. Some of the steepest slope areas are in the center of the city (the area south of Signal Hills shopping center), in Marthaler and Garlough Parks, and in the southwestern residential areas of the city.

MAP 4-1 EXISTING LAND USE




149
52
Annapolis St
Smith Ave
Dodd Rd
4
73
Thompson County Park
Delaware Ave
Robert St
Concord Ave
Thompson Oaks Golf Course
8
US Hwy 52
West St Paul Sports Complex
Marthaler Park
Dodge Nature Center
Garlough Park
Southview Country Club
14
Mendota Rd
South Robert Trl
Streams
Lakes, Rivers, and Streams
10 Ft. Contours
West St. Paul Boundary
Roads
Regional Trails
Parks
West St. Paul Comprehensive Plan
Natural Features
West St Paul, MN
N
0
1,200
Feet
1 inch = 1,200 feet
WSB

Regional Context: Community Designation

In *ThriveMSP* 2040, the Metropolitan Council groups jurisdictions with similar characteristics together into "community designation" categories, outlining specific regional policies and development expectations that apply to each community designation. As shown in MAP 4-3, West St. Paul's "Urban Center" designation translates to specific expectations in terms of development density and incorporation of transit services as a transition city between the urban core and more auto-dependent suburban communities.

Comprehensive planning often involves planning for people and jobs that are not yet here. The Council develops population, housing, and employment forecasts as a component of a city's System Statement to help set realistic goals and policies to plan for future needs and the trajectory of the community over the decades to come. The Council's forecasts have been incorporated into this plan update.

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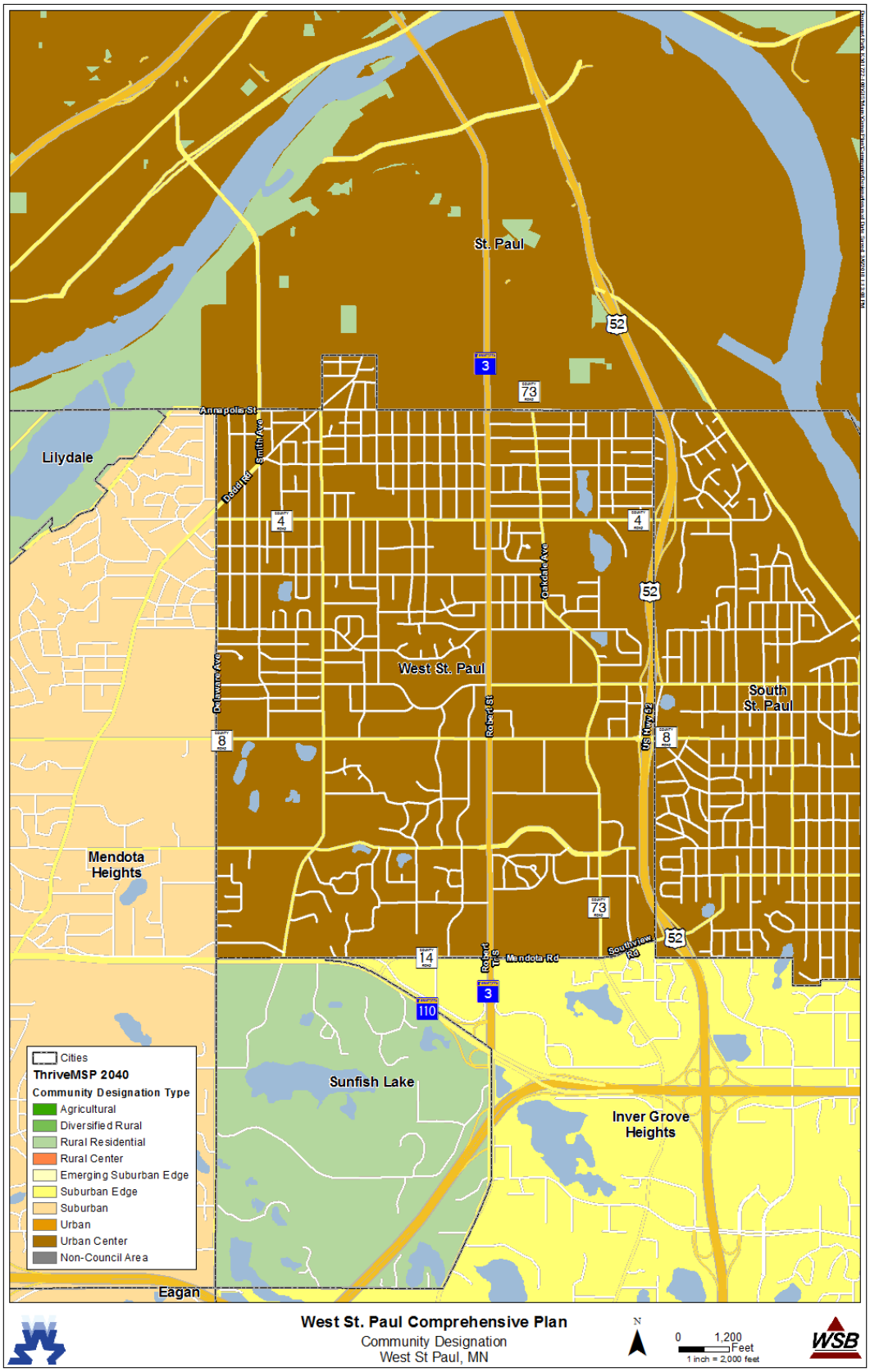
Urban communities are expected to plan for forecasted population and household growth at average densities of **at least 20 units per acre** for new development and redevelopment. In addition, Urban Center communities are expected to target opportunities for more intensive development near regional transit investments at densities and in a manner articulated in the *2040 Transportation Policy Plan*


St. Paul
Lilydale
West St. Paul
South St. Paul
Mendota Heights
Sunfish Lake
Inver Grove Heights
Eagan
Annapolis St
Smith Ave
Dodd Rd
Delaware Ave
Robert St
Mendota Rd
Southview Rd
Cahill Ave
Cities
ThriveMSP 2040
Community Designation Type
Agricultural
Diversified Rural
Rural Residential
Rural Center
Emerging Suburban Edge
Suburban Edge
Suburban
Urban
Urban Center
Non-Council Area
West St. Paul Comprehensive Plan
Community Designation
West St Paul, MN
N
0
1,200
Feet
1 inch = 2,000 feet
WSB

LAND USE: WHAT WILL BE HERE IN THE FUTURE?

Expected Growth and Change

Future land use planning begins with incorporating forecasts of community growth and anticipating the needs that will arise as a result of this growth and change. The Metropolitan Council has developed growth forecasts for West St. Paul by decade, addressing the projected population, number of households, and number of jobs. Meeting expected growth projections requires intentional land use planning.

TABLE 4-2: WEST ST. PAUL FORECAST, 2010-2040. SOURCE: 2010 U.S. CENSUS & METROPOLITAN COUNCIL ESTIMATES AND FORECASTS.

Forecast Year	Population	Households	Employment
2010	19,540	8,529	7,471
2016 (estimate)	**20,886**	**8,975**	**8,150 (2017 estimate)**
2020	20,800	9,200	8,400
2030	21,900	9,600	8,800
2040	23,100	10,100	9,300
Overall Change from 2016	**+2,214**	**+1,125**	**+1,150**

Planning for Growth in a Developed Community

As a built-out inner ring suburban community, planning for an increase in population and housing in West St. Paul necessitates looking for redevelopment opportunity areas because little to no undeveloped land remains in the community. The areas in West St. Paul most likely to redevelop are identified as such because they are currently underutilized, mismatched with surrounding uses, or are locations in which developers have expressed interest.

Opportunity areas for re-guidance and redevelopment ("likely redevelopment areas") were identified early in the planning process. Consensus areas include those targeted for redevelopment in the City's Renaissance Plan, as well as additional areas of known redevelopment interest that are likely to be redeveloped within the 2040 planning horizon. The few remaining vacant parcels within the city were also included in the target redevelopment areas. City staff, the Planning Commission, and the City Council provided input on land use

discussion areas during the planning process. Map 4-4 shows the 2040 Future Land Use Plan in its entirety, with areas expected to develop or redevelop by 2040 highlighted. The Plan will be discussed in more detail in the next section.

Additional updates to the land uses in the 2040 guide plan include the following:

- **Institutional uses.** In the 2040 guide plan, institutional uses are replaced by their appropriate proximate surrounding land use types. In all cases, institutional uses are replaced either by Single-Family or Recreation guidance.
- **Errors and inconsistencies resolved.** A close look at existing land use, zoning, and desired future land use conditions resulted in minor adjustments to individual areas or parcels that were guided in a manner incompatible with either their surrounding uses or the community's stated vision for the future.

Land Use Categories

The development of West St. Paul's 2040 land use plan involves updating the land use descriptions and density ranges of each land use category. Some significant changes to density ranges were made in this Plan to conform to the City's designation as an Urban Center Community. Those changes include:

- **Single Family Residential.** The minimum density for single family development has increased from one to three units per acre. This is largely due to size of available single-family lots for development in the City. The increased density will also ensure that development in accordance with the Comprehensive Plan occurs at densities that are consistent with surrounding neighborhoods.
- **Multi-Family Residential.** An increase in minimum density for multi-family development is made in the 2040 Land Use Plan. Formerly the lower end of the range was seven units per acre; that lower bound has been raised to 20 units per acre. This density, while significantly higher than the 2030 land use plan, is consistent with multi-family developments that have occurred since 2000. The average density of those developments was 19.8 units per acre.
- **Mixed Use.** Minimum density for the residential portion of mixed use developments is increased from 15 to 25 units per acre. The vast majority of Mixed Use area is along Robert Street, and residential development there will be multi-story and high density to support the commercial development along the corridor.

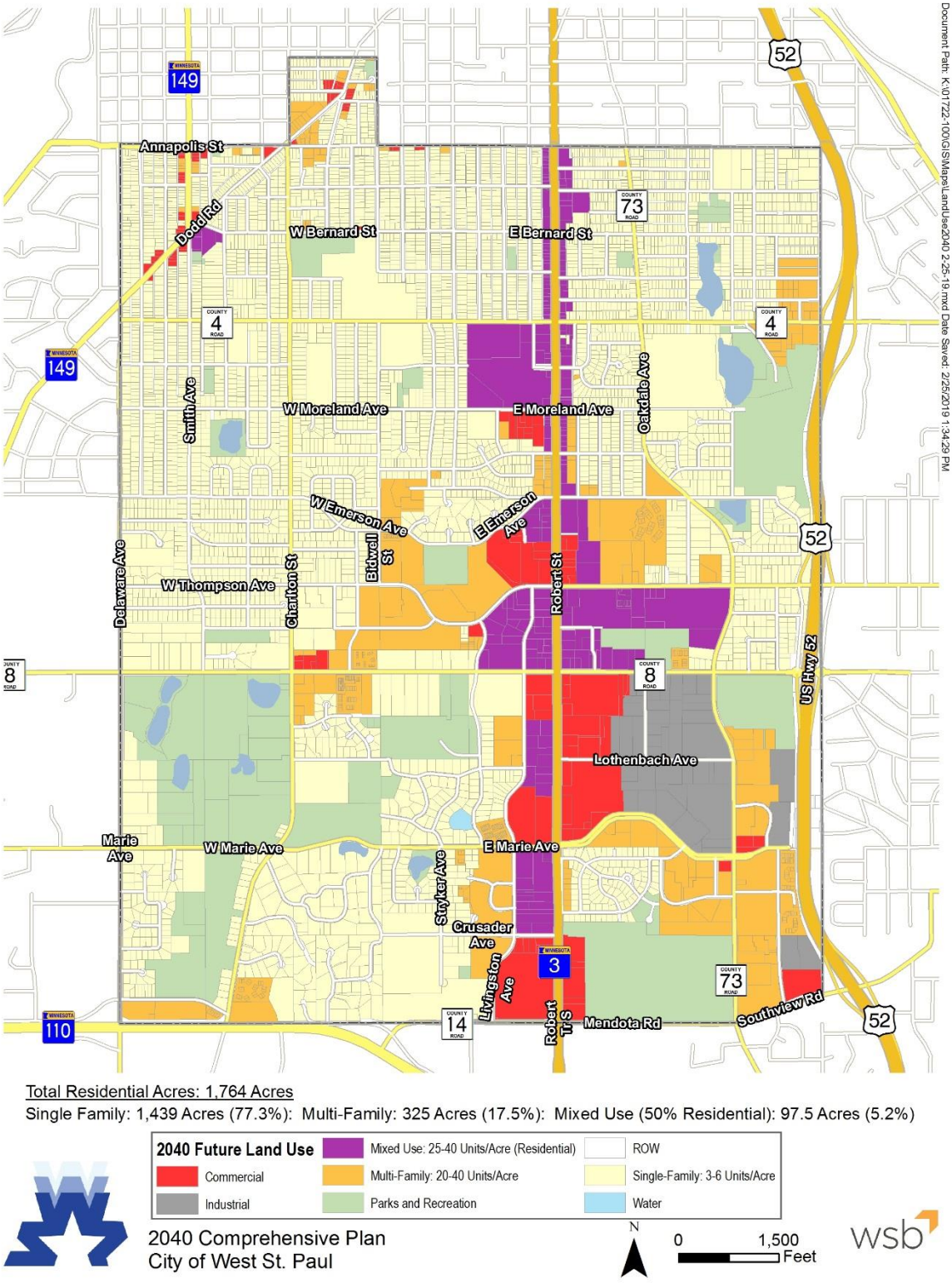
A summary of the land use categories and changes to density ranges are shown below in Table 4-3

TABLE 4-3: FUTURE LAND USE CATEGORY SUMMARY AND COMPARISON TO 2030 DENSITIES

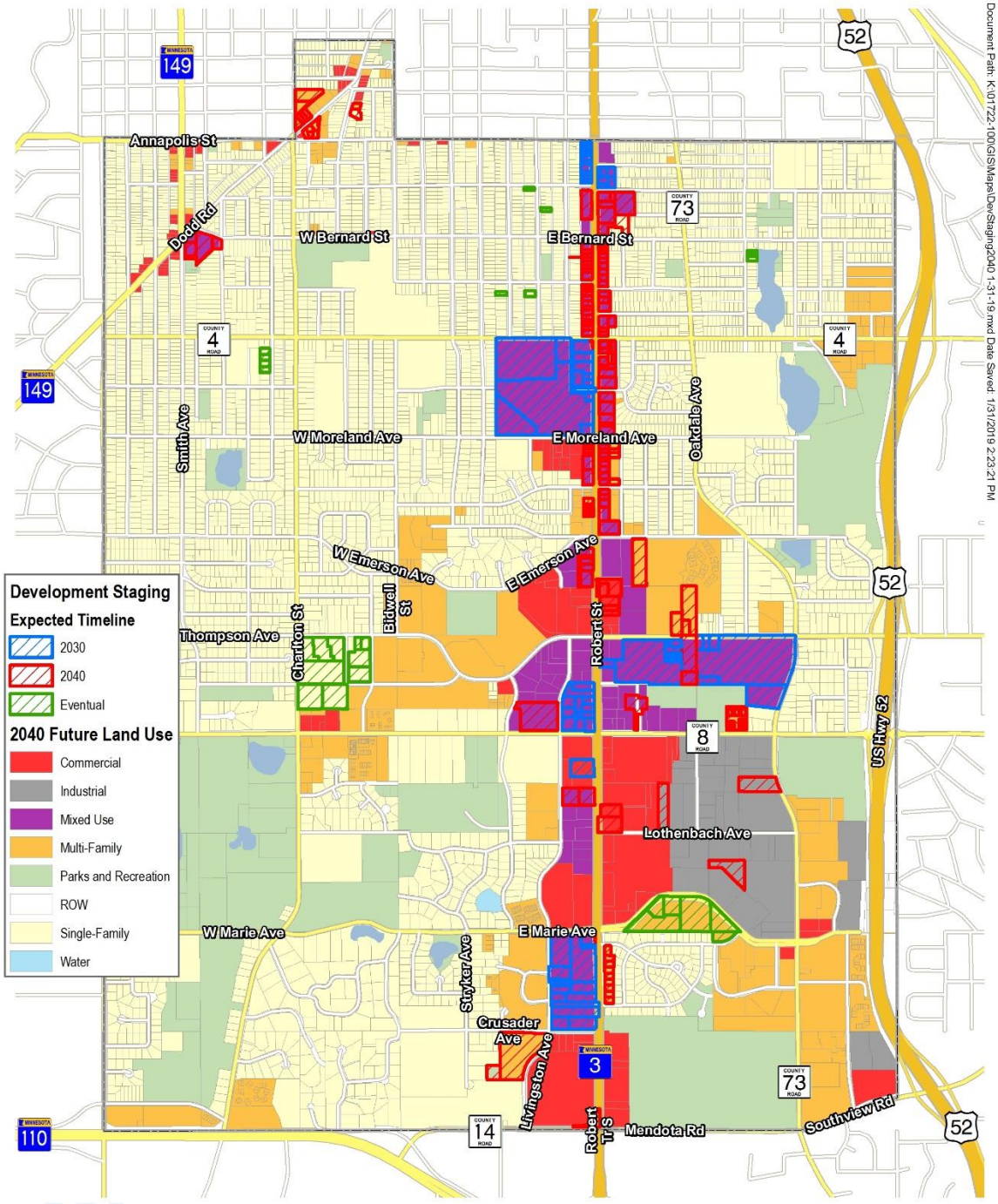
Land Use Category	Category Definition	2040 Plan Density Range		2030 Plan Density Range	
		Min	Min	Min	Max
Single-Family Residential	Parcels containing single-family homes or two-family homes including open space designed as part of the development.	3	6	1	6
Multi-Family Residential	Parcels containing multiple dwelling units including, townhomes, apartments, condominiums, senior housing and manufactured housing.	20	40	7	46
Mixed Use	Areas containing a mixture of commercial and multiple family uses. Uses may be located within the same building (vertical mixed use) or in separate buildings (horizontal mixed use). Not all parcels must contain a mix of uses, but it is anticipated that overall development of the mixed-use area will be at a ratio of 50% residential and 50% commercial.	**Residential** 25	40 **Commercial** .2 F.A.R.	**Residential** 15	30 **Commercial**
Commercial	Accommodates uses that provide goods and services to the general public, including (but not limited to): retail services, hotels/motels and private recreation facilities.	.2 F.A.R.			
Industrial	Accommodates a wide range of industrial uses including (but not limited to) manufacturing and/or processing of products, assembly, warehousing, and similar operations.	.2 F.A.R.			
Parks and Recreation	Public active and passive recreation areas.				

Future Land Use Guide Plan

MAP 4-4 2040 FUTURE LAND USE PLAN



MAP 4-5 2040 FUTURE LAND USE PLAN WITH LIKELY REDEVELOPMENT AREAS



Meeting Growth Expectations

West St. Paul's likely redevelopment areas, which are opportunity areas for re-guidance and redevelopment within the 2040 planning horizon and beyond, are shown on Map 4-5. These areas were identified because they fall into one of three categories:

- **Vacant land:** A very small amount of land in West St. Paul remains undeveloped. All current vacant parcels are included in the likely redevelopment areas.
- **Re-guided land:** Certain parcels of land are included in the likely redevelopment areas because they are being strategically re-guided (meaning the future land use category has changed) in this land use plan. Those changes reflect known market interest or changing community desires regarding the future of a particular site. Many sites along Robert Street were re-guided to Mixed Use to reflect the intent of the city's Renaissance Plan and a desire for development flexibility. Another significant area of re-guidance includes the Thompson Oaks golf course area where a large portion was re-guided from Park and Residential to Mixed Use.

  There are two significant areas outside the Robert Street corridor marked "Eventual" on the redevelopment map that have been re-guided, even though redevelopment is not realistically expected until *after* 2040: the industrial area south of Marie Avenue (re-guided to High Density residential) and the residential area along Thompson Avenue and Charlton Avenue (re-guided from High to Low density residential).
- **High redevelopment potential:** Certain areas that are not changing land use designation but are still being included in the likely redevelopment areas because they are areas of known redevelopment interest. That redevelopment may realistically be achieved within the 2040 planning horizon, or beyond 2040 in the case of the "Eventual" redevelopment category. In conformity with the redevelopment focus of the Robert Street Renaissance Plan, these areas largely include specific commercial parcels along Robert Street.

Overall, the growth expectations for West St. Paul through the year 2040 can be met through the identified likely redevelopment areas in Map 4-5. Table 4-5 below shows the residential acreage associated with the parcels included in the likely redevelopment areas, as well as the land use density ranges associated with each of these residential categories. Applying the expected density ranges to the land use areas, this table demonstrates the two ways in which the likely redevelopment areas will meet West St. Paul's forecasted and expected 2040 growth:

- **Overall Average Density:** Applying the *minimum* end of the density range to each residential land use category, the overall density is the total number of expected minimum units that will develop by 2040 divided by the total number of acres in the 2040 likely redevelopment areas. West St. Paul's overall average density is

20.02 units per acre, which meets the expected threshold for a community with an Urban Center designation.

- **Overall Forecasted Growth:** Applying the *midpoint* of the density range to each residential land use category, the total number of expected units from this calculation is 2,768. This number meets and indeed exceeds the 1,125 units forecasted growth from 2016 to 2040. West St. Paul acknowledges that the development potential that exists along Robert Street, identified most recently through the intensive process of updating the Robert Street Renaissance Plan in 2017 and following recent major road upgrades to Robert Street, does exceed the Metropolitan Council's forecasted growth. This higher growth expectation will be the assumed growth for this land use plan across all plan components and chapters.

Note that a "50 percent" residential assumption is applied to the Mixed Use land, reducing both the land area and the residential units by half in that category.

TABLE 4-4: TOTAL WEST ST. PAUL 2040 PLANNED LAND USES BY AREA

2040 Land Use Category	Total Acres	Percent of total land area (%)
Single-Family Residential	1,439	44.9%
Multi-Family Residential	325	10.1%
Mixed Use	195	6.1%
Commercial	151	4.7%
Industrial	104	3.2%
Parks and Recreation	457	14.3%
Lakes/Water	4	0.1%
ROW	530	16.5%
Total	**3,205**	

TABLE 4-5: FORECASTED GROWTH AND STAGING TABLE

	Land Use Type	Dev. Acres	2021-2030	2031-2040	EVENTUAL (post-2040)	Density Range Min	Density Range Mid	Density Range Max	Yield %	Minimum Units 2021-2030	Minimum Units 2031-2040	Min Eventual (post 2040)	Midpoint Units 2021-2030	Midpoint Units 2031-2040	Mid Eventual
Guided in 2040 Plan	Single-Family	20.15	0.00	1.26	18.90	3	4.5	6	100%	0	4	57	0	6	0
	Multi-Family	33.98	0.00	21.70	12.28	20	30	40	100%	0	434	246	0	651	0
	Mixed Use	139.13	97.71	41.43	0.00	25	32.5	40	50%	1221	518	0	1588	673	1588
	Guided Total	**123.70**								**1,221**	**956**	**302**	**1,588**	**1,330**	**1,588**
	Existing units in redevelopment areas												**150**		
	SUM TOTAL (2040 Guided, excluding "eventual" acreage)	**92.52**								**2,177**			**2,768**		

TABLE 4-6: SUMMARY GROWTH EXPECTATIONS TABLE

Density Table	
Overall Community Density	**20.02 du/acre**
Expected Housing Unit Growth (through 2040)	**2,768 units**
Units Considered Affordable (Minimum units guided ≥12 du/ac in 2021-2030 decade)	1,221 units

Staging of Redevelopment

West St. Paul has already achieved its 2020 forecasted growth, according to 2016 estimates of households and population. This fact supports the assertion that the 2040 growth potential in West St. Paul is higher than originally forecasted. Table 4-5 shows anticipated staging of redevelopment in the 2030 and 2040 decades as well as redevelopment that is anticipated to occur *beyond* 2040 in the "Eventual" category.

Certain portions of the "likely redevelopment" areas are more likely to develop during the 2021 – 2030 decade due to their development readiness and the economic development priorities of the City (outlined in blue on Map 4-5). The areas outlined in red are areas that are identified targets for redevelopment but due to the complications of land assembly, transfer of ownership, and site readiness are more likely to redevelop in the 2031 – 2040 decade. Finally, there are a few areas, outlined in green and largely outside the Robert Street corridor, that are unlikely to be developed within the 2040 time horizon, but this land use plan is still signaling as important targets for "eventual" redevelopment. These "eventual" areas are included in Table 4-5 but these areas are not included in the ultimate forecasted 2040 density and unit calculations because they are not anticipated to redevelop until after 2040. The table below and accompanying map show the assumed decadal staging of the "likely redevelopment" areas.

Using this staging timeline, West St. Paul can expect to meet its affordable housing allocation during the 2021 – 2030 decade. The land use guidance and staging would allow for 1,221 units guided at a minimum density of 25 units per acre to be developed during this 10-year period, meeting and exceeding West St. Paul's regional allocation for affordable housing. More about affordable housing goals and tools will be discussed in the Housing chapter of this plan.

Redevelopment Opportunities

The central focus of West St. Paul redevelopment opportunities is along the Robert Street corridor, reflecting the community's desire to continue investment in this main city artery while preserving the more traditional residential feel in the surrounding areas of the city. Other scattered site redevelopment opportunities include the Thompson Oaks golf course and the Smith/Dodd intersection. The latter is currently the subject of a small area plan focused on streetscape improvements, and potential realignment or redesign of the intersection itself. Optimal building configurations are options also being considered in the Smith/Dodd small area plan.

Residential Redevelopment

As a fully built out community, the majority of residential redevelopment opportunities in West St. Paul will fall under the high density or mixed-use land use categories. There are opportunities for residential projects of this variety on the north end of Robert Street, where currently there is a concentration of vacant and Dakota County CDA-

owned land. The Robert Street Renaissance Plan, accepted in 2017, identifies several opportunity areas along the corridor to introduce housing opportunities that complement their surrounding uses.

In anticipation of community growth and development patterns appropriate for an Urban Center community, the 2040 land use plan incorporates increases in the minimum densities of all residential land use categories, most significantly in the Multifamily and Mixed Use residential categories. In these residential districts, the minimum densities are increasing to 20 and 25 units per acre, respectively. This level of density is consistent with the multifamily construction in the time period from 2000 to present, which averaged 20 units per acre including multiplex and townhome development. Some examples of recent multifamily development in West St. Paul are shown here.

FIGURE 4-1 DAKOTA COUNTY CDA HOUSING, 47 UNITS PER ACRE

FIGURE 4-2 THE SANCTUARY (SENIOR HOUSING), 32 UNITS PER ACRE

Even as the city's population growth over the coming decades is expected to be met by denser multifamily housing development, located predominantly in the Robert Street corridor, the land use plan does not call for the removal or replacement of existing single

family home development. The historic land use pattern of the city is expected to remain largely unchanged, with the greatest development intensity centered along Robert Street in the form of infill or redevelopment sites.

Commercial and Industrial Infill and Redevelopment

Like residential redevelopment opportunities, commercial redevelopment opportunities are also focused along the Robert Street corridor where there are several sites and key intersections targeted for commercial revitalization. In particular, the recently accepted Renaissance Plan attempts to address perceived issues with the current commercial scheme in the corridor, which include that

- The corridor lacks identity and cohesiveness
- The corridor is over-retailed and lacks business diversity
- The corridor creates a physical division in the community
- The corridor is designed primarily for cars and lacks human-scaled design

It is the intention of the Renaissance Plan to lay the groundwork for more cohesive, community-oriented design in future redevelopment projects. Some of the key commercial redevelopment opportunities in the Robert Street corridor include the aging Signal Hills retail hub, the Wentworth and Thompson Avenue area, and the area south of Marie that is currently characterized by strip mall development.

In the industrial area south of Wentworth Avenue, some of the aging properties there have been identified for their industrial redevelopment potential.

Looking once again at the likely redevelopment areas identified in the 2040 guide plan, the following table summarizes the commercial and industrial redevelopment acreage in the city and translates this acreage into employment potential. In total, redevelopment of the identified commercial, industrial, and mixed use opportunity areas could yield 1,805 new jobs in West St. Paul by the year 2040.

TABLE 4-7 CONVERSION OF COMMERCIAL AND INDUSTRIAL GUIDED LAND USES TO POTENTIAL EMPLOYEE YIELD

	ACRES	LAND YIELD	F.A.R.	NEW SQ FOOTAGE	AREA PER EMPLOYEE	EMPLOYEE YIELD
Commercial	8.3	100%	0.2	72,310	400 sq ft	181
Industrial	6.4	100%	0.2	55,757	500 sq ft	111
Mixed Use	139.0	50%	0.2	605,494	400 sq ft	1,513
						1,805

Protection of Historic Sites

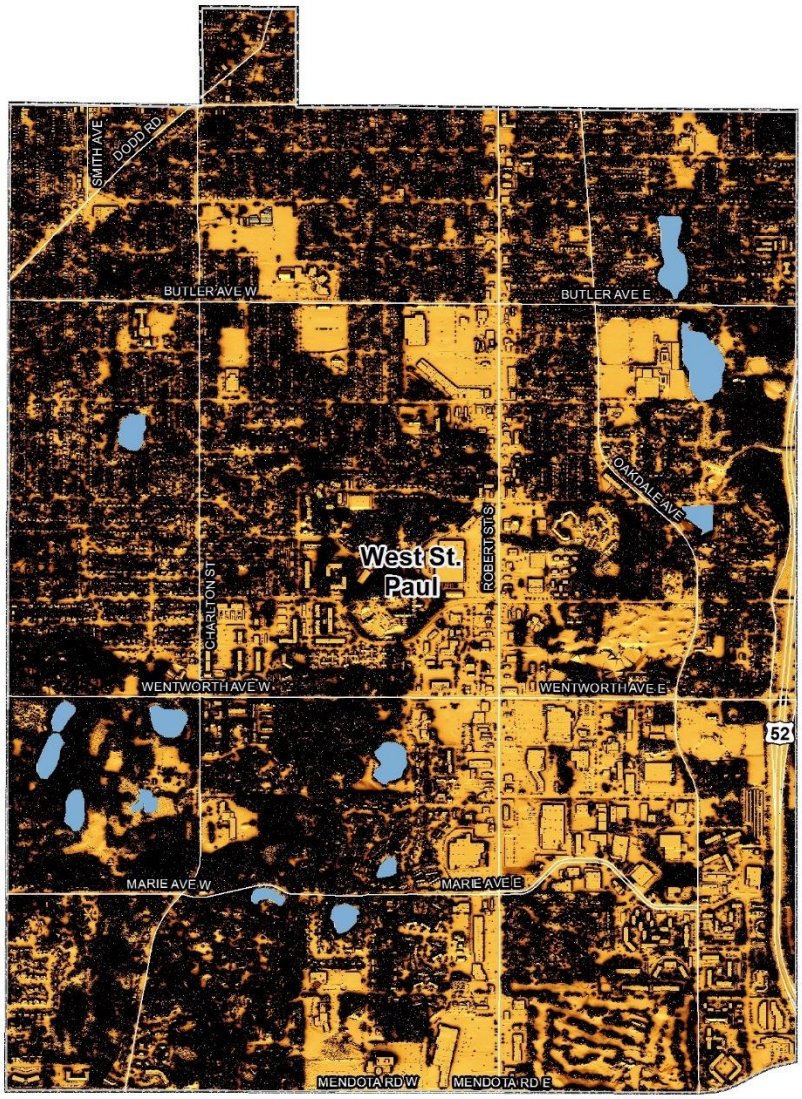
West St. Paul is committed to protecting the historical and cultural resources of the City's natural and structural heritage. The City will continue its policies of assisting in efforts to

preserve historical sites and buildings, and utilizing State, County, and private historic preservation resources.

Solar Access Protection

Solar energy resource protection is an increasingly important aspect of long-range planning, as communities prepare for incorporation of alternative and efficient energy technologies. The map below shows West St. Paul's gross solar energy potential, with high potential areas shown in brighter yellow.

MAP 4-6 WEST ST. PAUL SOLAR ENERGY POTENTIAL. SOURCE: METROPOLITAN COUNCIL.



The Robert Street corridor is particularly well-suited to solar energy production as it contains fewer trees and larger areas of uninterrupted solar access. The current gross solar energy generation potential can be measured at 588,484 megawatt hours per year.

Rooftop solar potential generation alone is 97,045 megawatt hours per year. Rooftop solar systems are the most likely and practical source of solar energy production in West St. Paul. Solar energy strategies for the City will be addressed in more detail in the Resiliency chapter of this Plan.

Land Use Plan Implementation Strategies

The main implementation strategy for future land use planning is to update the City's official controls to reflect the uses and density ranges in the Plan. In addition to these updates, the City commits to the following strategies to implement the goals of this chapter as well as facilitate development and redevelopment that corresponds to the Future Land Use Plan:

- Residential Development:
    - Provide for a variety of housing types and densities to support a wide range of housing alternatives for current and future residents.
    - Develop programs and policies to encourage the redevelopment of housing stock in a way that maintains or enhances the integrity of existing neighborhoods.
    - Review and update the City's zoning code to reflect consistency with this Land Use Plan. Evaluate the zoning code language to ensure that the dimensional standards and zoning district regulations provide the opportunity for development to occur as guided.
    - Recognize the most likely opportunity sites for high density residential development and support projects on these sites that are well-designed, add value to the community landscape, and are located in areas connected to transitways and other community amenities.

- Commercial and Mixed Use Development
    - Review the allowed uses and standards within the city's Mixed Use zoning districts to ensure that these zoning districts provide opportunities for the desired type, design, and diversity of development opportunities reflected in this Plan and the updated Renaissance Plan.
    - Create design standards for both vertical and horizontal mixed use developments, so that not only uses are compatible, but the scale, mass, and feel of new development enhance both the existing and desired community character.
    - Create a redevelopment plan for the Thompson Oaks golf course which includes a mixture of high density residential, commercial, and open space uses.

  - Implement the recommendations of the Smith/Dodd Area Plan, particularly with regard to redevelopment sites identified in that plan.
  - Continue to use economic development incentives to achieve redevelopment goals (refer to the Economic Development Chapter for more information).

- Parks and Open Space and Natural Resources:
  - Continue to provide the resources and programming to maintain the city's park and green space areas in recognition of their value as cherished community amenities.
  - Continue to develop and update park master plans, and allocate resources to implementing those plans.
  - Develop and maintain a long term urban forestry plan with the City Environmental Committee.

- Gathering Spaces and Community Feel: Prioritize the incorporation of communal amenities and gathering spaces into new development opportunities as they arise, to create public spaces for community building.

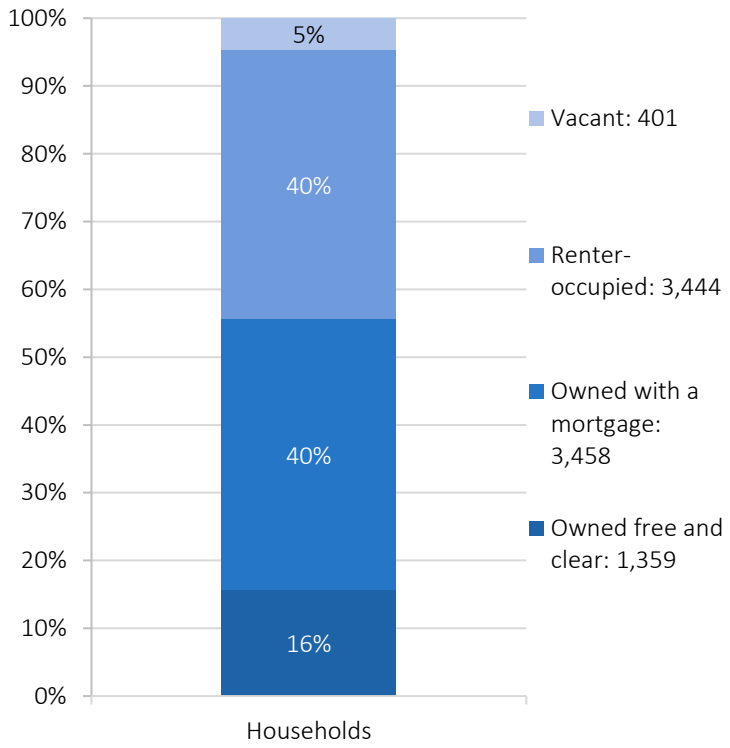
- Connections: Prioritize the incorporation of linkages and connections for all modes of transportation into redevelopment projects, to more seamlessly connect areas of intense land uses amenities with surrounding residential areas and improve access to these sites.

Chapter Five: Housing

Background

West St. Paul was originally planned (in the 1960's) to have small, local commercial development along Robert Street with a multi-family housing buffer between that commercial and the surrounding single-family neighborhoods. Due to environmental concerns, such as preservation of water resources and green space, the southwest portion of the city was planned for larger-lot single-family homes. However, commercialization of Robert Street happened quickly, leading to decreased interest in the adjacent planned multi-family development, and rental apartments were developed in other areas of the city. That pattern can be seen now, with 40 percent of West St. Paul's housing units being renter-occupied.

Figure 5-1: Occupied Households. source: U.S. Census Bureau, ACS 2015 estimates



West St. Paul can be characterized as an older, first-ring, working-class community with modest-priced owner occupied and rental housing options. As shown in FIGURE 5-3, much of the owner-occupied housing stock was constructed in the 1950's and earlier, while the bulk of the rental apartments were built in the 1960's and 70's. Dakota County defined West St. Paul as a "developed community" in 2005, with limited new housing and little land available for development. West St. Paul was previously ranked the highest in renter percentage among larger cities in the Dakota County (Market Research Partners, Inc., December 2002).

FIGURE 5-2: HOUSING UNITS BY NUMBER OF UNITS IN STRUCTURE. SOURCE: U.S. CENSUS BUREAU, ACS 2015 ESTIMATES

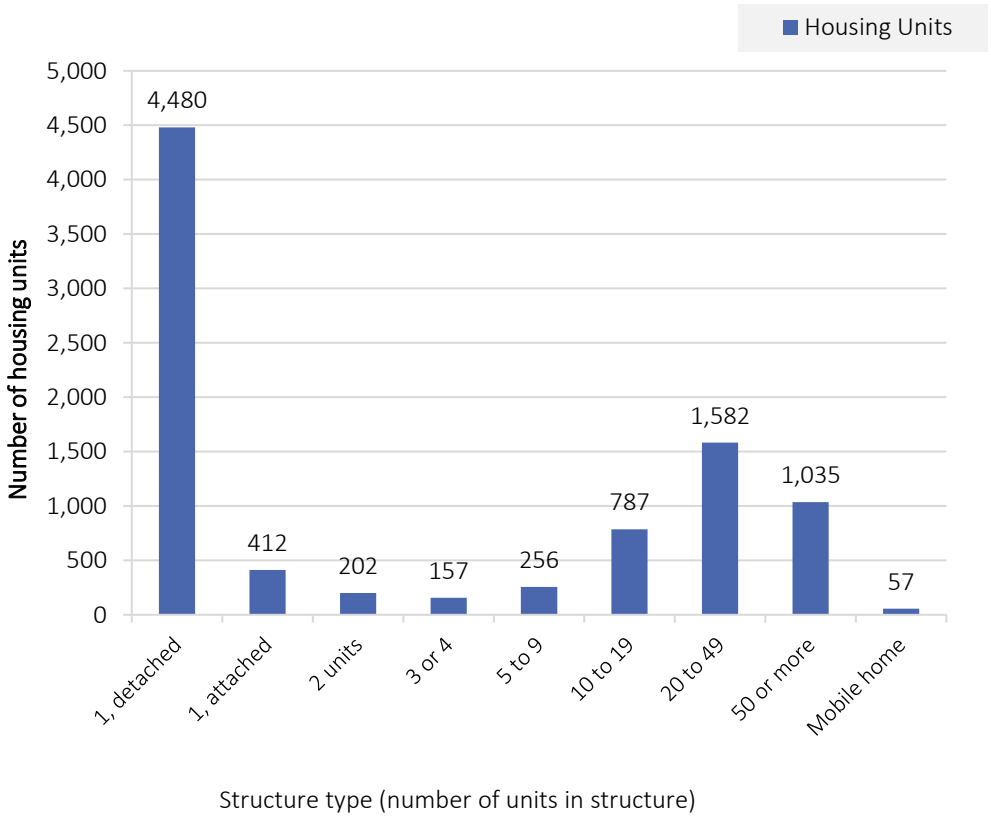
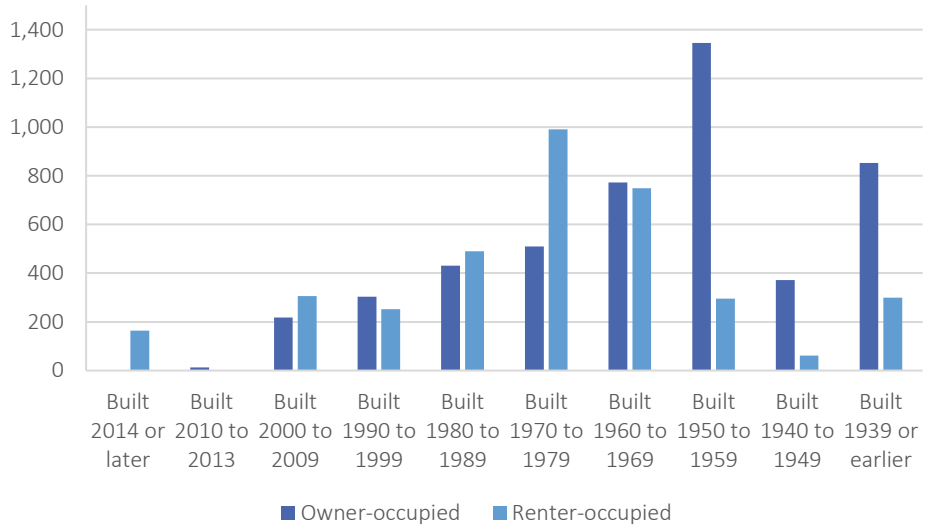
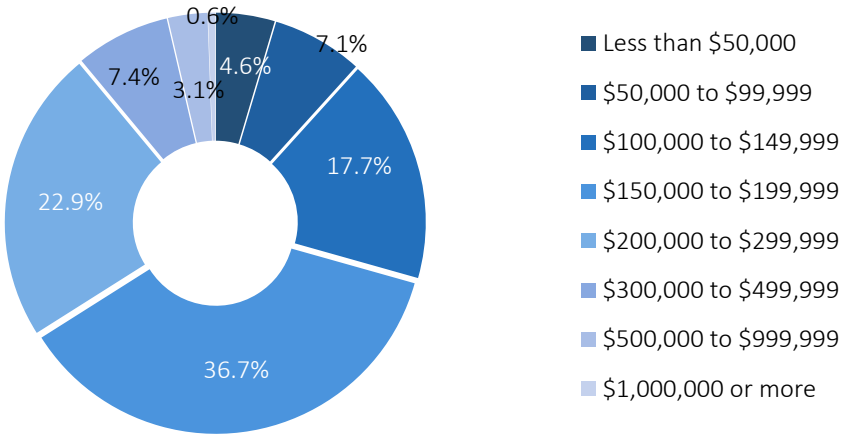


FIGURE 5-3: AGE OF HOUSING UNITS, SOURCE: U.S. CENSUS BUREAU, ACS 2015 ESTIMATES AND CITY PERMIT DATA



As shown in FIGURE 5-4, over half of the city's owner-occupied housing (including single-family detached and attached condominiums) is valued between $100,000 and $200,000, and two-thirds of the owner-occupied housing stock is valued at below $200,000.

FIGURE 5-4: VALUE OF HOUSING UNITS. ACS 2010-2014 ESTIMATES



The images shown below represent the range of housing types that can be found in West St. Paul.

Larger Single Family Homes. Many of the city's larger homes, such as the home shown here, are located on the larger lots located in the southwest part of the city.

Smaller Single Family Homes. This home is more typical of the majority of single-family homes that are older and built in the 1950's or earlier.

Apartments Buildings. Apartment complexes such as this one are common throughout the city and are generally built in an older walk-up style.

Senior Living. West St. Paul is host to several senior-oriented housing complexes that offer a spectrum of specialized programming or care.

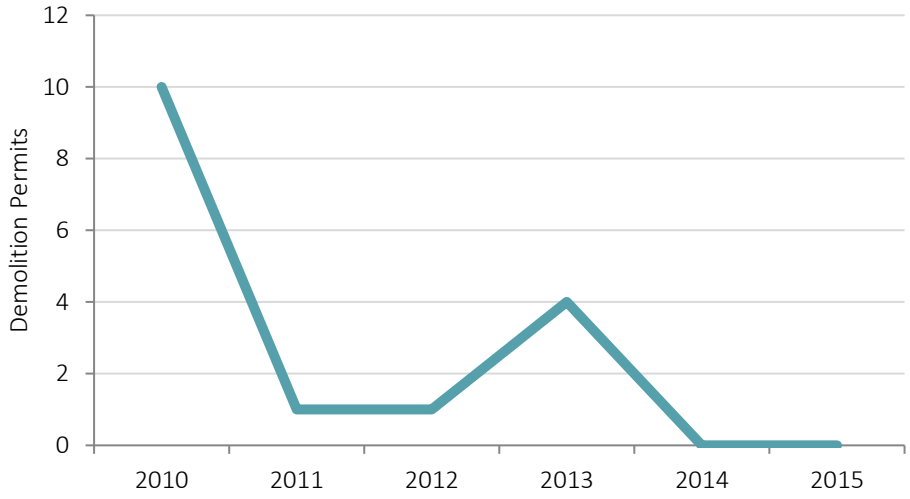
Condition of Existing Housing

Housing structures in West St. Paul tend to be in good shape for a housing stock where more than half the units were built prior to 1970. In order to effectively maintain and improve the current housing stock and appeal to future tenants and homeowners, West St. Paul has launched a multi-year plan to invest in both single and multi-family housing and better target rehab grants, loan programs and other local, state, and federal funding sources where they are most needed in the community.

There is evidence that residential rehabilitation efforts in the city are steady. In West. St. Paul, a total of 3,399 rehabilitation and alteration permits were issued between 2010 and 2015. If each individual permit is assumed to be assigned to one individual property, this equates to an average of 596 houses or nearly seven percent of the housing stock per year making rehabilitations or alterations for six consecutive years. In just six years, nearly 39 percent of the housing stock in West St. Paul was renovated or altered in some way, shape, or form.

Residential demolition permits in West St. Paul spiked in 2010, but in the ensuing years have tapered off to more typical levels, as seen in in FIGURE 5-5 below.

Figure 5-5 Demolition Permits West St. Paul. West St. Paul Building Department.



West St. Paul has an active rental licensing program and conducts regular code enforcement. Both efforts are intended to monitor and enforce property maintenance in the city in order to ensure a safe, well-managed, and sustainable housing stock into the future.

HOUSING: WHAT DID WE HEAR FROM THE COMMUNITY?

During the public engagement phase of comprehensive plan development, the following housing themes emerged from public comment:

- An overwhelming majority of residents rate the quality of life in their neighborhood as “Very Good” or “Excellent”.
- Preserving the affordability of housing in this community is important to residents.
- A large percentage of respondents have concerns about their ability to remain in West St. Paul as long as they desire to. Specific concerns include a lack of appropriately-sized and affordable housing for aging residents, homes that are not currently configured properly, and insufficient assisted living or nursing facilities to meet their needs.
- A significant rate of respondents feel that there are housing-related obstacles that would prevent their kids or grandkids from staying in West St. Paul. These obstacles include a lack of starter

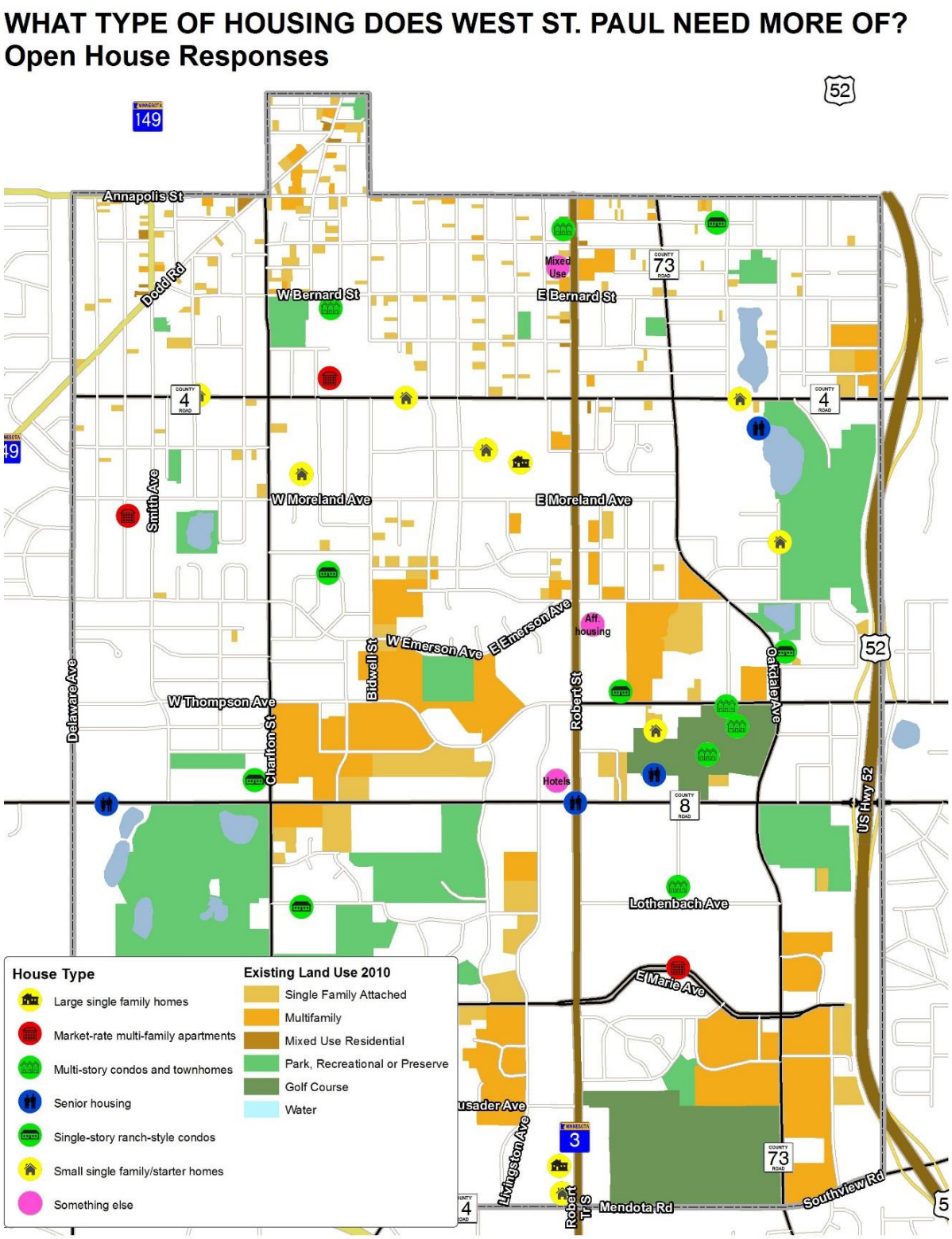
homes, apartments and rentals available in the city, as well as the cost and desirability of the existing housing.

- Maintenance and upkeep of existing homes, especially older properties, has been identified as a significant challenge for the community.
- While there are concerns about the quantity and condition of aging multifamily buildings in the city, there is also an openness to new attached and multifamily housing development, especially those of a more modern style.
- The response map below shows how the community answered the question "What type of housing does West St. Paul need more of?" at an open house event in May 2017. In addition to identifying a need for more senior housing opportunities, many respondents saw opportunities for integration of more attached and multifamily housing options to serve seniors and young families.

TABLE 5-1: OPEN HOUSE MAP RESPONSES (FROM MAP 5-1)

Housing Type	Percent
Large single family homes	6%
Market-rate multi-family apartments	9%
Multi-story condos and townhomes	19%
Senior housing	13%
Single-story ranch-style condos	19%
Small single family/starter homes	25%
Something else	9%

MAP 5-1: OPEN HOUSE RESPONSES

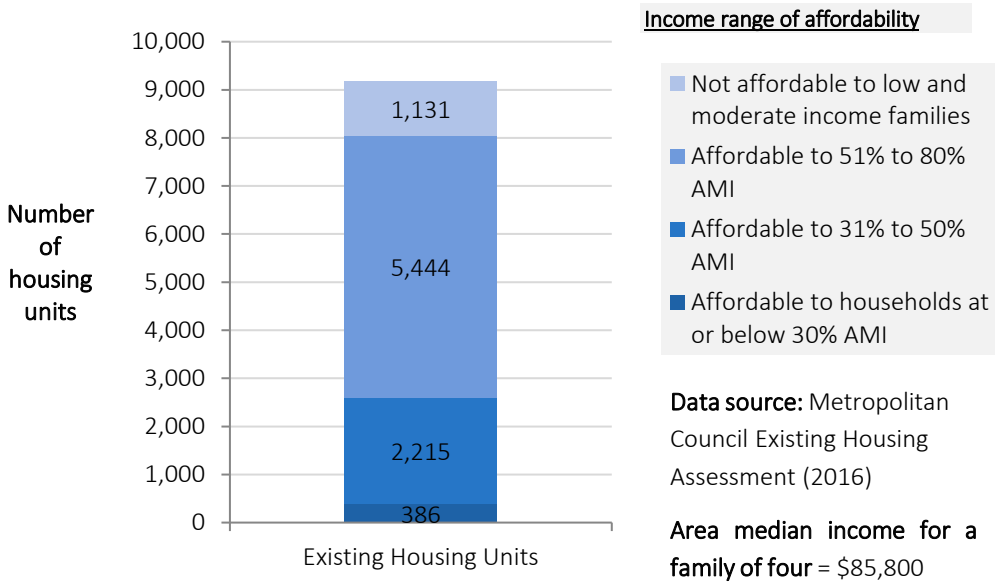


Existing Housing Affordability in West St. Paul

The regional planning authority looks at housing affordability through lens of area median income, or AMI. For a family of four, regional AMI in the Twin Cities is $85,800. Households that have an income at or below 80% of the regional AMI are the targeted population for affordable housing. Median household income in West St. Paul is $45,392, which is 53% of the area median income for a household of four.

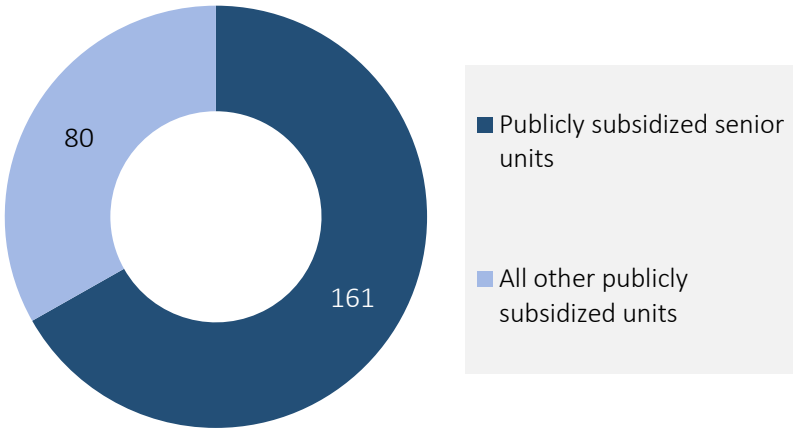
According to the Metropolitan Council's 2016 housing assessment, of the 9,174 total housing units in West St. Paul, around 88 percent are affordable to low or moderate-income households that are at or below 80% of AMI. As shown in Figure 5-6, most of West St. Paul's affordable housing is affordable to households in all of the AMI affordability bands. For those with yearly incomes of less than $25,740, around 4 percent of West St. Paul's housing units are affordable.

Figure 5-6: Housing Units by Affordability Level in West St. Paul



Publicly subsidized units often comprise the most deeply affordable units in a community. There are 241 publicly subsidized housing units in West St. Paul, as shown in Figure 5-7. As the figure indicates, two thirds of those are senior units.

FIGURE 5-7: PUBLICLY SUBSIDIZED HOUSING UNITS BY TARGET POPULATION



West St. Paul provides a higher percentage and more diverse array of affordable housing options than many metro communities; and West St. Paul has a very comparable share of affordable units when evaluated alongside other neighboring and similar inner-ring suburban communities. West St. Paul offers a somewhat higher percentage of units affordable in the 31 to 50 percent AMI range than many similar communities or when compared to the metro overall.

TABLE 5-2: AFFORDABLE HOUSING UNITS BY PLACE

City	Existing Affordable Units			
	at <30% AMI	at 31-50% AMI	at 51-80% AMI	Total Affordable Units
West St. Paul	7%	38%	44%	89%
South St. Paul	7%	46%	43%	96%
Inver Grove Heights	9%	20%	41%	69%
Richfield	5%	20%	65%	91%
Maplewood	8%	25%	48%	81%
Twin Cities Region	*6%*	*22%*	*40%*	*68%*
Source: Met Council Existing Housing Assessment 2017				

Rental Affordability

West St. Paul's rental housing landscape looks much the same as it has for decades, because the vast majority of the rental housing stock was constructed in the 1960s, 70s, and 80s. While not all rental housing in

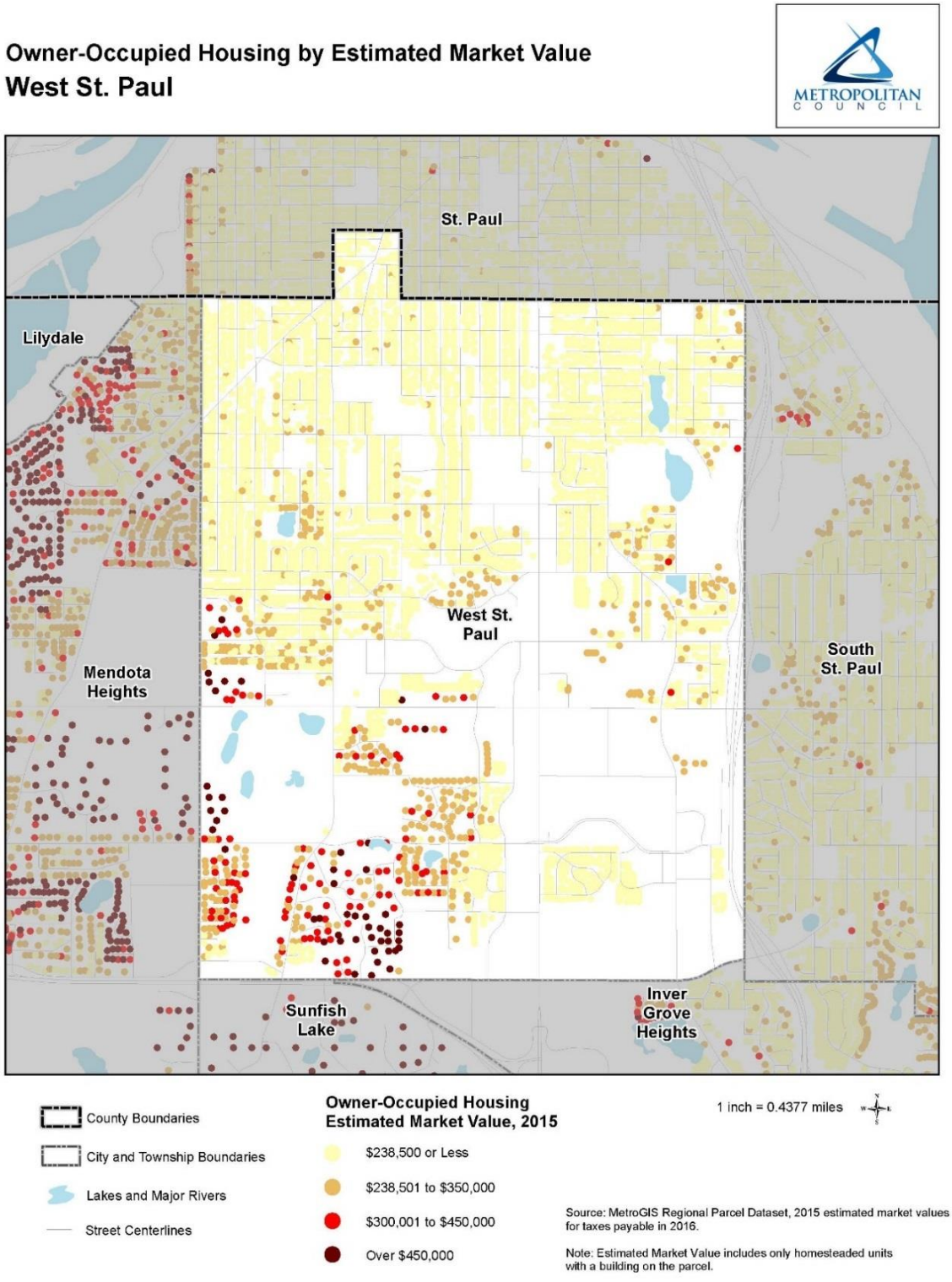
West St. Paul can be considered affordable, a significant fraction of the most affordable housing in West St. Paul is comprised of rental units. The Dakota County Community Development Agency (CDA) owns and manages more than 150 affordable apartment units within West St. Paul. Other rental properties in the city are affordable by virtue of being "naturally-occurring affordable housing." Typically, naturally occurring affordable housing comprises older attached and multifamily housing. Naturally occurring affordable housing may have deferred maintenance needs or be of an older or more obsolete style.

According to a Dakota County Housing Study of 2013, demand is now outpacing supply in some housing categories, more notably apartment rentals. Rental vacancies have hit new lows in some communities; tightening vacancies and increasing rents have resulted in low and moderate-income households experiencing much greater challenges to secure affordable housing.

Owner-Occupied Affordability

Much more than half of West St. Paul's owner-occupied housing stock is considered affordable at income levels at or below 80 percent of AMI. The map in MAP 5-2 illustrates this visually, with all of the yellow areas on the map corresponding to housing at affordable levels. A high rate of owner-occupied affordability is not uncommon in first-ring suburban communities with an older housing stock that includes older housing styles built on smaller lots.

MAP 5-2: OWNER-OCCUPIED HOUSING MAP. HOUSING AFFORDABLE TO 80% AMI AND LOWER SHOWN IN YELLOW.

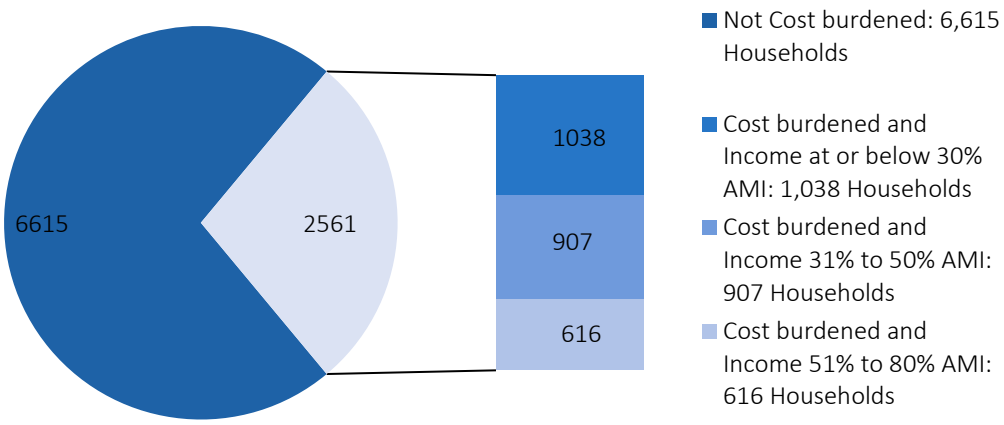


Existing Cost-Burdened Households

While the price of housing units relative to area median income is one measure of housing affordability in a community, another way to examine the impact of housing costs is by looking at **cost-burdened households**. Households are "cost-burdened" if their housing costs are at or over 30 percent of their income. This is an indicator of households that are spending a disproportionate share of their income on housing. The implications of a housing cost burden are most severe for households in the lowest income tier.

FIGURE 5-8 illustrates the share of low-to-moderate income households that are cost-burdened in West St. Paul, by AMI income level. At least one-quarter of West St. Paul's total households are cost-burdened, and almost 40 percent of those cost-burdened households have incomes in the lowest AMI tier.

FIGURE 5-8: COST BURDENED HOUSEHOLDS. METROPOLITAN COUNCIL 2016 EXISTING HOUSING ASSESSMENT.



With more than one in four households experiencing the phenomenon of housing cost burden in West St. Paul, the city's cost-burdened rate is slightly higher than that of the overall region. In comparison to neighboring and comparable inner-ring suburb cities, West St. Paul's cost-burdened share is about equal to or higher than surrounding communities. Similar to many other communities in the Twin Cities metro area, West St. Paul's greatest share of cost-burdened households is in the lowest (<30% AMI) income tier.

TABLE 5-3: COST BURDENED HOUSEHOLDS BY PLACE

City	Cost-burdened households			
	at <30% AMI	at 31-50% AMI	at 51-80% AMI	Total percent cost-burdened
West St. Paul	17%	10%	7%	34%
South St. Paul	16%	8%	6%	29%
Inver Grove Heights	10%	8%	6%	24%
Richfield	15%	10%	5%	30%
Maplewood	12%	7%	7%	26%
Twin Cities Region	10%	8%	6%	24%
Source: Met Council Existing Housing Assessment 2017				

Meeting the Regional Affordable Housing Allocation Share

West St. Paul, along with every community in the metro area, is responsible for retaining an adequate regional share of affordable housing. The Housing Element of Metropolitan Council's *Thrive 2040* plan has the determined the affordable housing requirement for every community by affordability level, as determined by a household's relationship to the Area Median Income (AMI). West St. Paul's affordable housing requirement is shown in the table below.

TABLE 5-4: AFFORDABLE HOUSING NEED ALLOCATION

Affordable Housing Need Allocation, 2021-2030	
At Or Below 30% AMI	60
From 31 to 50% AMI	17
From 51 to 80% AMI	43
Total Units	**120**
AMI = Area Median Income	

Housing calculations from TABLE 5-6 indicate that West St. Paul has guided sufficient high density land at a minimum of 12 units per acre to produce 1,221 units of housing at affordable densities in the 2021-2030 decade, which well exceeds the Metropolitan Council's affordable housing allocation of 120 units.

Future Residential Land Use

From the 2040 guide land use map, TABLE 5-5 below shows the total acreage within West St. Paul that is allotted to residential land uses in the 2040 plan.

TABLE 5-5 TOTAL GUIDED RESIDENTIAL ACREAGE IN WEST ST. PAUL 2040 FUTURE LAND USE PLAN.

Land Use Category	Land Uses	Total 2040 Guided Residential Acres
Single-Family Residential (3-6 units/acre)	• Detached housing units • Accessory units • Duplexes • Churches, schools and institutional uses	1,439
Multi-family Residential (20-40 units/acre)	• Rowhomes or Side-by-Side townhomes • Accessory units • Garden apartments • Apartment buildings (2-5 stories) • Churches, schools and institutional uses	326
Mixed-Use residential (25-40 units per acre)	• Apartment buildings (2-5 stories) • Attached housing • Residential uses mixed with commercial uses at about 50% of site area.	195

Of the 1,960 acres guided residential in West St. Paul, only 93 of these acres are expected to be redevelopable within the 2040 planning horizon. Affordable densities are those at with a minimum range of 12 units per acre and above, which means that all high density residential redevelopment areas expected to develop within the 2021-2030 decade qualify as affordable housing. This calculation uses the *minimum* density in the density range to calculate unit potential as directed by the Metropolitan Council. TABLE 5-6 below summarizes the residential redevelopment potential from the land use chapter, and highlights with a red outline the units that would be considered affordable to meet West St. Paul's regional affordable allocation.

TABLE 5-6: GROWTH AND REDEVELOPMENT STAGING TABLE, SHOWING EXPECTED RESIDENTIAL UNITS PRODUCED BY STAGING PERIOD

	Land Use Type	Dev. Acres	2021-2030	2031-2040	EVEN-TUAL	Density Range			Yield %	Min Units 2021-2030	Min Units 2031-2040	Min Eventual	Midpoint Units 2021-2030	Midpoint Units 2031-2040	Mid Eventual
						Min	Mid	Max							
Guided in 2040 Plan	Single-Family	20.15	0.00	1.26	18.90	3	4.5	6	100%	0	4	57	0	6	0
	Multi-Family	33.98	0.00	21.70	12.28	20	30	40	100%	0	434	246	0	651	0
	Mixed Use	139.13	97.71	41.43	0.00	25	32.5	40	50%	1221	518	0	1588	673	1588
	Guided Total	**123.70**								**1,221**	**956**	**302**	**1,588**	**1,330**	**1,588**
	Existing units in redevelopment areas												**150**		
	SUM TOTAL (Excluding "Eventual" Acreage and units)	**92.52**								**2,177**			**2,768**		

Total Expected Housing Unit Growth	2,768 units
Units Considered Affordable (≥12 du/ac in 2021-2030 decade)	1,221 units

Using minimum density to calculate unit potential, West St. Paul could potentially net 1,221 units of affordable housing in the decade from 2021-2030. This number is based purely on available land programmed for density at above 12 units per acre, which is largely in the Robert Street redevelopment area.

In practical terms, housing development above a particular density threshold does not guarantee housing affordability. The next section of this chapter will discuss the tools and strategies that West St. Paul can employ to help ensure that housing affordability goals are achieved.

EXISTING HOUSING NEEDS

From this assessment of the physical and cost characteristics of the housing stock in West St. Paul, combined with the demographic analysis of the community, there are some features and trends of the housing landscape that are especially notable and will shape the actions West St. Paul will take to address housing in the coming decades. The following section summarizes the community's most critical housing needs as they relate to affordability and future demands on the city's housing supply. Each section contains a housing trend observation, a supplemental narrative and a subsequent "housing need goal" that arises out of this observation. Connecting each housing need goal to applicable tools and policies will occur in a later section entitled "Planning for Affordable Housing."

The most critical housing trends and needs in West St. Paul are as follows:

- **The housing stock in West St. Paul is aging, and residents will have increasing maintenance and upkeep requirements in the coming decades.** West St. Paul contains mostly smaller-lot single family homes developed in the 1950s, 60s, and 70s that are beginning to age and may not be as attractive or suitable for modern households as they once were. Developing strategies to maintain and support West St. Paul's existing housing stock, particularly for those households with lower incomes and fewer resources, will remain a significant challenge in the decades to come, and will be important to continue to attract newcomers to the city.

  Housing need goal: *Support housing maintenance assistance programs, particularly for lower-income households.*

- **The City supports actions that make it possible for West St. Paul residents to age in place.**
  New senior housing units developed in the past 15 years have increased the number of housing options available to aging residents in West St. Paul. However, residents identified lack of available options for residents of all ages, particularly aging or elderly residents, as a significant challenge facing the community. Many lifelong residents want to remain in the community that they are familiar with or have grown up in. The City may consider exploring allowances for more diverse housing styles while supporting opportunities for senior and supported housing development to meet the demonstrated need in the community.

  Housing need goal: *Meet increased demand for senior housing and opportunities for residents to age in place.*

- **More than one in four West St. Paul households are cost-burdened, and nearly 40 percent of these households are at or below 50% AMI.**
  A disproportionate share of these cost burdened households are lower-income households. As market challenges to the production of affordable housing persist, West St. Paul must prioritize support for affordable housing development by using the tools available at the City's discretion and strengthening partnerships with other agencies to promote affordable housing production (more on this in the "Planning for Affordable Housing" section below). Furthermore, the city should prioritize affordability at or below the 50% AMI affordability band which requires intentional application of affordable housing policies, partnerships and resources.

  Housing need goal: *Reduce overall community housing cost burden, particularly by supporting those projects that provide affordability for households in the <50% AMI categories.*

- **West St. Paul, along with many urban communities, is at risk of losing its naturally occurring affordable housing to redevelopment.**
  West St. Paul has a certain amount of housing that is considered affordable by way of "naturally occurring" means. Typically, naturally occurring affordable housing comprises older attached and multifamily housing that may have deferred maintenance needs or is of an older or obsolete style. Naturally occurring affordable housing is an important source of housing affordability in many Twin Cities urban communities but requires a careful, balanced approach. All residents

have a right to live in safe and well-maintained housing, but maintenance and other upgrades (including redevelopment) can contribute to the loss of housing affordability in a community.

The existing housing stock of West St. Paul must be maintained or improved, thus improving the quality of existing neighborhoods while maintaining its affordability.

There are proactive steps that West St. Paul can take to recognize the important role that naturally occurring affordable housing plays in the community while also recognizing the imperative to maintain a safe and viable housing stock. Naturally-occurring affordable housing typically supports households between 30-80% AMI.

Housing need goal: *Preserve naturally-occurring affordable housing within all affordability bands while improving the safety and livability of the city's housing stock.*

- **Strategic development of housing can offer access to services and amenities to provide populations without a personal vehicle a method of transportation.**

  West St. Paul's proximity to a major urban center and the presence of major roadway arteries like Robert Street present opportunities for transit-oriented development, which can support populations who cannot or prefer not to own a personal vehicle. Prioritizing transit-oriented development projects will support seniors and low-income households who traditionally have a higher demand for transit services.

  Housing need goal: *Explore opportunities to increase transit-oriented development in strategic areas connected to major transit routes.*

- **Monitoring and updating City ordinances can help to produce flexibility and diversity in housing opportunities.**

  Zoning codes provide dimensional and locational standards that dictate the built form of housing. A city that actively monitors and updates its zoning code may find opportunities to lessen regulatory barriers to producing the types of housing that meet the demands of residents or prospective residents, as well as the conditions of the market.

  Housing need goal: *Update ordinances as necessary to maintain optimal housing functionality and livability and to address new technologies, market trends, and resident needs.*

Planning for Affordable Housing

Affordable housing implementation toolbox

Simply guiding land at higher densities is not a guarantee that affordable housing will be produced. To increase the likelihood of affordable housing development, West St. Paul has identified implementation tools that the City is willing and able to use to advance its housing goals.

However, there are areas in which cities have flexibility to enact financial and regulatory discretion. The provision of Tax Increment Financing (or TIF) is one of the most effective tools that cities have at their discretion to aid the production of affordable housing projects, and West St. Paul is open to financially assisting future affordable rental projects through TIF and other available means if and when they come forward.

Cities also have control over their zoning, regulatory, and land use policies. West St. Paul must systematically review its zoning and city code to ensure that the regulatory environment is favorable to affordable housing development, and consider amending policies that present barriers to affordable housing development. One of the strategies identified in the Land Use section of this Plan (Chapter 4) is to evaluate the appropriateness of ordinances that encourage alternative housing options like accessory dwelling units and smaller apartment units. Another is to utilize the Planned Development re-zoning as a tool at key locations to promote market flexibility and integrated land uses. These and other policy strategies may be considered and provided directly by the city to help encourage affordable housing production.

There are also opportunities outside of regulatory policy for a city to support affordable housing through programmatic and collaborative actions. West St. Paul intends to continue its efforts to manage safe and fair housing conditions through its code enforcement and rental licensing programs. Where appropriate, West St. Paul may consider participating in land or site acquisition where it furthers the goal of affordable housing development or maintenance. Finally, the City continues to work in close partnership with Dakota County and other local entities to promote housing programs and provide effective referrals for those seeking supportive services that will allow them to find or remain in safe, affordable housing.

Many other affordable housing tools and strategies require partnerships with outside entities, counties, HRAs, funding and granting agencies, and non-profits that offer programs, funding, and policies on a wider scale that

support affordable housing. Tools that can be used to generate or maintain housing affordability can generally be grouped into the following categories:

- Local funding (city or county)
- Local policy or strategy
- Regional or Federal funding source
- Affordable housing preservation

An overview of housing needs and the tools that may be used to address them are shown in the matrix below (TABLE 5-7). The section that follows explains each of the affordability tools in greater detail, and gives more details about when these strategies might be used.

TABLE 5-7: AFFORDABLE HOUSING TOOL MATRIX

Identified Housing Need Goals	Affordable Housing Tools*																						
	Local Funding				Local policy/Strategy											Regional/Federal Funding				Affordable Housing Preservation				
	Development Authorities	Housing Bonds	Tax Abatement	Tax Increment Finance	Outreach and educational materials	Homebuyer assistance programs	Foreclosure prevention	Repair & Rehab Support	Site assembly and/or acquisition	Zoning and subdivision policies	Dakota County CDA partnership	Rental license, inspections and code enforcement program	Energy Assistance program through CAP	Effective Referrals	Local Fair Housing Policy	MHFA Consolidated RFP	Livable Communities grant (Met Council)	CDBG grants & HOME funds	Housing Opportunities Enhancement Program (HOPE)	Repair and rehab funding & loans	LIHTC properties	4(d) tax program & private unsubsidized	Non-profit partnerships	Housing Improvement Areas (HIAs) through County CDA
Support housing maintenance assistance programs, particularly for lower-income households. (Target AMI: range of 30-80%)	X				X	X	X	X			X	X	X	X					X	X		X	X	X
Meet increased demand for senior housing and opportunities for residents to age in place. (Target AMI range 80% and below).	X	X	X	X	X				X	X	X			X		X					X			
Reduce overall community housing cost burden, particularly by supporting those projects that provide affordability for households in the <50% AMI categories.	X	X	X	X	X	X				X				X	X	X	X	X			X			
Preserve naturally-occurring affordable housing within all affordability bands.	X				X	X	X	X						X				X		X	X	X	X	X
Explore opportunities to increase transit-oriented development in strategic areas connected to major transit routes. (Target AMI range 80% and below)	X	X	X	X					X	X						X	X	X			X			
Update ordinances as necessary to maintain optimal housing functionality and livability and to address new technologies, market trends, and resident needs. (Target AMI range 80% and below).	X	X	X	X	X	X				X			X											

Affordability tools

This section explains each of the affordability tools from TABLE 5-7 in greater detail.

Affordability Category	Housing Affordability Tool
Local funding for Affordable Housing	**Development Authorities (local HRA, CDA, or EDA)** The Dakota County HRA initiates levy funds for affordable housing maintenance and production within West St. Paul. The City does have its own HRA, but the city HRA is currently inactive. Activating the city's HRA would allow West St. Paul to have more discretion over funding of affordable housing projects and programs and would allow the city to consider appropriate levies to support specific affordable housing needs, such as specific developments and/or housing maintenance programs. The City could even consider creating an Affordable Housing Trust Fund through its HRA to support project by project requests. **When we would use this:** The City would consider using funding from Development Authorities for rental and ownership housing units that are affordable at or below 50% AMI. The City would also consider supporting using these funds if a project would provide necessary "missing middle" housing or senior housing.
	Housing Bonds HRAs can issue bonds that help to develop and administer affordable housing developments or programs. Cities may make or purchase loans using the proceeds of the bond sales for activities such as new construction, acquisition and rehabilitation, or refinancing bond debt. There are specific affordable unit thresholds that must be met in bond-financed projects, and the City would consider issuing bonds at the request of housing developers. **When we would use this:** The City would consider using bond-supported projects for affordable housing projects between 50% and 80% AMI bands.
	Tax Abatement Tax abatement is a financing tool that reduces taxes or tax increases for owners of specific properties. Local governments offer the tax reduction to provide a financial incentive for a public benefit, such as creation of housing affordable to low and moderate-income households. The City will prioritize temporary tax abatement over permanent tax abatement, except in cases where the project provides a significant public benefit beyond the provision of affordable housing and would not happen "but for" the provision of tax abatement. **When we would use this:** The City would consider using Tax Abatement to support the development of rental and ownership housing units that are affordable at or below 80% of the AMI. The City would also consider Tax Abatement to encourage redevelopment or remove blight. Tax Abatement proposals that would receive priority would be those which would extensively rehabilitate multifamily housing stock, develop multi-family workforce housing with amenities comparable to those found in market rate style housing, or workforce housing which consider innovative or alternative forms of development and do not include high rise buildings.

	Tax Increment Financing The City may create a tax increment financing (TIF) district with the TIF bonds issued on this district used to support the construction of affordable housing. All property taxes received above the original tax value from the development is used to finance these bonds. The City has discretion over TIF allocations and will consider using TIF for housing projects that include not only a significant percentage of affordable units but also provide a substantial public benefit (including but not limited to: environmental remediation, enhanced walkable urban design, open space or park land, provision of green space, stormwater infiltration, and/or improved streetscape design) and would not happen "but for" TIF assistance. TIF-supported affordable housing projects will help to reduce the City's housing cost burden. **When we would use this**: The City would considering using TIF for affordable rental housing projects which provide affordability to those at 60% of AMI or less, or 115% of AMI for owner-occupied housing projects.
Local policies and strategies to promote access to affordable housing	**Effective Referrals** The City supports providing appropriate resources and education for existing housing support programs offered by other agencies and organizations. While the City does not have the capacity to provide a full-time staff to offer this service, there are opportunities to more effectively communicate to residents and prospective residents about existing programs offered through Minnesota Housing (first-time homebuyer and fix-up loan programs) and local non-profits and neighborhood groups serving the area. Effective housing referrals will increase opportunities for residents to enter the community whom would otherwise have barriers, and improve the likelihood of existing housing maintenance. Housing programs support residents at a range of income levels, from very low up to moderate incomes, depending on the program.
	First time homebuyer, down payment assistance, and foreclosure prevention programs The City encourages residents to access existing programs available through Dakota County, as well as the Minnesota Homeownership Center and the StartUp program through Minnesota Housing. The City will continue to form partnerships with external organizations who offer these programs and seek to provide referral information wherever possible. These programs will be especially valuable to households at or below 80% AMI that would otherwise face extreme hardships in purchasing or maintaining a home. For example, the Dakota County CDA First Time Home Buyer Program provides financial resources for West St. Paul residents purchasing a home. Eligible properties include: existing single-family homes, townhomes, condominiums, new construction, and duplexes. Additionally, some first-time home buyers can also qualify for the Down-payment and Closing Cost Assistance program. The CDA assists up to 20 households per year for this program.
	Encourage repair and rehabilitation programs There are many programs external to the City that support housing repair and rehabilitation assistance for homeowners and rental housing properties. Many of these programs and sources of funding assistance can be accessed through the County HRAs, Greater Minnesota Housing Corporation (GMHC), Minnesota Housing, or others. The City will continue promoting its partnership with GMHC to residents and to support the efforts of external organizations to offer these programs to residents, particularly targeting those low-income residents most in need.

	Dakota County and other Inter-Jurisdictional Partnerships The City supports staffs', commissioners', and/or elected officials' involvement in housing collaborations, working groups, technical assistance panels, or other events focused on the topic of maintaining or furthering affordable housing, and encourage collaboration and knowledge-sharing on best practices between cities and other jurisdictions.
	Site assembly and/or acquisition The City will consider policies that encourage reserving publicly owned properties, and other site assembly techniques for affordable housing. The City will consider taking a proactive stance to monitor and purchase properties that can be assembled and developed into a public good project such as the production of affordable housing or maintaining and rehabbing an existing affordable housing development, specifically those that meet thresholds for 50 percent AMI and below for rental housing and 115 percent AMI and below for ownership . The City may consider collaboration with the Land Bank Twin Cities to support land banking opportunities as they arise.
	Zoning and subdivision ordinances City codes should encourage and streamline development of affordable housing. The City may consider proactive zoning policies that incentivize higher density and/or greater affordability. Such incentives might include: adoption of an accessory dwelling unit ordinance, continuing to use Planned Developments as a means of supporting mixed-use and/or dense and walkable projects, considering up-zoning in areas where appropriate, evaluation of existing dimensional requirements for barriers to production of multifamily housing or innovative housing solutions, possible fee waivers or expedited process for projects that meet affordability standards, inclusionary housing thresholds for new developments, and others. Such updates to zoning ordinances may help to meet rental demand and help produce housing that is affordable to households at or above 50% AMI.
	Rental license, inspections and code enforcement program West St. Paul already has a rental license and inspection program. This program was enacted not only to ensure tenants are treated fairly, but to also a data collection opportunity to keep tabs on rental properties. This data can help cities understand where naturally occurring affordable housing in the community exists and to better understand what steps need to be taken to help preserve it.
	Energy Assistance program through CAP The Community Action Partnership (CAP) Agency's Energy Assistance Program (EAP) helps eligible households maintain affordable, continuous and safe home energy. Services include bill payment assistance, home energy crisis intervention, outreach, energy advocacy, information about utility consumer rights, and referrals. **When we would use this:** The City does not maintain this program but is supportive of staff referring residents to CAP.
	Local Fair Housing Policy The City may explore the development of a local Fair Housing policy. Such a policy would allow West St. Paul to declare its commitment to fair housing and to plan proactively both to avoid fair housing issues, manage fair housing complaints, and to take advantage of opportunities to increase housing choice. The Metropolitan Council will soon be requiring LCA funding recipients to have a Fair Housing policy in place.

Regional & Federal funding for Affordable Housing	**MHFA Consolidated Request for Proposals** This major annual funding request from Minnesota Housing Finance Agency supports affordable housing development. The City will continue to work with developers in coordination with MHFA in supporting RFP submissions for projects that will bring a significant number of new affordable units, and will urge more support for projects that meet affordability thresholds of 50% AMI or below as a reflection of the city's greatest cost-burdened need. **When we would use this:** The City does not maintain this program but the RFP is a useful tool to support the development of rental housing units affordable at or below 50% AMI or below.
	Livable Communities Demonstration Account (LCDA) West St. Paul is eligible for Metropolitan Council funding for innovative projects, with preference for those projects that incorporate affordable housing and transit accessibility. The City will continue to work with developers in coordination with the Met Council in supporting RFP submissions for projects that will bring a significant number of new affordable units, and will urge more support for projects that meet affordability thresholds of 50% AMI or below as a reflection of the City's greatest cost-burdened need. The City is especially supportive of use of this grant opportunity to develop projects with a strong transit-oriented development component. **When we would use this:** The City would support applying for LCDA grants for projects which are affordable at or below 50% AMI and are within a half-mile walking radius to transit.
	Community Development Block Grant Funds (CDBG) Each year, the City applies for Community Development Block Grant (CDBG) funding through the Dakota County Community Development Agency (CDA). Historically, the City has applied for CDBG funding for redevelopment and rehabilitation loans administered by the CDA. The City receives approximately $90,000 a year in CDBG funding. The program provides home improvement assistance to underserved populations in West St. Paul. However, the City benefits overall through increased property values and preservation of the existing housing stock. Over the last several years, the City has maintained one of the highest numbers of closed loans in the County since the program's creation. **When we would use this:** The City will consider supporting CDBG as a tool to preserve both rental and ownership units affordable at or below 80% AMI and below.
	HOME Investment Partnerships Program (HOME) Offered through Dakota County for construction or rehabilitation projects. West St. Paul may apply annually through a coordinated County RFP, and should be actively considering opportunities to apply for and use HOME funds, particularly for projects to mitigate the loss of naturally occurring affordable housing. **When we would use this:** The City will consider supporting this as a tool for both the preservation and development of both rental and ownership units affordable at or below 50% AMI and below.

	Dakota communities: Housing Opportunities Enhancement Program (HOPE) Since 2001, Dakota County has been providing gap financing to assist in the development and preservation of affordable housing throughout the county. Funding is provided in the form of a deferred loan, and requires a 2:1 match of other public or private funding sources. HOPE funds must be used to provide rental housing opportunities for households at or below 50% of area median income or homeownerships opportunities for households at or below 80% of area median income. Eligible uses include new construction, acquisition, rehabilitation, preservation and home ownership opportunities. **When we would use this:** The City does not maintain this program but would consider supporting rental projects at or below 50% AMI or homeownership opportunities at or below 80% AMI.
Affordable Housing Preservation Strategies	**Low Income Housing Tax Credit Properties (LIHTC)** With LIHTC, developers apply for tax credits to offset costs at the time of development. Although the City does not fund this type of assistance, West St. Paul will consider stating its intent of support for developers who pursue LIHTC and who intend to seek ways to retain the affordability of the LIHTC property after the terms of LIHTC are up. LIHTC is a tool used to support projects that support residents in the 30 – 80 percent AMI range.
	4d tax program Non-subsidized properties may be eligible for a tax break if the owner of the property agrees to rent and income restrictions (serving households at 60% AMI or below) and receives "financial assistance" from federal, state, or local government. West St. Paul will consider stating its intent of support for the 4d tax program.
	Private unsubsidized affordable housing This may include naturally occurring affordable housing or housing supported through 4d tax program. West St. Paul will consider stating its intent of support for private unsubsidized affordable housing and explore opportunities to work with property owners to retain the affordability of these properties over the long term.
	Housing Improvement Areas (HIAs) HIAs are a defined area in a city in which housing improvements in condominium or townhome complexes may be financed with the assistance of the city (EDA, HRA). An active City HRA would have the opportunity to designate an HIA in an area where existing housing needs improvement for retention of housing affordability is at risk.
	Repair and rehabilitation funding and loans The City partners with Dakota County to offer low and moderate-income homeowners home improvement loans for making repairs and improvements to their homes for things like roofs, furnaces, electrical and plumbing, insulation and improvements for special needs such as ramps, bathroom or kitchen modifications.

