

Saint Anthony Village

2040 COMPREHENSIVE PLAN

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Chapter 1: Introduction

CHAPTER 1: INTRODUCTION

WHAT IS A COMPREHENSIVE PLAN?

This is an update of the comprehensive plan adopted by the City of St. Anthony Village in 2008. The current comprehensive plan was preceded by a plan adopted in 1998, and prior to that a plan in 1979. St. Anthony is a desirable place to live, work and play in part because of a strong history of planning. Long-range planning has provided certainty and direction to homeowners and investors and helped the City make cost-effective investments in streets, parks and utilities.

The purpose of a comprehensive plan is to cast a vision and to establish policy direction for those elements over which the City has jurisdiction. These primarily include the pattern of land development and public facilities such as streets, utilities and parks. Land development is regulated through the City's zoning ordinance and map, which is prepared or amended with guidance from the comprehensive land use plan map and policies. The City's role in the land development process is to administer the regulations of the zoning ordinance and to consider public comments on those aspects that are discretionary, such as amendments to the zoning ordinance or map. The City also installs or oversees the private construction of streets and utilities that serve land development.

ST. ANTHONY WITHIN THE REGIONAL THRIVE MSP 2040 FRAMEWORK

St. Anthony is situated within the greater seven-county metropolitan area, which is served by the Metropolitan Council, the regional policy-making body, planning agency, and provider of essential services for the Twin Cities metropolitan region. The Council's mission is to foster efficient and economic growth for a prosperous region. As granted by statutory authority, the Metropolitan Council reviews and requires updates to comprehensive plans every ten years. This round of comprehensive planning is due to the Metropolitan Council for completion by December of 2018.

The Metropolitan Council adopts a regional policy framework to guide local planning decisions. In 2014, the Metropolitan Council adopted a new regional development guide entitled *Thrive MSP 2040* that serves as a guide for long-range planning in the region. *Thrive* outlines goals and policies as they relate to land use and community designations as well as laying the policy foundation for water systems, transportation, housing, and regional parks planning.

Thrive MSP 2040 provides some insights into regional trends which should affect local comprehensive planning efforts.

1. In total, the region is expected to gain just over 800,000 people by the year 2040.
2. The population of the region is aging, and the share of elderly people will continue to grow in the decades to come.
3. The population of the region is also growing more racially and ethnically diverse. By 2040, 40 percent of the region's population will be people of color.

Thrive MSP also indicates some of the region's most prominent challenges. There are significant income and educational disparities that persist along racial lines that will threaten the economic and social well-being of the region if allowed to continue unchecked. The region must also contend with rapidly aging infrastructure, reduced groundwater supply and other area-wide challenges with wide-ranging impacts.

Every community in the region received a System Statement in 2015 derived from *Thrive MSP 2040* policy. The System Statement provides specific planning direction for each community as well as decadal community forecasts which are subject to review and reasonable amendment by each individual community. The 2015 System Statement guidance for St. Anthony, as well as amended community forecasts, are reflected throughout this comprehensive plan update through cross-chapter compatibility and consistent planning guidance that is appropriately scaled to the agreed-upon forecasts for the upcoming decades.

Thrive MSP 2040 Outcomes

In *Thrive MSP 2040*, the Metropolitan Council provides five regional outcomes of planning that can serve as the lenses through which St. Anthony can view its planning process. *Thrive MSP 2040* promotes building on the region's history of effective **stewardship** of resources, and envisions a **prosperous**, **equitable**, and **livable** region that is **sustainable** for today and generations to come. This vision for the region will be reflected in St. Anthony's comprehensive plan goals and policies which are embedded into each chapter of this plan document. These regional outcomes are also echoed in St. Anthony's city mission, vision and goals which will be introduced in the next chapter.



Chapter 2: Community Vision and Goals

CHAPTER 2: COMMUNITY VISION AND GOALS

DEVELOPMENT OF MISSION, VISION AND GOALS

Saint Anthony Village has a history of sound decision-making rooted in annual strategic planning. A necessity to the effective implementation of any Comprehensive Plan, a strategic plan provides the critical adjustments needed for successful realization of the long-term goals and policies. Therefore, this document will restate and reflect the city's mission, vision, and goals. Nothing in the development of the Comprehensive Plan should conflict with these overarching policy statements.

In particular, St. Anthony has a strong sense of community and a desire for inclusiveness is rooted in its mission statement. Inclusiveness and providing meaningful opportunities for community engagement in a civil, informative and responsive manner is a top goal in the development of this plan.

Ideas of stewardship, prosperity, livability, and sustainability have been fundamental to St. Anthony's comprehensive planning efforts for many years. By contrast, equity has not traditionally been an explicit part of those previous comprehensive plans. The goal of using equity as a lens is not to just improve the outcomes for marginalized individuals and communities. The goal is to increase the success for all groups. An equity lens will help St. Anthony develop goals and strategies that may be targeted based on the needs of particular groups, but the outcomes will result in improvements for all groups.

VOICES FROM THE COMMUNITY: PUBLIC ENGAGEMENT

A comprehensive planning process is enhanced and strengthened by input from residents, business owners, interest groups and advisory committees. St. Anthony's 2040 comprehensive planning process was structured to allow for robust community engagement during early phases of the project, to guide the visioning process and aid in developing plan goals; then again during the draft plan stage. The engagement strategy specifically pursued participation from subsets of the community who typically do not or cannot attend traditional public meetings. Target engagement populations included seniors and longtime St. Anthony residents, parents with young children, high school students and citizen sustainability advocates. An online engagement forum was established to provide a 24/7 input opportunity. The forum was used to post updates about the planning process and ask directed questions from the public.

2040 Comp Plan Public Engagement Efforts

Comprehensive Plan Steering Committee

The 2040 Plan Steering Committee membership comprised sitting Planning Commissioners and two City Councilmembers. The role of the Steering Committee was to provide feedback and guidance on plan goals, direction and content throughout the planning process. The Committee was asked to think critically about the issues facing the City of St. Anthony and suggest appropriate planning measures to address these issues in the context of the Comprehensive Plan. The Steering Committee received assistance from City staff and invited guest experts in sustainability and housing planning to provide education and guidance during the planning process.

Community Visioning Meeting

Open to all community members, this meeting was designed to introduce the comprehensive plan to the St. Anthony community and guide participants through interactive exercises to reveal community strengths, weaknesses and opportunities. In small groups, participants were directed through both spatial and imaginative activities surrounding land use, environment, transportation and public amenities.



Wine Tasting event at St. Anthony Wine & Spirits

Capitalizing on a bi-annual event, staff set up a table at the Marketplace St. Anthony Wine and Spirits during a wine tasting event and asked people to show, on a map, their personal destinations and issue areas in the City. Visitors engaged in verbal survey questions and talked about their concerns and their hopes for St. Anthony's future.

ECFE class chats and Parent Council

Staff attended a series of parent events through the Early Child and Family Education program and the Parent Council through Community Education. These events took place at the Diamond Eight Terrace Apartments, among other locations. This allowed staff to gain access to families with young children, which is a group difficult to engage in comprehensive plan discussions. Also, these groups included young immigrant families who were new to the city and to the country. The successful discussions with groups who normally are not present at open houses or community meetings resulted in valuable insights related to walkability, transit, mixed use developments, and affordable housing in St. Anthony.

SAV High School Connection Club conversation

Planning staff visited St Anthony Village High School and met with Key Club students to get some perspective on what younger members of the community would like to see the city plan for in the decades to come. The students like that the city is friendly and close to Minneapolis, and they frequent the many dining and retail establishments located here. The students also have big visions for a safer and more vibrant city, complete with more amenities (like dog parks and a drive-in movie theatre) and safer streets and pedestrian infrastructure.

Senior citizen/longtime resident conversation

During the community engagement portion of this project, staff went to rental apartment buildings, including the Diamond Eight Terrace Apartments, and met with residents. One particular visit to Autumn Woods resulted in a long discussion with lifelong senior residents about their community and why they live where they live.