	Community Land Trusts (CLT) CLT provide permanent affordability for income-eligible households. Typically, a CLT is structured where a homeowner owns the building and the land trust leases the land to the homeowner. Households that make at or below 80 percent of AMI typically qualify for these homes. **When we would use this:** Currently there is not an active CLT serving West Saint Paul, but the City will consider future partnerships or support CLT activities if they arise.

CHAPTER 6: ECONOMIC DEVELOPMENT

West St. Paul is a thriving city of cohesive neighborhoods, vibrant businesses, and successful community partnerships. Our city offers a wide-variety of shopping, housing, and business development opportunities. Our parks, lakes, and award winning schools are alive with countless cultural, recreational, educational, and leisure activities. West St. Paul is positioned for easy access to the Twin Cities' numerous regional amenities and attractions. From our 2.5 mile, downtown to thriving industrial areas, West St. Paul continues to attract quality growth while maintaining the small-town feel and high quality of life that makes it an exceptional city.

The City has identified economic development as a priority issue in its comprehensive planning process. The City first created the Economic Development Commission "EDC" in 1988 which was originally created as an advisory group. The EDC has since been changed to an Economic Development Authority "EDA" which is comprised of the members of the City Council.

ECONOMIC SNAPSHOT OF WEST ST. PAUL

This portion of the Comprehensive Plan presents a brief overview of key indicators of the economy of the West St. Paul and how those indicators reflect on the economic development goals of the City. The City of West St. Paul is strategically located with easy access to the I494 corridor, has frontage along US Highway 52, and includes the Robert Street corridor. With numerous redevelopment sites that can access these transportation corridors, the profile of West St. Paul will increase among the commercial/industrial development and redevelopment community. However, the timing and scope of development and redevelopment hinges on the regional economic picture at the time individual sites are built-out.

In addition to comparing itself to the surrounding area, the City has identified other communities that are similar in terms of the general demographics and location of West St. Paul; that have developed in a similar pattern to West St. Paul; and that may face similar barriers for continued economic growth. Those communities are Fridley, Maplewood, Mendota Heights, New Brighton, North St. Paul, Richfield, and South St. Paul.

Twin Cities Employment Growth by Sector, 2014-2024

TABLE 6-1 presents predictions about employment growth of the Twin Cities economy by industrial sector. The chart shows very strong expansion in several service sectors. Over the 10-year period identified in the chart (2014-2024), the

service sector will account for over 71 percent of the new positions created. Most these positions would be categorized as healthcare related services. The projected growth in these industry sectors, Healthcare, Research and Development and Financial Services, will allow for the opportunity to capture additional livable wage positions in the city sectors.

This projected growth will also allow the City to see success as they work to redevelop areas in the community to provide areas for the development of new facilities.

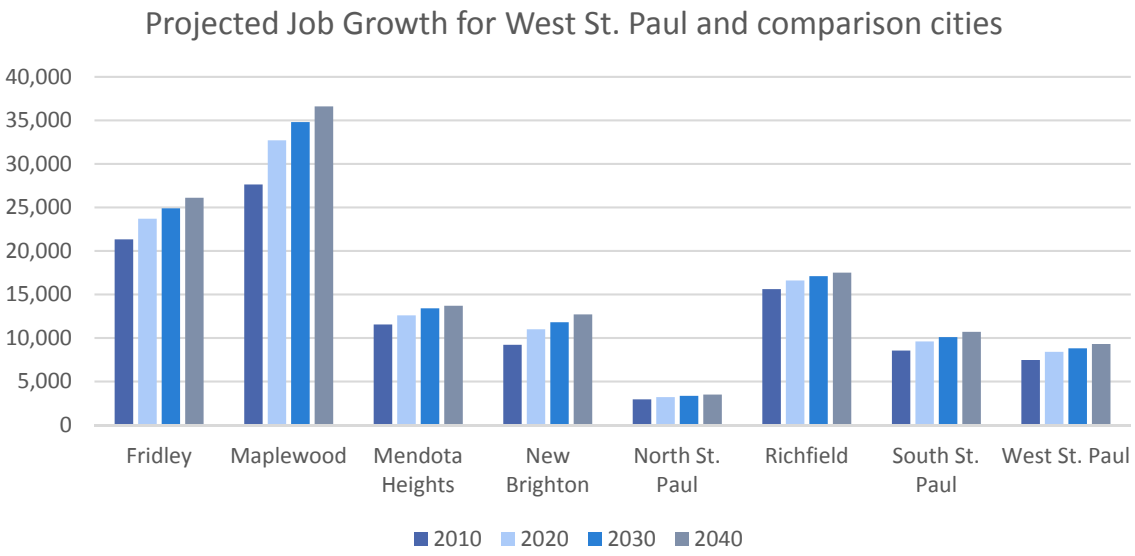
TABLE 6-1: PROJECTED EMPLOYMENT GROWTH BY SECTOR, 7-COUNTY TWIN CITIES REGION, 2014-2024

Industry	Percent Change	Numeric Change
Healthcare Support Occupations	18%	16,114
Personal Care and Service Occupations	14%	21,822
Healthcare Practitioners and Technical Occupations	12%	20,142
Community and Social Service Occupations	9%	5,466
Computer and Mathematical Occupations	8%	7,812
Construction and Extraction Occupations	8%	8,722
Business and Financial Operations Occupations	6%	9,586
Life, Physical, and Social Science Occupations	5%	1,351
Food Preparation and Serving Related Occupations	5%	11,788
Building and Grounds Cleaning and Maintenance Occupations	5%	4,710
Legal Occupations	5%	990
Installation, Maintenance, and Repair Occupations	4%	4,559
Sales and Related Occupations	4%	10,788
Protective Service Occupations	3%	1,212
Education, Training, and Library Occupations	2%	4,014
Transportation and Material Moving Occupations	2%	4,167
Management Occupations	2%	5,117
Arts, Design, Entertainment, Sports, and Media Occupations	1%	770
Architecture and Engineering Occupations	1%	345
Office and Administrative Support Occupations	(1%)	(4,040)
Production Occupations	(2%)	(4,587)
Farming, Fishing, and Forestry Occupations	(5%)	(848)

Comparison Communities Projected Employment Growth

In FIGURE 6-1: the projected job growth for the period of the Comprehensive Plan are shown. While West St. Paul will continue to lag most of the comparison cities in the creation of jobs over the next 22 years, they are projected to have steady job growth. While they will have steady job growth, the cities of Fridley and Maplewood will see a faster growth then West St. Paul and the rest of the communities in the comparison group.

FIGURE 6-1: PROJECTED JOB GROWTH FOR COMPARISON - 2010-2040 (MET COUNCIL)



Major Employers in West St. Paul

West St. Paul has several major employers in the community, with Target being the largest with 400 employees. This has remained the same with Target being the largest employer during the last comprehensive plan update. The City has lost some large employers in the retail area with the closure of both Kmart and Rainbow foods. The list has a decent blend of retail and service businesses but has limited larger manufacturing companies. However, West St. Paul does have a number of smaller manufacturers that average 50 or fewer employees.

TABLE 6-2: MAJOR EMPLOYERS 2017 – CITY OF WEST ST. PAUL

Company	Number of Employees
Target	400
Southview Acres Healthcare	375
Wal-Mart	300
Dakota County Workforce Center	260
Darts	179
Tapemark	175
Cub Foods	165
Westwood Ridge	150
City of West St. Paul	110
ISD #197 Heritage Middle School	100

According to Business Analyst (ESRI), there were 10,580 employees in the City of West St. Paul. The breakdown of the employees by industry is shown in TABLE 6-3. The industries most heavily represented in West St. Paul include Retail Trade (16.8%), Other Services excluding Public Administration (14.2) %, Health Care & Social Assistance (9.4%) and Professional, Scientific & Tech Services (8.1%). Overall West St. Paul has a diverse business mix with no area being a dominant factor.

TABLE 6-3: WEST ST. PAUL EMPLOYMENT (ESRI)

Total Businesses:	756
Total Employees:	10,580
Total Residential Population:	20,210
Employee/Residential Population Ratio (per 100 Residents)	52

TABLE 6-4: EMPLOYMENT BY INDUSTRY NAICS CODES – WEST ST. PAUL (ESRI)

Business and Employees	Business		Employees	
by NAICS Codes	Number	Percent	Number	Percent
Agriculture, Forestry, Fishing & Hunting	0	0.0%	0	0.0%
Mining	0	0.0%	0	0.0%
Utilities	0	0.0%	0	0.0%
Construction	47	6.2%	329	3.1%
Manufacturing	18	2.4%	594	5.6%
Wholesale Trade	11	1.5%	65	0.6%
Retail Trade	127	16.8%	2,092	19.8%

Business and Employees by NAICS Codes	Business Number	Business Percent	Employees Number	Employees Percent
Transportation & Warehousing	12	1.6%	198	1.9%
Information	28	3.7%	165	1.6%
Finance & Insurance	41	5.4%	248	2.3%
Real Estate, Rental & Leasing	55	7.3%	215	2.0%
Professional, Scientific & Tech Services	61	8.1%	329	3.1%
Management of Companies & Enterprises	0	0.0%	0	0.0%
Administrative & Support & Waste Management & Remediation Services	27	3.6%	160	1.5%
Educational Services	20	2.6%	528	5.0%
Health Care & Social Assistance	71	9.4%	1,456	13.8%
Arts, Entertainment & Recreation	14	1.9%	234	2.2%
Accommodation & Food Services	54	7.1%	1,088	10.3%
Other Services (except Public Administration)	107	14.2%	1,284	12.1%
Public Administration	26	3.4%	1,589	15.0%
Unclassified Establishments	37	4.9%	6	0.1%
Total	**756**	**100%**	**10,580**	**100%**

The NAICS codes have some of the industries broken out into more specific categories to allow for a clearer picture of the composition of the business community and employment. In West St. Paul, when the Retail Trade business category is broken out, no one category dominates business community.

TABLE 6-5: RETAIL TRADE BUSINESS BREAKDOWN – WEST ST. PAUL (ESRI)

Business and Employees by NAICS Codes	Business Number	Business Percent	Employees Number	Employees Percent
Retail Trade - Total	**127**	**16.8%**	**2,092**	**19.8%**
Motor Vehicle & Parts Dealers	10	1.3%	100	0.9%
Furniture & Home Furnishings Stores	7	0.9%	52	0.5%
Electronics & Appliance Stores	8	1.1%	49	0.5%
Bldg Material & Garden Equipment & Supplies Dealers	13	1.7%	373	3.5%
Food & Beverage Stores	20	2.6%	468	4.4%
Health & Personal Care Stores	16	2.1%	118	1.1%
Gasoline Stations	4	0.5%	21	0.2%
Clothing & Clothing Accessories Stores	13	1.7%	40	0.4%
Sport Goods, Hobby, Book, & Music Stores	8	1.1%	32	0.3%
General Merchandise Stores	6	0.8%	741	7.0%
Miscellaneous Store Retailers	17	2.2%	97	0.9%
Nonstore Retailers	5	0.7%	1	0.0%

In addition to the Retail Trade business category, the NAICS codes are also broken down for Finance and Insurance, Professional, Scientific & Tech Services, Accommodation & Food Services, and Other Services (except Public Administration) so the breakdown of those areas is listed in TABLE 6-6 below.

TABLE 6-6: EMPLOYMENT BY NAICS CODES CATEGORY BREAKDOWN – WEST ST. PAUL (ESRI)

Business and Employees by NAICS Codes	Business Number	Business Percent	Employees Number	Employees Percent
Finance & Insurance – Total	**41**	**5.4%**	**248**	**2.3%**
Central Bank/Credit Intermediation & Related Activities	13	1.7%	138	1.3%
Securities, Commodity Contracts & Other Financial Investments & Other Related Activities	5	0.7%	26	0.2%
Insurance Carriers & Related Activities; Funds, Trusts & Other Financial Vehicles	23	3.0%	84	0.8%
Professional, Scientific & Tech Services – Total	**61**	**8.1%**	**329**	**3.1%**
Legal Services	15	2.0%	68	0.6%
Accommodation & Food Services – Total	**54**	**7.1%**	**1,088**	**10.3%**
Accommodation	0	0.0%	0	0.0%
Food Services & Drinking Places	54	7.1%	1,088	10.3%
Other Services (except Public Administration) - Total	**107**	**14.2%**	**1,284**	**12.1%**
Automotive Repair & Maintenance	17	2.2%	104	1.0%

While West St. Paul has a diverse business base, a significant number of employment opportunities are in service industries which account for 31 percent of the businesses and jobs in the community. When the accommodations and food services sectors are included, the proportion increases to 38 percent of businesses and 41 percent of the employment opportunities. While service industry positions can be well paying, they are generally less likely to be considered livable wage positions. The community has recognized that fact by developing a goal to attract more livable wage employment opportunities to the city.

Household Income

When reviewing the employment opportunities and where the current type of positions can provide the level of income needed to enjoy the high quality of life in West St. Paul, the City has reviewed the household income comparison to the Dakota County. While the City has made significant progress since the 2010 Census when the median income was $48,400, the current median income of $52,837 is still significantly less than the median household income of $79,644 in

Dakota County. As shown in in TABLE 6-7, 47 percent of West St. Paul households have an income below $50,000. This compares to Dakota County where only 28.3 percent of households are below $50,000 in income.

TABLE 6-7: HOUSEHOLD INCOME (ESRI)

Income	West St. Paul		Dakota County	
	Households	Percent	Households	Percent
Less than $15,000	825	9.4%	7,622	4.8%
$15,000 to $24,999	1,061	12.1%	9,930	6.2%
$25,000 to $34,999	869	9.9%	10,143	6.3%
$35,000 to $49,999	1,369	15.6%	17,614	11.0%
$50,000 to $74,999	1,652	18.8%	29,204	18.2%
$75,000 to $99,999	1,119	12.7%	24,084	15.0%
$100,000 to $149,999	1,251	14.2%	33,548	20.9%
$150,000 to $199,999	344	3.9%	15,285	9.5%
$200,000 or more	297	3.4%	13,003	8.1%
Total Households	**8,787**		**160,433**	

Comparison of Median Household Incomes

TABLE 6-8: MEDIAN HOUSEHOLD INCOMES 2017 – WEST ST PAUL (ESRI)

West St. Paul	Dakota County	% of County	Twin Cities Region (7-County)	% of Region	State of MN	% of State
$52,837	$79,644	66%	$68,800	77%	$61,492	83%

Based on the comparison to Dakota County, 7-County Metro Area and the State, West St. Paul is below the median income for all the areas. While these numbers indicate that the median income is low in West St. Paul, it does not take into consideration cost of living in the community which could result in a better balance.

One of the key factors in cost of living is the cost of housing, as it comprises a large portion of a family's budget. The median value of an owner-occupied home is in West St. Paul is $203,271. Based on the standard affordability threshold of spending no more than 30 percent of income on housing and 20 percent on down payment, West St. Paul's median income of $52,837 would allow for the purchase at the median valued home in the city. This is based upon the family meeting the other home mortgage requirements, such as credit score and length of employment.

TABLE 6-9: WEST ST. PAUL HOME VALUES (ESRI)

Home Value	West St. Paul		Dakota County	
	Number	Percent	Households	Percent
Less than $50,000	105	2.1%	3,658	3.0%
$50,000 to $99,999	223	4.5%	3,051	2.5%
$100,000 to $149,999	593	12.0%	10,103	8.5%
$150,000 to $199,999	1,481	30.0%	20,244	16.8%
$200,000 to $249,999	1,024	20.7%	22,487	18.7%
$250,000 to $299,999	701	14.2%	20,167	16.7%
$300,000 to $399,999	456	9.2%	22,056	18.3%
$400,000 to $499,999	154	3.1%	10,679	8.9%
$500,000 to $749,999	85	1.7%	5,969	5.0%
$750,000 to $999,999	27	0.5%	1,085	0.9%
$1,000,000 or more	89	1.8%	817	0.7%
Total	**4,934**		**120,514**	
Median Value	$203,271		$251,279	
Average Value	$241,540		$281,980	

Currently, 6.6 percent of the housing units in the City are valued under $99,999. These units could become problematic properties if the values continue to decline. The City has identified this as a possible concern in the future and will be developing a program to assist homeowners in maintaining the value of properties on the neighborhood and community.

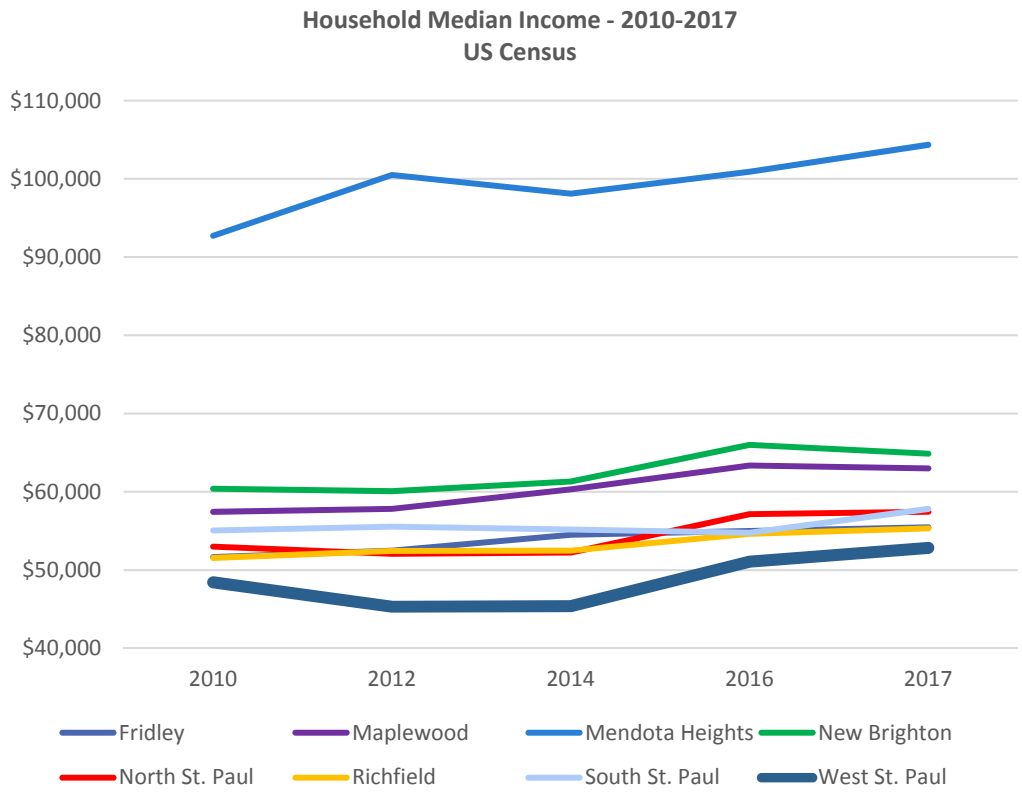
In the effort to more fully understand some of the challenges that are facing the City, additional demographics are provided to allow for a clearer picture of the relationship between the cities in the comparison group. In TABLE 6-10 the communities are compared based on several criteria.

TABLE 6-10: COMMUNITY COMPARISON GROUP (ESRI)

Community	Population	Median Age	Average Household Size	Median Household Income
Fridley	27,905	38.1	2.4	$55,471
Maplewood	40,847	39.9	2.5	$62,993
Mendota Heights	11,549	49.9	2.5	$104,352
New Brighton	23,213	41.4	2.4	$64,879
North St. Paul	12,360	39.5	2.5	$57,449
Richfield	37,895	38.1	2.4	$55,330
South St. Paul	20,678	38.6	2.4	$57,812
West St. Paul	20,210	40.9	2.3	$52,837

As shown in TABLE 6-10 the City of West St. Paul has the lowest median household income in the comparison group. However, when we look at the trend of the median household income the cities all follow a similar trend of slowly increasing since 2010.

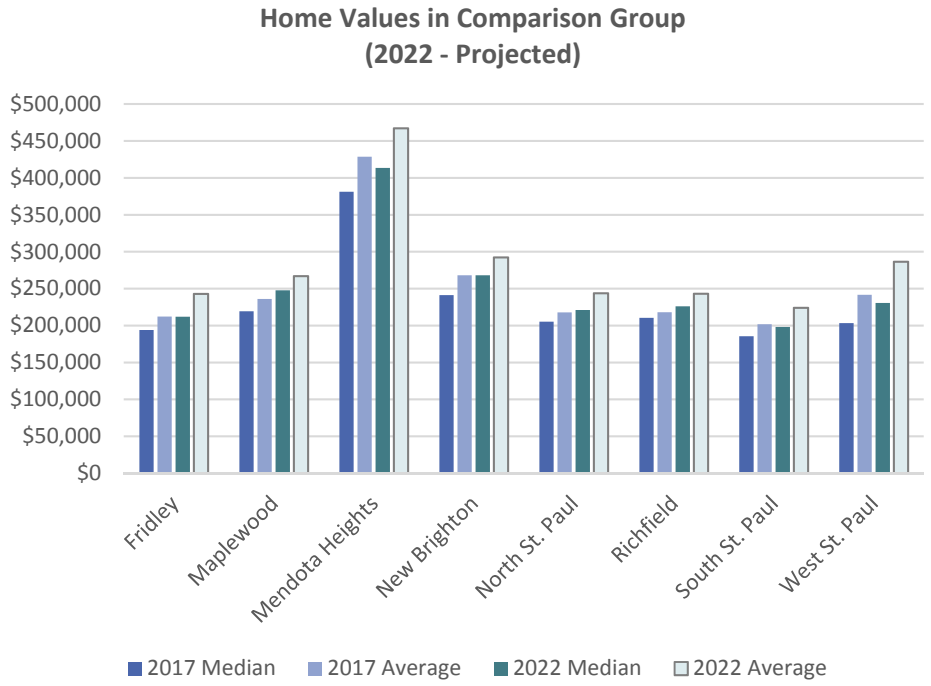
FIGURE 6-2: COMMUNITY COMPARISON HOUSEHOLD MEDIAN INCOME 2010-2017 (US CENSUS)



This figure also shows that West St. Paul's household median income is increasing faster than the comparison group. This trend could be continued and accelerated as the city focuses on the attraction of livable wage positions.

In addition to median household income, single-family housing values also provide insight as to how the West St. Paul compares to the other communities. FIGURE 6-3 shows a comparison of the home values in the comparison communities group.

FIGURE 6-3: HOME VALUES IN COMPARISON GROUP 2017 – 2022 (ESRI)



As shown in the chart, while West St. Paul currently has a slightly lower median household value compared to the group, the value of homes in the community (for both median and average) should continue to increase and place it in the upper half by 2022. As West St. Paul focuses on higher value homes ($300,000 +) the trend may accelerate putting additional pressure for the attraction of livable wage positions in the community. This will make the goal of to increase livable wage positions even more important to allow for residents to live and work in the community.

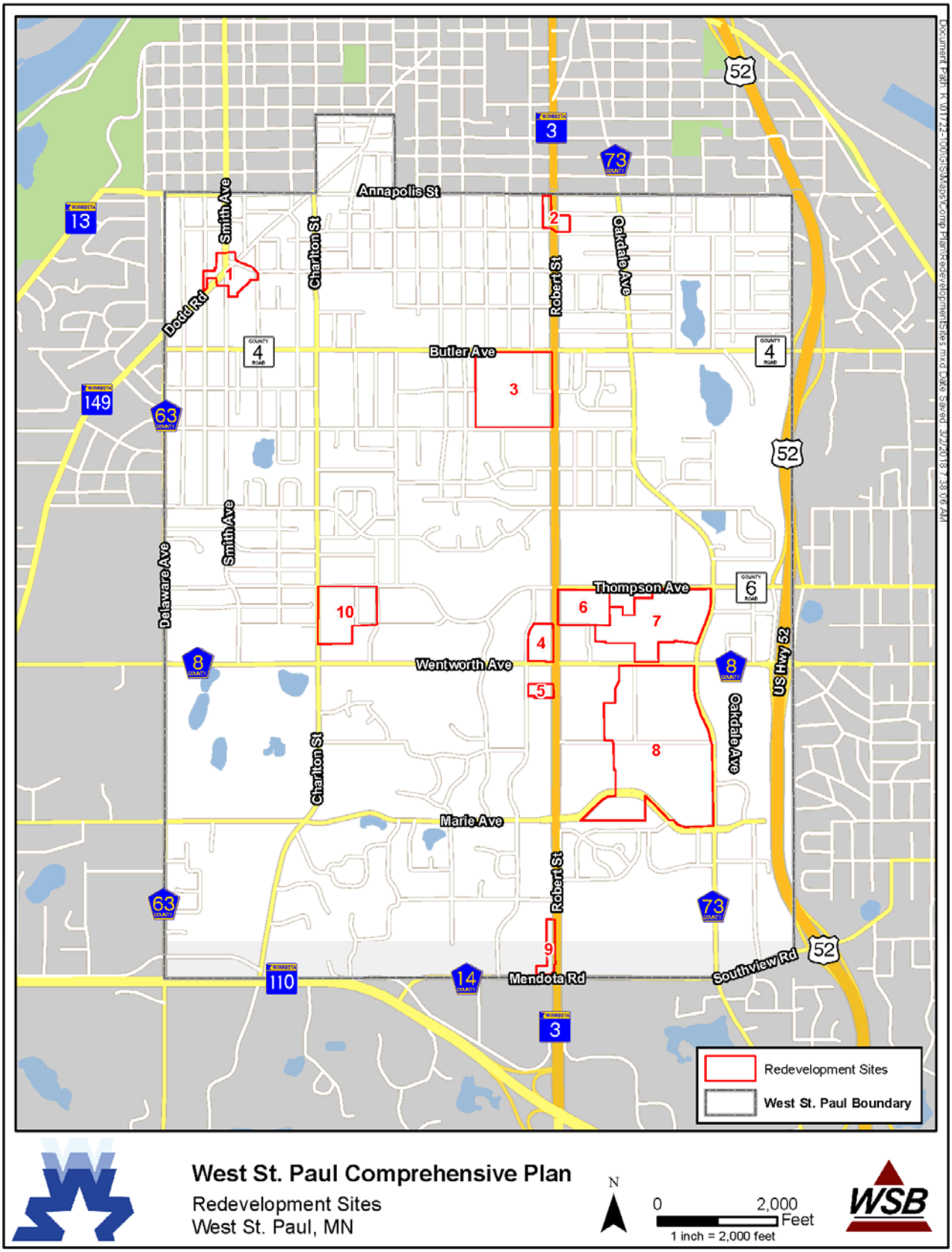
REDEVELOPMENT AREAS

The EDA has identified the following eight general areas in West St. Paul for potential redevelopment. These areas are shown on the attached map with the general boundaries of each area identified. While boundaries are indicated for each area, these boundaries should not be construed to mean that they are set in

stone. The City is open to adjusting redevelopment area boundaries should a project warrant the expansion of an area. In addition, while these areas have been currently identified for redevelopment, additional areas could be added as market conditions change and/or the City identifies new opportunities.

1. Smith/Dodd
2. North Gateway
3. Signal Hills
4. Town Center 1
5. Town Center 2
6. Thompson/Wentworth
7. Thompson Oaks Golf Course
8. Industrial Park Area
9. South Gateway
10. Charlton Avenue

MAP 6-1 REDEVELOPMENT AREAS



Area 1 – Smith/Dodd

Area Characteristics:

The area is approximately 8.3 acres in size and is comprised of older commercial retail type center area with traditional neighborhood type businesses like cleaners, computer repair, pizza and small restaurants. This area is also surrounded by a stable single-family neighborhood which has allowed for the current businesses to be successful. The area is not currently maximizing the potential property tax revenue generation which would indicate that a higher and better use for the area may be available.

Strategy:

The City completed the Smith/Dodd Small Area Plan (2017) that suggested the realignment of the intersection and an increased density for the area. At some point in the future the City may need to help assemble parcels if overall health of the site creates multiple vacant buildings. The City may also work with the owners and provide redevelopment encouragement, including City or EDA assistance, if it is determined public assistance is warranted. Finally, the City may consider zoning and land use changes to allow for development that fits the current trends but that would limit the impact to the adjacent single family residential uses.

Area 2 – Gateway North

Area Characteristics:

The is an older residential area of the community, that includes older traditional retail and commercial uses. The area is currently vacant and available for development. The site is approximately 3.0 acres in size and is a gateway to the community along Robert Street.

Strategy:

The City and County have acquired the site and will be activity working to identify a senior housing developer for the project that will fit the needs of that area and community. The City and County may consider the use of financial assistance to assist with the development of a project that meets the needs and goals of the community.

Area 3 – Signal Hills Mall

Area Characteristics:

Approximately 37-acre aging mall and big box retail area. The area has several small retail uses that could be repositioned with a new development of the area. This is a potential long-term redevelopment area that could be triggered by something happening to the vacant big box site.

Strategy:

The EDA/City should continue to explore opportunities to assemble land in this area, as it becomes available, that would help lead to efficient redevelopment and possible better access to Robert Street to take advantage of existing infrastructure. The EDA/City should also consider financial assistance for removal of buildings and site preparation. Future redevelopment could consist of a mix of medium/high density residential and retail/commercial uses.

Area 4 – Town Center 1

Area Characteristics:

This is an area of aging retail uses that were designed independent of each other and would benefit from redevelopment to allow for a more efficient design of the site layout. The area is approximately 6 acres in size and is expected to develop in 3 phases. Many of the structures are currently at their maximum property tax revenue generation. The EDA expects that the redevelopment of Areas 4, 6 and 7 will occur as a single project.

Strategy:

The City may work with the owners on redevelopment possibilities including City assistance if it is determined public assistance is warranted. The City may also consider zoning and land use changes to allow for maximizing the possible property tax generation and successful development of the area.

Area 5 – Town Center 2

Area Characteristics:

This is a 2.3-acre site that is comprised of an aging retail strip mall that is currently home to a variety of retail uses that have a significant parking area. The area was developed independent of the neighboring uses resulting in the creation of an inefficient use of the space available.

Strategy:

The City will continue to work with the property owners and possible tenants for a redevelopment of the site. The City would consider the use of financial assistance to allow for the successful redevelopment of the site.

Area 6 – Thompson/Wentworth

Site characteristics:

This is an approximately 11.7-acre site that includes several individual property owners and businesses. While all the current buildings have not reached their expected life span, the pending redevelopment of the golf course to the east and

the continued improvements to Robert Street would allow for the combination of the lots to possible higher and better uses for the generation of property tax revenue.

Strategy:

The City would examine possible land assembly options with potential developers as well as look at land use options for reuse to increase the tax generation from the area. The City may need to work with the property owners to identify new locations for their operations. The City would consider the use of financial assistance to encourage the development of the area in a timely manner.

Area 7 – Thompson Oaks Golf Course

Site Characteristics:

This site is an aging city-owned golf course that has not been financially viable without significant City support. The site is comprised of approximately 20 acres with access to both Thompson and Oakdale Avenues. The City has control of the site and is knowledgeable of the past uses and issues associated with the area.

Strategy:

The City will be actively seeking opportunities to work with housing developers for the development of life cycle housing in the area. This could include both single-family, patio homes, senior and multi-family housing, mixed used and some continued open space. The City may use financial assistance to encourage the types of development that will be most beneficial to the area and city.

Area 8 – Industrial Park Area

Site Characteristics:

The area is comprised of older commercial/industrial uses that are not currently fully compatible with the adjacent uses and are not currently maximizing the property tax generation potential. The area is approximately 95 acres in size and has access to Marie, Oakdale and Wentworth Avenues.

Strategy:

The City will work with potential developers to allow for the redevelopment of the area to maximize the potential property tax generation. The City will be actively seeking possible new light industrial users and commercial projects for the area. The City may consider the use of financial assistance to allow for the completion of a project that fits the goals of the community.

Area 9 – South Gateway Area

Site characteristics:

The area is comprised of undeveloped lots located in front of a primary retail shopping area. The area has significant value for development to allow for the growth of the tax base and image of the community along the Robert Street Corridor.

Strategy:

The City will work with potential developers to allow for the development of the area to maximize the potential property tax generation. The City will be actively seeking possible new retail users and commercial projects for the area. The City may consider the use of financial assistance to allow for the completion of a project that fits the goals of the community.

Area 10 – Charlton Avenue Area

Site characteristics:

This area is approximately 19 acres in size and is comprised of aging apartments and complexes that are currently not generating as much revenue as possible for the community based on property values.

Strategy:

The City will actively seek opportunities to work with housing developers for the redevelopment of housing in the area. This could include both single-family, patio homes, senior and multi-family housing will be striving to meet the density goals of the Met Council. The City may use financial assistance to encourage the types of development that will be most beneficial to the area and city.

IMPLEMENTATION STRATEGIES

The EDA develops new goals and priorities annually for the City and guides the direction of the economic development programs of West St. Paul. These goals are based on an understanding of the existing conditions in the community and the surrounding area by the EDA, City Council and City Staff. These goals are supported by a series of objectives structured to meet the annual work programs of the Community Development Department and the Economic Development Authority. The annual work programs are composed of activities with workable strategies or policies to allow for the completion of the goals with the intended results. The proposed activities require the City to continue to take an advocate position on commercial and industrial expansion, business retention, and redevelopment of areas to allow for the new development activities. The 2040

Comprehensive Plan includes the following goals and areas for redevelopment to expand and increase the communities tax base and tax revenue generation.

IMPLEMENTATION GOALS

1. The City will provide for enough industrial and commercial land expansion in the Comprehensive Plan to allow for the development of the projected job growth until 2040.

2. The City will focus on creating access to sustainable jobs for the residents of West St. Paul with a focus on development of corporate offices, professional and financial services, research, medical manufacturing and medical services, education and emerging industrial technology.

3. The City will continue to use available financial tools, including tax increment financing, tax abatement, and special tax districts to encourage redevelopment and investment in new development projects. In addition, the City will continue to work with companies and developers to pursue outside funding sources.

4. The City will continue to support the activities of regional economic development and business groups including but not limited to; West Saint Paul Chamber of Commerce, South Robert Street Business Association, Smith-Dodd Business Association, Dakota County Economic Development Partnership.

5. The City will continue to support the viability and economic health of the Robert Street Corridor, as it represents a significant economic and employment center. The City will collaborate with the property owners and developers to use the Robert Street Renaissance Plan as a guide, as well as explore and be receptive to new ways for the area to remain successful, including use of innovative infrastructure management and requirements.

6. The City will dedicate staff resources to monitoring the economic health of the city and assisting businesses in relocation or expansion within the City.

7. The City will continue to seek effective ways to promote the benefits of West St. Paul to the business community

8. The City will continue to develop and implement a business retention and expansion program to allow for the continued communication between the businesses and City.

9. The City will continue to provide information on economic development and the business community on its website.

10. The City will periodically review its procedures, ordinances and fee structures to ensure they are up-to-date and that they protect and promote the quality of life in the City.

11. The City will promote environmentally sensitive and sustainable business practices.

12. The City will continue to identify obsolete or blighted areas that should be targeted for redevelopment.

13. The City will periodically review existing land development requirements and economic incentives to ensure they are conducive to redevelopment and infill projects.

14. The City will work to identify single-family housing units that are becoming detrimental to the area and work to develop a program for their improvement to maximize home values and property tax generation.

15. Develop a comprehensive branding/marketing plan that promotes the community in a positive fashion highlighting the location North St. Paul and its proximity to Minneapolis and St. Paul.

Potential Financial Assistance Programs

The City has several possible funding sources that could be used to assist with the redevelopment of the sites identified that are listed in TABLE 6-11.

TABLE 6-11: FUNDING ASSISTANCE PROGRAMS

Tool	Description	Funding Source
Tax Increment Financing	The most commonly used tool to enable redevelopment and already used by the City.	City
Tax Abatement	Tax abatement may be considered to help pay for public improvements, redevelop blighted areas, provide employment opportunities, or help provide access to services	City, School District, State
Special Taxing Districts	Enabled by state statute, can be set up by an EDA to fund redevelopment	City
Livable Communities Grants	These grants fall into several categories focused on housing (LHIA), transit-oriented development (TOD), tax-base revitalization (TBRA) and that links housing, jobs, and services (LCDA)	Metropolitan Council
Special Assessments	Special assessment districts can be created to pay for infrastructure projects.	City
Federal Grants	Community Economic Development Strategy Program and Low Income Housing Tax Credits	EDA, HUD
Infrastructure Requirements	Adjustment of the requirements for infrastructure to help the area redevelop in a pattern that supports current usage trends	City
DEED Redevelopment Grant Program	Helps communities with the costs of redeveloping blighted industrial, residential, or commercial sites and putting land back into productive use.	State
Clean Up Revolving Loan Program	Provides low-interest loans to clean up contaminated sites that can be returned to marketable use	EPA

Tool	Description	Funding Source
Contamination Clean Up and Investigation Grant	Helps pay for assessing and cleaning contaminated sites for private or public redevelopment	State
Demolition Loan Program	Helps with the costs of demolishing blighted buildings on sites that have future development potential but no current plans.	State

CHAPTER SEVEN: TRANSPORTATION

The transportation system in West St. Paul generally operates well today. The city's multimodal transportation system includes facilities for vehicles, freight, walking, bicycling and transit. Facilities are operated by a number of agencies, including the City of West St. Paul, Dakota County, and the Minnesota Department of Transportation (MnDOT).

This transportation chapter has been prepared in compliance with State of Minnesota Statutes and applicable Metropolitan Council guidelines. As part of this Plan, the city has reviewed existing and future conditions for each mode and identified safety, operations, and network improvements that will be important to address over the 2040 planning horizon. The city has also developed goals and strategies to preserve and improve the transportation system.

This transportation plan includes the following information:

- Summary of Regional Strategies
- Existing Roadway System
- 2040 Traffic Forecasts and Roadway Network Planning
- Existing and Planned Non-Motorized Transportation Network
- Freight Network
- Transit
- Aviation
- Goals and Multimodal Strategies
- Proposed Short and Long Range Roadway Projects
- Public Comments
- Conclusion and Next Steps

TRANSPORTATION GLOSSARY

CIP: Capital Improvement Plan – five year plan for capital investments in the transportation system and in other capital assets owned by the city (equipment, buildings, etc.).

CR: County Road – county-owned roadway that does not receive State funding.

Critical Crash Rate: Statistical indicator of a safety problem at a location. If crash rates at a location are above the critical crash rate, it indicates that the location has a crash rate that is statistically significant compared to similar roadways.

CSAH: County State Aid Highway – county-owned roadway that receives State Aid funding.

MnDOT: Minnesota Department of Transportation.

RBTN: Regional Bicycle Transportation Network – existing and planned regional bicycle network established by the Metropolitan Council.

TH: Trunk Highway – State highway owned and operated by MnDOT.

TPP: Transportation Policy Plan – Regional transportation plan for the Twin Cities metropolitan region, developed by the Metropolitan Council.

Summary of Regional Strategies

This Plan has been prepared to be consistent with the regional transportation strategies outlined in the Metropolitan Council 2040 Transportation Policy Plan (TPP). Similar to this Plan, the TPP evaluates the existing transportation system, identifies transportation challenges to the region, and sets regional goals, objectives, and priorities to meet the transportation needs of current residents while accommodating the region's anticipated growth. The TPP also guides local agencies in coordinating land use and transportation and establishes regional performance measures and targets.

The TPP is guided by the following goals:

- **Transportation system stewardship:** Sustainable investments in the transportation system are protected by strategically preserving, maintaining, and operating system assets.
- **Safety and Security:** The regional transportation system is safe and secure for all users.
- **Access to Destinations:** People and businesses prosper by using a reliable, affordable, and efficient multimodal transportation system that connects them to destinations throughout the region and beyond.
- **Competitive Economy:** The regional transportation system supports the economic competitiveness, vitality, and prosperity of the region and State.
- **Healthy Environment:** The regional transportation system advances equity and contributes to communities' livability and sustainability while protecting the natural, cultural, and developed environments.
- **Leveraging Transportation Investment to Guide Land Use:** The region leverages transportation investments to guide land use and development patterns that advance the regional vision of stewardship, prosperity, livability, equity, and sustainability.

Funding is a key constraint that is acknowledged in the TPP. Current transportation revenue will not meet the region's transportation needs through 2040. As a result, the TPP includes two long-term investment scenarios: a fiscally-constrained scenario that identifies projects anticipated to be funded based on current revenue projections, and an increased revenue scenario that identifies project priorities should additional transportation funding become available.

Under the current revenue scenario, the TPP is focused on operations and maintenance of the existing transportation system. Investments in highway mobility and access are limited to those projects that address multiple TPP goals and objectives. The increased revenue scenario would allow additional investments in operations and maintenance, as well as regional mobility, access, safety, and bicycle/pedestrian improvements. However, congestion cannot be greatly reduced under even the increased revenue scenario. Under both scenarios, proposed investments are focused on areas of the metro with the greatest existing and future challenges and anticipated growth.

The Metropolitan Council classifies West St. Paul under the Urban Center Community Designation. Based on *Thrive MSP 2040*, Urban areas are expected to plan for forecasted population and household growth at average densities of at least 20 units per acre for new development and redevelopment. These communities are also expected to target opportunities for more intensive development near regional transit investments.

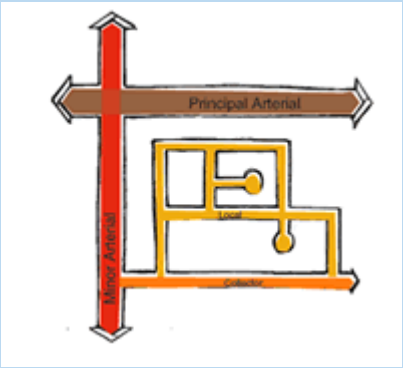
Existing Roadway System

The sections below provide information about the existing roadway system in West St. Paul, including existing number of lanes, existing roadway jurisdiction, existing functional classification, existing traffic, existing safety, and access management. This chapter also includes summary recommendations from recent plans and corridor studies.

Functional Classification

The functional classification system groups roadways into classes based on roadway function and purpose. Functional classification is based on both transportation and land use characteristics, including roadway speeds, access to adjacent land, connection to important land uses, and the length of trips taken on the roadway.

The **functional classification system** organizes a roadway and street network that distributes traffic from local neighborhood streets to collector roadways, then to minor arterials and ultimately the principal arterial system. Roads are placed into categories based on the degree to which they provide access to adjacent land and mobility for through traffic. Functional classification gives an indication of the relative hierarchy of roadways in the transportation network.



Four classes of roadways are included in the seven-county metropolitan area functional classification system: principal arterials, minor arterials, collector streets, and local streets. FIGURE 1 shows the existing functional classification of each road in the City of West St. Paul and FIGURE 2 shows the existing roadway jurisdiction. The following sections describe each functional class in greater detail and indicate which roadways fall into each classification.

FIGURE 1: EXISTING FUNCTIONAL CLASSIFICATION

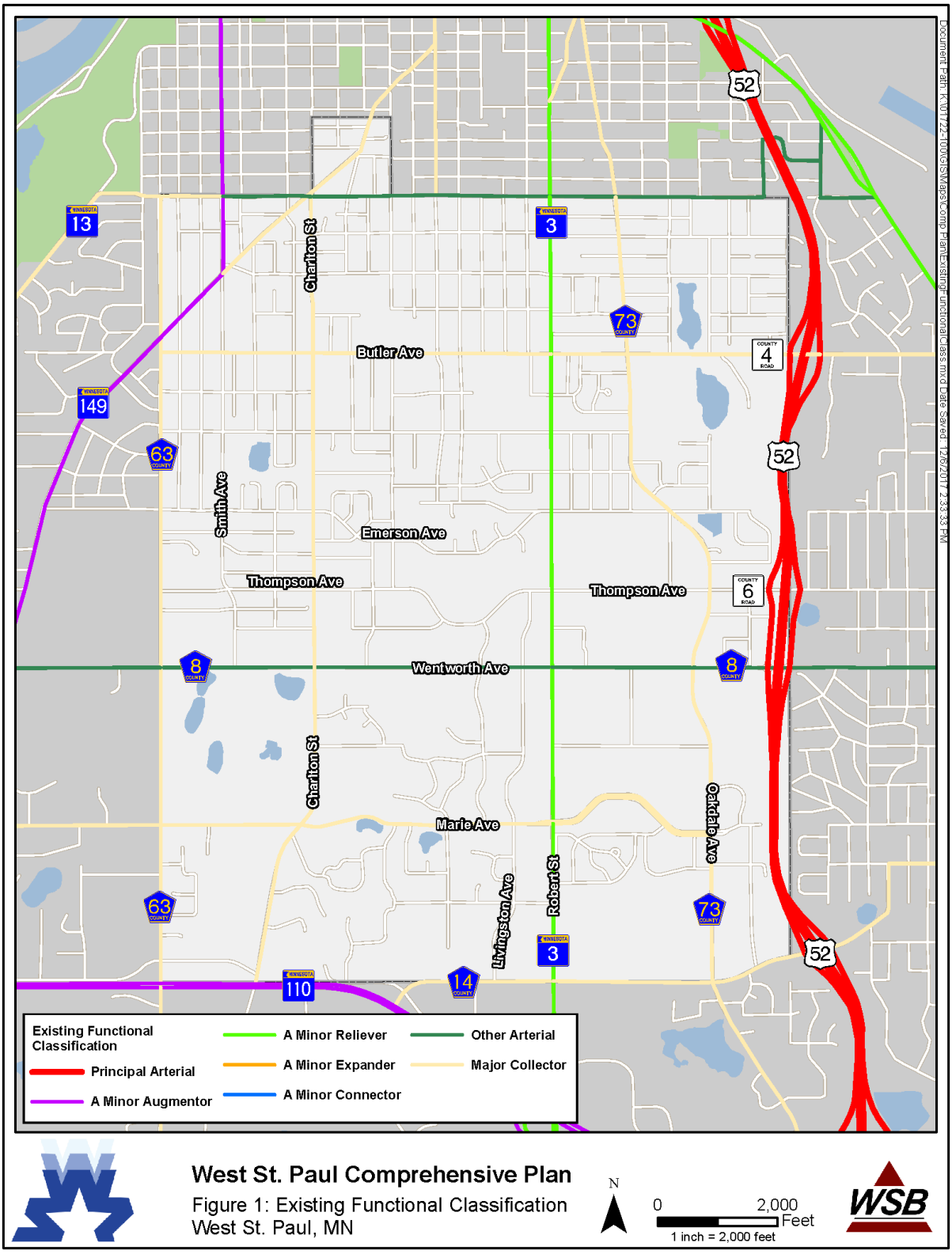
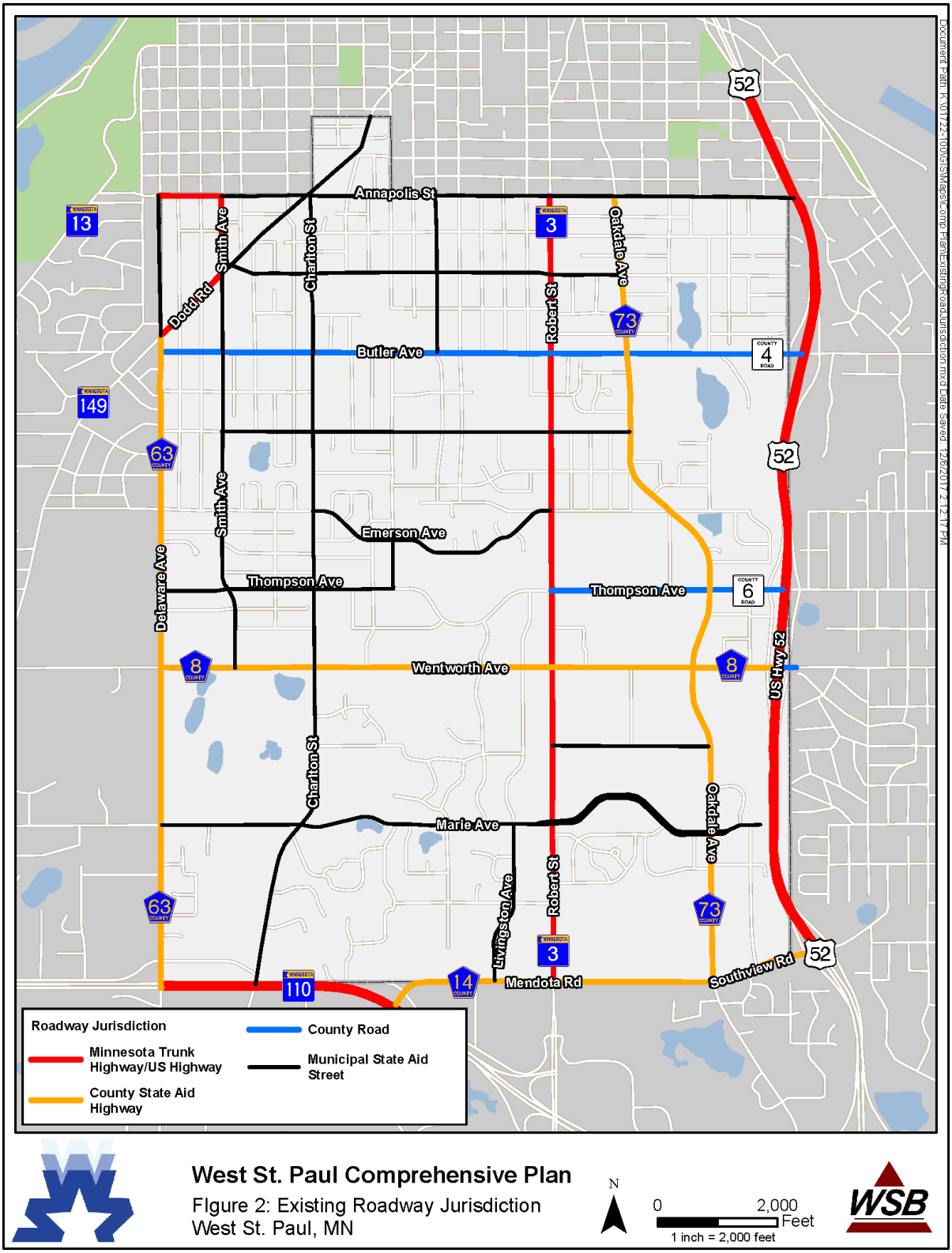


FIGURE 2: EXISTING ROADWAY JURISDICTION



Principal Arterials

Principal arterials are roadways that provide the greatest level of mobility and access control. Within the metropolitan area, the great majority of principal arterials are under MnDOT jurisdiction. Principal arterials are typically Interstate highways or other state or US freeways or expressways. These facilities are intended to serve trips greater than eight miles and express transit trips. Spacing of principal arterials varies within developing areas of the metropolitan area. Typically these facilities are spaced between two and six miles apart. These facilities connect regional business and commercial concentrations, transportation terminals, and large institutions within the metropolitan area. Principal arterials also connect to other cities, regions, and states outside of the metropolitan area.

Principal arterials are intended to maintain average speeds of 40 mph during peak traffic periods. To maintain mobility and speeds on principal arterials, land access and transportation system connections are limited. There is little to no direct land access from principal arterials. Intersections are limited to interstate freeways, other principal arterials, and "A" Minor arterials. Access points are typically grade-separated or controlled with a signal and are spaced one to two miles apart.

Two principal arterials are located within West St. Paul. MnDOT Trunk Highway (TH) 52 is located in the eastern portion of the city, running in a north-south direction. TH 52 connects St. Paul with Rochester and other areas in the southeastern portion of the state. TH 110 is located in the southwestern portion of the city, generally running in an east-west direction. TH 110 provides a connection between TH 55 in Mendota Heights and Interstate 494/TH 52 in Inver Grove Heights. The 2040 Transportation Policy Plan does not propose any additional principal arterials within the city.

Minor Arterials

Minor arterials maintain a focus on mobility, but provide more land access than principal arterials. Within West St. Paul, the minor arterials are under the jurisdiction of MnDOT or Dakota County. Minor arterials are intended to serve trips of four to eight miles in length. Within developing areas of the metro, these facilities are spaced between one and two miles apart. Minor arterials connect cities and towns within the region and link to regional business and commercial concentrations. Access points along minor arterials are generally at-grade and typically controlled with signals or stop signs.

During peak traffic, minor arterials in developing areas are intended to maintain 30 mph average speeds. As a result, transportation system connections are limited to interstate freeways, other principal arterials, other minor arterials, collectors, and some local streets. Land access is limited to concentrations of commercial and industrial land uses. The Metropolitan Council has established a system of "A"

Minor and "B" Minor arterials. "A" Minor arterials are eligible for federal funding administered by the Metropolitan Council.

The Metropolitan Council has further split "A" Minor arterials into four types, described below:

- Relievers: Arterials located parallel to congested principal arterials. The purpose of "A" Minor Relievers is to provide additional capacity in congested corridors.
- Augmenters: Arterials that supplement the principal arterials system within urban centers and urban communities.
- Expanders: Arterials that supplement principal arterials in less-densely developed areas of the metro area.
- Connectors: Arterials that provide connections between rural towns and connect rural areas with the principal arterial system.

There is one "A" Minor Augmenters and one "A" Minor Reliever within the city. The "A" Minor Augmenter is TH 149 (Smith Avenue/Dodd Road) and the "A" Minor Reliever is TH 3 (Robert Street).

"B" Minor arterials have a similar focus on mobility above land access. These roadways connect major traffic generators in the region. "B" Minor arterials are not eligible for federal funding. There are two "B" Minor arterials within the city: CSAH 8 (Wentworth Avenue) and Annapolis Street east of TH 149.

No additional minor arterials are proposed within the city.

Major and Minor Collectors

Major and minor collector roadways provide linkages to larger developments and community amenities. They generally do not link communities to one another. Collector roadways generally favor access to the system over mobility, but try to balance the two competing needs. Collector roadways are generally lower speed than the principal or minor arterial routes. Collector roadways are often owned and operated by cities, although counties operate some of these facilities. Within West St. Paul, collector roadways are primarily owned and operated by the city and Dakota County, though MnDOT operates one. Collectors are intended to serve trips of one to four miles in length. Collectors link minor arterials, other collectors, and local streets.

Major collectors typically serve higher density residential areas and concentrations of commercial and industrial land uses. These facilities tend to serve longer trips than minor collectors. Major collectors within the city include the following:

- TH 13 (Annapolis Street west of TH 149)

- CSAH 63 (Delaware Avenue)
- CSAH 73 (Oakdale Avenue)
- CSAH 14 (Mendota Road)
- County Road (CR) 6 (Butler Avenue)
- Charlton Street
- Marie Avenue (west of Oakdale Avenue)
- Dodd Road (east of Smith Avenue)

There are no minor collectors within the city, and the 2040 Transportation Policy Plan does not propose any additional collector roadways within the city.

Local Roadways

The primary function of local roadways is land access. Local roadways connect individual land parcels with other local roadways and collectors. Trips on local roadways are typically under two miles. Speeds on local roadways are typically low. Longer trips are facilitated by local roadway connections to the collector and arterial systems. Local roadways are under the jurisdiction of the City of West St. Paul. Local roadways are all roadways that are not arterials or collectors.

Planned Functional Classification

No functional classification changes are currently recommended in the city.

Existing Roadway Capacity and Safety

Roadway capacity and roadway safety are two key indicators of how well the roadway system is meeting the city's transportation needs. The sections below provide information to better understand capacity and safety issues within West St. Paul.

Existing Roadway Capacity

A roadway's capacity indicates how many vehicles may use a roadway before it experiences congestion. Capacity is largely dependent upon the number of lanes. TABLE 1 below lists planning-level thresholds that indicate a roadway's capacity (measured in annual average daily traffic, AADT). Additional variation (more or less capacity) on an individual segment is influenced by a number of factors including: amount of access, type of access, peak hour percent of traffic, directional split of traffic, truck percent, opportunities to pass, and amount of turning traffic, the availability of dedicated turn lanes, parking availability, intersection spacing, signal timing and a variety of other factors.

TABLE 1: PLANNING-LEVEL URBAN ROADWAY CAPACITIES

Facility Type		Daily Two-way Volume	
		Lower Threshold	Higher Threshold
Arterials	Two-lane Undivided	10,000	12,000
	Two-lane Divided or Three-lane Undivided	15,000	17,000
	Four-lane Undivided	18,000	22,000
	Four-lane Divided or Five-lane Undivided	28,000	32,000
	Four-lane Expressway	32,000	40,000
Freeways	Four-lane Freeway	60,000	80,000
	Six-lane Freeway	90,000	120,000
	Eight-lane Freeway or Higher	Calculated on a segment-by-segment basis	

Existing Capacity Problems on Arterial Roads

At the planning level, capacity problems are identified by comparing the existing number of lanes with current traffic volumes. TABLE 2 and FIGURE 3 illustrate the existing number of lanes on arterial roadways within the city. FIGURE 4 illustrates existing traffic volumes on Principal Arterial, A-Minor Arterials and other significant roadways within the city.

All arterial roadways within the city have four or fewer lanes. Three arterial roadways transition between the number of lanes. In some locations, these roadways have two lanes, four lanes, or three lanes (one travel lane in each direction with a center two-way left-turn lane). Most of the arterials in West St. Paul currently exhibit traffic volumes below or within the range of the planning-level capacity thresholds shown in TABLE 1; however, existing volumes on TH 110 (30,000) exceed the lower threshold of 28,000. This indicates that this roadway may be experiencing some levels of congestion during peak travel periods.

FIGURE 3: EXISTING NUMBER OF LANES

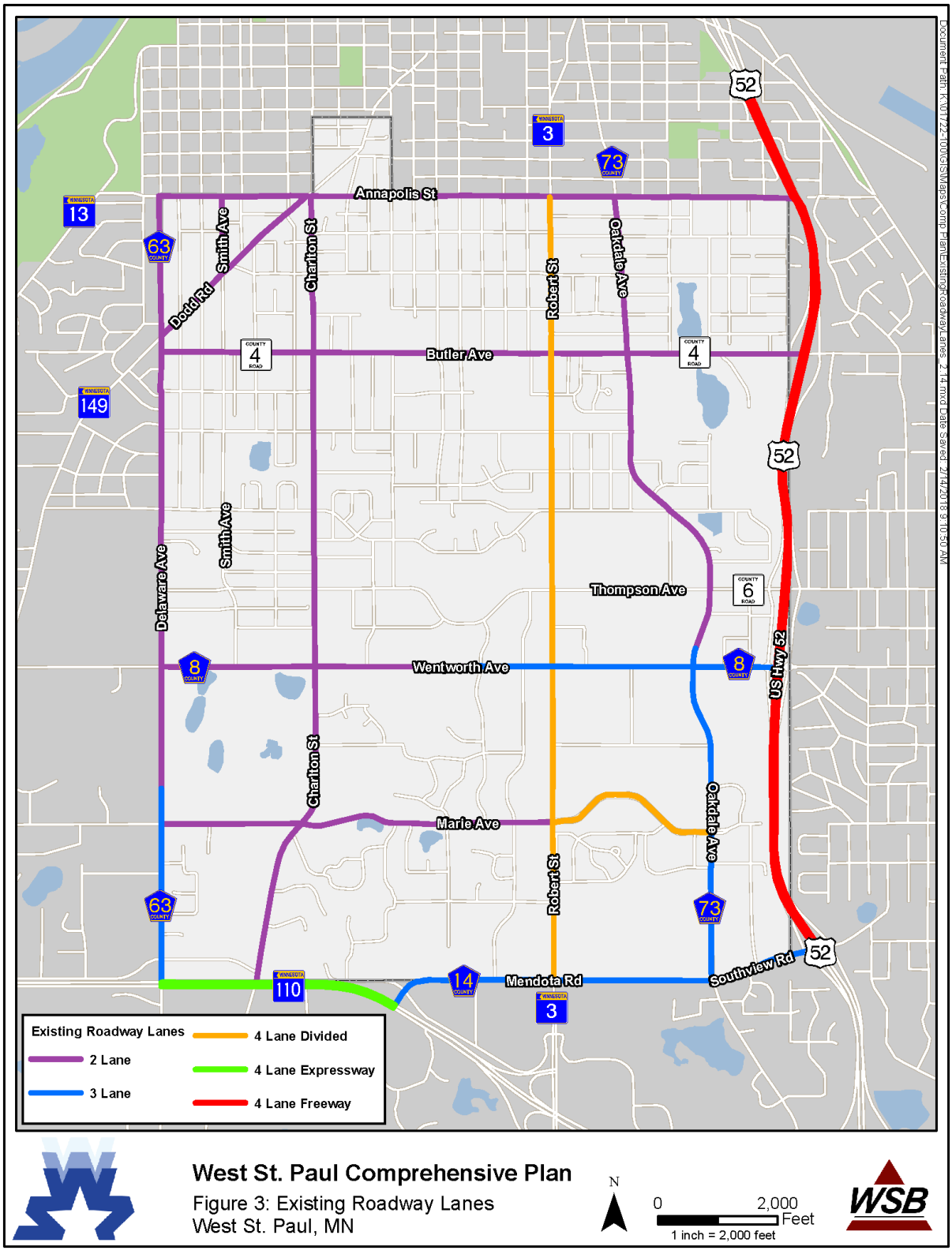


FIGURE 4: EXISTING TRAFFIC VOLUMES

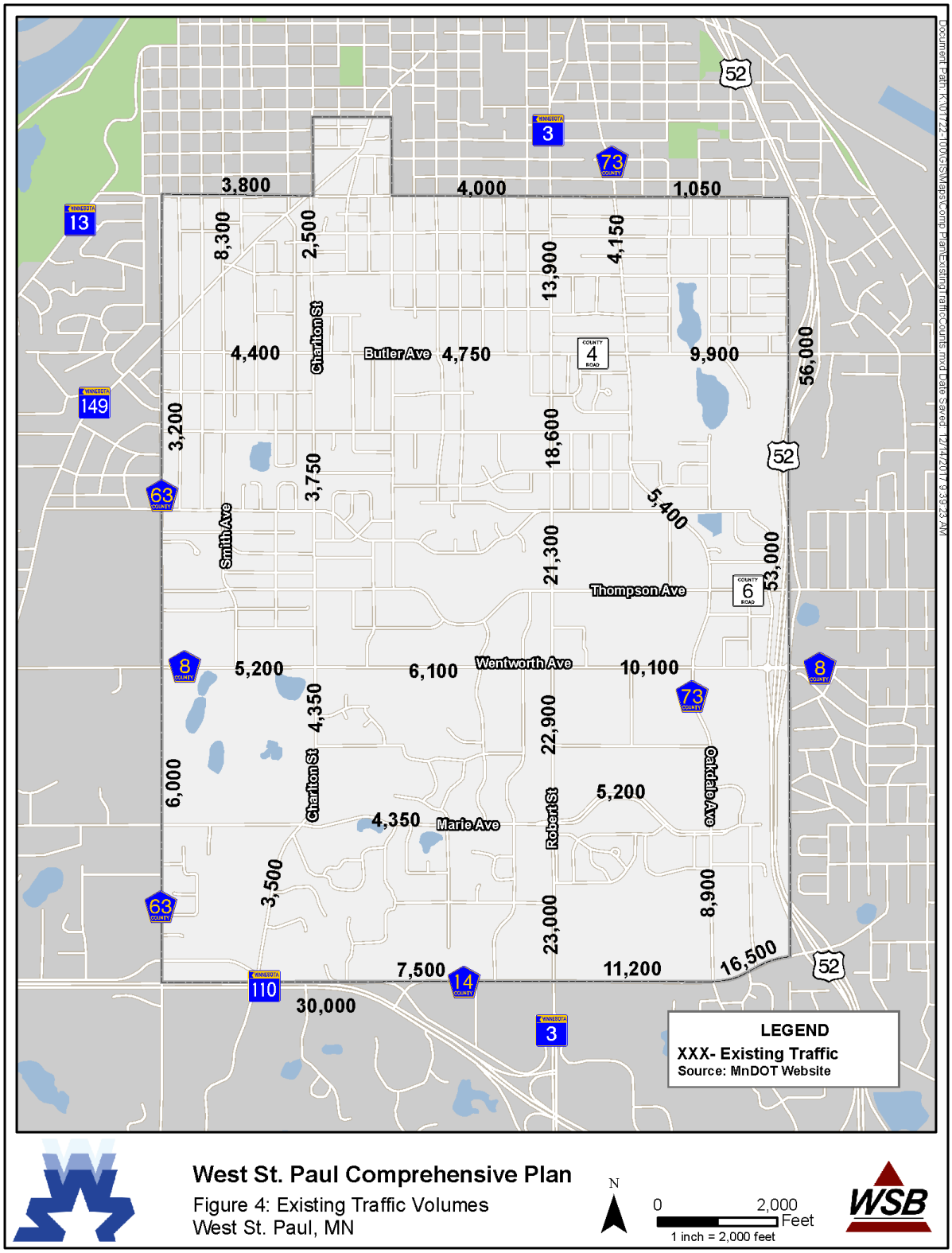


TABLE 2: EXISTING NUMBER OF LANES ON ARTERIAL ROADS

Functional Classification	Roadway Name	Location	Number of Lanes
Principal Arterial	TH 52	West St. Paul-South St. Paul border to West St. Paul-South St. Paul border	4
	TH 110	West St. Paul-Mendota Heights border to West St. Paul-Inver Grove Heights border	4
"A" Minor Augmenter	TH 149 (Smith Avenue/ Dodd Road)	West St. Paul-Mendota Heights border to West St. Paul-St. Paul border	2
"A" Minor Reliever	TH 3 (Robert Street)	West St. Paul-Inver Grove Heights border to West St. Paul-St. Paul border	4
"B" Minor Arterial	CSAH 8 (Wentworth Avenue)	West St. Paul-Mendota Heights border to West St. Paul-South St. Paul border	2-3
	Annapolis Street (east of TH 149)	TH 149 (Smith Avenue) to Kansas Avenue	2

Existing Safety and Operational Issues

There are a number of intersection locations within West St. Paul where safety and operational issues have been identified for motorists and pedestrians. Intersection improvements, including a roundabout, are also planned for the intersection of Oakdale Avenue and Thompson Avenue (CR 6). Safety and operational issues have also been identified at the River to River Greenway crossing of Robert Street. A grade-separated crossing of Robert Street has been studied at this location.

A note on transportation plan strategies:

Throughout this Plan, locations associated with numbered mode-specific strategies are identified on corresponding maps. These strategies are listed and described in further detail in TABLE 7.

Access Management

The purpose of access management is to provide adequate access to adjacent land development while maintaining acceptable and safe traffic flow on higher level roadways. Access management consists of carefully controlling the spacing and design of public street intersections and private access points to the public roadway system. Because they are designed for higher speed, longer distance trips, arterials generally have restricted access, while local streets can accommodate much greater access. Collector roadways fall in between arterials and local roadways regarding the amount of access that is permitted.

The agency with jurisdiction over a roadway sets access management guidelines. Access to TH 52, TH 110, TH 3, TH 149, and TH 13 must meet MnDOT access management guidelines. See TABLES 3.1 and 3.2 for MnDOT Access Management Guidelines.

Dakota County has established access management guidelines for county roadways, as shown in TABLE 4.

It should be noted that there are existing access points within the city that do not meet Dakota County access spacing guidelines. In many cases these access points were established prior to agency access spacing guidelines/policies. In other cases the agency has granted an exception to the existing guidelines. As roadways are reconstructed and as development or redevelopment occurs, each of these agencies generally works to modify and/or relocate access points that do not meet current access spacing guidelines, recognizing that this may not be feasible in all instances.

MnDOT Access Management Manual

TABLE 3.1: SUMMARY OF RECOMMENDED STREET SPACING FOR IRCS

Category	Area or Facility Type	Typical Functional Class	Public Street Spacing		Signal Spacing
			Primary Full-Movement Intersection	Secondary Intersection	
1	**High Priority Interregional Corridors & Interstate System (IRCs)**				
1F	Interstate Freeway	Principal Arterials	Interchange Access Only		⊘
1AF	Non-Interstate Freeway		Interchange Access Only (see Section 3.2.7 for interim spacing)		See Section 3.2.5 for Signalization on Interregional Corridors
1A	Rural		1 mile	1/2 mile	
1B	Urban/Urbanizing		1/2 mile	1/4 mile	
1C	Urban Core		300-660 feet dependent upon block length		
2	**Medium Priority Interregional Corridors**				
2AF	Non-Interstate Freeway	Principal Arterials	Interchange Access Only (See Section 3.2.7 for interim spacing)		See Section 3.2.5 for Signalization on Interregional Corridors
2A	Rural		1 mile	1/2 mile	
2B	Urban/Urbanizing		1/2 mile	1/4 mile	
2C	Urban Core		300-660 feet, dependent upon block length		¼ mile
3	**Regional Corridors**				
3AF	Non-Interstate Freeway	Principal and Minor Arterials	Interchange Access Only (see Section 3.2.7 for interim spacing)		Interim
3A	Rural		1 mile	1/2 mile	See Section 3.2.5
3B	Urban/Urbanizing		1/2 mile	1/4 mile	1/2 mile
3C	Urban Core		300-660 feet, dependent upon block length		1/4 mile

Source: MnDOT Access Management Manual

TABLE 3.2: SUMMARY OF RECOMMENDED STREET SPACING FOR NON-IRCS

Category	Area or Facility Type	Typical Functional Class	Public Street Spacing		Signal Spacing
			Primary Full-Movement Intersection	Secondary Intersection	
4	**Principal Arterials in the Twin Cities Metropolitan Area and Primary Regional Trade Centers (Non-IRCs)**				
4AF	Non-Interstate Freeway	Principal Arterials	Interchange Access Only (see Section 3.2.7 for interim spacing)		Interim
4A	Rural		1 mile	1/2 mile	See Section 3.2.5
4B	Urban/Urbanizing		1/2 mile	1/4 mile	1/2 mile
4C	Urban Core		300-660 feet dependent upon block length		1/4 mile
5	**Minor Arterials**				
5A	Rural	Minor Arterials	1/2 mile	1/4 mile	See Section 3.2.5
5B	Urban/Urbanizing		1/4 mile	1/8 mile	1/4 mile
5C	Urban Core		300-660 feet, dependent upon block length		1/4 mile
6	**Collectors**				
6A	Rural	Collectors	1/2 mile	1/4 mile	See Section 3.2.5
6B	Urban/Urbanizing		1/8 mile	Not Applicable	1/4 mile
6C	Urban Core		300-660 feet, dependent upon block length		1/8 mile
7	**Specific Area Access Management Plans**				
7	All	All	By adopted plan		

Source: MnDOT Access Management Manual

TABLE 4: DAKOTA COUNTY ACCESS SPACING GUIDELINES

Road Type (A)	Posted or Design Speed	Projected 2030 Average Daily Traffic	Full Movement Intersection	Partial Movement Intersection (B)
Principal Arterial	All	All	1/2 mi.	1/4 mi. (C)
Divided Highway	All	> 35,000	1/2 mi.	1/4 mi. (C)
	All	< 35,000	1/4 mi.	1/8 mi.
Undivided Highway	(≤ 40 mph)	All	1/8 mi.	NA
	(≥ 45 mph)	> 1,500	1/4 mi.	NA
	(≥ 45 mph)	< 1,500	Allowed per (D)	NA

(A) Road type refers to the anticipated future roadway cross-section and functional classification.
(B) Partial Movement intersections do not allow left turns from the minor street to the major street or movements straight across the major street. Movements that are allowed will be based on engineering study.
(C) Right-in/right-out access may be permitted at *approximately 1/8 mile* for public or private (See Note #3) streets if the County determines the access improves the overall safety and/or efficiency of the transportation system.
(D) Private street or driveway access requests will be considered based on engineering judgment and the following factors: location, distance from other driveways and intersections, alignment with other access points, easement/access rights that allow widespread usage and system connectivity, the potential to combine accesses, visibility, adjacent land use, and other operational/safety issues.

NA – Not Applicable to undivided roadway segments.

Access Spacing Notes:

1. These are minimum access spacing guidelines. The County may require accesses be spaced at distances greater than the minimums considering conditions specific to any County highway segment.

2. County roadways with full movement access spacing of 1/2 mile are shown in Figure 31 of the Dakota County 2030 Transportation Plan. Considerations include regional transitways, adopted studies, principal arterials, system continuity, and projected ADT > 35,000.

3. Access to County roadways is typically provided through public street connections. Private access will be considered along the County roadway system

based on engineering assessment of the function and use of the private access point in consideration of the spacing criteria.

4. Specific corridor access plans or project designs developed through a public process and adopted by the County Board shall supersede these guidelines.

5. Medians may be added or median openings may be removed or modified at any time by the County to address safety and/or operational issues identified through engineering review.

6. Where there is opportunity for access on more than one public roadway, access shall be provided from the lower-function roadway, unless deemed impractical by the County. To support the objectives of system efficiency and connectivity, access to the higher-function County roadway may be allowed in addition to the lower-function roadway, provided there is adequate distance to accommodate access based on these access guidelines.

Recommendations from Other Plans and Studies

A number of recent planning efforts have been completed that identify potential improvements to West St. Paul's transportation system. This section describes these studies and summarizes their recommendations.

Smith Avenue Revitalization Plan and Smith-Dodd Small Area Plan

In partnership with the City of St. Paul and several community organizations, West St. Paul developed a revitalization plan for Smith Avenue, which was adopted as an addendum to the city's comprehensive plan in 2011. The study area for this Plan included the portion of Smith Avenue in West St. Paul from Dodd Road to Annapolis Street. The transportation-related objectives identified by this Plan include:

- Improve walkability to enhance pedestrian safety
- Establish safe bike routes for all users
- Establish traffic calming measures
- Design uniform elements to improve the streetscape
- Address parking limitations along Smith Avenue
- Enhance transit opportunities on the Avenue

As part of a proposed area for redevelopment in the northwest portion of the city, the city is evaluating a reconfiguration of Smith Avenue and Dodd Road, along with access modifications along surrounding parcels. It is likely that, as individual development proposals are submitted, traffic studies will be completed to identify specific transportation modifications or improvements to accommodate redevelopment along with transportation system users.

Robert Street Transitway Alternatives Study

In 2015, Dakota County, along with the Ramsey County and Dakota County Regional Railroad Authorities, completed the Robert Street Transitway Alternatives Analysis Study to identify and evaluate alternatives for providing transit infrastructure to meet long-term regional mobility goals between downtown St. Paul and portions of Dakota County. Three final alternatives were developed and analyzed: arterial bus rapid transit along Robert Street (which had previously been evaluated in Metro Transit's Arterial Transitway Corridors Study), modern streetcar along Robert Street, and highway bus rapid transit along TH 52. The study was concluded without the selection of a single Locally Preferred Alternative (LPA), and the Robert Street arterial BRT and modern streetcar alternatives were advanced for further consideration. Based on this study, both of these alternatives would provide high-frequency service along Robert Street through the length of West St. Paul, with 7–12 stations within the city. A recommendation from this study was that final selection of an LPA take into account comprehensive plan updates from the cities along the corridor.

Dakota County East-West Transit Study

The 2017 Dakota County East-West Transit Study evaluated options to provide additional east-west transit connections throughout the county. Three corridors within West St. Paul received detailed evaluation: Butler Avenue, Wentworth Avenue, and TH 110/Mendota Road. The Wentworth Avenue and TH 110 corridors were recommended for further consideration. For each potential corridor, the study recommends that cities and other agencies implement transit-supportive land use and development policies, site design processes, and pedestrian/bicycle connections in order to create successful conditions for future transit service. Specific recommendations for the Wentworth Avenue corridor include completing the sidewalk network along the corridor and adding additional marked crossings in key locations. Specific recommendations for the TH 110/Mendota Road corridor include following the recommendations of the Robert Street Renaissance Plan as redevelopment occurs and improving pedestrian crossing conditions through pedestrian refuges, signal timing enhancements, and/or grade-separated crossings.

River to River Greenway Master Plan

The River to River Greenway Master Plan was approved by Dakota County in 2015. The greenway includes a route through West St. Paul following a combination of off-street trails and trails through park properties. Most portions of the greenway within the city were complete by the time the Master Plan was approved, or have been completed since then. A proposed grade-separated trail crossing at Robert Street (and associated trail connections along Livingston Avenue and Crawford

Drive) has not yet been completed; however, federal funding has been secured to construct this project in 2020.

Pedestrian and Bicycle Master Plan

The City of West St. Paul developed a Pedestrian and Bicycle Master Plan in 2011. This Plan established a Walk-Bike Framework of routes to create a comprehensive walk-bike system within the city. The framework is based on a hierarchy of routes, each serving a different function: regional routes, main routes, local routes, access routes, and other local streets. The plan also identified recommended walk-bike treatments to apply to various routes: sidewalks, off-road trails, bike routes, bike lanes, and bike boulevards. Finally, the Plan identified priority projects for the city to pursue, along with several policy-based recommendations focusing on maintenance and implementation.

FUTURE ROADWAY SYSTEM

This section addresses future roadway improvement needs and roadway design guidelines.

Roadway Capacity – Traffic Forecasting

To determine future roadway capacity needs, year 2040 traffic forecasts were prepared using the Metropolitan Council travel demand model. The 2040 projections were compared against the assumed 2040 roadway network to see where roadway segment capacity deficiencies may result. The 2040 roadway network assumed for this analysis is the same as the current roadway network, as the city and county Capital Improvement Plans (CIPs) do not include any projects that add significant capacity to the roadway network.

While the travel demand model is a valuable tool for identifying future traffic based on the proposed land use impacts, it is not meant for use in detailed traffic operations studies. For a more accurate representation of the transportation impacts from specific developments, detailed traffic studies should be conducted to determine the operational impacts on adjacent roadways and intersections.

A central concept of travel demand forecasting is the use of Transportation Analysis Zones (TAZs). Each forecast study area, in this case, the City of West St. Paul, is divided into a series of TAZs. Each TAZ has population, employment, and household data that is used by the model to assign trips to the various network roadways. FIGURE 5 displays Metropolitan Council TAZs within West St. Paul.

The results of the West St. Paul modeling process are summarized in FIGURE 6, which displays Metropolitan Council 2040 projected average daily traffic volumes compared to the existing traffic volumes.

TABLE 5 provides a summary of existing and forecasted demographic growth by TAZ for West St. Paul through the year 2040. The West St. Paul population is forecasted to reach nearly 26,000 by the year 2040, with households and employment increasing by approximately 2,800 and 2,700 respectively. Allocated demographic growth and associated land use was generally located along the Robert Street corridor and in the northern portion of the community. This includes areas of multi-family residential and mixed use redevelopment. For more information about the demographic allocation and associated land use forecast, please refer to the West St. Paul Land Use Plan.

FIGURE 5: WEST ST. PAUL TAZS – METROPOLITAN COUNCIL

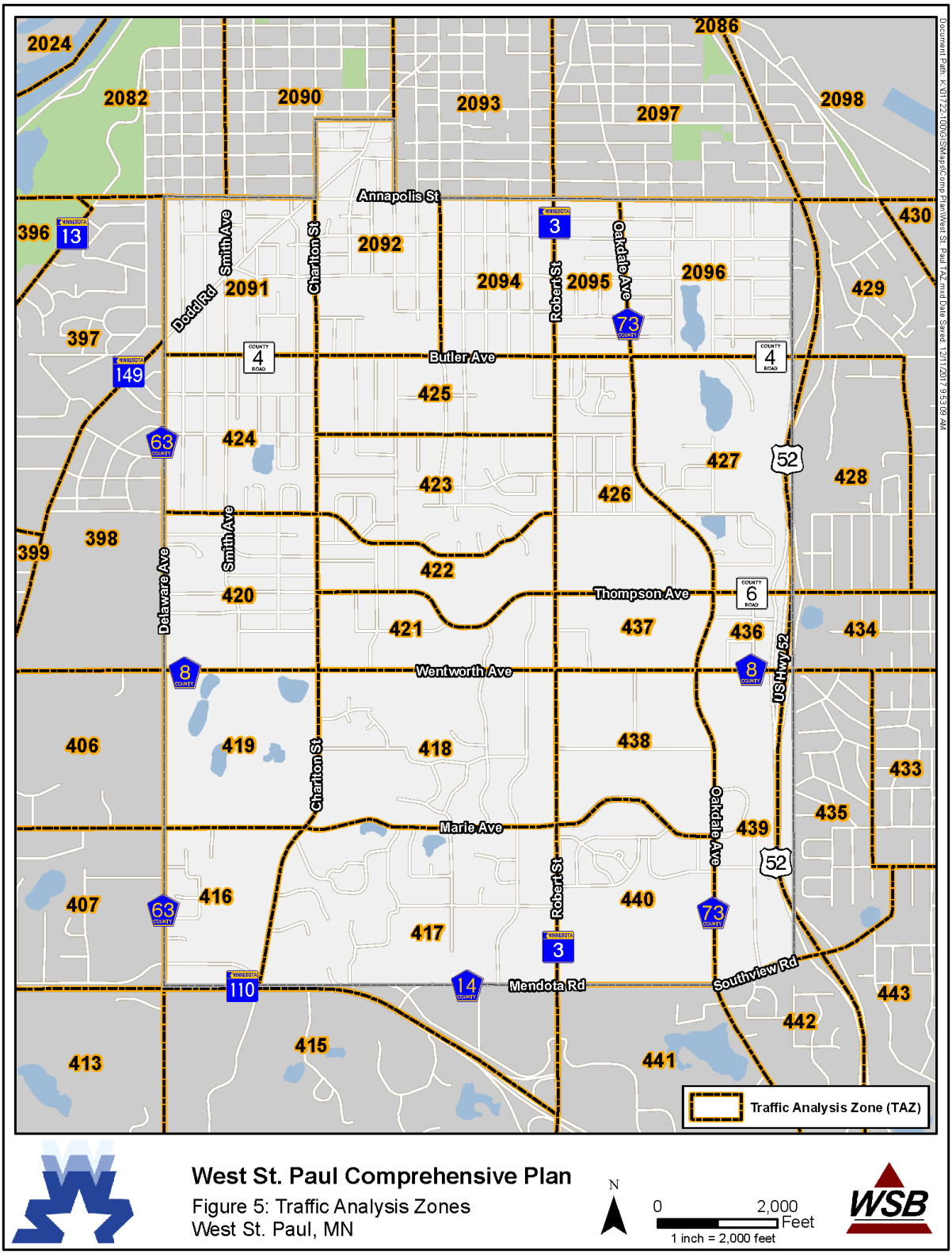


FIGURE 6: EXISTING AND FORECASTED TRAFFIC VOLUMES

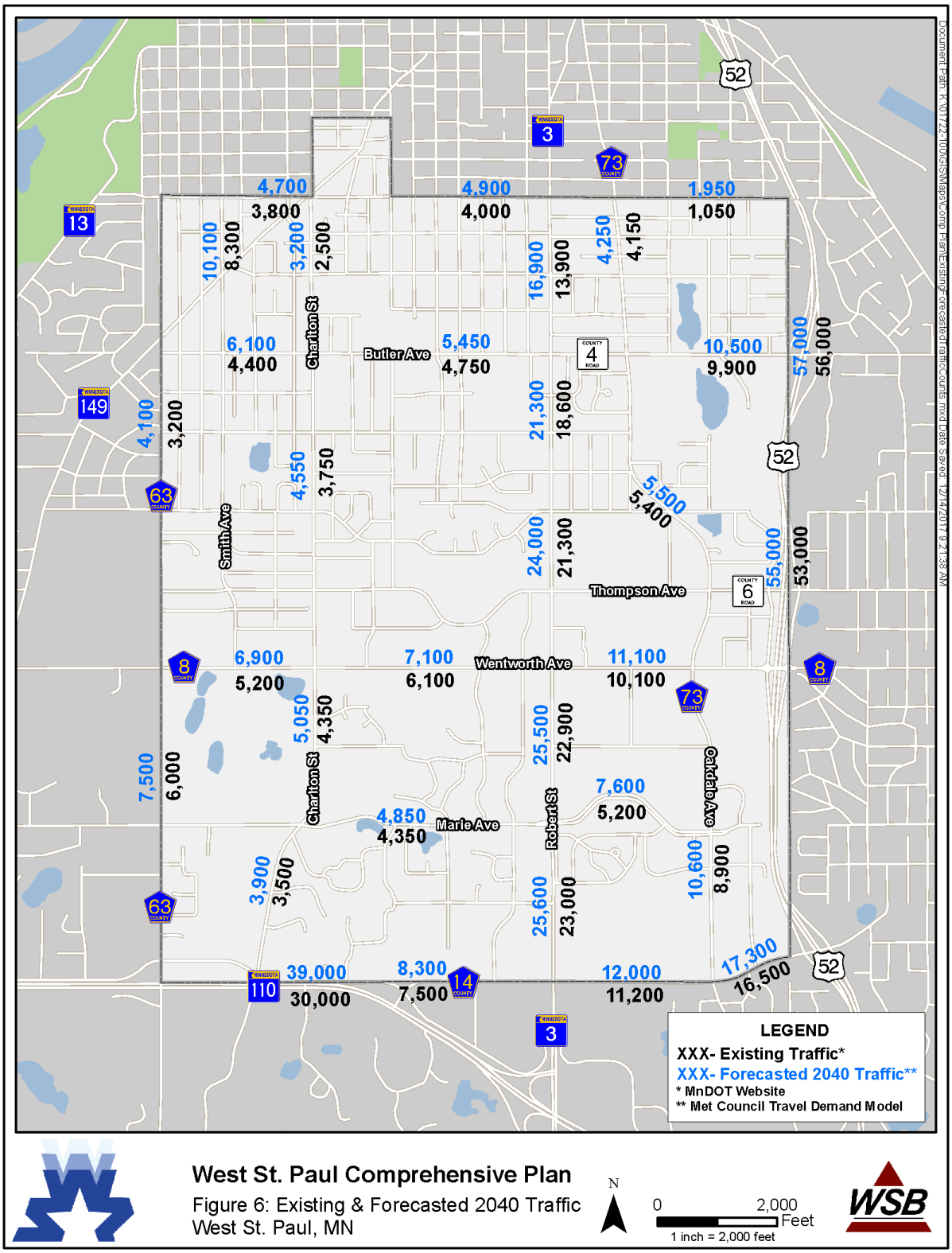


TABLE 5: WEST ST. PAUL 2040 LAND USE PLAN TAZ GROWTH ALLOCATION

TAZ	POP2010	HH2010	EMP2010	POP2020	HH2020	EMP2020	POP2030	HH2030	EMP2030	POP2040	HH2040	EMP2040
416	569	231	7	503	247	7	524	253	7	538	256	7
417	771	363	1153	819	396	1290	872	447	1300	1075	477	1330
418	714	376	1045	835	406	1098	870	426	1098	950	448	1135
419	52	18	48	40	20	48	44	21	48	48	23	48
420	890	338	34	827	378	34	864	401	34	864	401	34
421	1184	629	750	1569	716	852	1569	714	919	1569	714	919
422	620	359	332	887	405	332	924	430	332	924	430	369
423	1323	566	200	1402	628	200	1458	658	200	1458	685	228
424	1180	473	131	1153	523	131	1180	523	131	1235	556	131
425	511	215	265	527	238	584	645	282	870	822	282	870
426	1460	672	504	1521	703	504	1518	702	504	1788	812	550
427	505	178	29	397	187	29	400	189	29	414	194	29
436	206	61	0	150	65	0	157	66	0	163	67	0
437	59	23	191	65	31	350	477	140	350	682	295	507
438	4	1	1411	3	2	1490	5	2	1525	9	4	1525
439	1913	808	476	2036	866	476	2145	866	476	2145	866	476
440	986	558	308	1232	595	308	1232	595	308	1323	595	308
2091	1453	588	183	1532	621	183	1580	648	183	1580	684	234
2092	1384	584	111	1508	616	111	1551	642	111	1545	642	111
2094	1113	424	135	1094	447	190	1116	465	190	1110	465	205
2095	943	429	89	1082	447	115	1082	447	115	1104	484	215
2096	1700	635	71	1620	664	69	1688	686	69	1764	718	69
2040 Land Use Plan Totals	**19,540**	**8,529**	**7,473**	**20,802**	**9,201**	**8,401**	**21,901**	**9,603**	**8,799**	**23,110**	**10,098**	**9,300**
Metropolitan Council Growth Allocation	**19,540**	**8,529**	**7,473**	**20,800**	**9,200**	**8,400**	**21,900**	**9,600**	**8,800**	**23,100**	**10,100**	**9,300**

2040 Future Roadway Capacity Improvement Needs

To identify the need for potential future capacity improvements, Metropolitan Council 2040 forecasts were compared to planning-level roadway capacities for Principal and A-Minor Arterial Roadways. Planning-level roadway capacities used for this analysis are illustrated in TABLE 6 below (measured in AADT). Based on this comparison, most roadways in the city have adequate capacity to accommodate forecasted Metropolitan Council 2040 travel volumes with little to minimal congestion. These roadways are expected to function well through the 2040 planning horizon.

TABLE 6: PLANNING-LEVEL ROADWAY CAPACITY

Facility Type		Daily Two-way Volume	
		Lower Threshold	Higher Threshold
Arterials	Two-lane Undivided	10,000	12,000
	Two-lane Divided or Three-lane Undivided	15,000	17,000
	Four-lane Undivided	18,000	22,000
	Four-lane Divided or Five-lane Undivided	28,000	32,000
	Four-lane Expressway	32,000	40,000
Freeways	Four-lane Freeway	60,000	80,000
	Six-lane Freeway	90,000	120,000
	Eight-lane Freeway or Higher	Calculated on a segment-by-segment basis	

Based on these planning level roadway capacities, portions of TH 110, Smith Avenue (TH 149), Butler Avenue (CR 4), and Southview Road (CSAH 14) are expected to exceed capacity in 2040. TH 110 is a four-lane divided expressway with a planning-level capacity of 32,000–40,000 and a forecasted 2040 volume of 39,000. Smith Avenue (TH 149) and Butler Avenue (CR 4) are both two-lane roadways, and each roadway includes a segment where the forecasted 2040 volume would surpass the lower planning-level capacity threshold for a two-lane undivided roadway of 10,000 (10,100 for Smith Avenue and 10,500 for Butler Avenue west of US 52). Southview Road (CSAH 14) is a three-lane roadway with a planning-level capacity of 15,000–17,000 and a forecasted 2040 volume of 17,300 just west of US 52. Accordingly, motorists will likely experience some congestion along these roadways during the 2040 planning horizon.

EXISTING AND PLANNED NON-MOTORIZED TRANSPORTATION NETWORK

This section addresses network needs for walking and bicycling within West St. Paul. This section also addresses the needs of people using wheelchairs and assistive mobility devices such as mobility scooters, as they are considered pedestrians.

Enhancing the non-motorized elements of the West St. Paul transportation system is a key goal in terms of improving transportation sustainability in the city and in the region. This approach gives residents an alternative to driving, supports transportation options for people who do not have consistent access to a personal vehicle, and encourages healthy activities and lifestyles.

This section includes information on the existing non-motorized transportation network within West St. Paul, connections to land use planning, the planned local non-motorized transportation network, and the planned regional non-motorized transportation network. This section also includes recommendations for intersection improvements and design best practices.

Existing Non-Motorized Transportation Network

The non-motorized transportation network in West St. Paul is comprised primarily of sidewalks, one regional trail, and several other trail segments. As shown in FIGURE 7, there is existing sidewalk along one or both sides of many major roadways in the city, particularly in the northern portion of the city. Longer corridors with continuous sidewalk facilities within the city include Robert Street, Charlton Street, TH 110/Mendota Road, Thompson Avenue, Moreland Avenue, Butler Avenue, Bernard Street, and Annapolis Street.

Additionally, there is one regional multi-use trail located within West St. Paul. The River to River Greenway is an existing regional trail that is managed and maintained by Dakota County. From the west, the trail enters the city from Mendota Heights at Marie Avenue and Delaware Avenue. It follows Marie Avenue and then passes through the Dodge Nature Center, Garlough Park, and Marthalter Park before turning north along Humboldt Avenue and east along Wentworth Avenue. From Wentworth Avenue, the trail continues until turning north along Oakdale Avenue, eventually passing east through Thompson County Park and over TH 52 via an overpass into Kaposia Park in the City of South St. Paul.

Connections to Land Use Planning

West St. Paul has development patterns largely consistent with its designation as an Urban Center community. Existing residential development is higher in density compared with suburban areas, but reflects the transition toward development patterns influenced by the rise of the automobile, with some commercial land uses

separated from largely single-family residential land uses, particularly in the southern portions of the community. This means that, in these areas, people walking and bicycling must cover greater distances to reach commercial areas from their homes. However, the development patterns in many areas of the city are well-suited to bicycling and walking, due to a largely regular street grid, relatively short blocks, and convenient connections to regional trails, parks, and schools. There are also commercial destinations throughout West St. Paul that lie within walking or biking distance of many city residents, including the Robert Street corridor and several smaller areas such as the Smith Avenue/Dodd Road intersection.

The city's land use planning and coordination with developers can help improve opportunities for walking and bicycling for transportation. The city can encourage mixed-use development that situates residents within a short walk of commercial destinations. The city can also work with developers to construct sidewalks and trails within developments. Additionally, the city can require pedestrian and bicycle connections in areas where the roadway network does not connect, such as cul-de-sac connector trails that provide shortcuts for people walking and bicycling.

Planned Local Non-Motorized Transportation Network

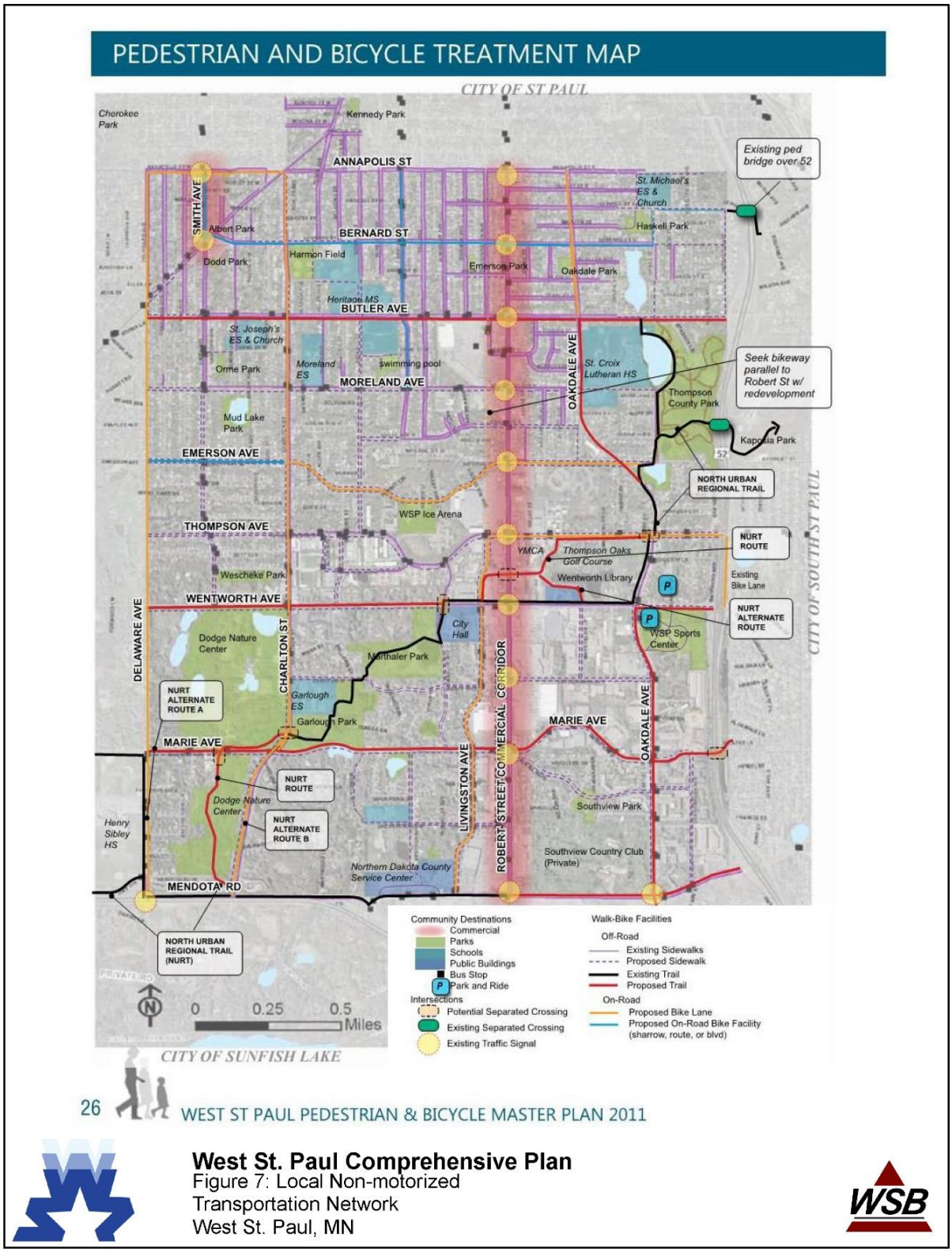
The planned network focuses on filling gaps that exist in the sidewalk and trail network, adding sidewalk and trail facilities in areas where the network is not as extensive, adding on-road bicycle facilities, and improving safety conditions and the comfort or convenience of non-motorized facilities through intersection design, streetscape improvements, and other design considerations. When the network is complete, it will provide safe, convenient linkages between residential areas and commercial, institutional, and recreational areas within the city. The network will improve options for people to walk and bicycle for transportation within the city, and facilitate regional connections (described in greater detail in the following section). The existing and proposed local bicycle and pedestrian network is based on the city's Pedestrian and Bicycle Master Plan, which was adopted in 2011. Existing and proposed facilities from this plan are shown in FIGURE 7.

Corridors identified for proposed trail include Mendota Road east of Robert Street, Marie Avenue, Wentworth Avenue west of Humboldt Avenue and east of Oakdale Avenue, Butler Avenue, and Oakdale Avenue south of Wentworth Street and between the River to River Greenway and Butler Avenue. Locations identified for potential future grade-separated trail crossings include crossings for the River to River Greenway across Robert Street, Marie Avenue, Wentworth Avenue, and Oakdale Avenue and a proposed Marie Avenue trail crossing of US 52.

Corridors identified for proposed bike lanes include portions of Delaware Avenue, Charlton Street, Livingston Avenue, Oakdale Avenue, Thompson Avenue, Emerson Avenue, and Annapolis Street.

Additionally, sidewalks are proposed for many streets within the city, particularly in the southern areas of the city where the existing non-motorized transportation network is limited. These locations are identified on FIGURE 7.

FIGURE 7: EXISTING AND PROPOSED LOCAL BICYCLE AND PEDESTRIAN NETWORK



West St. Paul Comprehensive Plan
Figure 7: Local Non-motorized Transportation Network
West St. Paul, MN

Planned Regional Non-Motorized Transportation Network

The Metropolitan Council 2040 TPP encourages the use of bicycles as a mode of transportation and establishes a Regional Bicycle Transportation Network (RBTN) to establish an integrated network of on-street bikeways and off-road trails that complement each other to improve conditions for bicycle transportation at the regional level. The RBTN identifies Tier 1 and Tier 2 alignments where existing regional or other trails exist or where a specific alignment has been identified. The RBTN also identifies Tier 1 and Tier 2 corridors where specific alignments have not yet been defined.

Within West St. Paul, the RBTN identifies two Tier 1 RBTN alignments, one Tier 1 RBTN corridor, three Tier 2 RBTN alignments, and two Tier 2 RBTN corridors. One of the Tier 1 alignments is located along TH 110 and Mendota Road (CSAH 14) between the city's western boundary and the city's eastern boundary. Existing multiuse trail is located along this alignment between Delaware Avenue and Robert Street. The other Tier 1 alignment is located along Oakdale Avenue between the city's southern boundary and the city's northern boundary. There is existing multiuse trail along this alignment between Wentworth Avenue and Emerson Avenue and planned multiuse trail between Mendota Road and Wentworth Avenue. One of the Tier 2 alignments is located along Wentworth Avenue (CSAH 8) between Delaware Avenue at the city's western border to Oakdale Avenue (CSAH 73). Existing multiuse trail is located along this alignment between Marthaler Park and Oakdale Avenue as part of the River to River Greenway. Another Tier 2 alignment is located along Thompson Avenue (CR 6) between Oakdale Avenue and the city's eastern border. The third Tier 2 alignment is located along Annapolis Street between the city's west border and Oakdale Avenue.

The Tier 1 corridor that lies within the city is centered along Dodd Road and oriented in a northeast-southwest direction. One of the Tier 2 corridors is a southern continuation of the Oakdale Avenue Tier 1 alignment, connecting to Inver Grove Heights. The other Tier 2 corridor straddles the cities of St. Paul and West St. Paul along Annapolis Street east of Oakdale Avenue.

The River to River Greenway is largely complete within West St. Paul. The city is exploring a trail realignment through Garlough Park and Marthaler Park to meet county greenway trail standards. A proposed grade-separated trail crossing of Robert Street along with connecting trails along Livingston Avenue and Crawford Drive has been awarded state bonding funds (for the grade-separated crossing) and federal funds (for the trail connections). Construction of the crossing and connecting trails is scheduled to be completed by 2021. Following construction of this grade-separated crossing, the city's portion of the greenway will be complete.

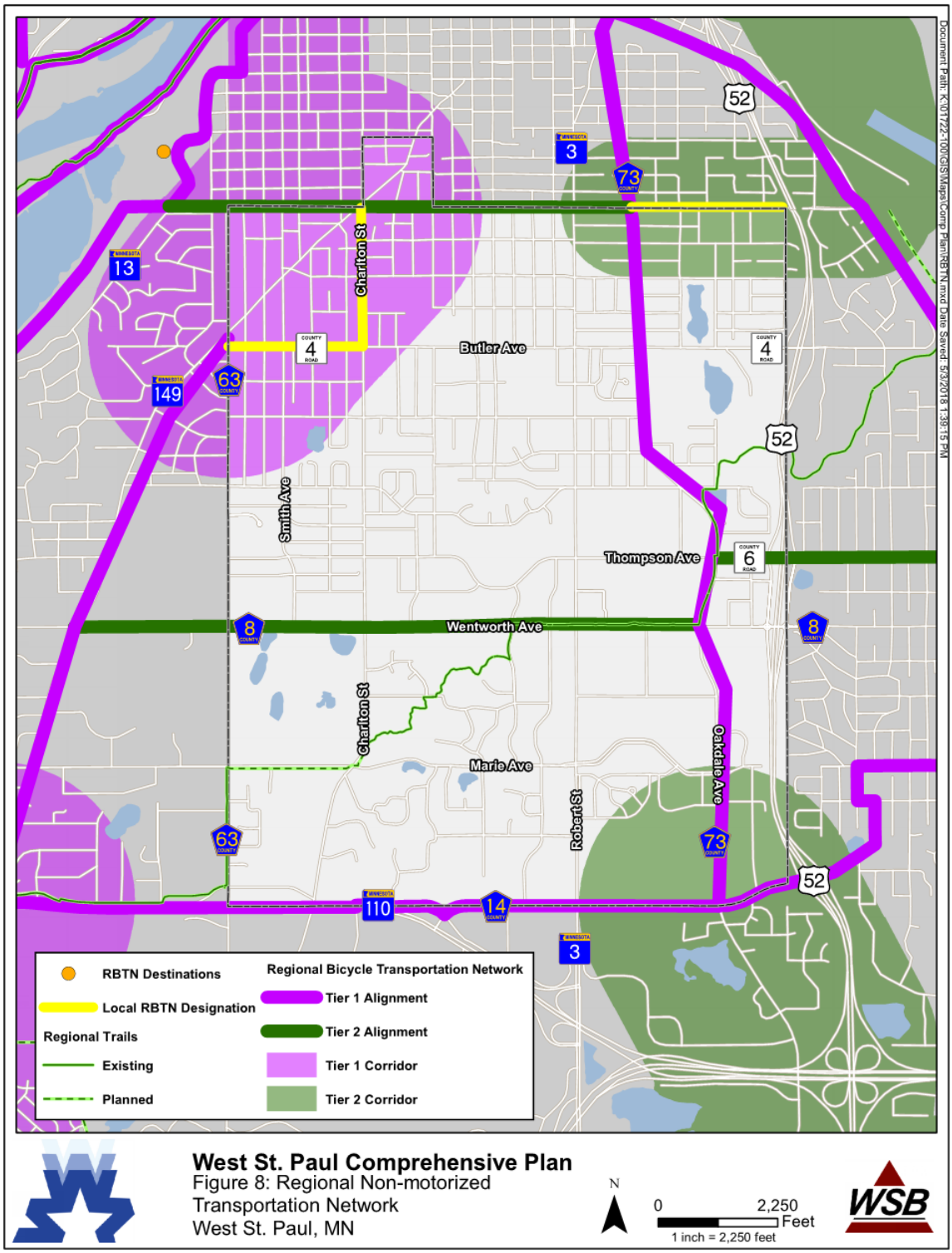
Dakota County also has a planned reconstruction project on Wentworth Avenue which may add multiuse trail from Delaware Avenue to Humboldt Avenue.

The city proposes the following alignments for the RBTN corridors identified within the city:

- Along Charlton Street between Annapolis Street and Butler Avenue and along Butler Avenue between Charlton Street and Delaware Avenue in the northwest portion of the city
- Along Annapolis Street between Oakdale Avenue and the city's eastern border.

The existing and proposed regional network is shown in FIGURE 8.

FIGURE 8: EXISTING AND PROPOSED REGIONAL BICYCLE AND PEDESTRIAN NETWORK



Non-Motorized Transportation Design Considerations

Design dimensions for sidewalks are recommended to be five-feet or wider, with a minimum of a four-foot-wide boulevard between the sidewalk and the curb. Increased separation improves pedestrian comfort and provides space for street signs and snow storage.

The West St. Paul Bicycle and Pedestrian Plan includes the following hierarchy for types of bicycle facilities. In order of their ability to provide a comfortable bicycling environment from largest improvement to smallest, facilities include: off-street facilities, protected bikeways, buffered bicycle lanes, conventional bicycle lanes, bicycle boulevards, and wide paved shoulders. FIGURE 9 shows examples of these facility types.

Multi-use trails are recommended to be a minimum of eight-feet wide. Regional trails are recommended to be a minimum of ten-feet wide due to higher use and the design requirements to comply with federal funding. Trails must have a two-foot wide clear zone on either side to reduce hazards for bicyclists and provide a recovery zone if a bicyclist leaves the edge of the trail. The clear zone can be paved or turf surface. No signs, furnishings, trees, or other obstructions can be in the clear zone.

Paved shoulders should be a minimum of four-feet wide if intended for bicycle and pedestrian use. Four-foot wide shoulders are adequate on streets with traffic volumes below 1,000 vehicles per day. Six- to eight-foot shoulders are recommended when traffic volumes exceed 1,000 vehicles per day. A wider shoulder improves pedestrian and bicyclist safety and comfort when vehicle traffic speeds and volumes are higher.

As non-motorized facilities are planned and designed, the city should consult additional planning and design resources, including:

- MnDOT Bikeway Facility Design Manual
- Minnesota Manual on Uniform Traffic Control Devices
- Guide for the Development of Bicycle Facilities – American Association of State Highway and Transportation Officials
- Guide for the Planning, Design, and Operation of Pedestrian Facilities – American Association of State Highway and Transportation Officials
- Complete Streets Implementation Resource Guide for Minnesota Local Agencies, MnDOT
- Public Rights of Way Accessibility Guidelines (PROWAG) – US Access Board

A Complete Streets approach to planning and implementing non-motorized facilities, as described in the MnDOT Complete Streets Implementation Resource

Guide, can provide a helpful framework for creating a community-supported, safe, comfortable, and convenient transportation network that serves all modes. A Complete Streets policy or process is intended to provide design guidance and implementation clarity, allowing the community and project designers to advance individual projects in a collaborative and cost-efficient manner.

Accessibility is a very important consideration for non-motorized design. All new pedestrian and bicycle facilities must meet the ADA accessibility guidelines established in PROWAG. The guidelines in PROWAG address the design needs of people with physical and/or visual impairments. Accessibility will become increasingly important over the next 20 years due to demographic changes. Baby boomers are aging and the population over age 65 is increasing. People over 65 are more likely to have physical and/or visual impairments that affect their ability to get around.

FIGURE 9: EXAMPLE BICYCLE FACILITIES

Off-street Facility
Source: www.pedbikeimages.org / Laura Sandt

Conventional Bicycle Lane
Source: www.pedbikeimages.org / Jennifer Compos

Protected Bikeway
Source: NACTO Urban Bikeway Design Guide

Bicycle Boulevard
Source: NACTO Urban Bikeway Design Guide

Buffered Bicycle Lane
Source: www.pedbikeimages.org / Lyubov Zuyeva

Wide Paved Shoulder
Source: www.pedbikeimages.org / Laura Sandt

Figure 9:
Example Bicycle Facilities
West St. Paul Transportation Plan
West St. Paul, MN

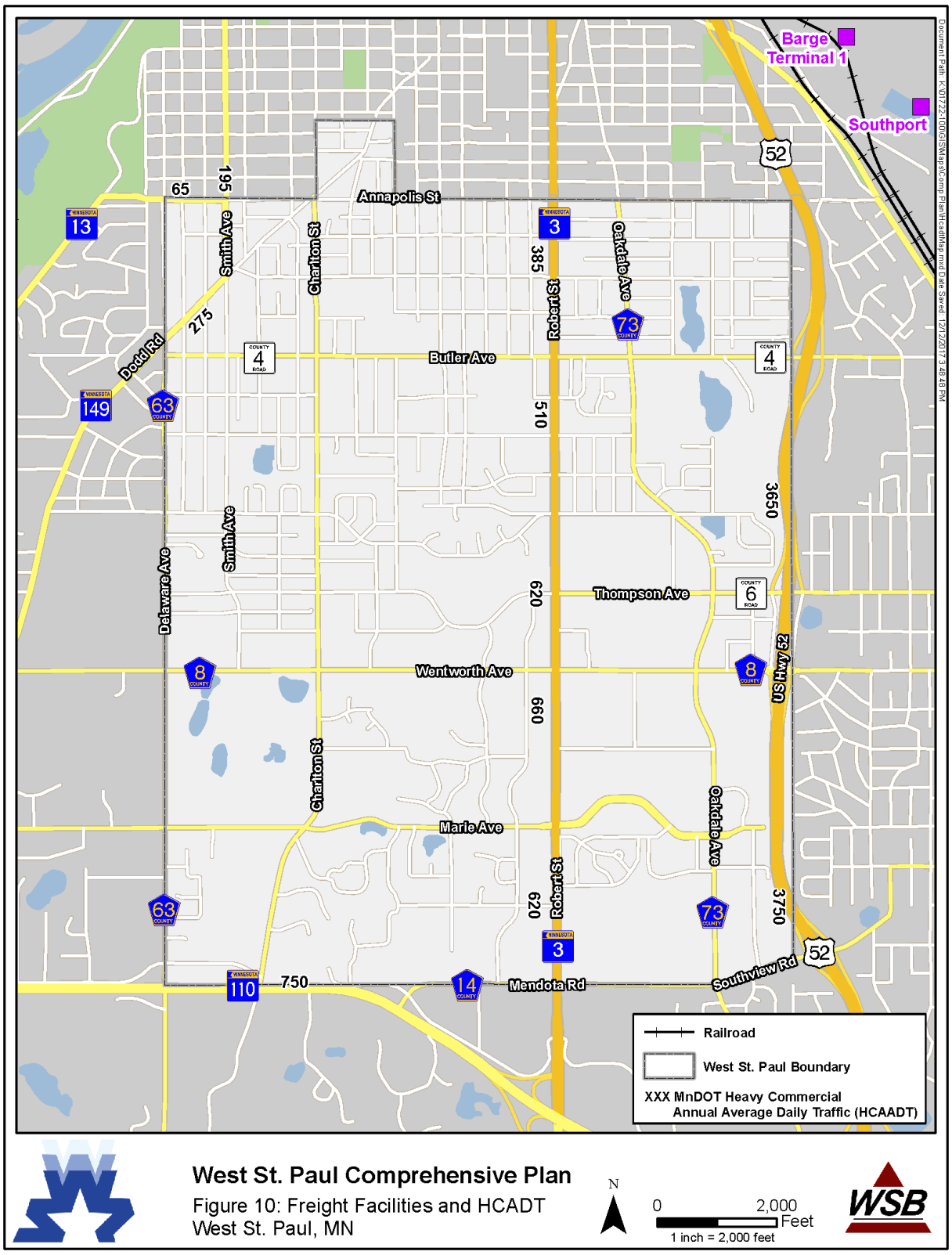
FREIGHT

Freight transportation in West St. Paul is primarily served by TH 52 and TH 110. FIGURE 10 shows the city's freight system and heavy commercial average annual daily traffic (HCAADT).

There are no large freight traffic generators within the city. Most truck traffic is passing through West St. Paul on trips to, from, and through the Twin Cities. Southport and Barge Terminal 1, two major barge/truck intermodal terminals are located to the northeast of the city along the Mississippi River in St. Paul. Freight traffic generators within West St. Paul are located along Robert Street and in the southeast portion of the community. Freight generators include concentrations of industrial land uses south of Wentworth Avenue and east of Robert Street. As a commercial corridor, businesses along Robert Street also generate some freight traffic.

FIGURE 10 shows HCAADT within West St. Paul. TH 52 carries the greatest number of heavy commercial vehicles (approximately 3,700 vehicles per day). TH 110 and Robert Street (TH 3) also carry a substantial amount of heavy commercial traffic within the city.

FIGURE 10: EXISTING FREIGHT SYSTEM AND HCAADT



TRANSIT

West St. Paul is located within the Transit Capital Levy District as shown in the Metropolitan Council 2040 TPP. The TPP further classifies the metropolitan area into transit markets based on demographic and urban design factors. Much of the northern portion of West St. Paul is located in Market Area II, and much of the southern portion of the city is located within Market Area III. Market Area II generally supports fixed-route transit, but at lower frequencies or shorter service spans than provided in Market Area I. Transit service in Market Area III is primarily commuter express bus service with some fixed-route local service providing basic coverage. General public dial-a-ride services are available where fixed-route service is not viable.

Most of the transit routes that serve West St. Paul provide connections to downtown St. Paul. Fixed route bus service in West St. Paul is described below and shown on FIGURE 11.

- Route 62: Daytime and evening service between Shoreview, Vadnais Heights, Little Canada, Roseville, St. Paul, and West St. Paul
- Route 68: Daytime and evening service between Inver Grove Heights, South St. Paul, West St. Paul, and St. Paul
- Route 75: Daytime and evening service between St. Paul, West St. Paul, Mendota Heights, and Inver Grove Heights
- Route 417: Commuter service (two trips per weekday) between St. Paul and Mendota Heights
- Route 452: Limited stop commuter service (three trips per weekday) between downtown Minneapolis and Mendota Heights

The bus routes that serve this area have a mix of frequencies and types of service that they provide. Some routes operate every 30 minutes or every hour during the day while others operate only during peak commuting times.

In addition to the fixed-route transit options, the city is also served by Dakota County Transit Link, a dial-a-ride service for the general public. Transit Link provides connections to destinations within Dakota County and connects to regular route transit for trips within the metro area, including outside of Dakota County. West St. Paul residents also have opportunities to participate in the Metro Vanpool program. This program provides financial assistance for vanpools to serve areas with limited regular-route transit service.

Metro Transit's 2015 Service Improvement Plan indicates several proposed changes/additions to existing bus service in West St. Paul. Routes 62 and 68 are identified for longer service hours and increased frequency as a medium priority. The Plan also identifies the addition of Route 451, which would provide 30-minute

weekday rush hour express service between the West St. Paul Sports Complex park and ride and downtown St. Paul. This proposed improvement was also identified as a medium priority.

The TPP's transit investment plan identifies the Robert Street Transitway in the Counties Transit Improvement Board (CTIB) Phase I Program of Projects. The corridor is also included in the increased revenue scenario as one of several arterial bus rapid transit alignments. The Ramsey County Regional Railroad Authority (RCRRA), Dakota County Regional Railroad Authority (DCRRA), and Dakota County led a Robert Street Transitway Alternatives Analysis Study to identify and evaluate alternatives for providing transit infrastructure to meet long-term regional mobility goals between downtown St. Paul and portions of Dakota County. The study, which was completed in 2015, advanced two alternatives for further consideration as a locally preferred alternative (LPA): arterial bus rapid transit and modern streetcar alternatives (these alignments are depicted in FIGURE 11).

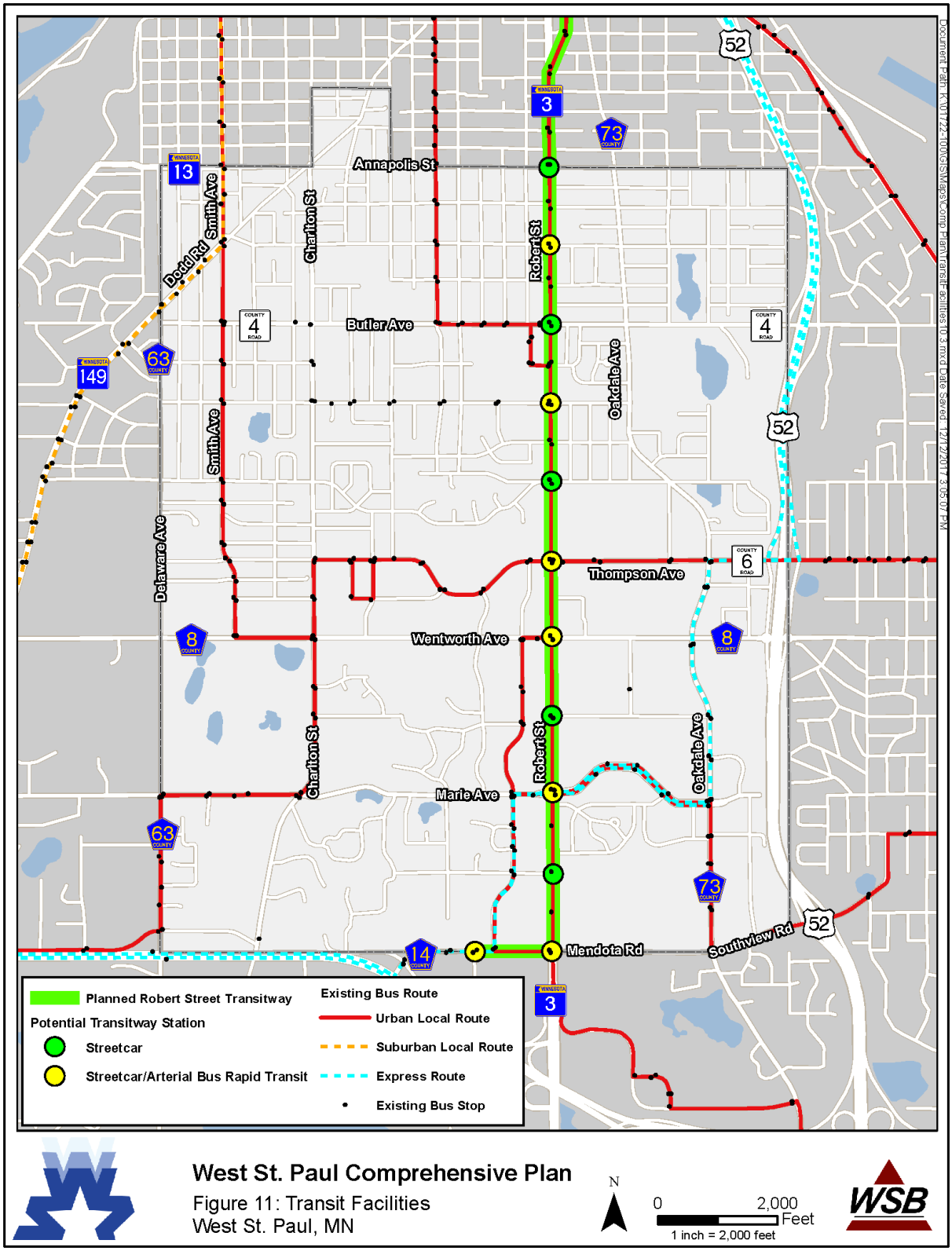
Both alternatives would provide high-frequency service along Robert Street between downtown St. Paul and the Dakota County Northern Service Center, with multiple stations within the City of West St. Paul. The analyzed arterial bus rapid transit alignment would include 7 stations within the city: at Bernard Street, Moreland Avenue, Thompson Avenue, Wentworth Avenue, Marie Avenue, Mendota Road, and the Northern Service Center. The analyzed streetcar alignment would include 12 stations within the city: at Annapolis Street, Bernard Street, Butler Avenue, Moreland Avenue, Emerson Avenue, Thompson Avenue, Wentworth Avenue, Lothenbach Avenue, Marie Avenue, Crusader Avenue, Mendota Road, and the Northern Service Center. In addition to advancing these two modes for further consideration, the alternatives analysis also recommended assessment of traditional express bus service along TH 52.

The City of West St. Paul submitted a resolution of support for the evaluation process conducted in this study and supported carrying forward the arterial BRT alternative. Following additional assessment of land use within the Robert Street corridor, an LPA will be selected. The city will continue to be involved in the early transitway development process by:

- Participating in additional alternatives analysis and initial planning based on updated land use assessments
- Preparing a resolution of support for mode and alignment recommendation following selection of an LPA
- Committing to and developing transit-supportive plans and policies that meet minimum expectations for transit station areas and to undertake station-area planning

Metro Transit also identifies a park-and-ride lot at the West St. Paul Sports Complex, located at the intersection of Wentworth Avenue and Oakdale Avenue. This facility provides parking for the Route 452 express bus. Metro Transit data indicates that this location is approximately 50 percent utilized; it is not anticipated that an expansion of this park-and-ride facility will be necessary.

FIGURE 11: TRANSIT FACILITIES



AVIATION

There are currently no existing or planned aviation facilities within West St. Paul, including radio beacons or air navigation aids. However, the city lies within the influence area of the St. Paul Downtown Airport (Holman Field) and the South St. Paul Airport (Fleming Field), where land uses are affected by airport activity and planning considerations. Additionally, like all cities, the city is responsible for airspace protection in order to reduce hazards to air travel within the region.

The St. Paul Downtown airport location is shown in FIGURE 12. The northeast portion of West St. Paul is less than one mile from the St. Paul Downtown Airport. Due to its proximity, the city is a member of the Joint Airport Zoning Board (JAZB). The St. Paul Downtown Airport is classified by the Federal Aviation Administration (FAA) as a reliever airport, by MnDOT as a key airport, and by the Metropolitan Council as an intermediate airport. The St. Paul Downtown Airport accommodates air charter, air taxi, business jet, military, and general aviation users and provides international, national, multi-state, and regional service. The airport has three runways and has precision instrumentation capability.

See FIGURES 13–16 for exhibits from the St. Paul Downtown Airport from the LTCP, which show airport boundaries, land access locations, runways, LTCP recommendations, and airport safety zones. The primary planned facility modifications identified in the LTCP include terminal sub drain improvements, electrical vault improvements, pavement and floodwall maintenance, and a parcel identified for potential concurrent use or development. No runway or hangar modifications are planned.

The city lies outside of the noise effect area of this airport and, based on the draft Joint Airport Zoning Board (JAZB) zoning ordinance for the airport, there are no compatibility issues associated with noise or access to landside facilities pertaining to West St. Paul. The St. Paul Downtown Airport Long-Term Comprehensive Plan (LTCP) indicates that the northeast portion of the city falls under Safety Zone C as established in the Minnesota Rules Chapter 8800.2400 (and based on the FAA FAR Part 77 horizontal surface). Under Zone C, restricted land uses include:

- uses that cause interference with radio or electronic facilities on the airport;
- uses causing interference with radio or electronic communications between the airport and aircraft;
- lighting that makes it difficult for pilots to distinguish between airport lights and other lights;
- lighting that results in glare in pilot's eyes; and
- lighting that impairs visibility in the airport vicinity.

However, the draft JAZB Zoning Ordinance proposes to exclude the City from the limits of all proposed land use Safety Zones, including Safety Zone C.

he city also lies within the influence area of the South St. Paul Airport (location shown in FIGURE 12). The South St. Paul Airport is classified by the Federal Aviation Administration (FAA) as a general aviation reliever airport, by MnDOT as an intermediate airport, and by the Metropolitan Council as a minor airport. The South St. Paul Airport accommodates recreational, training, and business users and provides multi-state and state air service. The airport has one 4,001-foot paved runway positioned in a northwest-southeast direction and has non-precision instrumentation capability.

See FIGURES 17–20 for the draft layout exhibits for the South St. Paul Airport from the LTCP, which show existing and future airport facilities (including airport boundaries, land access locations, and runways) and the existing and future airport safety zones. The primary planned facility modification identified in the LTCP was construction of a 300-foot stopway on one end of the runway and a 120-foot stopway on the other end of the runway.

The city lies outside of the noise effect area and the land use safety zones associated with the airport. Therefore, no additional land use guidelines apply to West St. Paul based on the city's proximity to the South St. Paul Airport.

Any person or organization who intends to sponsor the construction or alteration of a structure affecting navigable airspace as defined in Federal Regulation Title 14; Part 77 needs to inform the Federal Aviation Agency (FAA) of the project. This notification is accomplished through the completion and submittal to FAA of Form 7460-1, Notice of Proposed Construction or Alteration. In West St. Paul, this requirement applies to any construction or alteration exceeding 200 feet above ground level. The city's zoning code allows a maximum structure height of 170 feet; therefore, it is unlikely that any structures in the city will require FAA notification.

There are currently no heliports in West St. Paul or any known plans to construct one. Additionally, none of the surface waters within the city are identified by MnDOT as an authorized landing site for seaplanes.

*Note: Zone C shown in Figure 12 depicts MnDOT Model Safety Zone C. As stated above, the JAZB proposed a smaller Safety Zone C in its draft Zoning Ordinance, which does not include any area in West St. Paul.

FIGURE 12: AIRPORTS

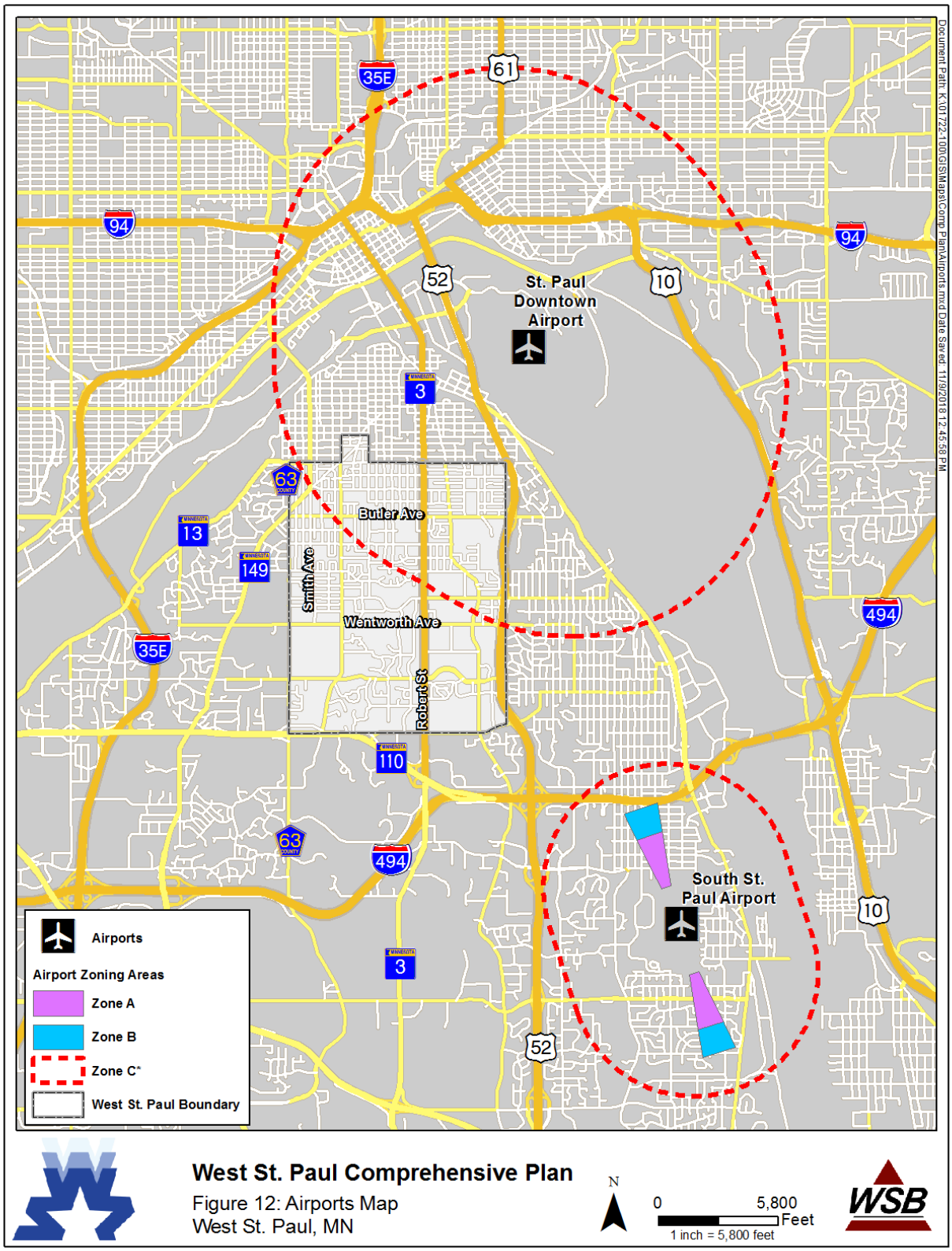


FIGURE 13: ST. PAUL DOWNTOWN AIRPORT LAYOUT

FIGURE 14: ST. PAUL DOWNTOWN AIRPORT PROPERTY INVENTORY MAP

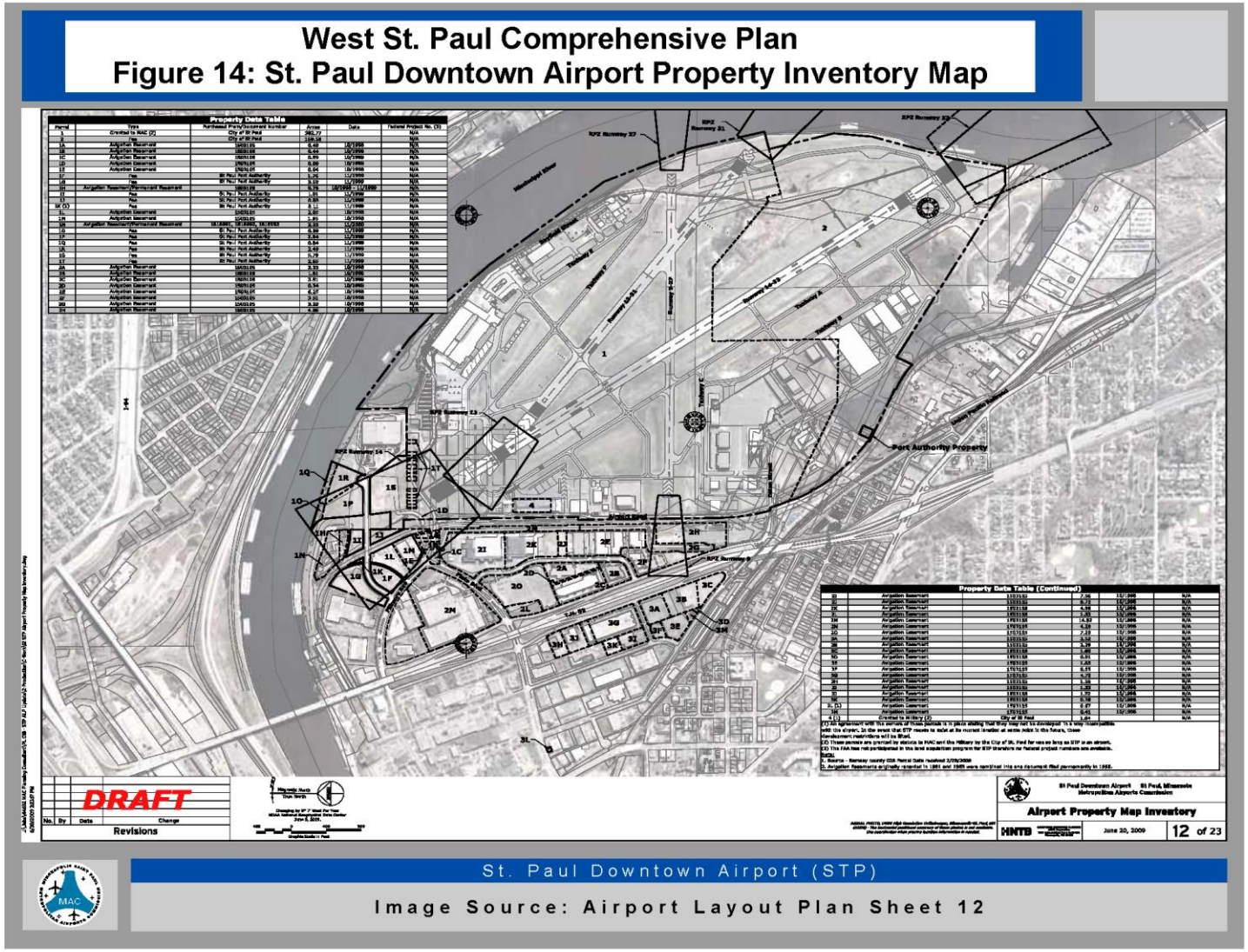


FIGURE 15: ST. PAUL DOWNTOWN AIRPORT LTCP RECOMMENDATIONS

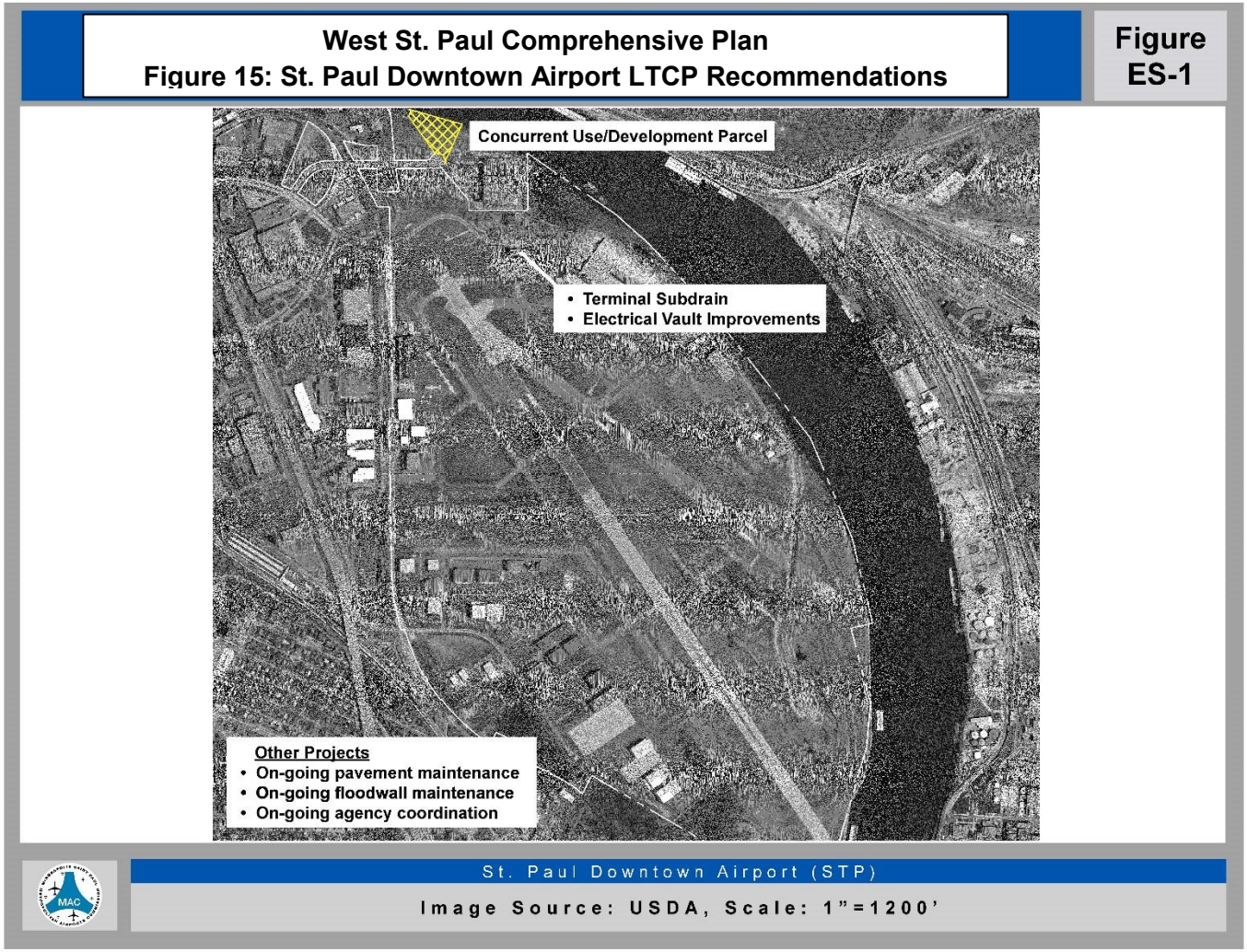


FIGURE 16: ST. PAUL DOWNTOWN AIRPORT RPZS AND STATE ZONES

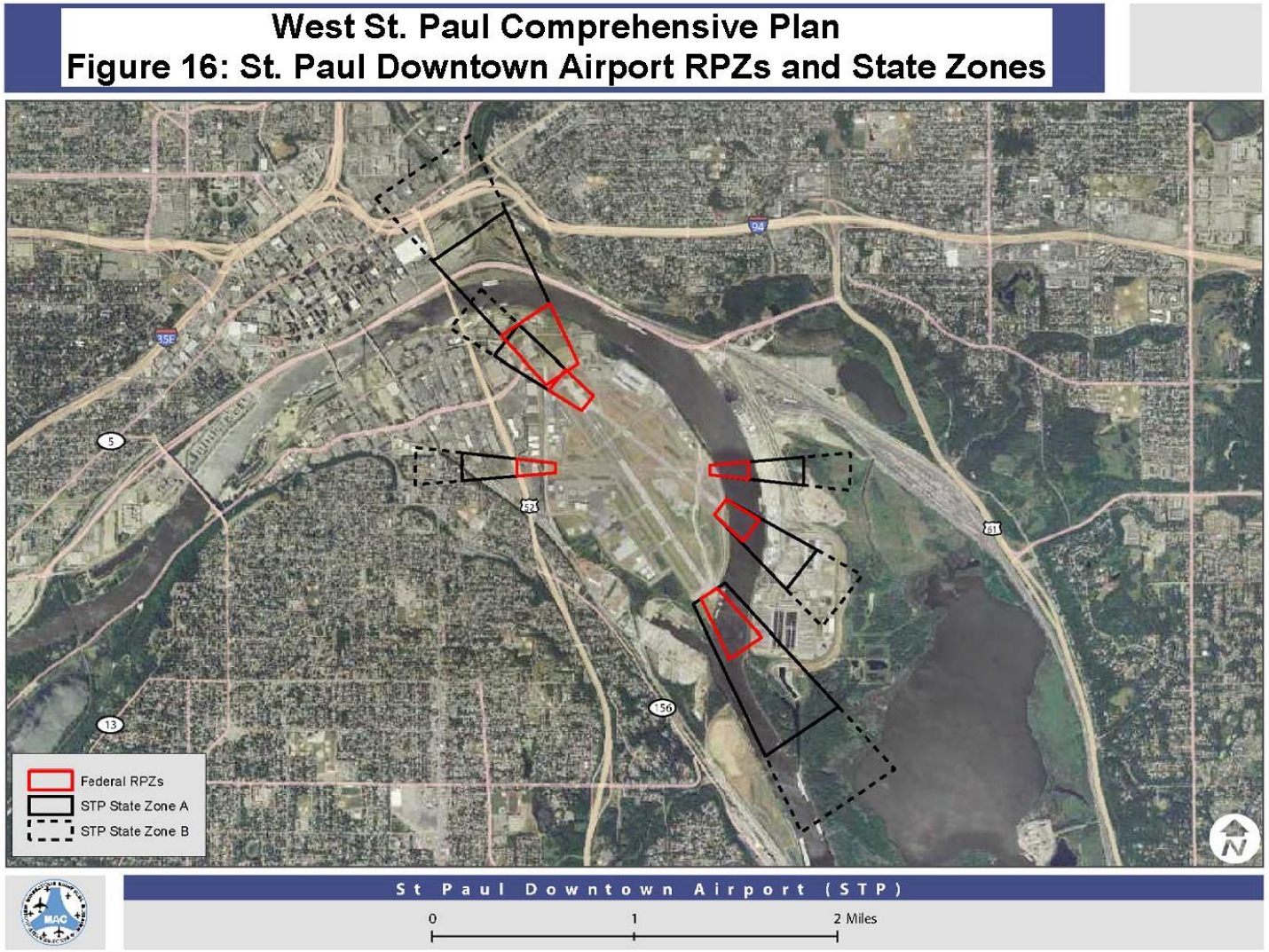
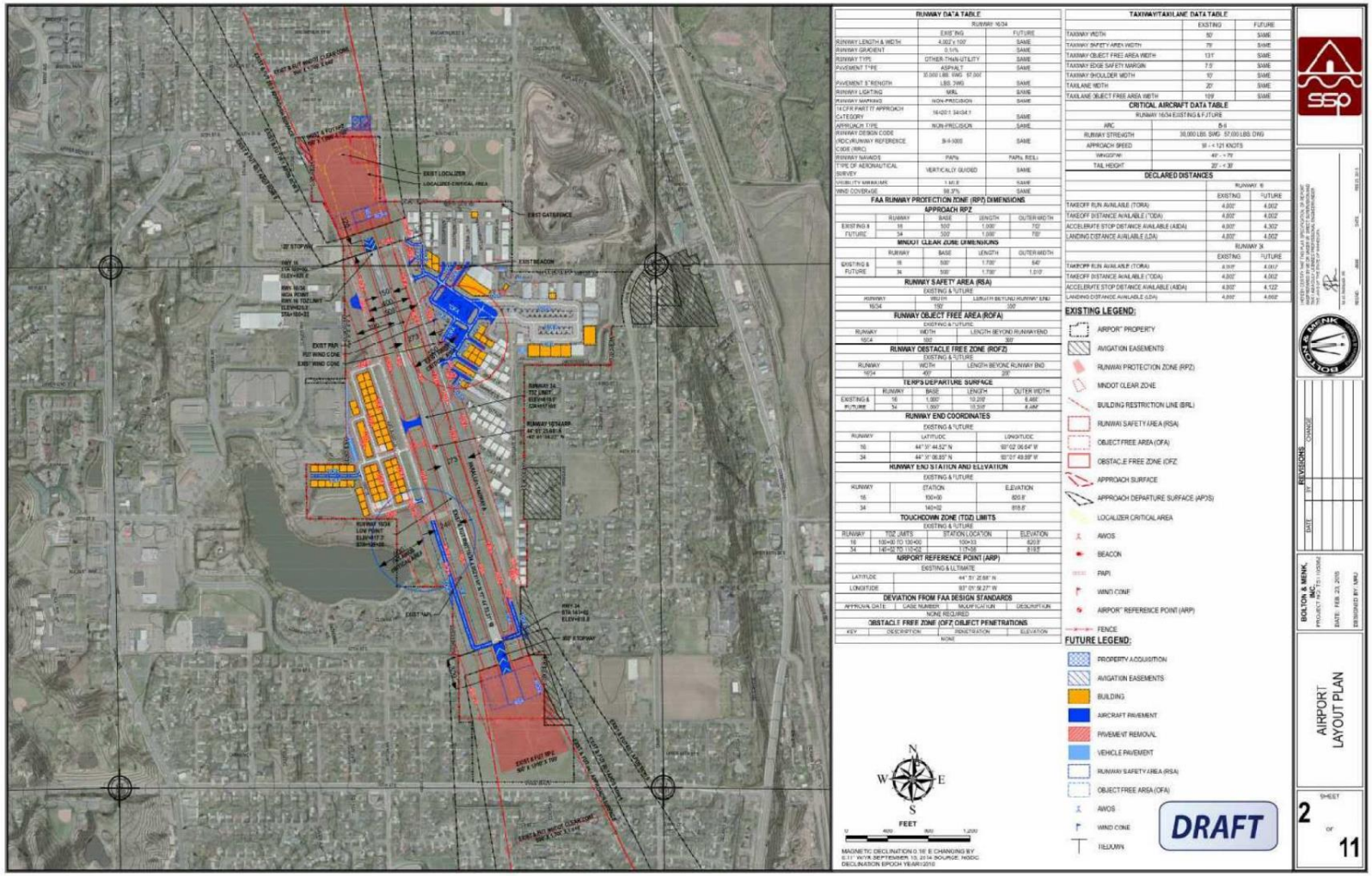
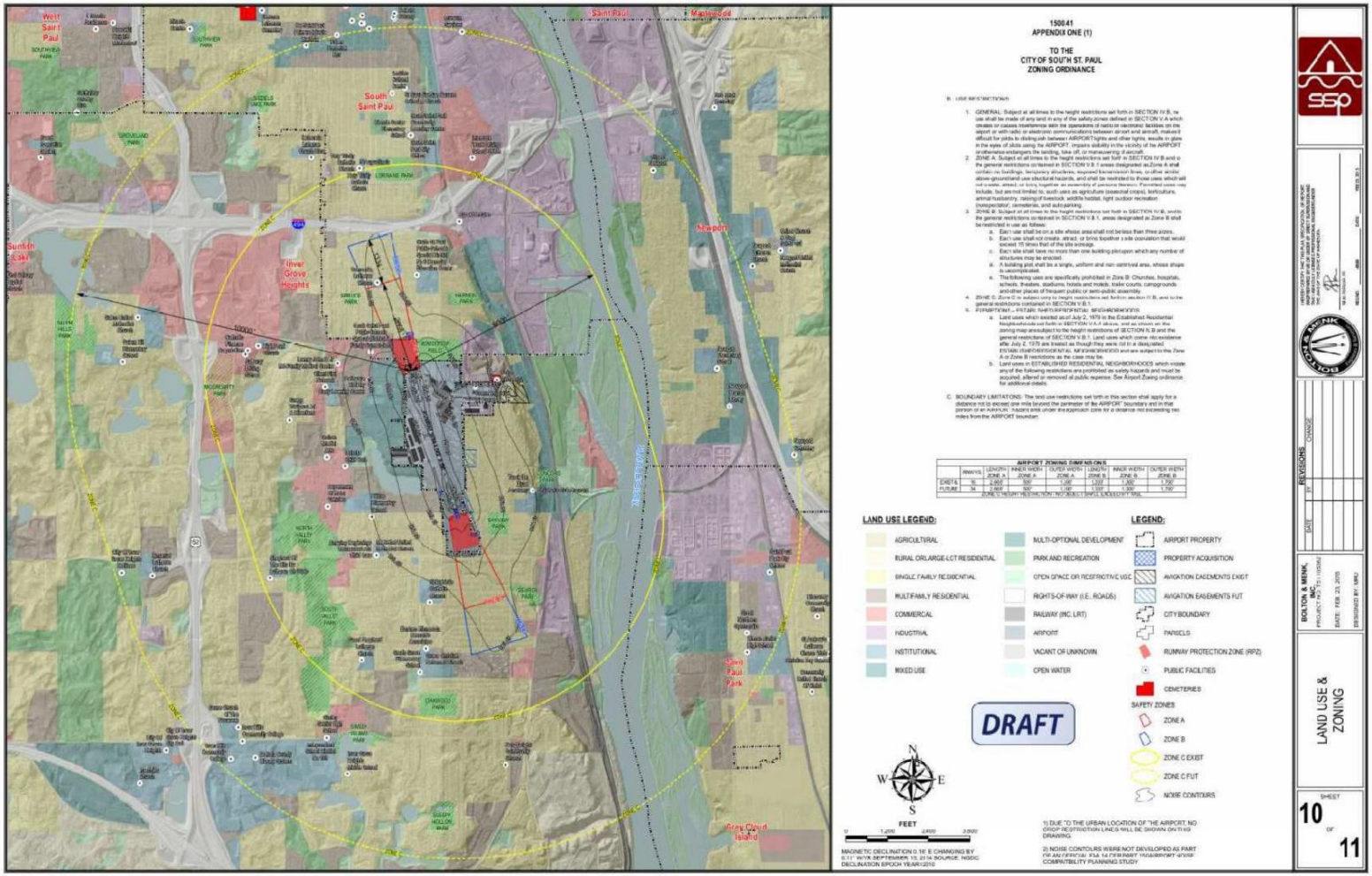


FIGURE 17: SOUTH ST. PAUL AIRPORT LAYOUT



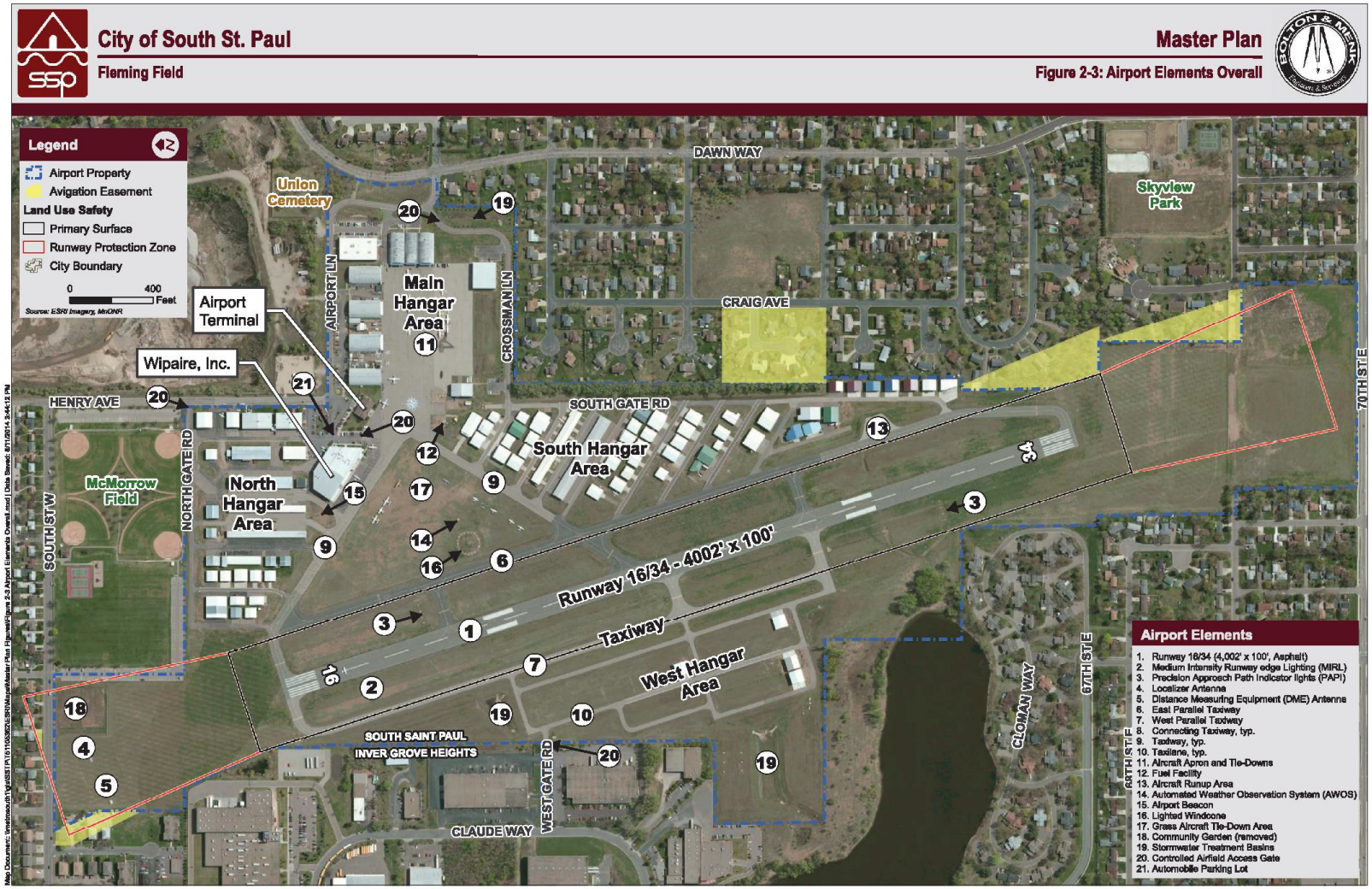
West St. Paul Comprehensive Plan
Figure 17: South St. Paul Airport Layout

FIGURE 18: SOUTH ST. PAUL AIRPORT LAND USE & ZONING



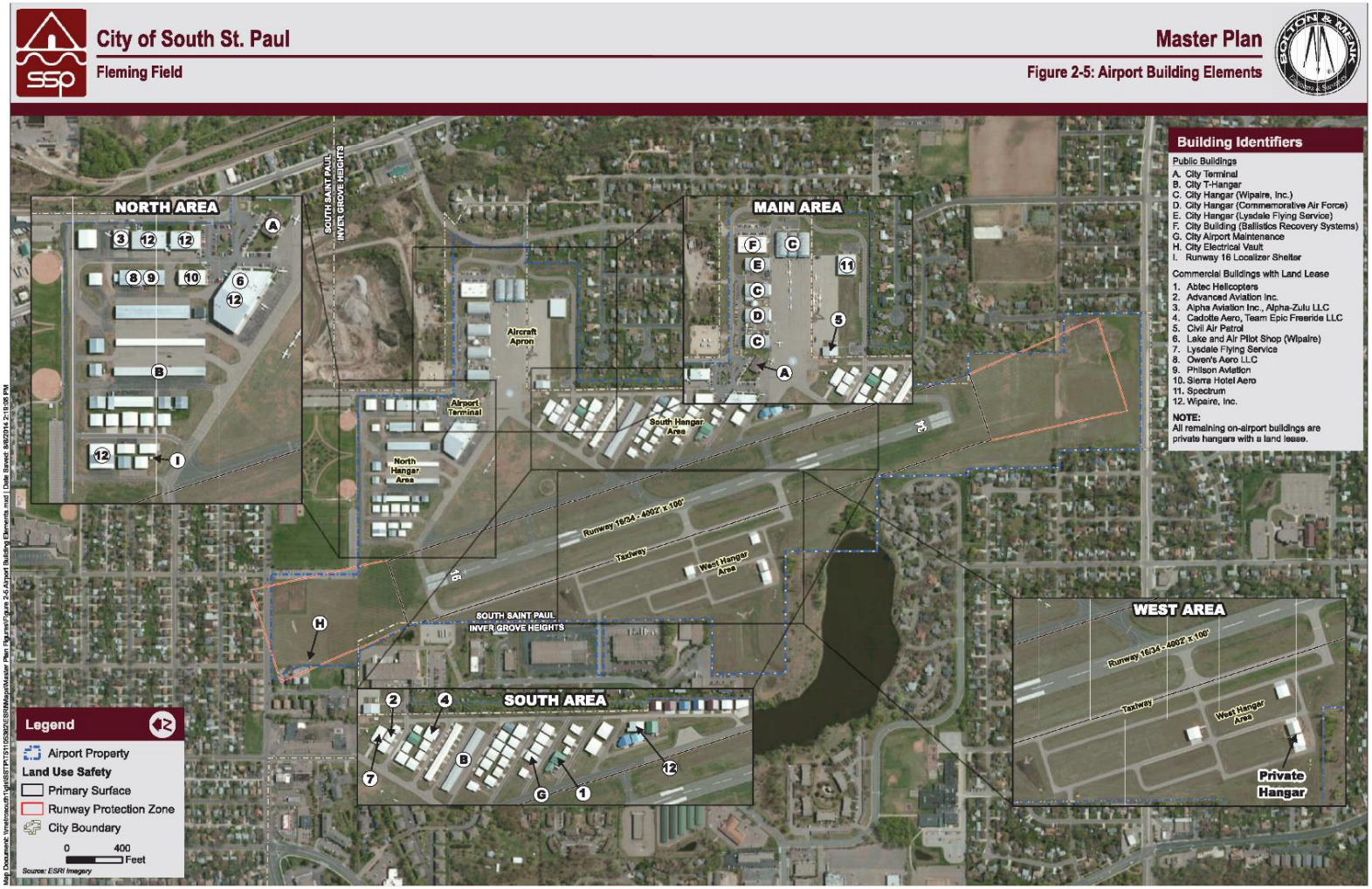
West St. Paul Comprehensive Plan
Figure 18: South St. Paul Airport Land Use & Zoning

FIGURE 19: SOUTH ST. PAUL AIRPORT ELEMENTS



West St. Paul Comprehensive Plan
Figure 19: South St. Paul Airport Elements

FIGURE 20: SOUTH ST. PAUL AIRPORT BUILDING ELEMENTS



West St. Paul Comprehensive Plan
Figure 20: South St. Paul Airport Building Elements

GOALS AND MULTIMODAL STRATEGIES

This Plan, and the city's actions over the next 20 years, will be guided by the following transportation goals and strategies.

Goals

The list below displays the goals of the West St. Paul Transportation Plan. These goals represent the city's overall vision for transportation over the next 20 years. The strategies listed in the following section provide guidance that the city can use to reach the transportation goals.

1. Encourage alternate modes of transportation including public transit, walking and biking by designing with complete streets standards in mind.
2. Preserve and develop transportation infrastructure that provides a high degree of safety and accessibility for all users and for destinations in and around West St. Paul.
3. Manage and enhance existing sidewalk and trail systems so as to improve accessibility and the quality of life for all West St. Paul residents.

Multimodal Strategies

The multimodal strategies listed in this section are specific, actionable steps that the city can take in support of the goals of this Plan. These strategies are based upon existing and future transportation needs as described in detail in the previous sections of this Plan.

The multimodal strategies are broken into several categories:

1. Roadway Maintenance
2. Roadway Safety/Operations
3. Intersection/Access Modifications
4. Bicycle/Pedestrian Improvements
5. Transit Improvements

Each strategy is tied to one or multiple goals. TABLE 7 on the following pages describes each strategy, notes which goal(s) is/are related to each strategy, and identifies the lead agency for the strategy. FIGURE 21 following the tables illustrates the strategies geographically with reference numbers tied back to the table information.

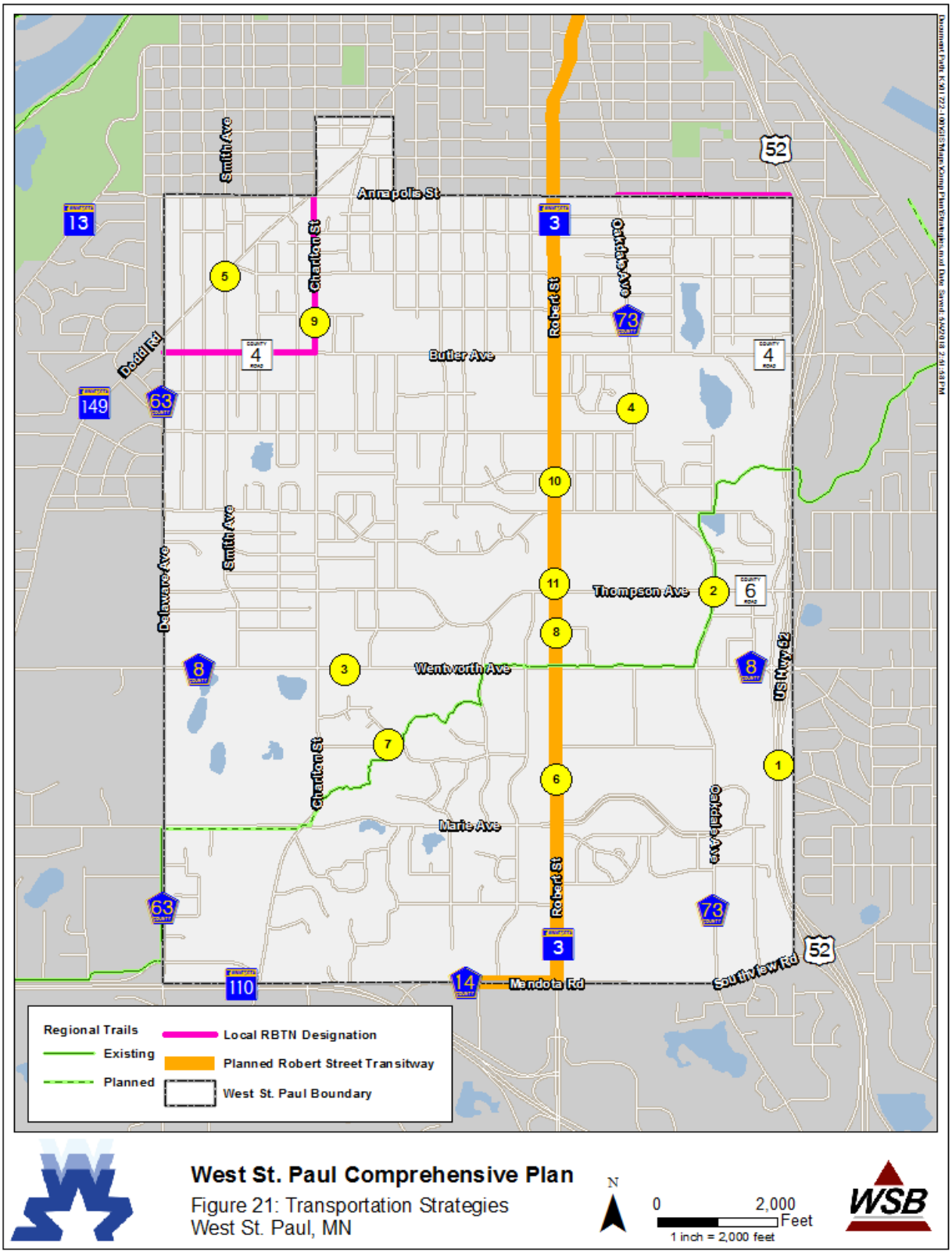
TABLE 7: TRANSPORTATION IMPLEMENTATION STRATEGIES

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
TH 52	Maintenance	Pavement improvement project	Figure 21, #1	MnDOT	2
Intersection of CSAH 73 (Oakdale Ave.) and CR 6 (Thompson Ave.)	Safety/ Operations	Coordinate with Dakota County on planned roundabout project	Figure 21, #2	Dakota County	2
CSAH 8 (Wentworth Ave.) between CSAH 63 (Delaware Ave.) and Humboldt Ave.	Maintenance, Bicycle/ Pedestrian Improvements	Coordinate with Dakota County on reconstruction of Wentworth Avenue, addition of multiuse trail	Figure 21, #3	Dakota County	1, 2, 3
CSAH 73 (Oakdale Ave.) between CSAH 8 (Wentworth Ave.) and Annapolis St.	Maintenance	Coordinate with Dakota County on overlay project	Figure 21, #4	Dakota County	2
Smith Avenue-Dodd Road Intersection Area	Intersection/ Access Modifications	Coordinate with MnDOT to realign roadways, intersection, and access points based on Smith-Dodd Small Area Plan	Figure 21, #5	MnDOT, West St. Paul	1, 2, 3

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
Robert Street Corridor	Intersection/ Access Modifications	Coordinate with MnDOT on roadway/access modifications as redevelopment occurs along Robert Street	Figure 21, #6	MnDOT, West St. Paul	1, 2
Garlough and Marthaler Parks	Bicycle/ Pedestrian Improvements	Realign and construct River to River Greenway to regional trail standards through Garlough and Marthaler Parks	Figure 21, #7	West St. Paul, Dakota County	3
Livingston Ave. and Crawford Dr. north of Wentworth Ave.	Bicycle/ Pedestrian Improvements	Construct grade-separated bicycle/pedestrian crossing of Robert Street and connections as part of the River to River Green way	Figure 21, #8	Dakota County, MnDOT, West St. Paul	3
CR 4 (Butler Ave.) between CSAH 63 (Delaware Ave.) and Charlton St.; Charlton St. between CR 4 and Annapolis St.	Bicycle/ Pedestrian Improvements	Designate CR 4 (Butler Ave.) and Charlton St. as RBTN alignments	Figure 21, #9	West St. Paul, Dakota County	1
Robert Street Transitway	Transit Improvement	Continue to participate in alternative analysis, development of an LPA, and station	Figure 21, #10	RCRRA and DCRRA	1

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
		area planning activities			
Various locations	Transit Improvement	Support urban design and land use policies that encourage transit use, particularly along existing and planned transit corridors	Figure 21, #11	West St. Paul, Dakota County	1

FIGURE 21: TRANSPORTATION STRATEGIES



Proposed Short and Long Range Roadway Projects

The sections below identify proposed short and long range roadway projects identified in the TPP, the county and city CIP, and based on the proposed land use and redevelopment activities described in previous sections of this Plan.

Proposed Projects from Metropolitan Council 2040 TPP

The Metropolitan Council 2040 TPP identifies several planned improvements to highways within West St. Paul. These include a planned pavement project identified in the 2015-2018 Transportation Improvement Plan (TIP) located along TH 149 (Smith Avenue and Dodd Road) and TH 13 (Annapolis Street). This project, which is scheduled for construction in 2018, consists of roadway resurfacing, replacement of traffic signals, and improvement of sidewalks and pedestrian accessibility. The TPP also identifies a project along TH 110, which was completed in 2017, and included pavement improvements, turn lane and access modifications, signing upgrades, and updated pedestrian crossings. Beyond the TIP timeframe, a planned pavement improvement project is shown along TH 52 through the city, scheduled to take place between 2019 and 2024. The TPP also identifies transit improvements along the Robert Street corridor as part of the CTIB Phase I Program of Projects, as well as the accelerated arterial BRT (under the Increased Revenue Scenario).

Proposed Projects from CIPs

The county and city CIP identify several planned projects within West St. Paul. The 2017-2021 Dakota County CIP includes a planned single lane roundabout at the intersection of CR 6 (Thompson Avenue) and CSAH 73 (Oakdale Avenue) and a reconstruction project along CSAH 8 (Wentworth Avenue) between CSAH 63 (Delaware Avenue) and Humboldt Avenue. The county CIP also includes an overlay project on CSAH 73 between CSAH 8 and the northern city boundary. The Robert Street Transitway is also identified in the Dakota County CIP, noting that two alternatives for this corridor have been advanced.

The city's 2016-2025 CIP identifies the preparation of an ADA Transition Plan, construction of high priority sidewalks and trails, and annual resurfacing projects to take place on various city streets. The city's CIP also includes planned projects that have been identified by MnDOT and Dakota County, including construction of a pedestrian overpass over Robert Street, traffic signal replacement at Smith Avenue and Dodd Road, reconstruction of Wentworth Avenue, and construction of a roundabout at the intersection of Thompson Avenue and Oakdale Avenue. The recently-completed Robert Street improvements and roundabout at Wentworth Avenue and Oakdale Avenue are also identified within the city's CIP.

Proposed Projects based on Land Use and Development

As described in Section 2.4, the Smith Avenue/Dodd Road area is being evaluated for roadway realignment and redevelopment. Redevelopment is also anticipated to continue along the Robert Street corridor. While the specific details of the redevelopment are uncertain, it is likely that improvements or roadway modifications may be required to ensure that the roadway system operates efficiently in this part of the community.

PUBLIC COMMENTS

The city has gathered public input through several neighborhood meetings, its annual Resident Survey, and a web-based "MySidewalk" site associated with the comprehensive plan update. Through these interactions, members of the public identified issues and opportunities related to transportation, with a strong focus on improving non-motorized transportation options within the city. Many comments were received relating to making the city more walkable and bikeable by filling gaps in the sidewalk and trail network, adding infrastructure such as bike lanes, and making associated safety and streetscaping improvements along roadways and at intersections. Other comments received related to the city's role in maintaining transportation infrastructure.

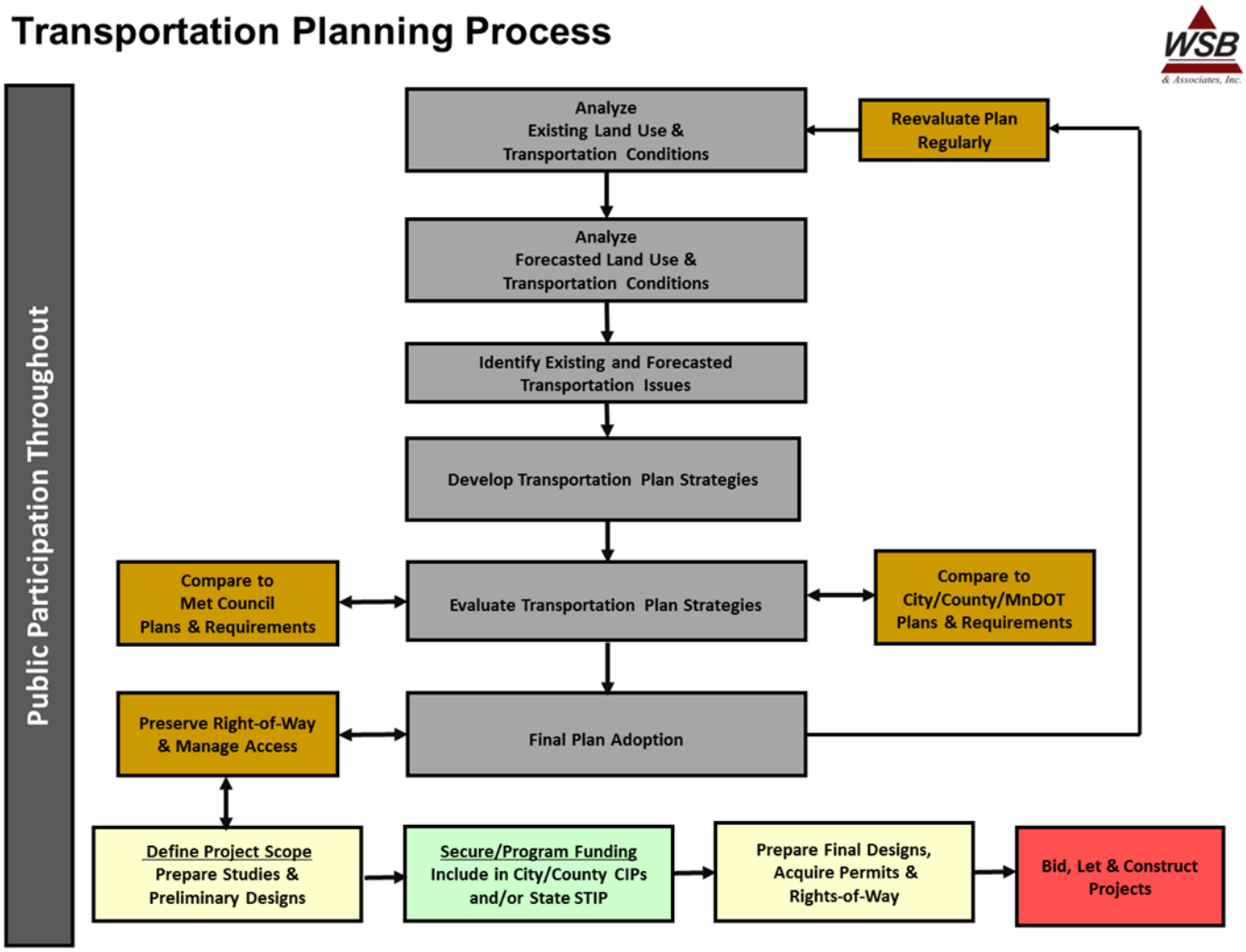
CONCLUSION AND NEXT STEPS

The purpose of this Transportation Plan is to set a multimodal transportation vision for the City of West St. Paul through the year 2040. Goals and specific strategies have been identified collaboratively by the city, Dakota County, MnDOT, and members of the public within the framework of Metropolitan Council requirements. The vision and associated strategies outlined in this Plan were established by considering existing and forecasted conditions, West St. Paul priorities, regional travel patterns and a variety of other factors.

As the owners of the transportation network in West St. Paul (i.e. City of West St. Paul, Dakota County, and MnDOT) advance their respective Capital Improvement Programs (CIPs), this Plan is intended to serve as an important resource and reference in establishing priorities and advancing transportation projects for implementation. Advancing these projects from a planning to implementation phase will require collaborative discussions among facility owners, adjacent communities, the Metropolitan Council, residents and others to conduct traffic studies, finalize designs, preserve rights-of-way, obtain environmental clearances and leverage necessary financial resources. FIGURE 22 on the following page

outlines the entire planning and project development process required for transportation projects from concept plans to construction implementation.

FIGURE 22: TRANSPORTATION PLANNING PROCESS



CHAPTER EIGHT: PARKS AND RECREATION

EXISTING LAND USE

Existing Parks and Recreation Land Uses

Parks & Recreation: Primarily public active recreation activities improved with playfields/grounds or exercise equipment, zoos, or other similar areas.

Parks and Recreation include "mini-parks (less than one acre), neighborhood parks, community parks, community playfields (athletic fields, ice arenas, for example) and large regional parks and open space. Approximately 12% or 398 acres of the land in West Saint Paul is devoted to Parks and Recreation. Large parks and open space areas are located on the western and eastern edges of the City (Dodge Nature Center and Thompson Park) as well as in the north central portion of the City (Harmon Park). Smaller neighborhood and community facilities are scattered throughout the City.

Parks and open space for recreation is an essential component of the overall urban fabric. With over 12% of the land used for parks and recreation, West St. Paul is in a position to create an inter-connected parks and open space system by creating linear connections between the major park facilities. For example, over the years, the city has implemented a trail system that links Thompson Park in the Northeast, to the former Thompson Oaks Golf Course site, through Marthaler Park and Garlough Park in the Southwest extending this trail system through Dodge Nature Center to Highway 110.

Goals

- To provide for a system of parks and open spaces which will satisfy recreational needs of all citizens.
- To preserve significant open spaces and natural areas.
- To improve and expand the City parks and trail system to enhance enjoyment of local natural features.
- To preserve and improve ponds and wetlands within the City parks.

Policies

1. Neighborhood Park facilities should be maintained so that all residential areas of the City are adequately served.

2. Community Playfields for organized sports should be provided where possible.
3. The City should coordinate with regional and County Park, trail and open space plans.
4. The City should maintain existing parks and open spaces. All public parks and open spaces shall be improved in accordance with a Long-Range Capital Improvement Program (to be developed).
5. Encourage the continued use of school recreation facilities for City as well as school purposes.
6. The City should expand the local trail system, taking advantage of in-place natural feature amenities.
7. Support the River to River Greenway for hiking and biking through West Saint Paul.
8. Encourage the River to River Greenway alignment through the city.
9. Encourage the provision of "community" and "neighborhood" trails to provide access to park, school and other public and commercial services, and to provide hiking and biking recreational opportunities
10. Strive for equitable access to all parks and recreation facilities in the City for people with disabilities.
11. Seek additional collaboration and partnerships for financing park improvements.
12. Encourage privately owned and funded parks and open spaces in new developments.

Description of Planned Parks and Open Space Land Uses

Parks & Recreation: Primarily public active recreation activities improved with playfields, playgrounds, exercise equipment, zoos, or other similar areas.

Water: Permanently flooded open water, rivers and streams, not including wetlands or periodically flooded areas.

Although virtually fully developed, the City of West Saint Paul still contains a significant amount of natural beauty and resources, primarily within the south central and southwest parts of the City. It is intended that these significant

environmental resources are preserved to the greatest extent possible. To that end, the City has established an environmental advisory committee. The powers and duties of the Environmental committee are established as follows:

1. To perform fact-finding tasks as requested by the Council, commissions or Committees.
2. To act in an advisory capacity to the City Council, Planning Commission or other West Saint Paul committees as the Council deems appropriate.
3. To cooperate and create liaisons with other governmental agencies, community organizations, private sector businesses, non-profits, educational, and civic groups to foster cooperation.
4. To develop and maintain a long term urban forestry plan.
5. To maintain a City website presence that informs citizens about environmental issues in the City of West Saint Paul and other jurisdictions.
6. To recommend sustainable and environmentally sound practices and sponsor seminars for the same including lawn care, rain gardens, native plantings, housing and consumption.
7. To review City facilities and practices for environmentally sound and sustainable best practices including rain gardens, erosion control and native plantings.
8. To sponsor community training and education opportunities.
9. To research and apply for grants and funding opportunities.
10. To promote the general welfare of the City.
11. To appoint subcommittees. The Committee may enlist the assistance of people or organizations that are not members of the Committee. The Committee does not have the power to make contracts, levy taxes, or spend or borrow money.
12. Others as set by the Council and Committee.