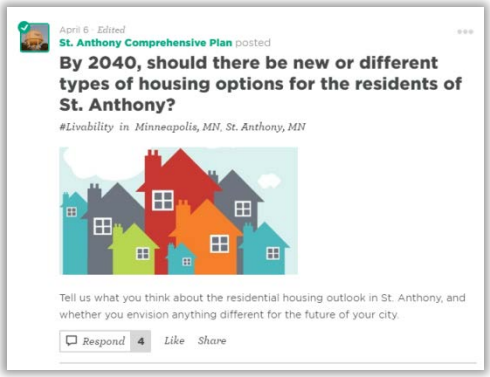
ADVANCE Community PLANBuilder workshop

In an effort to take a deeper dive into sustainability and how to incorporate it into the comprehensive plan, St. Anthony conducted an Advance workshop, partnering with the US Green Building Council. The result of that convening was a set of recommendations, that are incorporated herein, on how the plan can result in a more sustainable community.

Citizens for Sustainability and Park Board community visioning input

Early in the process, staff convened a visioning session with Citizens for Sustainability, an advocacy group who cares deeply about walkability and living in a sustainable, environmentally friendly community. The session identified gaps and opportunities within the city to increase environmental protection, encourage walking and biking, and reducing auto-dependence.

MySidewalk online forum



Recognizing that public engagement opportunities are only as good as the participants who can join in the conversation, an online public-facing page was developed so that participants could receive information and offer ideas and suggestions at any time during the planning process, at any hour of the day. Postings were created to “share back” new developments in the planning process, but also to ask for comments and feedback to open-ended or directed questions.

Key Themes: What we heard from the community

The following summarizes some of the common themes heard during the public engagement and visioning phase of comprehensive plan development.

What people love

- The schools are great and an attraction to people and the community is great for children.
- Proximity is to the Twin Cities is one of the city's biggest assets.
- The city has a reputation for being a sustainability leader.
- People love St. Anthony in general, and believe it is a great place to live.
- It's peaceful, quiet, and has a small-town feel.

Opportunities for change

- People want more physical connectivity through bicycle and pedestrian infrastructure.
- There should be options for long-time residents to stay, as well as accommodate new people.
- Sustainable initiatives are underway yet will continue to be important to the community.
- Housing affordability is an increasing challenge as rents and property values go up.
- People support new housing options on underutilized property (including some density).
- Silver Lake Road is a main thorough-fare and is dangerous to cross.

CHAPTER 3: COMMUNITY PROFILE

HISTORY OF ST. ANTHONY VILLAGE

St. Anthony Village is a first-ring suburb located just north and east of Minneapolis, and its 2.35 square miles in land area span across both Hennepin and Ramsey counties. St. Anthony is bordered by Minneapolis to the west and is also adjacent to Roseville to its east, New Brighton to the northeast, and Columbia Heights to the northwest.

Originally part of the larger St. Anthony Township, the area now known as St. Anthony Village became an incorporated municipality in 1945. In the years following World War II, housing demand increased rapidly and St. Anthony's landscape was transformed from a rural area into an urbanized and largely residential location.

THE LAND

Existing Land Use

Existing land use can be thought of as what *actually exists* on the ground at the present time, regardless of what has been planned or what zoning regulations exist. The most accurate depiction of what land uses currently exist in St. Anthony comes from the Metropolitan Council's 2016 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.

The existing Land Use in St. Anthony is typical of a post-WWII, first-ring suburb community. Over 40 percent of its 1,507 acres are devoted to single family detached housing. Perhaps unique for a community the size and age of St. Anthony is the amount of development in the form of multifamily and attached housing, consisting of about 155 acres or 10 percent of the total land area.