The City's natural resources are extremely valuable for both functional and aesthetic purposes. For example, wetlands serve as natural storm water retention areas during runoff periods. They also serve as natural habitat for numerous species of plant and animal life. In relatively recent years, their positive influence on residential environments has been recognized. This combination of functional as well as aesthetic values can be applied to most other environmental resources,

including wooded areas and concentrated areas of steep slopes. The City has recently adopted a tree preservation and replacement ordinance for wooded areas.

Minnesota's waters have been grouped into two categories for purposes of regulations encouraging wise use and development for many types of water basins and watercourses. The waters involved have been classed as ”public waters" or "wetlands" depending on size, physical characteristics and ownership of surrounding lands. Any person, agency or organization proposing to change the course, current, or cross-section of Minnesota’s public waters or wetlands, must obtain a permit from the Department of Natural Resources (DNR).

The DNR has also developed standards and criteria for the management of shoreland areas, adjacent to some of the public, waters and wetlands described above. The City of West Saint Paul administers and enforces shoreland management ordinances adopted in compliance with these standards and criteria.

Shoreland is defined as land located within 1000 feet from the ordinary high water mark (OHW) of a lake, pond or flowage; and 300 feet from a river or stream. DNR's classification system in order of least restrictive to most restrictive is:

1. General Development: shore presently developed for commercial, industrial or high density residential use.
2. Recreational Development: shores presently developed for medium density residential use with or without limited service- oriented commercial activities.
3. Natural Environment: shores presently developed for low density residential use.

PARKS AND OPEN SPACE

The City currently does not have a Parks and Recreation System Plan. Therefore, the Parks and Recreation chapter of the City Comprehensive Plan is the City's official guide to park and recreation development, operations, and maintenance activities. This Plan component provides a framework for meeting the community’s park and recreation needs a variety of recreational resources currently exists within the City of West Saint Paul, including County, school district, City and private facilities. The West Saint Paul Park and Recreation Advisory Committee and the City Parks and Recreation Director serve as advisors to the City Council in park related matters including; capital expenditures, park operation and maintenance.

Table 8-1 lists each facility according to functional classification and identifies size, ownership, and activities currently available. MAP 8-1 shows the location of each facility. City parkland and recreation space total 358 acres. Other public and quasi-public properties add another 184 acres to the total available land. Special use facilities including Dodge Nature Center, the municipal ice arena, and the West Saint Paul Sports Complex account for a majority of this land. Public and private school facilities total 76 acres. The City enjoys a cooperative relationship with the public and private schools relative to joint use of recreational facilities.

TABLE 8-1 PARK AMENITIES

Park Amenities

Map Guide		Acres	Picnic Shelters	Picnic Tables	Grills	Playgrounds	Trail Area	Nature Areas	Tennis Court	Volleyball	B-Ball/S-Ball Fields	Soccer Fields	Basketball	Disc Golf Course	Horseshoe Pit	Batting Cages	Hockey Ice Rinks	Pleasure Rink	Warming house	Splash Pad	Community Room
1	Kennedy Park 744 Dodd Road	2		●	●	●															
2	Albert Park 991 Dodd																				
3	Dodd Park 1010 South Smith	1		●	●	●												●	●		
4	Harmon Park 1028 Charlton	7	●	●	●	●	●				●					●	●	●	●	●	●
5	Emerson Park 1024 Gorman	1		●		●			●		●		●								
6	Oakdale Park 1035 Oakdale	1.5	●	●	●	●															
7	Haskell Park 975 Sperl	4		●		●			●		●						●	●	●		
8	Orme Park 370 West Orme	2															●	●	●		
9	Swimming Pool Park 92 West Orme	5		●		●															
10	Mud Lake Park Galvin & Moreland	8						●													
11	Weschcke Park 360 Runge Lane	5.5		●	●	●	●		●				●					●	●		
12	Marthaler Park 1625 Humboldt	34	●	●	●	●	●	●	●	●			●								
13	Sports Complex 1650 Oakdale	20	●	●	●	●	●				●	●			●	●					
14	Garlough Park Marie & Charlton	23	●	●	●		●	●						●							
15	Southview Park 275 Westview	5.5	●	●	●	●	●		●		●		●					●	●		

** Thompson Park Activity Room can be reserved thought the City of West St. Paul Recreation Department
*** Thompson County Park shelters can be reserved through Dakota County

County Parks

Thompson County Park is classified as a "Community Park" because of its function in the City. Dakota County acquired most of the 57-acre facility in 1976, including about six acres owned by the City. The park is named for Thompson Lake, a development free 10-acre lake which has retained its natural setting. Land features include a mixed hardwood forest, grasslands and cattail marsh as well as rolling upland terrain. Facilities include: a large restroom building with connected picnic shelter, meeting/activity center building, hiking and cross-country ski trails, small day camp area, boardwalk trail, fishing pier, and a pedestrian/bicycle overpass of TH52 connecting to Kaposia Park.

City Parks

The City Park and Recreation Director indicates that developed parkland is not evenly distributed throughout the City. As there is little opportunity to acquire additional parkland within the City limits, the need for both access and appropriate development of existing park space is paramount. A priority for the City would be to develop its currently undeveloped and underdeveloped community and neighborhood parks, and to develop additional playfield/court facilities as well. Realistically this requires an agreed upon set of priorities, workable and understandable set of community recreational goals and objectives, and a complimentary capital improvements program. This is best achieved through a Comprehensive Park and Recreation Plan, which evaluates neighborhood parkland needs and correlates those needs with master park plans.

To that end, the City developed a City-wide Parks Master Plan in August of 2000. The Master Plan created goals, policies, and a development plan that the City follows today. Following the City-wide Master Plan, individual park plans were developed for Harmon and Marthaler Parks along with a plan for the Sports Complex. An addition of almost 5 acres was added to the Sports Complex along with a new playground, parking improvements, improved drainage, and other amenity improvements.

Additionally, in 2004 the City acquired approximately four acres of property adjacent to Harmon Park. The property, formerly owned by the Wolter's family, was used in a redevelopment/expansion of Harmon Park. A new community building, warming house, concession building, little league fields, splash pad, and playground were part of the redevelopment. A partnership with the school district was also developed for Harmon Park.

CAPITAL IMPROVEMENT PROGRAM

Park Development

West Saint Paul annually budgets approximately $100k in expenses for Park Capital Improvements. This includes replacement of play structures, ball field improvements, and small trail improvement projects. This amount is funded annually through the City's Park Dedication Fund and general tax levy. For major improvements, the City anticipates Park Referendums to upgrade the City's existing parklands.

WHAT WE HEARD

Neighborhood meetings were held at the beginning of the planning process that allowed residents to discuss a variety of things that they would like to preserve and change about the City. Some consistent responses, as shown in FIGURES 8-1 through 8-4, highlight the importance for parks and open space. Residents rate the quality of existing parks and trails “very good” which represents a great maintenance program and ownership by the City. When focusing on the future of the City, equal if not a higher precedence is placed on the importance of parks and open spaces. The City should continue to maintain and improve its parks and trails to provide an ongoing amenity to its residents with additional focus on increasing the amount of safe connections for people walking, biking, or other non-motorized means of transportation.

FIGURE 8-1

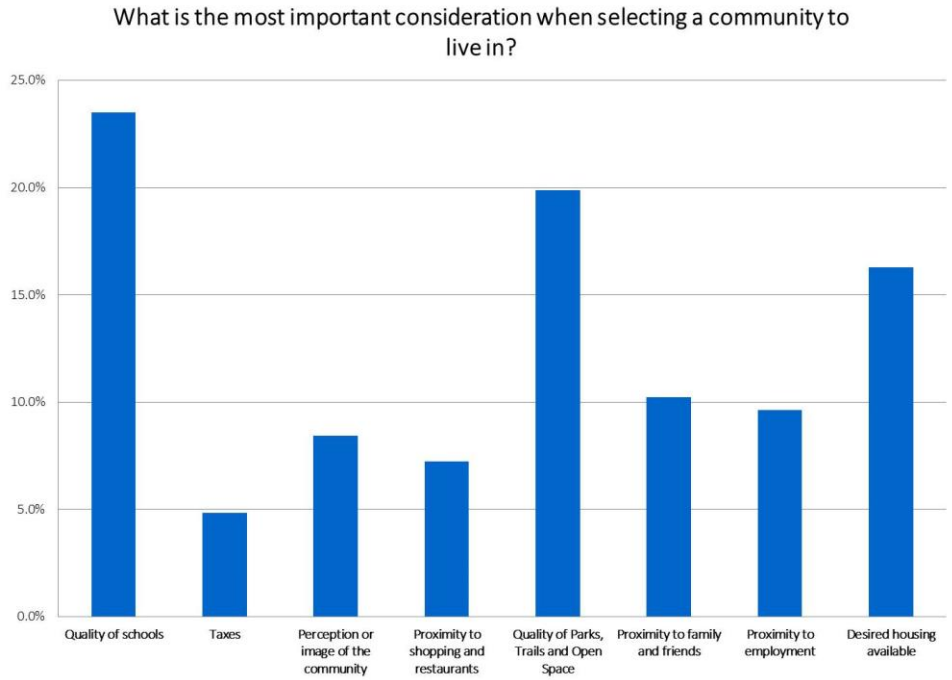


FIGURE 8-2

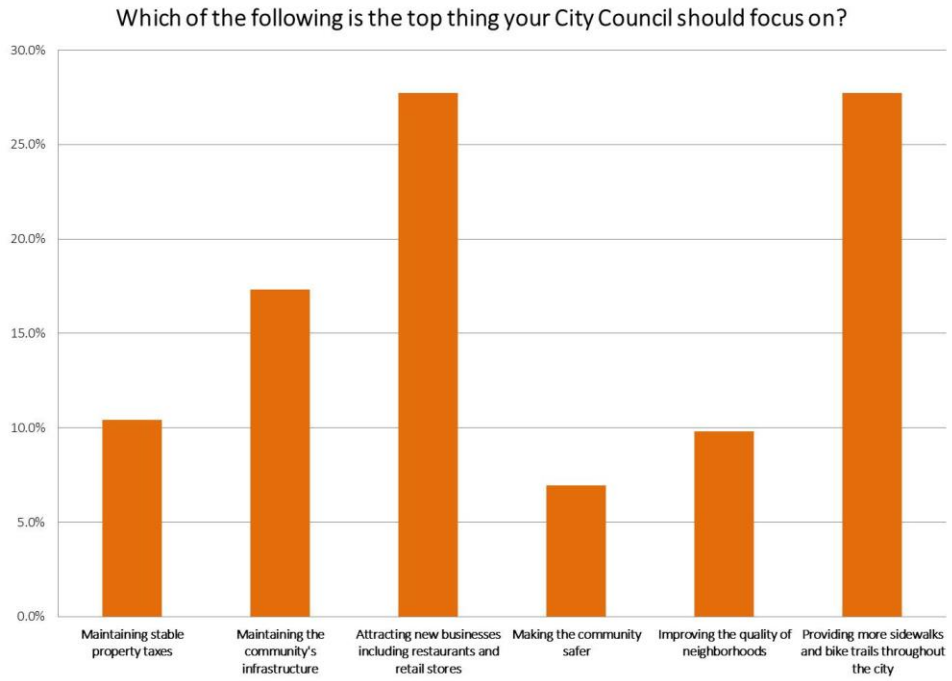


FIGURE 8-3

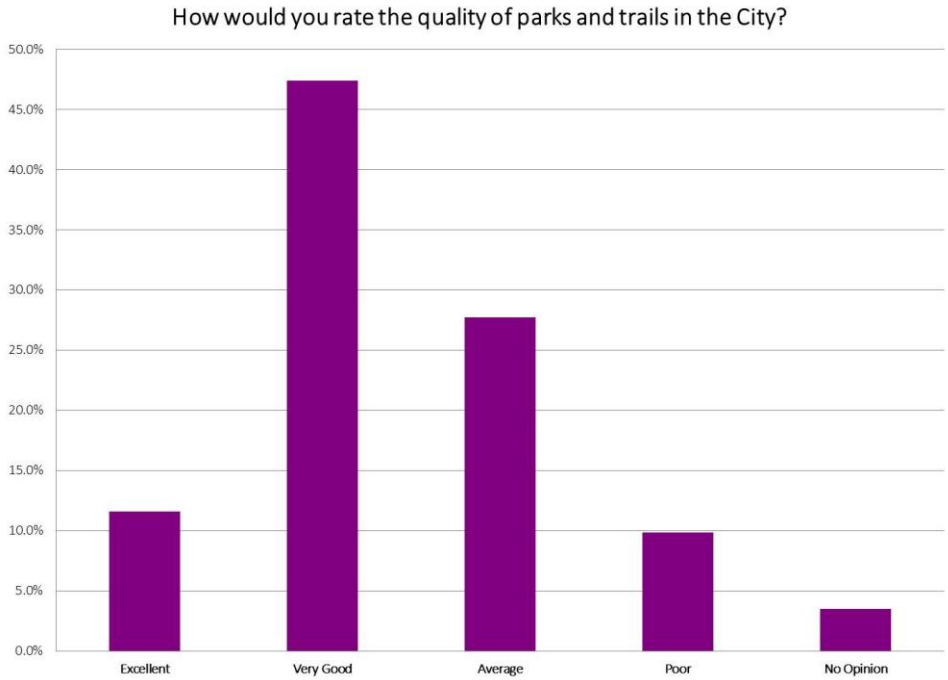
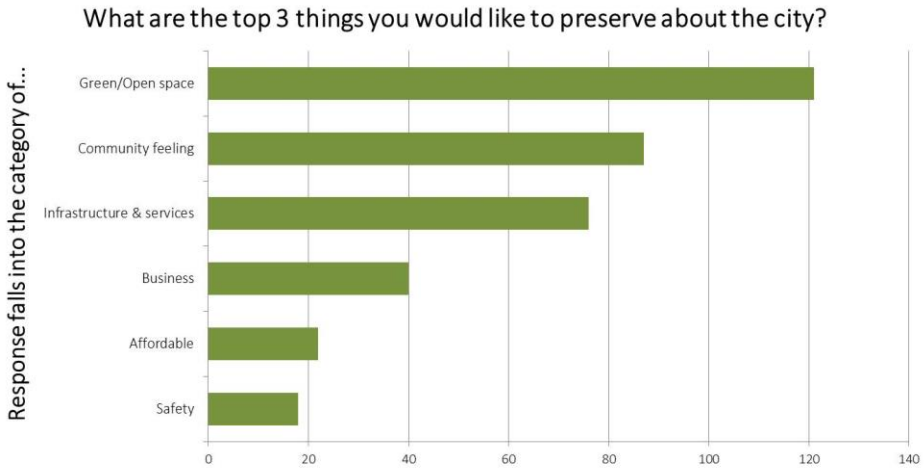
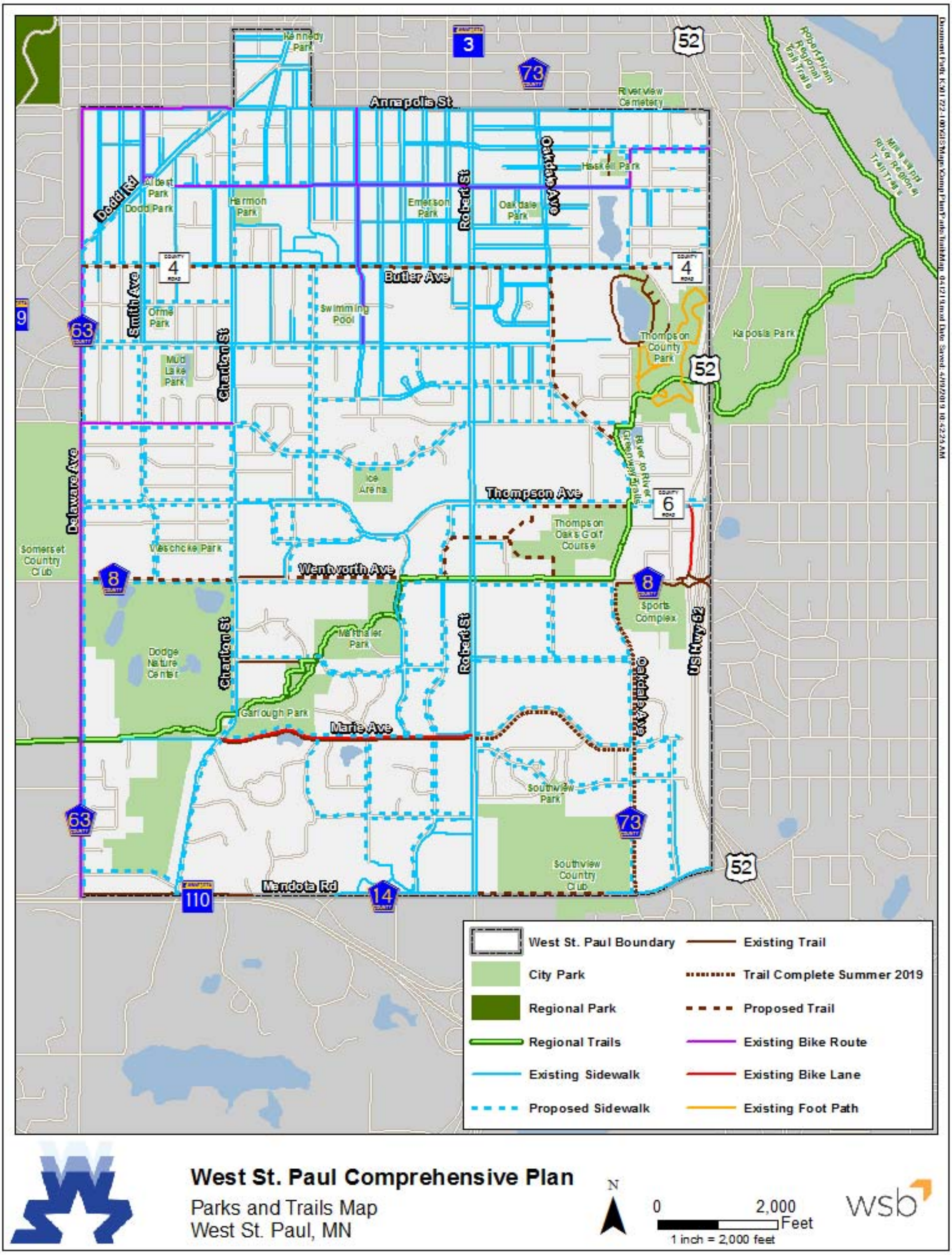


FIGURE 8-4



MAP 8-1: PARKS AND TRAILS MAP



CHAPTER NINE: SUSTAINABILITY

INTRODUCTION

Sustainability means protecting regional vitality for future generations by preserving our capacity to maintain and support our region's well-being and productivity. Sustainability is identified in *Thrive MSP 2040* as one of the Metropolitan Council's five key outcomes for the region to accomplish over the next decades. West St. Paul is known for its beautiful neighborhoods, a successful business and industrial sector, and stable institutions while preserving its natural resources. Much of West St. Paul is built out, but the city has retained natural features such as parks, recreational areas, and preserves. As indicated in the community's vision, West St. Paul "strives to insure a safe, pleasant, and affordable environment" and has set a goal of:

Encouraging sustainable development and best management practices to protect the environment for future generations.

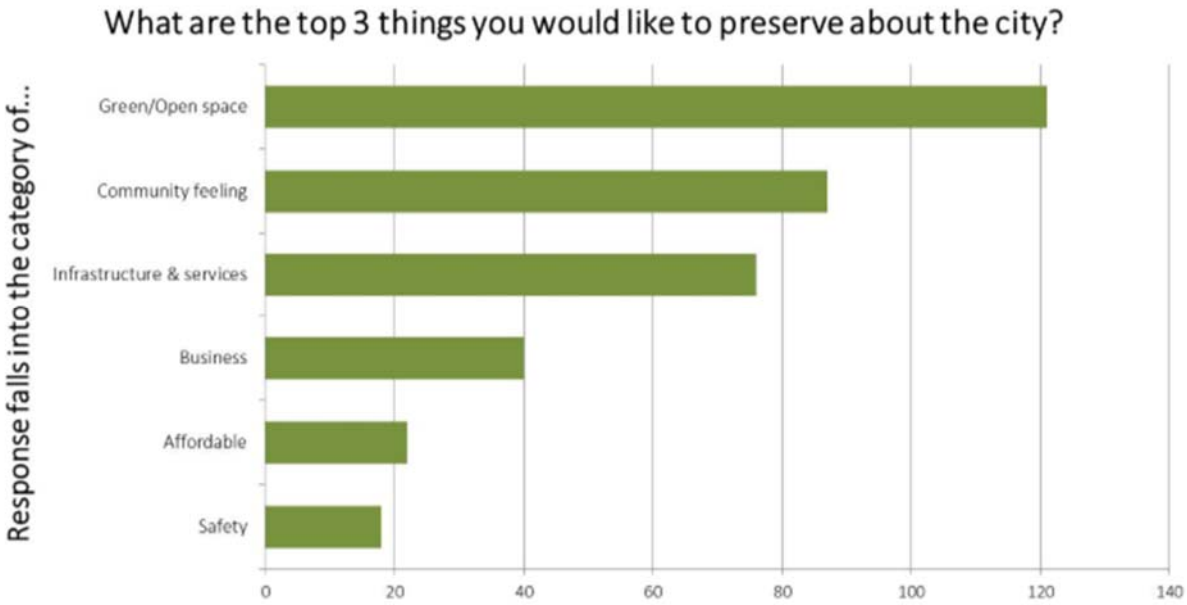
There are many considerations that can be made when planning to integrate sustainability within the community. Topics revolve around healthy communities, energy and renewable resources, infrastructure, environmental assets, economy, and society. This chapter discusses the sustainability practices that the City is currently implementing and incorporates several new goals and strategies that will guide the City to achieving sustainability.

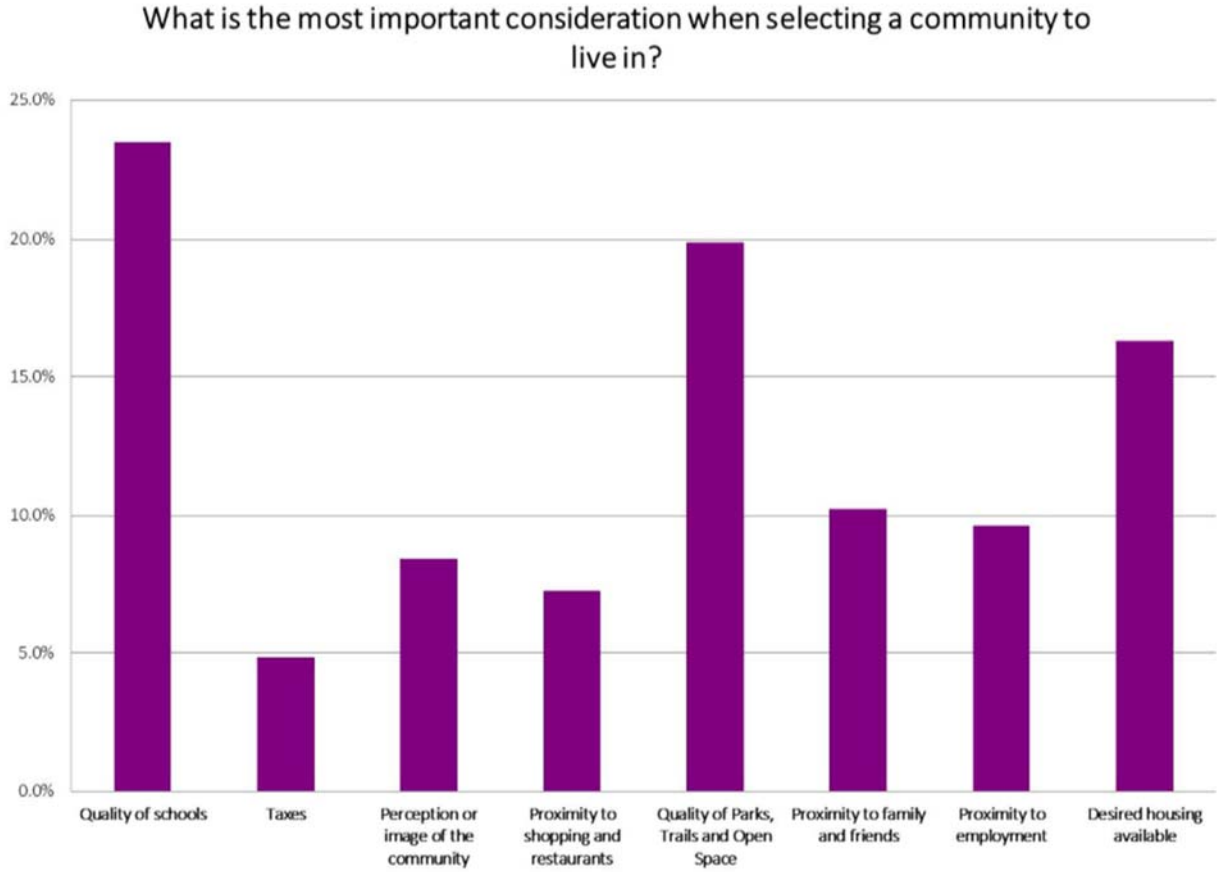
WHAT WE HEARD

During the series of neighborhood meetings held at the beginning of the planning process, residents discussed many things that they would like to preserve and change about the City that relate to the topic of Sustainability.

When asked what they would like to preserve about the city, the top response by far was green space and/or open space. Parks and natural areas were most often discussed as a treasured amenity by residents.

The quality of parks, trails and open spaces were also the second most important consideration cited by residents when considering a community to live in. Residents stated that the parks and trails in the City were generally in very good condition, but also ranked providing more sidewalks, bike trails and non-motorized connections throughout the City as the top item that the City Council should focus on.


What are the top 3 things you would like to preserve about the city?
Response falls into the category of...
Green/Open space
Community feeling
Infrastructure & services
Business
Affordable
Safety
0
20
40
60
80
100
120
140


What is the most important consideration when selecting a community to live in?
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Quality of schools
Taxes
Perception or image of the community
Proximity to shopping and restaurants
Quality of Parks, Trails and Open Space
Proximity to family and friends
Proximity to employment
Desired housing available

NATURAL FEATURES

Additional information about natural features of West St. Paul is also included in Chapter 3 - Community Profile.

Pre-settlement Environment

As described by the Department of Natural Resources Ecological Classification System, West St. Paul is located within the Eastern Broadleaf Forest Province which serves as a transition zone between prairie lands and mixed conifer-deciduous forest. The pre-settlement vegetation of the northern portions of the City were mapped as oak openings and barrens, and the southern portion of the City was mapped as big woods – hardwoods such as oak, maple, basswood, and hickory according to the public land survey by Francis Marschner in 1930. Today, most of the City is urbanized and natural features are retained within public open spaces. According to the Minnesota Biological Survey, there are no sites of biodiversity significance within the city. Knowledge of the historic ecosystem of the area is important when protecting and preserving new or existing open spaces within the community. Having an understanding of the ecology of the area prior to development allows the city to make informed decisions about native vegetation management, selection of plantings, preparing for climate change, and invasive species management.

Lakes, Streams, and Wetlands

Approximately 37 acres of open water is located within West St. Paul. According to the National Wetlands Inventory, there are several wetland features concentrated near the southwest and northeast portions of the City. Surface water features are described in detail in the Local Surface Water Management Plan (LSWMP). No DNR Public Water watercourses are located within the City. Major DNR Public Waters waterbodies and wetlands include:

- Thompson Lake (DNR PWI No. 19004800 W)
- Marthaler Pond (DNR PWI No. 19009100 P)
- Dodge Center Pond (DNR PWI Nos. 19008600 P, 19008700 P, 19008900 P)
- Lily Lake (DNR PWI No. 19008400 W)
- Mud Lake (DNR PWI No. 19008500 W)

Rare Features

The DNR Natural Heritage Information System revealed that the following rare features may occur within the city:

- Milk snake (*Lampropeltis Triangulum*)

- Blanding's turtle (*Emydoidea blandingii*)

Sustainability Assessment

A sustainability assessment was prepared for the City of West St. Paul in March 2010 by the Minnesota Pollution Control Agency's (MPCA) Climate Change Corps. This Assessment summarizes key elements of sustainability and describes the environmental and economic urgency of planning for climate change and peak oil issues. A copy of the West St. Paul Sustainability Assessment can be found on the City's webpage. The Sustainability Assessment focuses on four concepts that develop a framework for achieving a sustainable community:

1. **The Precautionary Principle:** When an activity raises threats of harm to the environment or human health, precautionary measures should be taken, even if some cause and effect relationships are not fully established scientifically.
2. **The Commons:** The commitment to protect that which is held in common by the public from exploitation, abuse, and degradation.
3. **Environmental Externalities:** Considers the cost of environmental deterioration that is not accounted for in economic performance.
4. **Importance of Local Self-Reliance:** Reduce global dependence for material, economic, cultural, psychological needs, and rather focus on increasing local production and economy.

Environmental Committee

West St. Paul has appointed an environmental committee responsible for providing residents with opportunities to bring a comprehensive perspective to greening, sustainability, and beautification. This role includes improving the quality of the environment and adding to the beautification and aesthetics of the City. The environmental committee has assisted the City in past and current sustainability efforts and has focused on topics including:

- Discussing climate change and possible City resolutions.
- Recycling outreach and promoting recycling in apartments.
- Encouraging tree planting.
- Promoting Tree City USA.
- Environmental updates in the City newsletter.
- Establishing a Pollinator City Resolution.
- Supporting an Emerald Ash Borer Management Plan.
- Investigating becoming a Bee-Safe city.
- GreenStep Cities program.

SUSTAINABILITY PLANNING

Healthy Community

Developing a healthy community involves engaging a broad spectrum of people including citizens, government, and local businesses. Fostering a healthy community is an important step in developing local self-reliance through strategies that focus on food availability, trails and greenways, and advocating for active living lifestyles. West St. Paul prioritizes the health and welfare of its residents and focuses on improving the health of the community. For example, the City's Robert Street Renaissance Plan provides central gathering spaces and trails that form a green connection linking Dakota County's North Urban Regional Trail, Marthaler Park, and the Dodge Nature Center. As a part of future city planning, a focus on healthy lifestyles can be reflected in: vehicle fleets, purchasing methods, park and trail access, access to multi-modal transportation, availability of health food, walkability of the community, housing, waste and recycling services, encouraging local food resources, and promoting the Dakota County organics recycling program.

Energy and Renewable Resources

Energy planning plays a critical role in communities reaching their own sustainability goals. With the lingering threat of climate change, reductions in energy-related greenhouse gas emissions and reductions in energy consumption are important considerations that the City should investigate.

Climate Change Implications: *extreme weather event clean-up and reconstruction, adverse effects on plant and wildlife habitats, threats to food and water supplies, management of snow and ice, temperature fluctuation, invasive plant and insect control, removal and replanting of trees, heat island effects, etc.*

It is helpful to understand the City's baseline energy consumption and emissions in order to set achievable goals and strategies related to energy. A variety of energy data and energy planning tools and services are available to assist communities in developing baseline data, goals, and strategies, such as through the GreenStep Cities Program. Energy-related greenhouse gas emissions influence climate change which produces risks that may be detrimental to a community if not properly planned for.

West St. Paul can focus on reducing greenhouse gas emissions and reducing energy consumption at various levels throughout the community such as: Residential Focus, Business & Institutional Focus, Transportation and Land Use Focus, and Renewable Energy Focus. Energy considerations in each of these categories are shown in TABLE 9-1.

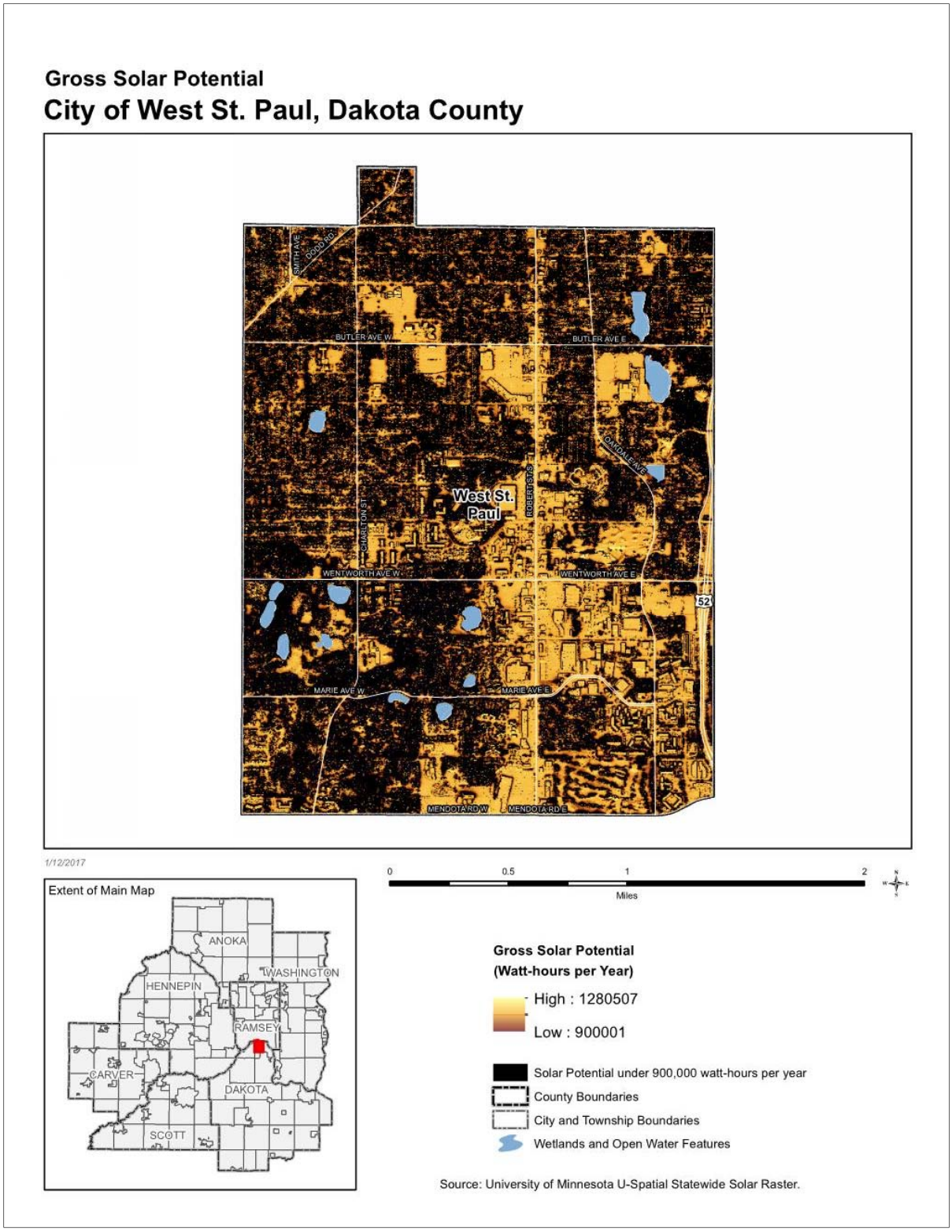
TABLE 9-1: AREAS OF FOCUS AND CONSIDERATIONS FOR ENERGY CONSERVATION AND REDUCTION

Focus	Considerations
Residential	Education campaigns that target low-income households and students, recycling, efficient appliance incentives, LED lightbulbs, composting, native plant sales, cost-share opportunities.
Business and Institutional	Energy-efficient construction and demolition incentives, hosting energy workshops, lighting upgrades, encourage renewable energy subscription.
Transportation and Land Use	Bicycling and walking trails, green transit, fuel efficient vehicles, electric vehicle plug-ins, open space retention, green infrastructure, urban forests, connectivity, shared parking to reduce impervious.
Renewable Energy	Explore solar ordinances, encourage renewable energy subscriptions, educate residents on options

Given that West St. Paul is largely urbanized with little access to large open spaces, it will be important for the City to prioritize energy conservation, reductions, and efficiency through retrofits or focusing on sustainable development and use of space. Considerations should also be made regarding renewable resources within the community. Solar development can bring environmental and economic benefits to a community through clean energy production, creation of local revenue, and improved property values. The Metropolitan Land Planning Act requires that this comprehensive plan shall contain "an element for the protection and development of access to direct sunlight for solar energy systems" (Minn. Stat. 473.859). The City has included this element in the "Intent and Purpose" section of their zoning chapter.

An analysis of West St. Paul's solar energy capacity, based on exposure to sunlight, indicates that the City does have solar resources available for alternative energy production. The estimates are based on the total potential resources in the community and it is estimated that West St. Paul has a Gross Generation Potential of 588,484 Mwh/yr and a Rooftop Generation Potential of 97,045 Mwh/yr (Map 9-1). Overall, it will be important for the City to implement energy related conservation goals and assess its vulnerabilities in the face of climate change.

MAP 9-1. GROSS SOLAR CAPACITY THAT COULD PRODUCE 588,484 MWH/YR OF ELECTRICITY WITH CURRENT TECHNOLOGY



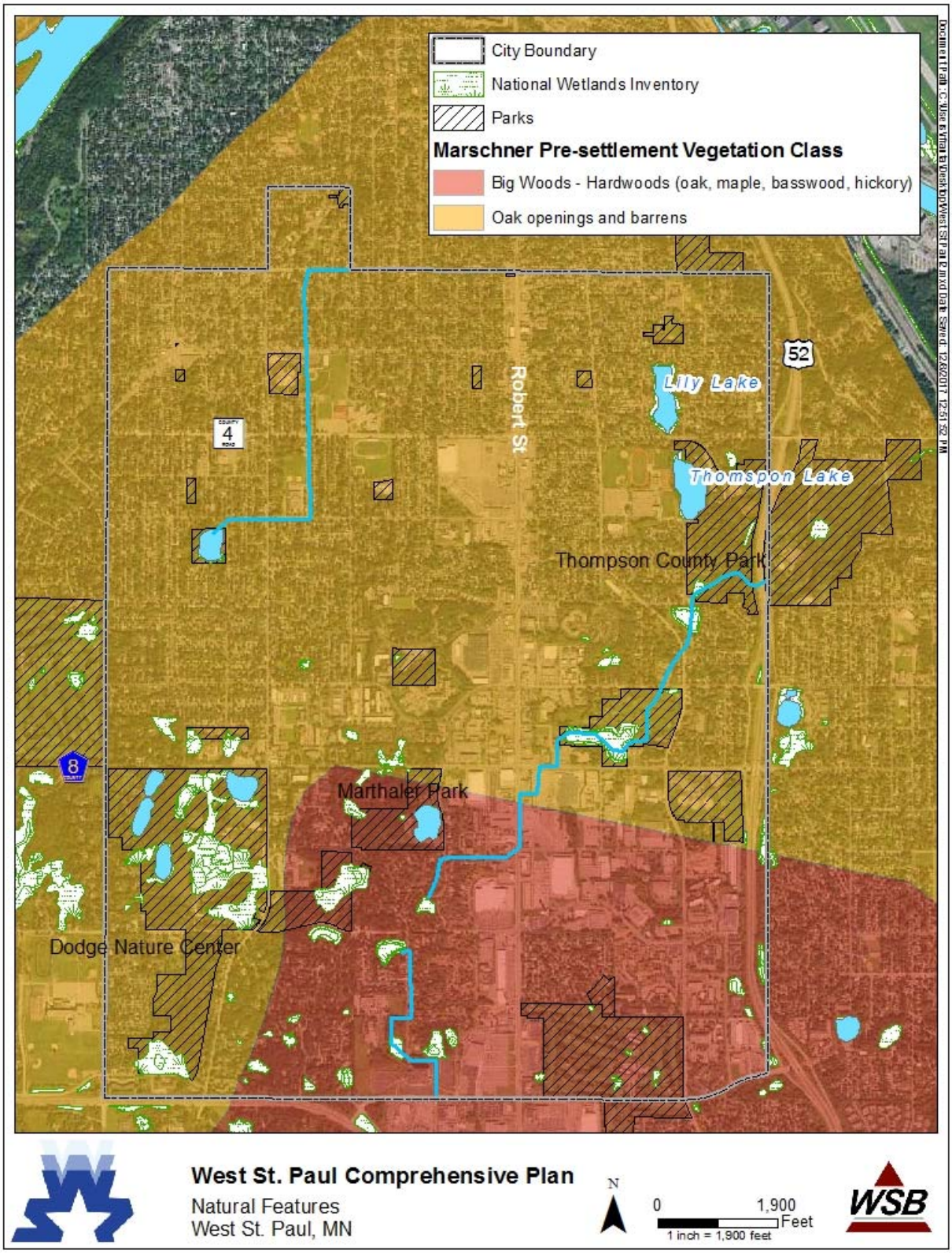
Source: Metropolitan Council

Environmental Assets and Infrastructure

Sustainability topics associated with surface and groundwater, transportation, and efficient wastewater facilities are included in their subsequent chapters of this comprehensive plan update or within the City's Local Surface Water Management Plan. The GreenStep Cities program will help West St. Paul complete sustainability goals related to infrastructure and air quality.

West St. Paul was historically populated by hardwood forest, such as oak, maple, basswood, and hickory (MAP 9-2). Today, much of the City is developed but areas like Dodge Nature Center, Garlough Park, Marthaler Park, Thompson Park and other open spaces within the City provide opportunities to preserve, protect, and enhance the natural environment. Balancing community infrastructure development with sustainable practices and natural resources preservation can be difficult when a community is fully developed and natural space is limited, but focus on incorporating green infrastructure in development and redevelopment will be important as the community continues to grow.

MAP 9-2: NATURAL FEATURES WITHIN WEST ST. PAUL



West St. Paul has begun to enhance its natural resources by protecting areas like Dodge Nature Center which includes prairies, hardwood forests, lakes, and wetlands. These resources are extremely valuable for both functional and aesthetic purposes. For example, wetlands serve as natural storm water retention areas during runoff periods, but they also serve as natural habitats for numerous species of plant and animal life. In general, nature has a positive influence in residential areas and promotes healthy living. This combination of functional as well as aesthetic values can be applied to most other environmental resources, including wooded areas, water resources, and open spaces. In a City that is largely developed, it is important that new development and redevelopment focuses on preserving and protecting the natural environment.

Planning for future development should consider native vegetation as a type of infrastructure that is just as important as the other components of a development. Urban forests are becoming increasingly important because they provide shade to reduce heat island effect, shield from snow drifts, produce oxygen and sequester carbon, produce biomass for fuels, provide aesthetic and calming values, increase habitat for wildlife, and increase real estate values. The planting of a diversity and age range of native trees will increase the urban forest and protect trees against threats of disease and invasive pests. A focus on creating green spaces with native vegetation plantings will also be important to support local pollinators. Pollinators support biodiversity and the production of foods, fibers, oils, and medicines. The greatest support for the pollinators is to plant as much habitat as possible to create areas for feeding and lifecycles. Climate change will cause changes to the weather, and will increase threats from storms, heat, disease, and invasive species. It will be imperative to plan for these changes into the future by developing or amending ordinances or zoning codes that increases tree preservation and native plantings.

The City has been proactive against the physical and fiscal costs of Emerald Ash Borer by developing an Emerald Ash Borer Management Plan in 2015. The loss of ash trees in West St. Paul is devastating to the home values, aesthetics, and the environment. The Plan provides a framework for the City to address the issues of affected ash trees and a guide for the reforestation of the City. The City has also passed a resolution supporting pollinators and pollinator habitat. This resolution indicates the City's interests in becoming a Bee-Safe City, refraining from the use of synthetic pesticides, focusing on native flower plantings, designating Bee-Safe areas within the City, and educating residents about the importance of pollinator habitat.

The City supports development and redevelopment that has a low impact on the environment. New development and redevelopment is required to meet the Stormwater Management Ordinance to improve water quality and effective conservation of the community's water resources. Low impact forms of

stormwater management may include buffer strips, rain gardens, infiltration ponds, and drainage swales. Further information regarding the City's stormwater management and sustainable surface water management are included in the City's Local Surface Water Management Plan. New developments are encouraged to consider sustainable green building design, conserve valuable energy and environmental resources, and protect air and water quality for future generations. The Leadership in Energy and Environmental Design (LEED) program can help guide the creation of municipal programs that facilitate the community-wide application of sustainable design practices.

Economy and Society

Climate change poses a substantial threat to the health, prosperity, and security of the community. Climate change can lead to extreme weather event clean-up and reconstruction; adverse effects on plant and wildlife habitats; threats to food and water supplies; management of snow and ice; temperature changes for the City and residents; invasive plant and insect control and removal or replanting of trees; and human health concerns such as new diseases or sicknesses. It will be important to consider climate resiliency in City planning, policy making, budgeting, operations, renovations, and development. Input from residents who would be most affected by climate change (vulnerable populations such as low-income families, minorities, handicapped, etc.) will become increasingly important to develop local sustainability. Preparation and planning for these extreme changes will allow the City to preserve and protect the beauty, economy, and reputation that has been established and highly regarded.

GOALS AND STRATEGIES

Implementation strategies for each goal provide a road map for the community to follow in order to protect the environment for future generations.

Healthy Community

Goal: West St. Paul supports the health and welfare of its residents.

Strategies:

- Develop policy or actions that minimizes the production of waste and increases recycling, composting, and reuse.
- Consider implementing incentives that encourage local businesses or residents to participate in sustainable practices.
- Work with the Environmental Committee to develop specific healthy community initiatives and strategies.

- Support and encourage local food access by focusing on food proximity, prevalence, types, sources, and reliability of sources.
- Evaluate the possibility of an organized solid waste collection program

Energy and Renewable Resources

Goal: West St. Paul actively focuses on energy conservation and energy-related emissions reductions as the community plans for the future.

Strategies:

- Establish zoning ordinances that allow for rooftop solar.
- Consider offering incentives to residents and local businesses for subscribing to renewable energy resources.
- Protect access to direct sunlight for solar energy systems.
- Consider the use of renewable energy on municipal buildings.
- Develop an education campaign for residents regarding energy conservation and renewable energy resources.
- Develop a plan to upgrade all municipal buildings to energy-efficient lighting and appliances.
- Encourage residents and businesses to use energy-efficient appliances and recycle old appliances.
- Investigate pursuing a greenhouse gas emissions and energy consumption baseline analysis of West St. Paul to assist in developing reductions goals.
- Consider developing an energy-related greenhouse gas emissions reduction goal.
- Consider incentives for LEED certified or other energy-efficient buildings

Environmental Assets and Infrastructure

Goal: West St. Paul incorporates sustainable practices in new development, renovations, and in the management of open spaces to preserve natural resources and to maximize green infrastructure.

Strategies:

- Continue the GreenStep Cities program.
- Identify locations in the City to plant with pollinator habitat such as prairie grasses and native forbs.
- Encourage the planting of a variety of native species and ages of trees in public spaces that are representative of the ecoregion and that will increase biodiversity and resilience against tree pests and diseases.

- Take a proactive approach to mitigating the spread of Emerald Ash Borer and other threats to the urban forest as described in the City's Emerald Ash Borer Management Plan; update the plan as necessary.
- Consider developing a Natural Resources Inventory (NRI) to identify natural resources that should be preserved, enhanced and protected within the City.
- Prioritize the removal of invasive plant species from public open spaces.
- Investigate and/or apply for grant funding to support restoration and enhancement of natural areas and water resources within the City.
- Implement best management practices in the use of plantings and pesticides in all public spaces within the City.
- Encourage residents to plant native trees to increase the urban forest.
- Explore the development of impervious surface standards for new developments

Economy and Society

Goal: West St. Paul incorporates resiliency into planning, policy, and community decisions to plan for climate change and crisis.

Strategies:

- Integrate climate resiliency into planning, policy, operations, and budgeting processes.

CHAPTER 10: WATER SUPPLY

The City of West St. Paul's public water is supplied by St. Paul Regional Water Services (SPRWS), and the City of St. Paul owns and operates the entire system. The SPRWS Water Supply Plan, which follows the guidelines established by the Metropolitan Council and the Minnesota Department of Natural Resources (DNR), is included with this report by reference.

The SPRWS water supply system includes several pumping stations which draw raw water from the Mississippi River, Vadnais Lake, or other emergency sources; a water treatment plant which can treat up to 144 million gallons of water per day; a total storage capacity of 131 million gallons; and nearly 1,200 miles of watermain which deliver water to over 90,000 connections. The quality of the water supply is safeguarded by the Upper Mississippi River Source Water Protection Project (UMRSWPP), a collaboration between the cities of St. Paul, Minneapolis, and St. Cloud. The City coordinates with the Dakota County Health Department to identify and implement wellhead protection measures for local wells.

A map of the surface water features and their interaction with the regional groundwater system is shown in FIGURE 1, a map of the groundwater level monitoring and aquifer testing locations is shown in FIGURE 2, and a map of the local regulatory and management areas is shown in FIGURE 3.

FIGURE 1: SURFACE WATER FEATURES

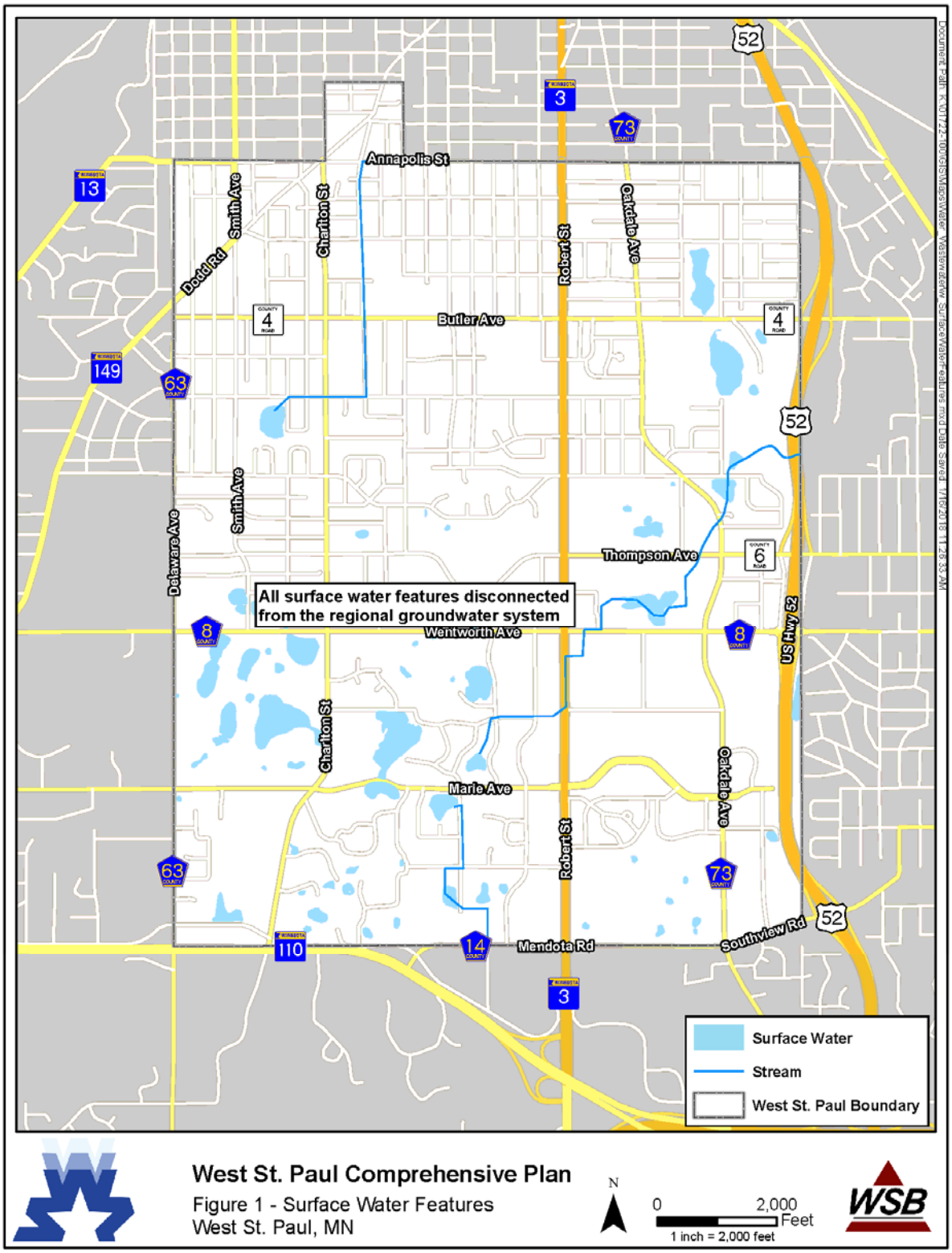


FIGURE 2: GROUNDWATER MONITORING AND AQUIFER TESTING

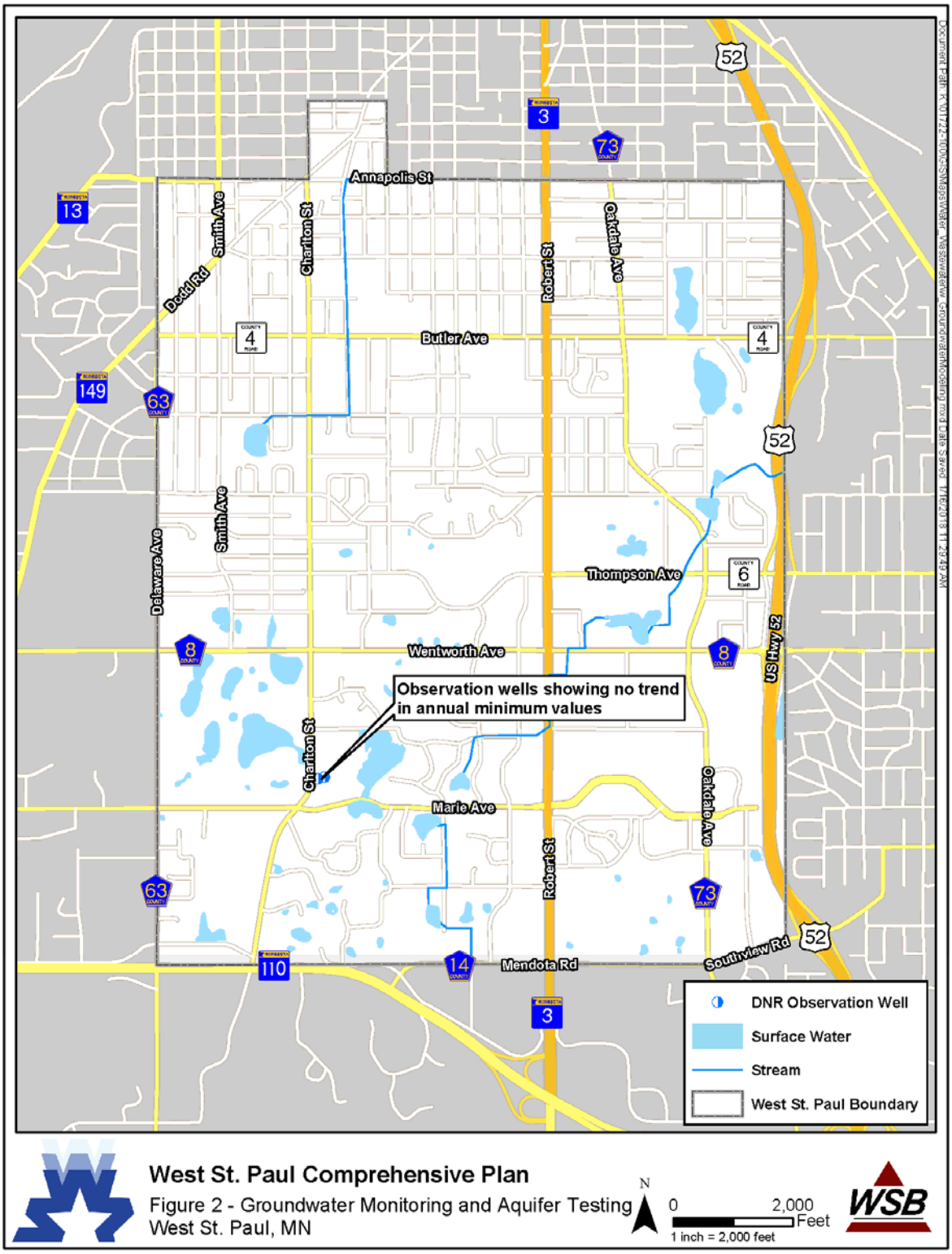
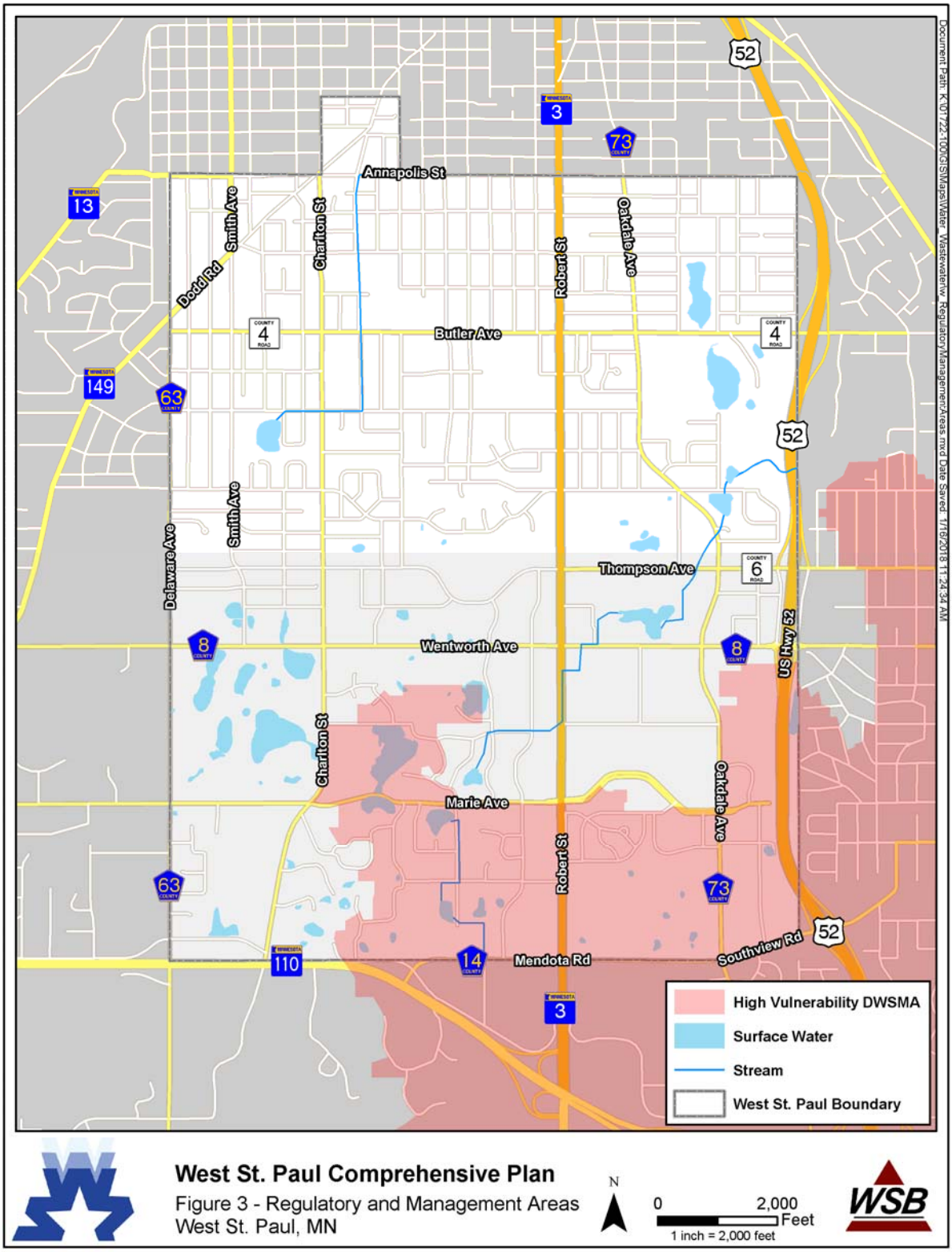


FIGURE 3: REGULATORY AND MANAGEMENT AREAS



CHAPTER 11: SANITARY SEWER

EXECUTIVE SUMMARY

Introduction

The City of West St. Paul's Comprehensive Sanitary Sewer Plan describes the existing sanitary sewer system and outlines the timing and sequence of future improvements. The Sanitary Sewer Plan allows the City and the Metropolitan Council to build and improve their sanitary sewer collection and treatment systems in the most efficient and cost-effective manner.

Existing System

West St. Paul's sanitary sewer system currently consists of approximately 63 miles of sanitary main, six lift stations, and 15,600 feet of forcemain. The City's sanitary sewer system collects and conveys wastewater to three Metropolitan Council Environmental Services (MCES) meters (M056, M057, and M058) and gravity interceptors (1-SP-241, 1-SP-236, and 1-SP-230 respectively), and ultimately to the MCES Metropolitan Wastewater Treatment Plant (WWTP) located southeast of St. Paul on the Mississippi River.

Population and Flow

The population of the City of West St. Paul has increased slightly over the last ten years. The wastewater flow generated in the City has fluctuated from year to year, likely due to yearly climate conditions. Over the last five years, the City has generated an estimated average wastewater flow of 2.14 million gallons per day (MGD).

Growth and Flow Projections

The Metropolitan Council projects that the City of West St. Paul's population will increase slightly over the lifetime of this Plan, and that its average wastewater flow will follow a similar trend. In contrast, this Sanitary Sewer Plan considers each parcel of potential redevelopment and potential flow increases from that redevelopment to plan for required infrastructure. Therefore, the projected 2040 average flow of 2.63 MGD in this report is greater than the MCES projection.

Proposed Improvements

The City of West St. Paul is largely built out, so the improvements to its sanitary sewer system consist primarily of maintaining the existing infrastructure. The City

completes annual sanitary sewer maintenance and rehabilitation projects, often in conjunction with its street improvements projects. The City also plans to upgrade or rehabilitate several of its lift stations and forcemains over the next five years, as detailed in the Cost Estimates and Financing section.

INTRODUCTION

The Sanitary Sewer Plan describes the City of West St. Paul's existing sanitary sewer system, projects future wastewater flows through the year 2040, and identifies the improvements that will be necessary to satisfy future flows. The Sanitary Sewer Plan allows the City and the Metropolitan Council to build and improve their sanitary sewer collection and treatment systems so that development can occur in the most efficient and cost-effective manner.

As a result of projected population increases and land use changes in West St. Paul, the Metropolitan Council estimates that sanitary sewer flows will increase approximately 1.5% between now and 2040. This Sanitary Sewer Plan outlines the locations in which the Metropolitan Council can expect to see increased wastewater flows, allowing the Council to determine if capacity upgrades will be required at regional wastewater treatment plants and interceptors. This plan also serves as a guiding document for City infrastructure improvements and expansion.

Sanitary Sewer Policy

1. The City of West St. Paul is in agreement with the Metropolitan Council's population, housing, employment, and wastewater flow projections through the year 2040.
2. The City of West St. Paul will implement the inflow and infiltration (I/I) reduction activities outlined in the 2016 Memorandum of Understanding between the City and the Metropolitan Council.
3. No new development will be permitted in the City unless connection to the central sewer system is available and utilized.
4. All existing on-site sewer systems will be converted to connection to the central sewer system when the need for reconstruction arises.
5. The City has adopted MN Rules 7080 and Dakota County Ordinance 113 by reference to regulate the City's remaining on-site septic systems.

Community Setting

The City of West St. Paul is located in Dakota County, immediately south of St. Paul. Clockwise from St. Paul, it is also bordered by South St. Paul, Inver Grove Heights, Sunfish Lake, and Mendota Heights. The City includes a mix of single-family, multi-family, mixed use, commercial, industrial, and institutional land. Approximately 2% of the area of the City is occupied by lakes and rivers.

EXISTING SANITARY SEWER SYSTEM

Public Collection System

The City of West St. Paul's existing sanitary sewer system collects and conveys wastewater to three Metropolitan Council Environmental Services (MCES) meters (M056, M057, and M058) and gravity interceptors (1-SP-241, 1-SP-236, and 1-SP-230 respectively). In addition, wastewater from portions of north West St. Paul flows unmetered into the St. Paul network and MCES Metershed M001. A map of the existing sanitary sewer system is shown in FIGURE 11-1, and a map of the MCES metersheds is shown in FIGURE 11-2.

The wastewater generated in the M057, and some areas of the unmetered and M056 metersheds flows north by gravity. The wastewater generated in the south portion of M056 is pumped north by the Ruby Lift Station. The wastewater generated in the west section of the unmetered metershed is pumped north by the W Emerson Lift Station. The wastewater generated in M058 is conveyed north by a combination of gravity main and forcemain, including four lift stations (HWY 110, Mendota Rd, Lafayette Oaks, and E Emerson Lift Stations). The locations and capacities of the existing West St. Paul lift stations are listed in TABLE 11-1 and shown in FIGURE 11-1.

TABLE 11-1: EXISTING LIFT STATION SUMMARY

No.	Name	Location	Year Installed	Year Rehabilitated	Total Capacity (gpm)	Firm Capacity (gpm)
1	E Emerson	E Emerson Ave and Sperl St	1964	-	9,300	6,200
2	Lafayette Oaks	Christensen Ave and Westview Dr	1966	-	50	25
3	Mendota Rd	Mendota Rd and Livingston Ave	1966	2016	700	350
4	HWY 110	Delaware Ave and MN 110	1964	-	1,400	700
5	W Emerson	Delaware Ave and W Emerson Ave	-	2016	1,000	500
6	Ruby	Smith Ave and Ruby Dr	1956	2016	1,000	500

All wastewater collected in the City of West St. Paul is conveyed through the MCES system to the MCES Metropolitan Wastewater Treatment Plant (WWTP) to the northeast of the City on the east bank of the Mississippi River. The Metropolitan WWTP has a capacity of 251 MGD, provides advanced secondary treatment with chlorination/dechlorination, and discharges treated effluent to the Mississippi River. It also generates energy from the residual biosolids for in-plant use.

FIGURE 11-1: EXISTING SANITARY SEWER SYSTEM

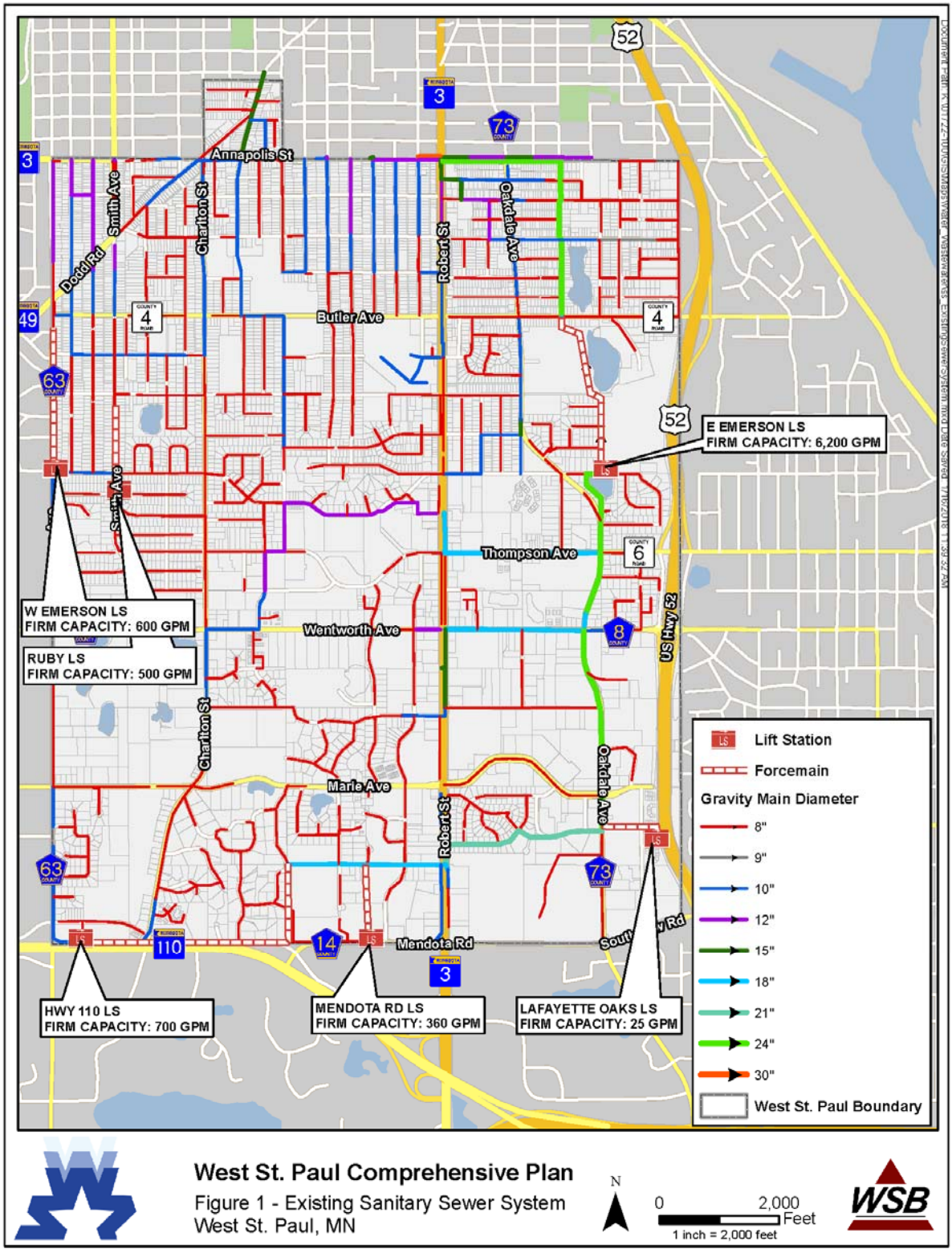
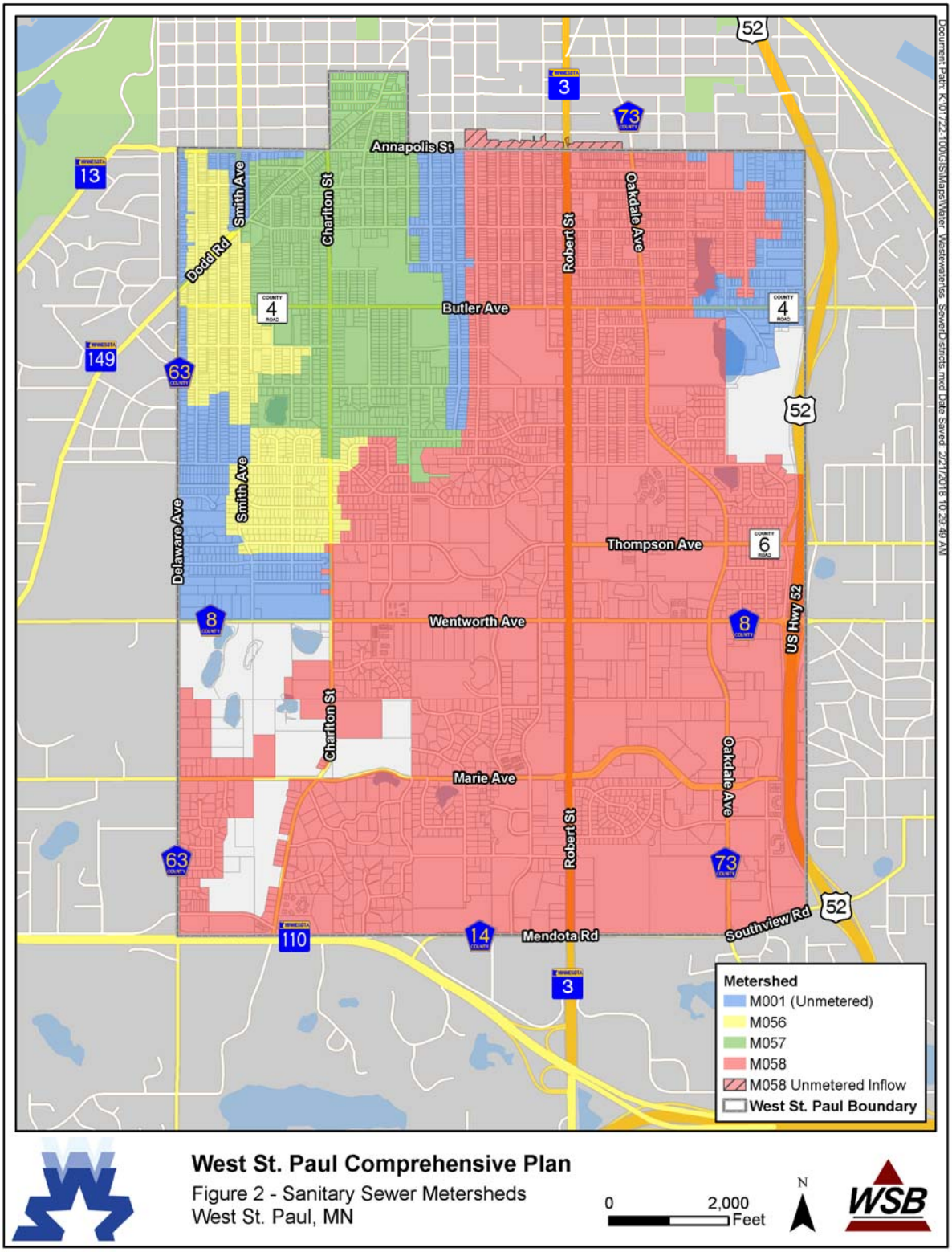


FIGURE 11-2: SANITARY SEWER METERSHEDS



Intercommunity Flows

The City of West St. Paul has intercommunity flows with the City of St. Paul to the north. Unmetered wastewater flow from several areas of West St. Paul's system enters the St. Paul system and Metershed M001. In addition, unmetered wastewater flow from several St. Paul properties along East Annapolis Street enters West St. Paul's system and Metershed M058. These intercommunity flows are shown in FIGURE 11-2.

Individual Sewage Treatment Systems

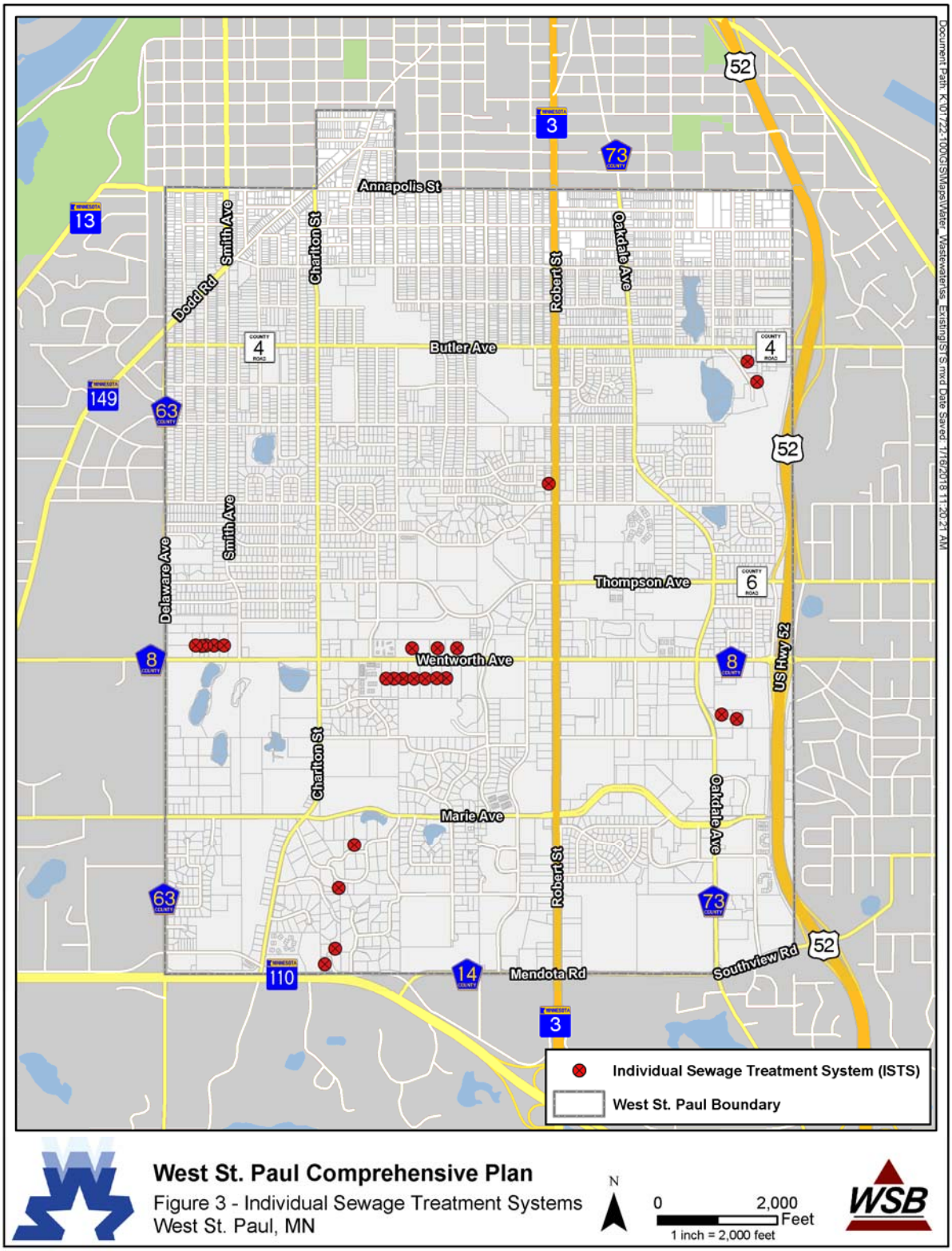
There were 30 active individual sewage treatment systems (ISTS) at the writing of the City's last Comprehensive Plan in 2009. Since 2009, two ISTS have been disconnected and replaced with connections to the public sewer system. There are no known nonconforming systems. The majority of the remaining active ISTS are located in the southwest portion of the City along Wentworth Avenue. A map displaying the location of the remaining active ISTS in the City of West St. Paul is shown in FIGURE 11-3. The ISTS management program for the active ISTS is administrated by Dakota County in compliance with MN Rules Chapters 7080-7083. The City's general provisions regarding ISTS are excerpted below.

> *(K) General provisions. All owners or occupants of property shall comply with the following general requirements.*
>
> *(1) No person shall leave, deposit, discharge, dump or otherwise expose any chemical or septic waste in an area where discharge to streets or storm sewer system may occur. This section shall apply to both actual and potential discharges.*
>
> *(a) Individual septic systems must be maintained to prevent failure, which has the potential to pollute surface water.*
>
> *(b) No part of any individual septic system requiring on-land or in-ground disposal of waste shall be located closer than 150 feet from the ordinary high water level in the case of DNR protected waters, or the wetland boundary in the case of all other water bodies, unless it is proven by the applicant that no effluent will immediately or gradually reach the water bodies because of existing physical characteristics of the site or the system.*

Community Treatment Systems

There are no public or private community treatment systems within the City of West St. Paul. All of the properties in the City are served by the public collection system or by individual sewage treatment systems, as described above.

FIGURE 11-3: INDIVIDUAL SEWAGE TREATMENT SYSTEMS



FORECASTS

Population

The Metropolitan Council publishes population and sewer usage forecasts for each city in the Metropolitan Area. These forecasts help cities prepare infrastructure for growth and promote continued maintenance of municipal infrastructure. The forecast data in TABLE 11-2 is from the Metropolitan Council's Local Planning Handbook Community Page for West St. Paul and includes both total and sewered population, households, and employment.

TABLE 11-2: POPULATION PROJECTIONS

	Total			Sewered		
Year	Population	Households	Employment	Population	Households	Employment
2010	19,540	8,529	7,471	19,455	8,499	7,471
2020	20,800	9,200	8,400	20,720	9,172	8,400
2030	21,900	9,600	8,800	21,820	9,572	8,800
2040	23,100	10,100	9,300	23,020	10,072	9,300

Population, households, and employment are all projected to increase gradually over the next few decades. The population of the City is projected to increase by approximately 15% between now and the year 2040.

TABLE 11-3: PROJECTIONS BY METER SERVICE AREA & INTERCEPTOR

	M056 1-SP-241			M057 1-SP-236			M058 1-SP-230			M001 (Unmetered) Various		
Year	Ppln.	Hhds.	Empl.	Ppln.	Hhds.	Empl.	Ppln.	Hhds.	Empl.	Ppln.	Hhds.	Empl.
2010	1,088	476	51	2,421	1,060	888	14,491	6,326	6,312	1,455	637	220
2020	1,088	476	51	2,421	1,060	888	15,756	6,999	7,241	1,455	637	220
2030	1,088	476	51	2,421	1,060	888	16,856	7,399	7,641	1,455	637	220
2040	1,093	478	51	2,740	1,200	888	17,732	7,757	8,141	1,455	637	220

Wastewater Flows

All of the existing sewage flow from the City of West St. Paul is treated at the Metropolitan WWTP, and all future flow will be treated at the Metropolitan WWTP as well. TABLE 11-4 lists the projected total average wastewater flow for West St. Paul from MCES and this Sanitary Sewer Plan. Note that the projections used in this report are greater than the MCES projections since they rely on flow estimates for each parcel of developable land instead of basing flow estimates on population growth.

TABLE 11-4: TOTAL WASTEWATER PROJECTIONS

	2020 Projected Flow (MGD)	2030 Projected Flow (MGD)	2040 Projected Flow (MGD)
MCES	2.08	2.09	2.10
Sanitary Sewer Plan	2.20	2.42	2.63

SANITARY SEWER DESIGN CRITERIA

Land Use

Analysis of the City of West St. Paul's sanitary sewer considered seven general land use designations: single-family, multi-family, mixed use, commercial, industrial, institutional, and parks and recreation. Significant area in the southwest and northeast regions of the City are occupied by parks. The majority of the wastewater generated in the City originates in Metershed M058, which includes nearly all of the City's multi-family, mixed use, commercial, and industrial land. The typical wastewater flows assumed for each land use type are listed in TABLE 11-5. Assumed wastewater flows for each land use include design considerations for infiltration/inflow (I/I). The inflow and infiltration section of this report provides more information about I/I as it relates to West St. Paul's sanitary sewer system.

TABLE 11-5: ASSUMED WASTEWATER FLOW BY LAND USE TYPE

Land Use Type	Average Flow (gallons per day per acre)
Single-Family	810
Multi-Family	5,400
Mixed Use (50% Residential, 50% Commercial)	3,325
Commercial/Industrial	800
Institutional	600
Parks and Recreation	None

Estimated Average Wastewater Flows – Existing

Metering data was retrieved from the Metropolitan Council to estimate existing flows in trunk mains throughout the City. Flows were assigned proportionally to each meter service area based on the acreage of residential, mixed-use, commercial, industrial, institutional, and parks/recreational land within each area and typical flows per acre for each land use.

Estimated Average Wastewater Flows – 2040

Future wastewater flows were projected based on the planned 2040 land use from the Land Use Plan. Parcels that are planned to develop/redevelop were assigned wastewater flow rates in accordance to their land use type. Future wastewater flows were added to existing flows to determine if existing pipe capacities will be sufficient.

Peak Flow Factors

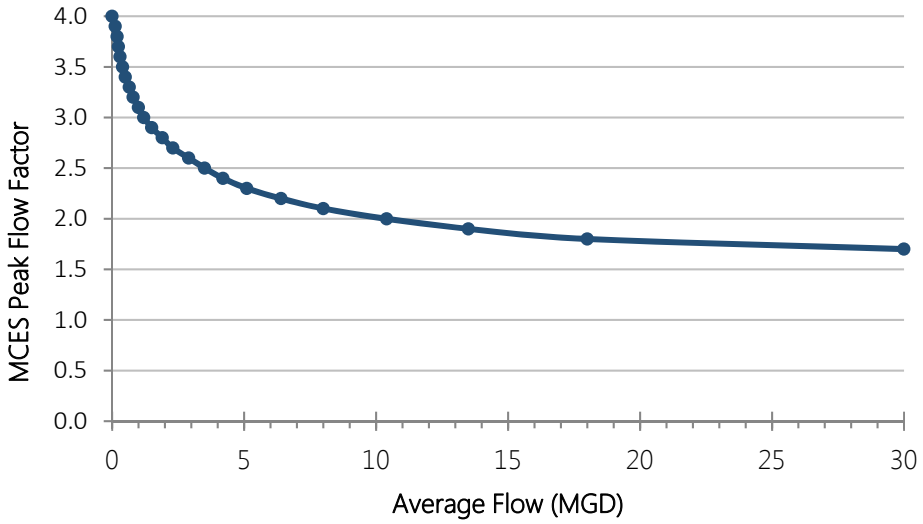
To ensure that the sanitary sewer system is capable of handling flow fluctuations throughout the day, peak factors were used to estimate maximum wastewater flows in trunk sewer mains and lift stations. Metershed-specific peak factors calculated from historical metering data provided by MCES were used to estimate existing maximum wastewater flows. Historical peak factors used in this report are shown in TABLE 11-6. The peaking factor assigned to metershed M001 was calculating by averaging the peak factors for the other metersheds. These factors include the effect of inflow and infiltration.

TABLE 11-6: METERSHED-SPECIFIC HISTORICAL PEAK FACTORS

Metershed	Historical Peak Factor
M056	10.72
M057	7.88
M058	5.39
M001 (unmetered)	8.00

A different set of peak factors were utilized to estimate future maximum flows. These peak factors are provided by the Metropolitan Council and are based on average flow volumes. Pipes that serve small generator customers are more likely to experience large flow fluctuations. Therefore, peak factors decrease as average flow increases. The Metropolitan Council peak flow factors used in this report are shown in FIGURE 11-4 below.

FIGURE 11-4: MCES PEAK FACTORS FOR SANITARY SEWER DESIGN



SANITARY SEWER TRUNK RECOMMENDATIONS

The proposed future sewer system for the City of West St. Paul, including gravity mains, forcemains, and lift stations, is shown in FIGURE 11-5, as follows. The required infrastructure improvements were determined based on the areas the City is planning to develop or redevelop by 2040.

TABLE 11-7 lists the existing West St. Paul lift stations' pumping capacities, and an estimation of the existing and projected wastewater flows generated within each lift station's service area. An estimate of the existing wastewater flow generated

in each service area was accomplished by calculating wastewater flows based on land use designations and scaling those estimates to historical MCES meter data. Such estimation was compared to lift station pumping data provided by the City for the month of October 2017. Due to the similarity between the two sets of data, the pumping data provided by the City was used as an estimate of the existing wastewater pumped by each lift station.

As mentioned previously, two sets of peak factors were utilized to estimate maximum wastewater flows within each lift station service area. Historical peak factors displayed in TABLE 11-6 were used to estimate existing maximum flows while peak factors displayed in FIGURE 11-4 were used to estimate future maximum wastewater flows.

TABLE 11-7: LIFT STATION CAPACITY ANALYSIS

Lift Station	Firm Capacity (gpm)	Existing Average Flow (gpm)	Existing Maximum Flow (gpm)	2040 Projected Average Flow (gpm)	2040 Projected Maximum Flow (gpm)
E Emerson	6,200	2,428	13,089	2,641	9,264
Lafayette Oaks	25	2	13	2	10
Mendota Rd	350	18	94	18	70
HWY 110	700	73	393	73	292
W Emerson	500	42	333	42	167
Ruby	500	58	625	58	233

As seen in TABLE 11-7, both the E Emerson and Ruby Lift Stations are estimated to be over capacity. The City plans to upgrade the E Emerson Lift Station and its forcemain in 2019, and a more precise evaluation of flows can be included in that design. The Ruby Lift Station is located in an area of the City with a high historical peak factor; it is recommended that the City continue I/I reduction work within its service area and monitor flows at that location to further evaluate the need for an upgrade to that facility.

TABLE 11-8 lists the trunk sewers selected for analysis including their full-flow capacity, and an estimate of the existing and projected wastewater flows conveyed by each. These trunk sewers convey the majority of the wastewater flow generated in each metershed. As seen in TABLE 11-8, the selected trunk sewers have sufficient capacity to convey the existing and future wastewater flow.

TABLE 11-8: TRUNK SEWER CAPACITY ANALYSIS

Trunk Sewer	Diameter	Trunk Capacity (gpd)	Existing Average Flow (gpd)	Existing Maximum Flow (gpd)	2040 Projected Average Flow (gpd)	2040 Projected Maximum Flow (gpd)
E Emerson Ave	24"	7,596,380	1,201,507	6,476,121	1,547,978	4,798,733
E Annapolis St	24"	9,246,019	1,318,727	7,107,937	1,664,077	4,992,230
Dodd Rd	15"	9,334,474	311,636	2,455,692	335,228	1,206,819
Cherokee Ave	12"	4,873,232	172,783	1,852,234	172,783	673,854

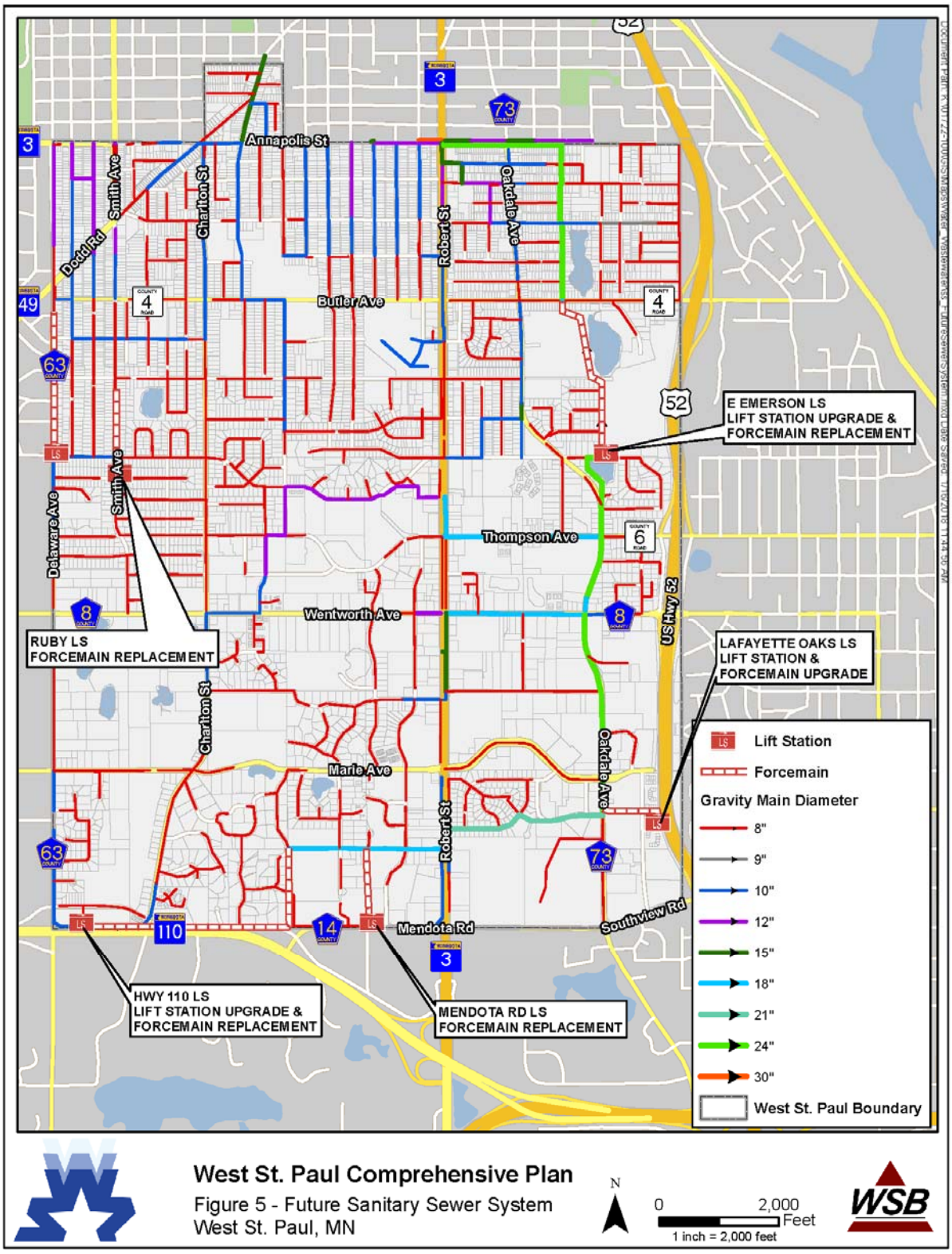
MCES Interceptor Facility Forecasts

The City of West St. Paul's sanitary sewer system discharges to three MCES Interceptors directly, as well as to the St. Paul sewer system. The average and maximum flows forecasted to discharge to these Interceptors by the year 2040 are listed in TABLE 11-9. These flows were estimated based on historical MCES flow data, areas of the City that are expected to develop by that time, associated conservative flows for those areas based on their land use type, and recommended MCES peak factors.

TABLE 11-9: PROJECTED 2040 MCES INTERCEPTOR USE

MCES Meter	MCES Interceptor	2040 Average Flow (MGD)	2040 Max Flow (MGD)
M056	1-SP-241	0.17	0.67
M057	1-SP-236	0.34	1.21
M058	1-SP-230	1.93	5.42
Unmetered	Various	0.19	0.72

FIGURE 11-5: FUTURE SANITARY SEWER SYSTEM



INFLOW AND INFILTRATION

General

Inflow is water, typically stormwater, which enters the sewer system through broken manhole covers, sewer cleanouts, sump pumps, foundation drains, and rain leaders. ***Infiltration*** is water, typically groundwater, which leaks into the sewer system through cracks in the sewer mains, laterals, joints, and manholes.

Water from inflow and infiltration (I/I) can consume available capacity in the wastewater collection system and increase the flow into treatment facilities. In extreme cases, the added flow can cause bypasses or overflows of raw wastewater. This extra flow also requires a larger capacity in the city's collection and treatment components, which results in increased capital, operation and maintenance, and replacement costs. As a sewer system ages and deteriorates, I/I can become an increasing burden on a City's system. Therefore, it is imperative that I/I be reduced whenever it is cost effective to do so.

In 2006, MCES began an Ongoing I/I Program which requires communities within their service area to eliminate excessive I/I. MCES establishes annual I/I goals for each community discharging wastewater into the Metropolitan Disposal System (MDS) based on average daily flows, adjustments for community growth, and I/I mitigation peaking factors.

The City of West St. Paul has been identified as a community with excessive I/I. The City and MCES agreed in a memorandum of understanding to enforce a specific inflow and infiltration program for the City of West St. Paul. The memorandum includes guidelines towards private property I/I mitigation and I/I policy implementation. The City plans to inspect an estimated 250-500 properties annually and to replace or repair lateral connections as necessary. Additionally, the City agreed to report a list of non-compliant properties with cost of service lateral repair details to the MCES by March 31st of every year. The effective start date of the memorandum was January 1st, 2017.

Flow metering data is available for the metersheds within West St. Paul, and an analysis of this data as it relates to I/I is presented on the following page. The City's strategies, programs, investments, and goals for reducing I/I are listed in this section as well.

I/I Analysis

West St. Paul's sanitary sewer system currently consists of approximately 63 miles of sanitary main, six lift stations, and 15,600 feet of forcemain. Many of the lift stations and their associated forcemains were originally constructed between 1956 and 1966 (see TABLE 11-1). Thus, these areas may be more susceptible to I/I due to their age. Approximately 73% of the residential housing in the City was constructed prior to 1970. Nearly all of the properties within the City have been evaluated for I/I, and approximately 225 private services have been repaired in the last ten years.

The amount of clearwater flow generated within the City was estimated by calculating the average annual and peak month I/I rates, equal to the average wastewater flow minus the base wastewater flow, using data from 2012-2016. The average flow, both annual and monthly, was calculated from MCES meter data. The peak month flow was determined for each year from 2012-2016, and then those peak month flows were averaged to give the value listed in TABLE 11-10. The base flow was calculated as the difference between average dry weather flow and groundwater infiltration, based on hourly meter data from a period of nine days of dry weather (three days since a rain event) and high groundwater level (spring) in March 2017. The groundwater infiltration rate was calculated as the average flow from 1:00-6:00 AM over the same nine-day period.

TABLE 11-10: ESTIMATED I/I RATE

Metershed	M056	M057	M058	Total
Average Flow (MGD)	0.173	0.307	1.445	1.925
Peak Month Flow (MGD)	0.290	0.524	1.886	2.699
Base Flow (MGD)	0.053	0.090	0.568	0.712
Average Annual I/I Rate (MGD (%))	0.120 (69%)	0.217 (71%)	0.877 (61%)	1.214 (63%)
Peak Month I/I Rate (MGD (%))	0.236 (82%)	0.434 (83%)	1.318 (70%)	1.988 (74%)

The City has significantly increased its investment in I/I reduction in recent years, as shown in TABLE 11-11 in the next section. The majority of the flow data used to calculate the estimated I/I rate in TABLE 11-10 was collected prior to that work. Therefore, the actual I/I rate and the expected I/I rate for the coming years is less than that estimated in TABLE 11-10.

I/I Reduction

The City's strategy for preventing excess I/I includes requiring all development to conform to City standards. City code prohibiting the discharge of stormwater to the sanitary sewer system is excerpted below.

> ***§ 50.08 DISCHARGE OF PROHIBITED CLEAR WATER DRAINAGE; SUMP PUMPS.***
>
> *(A) Definition. **CLEAR WATER DRAINAGE**, for the purpose of this section, is defined as stormwater, natural precipitation, ground water or flow from roof runoff, surface runoff, subsurface drainage, down spouts, eave troughs, rainspouts, yard drains, sump pumps, foundation drains, yard fountains, ponds, cistern overflows or water discharged from any nonresidential air conditioning unit or system.*
>
> *(B) Ownership. The property owner shall own and be responsible for the maintenance of the sanitary sewer service lateral between the city's sanitary sewer main within the street and the building being served, including the connection to the main.*
>
> *(C) Prohibited discharges. No person shall directly or indirectly discharge or permit to be discharged any clear water drainage into the city's sanitary sewer system.*
>
> *(D) Prohibited connections. No person shall make or maintain a connection between any conductor used to carry clear water drainage and the city's sanitary sewer system.*
>
> *(E) Sump pumps. Dwellings and other buildings and structures that require a sump pump system to discharge excess water because of the infiltration of water into basements, crawl spaces and the like shall obtain a permit and have a permanently installed discharge line that complies with the following:*
>
> *(1) It shall not any time discharge water into the city's sanitary sewer system; …*

The City also plans to implement additional ordinances directed at the reduction of I/I. In agreement with MCES, the City will implement the following ordinances:

- An I/I compliance inspection shall occur prior to the sale of a property. The property shall be brought into compliance within 12 months from the date of the sale of the property.

- Properties affected by the City's annual pavement management program shall be offered a free lateral inspection. The City shall encourage private property owners to have non-compliant services replaced.
- Rental properties shall be required to become compliant within 24 months of the property's annual rental license renewal.
- Commercial properties and homeowner associations shall be required to become compliant within 24 months of the ordinance becoming effective.

If properly enforced, it is expected that 250 to 500 properties will be inspected and the lateral connection repaired or replaced on an annual basis.

The bulk of the I/I reduction work realized by the City of West St. Paul is completed as part of its annual street and utility improvement projects. Appropriate corrective measures of sewer lines (mains and laterals) are then initiated with the affected sewer lines or property owner. Specific costs associated with I/I reduction projects conducted by the City of West St. Paul in past years are listed in TABLE 11-11. The City's I/I reduction efforts have greatly increased in recent years.

TABLE 11-11: CAPITAL INVESTMENTS TOWARDS I/I REDUCTION

Year	Cost
2007	$242,607
2008	$482,843
2009	$344,239
2010	$173,880
2011	$344,239
2012	$217,710
2013	$152,389
2014	$128,987
2015	$1,014,225
2016	$1,240,778
2017 (Jan.-Sep.)	$975,681
Grand Total	**$5,316,577**

The City's Engineering Department has continuing discussions with consulting engineers regarding wastewater flows to develop improvement plans that further reduce the City's I/I. There is indication that the rehabilitation that has been

completed to date has resulted in a reduction of I/I – the difference between dry and average flow has been lower the past two years. However, the remaining I/I continues to be a concern.

COST ESTIMATES AND FINANCING

Given that the City of West St. Paul is largely built out, the majority of the capital improvements to its sanitary sewer system involve the maintenance and rehabilitation of the existing system. TABLE 11-12 lists the capital improvements proposed for the City's sanitary sewer system and their estimated costs.

TABLE 11-12. CAPITAL IMPROVEMENTS

Item	2018	2019	2020	2021	2022	2023-2028
I/I Abatement	$375,000	$375,000	$375,000	$150,000	$150,000	$926,250
T-Liners	$50,000	$50,000	$50,000	$50,000	-	-
Butler Ave. Storm/Sanitary	$160,000	-	-	-	-	-
Delaware Ave. Storm/Sanitary	-	$160,000	-	-	-	-
Lift Station 1 Forcemain Replacement	-	$850,000	-	-	-	-
Lift Station 1 Upgrade	-	$1,000,000	-	-	-	-
Lift Station 4 Forcemain Replacement	-	$500,000	-	-	-	-
Lift Station 4 Upgrade	-	$750,000	-	-	-	-
Lift Station 6 Forcemain Replacement	-	-	$300,000	-	-	-
Lift Station 2 Upgrade & Forcemain	-	-	-	$800,000	-	-
Lift Station 3 Forcemain Replacement	-	-	-	-	$325,000	-
Yearly Total	**$585,000**	**$3,685,000**	**$725,000**	**$1,000,000**	**$475,000**	**$926,250**

SUMMARY AND OUTCOMES

The analysis provided in this Sanitary Sewer Plan is aimed to provide the City of West St. Paul and the Metropolitan Council assistance in planning for wastewater collection and treatment. It is anticipated that the design flows and criteria outlined will be used for utility planning as development continues within the City.

CHAPTER 12: SURFACE WATER

This chapter presents an executive summary of the Comprehensive Surface Water Management Plan, which is attached in Appendix XX. This chapter refers to the Local Surface Water Management Plan "LSWMP".

LOCAL SURFACE WATER MANAGEMENT PLAN PURPOSES

The City of West St. Paul's Local Surface Water Management Plan (LSWMP, the Plan) serves as a guide to managing the City's surface water system, which brings the City into compliance with Minnesota Statute Rules and Metropolitan Council requirements. The LSWMP will carry the City through 2028. Periodic amendment to the Plan will likely occur in the intervening ten years so that the Plan remains current to watershed plan amendments and revisions and current to the "state of the art" in surface water management.

The City of West St. Paul is located in northern Dakota County, with St. Paul to the north, Mendota Heights to the west, Sunfish Lake and Inver Grove Heights to the south, and South St. Paul to the east (Figure 1, Appendix A). West St. Paul is an established community that is considered fully developed. The community has put an emphasis on high quality residential neighborhoods and parks, and well-planned commercial and industrial areas.

The goals and policies in Section 3 are also prescriptive requirements. The distinction between the goals and policies and the design standards is that the goals and policies are general while the design standards are specific.

Minnesota Statute 103B.201 states that the purposes of the water management programs are 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 official 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 West St. Paul LSWMP addresses these purposes.

Purpose and Scope

The West St. Paul LSWMP will serve as a comprehensive planning document to guide the City in conserving, protecting, and managing its surface water resources. The Plan has been created to meet statutory requirements as detailed in Minnesota Rules 8410.
In addition, the Plan reflects the requirements of the Lower Mississippi River Watershed Management Organization (LMRWMO), which is the watershed organization with jurisdiction within the City. Meeting watershed requirements ensures the City's compliance with local and regional expectations. Finally, the plan addresses the Metropolitan Council's requirements for LSWMPs.

Local plans must do the following:

- Describe existing and proposed environment and land use.
- Provide a narrative addressing stormwater infrastructure philosophy, which details regulatory authority as well as implementation and financial responsibilities.
- Define areas and elevations of stormwater storage adequate to meet performance standards established in the watershed plan.
- Identify quality and quantity protection methods which meet standards.
- Identify regulated areas and potential easements or land acquisition areas.
- Outline a procedure for submitting annual reports to agencies which document Wetland Conservation Act and monitoring program data consistent with state compatibility guidelines.
- Set forth an implementation program, including a description of official controls, inspection and maintenance, and a capital improvement plan.
- Describe official controls and the responsible unit of government in the following areas: wetlands, erosion control, shoreland, floodplain, grading, and drainage.

- Meet other requirements as outlined in watershed organization plans.

The City submits its LSWMP to the Metropolitan Council and LMRWMO for review. The watershed has sixty days for its review after written receipt of the City Plan. Metropolitan Council provides comments within forty-five days. The Metropolitan Council directs its comments to the watershed, which considers these comments in formulating its own.

Beyond the statutory requirements outlined above, the West St. Paul LSWMP has its own emphasis. Some areas of emphasis include:

- Collecting and compiling the efforts of agencies and organizations including the City, its departments, and its residents. This includes past reports and studies, management plans, monitoring studies, as well as completed and proposed improvement projects.
- Reviewing the current state of the City's surface water resources in the context of its goals and policies, ordinances, operations and maintenance, flood mitigation, and achievement of targeted water quality levels in its surface waterbodies.
- Establishing reasonable, achievable, and affordable goals and supporting them with a strong regulatory and management culture. Developing an implementation plan that includes projects and processes derived from a thorough assessment of current City problem areas and current City surface water regulations and controls.
- Ensuring compliance with National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Separate Storm Sewer System (MS4) Permit and Storm Water Pollution Prevention Plan (SWMPP).
- Supporting the establishment of the City's stormwater utility by outlining an implementation plan.

City staff has participated in collecting data, providing feedback, and contributing knowledge of local systems to aid in developing a strategy that encompasses water quality and quantity issues.

Based on the guidance provided by the City Council and staff, this report addresses the City's current surface water management needs and provides a framework for successful implementation of a comprehensive stormwater management program. A specific outline of the steps involved in the preparation of the LSWMP is presented below:

- System Inventory and Mapping – Reassess and update drainage patterns and major trunks/conveyors of the stormwater system. Develop a map based on this analysis.
- Goals, Policies and Guidelines – Develop goals and policies that guide the City's surface water management philosophy. Augment design guidelines for development and redevelopment. This gives the City guidance for designing facilities and standards for reviewing development plans. Determine regulatory agencies involved in the stormwater management of the City and work with City staff to develop feasible goals, policies, and guidelines.
- System Assessment and Design – Use modeling which was completed with the 2006 Local Surface Water Management Plan to assess system capacity.
- Stormwater Ordinances – Recommend ordinances or revision to existing ordinances.
- Stormwater System Management – Provide recommendations on operating and maintaining the stormwater system as well as Best Management Practices (BMPs) for water quality and erosion control. Also include information regarding compliance with NPDES Phase II Stormwater Permits.

Organization

This report is a culmination of the activities described above and is organized as follows:

- Section 1 – Executive Summary describes the direction, intent, and legal requirements regarding the City of West St. Paul creating and adopting a comprehensive surface water management plan.
- Section 2 - Land and Water Resource Inventory describes the physical environment including watersheds and drainage patterns, dominant land uses, and significant waterbodies within the City.
- Section 3 - Goals and Policies lists the City's goals and policies along with public agency requirements affecting surface water management in the City.
- Section 4 - System Assessment and Design presents an overview of all the major watersheds in the City. Section 4 also provides detail on the existing stormwater management system within the four watershed

areas. A synopsis of the modeling procedure, criteria, and assumptions are included as well.

- Section 5 - Implementation Plan covers regulatory responsibilities, priority implementation items, educational programs, operation and maintenance, and financing considerations. A plan amendment process is also identified.

CHAPTER 13: IMPLEMENTATION

Without a specific course of action, it is difficult to achieve the goals and aspirations of any plan. Previous chapters of this document provide the baseline information for understanding the community and the determined goals for the City's future. The goals explain what the community wants to accomplish and the vision desired as an outcome. This chapter outlines the specific actions that will be taken to achieve those goals.

Often, the most challenging part of the Comprehensive Plan is implementation. It is easy to complete a document, and then watch it collect dust on a shelf. To increase the likelihood of its implementation, the following Implementation Matrix provides priorities and probable funding mechanisms. The implementation steps should be reviewed by the City periodically (annually or more often) to:

- Establish **priority work activities** for City staff and volunteers (and for City partner organizations) on an annual basis,
- Establish **priorities for annual City budget** (and for City partner organization budgets),
- Establish **priorities for 5-year Capital Improvement Plans**.

VISION AND GOALS

The implementation action items outlined in this chapter should ultimately reinforce West St. Paul's Vision and Goals, which were established in Chapter 2 of this document. The vision and goals are broad and touch nearly every aspect of City activity and City life. No aspect of this Comprehensive Plan and its ultimate implementation will be at odds with the City's vision and goals.

IMPLEMENTATION MATRIX

The implementation work plan outlined in the following table expands upon the strategies and action items presented in all preceding chapters of this Plan by assigning a responsible body or actor (**who**), and a timeframe for action (**when**).

While the following lays out a work plan covering the years 2018-2040, it is to be expected that the task list will change from year to year. As time goes on, some actions will take longer than expected and will shift into other time periods. Priorities will change and actions will be moved up to be accomplished earlier. New ideas will be presented to accomplish the goals and vision cited here and will

be added to the actions list. This is all part of the cyclical process of implementation.

Implementation actions and strategies are arranged in the Implementation Matrix by Plan chapter, which has the following color scheme:

	Land Use
	Housing
	Economic Development
	Parks and Recreation
	Sustainability
	Transportation
	Water Supply
	Sewer
	Surface Water

In the "When" column, timeframes are organized into four classifications:

- Ongoing (an action that occurs as needed or on a continual basis)
- Short-term (starting now, completed within the next five years)
- Medium-term (5-10 year completion)
- Long-term (10+ year completion)

Table 13-1: IMPLEMENTATION MATRIX

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
Provide a balance of spaces for residents to live, work and play.	Provide for a variety of housing types and densities to support a wide range of housing alternatives for current and future residents.	Planning staff	Short-term		City funds, grants
	Review the allowed uses and standards within the city's Mixed Use zoning districts to ensure that these zoning districts provide opportunities for the desired type, design, and diversity of development opportunities reflected in this Plan and the updated Renaissance Plan.	Planning staff	Short-term		City funds
	Continue to provide the resources and programming to maintain the City's park and green space areas in recognition of their value as cherished community amenities.	Parks and Recreation staff	Short-term	X	City funds
Develop, update, and enforce standards for development/ redevelopment that enhance public health, provide for affordable housing, increase pedestrian safety, and promote a high quality of living.	Develop programs and policies to encourage the redevelopment of housing stock in a way that maintains or enhances the integrity of existing neighborhoods.	Planning staff	Medium-term		City funds
	Review and update the City's zoning code to reflect consistency with this Land Use Plan. Evaluate the zoning code language to ensure that the dimensional standards and zoning district regulations provide the opportunity for development to occur as guided.	Planning staff	Short-term		City funds

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
Develop, update, and enforce standards for development/ redevelopment that enhance public health, provide for affordable housing, increase pedestrian safety, and promote a high quality of living.	Recognize the most likely opportunity sites for high density residential development and support projects on these sites that are well-designed, add value to the community landscape, and are located in areas connected to transitways and other community amenities.	Planning staff	Medium-term		City funds
	Create design standards for both vertical and horizontal mixed use developments, so that not only uses are compatible, but the scale, mass, and feel of new development enhance both the existing and desired community character.	Planning staff	Short-term		City funds
	Continue to develop and update park master plans and allocate resources to implementing those plans.	Parks and Recreation staff	Short-term	X	City funds
	Prioritize the incorporation of communal amenities and gathering spaces into new development opportunities as they arise, to create public spaces for community building.	Planning staff	Medium-term	X	City funds
	Prioritize the incorporation of linkages and connections for all modes of transportation into redevelopment projects, to more seamlessly connect areas of intense land uses and amenities with surrounding residential areas and improve access to these sites.	Community Development staff	Short-term	X	City funds
	Develop and maintain a long term urban forestry plan with the City Environmental Committee.	Public Works staff	Long-term		City funds

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
Attain and maintain a secure tax base consisting of high quality residential, commercial and industrial properties	Create a redevelopment plan for the Thompson Oaks golf course which includes a mixture of high density residential, commercial, and open space uses.	Community Development staff	Short-term		City funds, grants (LCDA)
	Implement the recommendations of the Smith/Dodd Area Plan, particularly with regard to redevelopment sites identified in that plan.	Planning staff	Short-term		City funds, grants (LCDA)
	Continue to use economic development incentives to achieve redevelopment goals (refer to the Economic Development Chapter for more information).	Economic Development staff	Short-term	X	MN DEED funds, LCDA grants, City funds, TIF, tax abatement
Support housing maintenance assistance programs, particularly for lower-income households. (Target AMI: range of 30-80%)	Development Authorities	Housing staff	Short-term	X	City funds
	Outreach and educational materials	Housing staff	Medium-term	X	City funds
	Homebuyer assistance programs	Housing staff	Short-term	X	County funds
	Foreclosure prevention	Housing staff	Short-term	X	County funds
	Repair and rehab support	Housing staff	Short-term	X	County funds
	Dakota County CDA Partnership	Housing staff	Short-term		County funds
	Rental license, inspections and code enforcement program	Housing staff	Short-term	X	City funds
	Energy Assistance program through CAP	Housing staff	Short-term	X	City funds
	Effective referrals	Housing staff	Short-term	X	City funds

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
Support housing maintenance assistance programs, particularly for lower-income households. (Target AMI: range of 30-80%)	Housing Opportunities Enhancement Program (HOPE)	Housing staff	Short-term	X	
	Repair and rehab funding and loans	Housing staff	Short-term	X	City funds, County and federal grants
	4 (d) tax program and private unsubsidized projects	Housing staff	Short-term	X	City and private funds
	Non-profit partnerships	Housing staff			Non-profits
	Housing improvement areas (HIA's) through County EDA	Housing staff	Medium-term	X	County funds
Meet increased demand for senior housing and opportunities for residents to age in place. (Target AMI range 80% and below).	Development Authorities	Housing staff	Short-term	X	City funds
	Housing Bonds	Housing staff	Short-term	X	City funds
	Tax Abatement	Housing staff	Short-term	X	City funds
	Tax Increment Financing	Housing staff	Short-term	X	City funds
	Outreach and educational materials	Housing staff	Medium-term	X	City funds
	Site assembly and/or acquisitions	Housing staff	Long-term	X	City funds, County and regional grants
	Zoning and subdivision policies	Planning staff	Medium-term	X	City funds
	Dakota County CDA Partnership	Housing staff	Short-term		County funds
	Effective referrals	Housing staff	Short-term	X	City funds
	MHFA Consolidated RFP	Housing staff	Medium-term	X	State grants

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
Meet increased demand for senior housing and opportunities for residents to age in place. (Target AMI range 80% and below).	LIHTC properties	Housing staff	Short-term	X	Federal funds
Reduce overall community housing cost burden, particularly by supporting those projects that provide affordability for households in the <50% AMI categories.	Development Authorities	Housing staff	Short-term	X	City funds
	Housing Bonds	Housing staff	Short-term	X	City funds
	Tax Abatement	Housing staff	Short-term	X	City funds
	Tax Increment Financing	Housing staff	Short-term	X	City funds
	Outreach and educational materials	Housing staff	Medium-term	X	City funds
	Homebuyer assistance programs	Housing staff	Short-term	X	County funds
	Zoning and subdivision policies	Planning staff	Medium-term	X	City funds
	Effective referrals	Housing staff	Short-term	X	City funds
	Local Fair Housing Policy	Housing staff	Medium-term	X	City funds
	MHFA Consolidated RFP	Housing staff	Medium-term	X	State grants
	Livable Communities Grant	Housing staff	Short-term	X	Met Council
	CDBG grants & HOME funds	Housing staff	Short-term	X	Federal Grants
	LIHTC properties	Housing staff	Short-term	X	Federal funds

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
Preserve naturally-occurring affordable housing within all affordability bands.	Development Authorities	Housing staff	Short-term	X	City funds
	Outreach and educational materials	Housing staff	Medium-term	X	City funds
	Homebuyer assistance programs	Housing staff	Short-term	X	County funds
	Foreclosure prevention	Housing staff	Short-term	X	County funds
	Repair and rehab support	Housing staff	Short-term	X	County funds
	Effective referrals	Housing staff	Short-term	X	City funds
	CDBG grants & HOME funds	Housing staff	Short-term	X	Federal Grants
	Repair and rehab funding and loans	Housing staff	Short-term	X	City funds, County and federal grants
	LIHTC properties	Housing staff	Short-term	X	Federal funds
	4 (d) tax program and private unsubsidized projects	Housing staff	Short-term	X	City and private funds
	Non-profit partnerships	Housing staff	Short-term	X	Non-profits
	Housing improvement areas (HIA's) through County EDA	Housing staff	Medium-term	X	County funds
Explore opportunities to increase transit-oriented development in strategic areas connected to major transit routes. (Target AMI range 80% and below)	Development Authorities	Housing staff	Short-term	X	City funds

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
Explore opportunities to increase transit-oriented development in strategic areas connected to major transit routes. (Target AMI range 80% and below)	Housing Bonds	Housing staff	Short-term	X	City funds
	Tax Abatement	Housing staff	Short-term	X	City funds
	Tax Increment Financing	Housing staff	Short-term	X	City funds
	Site assembly and/or acquisitions	Housing staff	Long-term	X	City funds, County and regional grants
	Zoning and subdivision policies	Planning staff	Medium-term	X	City funds
	MHFA Consolidated RFP	Housing staff	Medium-term	X	State grants
	Livable Communities Grant	Housing staff	Short-term	X	Met Council
	CDBG grants & HOME funds	Housing staff	Short-term	X	Federal Grants
	LIHTC properties	Housing staff	Short-term	X	Federal funds
Update ordinances as necessary to maintain optimal housing functionality and livability and to address new technologies, market trends, and resident needs. (Target AMI range 80% and below).	Development Authorities	Housing staff	Short-term	X	City funds
	Housing Bonds	Housing staff	Short-term	X	City funds
	Tax Abatement	Housing staff	Short-term	X	City funds
	Tax Increment Financing	Housing staff	Short-term	X	City funds
	Outreach and educational materials	Housing staff	Medium-term	X	City funds
	Homebuyer assistance programs	Housing staff	Short-term	X	County funds

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
Update ordinances as necessary to maintain optimal housing functionality and livability and to address new technologies, market trends, and resident needs. (Target AMI range 80% and below).	Zoning and subdivision policies	Planning staff	Medium-term	X	City funds
	Energy Assistance program through CAP	Housing staff	Short-term	X	City funds
Attain and maintain a secure tax base consisting of high quality residential, commercial and industrial properties.	Provide for enough industrial and commercial land expansion in the Comprehensive Plan to allow for the development of the projected job growth until 2040.	Economic Development staff	Short-term		City funds
	Focus on creating access to sustainable jobs for the residents of West St. Paul with a focus on development of corporate offices, professional and financial services, research, medical manufacturing and medical services, education and emerging industrial technology.	Economic Development staff	Short-term		City funds
	Continue to use available financial tools, including tax increment financing, tax abatement, and special tax districts to encourage redevelopment and investment in new development projects. In addition, the City will continue to work with companies and developers to pursue outside funding sources.	Economic Development staff	Short-term	X	City funds, DEED Redevelopment Program, Federal CEDS grants

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
Attain and maintain a secure tax base consisting of high quality residential, commercial and industrial properties.	Continue to support the activities of regional economic development and business groups including but not limited to; West Saint Paul Chamber of Commerce, South Robert Street Business Association, Smith-Dodd Business Association, Dakota County Economic Development.	Economic Development staff	Short-term	X	City funds
	Continue to support the viability and economic health of the Robert Street Corridor, as it represents a significant economic and employment center. The City will collaborate with the property owners and developers to use the Robert Street Renaissance Plan as a guide, as well as explore and be receptive to new ways for the area to remain successful, including use of innovative infrastructure management and requirements.	Economic Development staff	Short-term	X	City funds, DEED Redevelopment Program, Federal CEDS grants
	Dedicate staff resources to monitoring the economic health of the city and assisting businesses in relocation or expansion within the City.	Economic Development staff	Medium-term	X	City funds
	Continue to seek effective ways to promote the benefits of West St. Paul to the business community.	Economic Development staff		X	City funds
	Continue to develop and implement a business retention and expansion program to allow for the continued communication between the businesses and City.	Economic Development staff	Short-term	X	City funds
	Continue to provide information on economic development and the business community on its website.	Economic Development staff	Short-term	X	City funds

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
Attain and maintain a secure tax base consisting of high quality residential, commercial and industrial properties.	Periodically review its procedures, ordinances and fee structures to ensure they are up-to-date and that they protect and promote the quality of life in the City.	Economic Development staff and Administration	Medium-term	X	City funds
	Promote environmentally sensitive and sustainable business practices.	Economic Development staff and Administration	Medium-term	X	City funds
	Continue to identify obsolete or blighted areas that should be targeted redevelopment.	Community Development staff	Short-term		City funds
	Periodically review existing land development requirements and economic incentives to ensure they are conducive to redevelopment and infill projects.	Community Development staff	Medium-term	X	City funds
	Work to identify single-family housing units that are becoming detrimental to the area and work to develop a program for their improvement to maximize home values and property tax generation.	Community Development staff	Medium-term	X	City funds
Provide for a system of parks and open spaces which will satisfy recreational needs of all citizens.	Neighborhood Park facilities should be developed so that all residential areas of the City are adequately served.	Parks and Recreation staff	Long-term		City funds
	Community playfields for organized sports should be provided where possible.	Parks and Recreation staff	Long-term		City funds
	Coordinate with regional and County Park, trail and open space plans.	Parks and Recreation staff	Medium-term		City funds
	Encourage the continued use of school recreation facilities for City as well as school purposes.	Parks and Recreation staff	Short-term	X	City funds

Goal		Action or Strategy	Who	When	Ongoing?	How? ($)
	Preserve significant open spaces and natural areas.	Locate and develop parkland to take maximum advantage of local natural features or existing infrastructure amenities. All public parks and open spaces shall be improved in accordance with a Long-Range Capital Improvement Program (to be developed).	Parks and Recreation staff	Long-term		City funds
	Improve and expand the City trail system to enhance enjoyment of local natural features	The City should expand the local trail system, taking advantage of in-place natural feature amenities.	Parks and Recreation staff	Short-term		City funds
		Support the North Urban Regional Trail for hiking and biking through West Saint Paul.	Parks and Recreation staff	Short-term		City funds, regional grants
		Encourage the North Urban Regional Trail alignment to interconnect Sibley High School, Dodge Nature Center, Garlough Park and Thompson Park.	Parks and Recreation staff	Short-term		City funds, regional grants
		Encourage the provision of "community" and "neighborhood" trails to provide access to park, school and other public and commercial services, and to provide hiking and biking recreational opportunities.	Parks and Recreation staff	Short-term		City funds, regional grants
	West St. Paul supports the health and welfare of its residents.	Develop policy or actions that minimize the production of waste and increase recycling, composting, and reuse.	Public Works staff	Medium-term		City funds
		Consider implementing incentives that encourage local businesses or residents to participate in sustainable practices.	Public Works staff	Medium-term		City funds
		Work with the Environmental Committee to develop specific healthy community initiatives and strategies.	Public Works staff	Medium-term		City funds

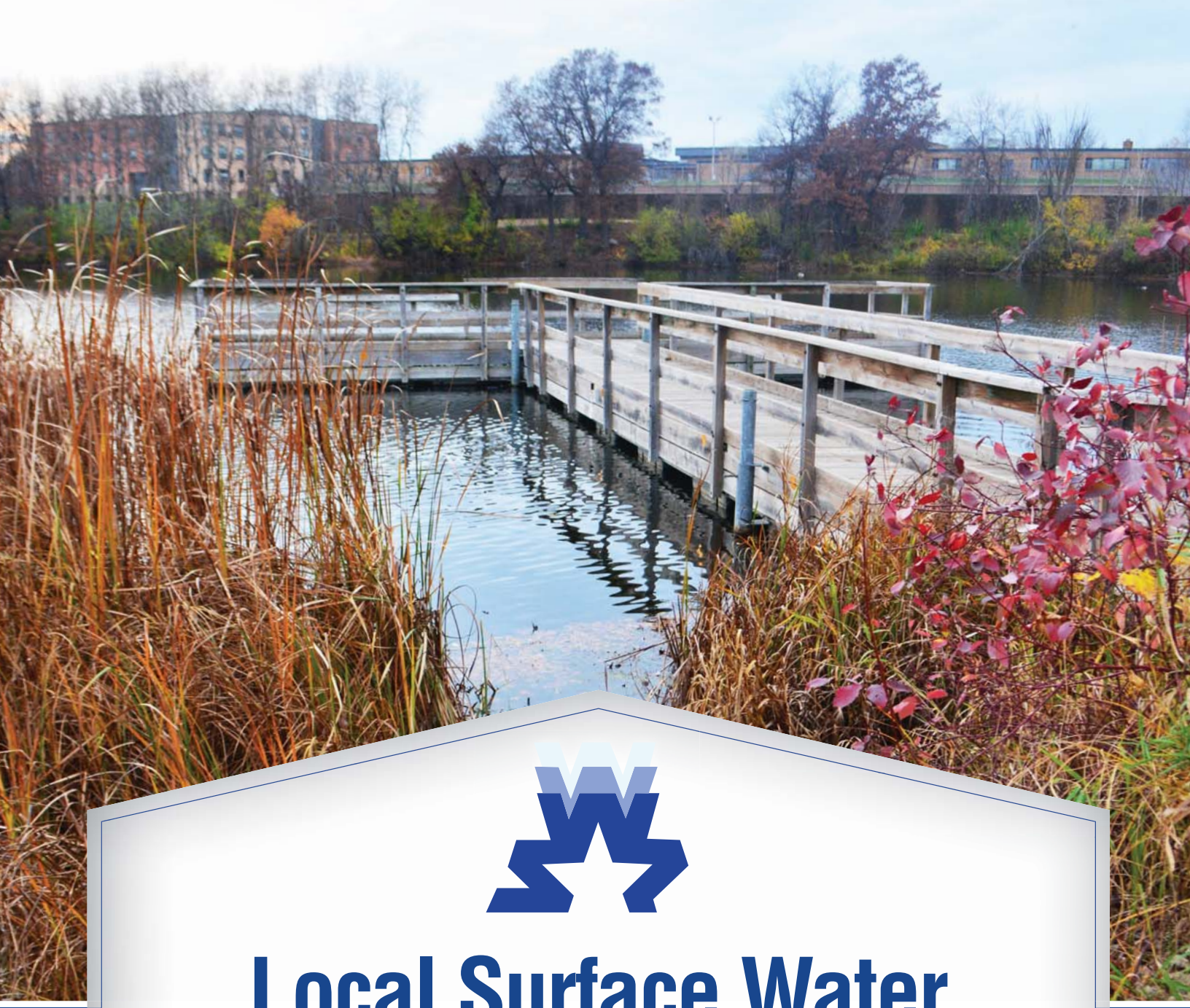
Goal		Action or Strategy	Who	When	Ongoing?	How? ($)
	West St. Paul supports the health and welfare of its residents.	Support and encourage local food access by focusing on food proximity, prevalence, types, sources, and reliability of sources.	Public Works staff	Medium-term		City funds
		Evaluate the possibility of an organized solid waste collection program	Public Works staff	Long-term		City funds
	West St. Paul actively focuses on energy conservation and energy-related emissions reductions as the community plans for the future.	Establish zoning ordinances that allow for rooftop solar.	Planning staff	Short-term		City funds
		Consider offering incentives to residents and local businesses for subscribing to renewable energy sources.	Public Works and Community Development staff	Medium-term		City funds
		Protect access to direct sunlight for solar energy systems.	Planning staff	Short-term	X	City funds
		Consider the use of renewable energy on municipal buildings.	Public Works staff	Short-term		City funds, grants
		Develop an education campaign for residents regarding energy conservation and renewable energy resources.	Public Works and Administration staff	Short-term		City funds
		Develop a plan to upgrade all municipal buildings to energy-efficient lighting and appliances.	Public Works staff	Medium-term		City funds, grants
		Encourage residents and businesses to use energy-efficient appliances and recycle old appliances.	Public Works staff	Short-term	X	City funds, grants
		Investigate pursuing a greenhouse gas emissions and energy consumption baseline analysis of West St. Paul to assist in developing reductions goals.	Public Works staff	Short-term		City funds, grants
		Consider developing an energy-related greenhouse gas emissions reduction goal.	Public Works and Administration staff	Medium-term		City funds

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
West St. Paul actively focuses on energy conservation and energy-related emissions reductions as the community plans for the future.	Consider incentives for LEED certified or other energy-efficient buildings	Community Development and Public Works staff	Medium-term	X	City funds
West St. Paul incorporates sustainable practices in new development, renovations, and in the management of open spaces to preserve natural resources and to maximize green infrastructure	Continue the GreenStep Cities program.	Community Development and Public Works staff	Short-term	X	City funds
	Identify locations in the City to plant with pollinator habitat such as prairie grasses and native forbs.	Public Works and Parks and Recreation staff	Short-term		City funds
	Encourage the planting of a variety of native species and ages of trees in public spaces that are representative of the ecoregion and that will increase biodiversity and resilience against tree pests and diseases.	Public Works staff	Medium-term		City funds
	Consider developing a Natural Resources Inventory (NRI) to identify natural resources that should be preserved, enhanced and protected within the City.	Public Works staff	Long-term		City funds
	Prioritize the removal of invasive plant species from public open spaces.	Public Works staff	Short-term		City funds
	Investigate and/or apply for grant funding to support restoration and enhancement of natural areas and water resources within the City.	Public Works staff	Short-term		Grants
	Implement best management practices in the use of plantings and pesticides in all public spaces within the City.	Public Works staff	Medium-term	X	City funds
	Encourage residents to plant native trees to increase the urban forest.	Public Works staff	Medium-term		City funds
	Explore the development of impervious surface standards for new developments	Planning staff	Medium-term		City funds

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
West St. Paul incorporates resiliency into planning, policy, and community decisions to plan for climate change and crisis.	Integrate climate resiliency into planning, policy, operations, and budgeting processes.	Public Works staff	Short-term	X	City funds
Encourage alternate modes of transportation including public transit, walking and biking by designing with complete streets standards in mind.	Designate CR 4 (Butler Ave.) and Charlton St. as RBTN alignments.	Public Works staff			City funds
	Designate CSAH 73 (Oakdale Ave.) RBTN alignment; construct a multiuse trail between CSAH (Mendota Rd.) and CSAH 8 (Wentworth Ave.)	Public Works staff			City funds
	Designate Marie Ave. RBTN alignment; construct multiuse trail between TH 3 (Robert St.) and CSAH 73 (Oakdale Ave.)	Public Works staff			City funds
	Maintenance Bicycle / Pedestrian Improvements including coordinating with Dakota County on reconstruction of Wentworth Avenue, addition of a multiuse trail.	Public Works staff			City funds
	Support urban design and land use policies that encourage transit use, particularity along existing and planned transit corners.	Planning staff		X	City funds
	Continue to participate in alternative analysis, development of an LPA, and station area planning activities.	Public Works and Planning staff			City funds
Preserve and develop transportation infrastructure that provides a high degree of safety and accessibility for all users and for destinations in and around West St. Paul.	Maintenance Pavement Improvement Projects at TH 149 (Dodd Rd./Smith Ave.)and TH 13 (Annapolis St); as well as TH 52.	Public Works staff			City funds

Goal		Action or Strategy	Who	When	Ongoing?	How? ($)
	Preserve and develop transportation infrastructure that provides a high degree of safety and accessibility for all users and for destinations in and around West St. Paul.	Safety and Operations coordinate with Dakota County on planned roundabout projects at Intersection of CSAH 73 (Oakdale Ave.) and CR 6 (Thompson Ave.)	Public Works staff			City funds
		Intersection and Access Modifications – coordinated with MnDoT to realign roadways, intersection, and access points based on Smith-Dodd Small Area Plan.	Public Works staff			City funds
	Manage and enhance existing sidewalk and trail systems so as to improve accessibility and the quality of life for all West St. Paul residents.	Construction of grade-separated bicycle/pedestrian crossing of Robert Street and connection as part of the River to River Greenway.	Public Works staff			City funds
		Realign and construction of River to River Greenway to regional trail standards through Garlough and Marthaler Parks.	Public Works staff			City funds
	Utilize best planning and management practices to provide the most efficient public services.	Continue coordination with the St. Paul Regional Waters Services (SPRWS) to provide water supply to West. St. Paul.	Public Works staff		X	City funds
	Utilize best planning and management practices to provide the most efficient public services.	Maintain existing sewer infrastructure through rehabilitation projects which are frequently in conjunction with its street improvement projects.	Public Works staff		X	City funds
		Upgrade and rehabilitate lift stations and forcemains.	Public Works staff		X	City funds
		Implement the inflow and infiltration (I/I) reduction activities outlined in the 2016 Memorandum of Understanding between the City and the Metropolitan Council.	Public Works staff			City funds
		No new development will be permitted in the City unless connection to the central sewer system is available and utilized.	Public Works and Planning staff		X	City funds

Goal	Action or Strategy	Who	When	Ongoing?	How? ($)
Utilize best planning and management practices to provide the most efficient public services.	MN Rules 7080 and Dakota County Ordinance 113 will reference regulations to the City's remaining on-site septic systems.	Public Works staff			City funds
	Refer to table 6-1 of the City's Surface Water Management Plan.	Public Works staff			City funds



Local Surface Water Management Plan

FOR THE CITY OF WEST ST. PAUL

FEBRUARY 2018 | PROJECT NO 1722-10

WSB

LOCAL SURFACE WATER MANAGEMENT PLAN

FOR THE

CITY OF WEST ST. PAUL, MINNESOTA

February 2018

Prepared By:

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763-541-4800
763-541-1700 (Fax)

CERTIFICATION

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.

Jacob Newhall, PE Reg. No. 49170

Amy Anderson, PE Reg. No. 50820

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Antecedent Moisture Condition II (AMC II)
Best Management Practices (BMPs)
Board of Water and Soils Resources (BWSR)
curve number (CN)
Dakota County Soil and Water Conservation District (Dakota SWCD)
Department of Natural Resources (DNR)
Drinking Water Supply Management Area (DWSMA)
Emergency Over Flow (EOF)
Environmental Protection Agency (EPA)
Federal Emergency Management Agency (FEMA)
Flood Insurance Rate Maps (FIRM)
Flood Insurance Study (FIS)
high water levels (HWL)
Hydrologic Soil Groups (HSG)
local government unit (LGU)
Local Surface Water Management Plan (LSWMP)
Low Impact Development (LID)
Lower Mississippi River Watershed Management Organization (LMRWMO)
Minnesota County Biological Survey (MCBS)
Minnesota Department of Health (MDH)
Minnesota Land Cover Classification System (MLCCS)
Minnesota Pollution Control Agency (MPCA)
Municipal Separate Storm Sewer System (MS4)
Municipal Water Resources Management Plans (MWRMP)
National Oceanic Atmospheric Administration (NOAA)
National Pollutant Discharge Elimination System (NPDES)
National Urban Runoff Program (NURP)
National Wetland Inventory (NWI)
Normal water elevation (NWL)
Ordinary High Water (OHW)
Public Waters Inventory (PWI)
perfluorooctane sulfonate (PFOS)
polycyclic aromatic hydrocarbons (PAHs)
Storm Water Pollution Prevention Plan (SWMPP)
Subsurface Sewage Treatment Systems (SSTS)
Total Maximum Daily Load (TMDL)
Total Phosphorus (TP)
U.S. Army Corps of Engineers (USACE)
Wasteload Allocation (WLA)
Watershed Restoration and Protection Strategy (WRAPS)
Wetland Conservation Act (WCA)

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SECTION 1

1. EXECUTIVE SUMMARY

1.1. Local Surface Water Management Plan Purposes

The City of West St. Paul's Local Surface Water Management Plan (LSWMP, the Plan) serves as a guide to managing the City's surface water system, which brings the City into compliance with Minnesota Statute Rules and Metropolitan Council requirements. The LSWMP will carry the City through 2028. Periodic amendment to the Plan will likely occur in the intervening ten years so that the Plan remains current to watershed plan amendments and revisions and current to the "state of the art" in surface water management.

The City of West St. Paul is located in northern Dakota County, with St. Paul to the north, Mendota Heights to the west, Sunfish Lake and Inver Grove Heights to the south, and South St. Paul to the east (**Figure 1, Appendix A**). West St. Paul is an established community that is considered fully developed. The community has put an emphasis on high quality residential neighborhoods and parks, and well-planned commercial and industrial areas.

The goals and policies in **Section 3** are also prescriptive requirements. The distinction between the goals and policies and the design standards is that the goals and policies are general while the design standards are specific.

Minnesota Statute 103B.201 states that the purposes of the water management programs are 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 official 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 West St. Paul LSWMP addresses these purposes.

1.2. Purpose and Scope

The West St. Paul LSWMP will serve as a comprehensive planning document to guide the City in conserving, protecting, and managing its surface water resources. The Plan has been created to meet statutory requirements as detailed in Minnesota Rules 8410.

In addition, the Plan reflects the requirements of the Lower Mississippi River Watershed

Management Organization (LMRWMO), which is the watershed organization with jurisdiction within the City. Meeting watershed requirements ensures the City's compliance with local and regional expectations. Finally, the plan addresses the Metropolitan Council's requirements for LSWMPs.

Local plans must do the following:

- Describe existing and proposed environment and land use.
- Provide a narrative addressing stormwater infrastructure philosophy, which details regulatory authority as well as implementation and financial responsibilities.
- Define areas and elevations of stormwater storage adequate to meet performance standards established in the watershed plan.
- Identify quality and quantity protection methods which meet standards.
- Identify regulated areas and potential easements or land acquisition areas.
- Outline a procedure for submitting annual reports to agencies which document Wetland Conservation Act and monitoring program data consistent with state compatibility guidelines.
- Set forth an implementation program, including a description of official controls, inspection and maintenance, and a capital improvement plan.
- Describe official controls and the responsible unit of government in the following areas: wetlands, erosion control, shoreland, floodplain, grading, and drainage.
- Meet other requirements as outlined in watershed organization plans.

The City submits its LSWMP to the Metropolitan Council and LMRWMO for review. The watershed has sixty days for its review after written receipt of the City Plan. Metropolitan Council provides comments within forty-five days. The Metropolitan Council directs its comments to the watershed, which considers these comments in formulating its own.

Beyond the statutory requirements outlined above, the West St. Paul LSWMP has its own emphasis. Some areas of emphasis include:

- Collecting and compiling the efforts of agencies and organizations including the City, its departments, and its residents. This includes past reports and studies, management plans, monitoring studies, as well as completed and proposed improvement projects.
- Reviewing the current state of the City's surface water resources in the context of its goals and policies, ordinances, operations and maintenance, flood mitigation, and achievement of targeted water quality levels in its surface waterbodies.
- Establishing reasonable, achievable, and affordable goals and supporting them with a strong regulatory and management culture. Developing an implementation plan that includes projects and processes derived from a thorough assessment of current City problem areas and current City surface water regulations and controls.

- Ensuring compliance with National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Separate Storm Sewer System (MS4) Permit and Storm Water Pollution Prevention Plan (SWMPP).

- Supporting the establishment of the City's stormwater utility by outlining an implementation plan.

City staff has participated in collecting data, providing feedback, and contributing knowledge of local systems to aid in developing a strategy that encompasses water quality and quantity issues.

Based on the guidance provided by the City Council and staff, this report addresses the City's current surface water management needs and provides a framework for successful implementation of a comprehensive stormwater management program. A specific outline of the steps involved in the preparation of the LSWMP is presented below:

- System Inventory and Mapping – Reassess and update drainage patterns and major trunks/conveyors of the stormwater system. Develop a map based on this analysis.

- Goals, Policies and Guidelines – Develop goals and policies that guide the City's surface water management philosophy. Augment design guidelines for development and redevelopment. This gives the City guidance for designing facilities and standards for reviewing development plans. Determine regulatory agencies involved in the stormwater management of the City and work with City staff to develop feasible goals, policies, and guidelines.

- System Assessment and Design – Use modeling which was completed with the 2006 Local Surface Water Management Plan to assess system capacity.

- Stormwater Ordinances – Recommend ordinances or revision to existing ordinances.

- Stormwater System Management – Provide recommendations on operating and maintaining the stormwater system as well as Best Management Practices (BMPs) for water quality and erosion control. Also include information regarding compliance with NPDES Phase II Stormwater Permits.

1.3. Organization

This report is a culmination of the activities described above and is organized as follows:

- **Section 1 – Executive Summary** describes the direction, intent, and legal requirements regarding the City of West St. Paul creating and adopting a comprehensive surface water management plan.

- **Section 2 - Land and Water Resource Inventory** describes the physical environment including watersheds and drainage patterns, dominant land uses, and significant waterbodies within the City.

- **Section 3 - Goals and Policies** lists the City's goals and policies along with public agency requirements affecting surface water management in the City.

- **Section 4 - System Assessment and Design** presents an overview of all the major watersheds in the City. **Section 4** also provides detail on the existing stormwater management system within the four watershed areas. A synopsis of the modeling procedure, criteria, and assumptions are included as well.

- **Section 5 - Implementation Plan** covers regulatory responsibilities, priority implementation items, educational programs, operation and maintenance, and financing considerations. A plan amendment process is also identified.

SECTION 2

2. LAND AND WATER RESOURCE INVENTORY

2.1. Land Use

The City of West St. Paul was incorporated in 1889 and is located in northern Dakota County. The City and its boundaries are shown in **Figure 1, Appendix A**. **Figure 2, Appendix A** provides the current land use classifications for the City of West St. Paul and **Figure 3, Appendix A** shows the Future Land Use as mapped by the Metropolitan Council 2040 Plan. The City's 2010 Comprehensive Land Use Plan stated that the City of West St. Paul is fully developed. However, there remains a significant number of natural features and environmentally sensitive areas within the City. According to the comprehensive plan, the City will strive to protect, enhance, and restore the natural environment through sound land stewardship practices to maintain a proper balance between human and environmental qualities.

The population in West St. Paul has been stable at around 19,000 people since the 1970s, when the City essentially developed to its borders. The population is projected to increase through 2040 as areas are redeveloped with higher density residential housing. **Table 2.1** provides City populations and population projections from 2000 through 2040.

Table 2.1
Population and Households

Year	Population	Number of Households
2000	19,405	8,779
2010	19,540	8,529
2020	21,100	9,300
2030	21,700	9,600

Source: City of West St. Paul 2010 Comprehensive Plan and U.S. Census Data

The City's 2010 Comprehensive Plan provides a significant amount of narrative and statistical detail on existing and proposed land use and the reader is referred to that document for more information on land use planning. The current Comprehensive Plan can be found on the City website or viewed at City Hall.

2.2. Modeling

The most recent hydrologic modeling was completed using HydroCAD as part of the 2006 Local Surface Water Management Plan. A combination of aerial photos, the land use classification map, and as-built drawings were used to determine hydrologic characteristics of the full development landscape. **Section 4.3** discusses this model in detail, including the features of each subwatershed. **Appendix B** includes areas for the subdistricts within each major watershed. **Appendix C** includes the pond data. Refer to Map 2 in **Appendix D** for detailed topography, storm sewer, pond locations, and drainage districts.

There is currently no city-wide model of water quality in West St. Paul. Part of West St. Paul was also included in the P8 modeling completed by LMRWMO which is discussed in more detail in **Section 4.4.2.2**.

2.3. Topography and Watersheds

The surficial geology of West St. Paul consists entirely of glacial and alluvial (outwash) deposits of the Labradorean Superior Lobe. As the glacier retreated and melted, it left behind areas of outwash and till deposit formations. Most of the City is covered in till formations composed of reddish-brown sandy loam, with cobbles and boulders common. Areas of gravel and sand

outwash and ice-contact stratified deposits of gravel and sand are interspersed throughout the City (Minnesota Geological Survey 1990).

West St. Paul has rolling to hilly terrain interspersed with poorly drained depressions that form ponds and small lakes. Elevation in the City ranges from approximately 880 feet in the northeast corner of the City along Highway 52 to approximately 1,110 feet in the center of the City in Marthaler Park. **Figure 4, Appendix A** shows the City's topography using two-foot contours from Dakota County.

The City's hydrologic system is part of the Mississippi River watershed. The City resides entirely within the LMRWMO. The subwatersheds used in the most recent city-wide hydrologic model are shown in Map 2 in **Appendix D**.

2.4. Climate and Precipitation

The climate within the Twin Cities Metropolitan Area is typical of a continental climate. Without the buffering influence of large bodies of water, cold winters and hot summers predominate. It is generally understood that global climate change influences the Twin Cities Metropolitan Area's local climate. One area where climate change manifests itself is in rainfall intensities and rainfall depths. The Twin Cities Metropolitan Area has seen higher rainfall depths in the last two decades and even the average depth rainfalls are more intense. The implications are clear:

- Flood control facilities, if designed for the 100-year rainfall, would get larger as the statistical 100-year rainfall gets larger.
- Facilities designed for smaller events, such as infiltration areas and small storm sewer would also get larger as rainfall depths increase for the 1-year to 5-year rainfall events.

The total average annual precipitation in the Twin Cities Metropolitan Area is approximately 30.6 inches. The total average annual snowfall is approximately 54.4 inches. Average monthly temperature, precipitation, and snowfall are shown in **Table 2.2.**

TABLE 2.2
AVERAGE MONTHLY CLIMATE DATA, MINNEAPOLIS/ST. PAUL, 1981-2010

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Daily Temperature (°F)	15.6	20.8	32.8	47.5	59.1	68.8	73.8	71.2	62.0	48.9	33.7	19.7	46.2
Average Precipitation (in.)	0.90	0.77	1.89	2.66	3.36	4.25	4.04	4.30	3.08	2.43	1.77	1.16	30.61
Average Snowfall (in.)	12.2	7.7	10.3	2.4	0.1	0.0	0.0	0.0	0.0	0.6	9.3	11.9	54.4

Source: Minnesota Climatology Working Group

Additional climatological information for the area can be obtained from the Minnesota State Climatology Office at http://www.climate.umn.edu/.

Rainfall frequency estimates are used as design tools in water resource projects. In 2013, the National Oceanic Atmospheric Administration (NOAA) published the Atlas 14 Precipitation-Frequency document that showed an increase in rainfall intensity and design storms from the previous Technical Paper 40 precipitation values. Selected rainfall frequencies for West St. Paul are listed in **Table 2.3.**

TABLE 2.3
TP-40 AND ATLAS 14 RAINFALL FREQUENCIES

Recurrence Interval (yrs)	Atlas 14 24-hr Rainfall Depth (in)	TP-40 24-hr Rainfall Depth (in)
1	2.45	2.38
2	2.80	2.75
10	4.18	4.18
50	6.31	5.31
100	7.44	5.95

Additional precipitation information for the area can be obtained from the NOAA website.

2.5. Soils

The majority of soils in West St. Paul are classified into the Kingsley-Mahtomedi association soil series. Information about each of the soils in this association is available from the Soil Survey of Dakota County (SCS 1983). **Table 2.4** shows the drainage characteristics of each soil series from the above associations.

Table 2.4
Soil Drainage Characteristics

Soil Series	Drainage Characteristics	Hydrologic Soil Group
Kingsley	Deep, well drained	B
Mahtomedi	Deep, excessively drained	A

The drainage characteristics of a soil is important for determining the surface water runoff from a given area. If the soil is well-drained, a significant portion of the precipitation will be infiltrated into the ground. Whereas if a soil is very poorly drained, much more precipitation becomes runoff. A map of the soils present in the City of West St. Paul can be found in **Figure 5, Appendix A.**

Hydrologic Soil Groups (HSG) characterize diverse soils by similar infiltration capacity. Group A soils have the highest infiltration capacity while Group D have the lowest. Generally, infiltration is not an appropriate practice on Group C and D soils.

Group A – These soils have high infiltration rates even when thoroughly wetted. Based on the Minnesota Stormwater Manual, published by the MPCA, the infiltration rates range from 0.8 to 1.63 inches per hour. These soils consist chiefly of deep, well drained to excessively drained, sands and gravel. Group A soils have a high rate of water transmission resulting in a low runoff potential.

Group B – These soils have moderate infiltration rates ranging from 0.3 to 0.45 inches per hour when thoroughly wetted. Group B soils consist of deep, moderately well to well drained soils, with moderately fine to moderately coarse textures.

Group C – These soils have slow infiltration rates 0.2 inches per hour when thoroughly wetted. Group C have moderately fine to fine texture.

Group D – These soils have very slow infiltration rates ranging from 0 to 0.06 inches per hour when thoroughly wetted. Group D soils are typically clay soils with high swelling potential, soils with high permanent water table, soils with a clay layer at or near the surface, or shallow soils over nearly impervious material.

Most of West St. Paul has soil associations of HSG A to B, indicating a low to moderate potential to generate runoff. In many cases, grading associated with development projects reduces the drainage capacity of the soil increasing its runoff generating potential. However, map-based classifications such as those shown in **Figure 4, Appendix A** are not sufficient for design of infiltration-based BMPs. Site-specific soil testing should be done before designing and installing these systems.

Figure 5, Appendix A also shows that a significant amount of existing soils within West St. Paul do not have an assigned HSG classification. Unclassified soils in urban areas are often highly disturbed and require testing and evaluation to properly quantify their potential for runoff generation.

2.6. Key Water Resources

The City of West St. Paul has several water resources available for the use and enjoyment of its residents. These major water resources tend to be Department of Natural Resources (DNR) public waters and public water wetlands. Below is a brief summary of the major surface water resources. **Figure 6, Appendix A** depicts the City of West St. Paul's surface water system. The public waters and protected water wetlands are labeled with their Public Waters Inventory (PWI) number and are shown in **Figure 7, Appendix A**.

2.6.1. Major Bodies of Water

Thompson Lake (PWI # 19004800 W)

Thompson Lake is a seven-acre lake located in the City of West St. Paul. Thompson Lake is the centerpiece for the popular Thompson County Park. The area has numerous trails, a fishing pier, a community center, and a picnic shelter. Thompson Lake is the only lake in West St. Paul with an assigned classification from the DNR; it is classified as a Natural Environment lake.

Monitoring performed by the City of West St. Paul and Dakota County has determined that lake sediments contain concentrations of polycyclic aromatic hydrocarbons (PAHs) at levels that prevent reuse of the sediment on residential or industrial properties. A feasibility study to address the high concentrations of PAHs and investigate the upstream source has been completed. Dakota County and City are working to secure funding to remove the sediment with high PAH concentrations.

Thompson Lake was monitored by Dakota County in 2011 and by the LMRWMO in 2012 (as part of the WRAPS project). Thompson Lake is listed on the MPCA's 2018 impaired waters list for Nutrient/Eutrophication Biological Indicators and Chloride.

To address Thompson Lake's present on the impaired waters list, the City of West St. Paul is partnering with LMRWMO and Dakota County to install a stormwater treatment project which will reduce nutrient loads to Thompson Lake and remediate PAH contamination. The project will treat runoff from 83% of Thompson Lake's watershed and is currently scheduled for construction in 2018-2019.

Marthaler Pond (PWI # 19009100 P)

Marthaler Pond resides in the southwest corner of the Simons Ravine drainage district. The lake is shallow, with a maximum depth of six feet. Its surface area is approximately 4.5 acres. Its watershed is approximately 23 acres, giving a watershed to lake ratio of 5.1 to one. The pond is landlocked, and there is no plan to add an outlet at this time.

Dodge Center Ponds (PWI #s 19008600 P, 19008700 P, 19008900 P)
Pond #87P is located in the south portion of the Ivy Falls Creek drainage district and drains to the northwest via storm sewer to Mendota Heights. The pond has a surface area of approximately 4.4 acres and a drainage area of 33 acres, for a watershed to pond ratio of 7.5 to one. Ponds #86P and #89P are in the Valley Creek (Marie) drainage district. Pond #86P is the farther north pond. It has a surface area of about 5.2 acres and a watershed area of 16.5 acres for a watershed to pond ratio of 3.2 to one. Pond #89P has a surface area of 2.7 acres and a watershed area of 113 acres, giving a watershed to pond ratio of 41.9 to one. Both ponds in the Valley Creek (Marie) drainage district drain overland to the south and into Mendota Heights.

2.6.2. Water Courses

The City of West St. Paul does not contain any DNR designated watercourses.

2.6.3. Wetlands

The wetlands which are part of the National Wetland Inventory (NWI) are shown in **Figure 7, Appendix A**. The two most significant wetlands in West St. Paul are Lily Lake and Mud Lake, which are also public waters.

Lily Lake (PWI # 19008400 W)
This lake is considered a public water wetland by the DNR. This lake is located in the eastern portion of the Riverview Tunnel drainage district. The area of its watershed is about 22 acres and its surface area is 6.4 acres, giving a watershed to lake ratio of 3.4 to one. It drains into the storm sewer system and discharges north into St. Paul.

Mud Lake (PWI # 19008500 W)
This lake is a public water wetland. The lake resides in the western portion of the Riverview Tunnel drainage district. Its area is approximately 3.1 acres. The area of its watershed is 34.2 acres, giving a watershed to lake ratio of 11 to one. The lake drains into the storm sewer system and discharges north into St. Paul.

On November 14, 2016, the City Council adopted Resolution No. 16-122 which delegates its decision and administrative authority under the Minnesota Wetland Conservation Act (WCA) of 1991 to the Dakota County Soil and Water Conservation District (Dakota SWCD). Therefore, the City of West St. Paul is no longer responsible for WCA-related permitting and reporting activities which relate to the wetlands listed above. However, the City still cooperates with the Dakota SWCD and state agencies in the management and protection of these wetlands.

2.6.4. Water Quality and Water Quantity Modeling Programs

There are no long-term MPCA monitoring sites in West St. Paul. All surface water quality data collected by the MPCA is available at the MPCA's Environmental Data Access site for surface water.

The City of West St. Paul and Dakota County have done monitoring work on Thompson Lake as part of a study of the lake sediments. Thompson Lake was also monitored by Dakota County in 2011 and the LMRWMO in 2012 as part of the WRAPS study.

2.6.5. List of Impaired Waters

Thompson Lake is listed on the MPCA's proposed 2018 impaired waters list for Nutrient/Eutrophication Biological Indicators, and Chloride. It is part of the LMRWMO

Watershed WRAPS/Total Maximum Daily Load (TMDL), which was approved by the U.S. Environmental Protection Agency (EPA) in 2014. The implementation plan for this TMDL has not yet been approved by the MPCA.

The City of West St. Paul does not directly border the Mississippi River, but the Mississippi River to the east, north, and west of the City is impaired for the following pollutants: Fecal coliform, PCB in fish tissue, perfluorooctane sulfonate (PFOS) in fish tissue, and turbidity.

2.7. Existing Flood Insurance Studies

The Federal Emergency Management Agency (FEMA) completed the map modernization process for its Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) to identify flood risk within Dakota County in 2011. A copy of the updated FIS and FIRMs can be obtained through the FEMA Map Service Center at https://msc.fema.gov. There are currently no federally delineated floodplains within the City of West St. Paul.

2.8. NPDES Phase II

The City of West St. Paul is required to have a MS4 permit through the MPCA's NPDES Phase II Program. MS4s designated by rule are urban areas with populations over 10,000 or urban areas with populations greater than 5,000 with the potential to discharge to valuable or polluted waters. Permits for construction sites greater than one acre will also be required as part of Phase II.

As an MS4, the City will be required to implement the following 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 Management
6. Pollution Prevention/Good Housekeeping for Municipal Operations

For more information on the MS4 Permit requirements refer to www.pca.state.mn.us. Refer to **Appendix E** for a copy of the City's MS4 SWPPP.

2.9. Other Pollution Sources

Figure 8, Appendix A shows the sites tracked by the MPCA in their What's In My Neighborhood program. These locations have permits from the state to generate certain waste streams. The City of West St. Paul does not have a monitoring program for any of the MPCA sites in the City.

2.10. Water Quality Monitoring

The City of West St. Paul does not currently have a monitoring program for any of the public waters shown in **Figure 7, Appendix A.** These public waters are also not monitored by the MPCA or the LMRWMO. The DNR does perform occasional monitoring on Thompson and Lily Lakes, including fish sampling. The public water wetlands within the City are not currently part of a monitoring program.

As part of addressing Thompson Lake's impairment for nutrients, the City is partnering with LMRWMO and Dakota County to implement a project which will treat stormwater runoff reaching Thompson Lake. This project will include post-project water quality monitoring, which will be conducted by one of the project partners and results shared with the group.

2.11. Unique Features

2.11.1. Parks and Open Spaces

West St. Paul has 13 parks, as well as a golf course and other public recreational amenities. None of these parks are designated as Scientific and Natural Areas. There are no Outstanding Resource Value Waters in West St. Paul.

2.11.2. MLCCS and MCBS

The Minnesota Land Cover Classification System, or MLCCS, categorizes urban and built up areas in terms of land cover rather than land use. MLCCS serves as a tool for City staff to integrate natural area preservation into land planning, land use, and zoning decisions. **Figure 9, Appendix A** shows that the majority of West St. Paul is classified as developed land, with some of the parks and public areas classified as forest, shrubland, or herbaceous land. Most public waters and wetlands discussed in **Section 2.6** have been delineated in the MLCCS.

The Minnesota County Biological Survey (MCBS) provides a ranking of natural sites based on the presence of rare species, the size and conditions of native plant communities within the site, and the landscape context of the site. There are no sites of biodiversity significance as determined by the MCBS within the City of West St. Paul.

2.12. Groundwater and Wellhead Protection

The City of West St. Paul is part of the St. Paul Regional Water Authority, which provides drinking water to the City from the Mississippi River. The City of West St. Paul does not currently use groundwater as a source of drinking water, and there are no Groundwater Management Areas within City boundaries.

The South St. Paul Wellhead Protection Area lies partially within West St. Paul, as shown in **Figure 10, Appendix A**. Wellhead Protection areas are established by the Minnesota Department of Health (MDH) and are managed to protect the wells or well fields that they contain from surface or subsurface contamination.

Part of West St. Paul is within a Drinking Water Supply Management Area (DWSMA) which overlaps with the South St. Paul Wellhead Protection Area. The vulnerability of this DWSMA ranges from Moderate to High within the City boundaries. Vulnerability of a DWSMA is determined using geologic, soils, and groundwater chemistry information.

Regardless of vulnerable source water protection areas being located within West St. Paul the City will incorporate the guidance developed by the MDH on evaluating proposed stormwater infiltration projects in vulnerable source water protection areas and the guidance located within the Minnesota Stormwater Manual on designing infiltration BMPs while protecting groundwater. This will be of particular concern in areas where infiltration is being considered in soils suitable for rapid infiltration adjacent to municipal and private wells.

SECTION 3

3. GOALS AND POLICIES

3.1. Purpose

The primary goal of West St. Paul's LSWMP is to bring the City into statutory compliance and provide the City with a framework for effective stormwater management. Primarily, the goal to guide redevelopment activities but also as a guide for identifying and implementing retrofits to the existing system. These retrofits consist of both projects and programs. Additionally, the plan provides clear guidance on how West St. Paul intends to manage surface water in terms of both quantity and quality.

This plan is an update to the cities 2006 Local Surface Water Management Plan as a result of the 2011 (LMRWMO) plan and 2015 amendment. This plan is also intended to meet the requirements of Minnesota Statute 103B and Rules 8410, which describe the content and requirements for Local Surface Water Management Plans. This plan is also intended to meet current Metropolitan Council requirements regarding Local Surface Water Management Plans. The goals and policies of the 2011 LMRWMO plan and 2015 amendment are included in this LSWMP.

3.2. Background

The City completed its first comprehensive plan in 1963, about 13 years before the Metropolitan Council required such plans. The City amended the plan in 1973, 1982, and 2000. The latest revised comprehensive plan was adopted on February 24, 2010. The 2010 Comprehensive Plan reiterated the goals of previous plans, and it also reaffirmed the City's commitment to those aspects of the community that makes it a desirable place to live.

Specific to this Plan are the following 2010 Comprehensive Plan goals and policies under the Natural Environment subsection.

Goals

1. To protect, enhance, and restore the natural environment through sound land stewardship practices in order to maintain a proper balance between human and environmental qualities.

2. To preserve significant open spaces and natural systems.

General Policies

1. The City's significant natural resources shall be preserved for their functional value and for their potential positive impact upon proximate urban development.

2. Urban development shall be encouraged in such a manner that it preserves the City's significant environmental resources and maximizes their positive impact upon such urban development.

3. The natural environment shall be protected to preserve ecologically sensitive and scenic areas.

4. Land uses should not be allowed which degrade the quality of the air, ground or surface water below acceptable environmental standards.

5. The City shall encourage sustainable and "green" building development practices that minimize negative impacts on the natural environment and conserves valuable resources.

Surface Water Policies

1. The City's Local Surface Water Management Plan shall be strictly adhered to.

2. DNR shoreland management regulations shall continue to be enforced by the City of West St. Paul.

3. The City shall cooperate with the Dakota SWCD in preserving wetlands shown on the Wetlands Map for their functional and environmental value.

    a. Wetlands shall be considered an integral part of the City's stormwater drainage system.

    b. Alteration for ponding purposes may be permitted but should be accomplished in such a manner that wildlife habitat is preserved or strengthened.

    c. When areas in proximity to designated public waters/wetlands are proposed for urbanization, detailed site plans should be required to demonstrate how the resource will be protected from potential negative effects.

4. Temporary storage areas, retention basins, or natural swales scattered throughout developed areas should be encouraged so as to reduce peak flows, erosion damage, and construction costs.

5. Water quality should be protected by adoption and adherence to:

    a. The City's Local Surface Water Management Plan

    b. DNR Statewide Standards for Management of Shoreland Areas.

    c. MPCA "Best Management Practices" as outlined in *Protecting Water Quality in Urban Areas* or the *Minnesota Stormwater Manual*.

    d. National Urban Runoff Program standards for new stormwater ponds.

6. The City will continue to monitor new development proposals and require whatever means are necessary and feasible to adequately accommodate stormwater runoff.

Woodland/Steep Slope Policies

1. Concentrations of wooded land with an 18 percent slope or greater shall be preserved in its natural state for environmental value, particularly to deter soil erosion on the steep slopes.

2. Urbanization within woodland areas of less than 18 percent slope shall be sensitively designed so that the overall woodland effect is preserved.

3. Detailed site plans shall be required for areas within proximity to woodlands to assure that potential negative impacts are minimized.

4. Erosion protection and soil conservation measures should be required for all new development, including:

    a. The drainage system should be constructed and operational as quickly as possible during construction.

b. Where the topsoil is removed, sufficient arable soils should be set aside for re-spreading over the developed area. The soil should be restored to a minimum depth of four inches and should be of a quality at least equal to the topsoil quality prior to development.

c. When soil is exposed, the exposure should be for the shortest feasible period of time so as to minimize sheet and gully erosion.

This West St. Paul LSWMP expands upon the goals and objectives provided in the City's 2010 Comprehensive Plan, as well as the City's 2006 LSWMP and 1991 Municipal Water Resources Management Plans (MWRMP).

3.3. Official Controls

Implementation items include ordinance as well as projects. One of the requirements of local plans is that they outline official controls, lines of responsibility, and mechanisms for enforcement in certain areas. **Table 3.1** shows how existing controls and future implementation items address the need for these official controls.

Table 3.1
Official Controls

Official Control	Responsibility	Mechanism
Wetlands	Dakota County as LGU	WCA review by Dakota SWCD.
Erosion Control	City; Dakota County for NPDES construction permit	Section 40 of the City's Zoning Ordinance; MPCA pilot project for Dakota SWCD.
Shoreland	City	Section 153.413 of the Zoning Ordinance.
Floodplain	City	There is no FEMA floodplain within the City.
Grading	City	Through the existing stormwater management ordinance (City Code Chapter 50), site review process and through the requirements of this LSWMP.
Drainage	City	Through the stormwater management ordinance, site review process and through the requirements of this LSWMP.

3.4. City of West St. Paul LSWMP Goals and Policies

This section of the LSWMP outlines goals and policies specific to surface water management in West St. Paul and its environs. The goals and policies identified below are broad statements regarding the motivation and intent of the LSWMP. The policies that follow individual goals are specific requirements that promote attainment of the goal.

The City of West St. Paul has maintained natural drainage patterns throughout most of its development. The City's goal is to foster continued optimum use of that natural drainage system

while enhancing the overall water quality entering lakes and wetlands. The intent is to prevent flooding while using identified BMPs to enhance surface water quality with minimal capital expenditures by the City.

The City of West St. Paul has adopted by ordinance the 2000 edition of MPCA publication *Protecting Water Quality in Urban Areas* for implementing BMPs for erosion control. The City of West St. Paul goals were established along the guidelines of the goals developed by the Metropolitan Surface Water Management Act (M.S. 103B).

The purposes of the water management programs required by Sections 103B.205 to 103B.255 are to:

1. Protect, preserve, and use natural surface and groundwater storage and retention systems;

2. Minimize public capital expenditures needed to correct flooding and water quality problems;

3. Identify and plan for means to effectively protect and improve surface and groundwater quality;

4. Establish more uniform local policies and official controls for surface and groundwater management;

5. Prevent erosion of soil into surface water systems;

6. Promote groundwater recharge;

7. Protect and enhance fish and wildlife habitat and water recreational facilities; and

8. Secure the other benefits associated with the proper management of surface and ground water.

3.4.1. Nondegradation

Goal 1:
Improve the quality of the City's and region's surface water resources, whenever feasible, by decreasing phosphorous, total suspended solids, and water volume discharge. At a minimum, the City's nondegradation goal calls for no increase in phosphorus, total suspended solids, and water volume discharge.

Policy 1.1:
The City will begin reviewing developments in the context of nondegradation and will apply such BMPs as necessary to maintain or reduce current phosphorous, total suspended solids loads, and water volume loads.

Policy 1.2:
The City will endeavor to retrofit treatment structures when opportunities present themselves in public projects.

Policy 1.3:
All the City's lakes and wetlands will be managed for nondegradation.

3.4.2. Water Quantity

Goal 2:
Prevent flooding from surface flows while reducing, to the greatest extent practicable, the public capital expenditures necessary to control excessive volumes and rates of runoff.

Policy 2.1:
Trunk storm sewers that serve as elements of the trunk system shall be designed with capacity for 100-year ponded outflows plus 10-year directly connected flows. Channels and ravines that serve as elements of the trunk system shall be designed with capacity for 100-year ponded outflows plus 100-year directly connected flows. The City's freeboard requirements are applied to the 100-year elevations of these channels and ravines.

Policy 2.2:
In addition to the 10-year and 100-year ponded flow primary capacity, the conveyance system shall provide capacity in excess of the 100-year event in the form of overland overflow routes or adequate surface storage volume. This surface storage volume consists of storage in street low points, within ditches, or in other transient ponding areas.

Policy 2.3:
Detention basins must be designed with capacity for the critical 100-year event. At a minimum, detention basins must maintain existing flow rates for the 2-, 10-, and 100-year rainfalls.

Definition: The 100-year critical event in the 100-year event that produces the highest water level between the 24-hour rainfall event or the 10-day, 7.2-inch runoff event.

Policy 2.4:
The maximum duration for rainfall critical event analysis shall be 24 hours except in cases where basins are landlocked, where both a back to back 24-hour event and a 10-day 7.2-inch runoff event shall also be used. In all cases, a hydrograph method of analysis shall be used. For the 24-hour rainfall event, or back-to-back 24-hour rainfall events, an MSE3 rainfall distribution should be used. For shorter duration critical events other distributions may be used with the approval of the City Engineer.

Definition: Landlocked basins are those where no outlet exists below proposed or existing structures.

Regarding policies 2.2, 2.3, and 2.4: For systems designed and implemented prior to the 1991 MWRMP, conveyance capacity and storage requirements may not meet these requirements. These policy statements in no way imply that the City intends to unilaterally upgrade these systems.

Policy 2.5:
All drainage system analyses and designs shall be based on proposed full development land use patterns.

Policy 2.6:
Intercommunity water resources issues planning shall consider alternative solutions:

a. All drainage studies or feasibility studies, whether by a watershed organization or municipality, leading to projects in a subwatershed with an intercommunity drainage issue, shall consider the impact of the project on the drainage issue and shall consider the total intercommunity project cost.

b. Except in emergencies, no solutions or partial solutions to intercommunity drainage issues shall be implemented without prior completion of a feasibility study of options and adoption of a preferred option by the applicable watershed organizations.

Policy 2.7:
The following items shall be considered in the management of landlocked basins:

a. The flood levels established for landlocked basins shall take into consideration the effects of water level fluctuations on trees, vegetation, erosion, and property values. Steeply sloped shorelines subject to slope failure and shoreline damage should not be in contact with floodwaters for extended periods of time.

b. The capacity of proposed outlets to landlocked basins should not be so small as to cause extended duration of high water levels (HWL) that would result in damage to upland vegetation.

c. Only the existing tributary area may discharge to a landlocked basin, unless a provision has been made for an outlet from the basin or the right to augmented storage within the basin has been secured through purchase or easement, except in cases where adverse impacts to vegetation would occur. The form of the outlet may range from temporary pumps to gravity storm sewers. The outlet shall be implemented before increased water levels are likely to affect vegetation, slope stability, and property values.

d. Critical event analysis of landlocked basins shall include the 10-day, 7.2-inch runoff event and back to back 24-hour, 100-year events.

Policy 2.8:
When development occurs adjacent to a landlocked basin and the basin is not provided an outlet, freeboard should be determined based on one of three methods (whichever provides for the highest freeboard elevation):

a. Three feet above the HWL determined by modeling back to back 100-year, 24-hour events or a 7.2-inch runoff event, whichever produces the higher HWL.

b. Three feet above the highest known water level.

c. Five feet above the HWL determined by modeling a single 100-year, 24-hour event.

If outlets from landlocked basins are needed, the City of West St. Paul, where practicable, will keep outflow rates low enough to allow for as much infiltration as possible. Drawdown time to within one foot of the normal water level should not exceed 48 hours to reduce damage to upland vegetation.

The City of West St. Paul will consider both the water quality and flooding impacts of proposed outlets from landlocked basins on downstream water resources.

When modeling landlocked basins, the starting water surface elevation should be the basins Ordinary High Water (OHW) elevation. This is typically available from the DNR.

In cases where it is not, a reasonable approximation of it must be obtained by field survey and modeling. Additionally, continuous simulation of average annual rainfall conditions will also provide insight into whether significant, adverse impact to vegetation would occur due to development around the landlocked basin.

> Definition: Freeboard is the vertical separation between the HWL of the simulated rainfall or runoff event and the lowest ground elevation adjacent to a structure.

Policy 2.9:
For basins with a suitable outlet, freeboard will be 2.0 feet above the HWL determined by modeling the 100-year critical event. Emergency overflows a minimum of 1.5 feet below the lowest ground elevation adjacent to a structure should also be provided.

Policy 2.10:
Adjacent to channels, creeks, and ravines freeboard will also be two feet to the 100-year critical event elevation.

Policy 2.11:
Development and redevelopment projects must not exceed existing rates of discharge for the 2-, 10-, and 100-year events. Wherever feasible the City will look for reductions over existing discharge rates for development and redevelopment projects.

Policy 2.12:
The City will review developments and manage its stormwater system so that development, redevelopment, and other infrastructure projects do not overtax the existing downstream stormwater system.

Policy 2.13:
The City will reduce the amount of impervious surfaces through the use of Low Impact Development (LID) techniques to the greatest extent reasonable for new development and redevelopment projects, taking into consideration land use, zoning, topography, previous site uses, and site constraints. LID techniques may include, but are not limited to, those presented on the MPCA Low Impact Development website.

Policy 2.14:
The City will not be allowed to use infiltration as a stormwater BMP in areas where there are known contaminants or in drinking water supply management areas/wellhead protection areas. In addition, infiltration will not be encouraged where the soils are not suitable for infiltration or in areas where there is less than three feet of separation between the bottom of the infiltration system and the groundwater or bedrock. In-situ field tests shall be required to verify the infiltration rates of on-site soils prior to the construction of infiltration BMPs.

Policy 2.15:
The City will provide pretreatment of stormwater prior to discharge to any new infiltration system to protect the functionality of the system. Pretreatment shall collect sediment, skim floatables, and be easily accessed for inspection and maintenance.

Policy 2.16:
The City will design all new non-trunk stormwater systems to provide discharge capacity for the critical-duration runoff event that is not less than a 5-year frequency event, preferably a 10-year frequency event (level of service). Where the planned level of

service would cause hardship in operation of a downstream system, the owner may design for a lesser level of service if the following circumstances are present:

a. The proposed new or replacement system will not have a longer life than that of the existing downstream system.

b. It is not practical to incorporate temporary measures into the new system to mitigate the effects of the new system on the downstream system.

Policy 2.17:
The City will continue to maintain ordinances or policies that allow for securing easements over floodplains, detention areas, wetlands, ditches, and all other parts of the stormwater system as areas develop or redevelop.

Policy 2.18:
The City will incorporate multi-stage outlets into their pond designs to control flows from smaller, less frequent storms and help maintain base flows in downstream open channels, where practicable.

3.4.3. Water Quality

Goal 3:
Maintain or improve the quality of water resources within the City.

Policy 3.1:
Wetlands and waterbodies identified in **Figure 6, Appendix A** will be protected according to Zoning Ordinance 40: Stormwater Management and according to other applicable local, state, and federal regulations.

Policy 3.2:
The use of watershed BMPs will be required to help minimize pollutants in stormwater runoff.

Policy 3.3:
The City shall require a 50 percent total phosphorus removal from runoff leaving new development and redevelopment projects that exceed one acre of land disturbance (for this policy, mill and overlay and pavement rehabilitation projects are not considered land disturbance). For areas that discharge directly to the Mississippi River or to an impaired water body for which a TMDL has been completed, the findings of the TMDL will replace this requirement (whether more or less stringent). The required reduction of total phosphorus may be accomplished through the use of regional or on-site stormwater BMPs such as: ponds, NURP (National Urban Runoff Program) basins, infiltration basins, biofiltration, vegetated swales, mechanical devices, porous pavements, or any other techniques effective at phosphorus reduction.

Policy 3.4:
Given that many of the soils underlying the City have higher than typical infiltration capacity, infiltration, or reducing impervious surface, should be considered in all projects that involve stormwater management. If either infiltration or limiting impervious surface is rejected for a project, specific reasons for doing so will be provided by the project proposer. Infiltration of the first inch of runoff from new impervious surfaces is expected for development and redevelopment sites on HSG A or B soils. The City will also endeavor to obtain as much infiltration as possible from existing impervious surfaces when these are included in a project where the infiltration is required.

Policy 3.5:
Newly constructed ponds shall include an outlet design allowing for extended detention of the 1- to 5-year rainfall event. The hydrograph duration for pond discharge should extend a minimum of 24 hours for events within the 1- to 5-year range.

Policy 3.6:
Outlet skimming will be required in all ponds. Skimming shall occur for up to the 5-year, 24-hour event.

Policy 3.7:
The City will share water quality data and analysis with LMRWMO and other cities.

Policy 3.8:
Linear construction projects should meet water quality Policy 3.3 where possible and feasible. Linear projects will be required to meet NPDES Construction Permit requirements.

Policy 3.9:
For stormwater discharge points/outfalls that did not exist prior to the adoption of this plan, the City will provide pretreatment of stormwater prior to its discharge to wetlands and other water resources. Pretreatment shall collect sediment, skim floatables, and be easily accessed for inspection and maintenance.

Policy 3.10:
For replacement discharge points/outfalls or existing stormwater discharge points/outfalls the City will provide, where feasible, pretreatment of stormwater prior to its discharge to wetlands and water resources.

3.4.4. Recreation and Fish and Wildlife

Goal 4:
Protect and enhance fish and wildlife habitats, water recreational facilities, and water resource aesthetics.

Policy 4.1:
The neighborhood and regional benefits to wildlife habitat and aesthetics should be considered in any proposal to alter or eliminate wetlands, understanding that wetland elimination without mitigation is precluded by state law and that even mitigated wetland impacts must meet strict sequencing guidelines.

Policy 4.2:
The City will review inlets and outlet for aesthetics.

Policy 4.3:
West St. Paul shall seek to coordinate with the Minnesota DNR regarding development of DNR public waters and public water wetlands. Notwithstanding ordinance provisions, both existing and future, that control development of shoreland areas, the City will seek DNR comments on development proposals adjacent to DNR public waters and public water wetlands.

Policy 4.4:
Water resources shall be maintained in such a manner as to preserve or restore their intrinsic aesthetic qualities and wildlife habitat.

Policy 4.5:
West St. Paul shall consider landscape designs for projects located near natural areas or greenways to:

a. Increase beneficial habitat, wildlife and recreational uses, promote infiltration and vegetative water use.

b. Decrease detrimental wildlife uses (such as beaver dams or goose overabundance) that damage water control facilities, shoreline vegetation, water quality or recreational facilities.

Policy 4.6:
The City will prioritize shoreland areas for restoration. Shoreland areas include streambanks and lakeshore areas.

3.4.5. Enhancement of Public Participation; Information and Education

Goal 5:
Inform and educate the public concerning urban stormwater management and the problems pollutants cause if allowed into our water resources.