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

FIGURE 3-1: EXISTING LAND USE IN ST. ANTHONY

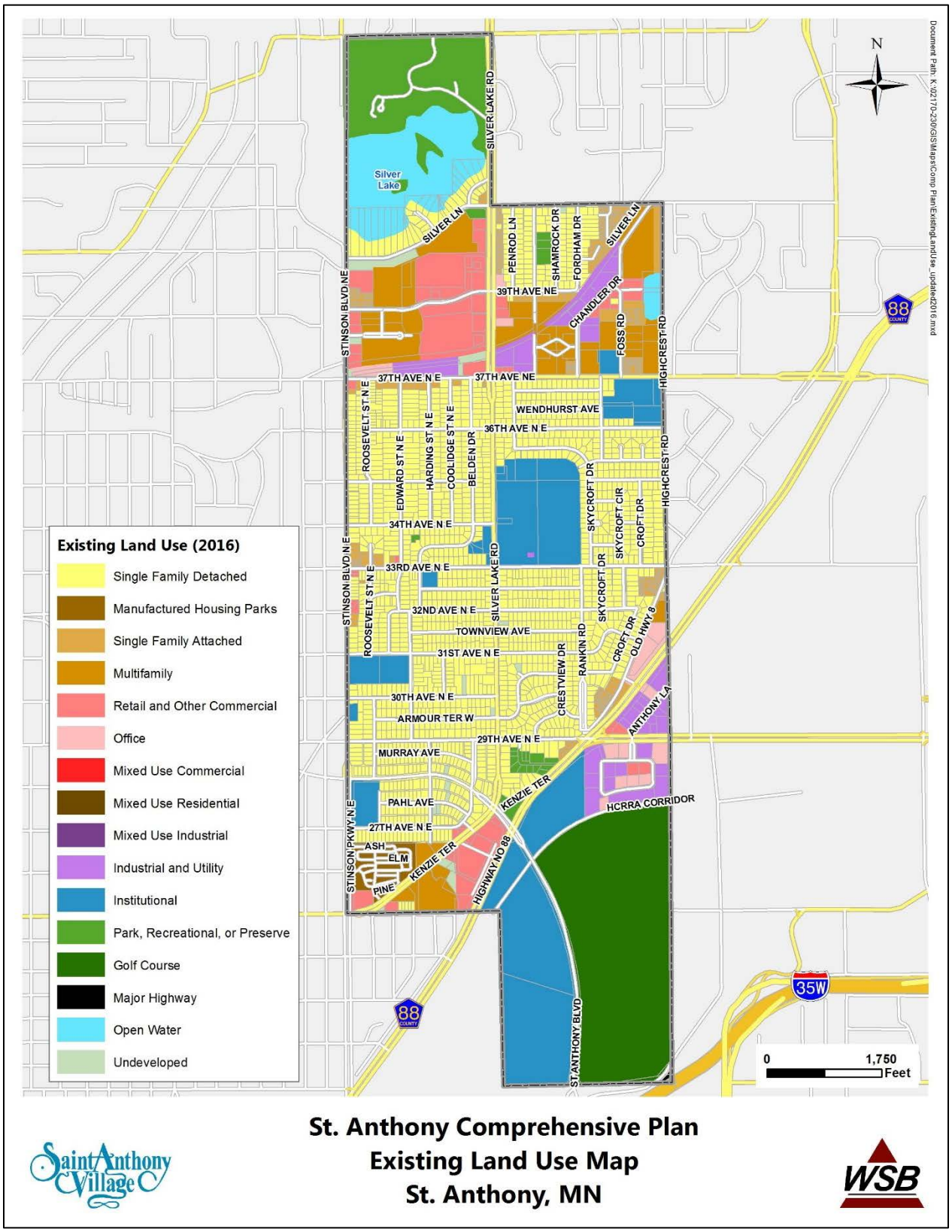
Land Use Type	Total Acres	Percent (%)
Single Family Detached	625	41.5
Institutional	200	13.3
Golf Course	158	10.5
Multifamily	102	6.8
Retail and Other Commercial	92.3	6.1
Park, Recreational, Cemetery or Preserve	88.7	5.9
Open Water	68.1	4.5
Industrial and Utility	62.4	4.1
Single Family Attached	54.6	3.6
Office	23.9	1.6
Manufactured Housing Parks	17.6	1.2
Undeveloped	13.5	0.9
Major Highway	1.2	0
Mixed Use Industrial	0.0	0
Mixed Use Residential	0.0	0
Total	1,507	100

Source: Metropolitan Council 2016 Generalized Land Use

Existing Land Use Map

St. Anthony's Existing Land Use map, which uses 2016 Metropolitan Council land use data, shows the diversity of land uses that exist in this inner-ring suburb. While detached family residential is the primary use of land, the "bookends" of the city to the north and the south host higher intensity uses ranging from light industrial to commercial and multifamily centers. The City is also home to large areas of recreation, park and open space for a community of its size.