Policy 5.1:
Enact a public education program based on the following objectives to reduce stormwater pollution:

a. Promote community ownership of the lakes
b. Raise awareness of the problem and solutions
c. Recognize responsible parties and actions to date
d. Merge public feedback into program execution

Policy 5.2:
Enact a public education and outreach program to satisfy the minimum control measures identified in the City's NPDES permit. The content of this, as outlined in the City's MS4 permit, includes postings on the City website and in the City newsletter, stormwater brochures, and close coordination with outside entities.

Policy 5.3:
The City of West St. Paul will make information available to active community groups such as Rotary, Chamber of Commerce, and the Cities Environmental Commission to educate and increase awareness of water resource issues throughout the City.

3.4.6. Groundwater

Goal 6:
Maintain and improve groundwater quality and promote groundwater recharge.

Policy 6.1:
To the extent that Wellhead Protection Plans identify areas of groundwater recharge that require protection, the City shall work with the MDH and neighboring communities in developing adequate protection measures.

Policy 6.2:
The City of West St. Paul will encourage groundwater recharge and are required to protect recharge areas from potential sources of contamination. Whenever possible and appropriate, the City will also provide increased green space, native vegetation, and

pond “dead” storage to allow for the infiltration of stormwater runoff and promote groundwater recharge.

Policy 6.3:
The lowest floor or basement floor of a structure shall be four feet above the currently observed water table elevation or two feet above any known historic water table elevation.

Policy 6.4:
The City will continue to support the policies in the Dakota County and Ramsey County groundwater plans.

3.4.7. Lakes and Wetland Management

Goal 7:
Classify the City’s waterbodies and develop management goals appropriate to them.

Policy 7.1:
The City will begin a phased inventory of its wetlands and lakes to determine their functions and values and develop management standards that go beyond the susceptibility-based treatment and bounce standards of **Section 4.4.3**.

Policy 7.2:
The City will share information collected on its waterbodies with the LMRWMO.

3.4.8. Wetlands

Goal 8:
Protect and preserve wetlands through compliance with the Wetland Conservation Act. As of November 14, 2016, the Dakota SWCD is now the local government unit (LGU) responsible for enforcing the Wetland Conservation Act. The City of West St. Paul continues to support protection and preservation of wetlands within the City boundaries by partnering with the Dakota SWCD.

Policy 8.1:
Cooperate with Dakota SWCD (as the LGU) and other jurisdictional agencies with respect to wetlands within the City of West St. Paul.

Policy 8.2:
Require a vegetated buffer with a width of at least 15 feet outside an existing or proposed wetland boundary within the City of West St. Paul.

3.4.9. Erosion and Sediment Control

Goal 9:
Prevent, to the greatest extent possible, sediment from construction sites from entering the City’s surface water resources and to control the erosion from drainage ways within the City.

Policy 9.1:
The City will enforce an Erosion and Sediment Control Ordinance as outlined in its NPDES permit.

Policy 9.2:
The City will periodically review its Erosion and Sediment Control ordinance and revise it as necessary.

Policy 9.3:
The City of West St. Paul will require erosion control plans for land development and construction work that will disturb one or more acres of land. Erosion Control Plans shall be prepared by a qualified individual and shall conform to the MPCA's NPDES General Permit to Discharge Stormwater from Construction Sites. The erosion control plan shall also conform to all future NPDES stormwater regulations that apply to erosion control.

Policy 9.4:
Acceptable erosion in drainage ways is limited to that which causes no net degradation of the watercourse or destruction of properties adjacent to the watercourse.

a. Measures to alter the natural course and meandering of streams will be discouraged, except when foreseeable erosion threatens to damage structures, utilities, or natural amenities or impair the drainage system.

b. Land use adjacent to watercourses shall be regulated to allow for the reasonably expected natural behavior of streams.

Policy 9.5:
The City of West St. Paul will ensure the design of stream bank stabilization and streambed control measures will consider unique or special site conditions, energy dissipation potential, adverse effects, preservation of natural processes and habitat, and aesthetics, in addition to standard engineering and economic criteria.

Policy 9.6:
City staff will, when and where possible, attend certification training programs for the inspection of erosion control plans and inspecting erosion control measure. These certifications are expected to take place once every five years.

Policy 9.7:
When and where possible, "other" staff (streets, parks, building inspections) will attend the LMRWMO coordinated/conducted non-certification training for staff to address items in MS4 permit (e.g., mowing and erosion control).

3.4.10. Floodplains

Goal 10:
Control development in floodplains and floodways including those subject to FEMA Studies and those that are not regulated by FEMA Studies like ponds, wetlands, lakes and channels within the City limits.

Note: Specific policies related to this goal are found in **Section 3.3.1**. The City's shoreland management section of the Zoning Ordinance (Section 35) also defines limitations to development along shoreland and non-federally regulated floodplain areas.

3.4.11. West St. Paul's NPDES Permit

Goal 11:
Operate and manage the City's surface water system consistent with best current practices and the City's NPDES Permit.

Policy 11.1:
Projects to correct existing deficiencies, to the extent they are identified, will be prioritized as follows:

a. Intended to reduce or eliminate flooding of structures in known problem areas.
b. Intended to improve water quality in the City's lakes.
c. Intended to retrofit water quality treatment into developed areas.
d. Intended to reduce maintenance costs.
e. Improve wetlands.
f. Retrofit water quality improvements.

Policy 11.2:
The City will actively inspect and properly operate, maintain and repair its stormwater system. The City will follow a regular inspection, cleaning, and repair schedule. Frequency of maintenance will be event-based and informed by experience and inspection history. The City's SWPPP outlines the frequency of these activities. **Section 5** of this Plan provides some guidelines on pond maintenance and inspection cycles, but the SWPPP will remain the definitive source on the City's intended maintenance and inspection schedules.

Policy 11.3:
The City will follow BMPs on its own lands and for its own projects including street reconstruction projects in accordance with the NPDES construction site permit and the City's NPDES MS4 Permit.

3.4.12. Administration

Goal 12:
Ensure that the costs of the surface water system are equitably distributed.

Policy 12.1:
The City will periodically update its stormwater utility rate structure to accomplish the following:

a. Meet the requirements of its NPDES permit.
b. Provide for the maintenance of ponds and outfall structures.
c. Conduct repairs to the system.
d. Update its system planning efforts.
e. Implement rainwater gardens or other water quality retrofits with downtown redevelopment.

Policy 12.2:
The City of West St. Paul will report their annual progress by submitting an implementation plan progress update for their Plan to the WMO.

3.4.13. Subsurface Sewage Treatment Systems (SSTS)

Policy 13.1**:**
The City of West St. Paul will maintain updated records of all known on-site septic systems and prohibit installation of new individual sewer systems or alteration, repair, or extension of existing systems when connection can be made to the city sanitary sewer system. The City is required to notify property owners with on-site septic systems that they are required to connect to the cities' sanitary sewer, if available. The City will continue to support MPCA standards for the management of SSTS.

3.5. County, State and Federal Agency Requirements

This section of the LSWMP presents a synopsis of the current agency requirements while acknowledging the existence of other requirements that may be applicable. The City is committed to the preservation and enhancement of its wetlands and water resources through full compliance with local, state, and federal wetland regulations.

3.5.1. Minnesota DNR

At the state level, only public waters and public water wetlands are protected by statute. Public waters are all watercourses and lakes that have been inventoried in the PWI. These waters meet certain minimum basin or drainage size requirements. Public water wetlands include all Types 3, 4, and 5 wetlands in excess of 10 acres in rural areas and 2.5 acres in municipalities. These wetlands are generally characterized by open water and emergent vegetation throughout most of the year.

If an area meets the DNR's jurisdictional criteria but is not on the state's inventory, it is not regulated by the DNR. If it does not meet the statutory criteria but is listed on the inventory, it still is subject to DNR regulation. There is no mechanism presently for adding or deleting waters from the inventory. The inventory was begun in the late 1970s and all state inventories were completed during the early 1980s.

The DNR rules specify that permits may not be issued for any project except those that provide for public health, safety, and welfare. Any private development projects are effectively excluded from permit consideration by this requirement.

The other powers and duties of this Minnesota state agency and its commissioner are wide-ranging. As they affect surface water management within the City they include:

a. Regulation of all public waters inventory waterbodies within the City – to the extent of their ordinary HWL.
b. Regulation of certified floodplains around rivers, creeks, lakes, and wetlands.
c. Management of the Flood Hazard Mitigation program.
d. Shoreland Management.
e. Water appropriations.
f. Aquatic plant management control.

3.5.2. U.S. Army Corps of Engineers (USACE)

Under Section 404 of the Clean Water Act, including subsequent modifications, the U.S. EPA and the U.S. Army Corps of Engineers (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 of the "discharge of dredged material" definition 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.

3.5.3. Board of Water and Soils Resources (BWSR)

The local and regional wetland rules are governed by the WCA, which is administered statewide by BWSR. The WCA, passed in 1991, extends protection to all wetlands unless they fall under one of the exemptions of the WCA.

The WCA follows a “no net loss” policy. The wetlands covered under the WCA must not be drained or filled, wholly or partially, unless replaced by restoring or creating wetland of at least equal public value under an approved replacement plan. Replacement ratio is typically 2:1 (two acres created for every acre filled) for wetland impacts.

A designated LGU is responsible for making exemption and no-loss determinations and approving replacement plans. Currently the Dakota SWCD acts as the LGU for WCA within the City’s subdivision authority.

The powers and duties of this Minnesota state agency also include:

a. Coordination of water and soil resources planning among counties, watersheds, and local units of government.
b. Facilitation of communication among state agencies in cooperation with the Environmental Quality Board.
c. Approval of watershed management plans.

3.5.4. Minnesota Pollution Control Agency (MPCA)

The MPCA implements provisions of Section 404 of the Clean Water Act with guidance from the EPA through a permitting process.

The Section 404 permit also requires a Section 401 water quality certification before it is valid. The EPA has given Section 401 certification authority to the MPCA.

The powers and duties of this Minnesota state agency and its commissioner include:

a. Fulfillment of mandates from the EPA, particularly in regard to the Clean Water Act.
b. Administration of the NPDES Phase II MS4 permit.
c. Administration of the NPDES construction site permit program.
d. Administration of the NPDES industrial site discharge permit program.
e. Development of TMDLs for waterbodies and watercourses in Minnesota (often in conjunction with other agencies or joint powers organizations such as watersheds).

3.5.5. Environmental Protection Agency (EPA)

As it relates to surface water management within West St. Paul, this agency is charged with interpreting and applying aspects of the Clean Water Act. This has led to the City’s need for its NPDES MS4 permit. Total maximum daily load limits, a new initiative mandated by the EPA, also stem from the EPA’s role as steward of the Clean Water Act.

3.5.6. Lower Mississippi River Watershed Management Organization (LMRWMO)

The powers and duties of this Minnesota statutory authority include:

a. Authority to approve local water management plans.
b. Ability to develop rules regarding management of the surface water system.
c. Ability to determine a budget and raise revenue for covering administrative and capital improvement costs.
d. Regulation of land use and development when one or more of the following apply:
    1. The City does not have an approved local plan in place.
    2. The City is in violation of their approved local plan.

3. The City authorizes the watershed toward such regulation.

e. Other powers and duties as given in statute and joint powers agreements.

3.5.7. State and Federal Jurisdictional Boundaries for Public Wetlands and Waters

Wetlands are delineated in accordance with the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1987). Wetlands must have a predominance of hydric soils. By definition, hydric soils are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, under normal circumstances, a prevalence of hydrophytic (water tolerant) vegetation typically adapted for life in saturated soil conditions. The USACE and the BWSR regulate wetlands as defined by a jurisdictional delineation.

For wetlands that fall under the DNR jurisdiction, the OHW determines the boundary of DNR jurisdiction. The OHW is established by the DNR.

3.5.8. Dakota County Soil and Water Conservation District

Dakota SWCD is currently the LGU for WCA within the City's subdivision authority. Dakota County SWCD also conducts NPDES erosion control inspection for construction sites that have obtained the NPDES Construction Permit for Construction Activities. This inspection program is a pilot project funded by the MPCA.

3.5.9. Metropolitan Council

Metropolitan Council, through Metropolitan Council Environmental Services, serves as a review agency for local surface water management plans. They also review and approve municipal comprehensive plans and have a prominent role in the Mississippi River Critical Area Corridor as described on the DNR website:

> The Metropolitan Council reviews existing plans that affect lands within the Mississippi River Critical Area Corridor. Technical assistance is provided to assist communities in amending or adopting plans to become consistent with Executive Order 79-19 standards and guidelines and any voluntary MNRRA CMP policies. The council reviews all critical area plans and ordinances and makes an evaluation to DNR prior to the approval decision. In addition, the council administers the pass-through funds from the National Park Service to provide financial assistance to communities wishing to revise their plans and ordinances. The council is also involved with oversight of the Metropolitan Land Planning Act.

3.6. Agency Contacts

The primary contacts for local regulating agencies described above are presented below. These contacts are accurate as of October 2017.

City of West St. Paul
Ross Beckwith
City of West St. Paul
1616 Humboldt Avenue
West St. Paul, MN 55118
(651) 552-4130

Lower Mississippi River Watershed Management Organization
Joe Barten
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3.7. Water Resource Management-related Agreements

The City of West St. Paul is party to two separate joint powers agreements related to surface water management:

a. With the City of Mendota Heights for the Thompson Avenue Diversion Project.

b. With the cities of Inver Grove Heights, Lilydale, Mendota Heights, South St. Paul, Sunfish Lake, and St. Paul establishing the LMRWMO.

3.8. Impacts of the West St. Paul LSWMP on Other Units of Government

Upon approval of this LSWMP by the LMRWMO, it is the City's intent to maintain and potentially expand its permitting powers. Currently, the LMRWMO does not issue permits, so no impact to this organization would occur. Within its jurisdiction, the City will use the permit submittal requirements outlined in **Section 5** of this plan and Section 40 of the Zoning Ordinance in addition to the requirements of Section 33.6 of the Zoning Ordinance which defines when a permit is needed. The LMRWMO would continue in its role as project review agency.

Section 40 of the Zoning Ordinance is titled "Stormwater Management" and essentially serves as both a stormwater management ordinance and erosion and sediment control ordinance. **Section 5** describes how the City will review this ordinance to determine if revisions are needed.

3.9. Watershed Goals and Strategies that Affect the City of West St. Paul

The City of West St. Paul goals and policies, outlined above, are a close reflection of those of the LMRWMO, only presented through the municipal filter. The LMRWMO also has specific design

standards and criteria that are required to achieve its goals.

Table 3.1 is a summary of the design standards and criteria for the LMRWMO. The far-right column describes the applicable City standards as described in this LSWMP, plus a reference as to where the standard appears in the LSWMP.

Table 3.1
Summary of Design Standards and Criteria

Design Standard/Criteria	Lower Mississippi River WMO	City of West St. Paul
Runoff Management Plans	Required for projects that disturb one or more acres of land.	Section 40 of the Zoning Ordinance requires Stormwater Pollution Control Plans. The requirements of **Section 5** of this Plan add to current ordinance requirements.
Erosion and Sediment Control Plans	Required for projects that disturb one or more acres of land.	Required by Section 40 of the Zoning Ordinance.
Storm Sewer System Design Critical Duration Events		
Storage basins[1], channel and ravine conveyance	100-year.	100-year. (Section 4.4.2.1)
Trunk sewer, trunk conveyors	No less than 10-year.	No less than 10-year. (Section 4.4.3.3)
Non-trunk sewer	No less than 5-year, preferably 10-year.	10-year. (Section 4.4.3.3)
Minimum building elevation above 100-year elevation adjacent to inundated areas	1 foot; greater for land-locked basins.	Two feet. (Section 4.4.3.3)
New discharge points and outfalls	Pretreatment required, at least grit removal, prior to discharge to wetlands and water resources.	See Section 4.4.3 for requirements.
Peak rate of stormwater runoff from the developed subwatershed of the site	Shall not exceed the existing peak rate of runoff for the 5-year (or 10-year) and 100-year return frequency critical duration storm events.	Shall not exceed the existing peak rate of runoff for the 5-year (or 10-year) and 100-year return frequency critical duration storm events.

Design Standard/Criteria	Lower Mississippi River WMO	City of West St. Paul
	Detention Pond and Treatment Basin Design	
Permanent pool volume	Volume below the NWL outlet which is greater than or equal to runoff from a 2.5-inch 24-hour storm over the entire subwatershed of the pond/basin, assuming full development.	Water quality volume shall be equal to the runoff from a 2.5-inch rainfall or based on the requirements of the NPDES construction site permit, whichever leads to a larger wet volume. (Section 4.4.2.2)
Permanent pool average depth	Greater than 4 feet and less than 10 feet.	Greater than 4 feet and less than 10 feet. (Section 4.4.3.3)
Emergency Over Flow (EOF)	Required to control events greater or equal to the 100-year critical duration event or plugged outlet conditions.	Required, a minimum of 1.5 feet below the lowest ground elevation at any adjacent structure. (Section 4.4.3.3)
Side slope	No steeper than 3:1.	None steeper than 4:1 is preferred. Side slopes of 3:1 will be allowed only with City Engineer's approval. (Section 4.4.3.3)
Aquatic/safety bench	Minimum width of 10 feet and 1 foot deep below the NWL.	Minimum 10-foot width at 10:1 cross slope. (Section 4.4.3.3)
Discharge rate and flood volume	Sufficient volume above the NWL so that peak discharge rate from the 100-year critical duration storm is not greater than the peak discharge of predevelopment watershed conditions of a similar storm event.	Sufficient volume above the NWL so that peak discharge rate from the 100-year critical duration storm is not greater than the peak discharge of predevelopment watershed conditions of a similar storm event.
Duration for extended detention of hydrograph for more frequent storms (1-year to 5-year storm events)	24 hours.	24 hours.
Maximum velocity for inlet and outlet outfalls	4 feet per second.	4 feet per second. (Section 4.4.2.1)
Distance between major inlets and normal outlets	Maximized as much as possible.	Maximized as much as possible.
Skimmer device design criteria	5-year storm event; less than 0.5 feet per second through a baffled weir.	5-year storm event; less than 0.5 feet per second through a baffled weir. (Section 4.4.2.2)

[1]Storage basins mean wetlands, ponds, detention basins, and lakes.

4. SYSTEM ASSESSMENT AND DESIGN

4.1. General

This section of the West St. Paul LSWMP serves three functions. The system assessment portion catalogues the various assessments of problems that the Plan must address. The intent is to identify the source of problems and specific actions the City will take to address these problems either independently or in collaboration with some other organization – most commonly the LMRWMO.

The system description portion of this section describes the City's surface water management system. This system is shown on **Figure 5**, **Appendix A**. The map indicates the major drainage divides, flow routing, storage areas, conveyance (including pipe and channels), wetlands and lakes that have been incorporated into the West St. Paul LSWMP hydrologic model.

The system design portion of this section starts off by discussing how the LSWMP modeling was accomplished and how future modeling can remain consistent with the methods of the LSWMP modeling. Following the modeling discussion is narrative describing system design concepts for storm sewer, channels, rate control, and water quality ponds. This narrative does not describe prescriptive requirements. Rather, it reflects the City's preferred methods in the various subject areas. The design standards of **Section 4.4.3**, which follow the system design concepts, are the prescriptive requirements.

The goals and policies of **Section 3** are also prescriptive requirements. The distinction between the goals and policies and the design standards is that the goals and policies are general while the design standards are specific.

4.2. System Assessment

4.2.1. Water Quality Assessments

Maintain or enhance the water quality of West St. Paul's lakes, wetlands, and water courses.

4.2.1.1. SWPPP Self-Assessments

The City prepared a self-assessment as part of developing its SWPPP. In that self-assessment, a list of potential sources or types of pollution was developed. The City does not know of any particular source or type of pollution to be prevalent within the City. Although the list is not a list of actual pollution occurrences, the list does provide information for consideration and management. The list is repeated below.

a) The City of West St. Paul has determined very few existing or potential water quality issues. Because they have little new construction and no channels or steep slopes, erosion has not been a source of pollution. There are no ditches within the City that are used for stormwater conveyance. However, there is storm sewer throughout the city that may impact water quality by conveying runoff from impervious and pervious surfaces. Some early connections of storm sewer to sanitary sewer were found in the north end of the City but were separated out when sanitary sewer metering began. There are no known occurrences, past or present, of sanitary sewers connecting into storm sewer systems.

b) Salting and sanding was noted as a possible source of pollution. The City uses 100 percent salt for de-icing. Road salt is purchased by the City on an as needed basis and added at the time of application. The salt is stored under cover until it is used.

The salt is applied using dump trucks, and care is taken to apply more mixture to areas on hills and around curves. The salt is applied selectively on an as needed basis rather than a constant flow.

c) The City uses herbicides and fertilizers but does not feel these are a large source of pollution. The parks crew consists of four maintenance employees all of whom are trained and licensed as herbicide and fertilizer applicators. Also, the City uses over the counter herbicides and phosphorous free fertilizer. There are several indoor storage facilities around the City where fertilizer is stored, but no facility specifically dedicated to fertilizer storage. Residential lawn care could be a source of pollution, including lawn clippings blown into the street and use of non-compliant fertilizer.

d) Animal/pet waste was listed as a possible pollution source. The primary animal polluters include a large number of geese utilizing the ponds and lakes within the City. Owners of dogs and pets are regulated through City ordinances, which include a requirement to clean up after the pet and allowing pets in the park on a leash only. Signs, which refer to these rules, are posted in the City parks.

e) The illegal disposal of trash was mentioned, although it is not known to be a problem in the community. A City ordinance prohibiting illegal dumping has been passed by the City. Occasionally, holding pond outlets need to be cleaned as Styrofoam containers can accumulate and block the outlet. This was more of a problem in the past when Styrofoam was used more often.

f) Septic systems were listed as a potential source of pollution. There are approximately 20 to 30 single family homes in the southwest corner of the City that are on private septic systems. About once a year, one of these owners ends up replacing a failing septic system. The City has adopted Dakota County Ordinance #113, which states that inspections of the septic system are required upon sale of the property. There are no long-range plans to convert these neighborhoods to City utilities. The City has attempted in the past to provide these residents with City utilities, however the residents have declined the project.

4.2.1.2. Problem Areas Identified

The City is aware of the following issues by the LMRWMO:

a) The presence of PAHs in Thompson Lake.
   - The City has identified Thompson Lake as a priority for water quality improvements based on the findings of a feasibility study completed in 2014. The City is partnering with LMRWMO and Dakota County to install a stormwater treatment project which will reduce nutrient loads to Thompson Lake and remediate PAH contamination. (See **Table 5.2** for specifics on the Thompson Lake Pond Improvements and Sediment Removal project.)

b) High water levels at Seidl's Pond/Lake in South St. Paul (Portions of West St. Paul drain to Seidl's Pond/Lake)
   - The City has identified Seidl's Pond/Lake in South St. Paul as an area of possible shoreland erosion. In cooperation with the City of South St. Paul the City regularly inspects the shoreline of Seidl's Pond/Lake, and this site is a priority for a new outlet and other water quality improvements in 2019 (see **Table 5.2** for specifics on the Seidl's Pond Lift Station and Improvements project).

4.2.1.3. Clean Water Act Assessments

The Mississippi River (assessment unit ID # 07-0102-06-505) and Lake Pepin (assessment unit ID #25-0001-00) downstream of the West St. Paul City limits, and Thompson Lake (assessment unit ID # 19-0048-00-201 are listed in the state impaired waters list. Known as the 303(d) list from the applicable section of the federal Clean Water Act, these waters are ones that do not currently meet their designated use due to the impact of a particular pollutant or stressor. This listing will potentially affect management of drainage that directly discharges to the river. If monitoring and assessment indicate that a water body is impaired by one or more pollutants, it is placed on the list.

The Mississippi River's affected uses are aquatic consumption, aquatic recreation, and aquatic life and the pollutants or stressors that have been identified as causing these impairments are the following:

a) Fecal coliform
b) Mercury (water column and fish consumption advisory)
c) PCB (fish consumption advisory)
d) Turbidity

Lake Pepin's affected use is aquatic recreation, and the pollutants identified as causing this impairment is excess nutrients.

Thompson Lake was added to the 303(d) list in 2014. The affected use is aquatic recreation, and the pollutants identified as causing this impairment are excess nutrients.

The absence of a waterbody from the 303(d) list does not necessarily mean the waterbody is meeting its designated uses. It may be that it has either not been sampled or there is not enough data to make an impairment determination. Additionally, where mercury is identified as a stressor, the TMDL approach will be regional in nature as mercury is most commonly an air-borne pollutant.

In September 2014, the LMRWMO completed a TMDL/WRAPS report for the area of the LMRWMO, which includes West St. Paul. This report assigned a Total Phosphorus (TP) Wasteload Allocation (WLA) of 0.298 pounds per day or 63.60 pounds per season to the West St. Paul City MS4, a 31% reduction in the existing TP wasteload.

The report recommends the construction of a stormwater pond or other BMP to treat stormwater entering the north end of Thompson Lake. The City, MnDOT, and Dakota County are all named as LGUs with primary responsibility for this project, and the timeline given for achieving water quality targets is five years. This project is listed in **Table 5.1**.

4.3. System Description

This subsection describes in detail the surface water management system for the City of West St. Paul. The HydroCAD model discussed in the 2006 plan has not been updated since 2005, therefore except for describing districts that were combined/renamed in the 2012 LMRWMO plan, the model descriptions and outputs below have not been changed.

The LSWMP area was organized into nine major drainage districts as follows:

- Pickerel Lake (Highway 13)
- Riverview Tunnel

- Lafayette
- Ivy Falls Creek
- Simons Ravine
- Valley Creek (Marie)
- Valley Creek (Delaware/110)
- Wentworth Street
- Highway 110-494

All districts lie within the LMRWMO jurisdiction. These nine major drainage districts align with the City's 1991 and 2006 Plans to provide continuity.

In the 2011 LMRWMO plan, the Valley Creek (Marie) and Valley Creek (Delaware/110) districts are combined and included in the Interstate Valley Creek subwatershed because they both discharge to the west into Mendota Heights. The Pickerel Lake drainage district is now part of the Highway 13 subwatershed and the Lafayette drainage district is now part of the Riverview subwatershed. Otherwise the major drainage districts are very similar between the two plans; any differences are due to availability of storm sewer maps and two-foot contours within the City.

Each major drainage district was divided into smaller subdistricts. The subdistricts are generally drawn to encompass all drainage to a particular pond, wetland, lake, or storm sewer.

The following sections describe each drainage district in detail. **Appendix B** includes areas for the subdistricts within each major watershed. **Appendix C** includes the pond data. Refer to Map 2, **Appendix D** for detailed topography, storm sewer, pond locations and drainage districts.

4.3.1. Pickerel Lake Drainage District

The Pickerel Lake Drainage District is an approximately 25-acre area in the northwest corner of West St. Paul, bordered by Mendota Heights to the west and St. Paul to the north. The predominant land use is single-family residential. This district discharges into Mendota Heights via storm sewer along Annapolis Street. The drainage from this district ultimately discharges to Pickerel Lake through an 18-inch culvert under Trunk Highway 13 (Sibley Memorial Highway), before discharging into the Mississippi River. The Pickerel Lake district has no subdistricts, and its one district is shown with the prefix PK on Map 2 in **Appendix D**. In the 2012 LMRWMO plan, the Pickerel Lake Drainage District is part of the Highway 13 subwatershed.

4.3.2. Riverview Tunnel Drainage District

The Riverview Tunnel drainage district is an approximately 719-acre area in the north portion of West St. Paul, bordered by St. Paul. The predominant land use is single-family residential, with some commercial property along Robert Street, as well as Grass Junior High School. The district includes two notable lakes, Lily Lake and Mud Lake.

The district discharges to St. Paul to the north via storm sewer where it enters the Riverview Tunnel before ultimately discharging into the Mississippi River. The Riverview Tunnel drainage district has ten subdistricts, which each have the prefix RW on Map 2 in **Appendix D**.

4.3.3. Lafayette Drainage District

The Lafayette Drainage District is an approximately 84-acre area in the northeast portion of West St. Paul, bordered by St. Paul to the north and South St. Paul to the east.

The predominant land use is single-family and multi-family residential, as well as St. Michael's Catholic school. The district consists of two subdistricts each with the prefix of LF. Both discharge via storm sewer to the northeast under US 52 and into the airport marsh, before discharging into the Mississippi River. In the 2012 LMRWMO plan, the Lafayette drainage district is part of the Riverview subwatershed.

4.3.4. Ivy Falls Creek Drainage District

The Ivy Falls Creek Drainage District is an approximately 274-acre area in the western portion of West St. Paul, bordered by Mendota Heights to the west. The predominant land use is single-family residential. The district discharges via storm sewer to two ponds within Mendota Heights, IF-P21 and IF-P1. The Ivy Falls Creek Drainage District has five subdistricts, which each have the prefix IF on Map 2 in **Appendix D**. Drainage area IF2C used to be part of the Ivy Falls Creek Drainage District but was redirected into the Interstate Valley Creek district in Mendota Heights by the Thompson Avenue diversion project. The 30-inch pipe along Delaware Avenue that used to convey IF2C into the Ivy Falls Creek Drainage District has been abandoned.

4.3.5. Simons Ravine Drainage District

The Simons Ravine Drainage District is an approximately 1,235-acre area in the central portion of West St. Paul, bordered by South St. Paul to the east. Simons Ravine includes a variety of land uses: single-family and multi-family residential in the west and along the fringes, industrial in the south, commercial along the central Robert Street corridor, and the Thompson Oaks golf course and the Sports Complex in the east. Large storage basins within the district include Marthaler Pond, Wentworth Pond, Emerson Pond, and Thompson Lake. The district discharges via storm sewer east into South St. Paul Watersheds 15 and 17 and then into the Mississippi River. The Simons Ravine Drainage District has 18 subdistricts, each with the prefix SR on Map 2 in **Appendix D**.

4.3.6. Valley Creek (Marie) Drainage District

The Valley Creek (Marie) Drainage District is an approximately 226-acre area in the southwest portion of West St. Paul, bordered by Mendota Heights to the west.

Valley Creek (Marie) and Valley Creek (Delaware/110) are both part of the Interstate Valley Creek Watershed in the 2012 LMRWMO plan but were separated in the 1991 MWRMP plan to show that the two areas drain to separate branches of the Valley Creek system within Mendota Heights. They are kept separate here for consistency between the plans.

The predominant land use within the Valley Creek (Marie) Drainage District is park due to the presence of the Dodge Nature Center. The district has six substantial storage basins, all within the Nature Center area. Valley Creek (Marie) has eight subdistricts, each with the prefix MR on Map 2, **Appendix D**, except for IF2C, which used to drain into Mendota Heights Pond IF- P1 (in the Ivy Falls Creek Watershed) but was redirected into Mendota Heights Pond IV- P113 (in the Interstate Valley Creek

Watershed) by the Thompson Avenue Diversion project. The remainder of the district discharges at its southwest corner under Delaware Avenue and into Mendota Heights Pond IV-P91.

4.3.7. Valley Creek (Delaware/110) District

The Valley Creek (Delaware/110) Drainage District is the other portion of the LMRWMO Plan Interstate Valley Creek Watershed that lies within the City of West St. Paul. Valley Creek (Delaware/110) is located in the southwest corner of the City, bordered by Sunfish Lake to the south, and consists of approximately 192 acres within the City of West St. Paul. From Sunfish Lake to the south, about 49 acres also drain through the district. The predominant land uses within the district are single-family and multi-family residential around the outside, and the Dodge Nature Center within the center.

The district discharges into a swale in the southwest corner of the site and then through a culvert under Delaware Avenue and into Mendota Heights pond IV-P57. Valley Creek (Delaware/110) has six subdistricts, each with the prefix D10 on Map 2 in **Appendix D**. The subdistrict D10-27 is landlocked and does not discharge.

4.3.8. Highway 110-494 District

The Highway 110-494 Drainage District is an approximately 411-acre area in the southern portion of West St. Paul, bordered by Inver Grove Heights to the south and South St. Paul to the east. The land use in the district is varied, with industrial, multi-family residential, and commercial uses in the west and east, and the Southview Country Club in the center of the district. The Highway 110-494 district has 18 subdistricts, featuring either the prefix A, T, or P. Nine subdistricts have the prefix A and drain via storm sewer into stormwater ponds along Highway 110 in the northwestern corner of Inver Grove Heights. Three subdistricts have the prefix T and drain through the golf course south into the 16-acre pond along Babcock Trail. Six subdistricts have the prefix P and drain east under U.S. Highway 52 and into South St. Paul Watersheds 5C and 5F. Three subdistricts within the country club—A21, T6, and T7—all have landlocked basins with no pipe outlet but that do overflow into adjacent subdistricts.

4.3.9. Wentworth Street District

The Wentworth Street Drainage District is an approximately 38-acre area in the eastern portion of West St. Paul, bordered by South St. Paul to the east. The district is primarily made up of U.S. Highway 52 right-of-way. The Wentworth Street Drainage District has no subdistricts, and its one district is shown with the prefix W on Map 2 in **Appendix D**. The district discharges to a pond on the east side of U.S. Highway 52, and then into South St. Paul Watershed 12.

4.4. System Design

4.4.1. Hydrologic Modeling Discussion

The purpose of the modeling effort was to convert the 1991 MWRMP model to the more user friendly HydroCad modeling software, and to update the model to current conditions of the City. Modeling results, including pond outflows, NWLs, HWLS, and outflows at the City boundaries are shown in **Appendix C**.

At the time, the 1991 MWRMP was being developed, the LMRWMO Watershed Management Plan (1986) only required detailed hydrologic modeling for developing and recently developed watersheds. Developed watersheds only

required watershed delineation and drainage pattern identification. Because of this, the more developed watersheds in the City—Riverview Tunnel, Lafayette, and Wentworth Street—have never been modeled in detail since 1991. These watersheds have been modeled directly in HydroCAD.

Stormwater runoff is defined as that portion of precipitation which flows over the ground surface during and for a short time after a storm. The quantity of runoff is dependent on the intensity of the storm, the amount of antecedent rainfall, the length of the storm, the type of surface upon which the rain falls, and the slope of the ground surface.

The intensity of a storm is described by the amount of rainfall that occurs over a given time interval. Storms are typically characterized by their return frequency. A return frequency designates the average time span during which a single storm of a specific magnitude is expected to recur. Thus, the degree of protection afforded by storm sewer facilities is determined by selecting a return frequency for analysis.

For the West St. Paul LSWMP the following return frequencies were used for the modeling effort:

- 100-year, 24-hour 1991 MWRMP watershed model distribution for calibrating the HydroCad model to the 1991 MWRMP model
- 100-year, 10-year, and 2-year for the SCS 24-hour, MSE3 distribution event for the updated HydroCad model

A 100-year, 24-hour frequency event has a one percent chance of occurring or being exceeded in any given year. This design rainfall return period is commonly used for flood control throughout Minnesota. At the time of the HydroCAD model development all rainfall depths came from Technical Paper 40 (TP-40), which listed the 100-year, 24-hour event as 5.9 inches in West St. Paul. As discussed in **Section 2.4**, the Atlas 14 Precipitation-Frequency document updated the rainfall depths given by TP-40; the most current estimate for the 100-year, 24-hour storm is 7.44 inches (see **Table 2.3**). Updating the HydroCAD model to reflect Atlas 14 rainfall depths would likely result in significant changes to peak flow rates and water surface elevations predicted throughout the drainage system.

Besides the storm characteristics, the modeling requires determining the landscape characteristics. These characteristics can be summarized into two parameters, the time of concentration and the land type curve number.

The time of concentration is the time required for the runoff from a storm to become established and for the flow from the most remote point (in time, not distance) of the drainage area to reach the design point. The time of concentration will vary with the type of surface receiving rain and the slope of the surface.

As the stormwater runoff enters the system, the flow time in the storm sewer is then added to the time of concentration, resulting in a longer time of concentration and thus lower average rainfall intensity as the flow moves downstream from the initial design point.

The percentage of rainfall falling on an area that must be collected by a storm sewer facility is dependent on watershed variables such as:

- Soil perviousness
- Ground slope

- Vegetation
- Surface depressions
- Development type
- Antecedent rainfall

These factors are considered when selecting a runoff curve number (CN). CN values depend on the type of soil, cover type and hydrologic condition. Under fully developed conditions, the values of CN will rise with increases in impervious area caused by street surfacing, building construction, and grading.

The 1991 MWRMP model did not use curve numbers, but the new HydroCad model does. The 1991 MWRMP model gave areas for pervious, impervious, and pond surfaces for each of the subdistricts. It also had the times of concentration for each subdistrict. Therefore, the HydroCad model needed to be calibrated to the 1991 MWRMP model by choosing the correct CN value. The CN value for impervious areas is 98 and for ponds it is 100.

The calibration involved entering the 1991 MWRMP model data into the HydroCad model. The storm event used for calibration was the 1991 MWRMP 24-hour distribution for a 100-year event. Time of concentration, land area by land use type (pervious, impervious, or pond), and the “fixed” CN values for impervious and pond surfaces were all entered into the Hydrocad model.

Several runs of the HydroCad model were performed by varying the pervious curve number until the HydroCad results were mostly within a five percent standard error of the 1991 MWRMP model. Given the criteria, a CN value of 54 for pervious area gave the best results for calibration. CN values affect the runoff volume, so runoff volume was the model output criteria for making the comparisons. **Table 4.1** is a summary of the calibration results.

Table 4.1
Summary of HydroCad Model Calibration

	HydroCAD Model				1991 MWRMP Model				Volume % error
	Peak outflow rate cfs	Time to peak inflow (hours)	Volume ac-ft	Peak Elevation ft	Peak outflow rate cfs	Time to peak inflow (hours)	Volume ac-ft	Peak Elevation ft	
Pickerel Lake									
Pk 1, 2 (to Mississippi River through MH)	14.81	15	6.55	--	15.22	15.2	6.59	--	-0.6%
Ivy Falls Creek									
To MH Pond IF-P21	37.18	15.35	17.31	--	21.12		17.13	--	1.0%
To MH Pond IF-P1	78.4	15.22	44.79	--	80.83	15.2	44.23	--	1.3%
Valley Creek (Marie)									
To MH Pond IV-P113	30.52	15.25	13.87	--	32.58	15.2	13.75	--	0.8%
To MH Pond IV-P91	9.47	19.64	12.79	--	11.79	15.6	12.97	--	-1.4%
Valley Creek (Delaware/110)									
To MH Pond IV-P57	56.33	17.12	45.60	--	54.6	16.4	43.63	--	4.3%
To landlocked Pond D10-27	4.44	14.93	1.96	--	4.28	14.8	2	--	-1.9%
Highway 110-494									
To IGH A-17	7.77	14.92	3.47	--	7.28	15.2	3.44	--	0.9%
To IGH MNDT	73.55	14.99	59.29	--	59.28	15.2	55.83	--	5.8%
To IGH T12	8.52	22.49	37.47	942.83	8.33	21.2	37.16	942.78	0.8%
To SSP P3 & P6	13.52	15.11	23.11	--	14.15		22.7	--	1.8%
Simons Ravine									
To SSP SSP1	165.87	18.46	310.97	--	173.96		301.73	--	3.0%
To SSP SSP2	22.83	15.35	10.49	--	24.39	15.2	10.17	--	3.0%

The HydroCad model is simpler than the 1991 MWRMP model in that the HydroCad model consolidates some drainage areas, reducing the number of catchment nodes in the model. This consolidation is warranted in that the HydroCad model is not intended to model every culvert in the City, which was the method of the 1991 MWRMP model.

Instead, the HydroCad model focuses on modeling storage basins that have significant storage. For a basin to appear in the HydroCAD model it must meet one of the following criteria: the basin appears on an as-built drawing, is discernable from an aerial photograph, or is indicated by the National Wetland Inventory map. Small, local water quality ponds that provide limited rate control have not been included in the model, since there is not an inventory of these basins and their stage storage relationships are not known.

After calibration was performed, the HydroCad model was revised to reflect development that has occurred since 1991. Revisions were based on as-built drawings and updates to the City's Storm Sewer System map provided by the City. The same subdistrict layout was used as was used for the calibration, but the areas were adjusted because of revisions to the storm sewer system and to agree with two-foot contour information and the 2001 LMRWMO WMP. The time of concentration that was used in the 1991 MWRMP model was also used in the update HydroCad model.

Table 4.2 summarizes CN values used in the LSWMP modeling. The CN values reflect Antecedent Moisture Condition II (AMC II), which is a typical assumption in hydrologic analyses. AMC II simply implies that average soil moisture conditions apply prior to simulation of the design event.

Table 4.2
Curve Numbers used for Model Conversion

Land Use Type	CN Value
Pervious	54
Impervious	98
Ponds	100

The Riverview Tunnel, Lafayette, and Wentworth Street Drainage Districts were modeled directly in HydroCAD. The same subdistrict layout was used as was used for the 1991 MWRMP, but the areas were adjusted because of revisions to the storm sewer system and to agree with the two-foot contour information and the 2001 LMRWMO Plan. Also, subdistricts that feed the same trunk storm sewer were consolidated.

To determine CN values for the three drainage districts modeled directly in HydroCAD, the existing land use data from the City's 1999 Comprehensive Plan was used. **Table 4.3** provides CN values and percent impervious assigned for each land use type. These values are unique to the City of West St. Paul and were determined by calculating the percent impervious for ten parcels of each type of land use (30 for single-family) and then comparing this calculated percent impervious to curve numbers from SCS Technical Release 55 (TR-55). Because the 1999 Comprehensive Plan identified roadways as a separate land use, their CN value was calculated separately. Roadways include the entire roadway right-of-way which includes pervious boulevards. Ten separate roadways were examined to determine the roadway percent impervious.

Table 4.3
Percent Impervious and Curve Numbers used for Direct HydroCAD Modeling

Land Use	% Impervious	CN
Single-family	31%	72
Multi-family	50%	80
Public, Semi-public	40%	76
Commercial	82%	91
Industrial	75%	89
Parks and Recreation	0%	61
Roads	66%	85

To ensure consistency with this Plan, future analyses in all drainage districts should use the values contained within **Table 5.4** whether they are for development proposals or other City projects. For other types of land use not identified in the table, SCS Technical Release 55 (TR-55) curve numbers should be used.

Times of concentration were calculated for the three drainage districts modeled directly in HydroCAD. Because these districts had very little surface storage, most runoff in these areas goes directly into the storm sewer system and out of the City. Times of concentration were estimated by determining the time it takes runoff to enter the system, and then by estimating time in pipe by assuming average pipe velocities.

With so little surface storage in the northern portion of the City, the HydroCAD model for the Riverview Tunnel, Lafayette, and Wentworth Street Drainage Districts is highly dependent on small changes in model inputs such as CN and time of concentration. A more detailed model involving relationships between the storm sewer and street flooding would be necessary for local stormwater projects.

HydroCAD stormwater runoff hydrographs are calculated in accordance with SCS TR-20 methodology. Hydrograph routing through channels and detention basins is performed using the Dynamic-Storage-Indication method.

A summary of the updated HydroCAD modeling results is shown in **Appendix C.** The pond outlet information is not included in **Appendix C** because this information is unknown for many ponds. The previous model uses stage-discharge relationships to model pond outflow instead of modeling the outlet directly.

4.4.2. System Design Recommendations andDiscussion

4.4.2.1. Conveyance and Storage System Concepts Storm Sewer and Channels

In the West St. Paul LSWMP stormwater model, a combination of storm sewer and channels has been used to transport simulated stormwater runoff. A complete system consists of a complex web of trunks, manholes, lateral lines, overland drainage ways, catch basin leads, catch basins, pond inlets and outlets and all other items.

Proper design of a storm sewer system requires that all sewer lines be provided with access through manholes for maintenance and repair operations. Generally, spacing of manholes should be no greater than 400 feet. Intervals on larger diameter lines can be increased when the pipes are sufficiently large for a person to physically enter the storm sewer pipe for maintenance operations. Regardless of sewer size, manholes should

normally be provided at all junction points and at points of abrupt alignment or grade changes.

Although lateral systems are designed for the 10-year storm event, their performance must be analyzed for storms exceeding the design storm. Lateral and trunk pipes will surcharge when the design storm is exceeded. During surcharging, the pipes operate as closed conduits and become pressurized with different pressure heads throughout the system. Low areas that are commonly provided with catch basins become small detention ponds often performing like pressure relief valves with water gushing out of some locations. For this reason, it is extremely important to ensure that these low areas have an acceptable overland drainage route with proper transfer capacity.

At a minimum, ponding on streets must meet all of the requirements of the 100-year design criteria. For safety reasons, the maximum depth should not exceed two feet at the deepest point and the lowest exposed building elevation should be at least one foot above the elevation to which water could rise before overflowing through adjacent overland routes.

All storm sewer facilities, especially those conveying large quantities of water at high velocities, should be designed with efficient hydraulic characteristics. Manholes and other structures at points of transition should be designed and constructed to provide gradual changes in alignment and grade. Pond outlet control structures should be designed to allow water movement in natural flow line patterns, to minimize turbulence, to provide good self-cleaning characteristics, and to prevent damage from erosion.

Intake structures should be liberally provided at all low points where stormwater collects and at points where overland flow is to be intercepted. Inlet structures are of special importance, since it is a poor investment to have an expensive storm sewer line flowing partially full while property is being flooded due to inadequate inlet capacity. Intake grates and opening should be self-cleaning and designed to minimize capacity reduction when clogged with twigs, leaves, and other debris.

Effective energy dissipation devices or stilling basins to prevent stream bank or channel erosion at all stormwater outfalls should be provided. The following recommendations should be kept in mind when designing an outlet:

- Inlet and outlet pipes of stormwater ponds should be extended to the pond Normal Water Level whenever possible.
- Outfalls with velocities of less than 4 fps that project flows downstream into the channel in a direction 30 degrees or less from the normal channel axis generally do not require energy dissipaters or stilling basins, but do require riprap protection.
- Where an energy dissipater is used, it should be sized to provide an average outlet velocity of less than 4 fps, unless riprap is also used. In the latter case, or when discharge occurs at NWL of a pond, the average outlet velocity should not exceed 6 fps.
- In the case of discharge to channels, riprap should be provided on all outlets to an adequate depth below the channel grade and to a height above the outfall or channel bottom. It should be placed over a suitably graded filter material and filter fabric to ensure that soil particles do not migrate through the riprap and reduce its stability. Riprap should be placed to a thickness at least 2.5 times the mean rock diameter to ensure that it will not be undermined or rendered ineffective by displacement. If riprap is used as protection for overland

drainage routes, grouting may be recommended.

- Overland drainage routes where velocities exceed 6 fps should be reviewed by the City Engineer and approved only when suitable stabilization measures are proposed.

Open channels and swales are recommended where flows and small grade differences prohibit the economical construction of an underground conduit and in areas where open channel type drainage will enhance the aesthetic qualities of a development. Whenever possible, a minimum slope of two percent should be maintained in unlined open channels and overland drainage routes. Slopes less than two percent and greater than one percent are difficult to construct and maintain and may require an underdrain system. Slopes less than one percent should not be allowed. Side slopes should be a maximum of 4:1 (horizontal to vertical) with gentler slopes being desirable. Where space permits, slopes should be cut back to match existing grade. When erosion control blanket is used 3:1 slopes are often allowed.

In general, the flatter the channel side slopes and the more meandering the channel alignment the more natural the channel will appear. Natural looking channels use significantly more space than common ditches. One method of providing this space is to incorporate greenway corridors over the channel area.

Rock riprap should be provided at all points of juncture between two open channels and where storm sewer pipes discharge into a channel. The design velocity of an open channel should be sufficiently low to prevent erosion of the bottom. Riprap or concrete liners should be provided in areas where high velocities cannot be avoided. Periodic cleaning of an open channel is required to ensure that the design capacity is maintained. Therefore, all channels should be designed to allow easy access for equipment.

Sanitary sewer manholes that could be subject to temporary inundation due to their proximity to ponds, channels, or roadway low points should be equipped with watertight castings. Precautions should be taken during construction to prevent the entrance of stormwater into the sanitary sewer. When access is required at all times, sanitary manholes located near ponding areas should be raised above the 100-year HWL. If access is not required, water tight castings should be installed. Future storm drainage construction should include provisions for improving the water tightness of nearby sanitary sewer manholes. All newly constructed sanitary manholes in the vicinity of ponding areas and open channels described in this report should be waterproof.

Ponds

Stormwater ponding areas are an essential part of any storm drainage system. These areas provide locations where stormwater flows can be reduced to provide flood protection for downstream areas. The effective use of ponding areas allows for outflow storm sewers and channels with reduced capacities, since the duration of the design storm is effectively increased over the total time required to fill and empty ponds. Smaller capacity trunk storm sewer and channels provide a cost savings to the City.

The use of ponds to control stormwater runoff rates is a recent phenomenon. Historically, older cities have piped stormwater directly to the nearest large receiving water or river. Continued use of this practice has both cost and regulatory implications. In terms of cost, few cities have the funds necessary to build pipes that provide 100-year protection to properties. In fact, the older cities that have historically piped all their stormwater find that the systems they constructed provide nowhere near the 100-year

protection found in newer cities that use ponds. In terms of the regulatory control, many direct discharges (without ponding) to waters of the state are precluded.

At present, even direct discharges to wetlands that are not considered waters of the state are regulated through the NPDES construction permit.

Cost and regulatory considerations aside, well designed ponds:

1. Improve water quality
2. Recharge the groundwater table
3. Provide aesthetic, recreational and wildlife benefits

Ponds improve stormwater quality by allowing nutrients and sediments carried by runoff to settle before being discharged to important receiving waters. Groundwater recharge is increased by restricting the outflow rate from a pond, thus allowing more water to infiltrate into the soil. Careful planning of ponds can enhance a development's appeal and still provide efficient stormwater management. In fact, lots with pond frontage command a higher price than lots without.

To provide proper protection for adjacent property, the design storm for ponding areas is the maximum flood from an SCS Type II rainfall distribution of a 24-hour, 100-year rainfall event. The lowest exposed elevations of structures that are adjacent to ponds should be certified by the builder during basement construction to ensure adequate freeboard.

Runoff determinations for pond design vary from those for storm sewer calculations. The critical storm for storm sewer design is the short, high intensity storm, whereas the critical storm for pond design is of longer duration, since water is being stored for longer periods of time and released at a slower rate.

The use of computer modeling in the analysis of the ponding system has allowed the efficient review of several complicated routing patterns, each comprised of several ponds. The pond storage and outflow rates, adjusted by lag time, were determined by the program for all the ponds identified in this Plan. The lag time is significant as it represents the attenuation of peak flows at each pond and generally shows that the peaks are not occurring at the same time. This implies that the direct runoff to a pond has generally passed through to the downstream trunk system before the inflow of large volumes of runoff from upstream ponds.

4.4.2.2. Water Quality System Concepts

The only effective way to maintain high quality waterbodies is to prevent sediment, nutrients, and other materials from entering the storm drainage system. Complete interception of stormwater for treatment at the point of discharge is not currently feasible, though the City encourages the implementation of techniques such as rainwater gardens, infiltration areas, and filtration swales that capture a portion of runoff at the point of generation. Application of these small-scale techniques should be on a site-specific basis.

Pollutant Control

The three main sources for degradation of water quality are:

1. Solids and associated chemicals (including calcium chloride and salt) from erosion and street sanding.

2. Composted decay around ponds.
3. Fertilizers and other chemicals from farming practices, impervious surfaces, or lawn care.
4. Stormwater runoff, including dissolved and suspended nutrients and sediment.

Identification of the source and implementation of reasonable control measures can minimize the degradation of West St. Paul's waterbodies.

In areas where development is taking place, stormwater runoff frequently contains substantial quantities of sediment. Most commonly, these sediments are carried by runoff into the storm sewer from large grading sites though fully developed areas also generate sediment loads particularly from winter sanding operations and in areas of structurally failing pipes. For developing areas, strict on-site erosion control practices are required to prevent sediments from entering downstream waterbodies. Inspections should be conducted by the City to verify that the erosion control practices have been installed and maintained properly. Even with extensive erosion control practices, sediment and airborne particulates will continue to enter surface waters of the City.

The importance of erosion control measures during construction cannot be overemphasized. The BMPs recommended in the MPCA's *Protecting Water Quality in Urban Areas* should be followed for all development. The Minnesota general NPDES stormwater permit for construction activity requires a permit for construction activities that disturb one or more acres.

When disturbing ten or more acres, developers are required to provide temporary settling ponds to treat the runoff from their grading sites. These ponds are intended to prevent the introduction of sediment and its associated pollution into the storm sewer system and are required to function until grading has ceased and adequate cover has been established. At a minimum, these temporary sedimentation basins should meet the requirements set forth in the NPDES general permit for construction activities.

When the outlet for a siltation basin, either permanent or temporary, is located below the normal water surface, the basin can also serve to confine floating solids that may otherwise enter a downstream pond or lake. This practice is typically referred to as skimming. If a hazardous material such as fuel oil were to spill, a skimmer structure would retain it within the basin and thus isolate it for easy access and prompt cleanup.

Skimmer structures should be used for all constructed ponds upstream of wetlands, lakes, rivers and streams. For constructed ponds that discharge into other constructed ponds, skimmer structures are not as important.

Ideally, some sort of solids removal system should be installed wherever storm sewer outlets into a pond. In certain cases, settling chamber (sump) type catch basins or manholes can be provided for storm sewers that discharge into ponds. These can provide effective removal of sand and gravel, which may be flushed into the storm sewer from streets and highways; however, they are ineffective in the removal of finer particles such as silts and clays. The use of this type of catch basin or manhole should be limited to those areas where regular maintenance is practical and where the sump can be realistically expected to intercept sand from winter sanding operations and gravel from driveways and construction sites.

Of late a concern regarding West Nile virus and mosquito breeding habitat has called into question the use of sump manholes. The latest data suggests that many different breeding environments exist for the mosquitoes that carry the virus including ponds,

wetlands, catch basins, and manholes. Obviously, eliminating these elements of the system is not feasible. Though they should be used sparingly, sump manholes should not be prohibited due to a concern over West Nile virus.

It bears repetition that a solids removal structure must be regularly maintained if it is to remain effective. Since maintenance is the controlling factor in the long-term performance of sediment control measures, ponds are recommended over sump manholes. Sump manholes, if numerous, often go without maintenance. An individual pond requires more maintenance time than a sump, but overall system maintenance time goes down when ponds are the preferred method of sediment removal as long as pond slopes and benching allow access by maintenance equipment. For this reason, sump manholes should be limited to storm sewer lines discharging directly to wetlands, lakes, rivers, streams, ravines, and constructed channels and should be avoided upstream of constructed ponds. In all cases, the location, type, and number of sediment control structures must be established at the time of final design of that portion of the storm sewer system. Maintenance of the system is discussed further in **Section 5.**

Even with the best and most expensive solids removal system, contamination of ponds and lakes will occur unless attention is paid to activities that occur after site development. Developers must utilize the BMPs to minimize erosion during the mass grading phase of construction. However, property owners must also use care in the development and maintenance of their lawns and open areas. Debris is frequently raked from lawns into gutters and from there, if it is not removed, it washes into the storm sewer system.

Generally speaking, water quality ponding within a development has to treat stormwater to the level required by the downstream receiving water body and its attendant management strategy. At a minimum, detention ponds should contain wet volume equivalent to the runoff from a 2.5-inch rainfall over their tributary area. Occasionally, with small plats (of five acres of less), water quality ponding cannot be constructed to the extent required by the LSWMP without severely hampering the site development or destroying other habitat such as upland grasslands and forests.

In such cases, it is within the City's discretion to reduce the required water quality ponding and/or require other methods such as filtration swales or filter beds.

Water Quality Modeling

When necessary for modeling a series of water quality ponds, the City uses the PondNet water quality management model. PondNet is an empirical model developed from data collected by the EPA Nationwide Urban Runoff Program (NURP). The model predicts the phosphorus removal efficiency of a large number of hydrologically connected ponds. Phosphorus is the primary nutrient modeled because it has been found to be the nutrient most likely to promote the growth of algae in lakes. LMRWMO has also completed a P8 model for the watershed which includes a portion of West St. Paul. Modeling with P8 is preferred when modeling BMPs other than ponds.

This Plan includes the PondNet modeling of drainage districts and their dominant ponds in West St. Paul. This regional-scale modeling of the water quality of West St. Paul was conducted to remain consistent with the hydrologic/hydraulic modeling of the City's ponds. A more detailed water quality analysis, which includes delineating drainage areas for every pond in the City, would provide the most accurate results of water quality at the local scale. Water quality analysis of ponds and wetlands

requires information on the below water volume in each basin modeled. In wetlands, this can be determined as relatively accurately by the type of wetland. For ponds, it requires the ponds' stage-storage relationship, which is typically obtained from the grading plan.

The PondNET modeling results are in **Appendix D**.

Actual mean depths were calculated for Wentworth and North Emerson Ponds using the ponds' bathymetry. Mean depths for all other ponds were estimated based on the classification shown in **Table 4.4**, the NWI identification, and a visual inspection by a wetland specialist.

Table 4.4
Pond Mean Depth Based on Amount of Vegetation and Water

Mean Depth (ft)	Pond Characteristics
0	All vegetation without constant water level
1.5	Completely emergent vegetation with constant water level
2.5	Some emergent vegetation with some open water
3	Open water with little to no emergent vegetation

Land use in West St. Paul was altered to consider the effects of waterbodies not being modeled for water quantity or quality and golf courses on the overall water quality control of West St. Paul's ponds. The stormwater runoff quality and quantity generated by golf courses vary greatly from course to course depending on the management of the land and ponds in a golf course. In the original land use model, golf courses were integrated with parks and recreation, which is acceptable for water quantity modeling purposes. However, to create a more accurate general model of West St. Paul's water quality control, the golf courses were designated to a separate land use. **Table 4.5** shows the changes that were made to land use designation, percent impervious coverage, and the curve number.

Table 4.5
Changes Made to Land Use for Water Quality Modeling

Original Land Use	% Impervious	CN	Altered Land Use	% Impervious	CN
Parks & Recreation	0%	61	Parks and Recreation	0	61
			Golf Course	10%	65
This land use was embedded in all others.			Water not modeled	100%	98

Average annual precipitation is based on a 20-year average from the Minnesota Climatology Working Group. **Table 4.6** shows several land use-dependent variables utilized in the PondNET model. These values are well-accepted for small storm hydrology modeling in the northern temperate Midwest.

Table 4.6
Variables Assumed in PondNET for West St. Paul Ponds

	Phosphorus Runoff Concentration (ppb)	Hydrologic Runoff Coefficient (Rv)	Unit P-Loading (lbs/ac/yr)	DP:TP Ratio
Single-family Residential	450	0.22	0.74	0.35
Multi-family Residential	450	0.34	1.13	0.35
Public, Semi-public	350	0.28	0.72	0.3
Commercial	350	0.53	1.39	0.5
Industrial	350	0.49	1.28	0.3
Parks and Recreation	200	0.03	0.05	0.5
Roadway (incl. ROW)	350	0.43	1.13	0.5
Undeveloped	200	0.03	0.05	0.7
Water (not modeled)	100	0.03	0.02	0.1
Golf Course	500	0.09	0.35	0.7

Computer models that predict concentrations and removal efficiencies for heavy metals are currently available. These models predict removal efficiency in terms of inflow particle distribution and the pond's ability to remove suspended solids. The Minnesota Stormwater Manual estimates the removal percentage of total phosphorus by wet detention ponds as 50%, bacteria as 60%, and total suspended solids (sediment) as 84%. **Table 4.7** shows the benefits of wet detention ponds as estimated by the Wisconsin DNR.

Table 4.7
Benefits of Wet Detention Ponds

Pollutant	Average Reduction (%)
Lead	70
Zinc	70
Diazinon (pesticide)	17
Phthalate	80

Based on these findings, it can be assumed that water quality ponds which reduce phosphorus loadings by 50% under standard runoff concentrations will also reduce heavy metal concentrations by 70% and sediments by 84%. For this reason, it is sufficient to model for phosphorus and from those results infer removals of other pollutants according to the percentages in **Table 4.7**.

Actual modeling of water quality basins and their treatment capacities can be cumbersome for developers and their engineers. A simple criterion is that every water quality basin should provide wet volume (volume below the normal water level) equivalent to the post development site runoff for the 2.5-inch rainfall event.

Ponds designed in this manner will meet a 60% removal efficiency while providing excess volume for sediment storage.

The modeling conducted for the 2006 LSWMP revealed that West St. Paul's ponds range from very poor to very good phosphorous removal capability. The 38 ponds maintaining constant water level have a 43% average phosphorous removal efficiency. Since this model was conducted at a regional scale, the PondNET results should be viewed relatively and not absolutely. For example, if the City of West St. Paul were interested in focusing efforts toward increasing pond phosphorous removal efficiencies, the PondNET model may provide a basis by which to assign priority of ponds. If removal efficiencies of given ponds are desired, a detailed, local-scale model should be created that includes the routing and sub-watershed delineation of all ponds within West St. Paul.

Local versus Regional Water Quality

Water quality treatment is not considered a regional task but rather something to be installed with individual developments. Regional water quality treatment is considered less effective than local treatment and some analyses suggest that regional water quality basins can become pollutant sources rather than remedies.

The premise that water quality treatment is more effective at a smaller scale is based upon the general assumption that ponds in series are more effective than single, larger ponds, even if equivalent wet volumes are involved. Additionally, when a water quality system consists of disperse elements the effect of any one component failing is relatively small. In contrast, if the water quality system consists of large centralized facilities, the impacts of one component failing might be quite significant. Another argument for smaller and more numerous water quality ponds is maintenance. Many cities maintain ponds themselves and do not have access to equipment that can reach from a pond bank to the middle of the large pond. Additionally, by dispersing water quality to the local or neighborhood level, a wider range of techniques can be used such as:

- Filtration swales
- Infiltration swales
- Infiltration basins
- Structural units like swirl separators
- Sand filters
- Reducing impervious surface

The techniques above are best applied as near as possible to the point of runoff generation.

4.4.3. Design Standards

4.4.3.1. Submittal Requirements

All grading, erosion control, and site restoration work must be done in accordance with the most recent editions of the MnDOT Standard Specifications for Construction, the MPCA's *Protecting Water Quality in Urban Areas*, the MPCA General Stormwater Permit for Construction Activity and the MPCA Minnesota Stormwater Manual.

The following is taken from section 153.365 of the City Zoning Ordinance and describes when grading permits are required.

153.365 (2) PERMITS REQUIRED

(a) Land excavation, grading or filling in excess of 200 cubic Yards of material shall require a permit from the Public Works Director, after review and approval of the exhibits required hereunder.

(b) Land excavation, grading or filling in excess of 3,000 cubic Yards of material shall require a Conditional Use permit according to procedures outlined in section 5.4.

153.365 (3) PERMIT EXCEPTIONS

A permit under this section shall not be required for the following:

(a) Excavations, grading or fills of less than 200 cubic Yards of material.

(b) Excavations or fills associated with a development project on platted property which have commenced within two years after an approved plat has been filed with Dakota County.

(c) Excavations, grading or fills by State, County or City authorities in connection with the construction or maintenance of roads, highways, parks or utilities or on slope or utility easements, provided such activity is conducted within public rights-of-way or easements.

(d) Curb cuts, utility hook-ups or Street openings for which another permit is required from the City.

(e) Any development for which a Conditional Use permit has been approved and granted and a final grading plan approved as a part thereof.

Projects require Erosion and Sediment Control Plans. These are drawings that show how erosion will be prevented and are required to show the following:

1. The name and address of the applicant and the location of the activity.
2. Project description: The nature and purpose of the land disturbing activity and the amount of grading, utilities, and building construction involved.
3. Phasing of construction: timeframes and schedules for the project's various aspects.
4. A map of the existing site conditions: existing topography, property information, steep slopes, existing drainage systems/patterns, type of soils, waterways, wetlands, vegetative cover, one hundred (100) year flood plain boundaries, and locations of existing and future buffer strips.
5. A site construction plan that includes the location of the proposed land disturbing activities, stockpile locations, erosion and sediment control plan, construction schedule, and the plan for the maintenance and inspections of the stormwater pollution control measures.
6. Adjacent areas: neighboring streams, lakes, residential areas, roads, etc., which might be affected by the land disturbing activity.
7. The site’s areas that have the potential for serious erosion problems.
8. Erosion and sediment control measures: the methods that will be used to control erosion and sedimentation on the site, both during and after the construction process.
9. Permanent stabilization: how the site will be stabilized after construction is completed, including specifications, timeframes or schedules.
10. Calculations: any that were made for the design of such items as sediment basins,

wet detention basins, diversions, waterways, infiltration zones and other applicable practices.

11. The Developer shall obtain all regulatory agency permits and approvals including those from the Minnesota Pollution Control Agency for “General Stormwater Permit for Construction Activity”.
12. Show City of West St. Paul’s project number on the Plan.
13. Show first floor and basement walkout elevations.
14. A location map indicating the vicinity of the site.
15. Two-foot contour information extending a minimum of 200 feet beyond the property boundary that shows features such as buildings, structures, walls, trees, fences etc. and any hydrologic features such as wetlands, ponds, lakes, and streams that are wholly or partially encompassed by the project perimeter.
16. Two-foot contour information shall include the following:
    a. Existing contours
    b. Proposed contours
    c. Contour labeling
17. Directional arrows to indicate the site and lot drainage directions.
18. Details on existing wetlands, lakes, streams etc.
    a. Normal water elevation (NWL) and 100-year design storm High Water Level (HWL)
    b. Ordinary High Water Level, if available, for wetlands within the site
    c. Whether waterbodies are DNR protected
    d. Wetland delineations for wetlands on the site
19. Information on individual lots including:
    a. Type of structure (i.e. walkout or rambler)
    b. Lowest ground elevation adjacent to building
    c. Walkout and lookout window elevations
    d. Existing and proposed lot corner spot elevations
    e. Proposed mid-point side lot spot elevations
    f. Proposed spot elevations at any high points or drainage breaks
    g. Proposed spot elevations where drainage swales intersect lot lines
    h. Proposed spot elevations where drainage and utility easements intersect with lot lines
    i. The benchmark utilized for elevation determination.
20. All easements and outlots, existing and proposed.
21. All adjacent plats, parcels, property lines, section lines, streets, existing storm drains and appurtenances, and underground utilities (public and private).
22. Drawings showing existing and proposed drainage boundaries, including watersheds contributing runoff from off-site.
23. Emergency Over Flow (EOF) elevations and directions of flow for all street and rear yard catch basins, parking areas, ponds, wetlands, lakes, streams, swales etc.
24. Hydrologic and hydraulic calculations for the 2-year, 10-year, and 100-year 24-hour (MSE3 distribution) rainfall event.
25. Provide detailed hydrologic/hydraulic calculations verifying location and capacity adequacy of all overland drainage routes.
26. If retaining walls are needed, submit detailed plans and specifications that show type and height of retaining wall. Retaining walls will not be allowed within the City’s easements, unless approved with the overall subdivision grading plan.
27. Show removal of all trees and brush below the controlled water level that will be impacted from existing and newly created ponding areas.
28. Show or define access routes for maintenance purposes to all inlets or outlets at ponding areas (must be maximum of 8% grade, 2% cross slope and 10’ wide).
29. Note for all silt fence to be installed by the contractor and inspected by the City prior to any site work.

Storm sewer projects and plans are required to show the following:

1. The developer shall obtain all regulatory agency permits and approvals necessary for the proposed construction (i.e., DNR, Army Corp. of Engineers, MPCA, etc.)
2. Drainage calculations shall be submitted to show the sizing of pipe, ponds, emergency overflow spillways, and catch basin interception analysis.
3. Show or define access routes for maintenance purposes to all manholes outside the public right-of-way and inlets or outlets at ponding areas (eight percent maximum grade, two percent cross slope, and ten-feet-wide). Access easements shall be dedicated at the time of final platting to provide this access.
4. Upon the completion of the construction of a designated ponding area, the developer and/or engineer is required to submit an as-built record plan of the ponding area certifying that the pond constructed meets all design parameters as set forth in the City's LSWMP.

4.4.3.2. Erosion and Sediment Control

Anyone proposing land disturbing activities should be familiar with the performance criteria for a Stormwater Pollution Control Plan as outlined in Section 40.3(5) of the City's Zoning Code. The Stormwater Pollution Control Plan is the submittal made by a project proposer that includes the Erosion and Sediment Control Plan and any narrative, modeling, photographs, or other items necessary to demonstrate how effective erosion and sediment control will be accomplished.

The City requires a Stormwater Pollution Control Plan as part of its Stormwater Management ordinance. A SWPPP is required for all applicants for building permits, subdivision approval, or permits to allow land disturbing activities. This ordinance lays out a review, approval, and permit process for all projects where bare soil is exposed.

Enforcement of this ordinance is by action against the financial security of a project.

4.4.3.3. Stormwater Management

The term High Water Level (HWL), as used below, refers to the maximum water level generated by an MSE3 distribution, 24-hour, 100-year rainfall event (7.44 inches of rain in 24 hours).

1. Stormwater plans for development shall comply with this LSWMP and its updates.
2. Stormwater facilities shall be designed for a 10-year frequency storm for local pipe design and a 100-year frequency storm for ponding detention basin design and trunk facilities.
3. Stormwater pipes shall be designed using the rational method or hydrograph method (based on sounds hydrologic theory) for pipe. Channel design shall be hydrograph method only. All methods are subject to the City Engineer's approval.
4. Stormwater detention facilities constructed in the City of West St. Paul shall be designed according to the standards reflected in the MPCA publication *Protecting Water Quality in Urban Areas*, the Minnesota Stormwater Manual, and the design criteria from the National Urban Runoff Program. At a minimum, the permanent pool should be equivalent to the runoff from the 2.5-inch, 24-hour rainfall event unless the requirements of the **Table 4.2** call for increased treatment capacity.

5. Maximum allowed pond slopes are 3:1, however 4:1 slopes are preferred. Pond slopes steeper than 4:1 shall have erosion control blanket installed immediately after finish grading. In residential areas slopes no steeper than 4:1 shall be allowed. Maximum 3:1 slopes are allowed in "maintained" areas as approved by the City Engineer. Maximum 3:1 slopes are allowed for road fill sections adjacent to waterbodies.
6. All constructed ponds and wetland mitigation areas shall have an aquatic safety bench around their entire perimeter. The aquatic bench is defined as follows:
   a. Cross slope no steeper than 10:1
   b. Minimum width of 10 feet
   c. Located from pond NWL to one foot below pond NWL
7. All constructed ponds and wetland mitigation areas shall have a maintenance access bench to provide access to all inlets and outlets. At a minimum, the maintenance bench should extend around 50 percent of the basin perimeter.
8. Elevation separations of buildings with respect to ponds, lakes, streams, and stormwater features shall be designed as follows:
   a. The lowest ground elevation adjacent to homes and buildings must be a minimum of two feet above the calculated 100-year HWL or one and one-half feet above the EOF, whichever criteria leads to the higher elevation.
   b. Landlocked lakes and wetlands require either:
      - A five-foot separation between basin HWL and lowest ground elevation adjacent to building, or
      - A three-foot separation between basin HWL for back to back 100-year storms and the lowest ground elevation adjacent to building, or
      - A three- foot separation between the highest known or recorded basin elevation in the case of large wetlands and lakes and lowest ground elevation adjacent to building.

      Whichever of the three methods yields the highest allowable ground at building elevation should be the one used.
   c. Drainage easements for ponds, lakes, wetlands, and streams shall encompass an area to one foot (vertical) above the calculated 100-year HWL.
9. Ponds must have a maximum depth of less than 10 feet.
10. All ponds shall have outlet skimming for up to the 5-year event.
11. All ponds shall be graded to one-foot below design bottom elevation. This "hold down" allows sediment storage until such time as site restoration is complete.
12. The top berm elevation of ponds shall be a minimum of 1.5 feet above the 100-year pond HWL.
13. The average depth of the permanent pool of any pond must be greater than four feet and less than 10 feet.
14. All ponds shall have an emergency overflow which is at minimum 1.5 feet below the lowest ground elevation of any adjacent structure.
15. Grading shall not block or raise emergency overflows from adjoining properties unless some provision has been made for the runoff that may be blocked behind such an embankment.
16. Minimum grade for lot drainage swales and lot grading shall be two percent or greater.
17. Maximum length for drainage swales shall be 300 feet or a total of eight lots draining to a point, or as approved by the City Engineer.
18. Utilization of existing wetlands for stormwater management is subject to review by the appropriate regulatory agency in accordance with the Wetlands Conservation Act.
19. Restrict clearing and grading within 20 feet of an existing wetland boundary to provide for a protective buffer strip of natural vegetation.

20. Seeding around ponds should be MnDOT standard mix 28B (328) or BWSR equivalent.

4.4.3.4. Storm Sewer Design

1. Provide for overflow routes to drain low points along streets or lot lines to ensure a freeboard of two feet from the lowest exposed structure elevation and the calculated 100-year storm HWL elevation. Design criteria verifying the adequacy of the overland drainage route capacity is required.
2. The storm sewer alignment shall follow the sanitary sewer and watermain alignment where practical with a minimum of 10 feet of separation. Storm sewer placed along the curb alignment shall be along the curb opposite the watermain to maintain the 10 feet of separation.
3. Catch basins shall be located on the tangent section of the curb at a point three feet from the point of curve. Mid-radius catch basins will not be allowed. Also, catch basins shall be designed to collect drainage on the upstream side of the intersection.
4. The maximum spacing between manholes is 400 feet.
5. Manhole steps will be aligned and over the downstream side of the manhole. Steps within manholes will be:
   a. One inch (1”) +/- Horizontal Alignment
   b. One inch (1”) +/- Vertical Alignment per latest OSHA Standards
6. Any connections to existing manholes or catch basins shall be core drilled or the opening cut out with a concrete saw. No jack hammering or breaking the structure with a maul is permitted. Also, all connections to an existing system will require a manhole for access.
7. To the greatest extent possible, manholes shall be placed in paved surfaces outside of wheel paths, (three feet and nine feet off centerline) or other readily accessible areas.
8. Minimum pipe size shall be 12 inches in diameter.
9. Aprons or flared end sections shall be placed at all locations where the storm sewer outlets a ponding area. All inlet/outlet flared end sections shall be furnished with hot dipped galvanized trash guards. All trash guard installations will be subject to approval by the City Engineer. The last three pipe joints from the flared end section shall be tied together.
10. Riprap and filter blanket shall be placed at all outlet flared end sections. The placement of the riprap shall be hand placed. The minimum class of riprap shall be MnDOT 3601.2, Class III. Design criteria justifying the size and amount of riprap is required. Geotextile material is not allowed for filter aggregate where ice action along the shore line may tear it.
11. The invert elevations of the pond inlet flared end sections shall match the NWL of the pond. Submerged outlets will only be allowed at the discretion of the City Engineer.
12. If the storm sewer is to be installed less than 10-feet-deep within private property, the easement shall be a minimum of 20-feet-wide with the pipe centered in the easement. If the storm sewer is 10-feet-deep or greater, then the easement shall be twice as wide as the depth, or as required by the City.
13. Junction manholes should be designed to limit the hydraulic head increase by matching hydraulic flow lines and by providing smooth transition angles.
14. In the development of any subdivision or ponding area, the developer and/or property owner is responsible for the removal of all significant vegetation (trees, stumps, brush, debris, etc.) from any and all areas which would be inundated by the designated controlled NWL of any required ponding easement as well as the removal of all dead trees, vegetation, or other items to the HWL of the pond.

15. Outlet control structures from ponding areas are required as directed by the City. Location and appearance of outlet structures shall be subject to City approval and may require landscape screening.
16. Sump manholes with three-foot sumps shall be constructed as the last structure which is road accessible prior to discharge to any waterbody.
17. Inlets should be placed and located to eliminate overland flow in excess of 1,000 feet on minor streets, or a combination of minor streets and swales, and 600 feet on collector streets and arterials. Additionally, inlets should be located such that 3 cfs is the maximum flow at the inlet for the 10-year design storm.
18. Refer to **Section 4.4.2.1** for standards for energy dissipation and protection of channels.

5. IMPLEMENTATION PROGRAM

5.1. Implementation Program Components

Table 5.2 contains a comprehensive list of the MS4 activities and projects, programs, and studies that make up the City of West St. Paul's implementation program for the next 10 years (2018 through 2027. The City developed this program by evaluating the requirements in the MS4 permit (see MS4 SWPPP Application for Reauthorization in **Appendix F**), reviewing existing information (**Section 2**), developing goals and policies (**Section 3)**, identifying potential and existing problems (**Section 4**), and then assessing the need for programs, studies or projects. The City estimated total costs, identified possible funding sources, and developed an approximate schedule to complete the implementation activities. It is anticipated these tables will be updated/revised on a yearly basis.

5.2. Implementation Priorities

The implementation components listed in **Table 5.2** were prioritized to make the best use of available local funding, meet MS4 Permit requirements, address existing water management problems, and prevent future water management problems from occurring. **Table 5.2** identifies which activities are MS4 Permit Requirements, MS4 Permit Requirements – within 12 months, Annual Requirements, or Capital Projects/Programs/Studies. The City's implementation plan reflects its responsibility to protect the public health, safety and general welfare of its citizens by addressing problems and issues that are specific to the City of West St. Paul.

5.3. Financial Considerations

The City plans to use funds generated from its Stormwater Utility as the primary funding mechanism for its implementation program including maintenance, repairs, capital projects, and studies. If funds from this utility fee do not cover necessary costs, the City will consider adjusting the Stormwater Utility Fee as well as using general funds to cover the costs associated with the implementation program. The City will continue to review the stormwater utility fee annually and adjust based on the stormwater related needs of the City and other available funding mechanisms.

Although not proposed at this time, the City may consider using plan implementation taxes (MN Statutes 103B.241) in the future if general funds or stormwater utility funds are not sufficient to fund the projects. The City will also take advantage of grant or loan programs to offset project costs where appropriate and cost-effective.

5.4. Plan Revision and Amendments

The City may need to revise this Plan to keep it current. The City may amend this plan at any time in response to a petition by a resident or business. Written petitions for plan amendments must be submitted to the City Administrator. The petition must state the reason for the requested amendment and provide supporting information for the City to consider the request. The City may reject the petition, delay action on the petition until the next full plan revision, or accept the petition as an urgent issue that requires immediate amendment of the plan. The City of West St. Paul may also revise/amend the plan in response to City-identified needs. This Plan is intended to be in effect for 10 years. The Plan will be revised and updated at that time, to the extent necessary.

5.5. Activities

A stormwater system is a major investment for the City of West St. Paul—both in terms of initial capital cost and in terms of ongoing maintenance costs—with meeting ongoing maintenance costs being the City's current challenge. Typically, system maintenance is funded by the City's stormwater utility and through the general fund.

The City's stormwater system maintenance responsibilities include the following:

a) Street sweeping
b) Cleaning of sump manholes and catch basins
c) Repair of catch basins and manholes
d) Assessing pipe condition (typically by televising)
e) Inspection of storm sewer inlet and outlet structures
f) Pond mowing and other vegetation maintenance
g) Excavation of accumulated sediments from ponds

The City has maintained its pipe system for decades and staff has a strong grasp on the costs associated with this. As new development and increasing requirements bring more ponds (and other BMPs) into the system, City staff will find that maintenance becomes an increasingly large portion of both staff time and maintenance budget. It is important to quantify the extent of this future commitment so that the funds necessary for pond maintenance activities can be collected via the City's stormwater utility.

Table 5.1 provides a typical maintenance schedule for wet ponds.

Table 5.1
Wet Pond Maintenance Schedule

Activity	**Schedule**
Inspect regional pond outlets for clogging.	**After significant rainfalls**
Inspect for damage. Note signs of hydrocarbon build up. Monitor for sediment accumulation in the facility and forebay. Examine to ensure that inlet and outlet devices are free of debris and operational.	Annual inspection
Repair undercut or eroded areas.	As needed
Mow slopes.	Twice annually
Remove sediments from forebay.	5 to 7 year cycle
Remove sediment accumulated in main pool.	20 to 30 year cycle

Adapted from Watershed Management Institute. 1997. Operation, Maintenance, and Management of Stormwater Management Systems.

The management of stormwater ponds is facilitated by creation of a GIS database for all stormwater system infrastructure. The City has mapped all storm sewers in the City as well as all ponds, outfalls, sediment basins, and structural pollution control devices which require inspection for the MS4 Permit. This infrastructure is shown in **Figure 5, Appendix A**. Ultimately, through its stormwater management database the City could reference its maintenance records, videotapes, and maintenance costs for the stormwater system.

5.5.1. Stormwater Basins

Stormwater basins represent a sizable investment in the City's drainage system. General maintenance of these facilities helps ensure proper performance and reduces the need for major repairs. Periodic inspections are performed to identify possible problems in and around the basin. Inspection and maintenance cover the following:

a) Basin outlets
b) Basin inlets
c) Side slopes
d) Illicit dumping and discharges
e) Sediment buildup

Basin Outlets

A key issue with stormwater basins is ensuring that the outlets perform at design capacity. Inspection and maintenance of basin outlets address the following:

a) The area around outlets is kept free and clear of debris, litter, and heavy vegetation.
b) Trash guards are installed and maintained over all outlets to prevent clogging of the downstream storm sewer.
c) Trash guards are inspected at least once a year, typically in the spring, to remove debris that may clog the outlet. Problem areas are addressed more frequently, as required.
d) Emergency overflow outlets are provided for all ponds when possible. These are kept clear of debris, equipment, and other materials and properly protected against erosion.

Basin Inlets

Inspection and maintenance of basin inlets address the following:

a) Inlets are inspected for erosion.
b) Where erosion occurs near an inlet, energy dissipaters or riprap are installed.
c) Inlets are inspected for sediment deposits, which can form at the inlets due to poor erosion practices upstream.
d) Where sediment deposits occur, these are removed to ensure design capacities of storm sewers entering the basin are maintained.

Side Slopes

Inspection and maintenance of basin side slopes address the following:

a) Side slopes are kept well-vegetated to prevent erosion and sediment deposition into the basin. Severe erosion alongside slopes can reduce the quality of water discharging from the basin and require dredging of sediments from the basin.
b) Noxious weeds are periodically removed from around basins.
c) Some basins in highly developed areas require mowing. If mowing is performed, a buffer strip of 20 feet or more adjacent to the normal water level is typically maintained. This provides filtration of runoff and protects wildlife habitat.

Illicit Dumping and Discharges

Inspection and maintenance of illicit dumping and discharges into basins address the following:

a) Basins are periodically inspected for evidence of illicit dumping or discharges. The most common of these is dumping of yard waste into the basin.
b) Where found, illicit material is removed, and signs are posted as needed prohibiting the dumping of yard waste.
c) Water surfaces are inspected for oil sheens. These can be present where waste motor oil is dumped into upstream storm sewers.
d) Skimmer structures are installed as needed at outlet structures to prevent oil spills and other floatable material from being carried downstream.
e) Skimmer structures are periodically inspected for damage, particularly from freeze-thaw cycles.

Sediment Buildup

Inspection and maintenance of sediment buildup in basins address the following:

a) Basins are inspected to determine if sediment buildup is causing significant loss of storage capacity from design levels. Excessive sediment buildup significantly reduces the stormwater treatment efficiency of water quality ponds.
b) Sediment removal is performed where excessive sediment buildup has occurred. As a general guideline, ponds require dredging every 15 to 20 years. When effective forebays are provided, these may require more frequent cleaning (approximately five to seven-year cycles) but would tend to produce less material and would extend the maintenance cycle of ponds to as much as 30 years.

5.5.2. Sump Manholes and Sump Catch Basins

Sump manholes and sump catch basins are included in storm sewer systems to collect sediments before they are transported to downstream waterbodies. These structures keep sediments from degrading downstream waterbodies. Once sediments are transported to a lake or pond, they become much more expensive to remove.

Sediments originate primarily from road sanding operations, although construction activity and erosion can also contribute. Since these structures are designed to collect these sediments, they are routinely cleaned to provide capacity for future sedimentation. Suction vacuum equipment is typically used.

5.5.3. Storm Sewer Inlet Structures

To fully utilize storm sewer capacity, inlet structures are kept operational to get runoff into the system. All efforts are made to keep catch basins and inlet flared ends free of debris and sediments so as not to restrict inflow and cause flood damage. Leaf and lawn litter are the most frequent cause of inlet obstructions. On a routine basis, City staff visually inspects inlet structures to ensure they are operational.

5.5.4. Open Channels and Ravines

Overland flow routes constitute an important part of the surface water drainage system. Open channels are typically vegetated and occasionally lined with more substantial materials. The lined channels typically require little or no maintenance. Vegetated channels are periodically inspected and maintained, as high flows can create erosion within the channel.

Eroded channels can contribute to water quality problems in downstream waterbodies as the soil is continually swept away. If not maintained, the erosion of open channels would accelerate, and the repair would become increasingly costlier. The erosion of channels is accelerated when these are at steep gradients and are used for conveying urban stormwater.

5.5.5. Piping System

The storm sewer piping system constitutes a multimillion-dollar investment for the City. The City performs a comprehensive maintenance program to maximize the life of the facilities and optimize capital expenditures. The following periodic inspection and maintenance procedures are followed:

a) Catch basin and manhole castings are inspected and are cleaned and replaced as necessary.
b) Catch basin and manhole rings are inspected and are replaced and/or re-grouted as necessary.
c) Catch basin and manhole structures are inspected and are repaired or replaced as needed. Pipe inverts, benches, steps (verifying integrity for safety), and walls are checked. Cracked, deteriorated, and spalled areas are grouted, patched, or replaced.
d) Storm sewer piping is inspected either manually or by televising to assess pipe condition. Items looked for include root damage, deteriorated joints, leaky joints, excessive spalling, and sediment buildup. The piping system is programmed for cleaning, repair, or replacement as needed to ensure the integrity of the system.

5.5.6. De-Icing Practices

Minnesota receives approximately 54 inches of snow during a typical year. This requires a large amount of de-icing chemicals (primarily salt) to be applied to roads and sidewalks each winter.

Estimates indicate that 80 percent of the environmental damage caused from de-icing chemicals is a result of inadequate storage of the material (MPCA 1989). Improper storage as well as overuse of salt increases the risk of high chloride concentrations in runoff and groundwater. High chloride concentrations can be toxic to fish, wildlife, and vegetation.

The following procedures are used for storing de-icing chemicals in the City.

a) De-icing material is stored in waterproof sheds. When and where this is not possible, stockpiles are covered with polyethylene and placed on impervious surfaces.
b) Road de-icing stockpiles are not located near municipal well areas or in other sensitive groundwater areas.
c) Runoff from stockpiles is not allowed to flow directly into streams or wetlands where environmental damage can occur.

West St. Paul has established a detailed “snow and ice removal policy” to address winter maintenance needs. Street conditions are assessed for each individual event and ice control material application is adjusted accordingly. Equipment is maintained in good working order to place ice control material on roadways and is properly calibrated to prevent excessive application.

5.5.7. Street Sweeping

Street sweeping is an integral part of the City’s effective surface water management system. It greatly reduces the volume of sediments that have to be cleaned out of sump structures and downstream waterbodies. The City sweeps all streets twice each year (spring and fall). Spring sweeping begins either late March or early April after the risk of later snowfall has passed and targets sand left from winter sanding operations.

Fall sweeping occurs after leaf fall. West St. Paul does not allow residents to rake leaves into the street for municipal pick up. Dakota County and the City encourage residents toward composting their yard waste.

If residents desire to have yard waste removed by their private hauler, then compostable bags or reusable containers are required. Alternately, there are composting sites within Dakota County where yard waste can be brought for a fee. Overall the City’s approach to minimizing organic matter entering its stormwater system greatly reduces the incidence of inlet blockages and protects the water quality of downstream waterbodies.

The objective of the City's street sweeping and de-icing programs is to minimize impacts from leaf litter, sand, salt and other debris on the surface waters of the City.

5.5.8. Detection of Illicit Connections

As presented in **Section 3**, West St. Paul will modify its ordinance to prohibit the dumping of hazardous material into the stormwater system. During routine inspection for inlet grates, outfalls, and other portions of the stormwater system, City staff also looks for evidence of illicit discharge, dry weather flow (indicating possible sanitary sewer connections), sedimentation and other non-point source pollution problems.

The City has mapped its storm sewer outfalls and has started the process of integrating this mapping with inspection data. This effort will be concurrent with the overall storm sewer mapping effort required by the City's NPDES permit.

5.6. Education

5.6.1. General

Education can play an important role in any effort to implement a stormwater management program like the one outlined in this LSWMP. The objectives of an education effort are different, depending on the target audience. In general, the target audience for this education program is City staff, City residents, and the development community. The following sections describe why education of each of these groups is important and presents educational methods that may be used for each audience.

5.6.2. City Staff

City staff have a wide range of responsibilities for implementing this plan. These include:

a) Implementing street sweeping and spill response programs.
b) Maintaining detention basin/stormwater management pond performance and system operability.
c) Planning for and management of projects to enhance pollutant removal performance, wetland quality, among other tasks.
d) Carrying out grounds maintenance of City-owned lands/facilities in a way that sets a good example for residents.
e) Using BMPs in application of ice control material.
f) Application of BMP policies and regulations to new and redevelopment projects.
g) Planning and delivering education programs.
h) Working out cooperative arrangements with regulatory and non-regulatory organizations to achieve LSWMP objectives.
i) Assisting the City Council in the application of the LSWMP policies.

Because these responsibilities involve many different levels of City staff, City staff members are trained to have a basic understanding of the LSWMP, including:

a) A description of the major stormwater management issues (including known stormwater management problem areas, stormwater management expectations for new and re-development projects, and incorporation of stormwater mitigation into capital improvement projects, and regulatory jurisdictions).
b) The objectives of the LSWMP and the general approach outlined in the LSWMP for resolution of these issues.

c) The responsibilities of the different work units in implementing the LSWMP.
d) The information the LSWMP provides.
e) Identification of in-house experts.

This information is disseminated in presentations at staff meetings, coverage in internal newsletters, and issuance of internal memos.

As part of the LSWMP effort, staff will also be trained in using the City's stormwater management model.

5.6.3. City Residents

To obtain the necessary political and economic support for successful LSWMP implementation, it is vital to inform City residents about basic stormwater management and water quality concepts, policies and recommendations in the LSWMP, and the progress of stormwater management efforts.

Through its quarterly newsletter the City keeps residents informed of stormwater and other environmental issues particularly regarding volunteer opportunities, proper lawn care practices, and recycling and hazardous waste management information. The City website is a clearing house for information on stormwater management and will be updated to provide stormwater management articles and contact numbers for reporting illicit discharges and other stormwater related complaints.

As the City incorporates innovative stormwater management practices into both municipal and private development projects, it will use these projects to highlight the benefit of certain stormwater management practices. It is important that residents know about these projects (including how they were funded) so that they develop an awareness that the City is being responsive to the public interest in protecting high priority resources and that dedicated financial resources such as revenue from the stormwater utility are being put to good use.

5.6.4. Developers

The LSWMP is designed to provide the official policy direction that City staff and the City Council desire to guide stormwater mitigation for new and redevelopment projects. New construction in West St. Paul is limited since there is basically no land left to develop. Redevelopment, though, will likely occur on a regular basis.

The information contained within this plan is disseminated to developers and their consulting engineers as early as possible in the development review process. In this way, developers know what is expected of them and can consider the requirements in their initial assessments of the site as well as incorporate the necessary BMPs in any subsequent designs. Much of the necessary information is disseminated to the developers in an information packet in the development submittal information they receive from the City.

While dissemination of information is valuable, there is no substitute for a meeting between key City staff and the developer as early as possible in the review process. This helps define expectations for submittals, clarify regulatory compliance issues, and provide additional detailed guidance. Developers are encouraged to do this as soon as possible after they have reviewed the LSWMP information and thought about how it applies to their site.

5.7. The Stormwater Utility

The City of West St. Paul implemented a stormwater utility fee on February 1, 2006. The current quarterly residential charge is $11.00 per residential unit and $3.67 for commercial properties. The fund is used on any stormwater maintenance and any project where stormwater related work is being done. The City will need to annually review the charge rate, especially as the City's maintenance and permit preparation responsibilities continue to grow.

5.8. Ordinance Implementation

Through the MS4 process, the City will review its Erosion and Sediment Control Ordinance, Illicit Discharge Ordinance, and Stormwater Management Ordinance to see if modifications to these are warranted. Section 153.365 of the Zoning Ordinance defines when grading permits are required. Otherwise sections 153.472 and 153.473 of the Zoning Ordinance include requirements for stormwater management and erosion control.

The illicit discharge ordinance is intended to prohibit the following:

a) Illicit connections from the sanitary sewer to the storm sewer
b) Dumping of listed chemicals into the stormwater system
c) Illegal dumping

Illegal dumping is already covered under the City's Public Nuisances Section (Chapter 94). The illicit discharge ordinance can be found under City Code Section 50.09 Storm Water Illicit Discharge and Illicit Connection.

Ordinance implementation items include a review of the stormwater management ordinance and its, illicit discharge ordinance, and erosion and sediment control provisions ordinance. Ordinance implementation also includes a comprehensive wetland ordinance though this may be folded into a revised stormwater management ordinance if a revised ordinance is deemed necessary.

Review of Section 153.413 of the Zoning Ordinance, the City's Shoreland Ordinance, is not proposed in the Implementation Plan.

5.9. Watershed Implementation Priorities

The LMRWMO has named the City of West St. Paul as a responsible party for three projects in their current plan: stormwater improvements and PAH remediation at Thompson Lake, erosion control at Cherokee Heights, and installation of a lift station at Seidl's Lake. All three projects appear in **Table 5.2** with an estimated budget and year of completion.

5.10. Amendment Procedures

The West St. Paul LSWMP is intended to extend through the year 2027. For the plan to remain dynamic, an avenue must be available to implement new information, ideas, methods, standards, management practices and any other changes that may affect the intent and/or results of the LSWMP. The amendment procedure for the LSWMP is presented below.

5.10.1. Request for Amendment

Written request for plan amendment is submitted to City staff. The request shall outline the need for the amendment as well as additional materials that the City will need to consider before making its decision. The amendment process may also be initiated by staff and, in fact, this is the more common method.

5.10.2. Staff Review of Amendment

A decision is made as to the validity of the request. Three options exist:

1) Reject the amendment,
2) Accept the amendment as a minor issue, with minor issues collectively added to the plan at a later date, or
3) Accept the amendment as a major issue, with major issues requiring an immediate amendment.

In acting on an amendment request, City staff shall recommend to City Council whether or not a public hearing is warranted. Major amendments to the Plan will have to be submitted to the watersheds for review and approval prior to formal action by the council. Minor amendments should also be submitted for review and to determine compatibility with watershed plans.

5.10.3. Council Consideration

The amendment and the need for a public hearing shall be considered at a regular or special Council meeting. Staff recommendations should also be considered before decisions on appropriate action(s) are made.

5.10.4. Public Hearing and Council

This step allows for public input based on public interest. Council shall determine when the public hearing should occur in the process. Based on the public hearing, the City Council could approve the amendment.

5.10.5. Council Adoption

Final action on an amendment is City Council adoption. However, prior to the adoption, an additional public hearing could be held to review the plan changes and notify the appropriate stakeholders.

5.11. Annual Report to Council

A brief annual report will be made by City staff summarizing development changes, capital improvements, and other water management-related issues that have occurred over the past year. The review will also include an update on available funding sources for water resource issues. Grant programs are especially important to review since they may change annually. These changes do not necessarily require individual amendments. The report can, however, be considered when the plan is brought up to date. The annual report should be completed by July 1 to allow implementation items to be considered in the normal budget process.

The City's LSWMP will remain in effect through 2027. The City will then review the LSWMP for consistency with current water resource management methods. At that time, all annual reports and past amendments will be added to the document. Depending on the significance of changes, a new printing of the LSWMP may be appropriate.

TABLE 5.2

LOCAL WATER MANAGEMENT IMPLEMENTATION PLAN

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
1	Construction Site Stormwater Runoff Control - Update construction site stormwater runoff control regulatory mechanism to be at least as stringent as the MPCA NPDES Stormwater Construction Activity Permit. This effort will be completed within 12 months of the date permit coverage is extended. For all ordinances, a draft will be completed within nine months after the date permit coverage is extended to allow for adequate time for the City's administrative process to promulgate an amended ordinance.	✓	✓			$7,000	Stormwater Utility & Developers Agreement	$3,500					$3,500					See SWPPP Application for Reauthorization (Appendix F)
2	Stormwater Management - Amend current post-construction ordinance to include necessary language to be in compliance with MS4 requirements. Ordinance to be completed within 12 months of the date permit coverage is extended. For all ordinances, a draft will be completed within nine months after the date permit coverage is extended to allow for adequate time for the City's administrative process to promulgate an amended ordinance.	✓	✓			$7,000	Stormwater Utility	$3,500					$3,500					See SWPPP Application for Reauthorization (Appendix F)
3	Storm Sewer System Map and Inventory - City will review and update maps to ensure all structural BMP's have been identified and that each has a unique identifier and geographic coordinates. Inventory and mapping will be completed, and the completed inventory will be sent to the MPCA MS4 Permit Program within 12 months of the date permit coverage is extended.	✓	✓			$7,000	Stormwater Utility	$3,500					$3,500					See SWPPP Application for Reauthorization (Appendix F)

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
4	Education Activity Implementation Plan - Complete outline of education activity implementation program and implementation schedule for the upcoming permit year. Include procedures to meet requirements for the following stormwater educational programs: -Website (update to include new permit requirements) -Newsletter (completed quarterly - includes three articles on stormwater) -Brochure (Annual distribution to all households and available at City Hall.) -Storm Drain Stenciling (Stencil at least 30 drains per year.)	✓		✓		$12,000	Stormwater Utility	$1,200	$1,200	$1,200	$1,200	$1,200	$1,200	$1,200	$1,200	$1,200	$1,200	See SWPPP Application for Reauthorization (Appendix F)
5	Annual SWPPP Assessment & Annual Reporting City staff will conduct an annual SWPPP assessment in preparation of each annual report. Proposed SWPPP modifications are subject to Part II.G of the MS4 permit. The final annual report will be posted on the City's webpage. City staff will submit the annual report to the MPCA prior to June 30th for the previous calendar year.	✓		✓		$20,000	Stormwater Utility	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	See SWPPP Application for Reauthorization (Appendix F)
6	Annual Public Meeting/Event Present the draft MS4 annual report to one public event per year to solicit public input regarding the adequacy of the City's SWPPP. The City will develop documentation procedures for Public input received that are in compliance with the new permit within 12 months of the date permit coverage is extended. Public comment (oral and written) will be recorded in a record of decision and evaluated by the City's MS4 General Contact. City responses (if relevant) will be made in writing to each commenter. Hold one event per calendar year of the MS4 permit cycle.	✓		✓		$10,000	Stormwater Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	See SWPPP Application for Reauthorization (Appendix F)
7	Online Availability of the Stormwater Pollution Prevent Plan (SWPPP) Program Document - The City will make the SWPPP and 2013 annual report available on the Water Resources webpage within 12 months from the date the MS4 permit coverage is extended to the City.	✓	✓	✓		$5,000	Stormwater Utility	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	See SWPPP Application for Reauthorization (Appendix F)

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
8	IDDE Regulatory Mechanisms - The City will review and update IDDE regulatory mechanisms, tracking programs, and spill response procedures to meet new requirements of the MS4 general permit. This effort will be completed within 12 months of the date permit coverage is extended.	✓	✓			$10,000	Stormwater Utility	$5,000					$5,000					See SWPPP Application for Reauthorization (Appendix F)
9	ERP Regulations - The City will develop ERPs to comply with the new MS4 permit. A final draft will be presented to City staff for review within nine months of the date permit coverage is extended.	✓	✓			8,000	Stormwater Utility	$4,000					$4,000					See SWPPP Application for Reauthorization (Appendix F)
10	Employee Training - Continue to host a minimum of one staff training event per year to discuss illicit discharge recognition and reporting. City staff will develop an annual training schedule, record the employee names, topics covered, and date of each event, annually through the end of the MS4 permit cycle.	✓	✓	✓		$15,000	Stormwater Utility	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	See SWPPP Application for Reauthorization (Appendix F)
11	City Erosion Control Permit - Continue to implement as defined by City Code Section 40.1 Storm Water Management through the MS4 Permit cycle.	✓		✓		$75,000	Stormwater Utility & Developers Agreement	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	See SWPPP Application for Reauthorization (Appendix F)
12	Develop Construction Site Inspection Checklist - The City will develop a construction site inspection program that meets the requirements of the new MS4 general permit. This will include developing records retention procedures. Staff will use the next nine months to prepare and implement all required changes to the program to meet the new permit requirements.	✓	✓			$4,000	Stormwater Utility	$2,000					$2,000					See SWPPP Application for Reauthorization (Appendix F)

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
13	Post Construction Stormwater Management - The City will develop a process and procedure to comply with the new permit requirements for post construction. This will include updating their site plan checklist, process for written procedure for documenting any post-construction mitigation, a process for documenting payments in lieu of on-site, post construction, structural BMP's necessary for permit compliance, and create draft language that will be included in all development contracts that have private stormwater structures. The initial process will be developed over the first 6 months with the final edits and adoption expected to take the an additional 6 months. All work will be completed within 12 months of the date MS4 coverage is extended.	✓	✓			6,000	Stormwater Utility	$3,000					$3,000					See SWPPP Application for Reauthorization (Appendix F)
14	Develop Priority Site Inspection Procedures - Develop internal procedures to ensure at least 20% of inspections conducted annually are performed at deemed high priority sites for inspections in 2014.	✓	✓			$5,000	Stormwater Utility	$2,500					$2,500					See SWPPP Application for Reauthorization (Appendix F)
15	City Stormwater Management Permits - The City will continue to review land disturbance activities and issue stormwater permits.	✓		✓		$75,000	Storm Water Utility & Developer's Agreement	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	See SWPPP Application for Reauthorization (Appendix F)
16	Street Sweeping - The City will continue to conduct street sweeping operations of all public streets a minimum of twice annually (record the sweeping route and date per occurrence). Review and revise (as needed) street sweeping operations (including schedule, equipment, and disposal), stormwater quality priority areas, and routes annually through the end of the MS4 permit cycle.	✓		✓		$450,000	Storm Water Utility	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	See SWPPP Application for Reauthorization (Appendix F)
17	Structural Stormwater BMP Inspections - Continue to inspect 100% of all SPCD's each year of the MS4 permit cycle.	✓	✓	✓		$25,000	Storm Water Utility	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	See SWPPP Application for Reauthorization (Appendix F)

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
18	Inspect MS4 Outfalls and Ponds - Continue to inspect 20% of all MS4 outfalls each year, until 100% of all MS4 Outfalls and Ponds have been inspected within the MS4 permit cycle.	✓		✓		$30,000	Storm Water Utility	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	See SWPPP Application for Reauthorization (Appendix F)
19	Review Inspection Reports - Annually, review all pond, outfall, and SPCD inspection records to determine if maintenance, repair, or replacement is needed. Include a description of the findings and any maintenance, repair, or replacement as a result of the inspection findings. Evaluate each SPCD's inspection frequency and adjust as needed per MS4 Permit Part III.D.6.e(1.). Evaluate and update inspection records annually through the end of the MS4 permit cycle.	✓	✓	✓		$15,000	Storm Water Utility	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	See SWPPP Application for Reauthorization (Appendix F)
20	Employee Training - Continue to host a minimum of one staff training event per year to discuss stormwater related topics. City staff will develop an annual training schedule, record the employee names, topics covered, and date of each event, annually through the end of the MS4 permit cycle.	✓	✓	✓		$10,000	Storm Water Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	See SWPPP Application for Reauthorization (Appendix F)
21	Pond Sediment Excavation and Removal Projects - The City will develop a reporting component for pond sediment removal projects within 12 months from the date MS4 permit coverage is extended to the City. Reporting will consists of documenting the date, pond ID, project limits/construction plans, volume of sediment removed, test results (if any), and disposal location. Annual reporting will be completed.	✓	✓	✓		$20,000	Storm Water Utility	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	See SWPPP Application for Reauthorization (Appendix F)
22	Stockpiles, Storage and Material Handling Area Inspections - Conduct quarterly written inspections of all stockpile, storage and material handling areas (per the 2014 facility inventory), through the end of the MS4 permit cycle.	✓	✓	✓		$10,000	Storm Water Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	See SWPPP Application for Reauthorization (Appendix F)

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
23	Pond Cleaning - Surveying and cleaning out existing stormwater ponds.				✓	$150,000	Storm Water Utility	$150,000										
24	Drainage Improvements - Drainage improvements associated with City street reconstruction projects.			✓		$2,280,000	Storm Water Utility, Capital Improvement Fund	$180,000	$300,000	$300,000	$300,000	$300,000	$180,000	$180,000	$180,000	$180,000	$180,000	
25	Ponding Assessments - The City is assessing methods for determining TSS and TP treatment effectiveness of City-owned ponds used for stormwater treatment. A schedule will be implemented in year 2-5.	✓	✓		✓	$10,000	Storm Water Utility	$10,000										See SWPPP Application for Reauthorization (Appendix F)
26	Thompson Lake Pond Improvements and Sediment Removal - Install stormwater pond to treat stormwater into Thompson Lake, sediment removal, and habitat improvements consistent with feasibility study findings. Joint venture with Dakota County, will require DNR permit.				✓	$2,000,000	Dakota County, Stormwater Utility	$200,000										
27	Seidl's Lake Lift Station and Improvements - Provide an outlet for Seidl's Lake, install water quality improvements and erosion protection to address issues caused by inconsistent water levels.				✓	$800,000	LMRWMO, South St. Paul, Inver Grove Heights, West St. Paul (Storm Water Utility)		$125,000									
28	Cherokee Heights Stormwater Improvements - alleviate high flow rate and velocities which have caused erosion problems around culvert around Cherokee Heights Boulevard.				✓	$1,000,000	Mendota Heights, Storm Water Utility		$207,000									
29	Thompson Oaks Stormwater Improvements - Provide pretreatment on three trunk storm sewer lines via three hydrodynamic separators, provide enhanced treatment via wetland and infiltration area, water re-use system in conjuction with River to River Greenway Project.				✓	$800,000	West St. Paul, Stormwater Utility			$400,000	$400,000							
	TOTAL					$7,833,000		$644,200	$709,200	$777,200	$777,200	$377,200	$284,200	$257,200	$257,200	$257,200	$257,200	

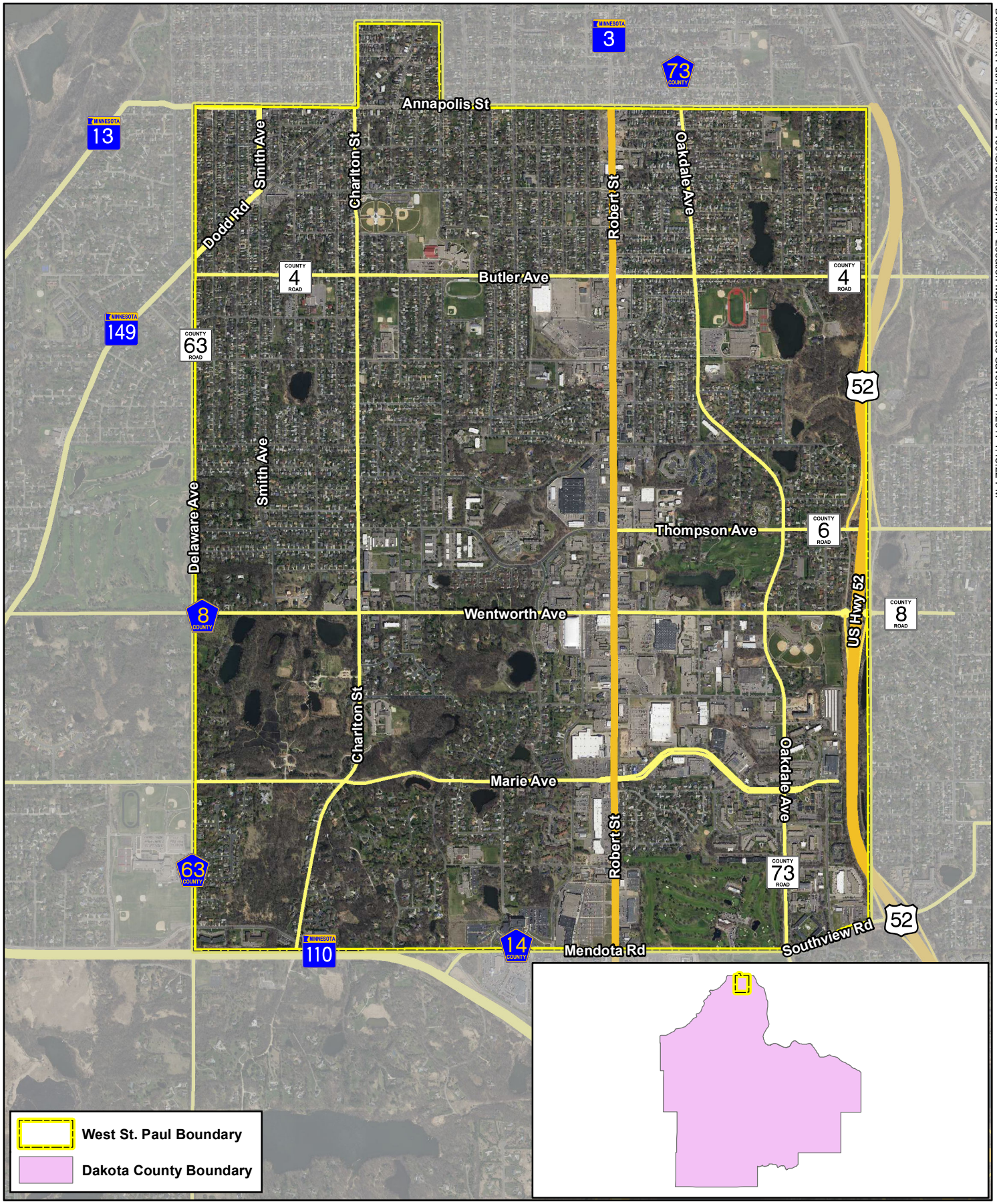
[1] Cost estimates are preliminary and subject to review and revision as engineer's reports are completed and more information becomes available. Table reflects 2017 costs and do not account for inflation. Costs generally include labor, equipment, materials, and all other costs necessary to complete each activity. For City completed activities, staff time is included in the cost. Some of the costs outlined above may be included in other operational costs budgeted by the City.

[2] 10 Year cost projections are based upon 2 MS4 Permit Cycles with year 1 program updates occurring again in 2023

[3] Funding for stormwater program activities projected to come from following sources - Surface Water Management Fund, Developers Agreements, Grant Funds, General Operating Fund, or Special Assessments

APPENDIX

Appendix A - Figures



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West St. Paul Surface Water Management Plan

Figure 1
Location Map

N

0 1,800 Feet

1 inch = 2,000 feet

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Annapolis St
Smith Ave
Dodd Rd
Delaware Ave
Robert St
Oakdale Ave
US Hwy 52
Mendota Rd
Robert Tr S
Southview Rd
COUNTY 4 ROAD
COUNTY 8 ROAD
COUNTY 14 ROAD
COUNTY 73 ROAD
52

Existing Land Use

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

West St. Paul Surface Water Management Plan
Figure 2
Existing Land Use

N

0 1,200 Feet
1 inch = 1,200 feet

WSB

Annapolis St
Smith Ave
Dodd Rd
COUNTY 4 ROAD
COUNTY 4 ROAD
52
Delaware Ave
Robert St
Oakdale Ave
US Hwy 52
COUNTY 8 ROAD
COUNTY 8 ROAD
COUNTY 73 ROAD
COUNTY 14 ROAD
Mendota Rd
Robert St S
Southview Rd
52

2040 Planned Land Use

- Rural Residential
- Large Lot Residential, Undifferented
- Single Family, Detached Residential
- Single Family, Detached and Attached Residential
- Single Family, Attached Residential
- Single Family, Attached and Multifamily Residential
- Multifamily Residential
- Commercial, Retail or Undifferentiated
- Regional Commercial
- Office, Undifferentiated
- Industrial, Undifferentiated
- Institutional, Undifferentiated
- Religious
- Educational
- Governmental
- Health
- Residential or Other Use
- Community Park and Recreation
- Golf Course
- Open Space: Passive
- Open Space: Restrictive
- Vehicular Rights-of-Way
- Railway Corridor
- Airport
- Open Water
- **West St. Paul Boundary**

West St. Paul Surface Water Management Plan

Figure 3

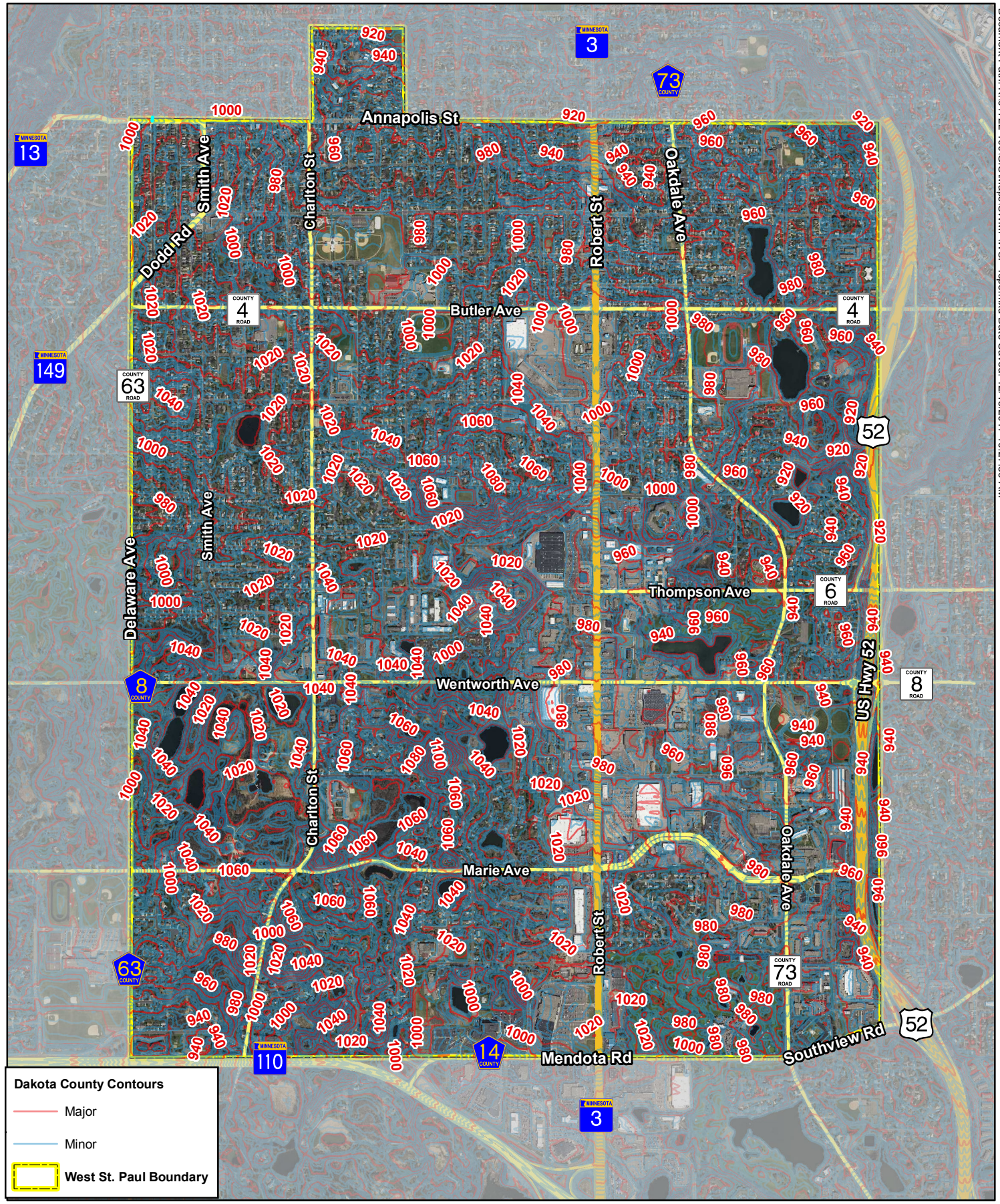
Future Land Use - MetCouncil 2040 Plan

N

0 1,200 Feet

1 inch = 1,200 feet

WSB



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West St. Paul Surface Water Management Plan

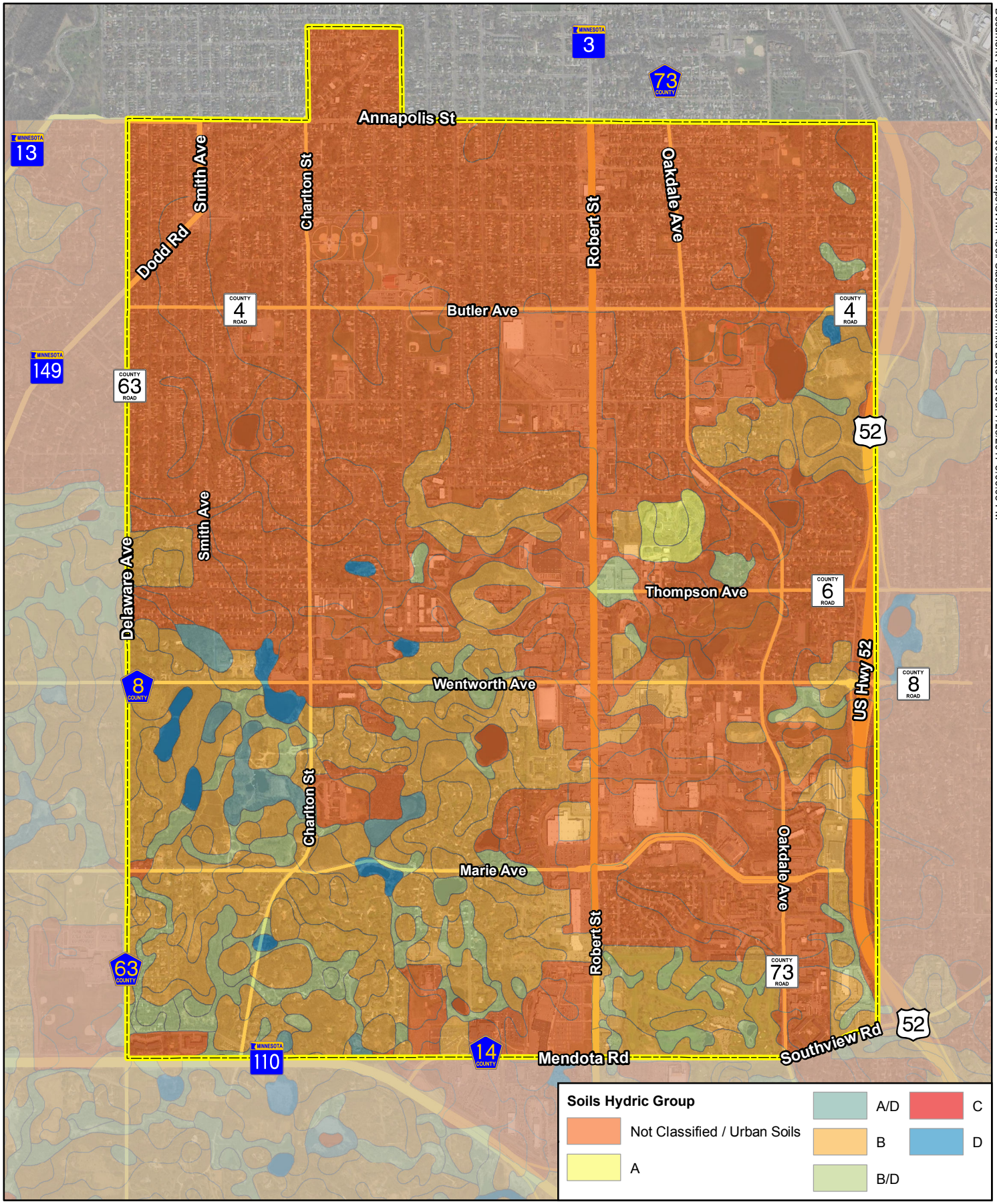
Figure 4
Topography

N

0 1,800 Feet

1 inch = 1,800 feet

WSB



West St. Paul Surface Water Management Plan

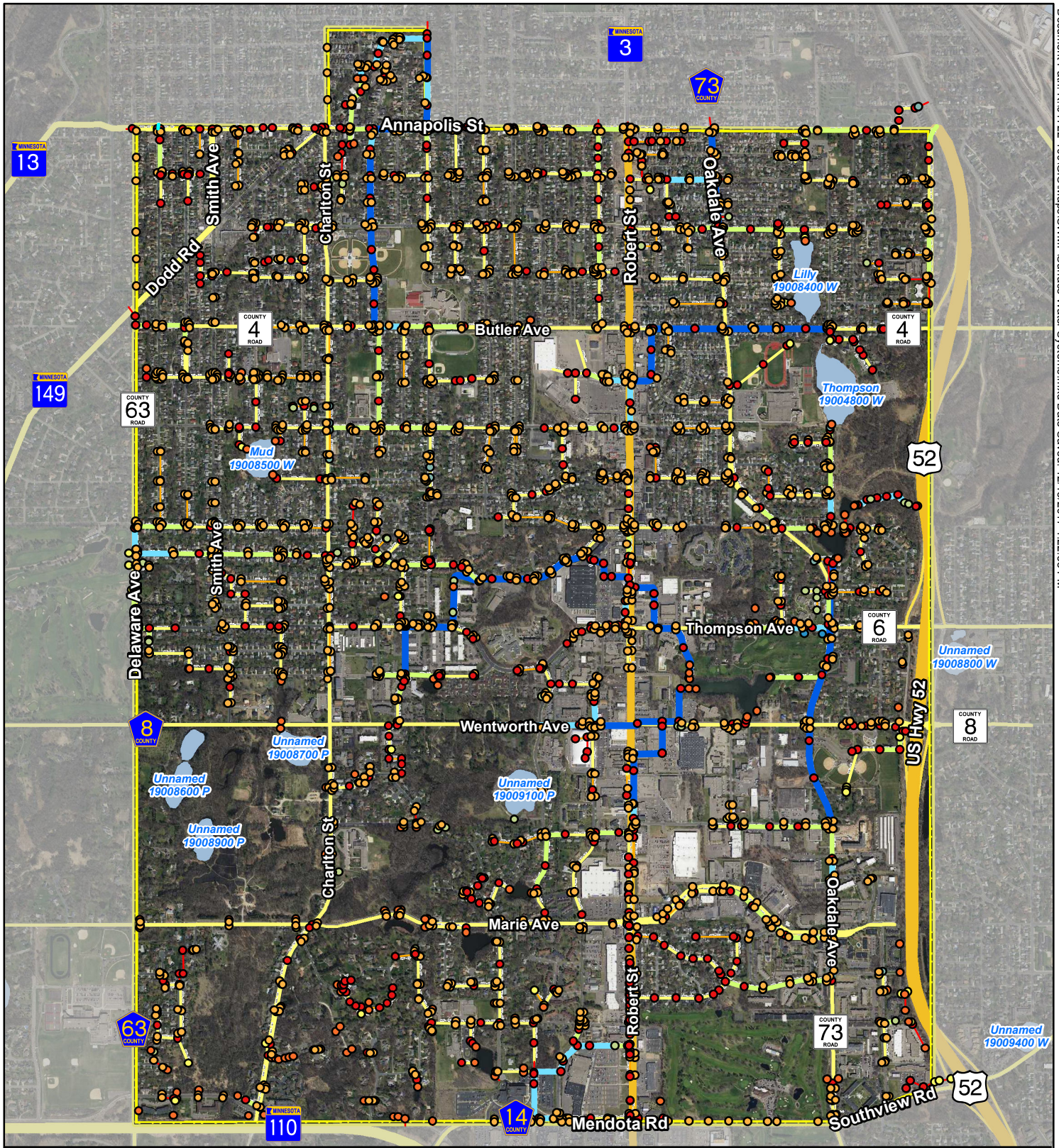
Figure 5
Soil Classification

N

0 1,800 Feet

1 inch = 1,800 feet

WSB



Structure Type

- Catch Basin
- Culvert Opening
- Flared End
- Manhole
- Private Culvert
- Special Catch Basin
- Street Catch Basin

Pipe Diameter

- Unknown Diameter
- 12 inches or less
- 24 to 12 inches
- 36 to 24 inches
- 48 to 36 inches
- Larger than 48 inches

- MnDNR Public Waters
- **West St. Paul Boundary**

West St. Paul Surface Water Management Plan

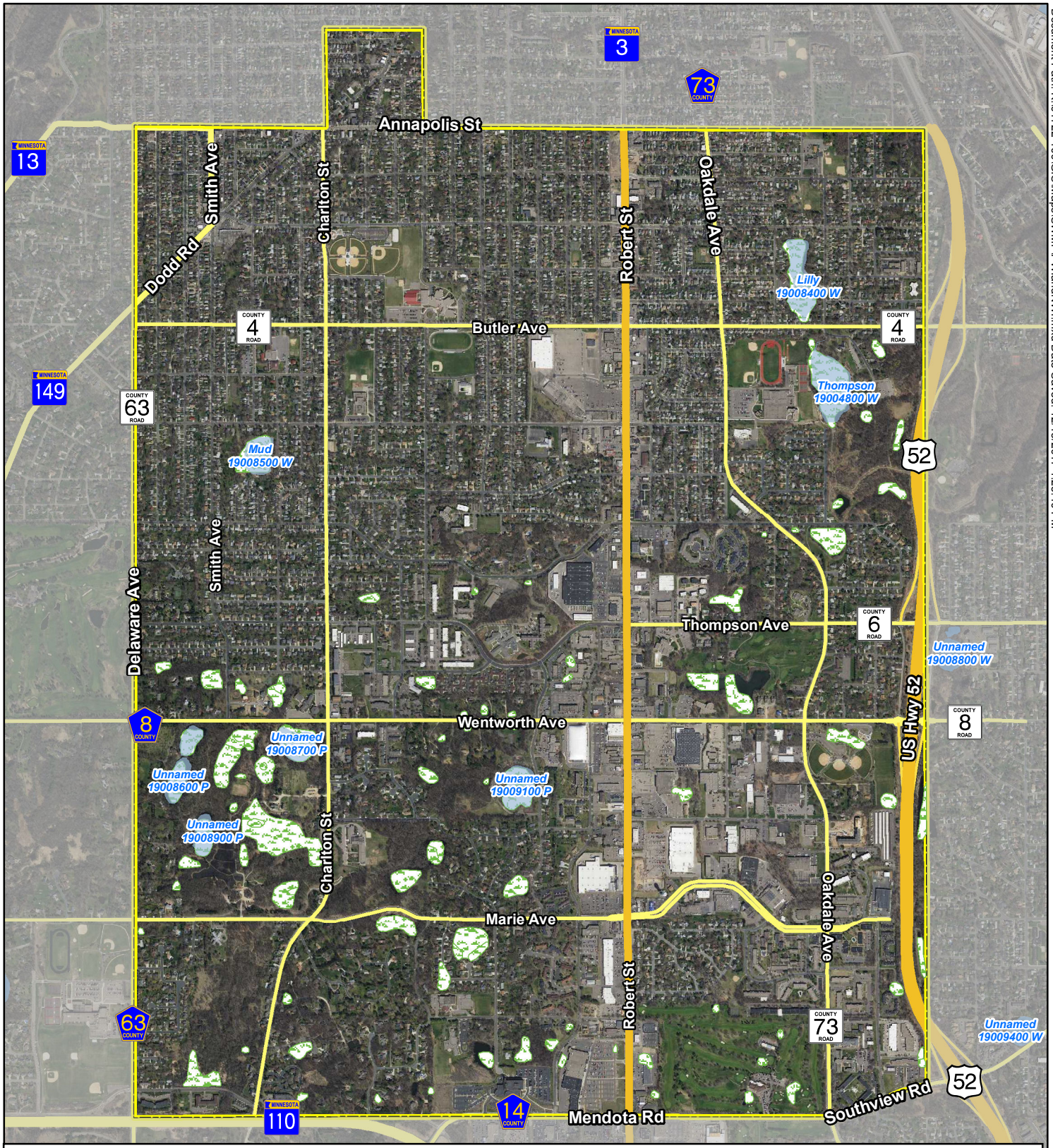
Figure 6
Surface Water Systems

N

0 1,800 Feet

1 inch = 1,800 feet

WSB



West St. Paul Boundary

MnDNR Public Waters

NWI Wetlands

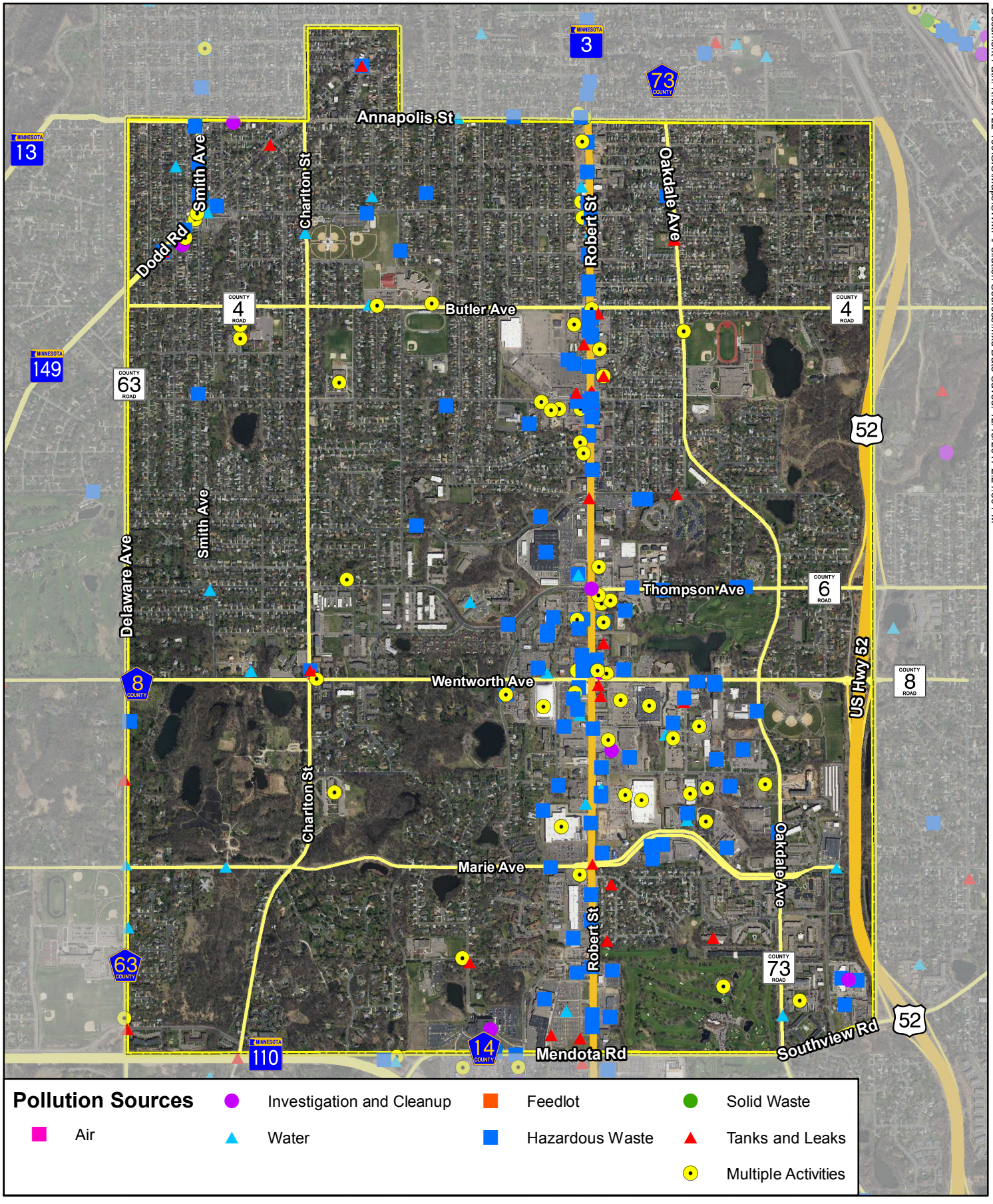
West St. Paul Surface Water Management Plan
Figure 7
National Wetlands Inventory
MNDNR Public Waters Inventory

N

0 1,800 Feet

1 inch = 1,800 feet

WSB



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West St. Paul Surface Water Management Plan

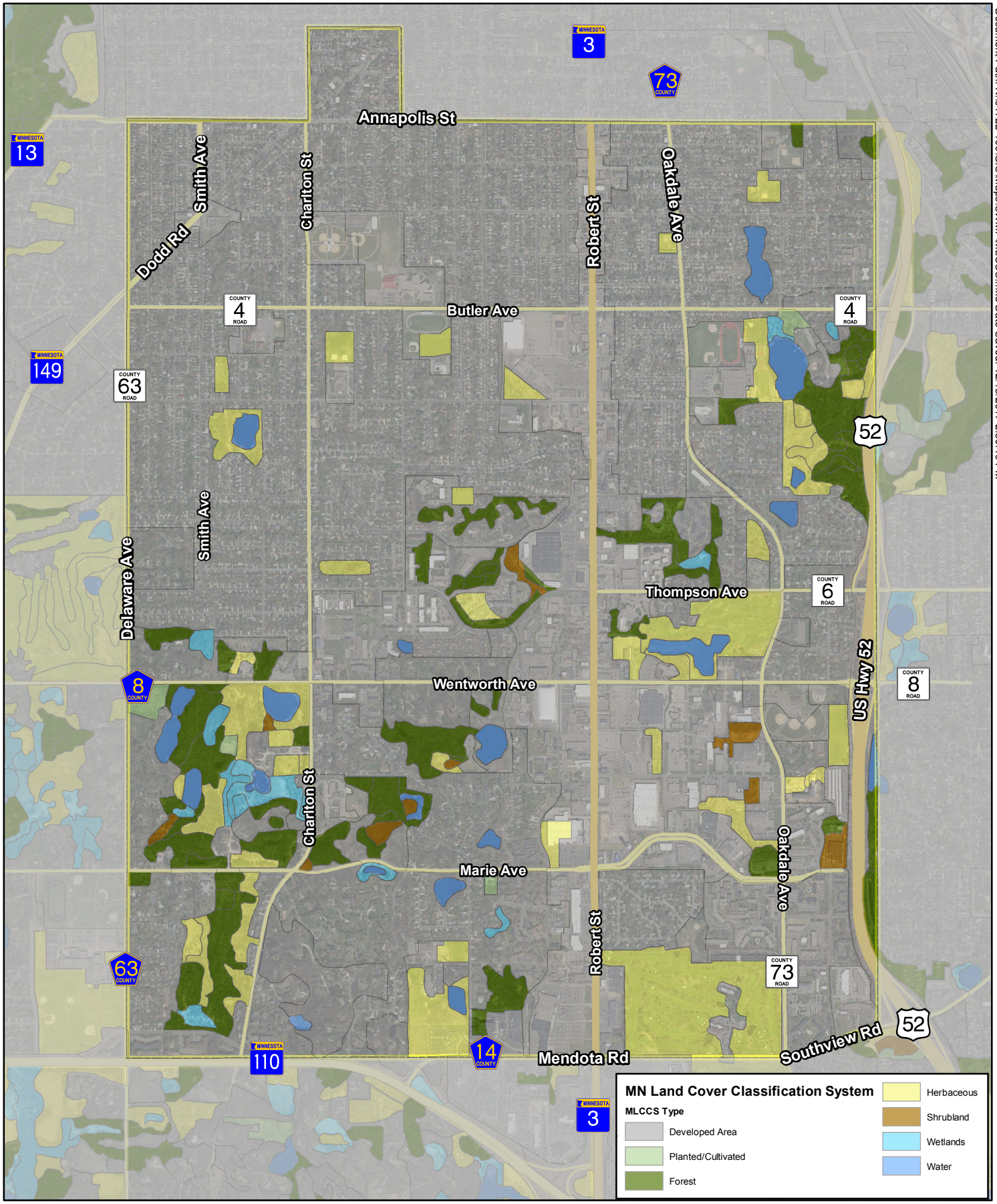
Figure 8
Pollution Sources

N

0 1,800 Feet

1 inch = 1,800 feet

WSB



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West St. Paul Surface Water Management Plan

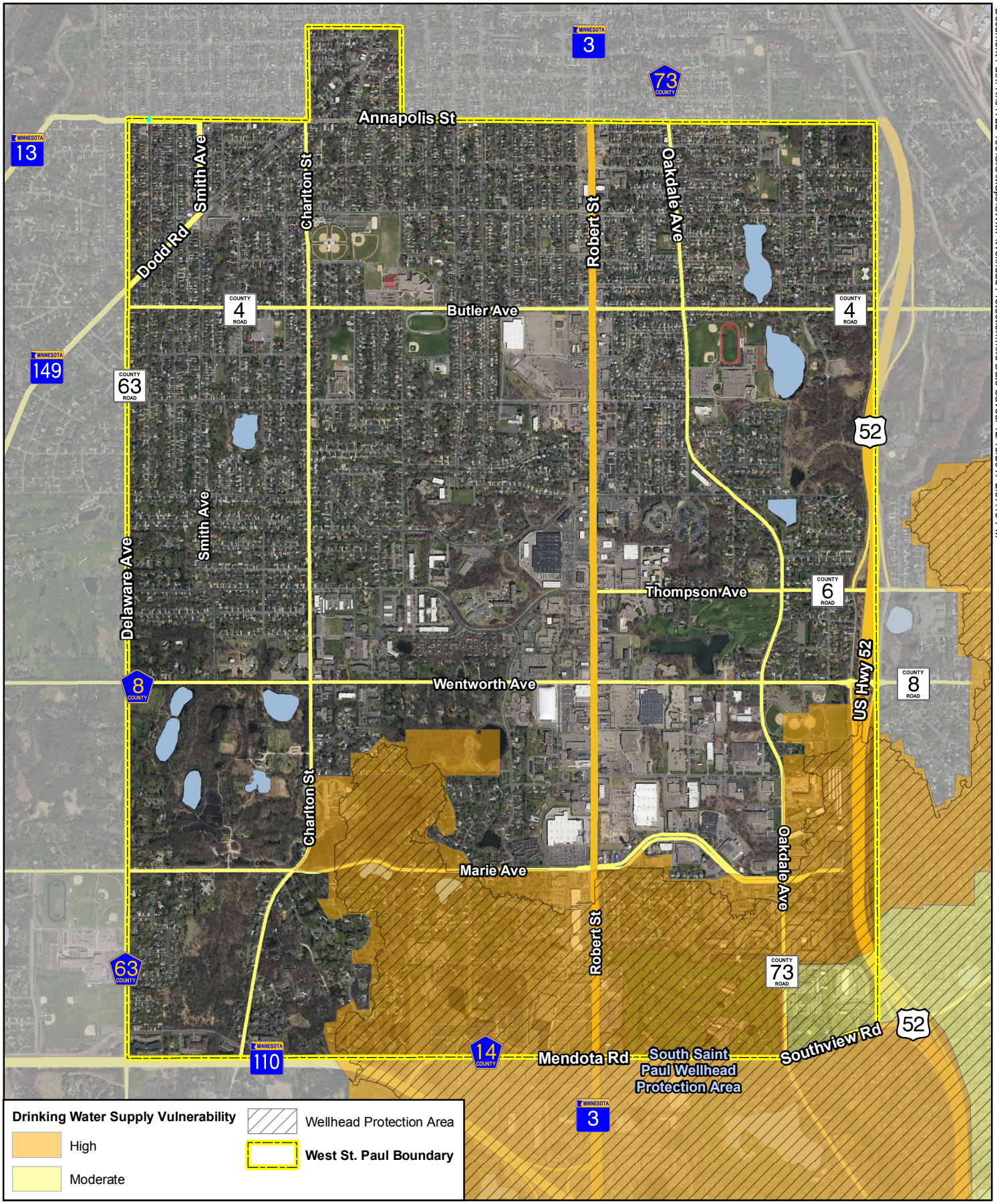
Figure 9

Minnesota Land Cover Classification System

N

0 1,800 Feet

1 inch = 1,800 feet



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West St. Paul Surface Water Management Plan
Figure 10
Wellhead Protection Areas and
Drinking Water Supply Management Areas

N

0 1,800 Feet

1 inch = 1,800 feet

WSB

APPENDIX

Appendix B – Drainage Areas

APPENDIX B
DRAINAGE AREAS

Subdistrict	Drainage Area (acre)
Pickerel Lake	
PK1C	25.2
Riverview Tunnel	
RW15C	138.0
RW19C	74.5
RW21	12.8
RW22C	118.6
RW24	22.3
RW3	32.2
RW4C	121.3
RW6C	98.5
RW7C	34.2
RW9C	66.5
Lafayette	
LF1C	44.3
LF3	39.7
Ivy Falls Creek	
IF10C	56.5
IF1A	33.0
IF1B	9.4
IF21C	74.6
IF3BC	100.5

Subdistrict	Drainage Area (acre)
Simons Ravine	
SR1	19.2
SR10	6.2
SR13	71.2
SR14C	175.9
SR15	20.1
SR18	10.8
SR19C	175.7
SR21C	47.2
SR22	58.5
SR23	5.7
SR2C	168.9
SR3	192.8
SR4	22.9
SR5C	225.1
SR6A	7.6
SR6B	10.2
SR7	11.6
SR9	4.9
Valley Creek (Marie)	
IF2C	56.6
MR11C	13.3
MR1C	56.5
MR2	16.5
MR3	13.1
MR4	5.9
MR5C	14.6
MR9C	49.6

Subdistrict	Drainage Area (acre)
Valley Creek (Delaware/110)	
D10-10	33.7
D10-17C	21.4
D10-1C	117.3
D10-24	3.6
D10-27	8.4
D10-7	7.4
Highway 110-494	
A1	33.9
A10C	64.1
A16A	6.3
A16B	14.9
A2	15.3
A21	12.9
A3C	63.5
A4	15.8
A8C	17.7
P1A	17.6
P1B	14.8
P2A	4.3
P2B	67.8
P2C	14.9
P4	7.6
T10C	17.1
T6	14.6
T7	8.4
Wentworth Street	
W1	38.0

APPENDIX

Appendix C – Pond Data and Modeling Results

APPENDIX C
POND DATA AND MODELING RESULTS

Pond Number, or Routing	Direct Drainage District	Drainage Area			2-Year Discharge Rate[1]	10-Year Discharge Rate[1]	100-Year Event[1]			Modeled NWL
		Direct	Ponded	Total			Discharge Rate	Modeled HWL	Flood Storage	
		(ac)	(ac)	(ac)	(cfs)	(cfs)	(cfs)	(ft)	acre-feet	(ft)
Pickerel Lake										
To Mississippi River via Mendota Heights	PK1C	25.2	0.0	25.2	18.9	51.9	99.7	--	--	--
Riverview Tunnel										
RW7P- Mud Lake	RW7C	34.2	0.0	34.2	0.7	2.0	3.2	1012.8	6.7	1011.2
To St. Paul through Bidwell St. Storm Sewer	RW3, RW4C, RW6C, RW9C, RW15C	456.5	34.2	490.7	72.5	167.0	298.8	--	--	--
To St. Paul through Livingston Ave. Storm Sewer	RW19C	74.5	0.0	74.5	22.6	51.0	89.8	--	--	--
To St. Paul through Robert St. Storm Sewer	RW21	12.8	0.0	12.8	8.0	17.3	29.9	--	--	--
RW24P- Lily Lake	RW24	22.3	0.0	22.3	0.0	0.0	0.7	955.5	6.6	954.5
To St. Paul through Oakdale Ave. Storm Sewer	RW22C	118.6	22.3	140.9	30.6	70.6	125.8	--	--	--
Lafayette										
To St. Paul through Annapolis St. and Kansas Ave. Storm Sewer	LF3	39.7	0.0	39.7	11.4	26.3	46.9	--	--	--
To St. Paul through Waterloo Ave. Storm Sewer	LF1C	44.3	0.0	44.3	11.3	26.8	48.3	--	--	--
Ivy Falls Creek										
IF1AP	IF1A	33.0	0.0	33.0	0.6	2.0	5.1	1018.5	4.3	1017.0
IF1BP	IF1B	9.4	33.0	42.4	3.3	6.2	9.1	1014.5	1.7	1011.3
To Mendota Heights Pond IF-P1	IF3BC, IF10C	157.0	42.4	199.3	76.1	218.7	426.9	--	--	--
To Mendota Heights Pond IF-P21	IF21C	74.6	0.0	74.6	33.6	90.6	173.2	--	--	--

APPENDIX C
POND DATA AND MODELING RESULTS

Pond Number, or Routing	Direct Drainage District	Drainage Area			2-Year Discharge Rate[1]	10-Year Discharge Rate[1]	100-Year Event[1]			Modeled NWL
		Direct	Ponded	Total			Discharge Rate	Modeled HWL	Flood Storage	
		(ac)	(ac)	(ac)	(cfs)	(cfs)	(cfs)	(ft)	acre-feet	(ft)
Simons Ravine										
SR1P	SR1	19.2	0.0	19.2	1.3	3.6	7.0	1025.1	2.2	1024.2
SR4P- Marthaler Pond	SR4	22.9	0.0	22.9	0.0	0.0	0.0	1019.3	5.0	1018.2
SR6AP	SR6A	7.6	0.0	7.6	0.0	0.0	0.8	1037.6	1.0	1036.0
SR6BP	SR6B	10.2	7.6	17.9	0.3	11.1	35.5	1003.9	0.4	1002.0
SR7P	SR7	11.6	0.0	11.6	0.0	0.0	2.0	995.0	2.7	990.0
SR9P	SR9	4.9	0.0	4.9	0.9	2.0	3.6	1007.4	0.7	1006.6
SR10P	SR10	6.2	0.0	6.2	0.2	0.6	1.3	1011.2	0.8	1010.8
SR13P- Wentworth Pond	SR2C, SR5C, SR13	465.1	82.7	547.8	34.2	59.2	78.8	951.8	103.8	939.3
SR15P	SR15	20.1	0.0	20.1	1.0	2.4	4.7	939.1	2.9	937.0
SR19P- Thompson Lake	SR19C	175.7	0.0	175.7	4.1	15.1	43.9	949.6	31.3	946.3
SR18AP- S. Emerson Pond	SR3, SR14C	368.8	743.6	1112.4	124.6	368.7	489.5	923.6	43.4	909.8
SR18BP- N. Emerson Pond	SR18	10.8	1112.4	1123.2	69.6	226.7	181.5	923.5	23.7	906.2
SR23P	SR23	5.7	0.0	5.7	0.0	0.0	0.0	943.8	1.3	942.0
To South St. Paul 17A	SR21C	47.2	1128.8	1176.0	72.2	125.1	203.8	--	--	--
To South St. Paul 15	SR22	58.5	0.0	58.5	15.9	54.6	115.4	--	--	--
Valley Creek (Marie)										
MR2P	MR2	16.5	0.0	16.5	0.0	0.3	0.7	1028.4	2.3	1028.0
MR3P	MR3	13.1	0.0	13.1	0.4	1.8	4.3	1018.8	0.9	1018.5
MR4P	MR4	5.9	13.1	19.0	0.5	1.8	4.3	1018.4	0.5	1017.9
MR11P	MR11C	13.3	0.0	13.3	0.0	0.8	10.6	1027.4	0.5	1026.0
MR9P	MR9C	49.6	13.3	62.9	1.1	6.9	22.8	1018.6	2.4	1018.0
MR8P	MR5C	14.6	98.4	112.9	0.8	1.8	2.8	1014.8	10.6	1012.0
To Mendota Heights Pond IV-P91	MR1C	56.5	112.9	169.4	1.9	15.4	45.0	--	--	--
To Mendota Heights Pond IV-P113	IF2C	56.6	0.0	56.6	20.1	64.9	133.0	--	--	--

APPENDIX C
POND DATA AND MODELING RESULTS

Pond Number, or Routing	Direct Drainage District	Drainage Area			2-Year Discharge Rate[1]	10-Year Discharge Rate[1]	100-Year Event[1]			Modeled NWL
		Direct	Ponded	Total			Discharge Rate	Modeled HWL	Flood Storage	
		(ac)	(ac)	(ac)	(cfs)	(cfs)	(cfs)	(ft)	acre-feet	(ft)
Valley Creek (Delaware/110)										
From Sunfish Lake	SF-1C, SF-4C, SF-5, SF-7, D10-24	--	--	53.0	10.3	36.4	64.8	--	--	--
D10-7P	D10-7	7.4	0.0	7.4	0.4	1.3	2.7	1003.3	0.7	1002.4
D10-10P	D10-10	33.7	0.0	33.7	2.9	10.4	53.6	1039.5	2.2	1034.2
D10-19P	D10-1C	117.3	41.1	158.5	7.0	21.7	46.3	928.2	12.5	924.8
D10-27P	D10-27	8.4	0.0	8.4	0.0	0.0	0.0	994.2	2.0	993.2
To Mendota Heights Pond IV-P57	D10-17C	21.4	219.8	241.3	32.3	91.0	169.2	--	--	--
Highway 110-494										
A13P	A8C	17.7	0.0	17.7	4.0	6.2	7.4	993.8	3.3	990.1
A16AP	A16A	6.3	0.0	6.3	0.0	0.0	0.0	1006.7	1.4	1004.0
A1P	A1	33.9	0.0	33.9	2.1	3.7	4.7	1035.9	4.1	1034.3
A21P	A21	12.9	0.0	12.9	0.0	0.0	0.0	1004.0	4.3	1004.0
A2P	A2	15.3	33.9	49.2	2.5	5.2	7.6	1033.9	2.0	1033.1
A4P	A4	15.8	49.2	64.9	2.3	5.0	7.1	1030.6	4.3	1029.1
A7P	A3C	63.5	64.9	128.5	4.2	11.4	16.9	994.3	7.3	990.6
P1AP	P1A	17.6	0.0	17.6	0.6	1.9	2.2	995.2	1.4	992.0
P1BP	P1B	14.8	0.0	14.8	0.1	0.3	0.7	977.7	1.3	976.2
P2AP	P2A	4.3	32.3	36.6	0.7	2.1	3.2	967.9	0.9	966.0
P2BP	P2B	67.8	36.6	104.4	7.5	9.7	10.3	938.6	10.1	933.5
P2CP	P2C	14.9	104.4	119.3	3.8	10.5	12.2	928.9	3.2	926.0
T6P	T6	14.6	0.0	14.6	0.0	0.0	0.0	976.8	2.3	973.4
T7P	T7	8.4	14.6	23.0	0.0	0.0	0.0	969.8	1.4	967.8
To Inver Grove Heights Pond A-17	A16B	14.9	6.3	21.3	20.6	45.9	80.2	--	--	--
To Inver Grove Heights Pond MNDT	A10C	64.1	159.1	223.2	128.2	243.1	384.9	--	--	--
To Inver Grove Heights Pond T11	T10C	17.1	23.0	40.1	22.8	51.1	89.5	--	--	--
To South St. Paul 5C		0.0	119.3	119.3	3.8	10.5	12.2	--	--	--
To South St. Paul 5F	P4	7.6	0.0	7.6	3.8	11.7	23.7	--	--	--

APPENDIX C
POND DATA AND MODELING RESULTS

Pond Number, or Routing	Direct Drainage District	Drainage Area			2-Year Discharge Rate[1]	10-Year Discharge Rate[1]	100-Year Event[1]			Modeled NWL
		Direct	Ponded	Total			Discharge Rate	Modeled HWL	Flood Storage	
		(ac)	(ac)	(ac)	(cfs)	(cfs)	(cfs)	(ft)	acre-feet	(ft)
Wentworth Street										
W1P	W1	38.0	0.0	38.0	0.0	0.0	7.4	940.8	8.0	938.0
To South St. Paul 12		0.0	38.0	38.0	0.0	0.0	7.4	--	--	--

[1]All storms were modeled using the SCS 24-hour, Type II distribution.

APPENDIX

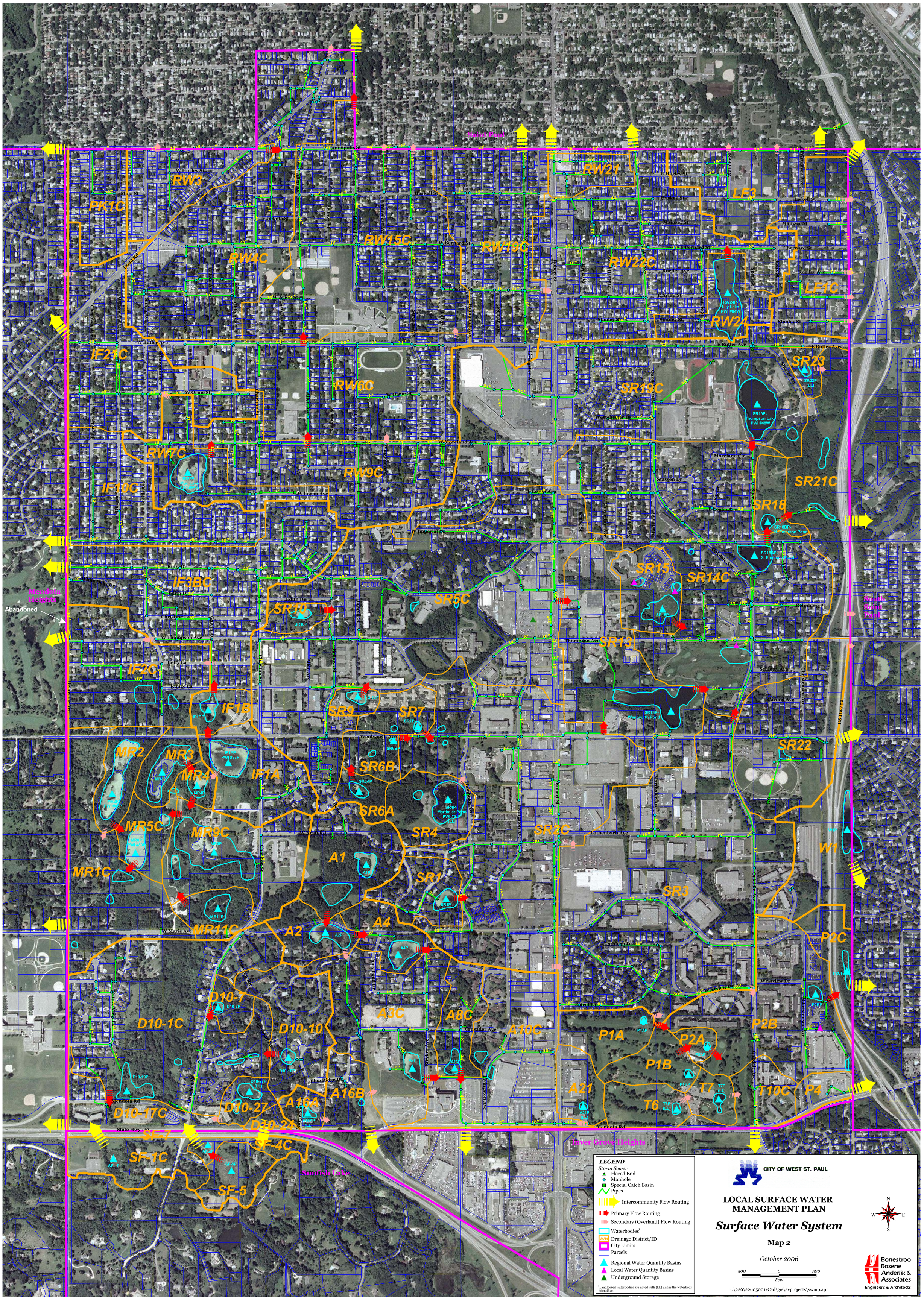
Appendix D – Summary of PondNET Modeling

APPENDIX D
PONDNET MODEL SUMMARY

Pond	Mean Depth (Feet)	Surface Area at Normal Level (Acres)	Wet Pond Volume (Ac-Ft)	Direct Watershed T.P. Removal (%)
Riverview Tunnel				
RW7P- Mud Lake	1.5	4.4	6.6	48
RW24P- Lily Lake	3.0	6.4	19.2	61
Ivy Falls Creek				
IF1AP	1.5	4.4	6.6	43
IF1BP	0.0	1.3	0.0	0
Simons Ravine				
SR1P	3.0	1.5	4.6	59
SR4P- Marthaler Pond	3.0	4.5	13.4	52
SR6AP	1.5	0.9	1.3	41
SR6BP	1.5	0.1	0.2	32
SR7P	2.5	0.3	0.6	52
SR9P	3.0	0.8	2.4	62
SR10P	3.0	0.6	1.8	62
SR13P- Wentworth Pond	2.0	6.2	12.5	32
SR15P	1.5	2.6	4.0	50
SR19P- Thompson Lake	3.0	7.3	22.0	52
SR18AP- S. Emerson Pond	3.0	2.8	8.3	18
SR18BP- N. Emerson Pond	3.2	0.8	2.5	6
SR23P	1.5	0.6	0.9	48
Valley Creek (Marie)				
MR2P	3.0	5.2	15.7	50
MR3P	1.5	4.7	7.0	36
MR4P	1.5	1.6	2.4	29
MR11P	1.5	2.1	3.1	36
MR9P	0.0	10.1	0.0	0
MR8P	3.0	2.9	8.7	45
Valley Creek (Delaware/110)				
D10-7P	2.5	0.4	1.1	57
D10-10P	1.5	0.7	1.1	42
D10-19P	0.8	2.5	1.9	24
D10-27P	1.5	1.1	1.7	52

APPENDIX D
PONDNET MODEL SUMMARY

Pond	Mean Depth (Feet)	Surface Area at Normal Level (Acres)	Wet Pond Volume (Ac-Ft)	Direct Watershed T.P. Removal (%)
Highway 110-494				
A13P	1.5	1.1	1.6	21
A16AP	1.5	0.5	0.8	48
A1P	0.0	1.6	0.0	0
A2P	2.5	2.5	6.3	50
A4P	3.0	2.5	7.4	48
A7P	3.0	1.7	5.0	44
A21P	2.5	0.2	0.5	36
P1AP	3.0	0.2	0.5	44
P1BP	3.0	0.2	0.7	50
P2AP	3.0	0.2	0.5	30
P2BP	0.8	0.7	0.5	17
2PCP	3.0	0.8	2.3	31
T6P	3.0	0.3	1.0	51
T7P	3.0	0.6	1.7	44
Wentworth Street				
W1P	2.5	2.0	4.9	47


Saint Paul
Annapolis St
W Hurley St
E Hurley St
Haskell St
Mainzer St
E Bernard St
Roeller Ave
E Arlon St
Stanley St
E Butler Ave
W Butler Ave
W Orme St
W Moreland Ave
Moreland Cir
W Logan Ave
E Logan Ave
W Imperial Dr
Ruby Dr
Edith Dr
Christine Ln
W Thompson Ave
Thompson Ave
Betty Ln
Runge Ln
W Marie Ave
Wentworth Ave
Carmel Ave
Lothenbach Ave
Kathleen Dr
Westview Dr
Pine Ridge Dr
Mendota Rd
State Hwy 13
Dodd Rd
Mina St
Dakota St
Oakdale Ave
Robert St
Dale St
Cleveland Ave
Victoria St
Stassen Dr
Rehnberg Pl
Sunfish Lake
Mendota Heights
Abandoned
South Saint Paul
River Grove Heights
RW3
PK1C
RW15C
RW19C
RW21
LF3
RW4C
RW22C
LF1C
RW24
RW24P- Lily Lake PWI #84W
IF21C
RW6C
SR19C
SR23
SR23P (LL)
SR19P- Thompson Lake PWI #48W
RW7C
RW9C
IF10C
SR21C
SR18
SR18BP- N. Emerson Pond
SR18AP- S. Emerson Pond
IF3BC
SR5C
SR15
SR14C
SR10
SR10P
SR15P
SR13
IF2C
IF1B
IF1BP
SR9
SR7
SR7P
SR6BP
SR22
MR2
MR3
MR4
IF1A
IF1AP PWI #87P
MR3P
MR4P
SR6B
SR6AP
SR6A
MR5C
MR8P PWI #89P
MR9C
MR9P
SR4
SR4P- Marthaler Pond PWI #88P (LL)
SR2C
A1
A1P
SR1
SR1P
MR1C
MR11P
MR11C
A2
A2P
A4
A4P
W1
W1P
SR3
D10-7
D10-7P
D10-1C
D10-10
D10-10P
A3C
A8C
A10C
P1A
P2A
P2B
P1AP
P1BP
P1B
T7
T7P (LL)
T6
T6P (LL)
T10C
P4
P2C
P2CP
P2BP (LL)
D10-19P
D10-27P (LL)
D10-27
D10-24
A16A
A16AP (LL)
A16B
A7P
A21
A21P (LL)
D10-17C
SF-7
SF-1C
SF-1P
SF-4C
SF-3P
SF-5
LEGEND
Storm Sewer
Flared End
Manhole
Special Catch Basin
Pipes
Intercommunity Flow Routing
Primary Flow Routing
Secondary (Overland) Flow Routing
Waterbodies[1]
MR4 Drainage District/ID
City Limits
Parcels
Regional Water Quantity Basins
Local Water Quantity Basins
Underground Storage
[1]Landlocked waterbodies are noted with (LL) under the waterbody identifier.
CITY OF WEST ST. PAUL
LOCAL SURFACE WATER MANAGEMENT PLAN
Surface Water System
Map 2
October 2006
500 0 500
Feet
N
W
E
S
I:\226\22605001\Cad\gis\avprojects\swmp.apr
Bonestroo Rosene Anderlik & Associates
Engineers & Architects

APPENDIX

Appendix E – General Permit Authorization to Discharge Stormwater for MS4s

Minnesota Pollution Control Agency

GENERAL PERMIT
AUTHORIZATION TO DISCHARGE STORMWATER
ASSOCIATED WITH SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION
SYSTEM/STATE DISPOSAL SYSTEM (NPDES/SDS) PERMIT PROGRAM

EFFECTIVE DATE: August 1, 2013 **EXPIRATION DATE: July 31, 2018**

In compliance with the provisions of the federal Clean Water Act (CWA), as amended, (33 U.S.C. 1251 et seq); 40 CFR Parts 122, 123, and 124, as amended; Minnesota Statutes Chapters 115 and 116, as amended; and Minnesota Rules Chapter 7001 and 7090.

This permit establishes conditions for discharging **stormwater** and specific other related discharges to **waters of the state.** This permit is required for discharges that are from **small Municipal Separate Storm Sewer Systems (small MS4),** as defined in this permit.

Applicants who submit a complete application in accordance with the requirements of Part II of this permit, and that receive written notification of permit coverage from the **Commissioner**, are authorized to discharge **stormwater** from **small MS4**s under the terms and conditions of this permit.

This permit shall become effective on the date identified above, and supersedes the previous **general permit** MNR040000, with an expiration date of May 31, 2011.

Signature: _____ Date May 22, 2013
John Linc Stine
Commissioner
Minnesota Pollution Control Agency

If you have questions on this permit, including the specific permit requirements, permit reporting or permit compliance status, please contact the appropriate Minnesota Pollution Control **Agency** offices.

Municipal Stormwater Program
Municipal Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
Telephone: 651-296-6300 or toll free in Minnesota: 800-657-3864

Table of Contents

PART I. AUTHORIZATION UNDER THIS PERMIT

A. Eligibility

To be eligible for authorization to discharge **stormwater** under this permit, the applicant must be an **owner** and/or **operator** (**owner**/**operator**) of a **small MS4** and meet one or more of the criteria requiring permit issuance as specified in Minn. R. 7090.1010.

1. Authorized **Stormwater** Discharges

This permit authorizes **stormwater** discharges from **small MS4s** as defined in 40 CFR § 122.26(b)(16).

2. Authorized **Non-Stormwater Discharge**s

The following categories of **non-stormwater discharge**s or flows are authorized under this permit to enter the **permittee**'s **small MS4** only if the **permittee** does not identify them as significant contributors of pollutants (i.e., **illicit discharge**s), in which case the discharges or flows shall be addressed in the **permittee**'s **SWPPP**: water line flushing, landscape irrigation, diverted stream flows, rising groundwaters, uncontaminated groundwater infiltration (as defined at 40 CFR § 35.2005(b)(20)), uncontaminated pumped groundwater, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and **wetlands**, dechlorinated swimming pool discharges, street wash water, and discharges or flows from firefighting activities.

B. Limitations on Authorization

The following discharges or activities are not authorized by this permit:

1. **Non-stormwater discharge**s, except those authorized in Part I.A.2.

2. Discharges of **stormwater** to the **small MS4** from activities requiring a separate NPDES/SDS permit. This permit does not replace or satisfy any other permitting requirements.

3. Discharges of **stormwater** to the **small MS4** from any other entity located in the drainage area or outside the drainage area. Only the **permittee**'s **small MS4** and the portions of the storm sewer system that are under the **permittee**'s operational control are authorized by this permit.

4. This permit does not replace or satisfy any environmental review requirements, including those under the Minnesota Environmental Policy Act (Minn. Stat. § 116D), or the National Environmental Policy Act (42 U.S.C. §§ 4321 - 4370 f).

5. This permit does not replace or satisfy any review requirements for endangered or threatened species, from new or expanded discharges that adversely impact or contribute to adverse impacts on a listed endangered or threatened species, or adversely modify a designated critical habitat.

6. This permit does not replace or satisfy any review requirements for historic places or archeological sites, from new or expanded discharges which adversely affect properties listed or eligible for listing in the National Register of Historic Places or affecting known or discovered archeological sites.

7. Prohibited discharges pursuant to Minn. R. 7050.0180, subp. 3, 4, and 5.

C. Permit Authorization

In order for an applicant to be authorized to discharge **stormwater** from a **small MS4** under this permit:

1. The applicant shall submit a complete application to discharge **stormwater** under this permit in accordance with Part II.

2. The **Commissioner** shall review the permit application for completeness and compliance with this permit.

   a. If an application is determined to be incomplete, the **Commissioner** will notify the applicant in writing, indicate why the application is incomplete, and request that the applicant resubmit the application.
   b. If an application is determined to be complete, the **Commissioner** shall make a preliminary determination as to whether the permit should be issued or denied in accordance with Minn. R. 7001.

3. The **Commissioner** shall provide public notice with the opportunity for a hearing on the preliminary determination.

4. Upon receipt of written notification of final approval of the application from the **Commissioner**, the applicant is authorized to discharge **stormwater** from the **small MS4** under the terms and conditions of this permit.

D. Transfer of Ownership or Control

Where the ownership or significant operational control of the **small MS4** changes after the submittal of an application under Part II, the new **owner**/**operator** must submit a new application in accordance with Part II.

E. Issuance of Individual Permits

1. The permit applicant may request an individual permit in accordance with Minn. R. 7001.0210, subp.6, for authorization to discharge **stormwater** associated with a **small MS4.**

2. The **Commissioner** may require an individual permit for the permit applicant or **permittee** covered by a **general permit**, in accordance with Minn. R. 7001.0210, subp. 6.

F. Rights and Responsibilities

1. The **Commissioner** may modify this permit or issue other permits, in accordance with Minn. R. 7001, to include more stringent effluent limitations or permit requirements that modify

or are in addition to the MCMs in Part III.D of this permit, or both. These modifications may be based on the **Commissioner**'s determination that such modifications are needed to protect water quality.

2. The **Commissioner** may designate additional **small MS4s** for coverage under this permit in accordance with Minn. R. 7090. The **owner**/**operator** of a **small MS4** that is designated for coverage must comply with the permit requirements by the dates specified in the **Commissioner**'s determination.

PART II. APPLICATION REQUIREMENTS

A. Application for Reauthorization

If a permit has been issued by the **Agency** and the **permittee** holding the permit desires to continue the permitted activity beyond the expiration date of the permit, the **permittee** shall submit a written application for permit reissuance at least 180 days before the expiration date of the existing permit. (Minn. R. 7001.0040, subp.3).

B. **New Permittee** Applicants

To become a **new permittee** authorized to discharge **stormwater** under this permit, the **owner/operator** of a **small MS4** shall submit an application, on a form provided by the **Commissioner**, in accordance with the schedule in Appendix A, Table 3, and the following requirements:

1. Submit Part 1 of the permit application (includes the permit application fee).

2. Submit Part 2 of the permit application, with the **Stormwater Pollution Prevention Program** (**SWPPP**) document completed in accordance with Part II.D.

C. **Existing Permittee** Applicants

All **existing permittee**s seeking to continue discharging **stormwater** associated with a **small MS4** after the **effective date** of this permit shall submit Part 2 of the permit application, on a form provided by the **Commissioner**, in accordance with the schedule in Appendix A, Table 1, with the **SWPPP** document completed in accordance with Part II.D. NOTE: **Existing permittee**s were required to submit Part 1 of the permit application prior to the expiration date (May 31, 2011) of the **Agency**'s ***small MS4 general permit*** *No.MNR040000,* effective June 1, 2006, (see Part II.A above).

D. **Stormwater Pollution Prevention Program** (**SWPPP**) Document

All applicants shall submit a **SWPPP** document with Part 2 of the application form when seeking coverage under this permit. The **SWPPP** document shall become an enforceable part of this permit upon approval by the **Commissioner**. Modifications to the **SWPPP** document that are required or allowed by this permit (see Part III.G) shall also become enforceable provisions. The **SWPPP** document shall be submitted on a form provided by the **Commissioner** and shall include the following:

1. A description of partnerships with another regulated **small MS4**(s), into which the applicant has entered, in order to satisfy one or more requirements of this permit.

2. A description of all Regulatory Mechanism(s) (e.g., contract language, an ordinance, permits, standards, etc.) the applicant has developed, implemented, and enforced that satisfies the requirements of each program specified under Part III.D.3, 4, and 5. The description shall include the type(s) of Regulatory Mechanism(s) the applicant has in place at the time of application that will be used to satisfy the requirements. If the Regulatory Mechanism(s) have not been developed at the time of application (e.g., **new permittee** applicants), or revised to meet new requirements of this permit (e.g., **existing permittee** applicants); the

applicant shall describe tasks and corresponding schedules necessary to satisfy the permit requirements in accordance with the schedule in Appendix A, Table 2 (**existing permittee** applicants), or Table 3 (**new permittee** applicants).

3. A description of existing Enforcement Response Procedures (ERPs) the applicant has developed and implemented that satisfy the requirements of Part III.B.1. If the applicant has not yet developed ERPs (e.g., **new permittee** applicants), or existing ERPs must be updated to satisfy new requirements, the description must include tasks and corresponding schedules necessary to satisfy the permit requirements in accordance with the schedule in Appendix A, Table 2 (**existing permittee** applicants), or Table 3 (**new permittee** applicants).

4. A description of the status of the applicant's storm sewer system map and inventory as required by Part III.C. The description must indicate whether each requirement of Part III.C.1, is satisfied, and for Part III.C.2, is complete, at the time of application. For each requirement of Part III.C that is not satisfied at the time of application, the applicant shall include tasks and corresponding schedules necessary to satisfy the mapping and inventory requirements in accordance with the schedule in Appendix A, Table 2 (**existing permittee** applicants), or Table 3 (**new permittee** applicants).

5. For each Minimum Control Measure (MCM) outlined in Part III.D:

    a. The **Best Management Practices** (**BMP**s) the applicant will implement, or has implemented, for each MCM.
    b. The measurable goals for each of the **BMP**s identified in Part II.D.5.a, including as appropriate, the months and years in which the applicant will undertake required actions, including interim milestones and the frequency of the action, in narrative or numeric form, as appropriate.
    c. Name(s) of individual(s) or position titles responsible for implementing and/or coordinating each component of the MCM.

6. For each **applicable Waste Load Allocation (WLA)** approved prior to the **effective date** of this permit, the applicant shall submit the following information as part of the **SWPPP** document:

    a. **TMDL** project name(s)
    b. Numeric **WLA**(s), including units
    c. Type of **WLA** (i.e., categorical or individual)
    d. **Pollutant**(s) **of concern**
    e. Applicable flow data specific to each **applicable WLA**
    f. For each **applicable WLA** not met at the time of application, a compliance schedule is required. Compliance schedules can be developed to include multiple **WLA**s associated with a **TMDL** project and shall include:

        (1) Interim milestones, expressed as **BMP**s or progress toward implementation of **BMP**s to be achieved during the term of this permit
        (2) Dates for implementation of interim milestones
        (3) Strategies for continued **BMP** implementation beyond the term of this permit
        (4) Target dates the **applicable WLA**(s) will be achieved

g. For each **applicable WLA** the **permittee** is reasonably confident is being met at the time of application, the **permittee** must provide the following documentation:

(1) Implemented **BMPs** used to meet each **applicable WLA**
(2) A narrative describing the **permittee's** strategy for long-term continuation of meeting each **applicable WLA**.

7. For the requirements of Part III.F, **Alum or Ferric Chloride Phosphorus Treatment System**s, if applicable, the applicant shall submit the following:

a. **Geographic coordinate**s of the system
b. Name(s) of individual(s) or position titles responsible for the operation of the system
c. Information listed in Part III.F.3.a(1)-(6), if the system is constructed at the time the application is submitted to the **Agency**
d. Indicate if the system complies with the requirements of Part III.F
e. If applicable, for each Part III.F requirement that the applicant's system does not comply with at the time of application, describe tasks and corresponding schedules necessary to bring the system into compliance in accordance with the schedule in Appendix A, Table 2 (**existing permittee** applicants), or Table 3 (**new permittee** applicants).

PART III. **STORMWATER POLLUTION PREVENTION PROGRAM (SWPPP)**

The **permittee** shall develop, implement, and enforce a **SWPPP** designed to **reduce** the discharge of pollutants from the **small MS4** to the **Maximum Extent Practicable** (**MEP**), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act.

If the **permittee** enters into a partnership for purposes of meeting **SWPPP** requirements, the **permittee** maintains legal responsibility for compliance with this permit.

Existing permittees shall revise their **SWPPP** developed under the **Agency**'s ***small MS4 general permit*** *No.MNR040000* that was effective June, 1, 2006, to meet the requirements of this permit in accordance with the schedule in Appendix A, Table 2. **New permittee**s shall develop, implement, and enforce their **SWPPP** in accordance with the schedule in Appendix A, Table 3. The **permittee**'s **SWPPP** shall consist of the following:

A. Regulatory Mechanism(s)

To the extent allowable under state, tribal or local law, the **permittee** shall develop, implement, and enforce a Regulatory Mechanism(s) to meet the terms and conditions of Part III.D.3, 4, and 5. A Regulatory Mechanism(s) for the purposes of this permit may consist of contract language, an ordinance, permits, standards, or any other mechanism, that will be enforced by the **permittee**.

B. Enforcement Response Procedures (ERPs)

1. The **permittee** shall develop and implement written ERPs to enforce and compel compliance with the Regulatory Mechanism(s) developed and implemented by the **permittee** in accordance with Part III.A.

2. Enforcement conducted by the **permittee** pursuant to the ERPs shall be documented. Documentation shall include, at a minimum, the following:

   a. Name of the **person** responsible for violating the terms and conditions of the **permittee**'s Regulatory Mechanism(s)
   b. Date(s) and location(s) of the observed violation(s)
   c. Description of the violation(s), including reference(s) to relevant Regulatory Mechanism(s)
   d. Corrective action(s) (including completion schedule) issued by the **permittee**
   e. Date(s) and type(s) of enforcement used to compel compliance (e.g., written notice, citation, stop work order, withholding of local authorizations, etc.)
   f. Referrals to other regulatory organizations (if any)
   g. Date(s) violation(s) resolved

C. Mapping and Inventory

1. Mapping

New permittees shall develop, and **existing permittee**s shall update, a storm sewer system map that depicts the following:

a. The **permittee's** entire **small MS4** as a goal, but at a minimum, all **pipe**s 12 inches or greater in diameter, including **stormwater flow direction** in those **pipe**s
b. **Outfall**s, including a unique identification (ID) number assigned by the **permittee**, and an associated **geographic coordinate**
c. **Structural stormwater BMP**s that are part of the **permittee**'s **small MS4**
d. All **receiving water**s

2. Inventory (2009 Minnesota Session Law, Ch. 172. Sec. 28).

a. The **permittee** shall complete an inventory of:

(1) All ponds within the **permittee**'s jurisdiction that are constructed and operated for purposes of water quality treatment, **stormwater** detention, and flood control, and that are used for the collection of **stormwater** via constructed conveyances. **Stormwater** ponds do not include areas of temporary ponding, such as ponds that exist only during a construction project or short-term accumulations of water in road ditches.
(2) All **wetland**s and lakes, within the **permittee**'s jurisdiction, that collect **stormwater** via constructed conveyances.

b. **The permittee** shall complete and submit the inventory to the **Agency** on a form provided by the **Commissioner**. Each feature inventoried shall include the following information:

(1) A unique identification (ID) number assigned by the **permittee**
(2) A **geographic coordinate**
(3) Type of feature (e.g., pond, **wetland**, or lake). This may be determined by using best professional judgment.