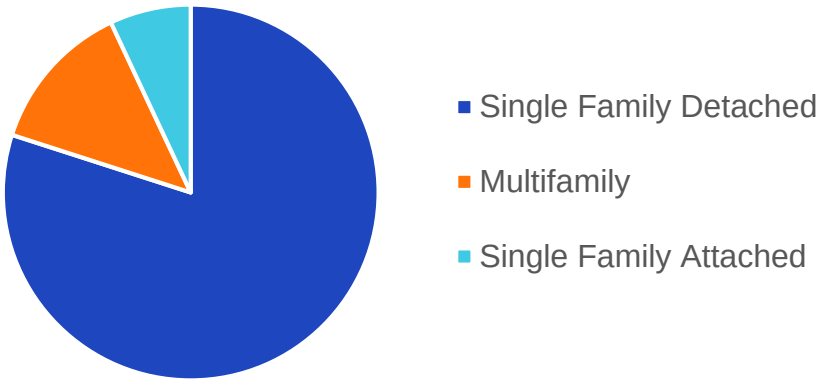
FIGURE 3-2: EXISTING LAND USE MAP



Existing Residential Land Use

The primary land use type in St. Anthony is residential. More than half of the city's land is devoted to the combined residential uses of single family detached, townhome and multifamily housing. Of these, single family housing remains the most prominent residential land use type by area at 80 percent of all residential acres.

FIGURE 3-3: EXISTING RESIDENTIAL LAND USE BY LAND AREA



Source: Met Council Generalized Land Use 2016, City of St. Anthony

Existing Commercial and Industrial Land Use

Retail, office, and industrial land uses make up about 12 percent of the city by area. Commercial and industrial uses are prominent at both the northern and southern ends of the city, with the two main commercial centers being the Gateway District (housing the St. Anthony Shopping Center) and Silver Lake Village. There is some limited commercial development along Stinson Boulevard and Highway 88.

Existing Public Land Use

Civic buildings and public uses make up nearly 20 percent of the city by area (including Silverwood Park), and parks alone are 6 percent of the land. The Francis A. Gross golf course, managed by the Minneapolis Parks and Recreation Board, comprises an additional 11 percent of the City's land area.

Existing Natural Features

St. Anthony is a fully developed community that was largely built during an era when there were lesser protections on wetlands and other natural features than there are today. Consequently, there are only a few remaining wetlands, and most of them have been degraded from their original conditions.

However, there are two major natural features that will be considered in this plan:

Silverwood Park

This 120-acre special recreation feature, located at the northern end of the City, was acquired by the Three Rivers Park District. Silverwood boasts 2,300 feet of shoreline on Silver Lake and a 20-acre mature upland oak forest that features mainly white oaks, but also contains red oak, bur oak, cherry and aspen. The woods also provide habitat for wildlife such as sharp-shinned hawks, white-breasted nuthatches and cedar waxwings. FIGURE 3-4 shows the location of Silver Lake and the only other lake in the city, Mirror Lake.

Gross Golf Course and Sunset Memorial Park

Gross Golf Course is owned by the Minneapolis Park and Recreation Board, and Sunset Memorial Park is a private cemetery. While both are highly managed for turf grass and trees rather than ecological integrity, their combined area totals approximately 250 acres.

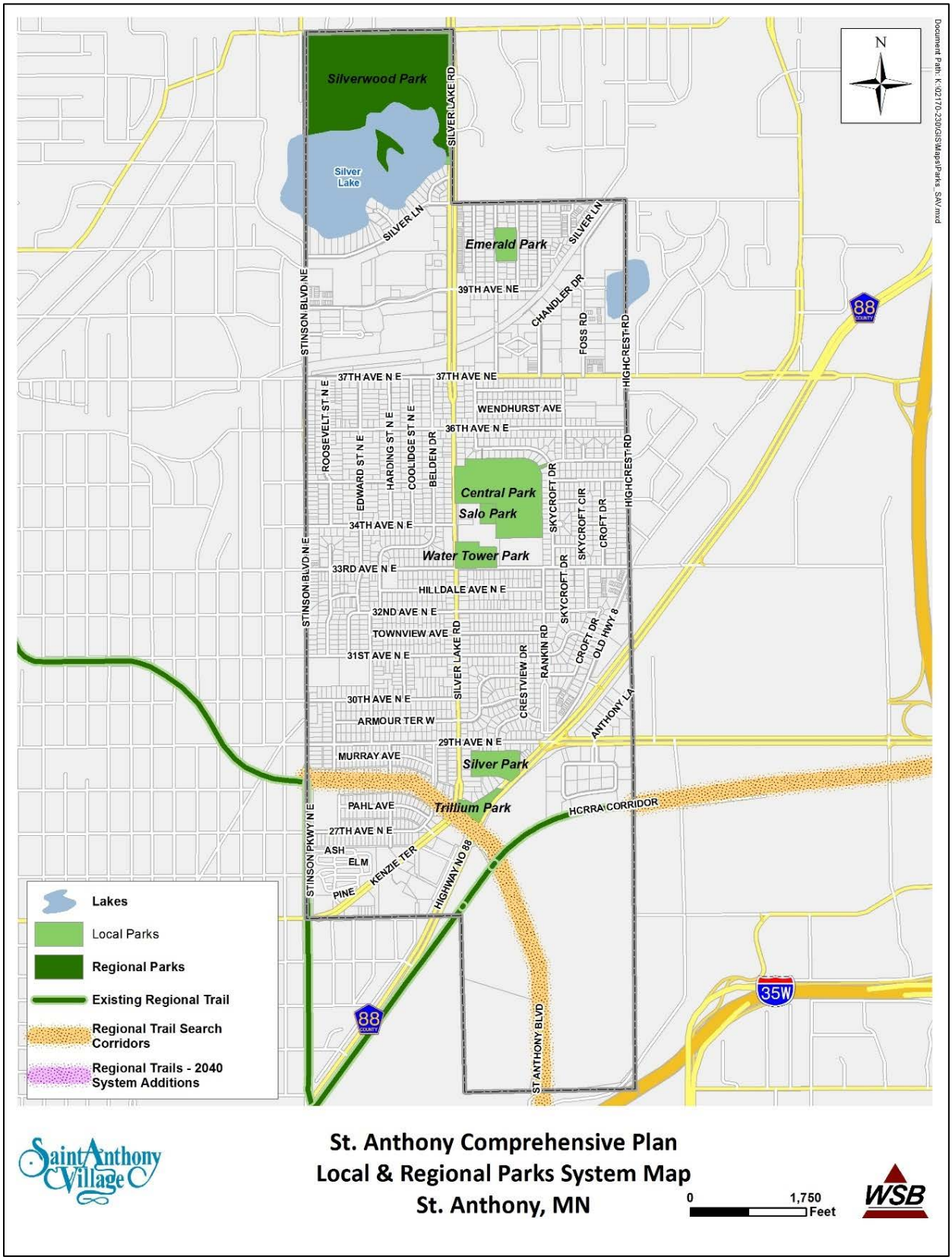
Other Features

There are several low areas in the city used for ponding surface water that are dry during parts of the year. Also, Mirror Lake exists on the municipal boundary shared with New Brighton.

Existing Park System

St. Anthony's current parks and recreation system contains several city parks, a special recreational feature and several regional trails. These features are shown on the map in FIGURE 3-4. The entire portion of St. Anthony Boulevard that is located within the City of St. Anthony is part of a regional Trail Search Corridor to connect a "missing link" of the Minneapolis Grand Rounds trail system.