D. Minimum Control Measures (MCMs)

The **permittee** shall incorporate the following six MCMs into the **SWPPP**. The **permittee** shall document as part of the **SWPPP**, a description of **BMP**s used for each MCM, the responsible **person**(s) and department(s) in charge, an implementation schedule, and measureable goals that will be used to determine the success of each **BMP**.

1. Public Education and Outreach

New permittees shall develop and implement, and **existing permittee**s shall revise their current program, as necessary, and continue to implement, a public education program to distribute educational materials or equivalent outreach that informs the public of the impact **stormwater** discharges have on water bodies and that includes actions citizens, businesses, and other local organizations can take to **reduce** the discharge of pollutants to **stormwater**. The program shall also include:

a. Distribution of educational materials or equivalent outreach focused on:

(1) Specifically selected **stormwater**-related issue(s) of high priority to the **permittee** to be emphasized during this permit term (e.g., specific **TMDL** reduction targets, changing local business practices, promoting adoption of residential **BMP**s, lake

improvements through lake associations, responsible management of pet waste, household chemicals, yard waste, deicing materials, etc.)

(2) **Illicit discharge** recognition and reporting **illicit discharge**s to the **permittee**

b. An implementation plan that consists of the following:

(1) Target audience(s), including measurable goals for each audience
(2) Responsible **Person**(s) in charge of overall plan implementation
(3) Specific activities and schedules to reach measurable goals for each target audience
(4) A description of any coordination with and/or use of other **stormwater** education and outreach programs being conducted by other entities, if applicable
(5) Annual evaluation to measure the extent to which measurable goals for each target audience are attained

c. Documentation of the following information:

(1) A description of any specific **stormwater**-related issues identified by the **permittee** under Part III.D.1.a(1)
(2) All information required under Part III.D.1.b
(3) Any modifications made to the program as a result of the annual evaluation under Part III.D.1.b(5)
(4) Activities held, including dates, to reach measurable goals
(5) Quantities and descriptions of educational materials distributed, including dates distributed

2. Public Participation/Involvement

a. **New permittee**s shall develop and implement, and **existing permittee**s shall revise their current program, as necessary, and continue to implement, a Public Participation/Involvement program to solicit public input on the **SWPPP**. The **permittee** shall:

(1) Provide a minimum of one (1) opportunity annually for the public to provide input on the adequacy of the **SWPPP**. Public meetings can be conducted to satisfy this requirement provided appropriate local public notice requirements are followed and opportunity to review and comment on the **SWPPP** is provided.
(2) Provide access to the **SWPPP** document, Annual Reports, and other documentation that supports or describes the **SWPPP** (e.g., Regulatory Mechanism(s), etc.) for public review, upon request. All public data requests are subject to the Minnesota Government Data Practices Act, Minn. Stat. § 13.
(3) Consider public input, oral and written, submitted by the public to the **permittee**, regarding the **SWPPP**.

b. Document the following information:

(1) All relevant written input submitted by **person**s regarding the **SWPPP**
(2) All responses from the **permittee** to written input received regarding the **SWPPP**, including any modifications made to the **SWPPP** as a result of the written input received

(3) Date(s) and location(s) of events held for purposes of compliance with this requirement
(4) Notices provided to the public of any events scheduled to meet this requirement, including any electronic correspondence (e.g., website, e-mail distribution lists, notices, etc.)

3. **Illicit Discharge** Detection and Elimination (IDDE)

New permittees shall develop, implement, and enforce, and **existing permittee**s shall revise their current program as necessary, and continue to implement and enforce, a program to detect and eliminate **illicit discharge**s into the **small MS4**. The IDDE program shall consist of the following:

a. Map of the **small MS4** as required by Part III.C.1.
b. Regulatory Mechanism(s) that effectively prohibits **non-stormwater discharge**s into the **small MS4**, except those **non-stormwater discharge**s authorized under Part I.B.1.
c. Incorporation of **illicit discharge** detection into all inspection and maintenance activities conducted under Part III.D.6.e and f. Where feasible, **illicit discharge** inspections shall be conducted during dry-weather conditions (e.g., periods of 72 or more hours of no precipitation).
d. Detecting and tracking the source of **illicit discharge**s using visual inspections. The **permittee** may also include the use of mobile cameras, collecting and analyzing water samples, and/or other detailed inspection procedures that may be effective investigative tools.
e. Training of all field staff, in accordance with the requirements of Part III.D.6.g(2), in **illicit discharge** recognition (including conditions which could cause **illicit discharge**s), and reporting **illicit discharge**s for further investigation.
f. Identification of priority areas likely to have **illicit discharge**s, including at a minimum, evaluating land uses associated with business/industrial activities, areas where **illicit discharge**s have been identified in the past, and areas with storage of large quantities of **significant materials** that could result in an **illicit discharge**. Based on this evaluation, the **permittee** shall conduct additional **illicit discharge** inspections in those areas identified as having a higher likelihood for **illicit discharge**s.
g. For timely response to known, suspected, and reported **illicit discharge**s:

(1) Procedures for investigating, locating, and eliminating the source of **illicit discharge**s.
(2) Procedures for responding to spills, including emergency response procedures to prevent spills from entering the **small MS4**. The procedures shall also include the immediate notification of the Minnesota Department of Public Safety Duty Officer at 1-800-422-0798 (toll free) or 651-649-5451 (Metro area), if the source of the **illicit discharge** is a spill or leak as defined in Minn. Stat. § 115.061.
(3) When the source of the **illicit discharge** is found, ERPs required by Part III.B (if necessary) to eliminate the **illicit discharge** and require any needed corrective action(s).

h. Documentation of the following information:

(1) Date(s) and location(s) of IDDE inspections conducted in accordance with Part III.D.3.c and f
(2) Reports of alleged **illicit discharge**s received, including date(s) of the report(s), and any follow-up action(s) taken by the **permittee**
(3) Date(s) of discovery of all **illicit discharge**s
(4) Identification of **outfall**s, or other areas, where **illicit discharges** have been discovered
(5) Sources (including a description and the responsible party) of **illicit discharges** (if known)
(6) Action(s) taken by the **permittee**, including date(s), to address discovered **illicit discharges**

4. Construction Site **Stormwater** Runoff Control

New permittees shall develop, implement, and enforce, and **existing permittee**s shall revise their current program, as necessary, and continue to implement and enforce, a Construction Site **Stormwater** Runoff Control program that **reduce**s pollutants in **stormwater** runoff to the **small MS4** from **construction activity** with a land disturbance 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**, that occurs within the **permittee**'s jurisdiction. The program shall incorporate the following components:

a. Regulatory Mechanism(s)

A Regulatory Mechanism(s) that establishes requirements for erosion and sediment controls and waste controls that is at least as stringent as the **Agency's *general permit*** *to Discharge Stormwater Associated with Construction Activity No.MN R100001* (as of the **effective date** of this permit). The **permittee**'s Regulatory Mechanism(s) shall require that owners and operators of **construction activity** develop site plans that must be submitted to the **permittee** for review and approval, prior to the start of **construction activity**. Site plans must be kept up-to-date by the owners and operators of **construction activity** with regard to **stormwater** runoff controls. The Regulatory Mechanism(s) must require that site plans incorporate the following erosion and sediment controls and waste controls as described in the above referenced permit:

(1) **BMPs** to minimize erosion
(2) **BMP**s to minimize the discharge of sediment and other pollutants
(3) **BMP**s for dewatering activities
(4) Site inspections and records of rainfall events
(5) **BMP** maintenance
(6) Management of solid and hazardous wastes on each project site
(7) Final stabilization upon the completion of **construction activity**, including the use of perennial vegetative cover on all exposed soils or other equivalent means
(8) Criteria for the use of temporary sediment basins

b. Site plan review

The program shall include written procedures for site plan reviews conducted by the **permittee** prior to the start of **construction activity**, to ensure compliance with requirements of the Regulatory Mechanism(s). The site plan review procedure shall include notification to owners and operators proposing **construction activity** of the need to apply for and obtain coverage under the **Agency**'s ***general permit*** *to Discharge Stormwater Associated with Construction Activity No.MN R100001.*

c. Public input

The program shall include written procedures for receipt and consideration of reports of noncompliance or other **stormwater** related information on **construction activity** submitted by the public to the **permittee.**

d. Site inspections

The program shall include written procedures for conducting site inspections, to determine compliance with the **permittee**'s Regulatory Mechanism(s). The written procedures shall:

(1) Include procedures for identifying priority sites for inspection. Prioritization can be based on such parameters as topography, soil characteristics, type of **receiving water**(s), stage of construction, compliance history, weather conditions, or other local characteristics and issues.
(2) Identify frequency at which site inspections will be conducted
(3) Identify name(s) of individual(s) or position titles responsible for conducting site inspections
(4) Include a checklist or other written means to document site inspections when determining compliance.

e. ERPs required by Part III.B of this permit

f. Documentation of the following information:

(1) For each site plan review – The project name, location, total acreage to be disturbed, owner and operator of the proposed **construction activity**, and any **stormwater** related comments and supporting documentation used by the **permittee** to determine project approval or denial.
(2) For each site inspection - Inspection checklists or other written means used to document site inspections

5. Post-Construction **Stormwater** Management

New permittees shall develop, implement, and enforce, and **existing permittee**s shall revise their current program, as necessary, and continue to implement and enforce, a Post-Construction **Stormwater** Management program that prevents or **reduce**s **water pollution** after **construction activity** is completed, related to **new development** and **redevelopment** projects with land disturbance 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 jurisdiction and that discharge to the **permittee**'s **small MS4**. The program shall consist, at a minimum, of the following:

a. A Regulatory Mechanism(s) that incorporates:

(1) A requirement that owners and/or operators of **construction activity** submit site plans with post-construction **stormwater** management **BMP**s to the **permittee** for review and approval, prior to start of **construction activity**

(2) Conditions for Post-Construction **Stormwater** Management:

The **permittee** shall develop and implement a Post-Construction **Stormwater** Management program that requires the use of any combination of **BMP**s, with highest preference given to **Green Infrastructure** techniques and practices (e.g., infiltration, evapotranspiration, reuse/harvesting, conservation design, urban forestry, green roofs, etc.), necessary to meet the following conditions on the site of a **construction activity** to the **MEP**:

(a) For **new development** projects – no net increase from pre-project conditions (on an annual average basis) of:

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

(b) For **redevelopment** projects – a net reduction from pre-project conditions (on an annual average basis) of:

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

(3) **Stormwater** management limitations and exceptions

(a) Limitations

1) The **permittee**'s Regulatory Mechanism(s) shall prohibit the use of infiltration techniques to achieve the conditions for post-construction **stormwater** management in Part III.D.5.a(2) when the infiltration **structural stormwater BMP** will receive discharges from, or be constructed in areas:

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

2) The **permittee**'s Regulatory Mechanism(s) shall restrict the use of infiltration techniques to achieve the conditions for post-construction **stormwater** management, without higher engineering review, sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater, when the infiltration device will be constructed in areas:

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

3) For linear projects where the lack of right-of-way precludes the installation of volume control practices that meet the conditions for post-construction **stormwater** management in Part.III.D.5.a(2), the **permittee**'s Regulatory Mechanism(s) may allow exceptions as described in Part III.D.5.a(3)(b). The **permittee**'s Regulatory Mechanism(s) shall ensure that a reasonable attempt be made to obtain right-of-way during the project planning process.

(b) Exceptions for **stormwater** discharge volume

The **permittee**'s Regulatory Mechanism(s) may allow for lesser volume control on the site of the original **construction activity** than that in Part III.D.5.a(2) only under the following circumstances:

1) The owner and/or operator of a **construction activity** is precluded from infiltrating **stormwater** through a designed system due to any of the infiltration related limitations described above, and
2) The owner and/or operator of the **construction activity** implements, to the **MEP**, volume reduction techniques, other than infiltration, (e.g., evapotranspiration, reuse/harvesting, conservation design, green roofs, etc.) on the site of the original **construction activity** that **reduce**s **stormwater** discharge volume, but may not meet the conditions for post-construction **stormwater** management in Part III.D.5.a(2).

(4) Mitigation provisions

There may be circumstances where the **permittee** or other owners and operators of a **construction activity** cannot cost effectively meet the conditions for post-construction **stormwater** management for TSS and/or TP in Part III.D.5.a(2) on the site of the original **construction activity**. For this purpose, the **permittee** shall identify, or may require owners or operators of a **construction activity** to identify, locations where mitigation projects can be completed. The **permittee**'s Regulatory Mechanism(s) shall ensure that any **stormwater** discharges of TSS and/or TP not addressed on the site of the original **construction activity** are addressed through mitigation and, at a minimum, shall ensure the following requirements are met:

(a) Mitigation project areas are selected in the following order of preference:
    1) Locations that yield benefits to the same **receiving water** that receives runoff from the original **construction activity**
    2) Locations within the same Department of Natural Resource (**DNR**) **catchment area** as the original **construction activity**
    3) Locations in the next adjacent **DNR catchment area** up-stream
    4) Locations anywhere within the **permittee**'s jurisdiction
(b) Mitigation projects must involve the creation of new **structural stormwater BMP**s or the retrofit of existing **structural stormwater BMP**s, or the use of a properly designed regional **structural stormwater BMP**.
(c) Routine maintenance of **structural stormwater BMP**s already required by this permit cannot be used to meet mitigation requirements of this Part.
(d) Mitigation projects shall be completed within 24 months after the start of the original **construction activity**.
(e) The **permittee** shall determine, and document, who is responsible for long-term maintenance on all mitigation projects of this Part.
(f) If the **permittee** receives payment from the owner and/or operator of a **construction activity** for mitigation purposes in lieu of the owner or operator of that **construction activity** meeting the conditions for post-construction **stormwater** management in Part III.D.5.a(2), the **permittee** shall apply any such payment received to a public **stormwater** project, and all projects must be in compliance with Part III.D.5.a(4)(a)-(e).

(5) Long-term maintenance of **structural stormwater BMP**s

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

(a) Allow the **permittee** to conduct inspections of **structural stormwater BMP**s not owned or operated by the **permittee**, perform necessary maintenance, and assess costs for those **structural stormwater BMP**s when the **permittee**

determines that the owner and/or operator of that **structural stormwater BMP** has not conducted maintenance.

(b) Include conditions that are designed to preserve the **permittee**'s right to ensure maintenance responsibility, for **structural stormwater BMP**s not owned or operated by the **permittee**, when those responsibilities are legally transferred to another party.

(c) Include conditions that are designed to protect/preserve **structural stormwater BMP**s and site features that are implemented to comply with Part III.D.5.a(2). If site configurations or **structural stormwater BMP**s change, causing decreased **structural stormwater BMP** effectiveness, new or improved **structural stormwater BMP**s must be implemented to ensure the conditions for post-construction **stormwater** management in Part III.D.5.a(2) continue to be met.

b. Site plan review

The program shall include written procedures for site plan reviews conducted by the **permittee** prior to the start of **construction activity**, to ensure compliance with requirements of the Regulatory Mechanism(s).

c. Documentation of the following information:

(1) Any supporting documentation used by the **permittee** to determine compliance with Part III.D.5.a, including the project name, location, owner and operator of the **construction activity**, any checklists used for conducting site plan reviews, and any calculations used to determine compliance

(2) All supporting documentation associated with mitigation projects authorized by the **permittee**

(3) Payments received and used in accordance with Part III.D.5.a(4)(f)

(4) All legal mechanisms drafted in accordance with Part III.D.5.a(5), including date(s) of the agreement(s) and name(s) of all responsible parties involved

6. Pollution Prevention/Good Housekeeping For Municipal Operations

New permittees shall develop and implement, and **existing permittee**s shall revise their current program, as necessary, and continue to implement, an operations and maintenance program that prevents or **reduce**s the discharge of pollutants from **permittee** owned/operated facilities and operations to the **small MS4**. The operations and maintenance program shall include, at a minimum, the following:

a. Facilities Inventory

The **permittee** shall develop and maintain an inventory of **permittee** owned/operated facilities that contribute pollutants to **stormwater** discharges. Facilities to be inventoried may include, but is not limited to: composting, equipment storage and maintenance, hazardous waste disposal, hazardous waste handling and transfer; landfills, solid waste handling and transfer, parks, pesticide storage, public parking lots, public golf courses; public swimming pools, public works yards, recycling, salt storage, vehicle storage and maintenance (e.g., fueling and washing) yards, and materials storage yards.

b. Development and Implementation of **BMP**s for inventoried facilities and municipal operations

Considering the source of pollutants and sensitivity of **receiving water**s (e.g., Outstanding Resource Value Waters (ORVWs), **impaired water**s, trout streams, etc.), the **permittee** shall develop and implement **BMP**s that prevent or **reduce** pollutants in **stormwater** discharges from the **small MS4** and from:

(1) All inventoried facilities that discharge to the **MS4**, and
(2) The following municipal operations that may contribute pollutants to **stormwater** discharges, where applicable:

(a) Waste disposal and storage, including dumpsters
(b) Management of temporary and permanent stockpiles of materials such as street sweepings, snow, deicing materials (e.g., salt), sand and sediment removal piles
(c) Vehicle fueling, washing and maintenance
(d) Routine street and parking lot sweeping
(e) Emergency response, including spill prevention plans
(f) Cleaning of maintenance equipment, building exteriors, dumpsters, and the disposal of associated waste and wastewater
(g) Use, storage, and disposal of **significant materials**
(h) Landscaping, park, and lawn maintenance
(i) Road maintenance, including pothole repair, road shoulder maintenance, pavement marking, sealing, and repaving
(j) Right-of-way maintenance, including mowing
(k) Application of herbicides, pesticides, and fertilizers
(l) Cold-weather operations, including plowing or other snow removal practices, sand use, and application of deicing compounds

c. Development and implementation of **BMP**s for **MS4** discharges that may affect Source Water Protection Areas (Minn. R. 4720.5100-4720.5590)

The **permittee** shall incorporate **BMP**s into the **SWPPP** to protect any of the following drinking water sources that the **MS4** discharge may affect, and the **permittee** shall include the map of these sources with the **SWPPP** if they have been mapped:

(1) Wells and source waters for DWSMAs identified as vulnerable under Minn. R. 4720.5205, 4720.5210, and 4720.5330
(2) Source water protection areas for surface intakes identified in the source water assessments conducted by or for the Minnesota Department of Health (MDH) under the federal Safe Drinking Water Act, U.S.C. §§ 300j – 13

d. Pond Assessment Procedures and Schedule

The **permittee** shall develop procedures and a schedule for the purpose of determining the TSS and TP treatment effectiveness of all **permittee** owned/operated ponds constructed and used for the collection and treatment of **stormwater**. The schedule (which may exceed this permit term) shall be based on measureable goals and priorities established by the **permittee**.

e. Inspections

(1) Unless inspection frequency is adjusted as described below, the **permittee** shall conduct annual inspections of **structural stormwater BMPs** (excluding **stormwater** ponds which are under a separate schedule below) to determine structural integrity, proper function and maintenance needs.

Inspections of **structural stormwater BMP**s shall be conducted annually unless the **permittee** determines if either of the following conditions apply: 1) Complaints received or patterns of maintenance indicate a greater frequency is necessary, or 2) Maintenance or sediment removal is not required after completion of the first two annual inspections; in which case the **permittee** may reduce the frequency of inspections to once every two (2) years. However, **existing permittee**s are authorized under this permit to continue using inspection frequency adjustments, previously determined under the *general **stormwater** permit for **small MS4**s No.MNR040000*, effective June 1, 2006, provided that documentation requirements in Part III.D.6.h(2) are satisfied.

(2) Prior to the expiration date of this permit, the **permittee** shall conduct at least one inspection of all ponds and **outfall**s (excluding underground **outfall**s) in order to determine structural integrity, proper function, and maintenance needs.

(3) The **permittee** shall conduct quarterly inspections of stockpiles, and storage and material handling areas as inventoried in Part III.D.6.a, to determine maintenance needs and proper function of **BMP**s.

f. Maintenance

Based on inspection findings, the **permittee** shall determine if repair, replacement, or maintenance measures are necessary in order to ensure the structural integrity, proper function, and treatment effectiveness of **structural stormwater BMP**s. Necessary maintenance shall be completed as soon as possible to prevent or **reduce** the discharge of pollutants to **stormwater**.

g. Employee Training

The **permittee** shall develop and implement a **stormwater** management training program commensurate with employee's job-duties as they relate to the **permittee**'s **SWPPP**, including reporting and assessment activities. The **permittee** may use training materials from the United States Environmental Protection Agency (USEPA), state and regional agencies, or other organizations as appropriate to meet this requirement. The employee training program shall:

(1) Address the importance of protecting water quality
(2) Cover the requirements of the permit relevant to the job duties of the employee
(3) Include a schedule that establishes initial training for new and/or seasonal employees, and recurring training intervals for existing employees to address changes in procedures, practices, techniques, or requirements

h. Documentation of the following information:

(1) Date(s) and description of findings of all inspections conducted in accordance with Part III.D.6.e
(2) Any adjustments to inspection frequency as authorized under Part III.D.6.e(1)
(3) A description of maintenance conducted, including dates, as a result of inspection findings
(4) Pond sediment excavation and removal activities, including:
  (a) The unique ID number (consistent with that required in Part III.C.2.a) of each **stormwater** pond from which sediment is removed
  (b) The volume (e.g., cubic yards) of sediment removed from each **stormwater** pond
  (c) Results from any testing of sediment from each removal activity
  (d) Location(s) of final disposal of sediment from each **stormwater** pond
(5) Employee **stormwater** management training events, including a list of topics covered, names of employees in attendance, and date of each event

E. Discharges to **Impaired Water**s with a USEPA-Approved **TMDL** that Includes an **Applicable WLA**

For each **applicable WLA** approved prior to the **effective date** of this permit, the **BMPs** included in the compliance schedule at application constitute a discharge requirement for the **permittee**. The **permittee** shall demonstrate continuing progress toward meeting each discharge requirement, on a form provided by the **Commissioner**, by submitting the following:

1. An assessment of progress toward meeting each discharge requirement, including a list of all **BMP**s being applied to achieve each **applicable WLA**. For each **structural stormwater BMP**, the **permittee** shall provide a unique identification (ID) number and **geographic coordinate**. If the listed **structural stormwater BMP** is also inventoried as required by Part III.C.2, the same ID number shall be used.

2. A list of all **BMP**s the **permittee** submitted at the time of application in the **SWPPP** document compliance schedule(s) and the stage of implementation for each **BMP**, including any **BMP**s specifically identified for the **small MS4** in the **TMDL** report that the **permittee** plans to implement

3. An up-dated estimate of the cumulative reductions in loading achieved for each **pollutant of concern** associated with each **applicable WLA**

4. An up-dated narrative describing any adaptive management strategies used (including projected dates) for making progress toward achieving each **applicable WLA**

F. **Alum or Ferric Chloride Phosphorus Treatment System**s

If the **permittee** uses an **alum or ferric chloride phosphorus treatment system**, the **permittee** shall comply with the following:

1. Minimum Requirements of an **Alum or Ferric Chloride Phosphorus Treatment System**

   a. Limitations

      (1) The **permittee** shall use the treatment system for the treatment of phosphorus in **stormwater. Non-stormwater discharges** shall not be treated by this system.
      (2) The treatment system must be contained within the conveyances and **structural stormwater BMPs** of a **small MS4**. The utilized conveyances and **structural stormwater BMPs** shall not include any **receiving water**s.
      (3) Phosphorus treatment systems utilizing chemicals other than alum or ferric chloride must receive written approval from the **Agency**.
      (4) In-lake phosphorus treatment activities are not authorized under this permit.

   b. Treatment System Design

      (1) The treatment system shall be constructed in a manner that diverts the **stormwater** flow to be treated from the main conveyance system.
      (2) A **High Flow Bypass** shall be part of the inlet design.
      (3) A flocculent storage/settling area shall be incorporated into the design, and adequate maintenance access must be provided (minimum of 8 feet wide) for the removal of accumulated sediment.

2. Monitoring During Operation

   a. A designated **person** shall perform visual monitoring of the treatment system for proper performance at least once every seven (7) days, and within 24 hours after a rainfall event greater than 2.5 inches in 24 hours. Following visual monitoring which occurs within 24 hours after a rainfall event, the next visual monitoring must be conducted within seven (7) days after that rainfall event.
   b. Three benchmark monitoring stations shall be established. Table B-1 shall be used for the parameters, units of measure, and frequency of measurement for each station.
   c. Samples shall be collected as grab samples or flow-weighted 24-hour composite samples.
   d. Each sample, excluding pH samples, must be analyzed by a laboratory certified by the MDH and/or the MPCA, and:

      (1) Sample preservation and test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and Minn. R. 7041.3200.
      (2) Detection limits for dissolved phosphorus, dissolved aluminum, and dissolved iron shall be a minimum of 6 micrograms per liter (µg/L), 10 µg/L, and 20 µg/L, respectively.
      (3) pH must be measured within 15 minutes of sample collection using calibrated and maintained equipment.

Table B-1:
Monitoring Parameters During Operation

Station	Alum Parameters	Ferric Parameters	Units	Frequency
Upstream-Background	Total Phosphorus	Total Phosphorus	mg/L	1 x week
	Dissolved Phosphorus	Dissolved Phosphorus	mg/L	1 x week
	Total Aluminum	Total Iron	mg/L	1 x month
	Dissolved Aluminum	Dissolved Iron	mg/L	1 x week
	pH	pH	SU	1 x week
	Flow	Flow	Mgd	Daily
Alum or Ferric Chloride Feed	Alum	Ferric	Gallons	Daily Total Dosed In Gallons
Discharge From Treatment	Total Phosphorus	Total Phosphorus	mg/L	1 x week
	Dissolved Phosphorus	Dissolved Phosphorus	mg/L	1 x week
	Total Aluminum	Total Iron	mg/L	1 x month
	Dissolved Aluminum	Dissolved Iron	mg/L	1 x week
	pH	pH	SU	1 x week
	Flow	Flow	Mgd	Daily

e. In the following situations, the **permittee** shall perform corrective action(s) and immediately notify the Minnesota Department of Public Safety Duty Officer at 1-800-422-0798 (toll free) or 651-649-5451 (Metro area):

(1) The pH of the discharged water is not within the range of 6.0 and 9.0
(2) Any indications of toxicity or measurements exceeding **water quality standards**
(3) A spill, as defined in Minn. Stat. § 115.01, subd. 13, of alum or ferric chloride

3. Reporting and Recordkeeping

a. Annual Reporting

The **permittee** shall submit the following information with the Annual Report in Part IV.B. The Annual Report must include a month-by-month summary of:

(1) Date(s) of operation
(2) Chemical(s) used for treatment
(3) Gallons of water treated
(4) Gallons of alum or ferric chloride treatment used
(5) Calculated pounds of phosphorus removed
(6) Any performance issues and the corrective action(s), including the date(s) when corrective action(s) were taken

b. On-Site Recordkeeping

A record of the following design parameters shall be kept on-site:

(1) Site-specific jar testing conducted using typical and representative water samples in accordance with ASTM D2035-08 (2003)
(2) Baseline concentrations of the following parameters in the influent and **receiving water**s:

(a) Aluminum or Iron
(b) Phosphorus

(3) The following system parameters and how each was determined:

(a) Flocculent settling velocity
(b) Minimum required retention time
(c) Rate of diversion of **stormwater** into the system
(d) The flow rate from the discharge of the outlet structure
(e) Range of expected dosing rates

4. Treatment System Management

The following site-specific procedures shall be developed and a copy kept on-site:

a. Procedures for the installation, operation and maintenance of all pumps, generators, control systems, and other equipment
b. Specific parameters for determining when the solids must be removed from the system and how the solids will be handled and disposed of
c. Procedures for cleaning up and/or containing a spill of each chemical stored on-site

G. **Stormwater Pollution Prevention Program (SWPPP)** Modification

1. The **Commissioner** may require the **permittee** to modify the **SWPPP** as needed, in accordance with the procedures of Minn. R. 7001, and may consider the following factors:

a. Discharges from the **small MS4** are impacting the quality of **receiving waters.**
b. More stringent requirements are necessary to comply with state or federal regulations.
c. Additional conditions are deemed necessary to comply with the goals and applicable requirements of the Clean Water Act and protect water quality.

2. Modifications that the **permittee** chooses to make to the **SWPPP** document developed under Part II.D, other than modifications authorized in Part III.G.3 below, must be approved by the **Commissioner** in accordance with the procedures of Minn. R. 7001. All requests must be in writing, setting forth schedules for compliance. The request must discuss alternative program modifications, assure compliance with requirements of the permit, and meet other applicable laws.

3. The **SWPPP** document may only be modified by the **permittee** without prior approval of the **Commissioner** provided it is in accordance with a. or b. below, and the **Commissioner** is notified of the modification in the Annual Report for the year the modification is made.

a. A **BMP** is added, and none subtracted, from the **SWPPP** document.
b. A less effective **BMP** identified in the **SWPPP** document is replaced with a more effective **BMP**. The alternate **BMP** shall address the same, or similar, concerns as the ineffective or failed **BMP**.

PART IV. ANNUAL **SWPPP** ASSESSMENT, ANNUAL REPORTING, AND RECORD KEEPING

A. Annual **SWPPP** Assessment

The **permittee** shall conduct an Annual Assessment of their **SWPPP** to determine program compliance, the appropriateness of **BMP**s, and progress towards achieving the measurable goals identified in their **SWPPP** document. The Annual **SWPPP** Assessment shall be performed prior to completion of each Annual Report.

B. Annual Reporting

The **permittee** shall submit an Annual Report to the **Agency** by June 30th of each calendar year. The Annual Report shall cover the portion of the previous calendar year during which the **permittee** was authorized to discharge **stormwater** under this permit. The Annual Report shall be submitted to the **Agency**, on a form provided by the **Commissioner**, that will at a minimum, consist of the following:

1. The status of compliance with permit terms and conditions, including an assessment of the appropriateness of **BMPs** identified by the **permittee** and progress towards achieving the identified measurable goals for each of the MCMs in Part III.D.1-6. The assessment must be based on results of information collected and analyzed, including monitoring (if any), inspection findings, and public input received during the reporting period.

2. The **stormwater** activities the **permittee** plans to undertake during the next reporting cycle

3. A change in any identified **BMP**s or measurable goals for any of the MCMs in Part III.D.1-6

4. Information required in Part III.E, to demonstrate progress in meeting **applicable WLA**s

5. Information required to be recorded or documented in Part III

6. A statement that the **permittee** is relying on a partnership(s) with another regulated **Small MS4**(s) to satisfy one or more permit requirements (if applicable), and what agreements the **permittee** has entered into in support of this effort

C. Record Keeping

1. The **permittee** shall keep records required by the **NPDES** permit for at least three (3) years beyond the term of this permit. The **permittee** shall submit records to the **Commissioner** only if specifically asked to do so.

2. The **permittee** shall make records, including components of the **SWPPP**, available to the public at reasonable times during regular business hours (see 40 CFR § 122.7 for confidentiality provision).

3. The **permittee** shall retain copies of the permit application, all documentation necessary to comply with **SWPPP** requirements, all data and information used by the **permittee** to complete the application process, and any information developed as a requirement of this permit or as requested by the **Commissioner**, for a period of at least three (3) years beyond the date of permit expiration. This period is automatically extended during the course of an

unresolved enforcement action regarding the **small MS4** or as requested by the **Commissioner**.

D. Where to Submit

The **permittee** shall use an electronic submittal process, when provided by the **Agency**, when submitting information required by this permit. When submitting information electronically is not possible, the **permittee** may use the following mailing address:

Minnesota Pollution Control Agency (MPCA)
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, MN 55155-4194

PART V. GENERAL CONDITIONS

A. The **Agency**'s issuance of a permit does not release the **permittee** from any liability, penalty, or duty imposed by Minnesota or federal statutes or rules or local ordinances, except the obligation to obtain the permit. (Minn. R. 7001.0150, subp.3, item A)

B. The **Agency**'s issuance of a permit does not prevent the future adoption by the **Agency** of pollution control rules, standards, or orders more stringent than those now in existence and does not prevent the enforcement of these rules, standards, or orders against the **permittee**. (Minn. R. 7001.0150, subp.3, item B)

C. The permit does not convey a property right or an exclusive privilege. (Minn. R. 7001.0150, subp. 3, item C)

D. The **Agency**'s issuance of a permit does not obligate the **Agency** to enforce local laws, rules, or plans beyond that authorized by Minnesota statutes. (Minn. R. 7001.0150, subp.3, item D)

E. The **permittee** shall perform the actions or conduct the activity authorized by the permit in accordance with the plans and specifications approved by the **Agency** and in compliance with the conditions of the permit. (Minn. R. 7001.0150, subp. 3, item E)

F. The **permittee** shall at all times properly operate and maintain the facilities and systems of treatment and control and the appurtenances related to them which are installed or used by the **permittee** to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The **permittee** shall install and maintain appropriate backup or auxiliary facilities if they are necessary to achieve compliance with the conditions of the permit and, for all permits other than hazardous waste facility permits, if these backup or auxiliary facilities are technically and economically feasible. (Minn. R. 7001.0150. subp. 3, item F.)

G. The **permittee** may not knowingly make a false or misleading statement, representation, or certification in a record, report, plan, or other document required to be submitted to the **Agency** or to the **Commissioner** by the permit. The **permittee** shall immediately upon discovery report to the **Commissioner** an error or omission in these records, reports, plans, or other documents. (Minn. Stat. § 609.671; Minn.R. 7001.0150, subp.3, item G.; and Minn. R. 7001.1090, subp. 1, items G and H)

H. The **permittee** shall, when requested by the **Commissioner**, submit within a reasonable time the information and reports that are relevant to the control of pollution regarding the construction, modification, or operation of the facility covered by the permit or regarding the conduct of the activity covered by the permit. (Minn. R. 7001.0150, subp. 3, item H)

I. When authorized by Minn. Stat. §§ 115.04; 115B.17, subd. 4; and 116.091, and upon presentation of proper credentials, the **Agency**, or an authorized employee or agent of the **Agency**, shall be allowed by the **permittee** to enter at reasonable times upon the property of the **permittee** to examine and copy books, papers, records, or memoranda pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit; and to conduct surveys and investigations, including sampling or monitoring, pertaining to the construction, modification, or operation of the facility covered by

the permit or pertaining to the activity covered by the permit. (Minn. R. 7001.0150, subp.3, item I)

J. If the **permittee** discovers, through any means, including notification by the **Agency**, that noncompliance with a condition of the permit has occurred, the **permittee** shall take all reasonable steps to minimize the adverse impacts on human health, public drinking water supplies, or the environment resulting from the noncompliance. (Minn. R. 7001.0150, subp.3, item J)

K. If the **permittee** discovers that noncompliance with a condition of the permit has occurred which could endanger human health, public drinking water supplies, or the environment, the **permittee** shall, within 24 hours of the discovery of the noncompliance, orally notify the **Commissioner**. Within five days of the discovery of the noncompliance, the **permittee** shall submit to the **Commissioner** a written description of the noncompliance; the cause of the noncompliance, the exact dates of the period of the noncompliance, if the noncompliance has not been corrected; the anticipated time it is expected to continue, and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (Minn. R. 7001.0150, subp.3, item K)

L. The **permittee** shall report noncompliance with the permit not reported under item K as a part of the next report, which the **permittee** is required to submit under this permit. If no reports are required within 30 days of the discovery of the noncompliance, the **permittee** shall submit the information listed in item K within 30 days of the discovery of the noncompliance. (Minn. R. 7001.0150, subp.3, item L)

M. The **permittee** shall give advance notice to the **Commissioner** as soon as possible of planned physical alterations or additions to the permitted facility (**MS4**) or activity that may result in noncompliance with a Minnesota or federal pollution control statute or rule or a condition of the permit. (Minn. R. 7001.0150, subp. 3, item M)

N. The permit is not transferable to any **person** without the express written approval of the **Agency** after compliance with the requirements of Minn. R. 7001.0190. A **person** to whom the permit has been transferred shall comply with the conditions of the permit. (Minn. R. 7001.0150, subp.3, item N)

O. The permit authorizes the **permittee** to perform the activities described in the permit under the conditions of the permit. In issuing the permit, the state and **Agency** assume no responsibility for damage to **person**s, property, or the environment caused by the activities of the **permittee** in the conduct of its actions, including those activities authorized, directed, or undertaken under the permit. To the extent the state and **Agency** may be liable for the activities of its employees, that liability is explicitly limited to that provided in the Tort Claims Act, Minn. Stat. § 3.736. (Minn. R. 7001.0150, subp. 3, item O)

P. This permit incorporates by reference the applicable portions of 40 CFR §§ 122.41 and 122.42 parts (c) and (d), and Minn. R. 7001.1090, which are enforceable parts of this permit.

APPENDIX A

SCHEDULES

Table 1
Application Submittal Schedule for **Existing permittee**s

Group 1 Within 90 days after permit **effective date**		
Alexandria, City	Glencoe, City	Oak Grove, City
Andover, City	Grand Rapids, City	Orono, City
Anoka Technical College	Greenwood, City	Ramsey, City
Arden Hills, City	Hibbing, City	Sartell, City
Birchwood Village, City	Hilltop, City	South St Paul, City
Cambridge, City	Inver Hills Community College	St Bonifacius, City
Centerville, City	Little Falls, City	St Cloud Technical College
Chaska, City	Long Lake, City	St Louis County
Dakota County Technical College	Maple Plain, City	St Paul Park, City
Detroit Lakes, City	Minnetonka Beach, City	Waite Park, City
Excelsior, City	Monticello, City	Woodland, City
	Northland Comm & Technical College	
Group 2 Within 120 days after permit **effective date**		
Anoka, City	Hutchinson, City	Nowthen, City
Anoka-Ramsey Community College	La Crescent, City	Proctor, City
Baxter, City	Lake Superior College - Duluth	Red Wing, City
Brainerd, City	Landfall, City	Shakopee, City
Buffalo, City	Lauderdale, City	South Washington WD
Champlin, City	Litchfield, City	Spring Park, City
Clay County	Mendota, City	St Joseph, City
Coon Creek WD	Midway Township	St Michael, City
Dayton, City	MN State Comm and Tech College-Moorhead	Stearns County
Dilworth, City	Moorhead, City	Tonka Bay, City
East Grand Forks, City	Mounds View, City	West St Paul, City
Elk River, City	North Oaks, City	Willernie, City
Elko New Market, City		Winona, City
Fridley, City		
Group 3 Within 150 days after permit **effective date**		
Albert Lea, City	Hennepin Technical College Eden Prairie	Owatonna, City
Anoka County	Hermantown, City	Pine Springs, City
Apple Valley, City	Hopkins, City	Plymouth, City
Austin, City	Houston County	Prior Lake, City
Bemidji, City	Hugo, City	Prior Lake-Spring Lake WSD
Benton County	Independence, City	Ramsey County Public Works
Big Lake, City	Inver Grove Heights, City	Ramsey-Washington Metro WD
Big Lake Township	Jackson Township	Redwood Falls, City
Blaine, City	La Crescent Township	Rice Creek WD
Bloomington, City	Laketown Township	Rice Lake Township
Brockway Township	Lakeville, City	Richfield, City

Brooklyn Center, City	Lake Elmo, City	Robbinsdale, City
Brooklyn Park, City	Le Sauk Township	Rochester, City
Burnsville, City	Lexington, City	Rochester Community & Tech College
Capitol Region WD	Lilydale, City	Rochester Township
Carver, City	Lino Lakes, City	Rosemount, City
Carver County	Little Canada, City	Roseville, City
Cascade Township	Loretto, City	Sauk Rapids, City
Century College	Louisville Township	Sauk Rapids Township
Chanhassen, City	Mahtomedi, City	Savage, City
Circle Pines, City	Mankato, City	Osseo, City
Cloquet, City	Maplewood, City	Otsego, City
Columbia Heights, City	Maple Grove, City	Scott County
Coon Rapids, City	Marion Township	Sherburne County
Corcoran, City	Marshall, City	Shoreview, City
Cottage Grove, City	Medicine Lake, City	Shorewood, City
Credit River Township	Medina, City	Spring Lake Park, City
Crystal, City	Mendota Heights, City	Spring Lake, Township
Dakota County	Metropolitan State University	Saint Paul College
Deephaven, City	Minden Township	St Anthony Village, City
Dellwood, City	Minnehaha Creek WD	St Cloud, City
Duluth, City	Minnesota Correctional-Lino Lakes	St Cloud State University
Duluth Township	Minnesota Correctional-St Cloud	St Joseph Township
Eagan, City	Minnetonka, City	St Louis Park, City
East Bethel, City	Minnetrista, City	St Peter, City
Eden Prairie, City	MNDOT Metro District	Stillwater, City
Edina, City	MNDOT Outstate District	Sunfish Lake, City
Empire Township	MN State University-Moorhead	U of M-Duluth
Fairmont, City	Montevideo, City	U of M-Twin Cities Campus
Falcon Heights, City	Mound, City	Vadnais Heights, City
Faribault, City	Mpls Community/Technical College	Valley Branch WD
Farmington, City	New Brighton, City	Victoria, City
Federal Medical Center	New Hope, City	Waconia, City
Fergus Falls, City	New Ulm, City	Waseca, City
Forest Lake, City	Newport City	Washington County
Gem Lake, City	Normandale Community College	Watab Township
Golden Valley, City	North Branch, City	Wayzata, City
Grant, City	North Hennepin Community College	West Lakeland Township
Ham Lake, City	North Mankato, City	White Bear Lake, City
Hastings, City	North St Paul, City	White Bear Township
Haven Township	Northfield, City	Willmar, City
Haverhill Township	Oakdale, City	Woodbury, City
Hennepin County	Olmsted County	Worthington, City
Hennepin Technical College Brooklyn Pk		

Table 2

Existing Permittees – Schedule of Permit Requirements

Permit Requirement	*Schedule*
PART II. APPLICATION REQUIREMENTS • *Submit Part 2 of the permit application with the **SWPPP** document completed in accordance with Part II.D.*	• See Table 1 above.
PART III. **STORMWATER POLLUTION PREVENTION PROGRAM (SWPPP)** • *Complete revisions to incorporate requirements of Part III.A-F into current **SWPPP**.* <u>Part III.C Mapping and Inventory</u> Part III.C.2 Inventory • *Complete and submit inventory in accordance with Part III.C.2.* <u>Part III.D.6 Pollution Prevention/Good Housekeeping For Municipal Operations</u> Part III.D.6.e Inspections • *Conduct inspections.* <u>Part III.E **Impaired Waters** and **TMDL**s (if applicable)</u> • Submit all information required by Part III.E. <u>Part III.F. **Alum or Ferric Chloride Phosphorus Treatment System**s (if applicable)</u> • *Meet requirements for treatment systems under Part III.F.*	• Within 12 months of the date permit coverage is extended, unless other timelines have been specifically established in this permit and identified below. • Within 12 months of the date permit coverage is extended. • Annually (Part III.D.6.e(1) and (2)), Quarterly (Part III.D.6.e(3)). • With each Annual Report required in Part IV.B. • Within 12 months of the date permit coverage is extended.
PART IV. ANNUAL **SWPPP** ASSESSMENT, ANNUAL REPORTING AND RECORD KEEPING <u>Part IV.A Annual **SWPPP** Assessment</u> • *Conduct assessment of the **SWPPP**.* <u>Part IV.B Annual Reporting</u> • *Submit an Annual Report*	• Annually and prior to completion of each Annual Report. • By June 30th of each calendar year.

Table 3

New Permittees – Schedule of Permit Requirements

Permit Requirement	*Schedule*
PART II. APPLICATION REQUIREMENTS • *Submit Part 1, and Part 2 of the permit application with the proposed **SWPPP** document as required by Part II.D.*	• Within 18 months of written notification from the **Commissioner** that the **MS4** meets the criteria in Minn. R. 7090.1010, Subpart 1.A. or B. and permit coverage is required.
PART III. **STORMWATER POLLUTION PREVENTION PROGRAM (SWPPP)** • *Complete all requirements of Part III.A-F.* <u>Part III.A Regulatory Mechanism(s)</u> **Illicit Discharge** Detection and Elimination (see Part III.D.3)	• Within 36 months of the date permit coverage is extended, unless other timelines have been specifically established in this permit and identified below; or • Within timelines established by the **Commissioner** under Part I.F.2.

• *Develop, implement, and enforce Regulatory Mechanism.*	• Within 12 months of the date permit coverage is extended.
Construction Site **Stormwater** Runoff Control (see Part III.D.4)	
• *Develop, implement, and enforce Regulatory Mechanism.*	• Within six (6) months of the date permit coverage is extended.
Post-Construction **Stormwater** Management (see Part III.D.5)	
• *Develop, implement, and enforce Regulatory Mechanism.*	• Within 24 months of the date permit coverage is extended.
Part III.B Enforcement Response Procedures (ERPs)	
• *Develop and implement written ERPs for the Regulatory Mechanism(s) required under Part III.A.*	• Within 24 months of the date permit coverage is extended.
Part III.C Mapping and Inventory Part III.C.1 Mapping	
• *Develop a storm sewer system map.*	• Within 24 months of the date permit coverage is extended.
Part III.C.2 Inventory	
• *Complete and submit inventory in accordance with Part III.C.2.*	• Within 24 months of the date permit coverage is extended.
Part III.D Minimum Control Measures Part III.D.4 Construction Site **Stormwater** Runoff Control	
• *Develop, implement, and enforce a Construction Site **Stormwater** Runoff Control program.*	• Within six (6) months of the date permit coverage is extended. See Part III.A Regulatory Mechanism(s).
Part III.D.5 Post-Construction **Stormwater** Management	
• *Develop, implement, and enforce a Post-Construction **Stormwater** Management program.*	• Within 24 months of the date permit coverage is extended. See Part III.A Regulatory Mechanism(s).
Part III.D.6 Pollution Prevention/Good Housekeeping for Municipal Operations Part III.D.6.e Inspections	
• *Conduct inspections.*	• Annually (Part III.D.6.e(1) and (2)), Quarterly (Part III.D.6.e(3)).
Part III.E **Impaired Water**s and **TMDL**s (if applicable)	
• *Submit all information required by Part III.E.*	• With each Annual Report required in Part IV.B.
Part III.F. **Alum or Ferric Chloride Phosphorus Treatment System**s (if applicable)	
• *Meet requirements for treatment systems under Part III.F.*	• Within 12 months of the date permit coverage is extended.
PART IV. ANNUAL **SWPPP** ASSESSMENT, ANNUAL REPORTING AND RECORD KEEPING Part IV.A Annual **SWPPP** Assessment	
• *Conduct assessment of the **SWPPP**.*	• Annually and prior to completion of each Annual Report.
Part IV.B Annual Reporting	
• *Submit an Annual Report.*	• By June 30th of each calendar year.

APPENDIX B

DEFINITIONS AND ABBREVIATIONS

The definitions in this Part are for purposes of this permit only.

1. "**Active Karst**" means geographic areas underlain by carbonate bedrock (or other forms of bedrock that can erode or dissolve) with less than 50 feet of sediment cover.

2. **"Agency"** means the Minnesota Pollution Control **Agency** or MPCA. (Minn. Stat. § 116.36, subd. 2.)

3. "**Alum or Ferric Chloride Phosphorus Treatment System**" means the diversion of flowing **stormwater** from a **MS4**, removal of phosphorus through the use a continuous feed of alum or ferric chloride additive, flocculation, and the return of the treated **stormwater** back into a **MS4** or **receiving water**.

4. "**Applicable WLA**" – means a **Waste Load Allocation** assigned to the **permittee** and approved by the USEPA.

5. "**Best Management Practices"** or **"BMPs"** means practices to prevent or **reduce** the pollution of the **waters of the state**, including schedules of activities, prohibitions of practices, and other management practices, and also includes treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge, or waste disposal or drainage from raw material storage. (Minn. R. 7001.1020, subp.5.)

6. **"Commissioner"** means the **Commissioner** of the Minnesota Pollution Control **Agency** or the **Commissioner**'s designee. (Minn. Stat. § 116.36, subd. 3.)

7. "**Common Plan of Development or Sale**" means a contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement or physical demarcation indicating that land-disturbing activities may occur.

8. "**Construction Activity**" includes **construction activity** as defined in 40 CFR § 122.26(b)(14)(x) and **small construction activity** as defined in 40 CFR § 122.26(b)(15). This includes a disturbance to the land that results in a change in the topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated **stormwater** runoff, leading to soil erosion and movement of sediment into **surface waters** or drainage systems. Examples of **construction activity** may include clearing, grading, filling, and excavating. **Construction activity** includes the disturbance of less than one acre of total land area that is a part of a larger **common plan of development or sale** if the larger common plan will ultimately disturb one (1) acre or more.

9. **"DNR Catchment Area"** means the Hydrologic Unit 08 areas delineated and digitized by the Minnesota DNR. The catchment areas are available for download at the Minnesota DNR Data Deli website. **DNR catchment area**s may be locally corrected, in which case the local corrections may be used.

10. **"Effective Date"** means the date, located on the front cover of this permit, on which this permit shall become effective.

11. **"Existing Permittee"** means an **Owner**/**Operator** of a **small MS4** that has been authorized to discharge **stormwater** under a previously issued **general permit** for **small MS4**s in the state of Minnesota.

12. **"General permit"** means a permit issued under Minn. R. 7001.0210 to a category of **permittee**s whose operations, emissions, activities, discharges, or facilities are the same or substantially similar. (Minn. R. 7001.0010, subp.4.)

13. **"Geographic Coordinate"** means the point location of a **stormwater** feature expressed by X, Y coordinates of a standard Cartesian coordinate system (i.e. latitude/longitude) that can be readily converted to Universal Transverse Mercator (UTM), Zone 15N in the NAD83 datum. For polygon features, the **geographic coordinate** will typically define the approximate center of a **stormwater** feature.

14. **"Green Infrastructure"** means a wide array of practices at multiple scales that manage wet weather and that maintains or restores natural hydrology by infiltrating, evapotranspiring, or harvesting and using stormwater. On a regional scale, green infrastructure is the preservation or restoration of natural landscape features, such as forests, floodplains and wetlands, coupled with policies such as infill and redevelopment that reduce overall imperviousness in a watershed. On the local scale, green infrastructure consists of site and neighborhood-specific practices, such as bioretention, trees, green roofs, permeable pavements and cisterns.

15. **"High Flow Bypass"** means a function of an inlet device that allows a certain flow of water through, but diverts any higher flows away. **High flow bypass**es are generally used for **BMPs** that can only treat a designed amount of flow and that would be negatively affected by higher flows.

16. **"Illicit Discharge"** means any discharge to a **municipal separate storm sewer** that is not composed entirely of stormwater except discharges pursuant to a NPDES permit (other than the **NPDES** permit for discharges from the **municipal separate storm sewer**) and discharges resulting from firefighting activities. (40 CFR § 122.26(b)(2))

17. **"Impaired Water"** means waters identified as impaired by the **Agency**, and approved by the USEPA, pursuant to section 303(d) of the Clean Water Act (33 U.S.C. § 303(d)).

18. **"Maximum Extent Practicable"** or **"MEP"** means the statutory standard (33 U.S.C. § 1342(p)(3)(B)(iii)) that establishes the level of pollutant reductions that an **Owner** or **Operator** of **Regulated MS4s** must achieve. The USEPA has intentionally not provided a precise definition of **MEP** to allow maximum flexibility in **MS4** permitting. The pollutant reductions that represent **MEP** may be different for each **small MS4**, given the unique local hydrologic and geologic concerns that may exist and the differing possible pollutant control strategies. Therefore, each **permittee** will determine appropriate **BMPs** to satisfy each of the six Minimum Control Measures (MCMs) through an evaluative process. The USEPA envisions application of the **MEP** standard as an iterative process.

19. **"Municipal separate storm sewer system"** or **"MS4"** means a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains:

    a. owned or operated by a state, city, town, county, district, association, or other public body, created by or pursuant to state law, having jurisdiction over disposal of sewage, industrial

wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control district, or drainage district or similar entity, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management **Agency** under section 208 of the federal Clean Water Act, United States Code, title 33, section 1288, that discharges into **waters of the state**

b. designed or used for collecting or conveying stormwater

c. that is not a combined sewer; and

d. that is not part of a publicly owned treatment works as defined in 40 CFR § 122.2

Municipal separate storm sewer systems do not include separate storm sewers in very discrete areas, such as individual buildings. (Minn. R. 7090.0080, subp. 8).

20. **"New development"** means all **construction activity** that is not defined as **redevelopment.**

21. **"New Permittee"** means an **Owner**/**Operator** of a **small MS4** that has not been authorized to discharge **stormwater** under a previously issued General **Stormwater** Permit for **small MS4**s in the state of Minnesota and that applies for, and obtains coverage under this permit.

22. **"Non-Stormwater Discharge"** means any discharge not composed entirely of **stormwater**.

23. **"Operator"** means the **person** with primary operational control and legal responsibility for the **municipal separate storm sewer system**. (Minn. R. 7090.0080, subp.10.)

24. **"Outfall"** means the point source where a **municipal separate storm sewer system** discharges to a **receiving water**, or the **stormwater** discharge permanently leaves the **permittee**'s **MS4**. It does not include diffuse runoff or conveyances that connect segments of the same stream or water systems (e.g., when a conveyance temporarily leaves an **MS4** at a road crossing).

25. **"Owner"** means the **person** that owns the **municipal separate storm sewer system**. (Minn. R. 7090.0080, subp.11.)

26. **"Permittee"** means a **person** or **person**s, that signs the permit application submitted to the **Agency** and is responsible for compliance with the terms and conditions of this permit.

27. **"Person"** means the state or any Agency or institution thereof, any municipality, governmental subdivision, public or private corporation, individual, partnership, or other entity, including, but not limited to, association, commission or any interstate body, and includes any officer or governing or managing body of any municipality, governmental subdivision, or public or private corporation, or other entity.(Minn. Stat. § 115.01, subd. 10.)

28. **"Pipe"** means a closed manmade conveyance device used to transport **stormwater** from location to location. The definition of **pipe** does not include foundation drain **pipe**s, irrigation **pipe**s, land drain tile **pipe**s, culverts, and road sub-grade drain **pipe**s.

29. **"Pollutant of Concern"** means a pollutant specifically identified in a USEPA-approved **TMDL** report as causing a water quality impairment.

30. **"Receiving Water"** means any lake, river, stream or **wetland** that receives **stormwater** discharges from an **MS4.**

31. **"Redevelopment"** means any **construction activity** where, prior to the start of construction, the areas to be disturbed have 15 percent or more of impervious surface(s).

32. **"Reduce"** means **reduce** to the **Maximum Extent Practicable** (**MEP**) unless otherwise defined in the context in which it is used.

33. **"Saturated Soil"** means the highest seasonal elevation in the soil that is in a reduced chemical state because of soil voids being filled with water. **Saturated soil** is evidenced by the presence of redoximorphic features or other information.

34. **"Significant Materials"** includes, but is not limited to: raw materials, fuels, materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); any chemical the facility is required to report pursuant to Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA); fertilizers, pesticides, and waste products such as ashes, slag, and sludge that have the potential to be released with **stormwater** discharges. When determining whether a material is significant, the physical and chemical characteristics of the material should be considered (e.g. the material's solubility, transportability, and toxicity characteristics) to determine the material's pollution potential. (40 CFR § 122.26(b)(12).

35. **"Small Municipal Separate Storm Sewer System"** or **"small MS4",** means all separate storm sewers that are:

    1. Owned or operated by the United States, a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, **stormwater**, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management Agency under section 208 of the CWA that discharges to waters of the United States.

    2. Not defined as "large" or "medium" **Municipal Separate Storm Sewer Systems** pursuant to 40 CFR § 122.26 paragraphs (b)(4) and (b)(7) or designated under paragraph (a)(1)(v).

    3. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

36. **"Stormwater"** means **stormwater** runoff, snow melt runoff, and surface runoff and drainage. (Minn. R. 7090.0080, subp.12.)

37. **"Stormwater flow direction"** means the direction of predominant flow within a **pipe**. Flow direction can be discerned if **pipe** elevations can be displayed on the storm sewer system map.

38. **"Stormwater Pollution Prevention Program"** or **"SWPPP"** means a comprehensive program developed by the **permittee** to manage and **reduce** the discharge of pollutants in **stormwater** to and from the **small MS4**.

39. **"Structural Stormwater BMP"** means a stationary and permanent **BMP** that is designed, constructed and operated to prevent or **reduce** the discharge of pollutants in **stormwater.**

40. **"Total Maximum Daily Load"** or **"TMDL"** means the sum of the individual **Waste Load Allocations** for point sources and load allocations for nonpoint sources and natural background, as more fully defined in 40 CFR § 130.2, paragraph (i). A **TMDL** sets and allocates the maximum amount of a pollutant that may be introduced into a **water of the state** and still assure attainment and maintenance of **water quality standards**. (Minn. R. 7052.0010 subp. 42)

41. **"Waste Load Allocation"** or **"WLA"** means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution, as more fully defined in Code of Federal Regulations, title 40, section 130.2, paragraph (h). In the absence of a **TMDL** approved by USEPA under 40 CFR § 130.7, or an assessment and remediation plan developed and approved according to Minn. R. 7052.0200, subp. 1.C, a **WLA** is the allocation for an individual point source that ensures that the level of water quality to be achieved by the point source is derived from and complies with all applicable **water quality standards** and criteria. (Minn. R. 7052.0010 subp. 45)

42. **"Water pollution"** means (a) the discharge of any pollutant into any waters of the state or the contamination of any waters of the state so as to create a nuisance or render such waters unclean, or noxious, or impure so as to be actually or potentially harmful or detrimental or injurious to public health, safety or welfare, to domestic, agricultural, commercial, industrial, recreational or other legitimate uses, or to livestock, animals, birds, fish or other aquatic life; or (b) the alteration made or induced by human activity of the chemical, physical, biological, or radiological integrity of waters of the state. (Minn. Stat. § 115.01, subd. 13)

43. **"Water Quality Standards"** means those provisions contained in Minn. R. 7050 and 7052.

44. **"Waters of the State"** means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof. (Minn. Stat. § 115.01, subd. 22.)

45. **"Wetlands"** are those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. **Wetlands** generally include swamps, marshes, bogs, and similar areas. Constructed **wetlands** designed for wastewater treatment are not **waters of the state**. **Wetlands** must have the following attributes:

    1. A predominance of hydric soils

    2. Inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in a saturated soil condition and

3. Under normal circumstances support a prevalence of such vegetation. (Minn. R. 7050.0186, subp. 1a.B.)

ABBREVIATIONS AND ACRONYMS

- BMP - Best Management Practice
- CFR – Code of Federal Regulations
- CWA – Clean Water Act or the Federal Water Pollution Control Act, 33 U.S.C. §1251 *et seq)*
- DNR – Department of Natural Resources
- DWSMA – Drinking Water Supply Management Area
- ERPs– Enforcement Response Procedures
- IDDE - Illicit Discharge Detection and Elimination
- MCM – Minimum Control Measure
- MDH – Minnesota Department of Health
- MEP – Maximum Extent Practicable
- MS4 - Municipal Separate Storm Sewer System
- NPDES - National Pollutant Discharge Elimination System
- ORVW - Outstanding Resource Value Water
- SDS – State Disposal System
- TMDL - Total Maximum Daily Load
- TP – Total Phosphorus
- TSS - Total Suspended Solids
- USEPA - United States Environmental Protection Agency
- WLA – Waste Load Allocation

APPENDIX

Appendix F – City of West St. Paul MS4 SWPPP Application for Reauthorization

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

MS4 SWPPP Application for Reauthorization

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

Stormwater Pollution Prevention Program (SWPPP) Document

Doc Type: Permit Application

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

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

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

General Contact Information (*Required fields)

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

*MS4 permittee name: City of West Saint Paul *County: Dakota
(city, county, municipality, government agency or other entity)

*Mailing address: 1616 Humboldt Avenue

*City: West Saint Paul *State: MN *Zip code: 55118

*Phone (including area code): (651) 552-4102 *E-mail: shatfield@cityofwsp.org

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

*Last name: Saam *First name: Matt
(department head, MS4 coordinator, consultant, etc.)

*Title: City Engineer

*Mailing address: 1616 Humboldt Avenue

*City: West Saint Paul *State: MN *Zip code: 55118

*Phone (including area code): (651) 552-4130 *E-mail: msaam@cityofwsp.org

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

Last name: Knoff First name: Mark
(department head, MS4 coordinator, consultant, etc.)

Title: Consultant

Mailing address: Foth Infrastructure & Environment, LLC, Eagle Point II, 8550 Hudson Boulevard North, Suite 100

City: Lake Elmo State: MN Zip code: 55042

Phone (including area code): (651)288-8563 E-mail: mark.knoff@foth.com

Verification

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

Certification (All fields are required)

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

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

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

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

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

Name: Matt Fulton
(This document has been electronically signed)

Title: City Manager Date (mm/dd/yyyy): 12/02/2013

Mailing address: 1616 Humboldt Avenue

City: West Saint Paul State: MN Zip code: 55118

Phone (including area code): 651-552-4101 E-mail: MFulton@cityofwsp.org

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

Stormwater Pollution Prevention Program Document

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

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

☐ No partnerships with regulated small MS4s

Name and description of partnership	MCM/Other permit requirements involved
Dakota County, mapping support	MCM 3

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

There are no other formal partnerships for the purposes of meeting MCM or other permit requirements. The City plans to utilize strategic partnerships as they become available to enhance their storm water pollution prevention program. The City also has a partnership with Dakota County to assess the health of the wetlands in the community. This information can be used in the analysis of the effectiveness of our stormwater program, but is not a formal part of the program.

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

Illicit discharges

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

1. If **yes:**

   a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):
   ☒ Ordinance ☐ Contract language
   ☐ Policy/Standards ☐ Permits
   ☐ Rules
   ☐ Other, explain: _____

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

   Citation:

   West Saint Paul City Code Section 700.25, Storm Water Illicit Discharge and Illicit Connection

   West Saint Paul City Code Section 120, Administrative Citations

   Direct link:

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

2. If **no:**

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

   The City, with the assistance of a consultant, will review and update our IDDE regulatory mechanism to meet the new requirements of the MS4 general permit. This effort will be completed within 12 months of the date permit

coverage is extended. For all ordinance updates, a draft will be completed within nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance.

Construction site stormwater runoff control

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

1. If **yes:**

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

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

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

Citation:

West Saint Paul Zoning Ordinance Section 40, STORMWATER MANAGEMENT, specifically:

West Saint Paul Zoning Ordinance Section 40.1, POLICY

West Saint Paul Zoning Ordinance Section 40.2 DEFINITIONS

West Saint Paul Zoning Ordinance Section 40.3(1) GENERAL POLICY ON STORMWATER RUNOFF RATES

West Saint Paul Zoning Ordinance Section 40.3(2) THE STORMWATER POLLUTION CONTROL PLAN AND GRADING PLAN

West Saint Paul Zoning Ordinance Section 40(3) INSPECTIONS OF THE SOTRMWATER POLLUTION CONTROL PLAN MEASURES

West Saint Paul Zoning Ordinance Section 40(4), MINIMUM REQUIREMENTS OF THE STORMWATER POLLUTION CONTROL PLAN

West Saint Paul Zoning Ordinance Section 40(5), GENERAL STORMWATER POLLUTION CONTROL PLAN CRITERIA

West Saint Paul Zoning Ordinance Section 40(6), MINIMUM STORMWATER POLLUTION CONTROL PLAN MEASURES AND RELATED INSPECTIONS

West Saint Paul Zoning Ordinance Section 40(10), MODELS/METHODOLOGIES/COMPUTATIONS

West Saint Paul Zoning Ordinance Section 40.4 REVIEW

West Saint Paul Zoning Ordinance Section 40.5 MODIFICATION OF PLAN

West Saint Paul Zoning Ordinance Section 40.6 FINANCIAL SECURITIES

West Saint Paul Zoning Ordinance Section 40.7 NOTIFICATION OF FAILURE OF THE STORMWATER POLLUTION CONTROL PLAN

West Saint Paul Zoning Ordinance Section 40.8 EXCEPTIONS

West Saint Paul Zoning Ordinance Section 40.9 ENFORCEMENT AND PENALTIES

West Saint Paul Zoning Ordinance Section 40.10 RIGHT OF ENTRY AND INSPECTION

West Saint Paul Zoning Ordinance Section 40.11 ABROGATION AND GREATER RESTRICTIONS

Direct link:

http://www.cityofwsp.org/vertical/Sites/%7B2CF6FEAE-EDC4-4E50-A078-817B219E41B8%7D/uploads/Letterhead_2012_Flow_chart_Planning.pdf

http://www.cityofwsp.org/vertical/Sites/%7B2CF6FEAE-EDC4-4E50-A078-817B219E41B8%7D/uploads/Letterhead_2012_Flow_chart_Building.pdf

http://www.cityofwsp.org/vertical/Sites/%7B2CF6FEAE-EDC4-4E50-A078-817B219E41B8%7D/uploads/Letterhead_2012_Commercial_building_permit_submittal_requirements.pdf

http://www.cityofwsp.org/vertical/Sites/%7B2CF6FEAE-EDC4-4E50-A078-817B219E41B8%7D/uploads/Combined_Building_Permit_2013-Building_Plumbing_Signs_12-19-12.pdf

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

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

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

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

We will update our construction site stormwater runoff control regulatory mechanism to be at least as stringent as the MPCA NPDES Stormwater Construction Activity Permit. The City has hired a consultant to recommend language that will comply with the new MS4 permit. This effort will be completed within 12 months of the date permit coverage is extended. For all ordinance updates, a draft will be completed within nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance.

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

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

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

All areas listed above, except C4 (Records) and C6 are addressed in West Saint Paul Zoning Ordinance Section 40.3(4)-(7) & (10). Areas C4 and C6 will be incorporated into a revised ordinance and areas C1-C3, C5 and C6-8 will amended to meet the new permit requirements. The City has hired a consultant to recommend language that will comply with the new MS4 permit. The ordiance amendment will be completed within 12 months of the date permit coverage is extended. Items C1 through C8 will be incorporated into a site plan checklist within 12 months of the date permit coverage is extended. For all ordinance updates, a draft will be completed within nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance.

Post-construction stormwater management

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

1. If **yes:**

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

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

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

Citation:

West Saint Paul Zoning Ordinance Section 40 STORMWATER MANAGEMENT, specifically

West Saint Paul Zoning Ordinance Section 40.2 DEFINITIONS

West Saint Paul Zoning Ordinance Section 40.3(1) GENERAL POLICY ON STORMWATER RUNOFF RATES

West Saint Paul Zoning Ordinance Section 40(5), GENERAL STORMWATER POLLUTION CONTROL PLAN

CRITERIA

West Saint Paul Zoning Ordinance Section 40(6)a, MINIMUM STORMWATER POLLUTION CONTROL PLAN MEASURES AND RELATED INSPECTIONS

West Saint Paul Zoning Ordinance 40.3(7) PERMANENT STORM WATER POLLUTION CONTROLS

West Saint Paul Zoning Ordinance 40.3(8) MINIMUM DESIGN STANDARDS FOR STORMWATER WET DETENTION FACILITIES

West Saint Paul Zoning Ordinance Section 40.3(9) MINIMUM PROTECTION FOR NATURAL WETLANDS

West Saint Paul Zoning Ordinance Section 40(10), MODELS/METHODOLOGIES/COMPUTATIONS

Direct link:

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

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

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

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

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

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

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

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

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

   a. Limitations

      1) Prohibit the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) when the infiltration structural stormwater BMP will receive discharges from, or be constructed in areas: ☐ Yes ☒ No
         a) Where industrial facilities are not authorized to infiltrate industrial stormwater under an NPDES/SDS Industrial Stormwater Permit issued by the MPCA.
         b) Where vehicle fueling and maintenance occur.
         c) With less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
         d) Where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating stormwater.

      2) Restrict the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), without higher engineering review, sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater, when the infiltration device will be constructed in areas: ☐ Yes ☒ No
         a) With predominately Hydrologic Soil Group D (clay) soils.
         b) Within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features.
         c) Within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13.
         d) Where soil infiltration rates are more than 8.3 inches per hour.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B2-5: Amend the current post-construction ordinance, which only has some minor guidance related to green infrastructure techniques and practices (B2) and right to inspect (B5c); and does not cover the other tasks in B3 through B5. A majority of the development in the City is redevelopment. The City has hired a consultant to suggest amendments to the current ordinance that will meet the new requirements of the MS4 general permit. The consultant will be working with the city engineer and other city departments to coordinate the changes. The ordinance will be amended within 12 months of the date permit coverage is extended. For all ordinance updates, a draft will be completed within nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance. Applicable items will be addressed in a site planning checklist that the City will develop in conjunction with the ordinance.

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

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

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

   Some enforcement response procedures are already covered in several ordinances to include City Code Section 120 subd. 4.a., Zoning Ordinance 40.7(4) and 40.9(1). The City has hired a consultant to develop a written procedure that will satisfy these requirements. We have already met to discuss the requirements as part of updating the City's stormwater program to meet the new MS4 permit requirements. Any ordinance amendments and ERP's will be developed and implemented within 12 months of the date permit coverage is extended. For all ordinance updates, a draft will be completed nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance.

B. Describe your ERPs:

We do not currently have formalized ERPs, see above implementation plan. See below for our current working draft:

Examples of categories of violations the city may consider including in their plan:

- *Failure to apply for permit coverage*
- *Failure to prepare a Storm Water Pollution Prevention Plan (SWPPP)*
- *Inadequate SWPPP*
- *Failure to implement Best Management Practices (BMPs)*
- *Failure to maintain BMPs*
- *Failure to conduct or document inspections*
- *Non-stormwater discharge to the storm sewer system*

Examples of factors the City may consider in the selection of enforcement response:

- *Whether there is an isolated or infrequent violation*
- *Frequent or repeat violations*
- *Other types of noncompliance involved*
- *Degree of impact to the environment*

Examples of Enforcement Responses the City may consider including in their plan:

- *Notice of Violation (NOV) - A written document issued by Regulator (us) to a permittee or other regulatee informing them of the party's violation(s) of the applicable permit, statute or regulation*
- *Expedited Settlement Offer (ESO) - A consent agreement and final penalty order issued by us, in specified circumstances, where violations of the applicable permit, statute or regulation may be resolved quickly through an expedited process in which the violator:*
  - *corrects identified deficiencies*
  - *signs an agreement with us certifying that deficiencies have been corrected*
  - *pays a penalty*
- *Administrative Order (AO) - A written document issued by us which contains findings of fact and which directs a permittee or other regulatee to achieve compliance with the applicable permit, statute or regulation*
- *Administrative Penalty Order (APO) - An order entered by us assessing penalties against a permittee or other regulatee for violating the applicable permit, statute or regulation*
- *A Civil Action - A judicial action that typically seeks both penalties and injunctive relief for violating the applicable permit, statute or regulation*

The are several codified enforcement responses that the City already utilizes, to include: stop work orders, not issuing certificates of occupancy until the deficiency is corrected, requiring financial security for storm water compliance prior to beginning the project and criminal judicial action as circumstances dictate.

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

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

The City works with Dakota County to prepare the system map and asset inventory using GIS. The City passes the collected data to the Dakota County GIS technician for inclusion in the City's map layers and data attributes.

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

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

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

The map must be reviewed and updated to ensure that all structural BMPs have been identified and that each has a unique identifier and geographic coordinates. The City will work with Dakota County to create a list of unique identifiers and geographic coordinates for each outfall within the MS4. The City has hired a consultant to use the data to complete the required inventory.

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

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

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

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

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

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

The City will work with Dakota County and the information will be gathered from the GIS system and unique identifiers assigned so that the inventory form can be completed by the City's consultant within 12 months of the date permit coverage is extended.

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

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

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

A. MCM1: Public education and outreach

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

The City uses an array of public education efforts to address stormwater issues across a broad spectrum of citizens. Current methodologies include using the City's newsletter and brochures to reach large numbers of citizens. Educational

topics vary each year based upon needs identified by staff. The City also has a website. The City's SWPPP and SWMP are available on the website. The site also addresses development and has links to documents that outline the submittal requirements and permit applications. Friends of the Mississippi were used to develop a catch basin stenciling program. Stenciling materials and support are provided to groups interested in participating in the program. The City has also worked with Dakota County to educate residents on the benefits of rain gardens.

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

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

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

Established BMP categories	Measurable goals and timeframes
Newsletter	Published four times per year, publish 3 articles per year related to storm water, available electronically and distributed via mail each quarter. Retain copies of the published articles.
Website	Measure number of hits. Update website to account for changes due to the new permit requirements in Year 2. Review the website annually.
Brochures	Brochures are distributed annually to all households in the utility bill. Brochures are available at city hall. Appropriate permit applicants are provided brochures with information on the permit application, construction site runoff control policies and post-construction runoff control. Update annually as new information becomes available.
Storm Drain Stenciling	Stencil at least 30 drains per year.

BMP categories to be implemented	Measurable goals and timeframes

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

   City Engineer

B. MCM2: Public participation and involvement

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

   The City conducts an annual meeting after a 30-day public notice period. The SWPPP document is posted on-line on the City's website year-round. Staff receives comments during the 30-day notice period and during the meeting. All comments are reviewed by staff and a formal response is prepared for the record. The SWPPP document is amended as deemed by the council. Records documenting the process are kept. The annual meeting is televised and replayed on CCTV for a period of about 12 months.

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

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

Established BMP categories	Measurable goals and timeframes
Annual Storm Water Meeting	Hold an annual meeting and have access to annual meeting on CCTV and online.
Appropriate public notice	Publish meeting notice 30 days prior to the meeting in the local paper (Southwest Review) and City's website.
Availability of Storm Water Pollution Prevention Program Document	Provide a copy of the SWPPP on the City's website, library and city hall for viewing at any point in the year.

Public Comment	Written and oral comments will be accepted during the 30-day notice period and at the annual meeting. The City will review and formally respond to all comments and amend the SWPPP document as appropriate.

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

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

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

   The City will develop documentation procedures that are in compliance with the new permit within twelve months of the date that permit coverage is extended. A draft copy of recommended procedures will be completed within six months of the date permit coverage is extended. City staff will review the procedures and make suggested changes to the city engineer during months six through nine. The city engineer will incorporate the changes into the procedures during the last three month period.

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

   City Engineer

C. MCM 3: Illicit discharge detection and elimination

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

   Educational material that specifically addresses illicit discharge is published in the City's newsletter and on the City's website. Currently, the city has a CONTACT US button available on the Homepage of the website that residents can use to forward any issues that they would like staff to address. The City also has an email, Hotline and point of contact that can be used by citizens to report any type of code violation, including illicit discharge, on the Code Enforcement page of the website.

   The City has all existing stormwater pipe, as well as ponds, lakes and streams within the MS4 mapped. The map is updated annually to include any new or redevelopment projects.

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

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

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

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

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

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

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

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

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

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

   C.2.a. The City currently has an illicit discharge ordinance, however the ordinance does not meet the new MS4 NPDES permit requirements. Any ordinance amendments and IDDE procedures will be developed and implemented within 12

months of the date permit coverage is extended. For all ordinance updates, a draft will be completed within nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance. The City has hired a consultant to help develop language that complies with the new MS4 permit.

C.2.b, d-g. The City is will develop an IDDE program that addresses each of these particular items to include identifying and tracking illicit discharges, identifying priority areas, eliminating illicit discharges, spill response procedures and updating the training program for the approriate City personnel. Staff will begin outlining program needs in January 2014. Program needs will be identified within three months after permit coverage is extended. Over the next nine months, staff will work on developing and implementing the IDDE program. The program, including any supporting documentation for training, detection, identification, responding and eliminating illicit discharges and spill response procedures will be completed within the 12 month time period.

C.2.h The City is working with a consultant to develop ERPs to comply with the new MS4 permit. The consultant will prepare ERPs for MCMs 3, 4 & 5. A final draft will be presented to the City staff for review within nine months of the date permit coverage is extended.

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

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

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

Established BMP categories	**Measurable goals and timeframes**
Ordinance	Review the illicit discharge and public nuisance ordinances every general permit renewal to ensure that it continues to comply with the MS4 NPDES/SDS General Storm Water Permit. Update ordinance within 12 months permit coverage is extended.
Illicit Discharge Hotline	Hotline number is posted on the City's website and in the newsletter.
Spill Response and Reduction Program	Review the spill reduction and response plan annually in coordination with the City fire department and county.
Training	Train all new field employees in Parks Recreation and Public works, Community Development, Fire and Police for spotting and handling illicit discharges. Renew training every year.
Inspections	Inspect and document dry weather flow of 20% of all outlets on an annual basis.
Sanitary Sewer Overflow Program	Clean one-fourth (1/4th) of sanitary sewer on an annual basis.
Structural BMPs	Number of ESC activities required during any construction activity. Number of additional BMPs required.

BMP categories to be implemented	**Measurable goals and timeframes**
Inspections	Quarterly inspections of high-priority outfalls, and around high-risk establishments (fast food restaurants, dumpsters, car washes, mechanics, oil changes).

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

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

   The City Engineer's staff will work with the City's administrative staff, including IT, to develop an IDDE reporting form and electronic method for filing and storing IDDE records. Within three months after permit extension, staff will meet to discuss the most effective procedure to maintain the records. During the next six months staff will work concurrently on the forms and electronic storage solution. The record-keeping procedures will be tested and implemented during the next three month period to meet the 12 month deadline.

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

   City Engineer

D. MCM 4: Construction site stormwater runoff control

1. The Permit (Part III.D.4) requires that, within 12 months of the date permit coverage is extended, existing permittees shall

revise their current program, as necessary, and continue to implement and enforce a construction site stormwater runoff control program. Describe your current program:

Most construction in West Saint Paul is redevelopment. The City has developed a flow chart that outlines the process that developers and contractors need to follow for site plan review. The process is broken down into two parts: prior to the construction process and after development/planning process. A guideline is also available that indicates the permit submittal requirements for the project. All of this information is available on the City's website.

The City has a CONTACT US button available on the Homepage of the website that residents can use to forward any issues that they would like staff to address. The City also has an email, Hotline and point of contact that can be used by citizens to report any type of code violation, including construction site issues, on the Code Enforcement page of the website.

For construction, the City has established a list of six minimum BMPs for construction activity. The list is provided to developers and contractors. The City has implemented an inspection program for construction site activity and continues to evaluate its effectiveness.

2. Does your program address the following BMPs for construction stormwater erosion and sediment control as required in the Permit (Part III.D.4.b.):
   a. Have you established written procedures for site plan reviews that you conduct prior to the start of construction activity? ☒ Yes ☐ No
   b. Does the site plan review procedure include notification to owners and operators proposing construction activity that they need to apply for and obtain coverage under the MPCA's general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001*? ☒ Yes ☐ No
   c. Does your program include written procedures for receipt and consideration of reports of noncompliance or other stormwater related information on construction activity submitted by the public to the permittee? ☒ Yes ☐ No
   d. Have you included written procedures for the following aspects of site inspections to determine compliance with your regulatory mechanism(s):
      1) Does your program include procedures for identifying priority sites for inspection? ☐ Yes ☒ No
      2) Does your program identify a frequency at which you will conduct construction site inspections? ☐ Yes ☒ No
      3) Does your program identify the names of individual(s) or position titles of those responsible for conducting construction site inspections? ☐ Yes ☒ No
      4) Does your program include a checklist or other written means to document construction site inspections when determining compliance? ☐ Yes ☒ No
   e. Does your program document and retain construction project name, location, total acreage to be disturbed, and owner/operator information? ☒ Yes ☐ No
   f. Does your program document stormwater-related comments and/or supporting information used to determine project approval or denial? ☒ Yes ☐ No
   g. Does your program retain construction site inspection checklists or other written materials used to document site inspections? ☐ Yes ☒ No

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

   2.d. The City will develop a construction site inspection program that meets the requirements of the new MS4 general permit. The Standard Operating Procedure will include items 2.d.(1), (2) & (3). A site inspection checklist will be developed during the process to meet the requirement of 2.d.(4).

   2.g. In conjunction with item 4 in the IDDE section, staff will develop records retention procedures using the same timeline.

   Staff will use the general timetable previously described in other MCMs. Staff will identify all permit requirements and steps needed to meet the requirements within three months after permit coverage is extended. Staff will use the next nine months to prepare and implement all required changes to the program to meet the new permit requirements. Engineering and Community Development staff will work together on the construction activity portion of the permit.

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

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

Established BMP categories	Measurable goals and timeframes
Structural BMPs	Annually review and publish a list of minimally required erosion

	and sediment control BMPs for construction activities.
Permit Application System	Process all applications within 2 weeks of receipt. Number of permits processed/approved.
Site Plan Review	Update procedures for site plan review on a biennial basis and incorporate into the checklist created in BMP categories to be implemented.
Owner Inspections	Conduct weekly inspections after every storm event that is large enough to result in runoff from the site by either the developer or the developer's designated representative.
Customer Complaint Hotline	This is the City's Code Enforcement Hotline and is posted on the City's website and annual in the City newsletter. Document/track complaints.
Training	Train all new field employees in Parks Recreation and Public Works, Community Development in new construction and land disturbance and storm water system management. Renew training every year for all other identified field employees.

BMP categories to be implemented	**Measurable goals and timeframes**
Inspections	Conduct inspections at all permitted sites annually. Inspections occur every month during the growing season.
Education	Develop a fact sheet to accompany training and permit application to assist contractors with understanding permit regulations. Make available on the website and give it to contractors when they apply for a permit. Number of hits. Number of fact sheets given to contractors.
Ordinance/Permit Update	Update our city permit and ordinance to meet MPCA General Permit to Discharge Storm Water Associated with Construction Activity.
Checklist for Site Plan Review	Update procedures for site plan review to meet new storm water permit requirements and incorporate into a checklist.
Prioritize Inspections	Ensure at least 20% of inspections conducted annually are performed at deemed high priority inspection sites (e.g., near sensitive receiving waters, projects larger than 5 acres)

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

   City Engineer

E. MCM 5: Post-construction stormwater management

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

   Zoning Ordinance, Section 40 outlines current post-construction requirements for developers and contrators and it outlines post-construction permanent storm water controls, minimum design standards for water wet detention facilities and minimum protection for wetlands. It also outlines required inspection periods for post-construction activities.

   Post-construction stormwater management is also covered in the City's site review process. The City has developed a flow chart that outlines the process that developers and contractors need to follow for site plan review. The process is broken down into two parts: prior to the construction process and after development/planning process. A guideline is also available that indicates the permit submittal requirements for the project. All of this information is available on the City's website.

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

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

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

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

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

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

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

The City Engineer's staff will work with the City's administrative staff, including Planning, Finance and IT, to develop a process and procedure to comply with the new permit requiremetns for post construction. During the first six months after permit coverage, staff will meet to develop a process and procedures for implementation. Staff will use that information to develop a process diagram, update the site plan checklist and write a standard operating procedure. It is expected to take six months to complete the second phase.

3.a. The City will update their site plan checklist. It will contain the information and will be filed with the permit application. The current zoning ordinace requires that all computations appear in the plans submitted for review.

3.b. The City will develop a process and written procedure to document any post-construction mitigation.

3.c. The City will develop a process and written procedure to document payments in lieu of on-site, post-construction, structural BMPs necessary for permit compliance.

3.d. The City will create draft language that will be included in all development contracts that have private stormwater structures. The City will use a consultant to modify its ordinance to include the requirements.

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

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

Established BMP categories	**Measurable goals and timeframes**
Site Plan Review	Update procedures for site plan review on a biennial basis and incorporate into the checklist created in BMP categories to be implemented.
Ordinance	Outline permanent storm water pollution controls, minimum design standards for detention facilities and minimum protection for wetland control and review during site plan review. Review and update when new general storm water permit is issued.
Municipal Water Resources Management Plan	Review and update when new general storm water permit is issued.
Inspections	Annual inspections of at least 20% of completed city-owned outlets, ponds and basins. Annual inspections of pollution control devices (other BMPs).
Training	Train all new field employees in Parks Recreation and Public works, Community Development in storm water system management. Renew training every year.

BMP categories to be implemented	**Measurable goals and timeframes**
Update ordinance to meet new permit requirements	Within 12 months of extension of permit coverage, revise ordinance to meet permit requirements.
Develop written procedures for site plan review	Within 12 months of extension of permit coverage, develop site plan review procedures that must be completed prior to the start of construction activity.
Document pertinent project information	Maintain all related documents pertaining to each new or redevelopment project in more user-friendly filing system for better records management. Implement within 12 months.
BMP Construction Guidance	Develop BMP Construction Guidance document for developers and contractors within 12 months of permit coverage extension.

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

   City Engineer

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

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

   The City conducts inspections and maintenance of its stormwater system (outfalls, ponds, basins and control devices) on a regular basis. Maintenance activities are implemented within one year after discovery or to the MEP. The City's training program covers such activities as: parks and open space maintenance; fleet and building maintenance; new construction and land disturbances; and stormwater systems maintenance. Streets are swept twice each year, once in the spring and once in the fall to reduce the potential for large amounts of debris entering the sotrmwater system. For winter operations, staff evaluates their salt/sand operations annually and evaluates new deicing products as they become available.

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

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

   The Engineering Department will identify a staff member to direct and coordinate the inventory after permit coverage is extended. During the summer of 2014, the City will work with summer seasonal employee(s) to identify and create an inventory of City facilities that have the potential to contribute pollutants to stormwater discharges. The list of potential sites will be completed by October 2014 and subsequently reviewed by the project coordinator. After review, the inventory will be given to Dakota County to be added to the City's GIS database and map. The inventory and map will be completed within 12 months of the date permit coverage is extended.

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

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

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

Established BMP categories	**Measurable goals and timeframes**
Training	Train all new field employees in Parks Recreation and Public works proper deicing operations, fertilizer and herbicide control, equipment maintenance and stock pile storage and handling. Renew training annually.
Street Sweeping	Sweep city streets at least twice per year.
Inspect City Stockpile Maintenance	Conduct annual inspections and identify improvements. Increase frequency to quarterly in 2015.
Record Keeping	Maintain all records three years beyond the term of the permit.
Pond Inspections	Number of inspections, inspection results and recommended actions. Inspect ponds biennially unless increased maintenance requirements dictate otherwise.

BMP categories to be implemented	**Measurable goals and timeframes**
Facility Inventory	Develop facility inventory within 12 months permit coverage is extended for City-owned properties and buildings. Consider other city-owned facilities to inventory in Year 2.
Pond Assessment Procedures & Schedule	In Year 1, develop procedures for determining TSS and TP treatment effectiveness of city-owned ponds used for treatment of storm water. Implement schedule in Years 2 – 5.
Develop Maintenance Yard Inspection Program	Utilize a checklist quarterly for the inspection that documents findings and allows staff to compare to previous inspections.
Update Spill Prevention & Control Plans for Municipal Facilities	Update plans describing spill prevention and control procedures by the end of Year 2. Conduct annual spill prevention and response training sessions for all municipal employees. Distribute educational materials, e.g., posters and pamphlets, to each municipal facility by the end of Year 3. Include in initial employee training. Report the number of employees and new employees trained.
Storm Water Inspection Program	Create an inspection plan and timetable in Year 1. Complete all inspections in accordance with the plan by the expiration of the

permit.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

   F.6. The City is currently examining methods for assessing ponds to determine TSS and TP effectiveness, as we mentioned in our BMP table. This study will develop procedures for determining TSS and TP treatment effectiveness of city-owned ponds used for treatment of stormwater. A schedule will be implemented in year 2 – 5.

   F.7. The City currently meets the pond temporal inspection requirements. An inspection plan and time table that meets the requirements of Part III.D.6.e (1)-(3) will be developed in year one and implemented in year two of the permit. All ponds, outfalls and BMP structures will be inspected by the expiration date of the permit.

   F.8. Staff will work with HR to schedule initial stormwater training for all new employees and seasonal employees where appropriate. Program will be implemented within 12 months after permit coverage is extended.

   F.9. The City has a documentation system for inspections, maintenance and training. However, the current system does not meet all of the requirements of the new permit. The system will be updated within the 12 months after permit coverage is extended to incorporate the new requirements.

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

    City Engineer

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

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

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

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

naming convention**:** *MS4NameHere_TMDL.*

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

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

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

1. If **no**, this section requires no further information.
2. If **yes**, you own and/or operate an Alum or Ferric Chloride Phosphorus Treatment System within your small MS4, then you must submit the Alum or Ferric Chloride Phosphorus Treatment Systems Form supplement to this document, with the following naming convention: *MS4NameHere_TreatmentSystem*.
   This form is found on the MPCA MS4 website: http://www.pca.state.mn.us/ms4.

VIII. Add any Additional Comments to Describe Your Program