FIGURE 3-4: ST. ANTHONY'S LOCAL & REGIONAL PARKS AND TRAIL FEATURES

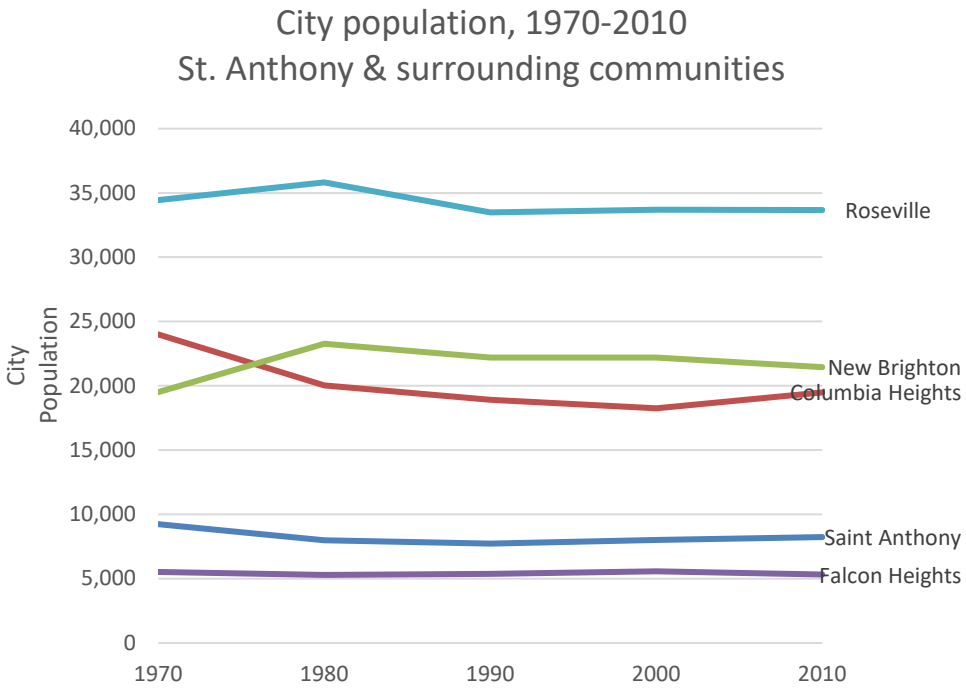


THE PEOPLE WHO LIVE HERE

Population

St. Anthony is a small community and therefore has a small population in comparison to most of its surrounding communities (FIGURE 3-5). After experiencing moderate population loss in the 1970s, St. Anthony's population began rising slightly again in the 1990s. In 2010, St. Anthony had 8,226 residents, a growth of 2.7 percent from 2000. As of 2016, Saint Anthony's population is estimated at 9,234 residents.

FIGURE 3-5: HISTORIC CITY POPULATION COMPARISON

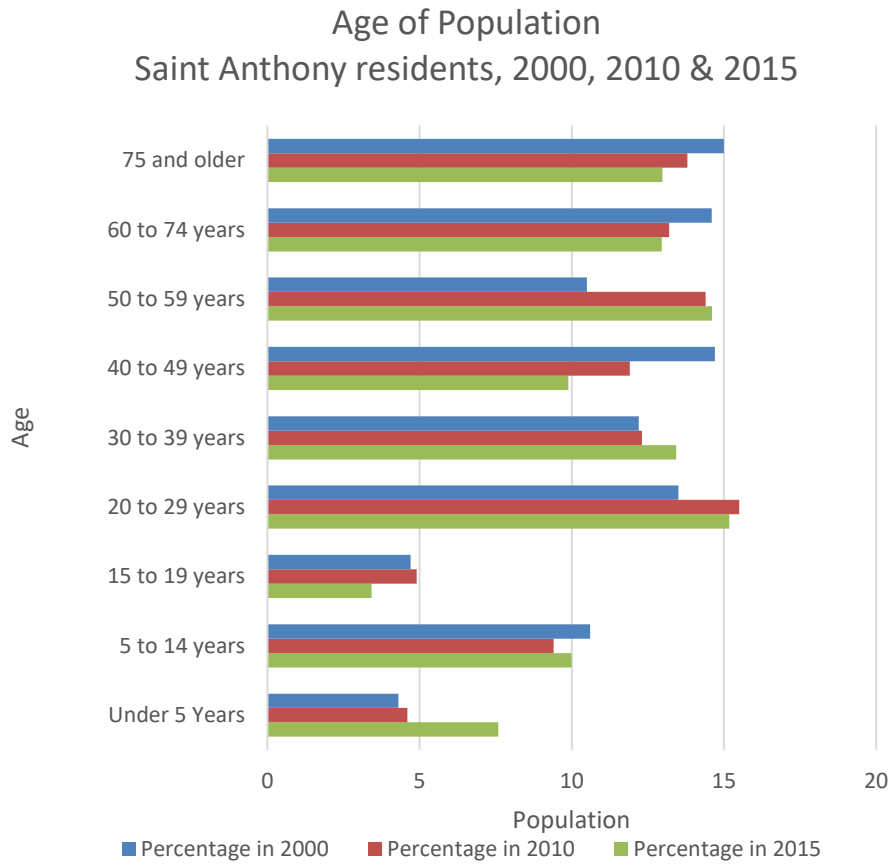


Source: U.S. Census 2010

Age demographics

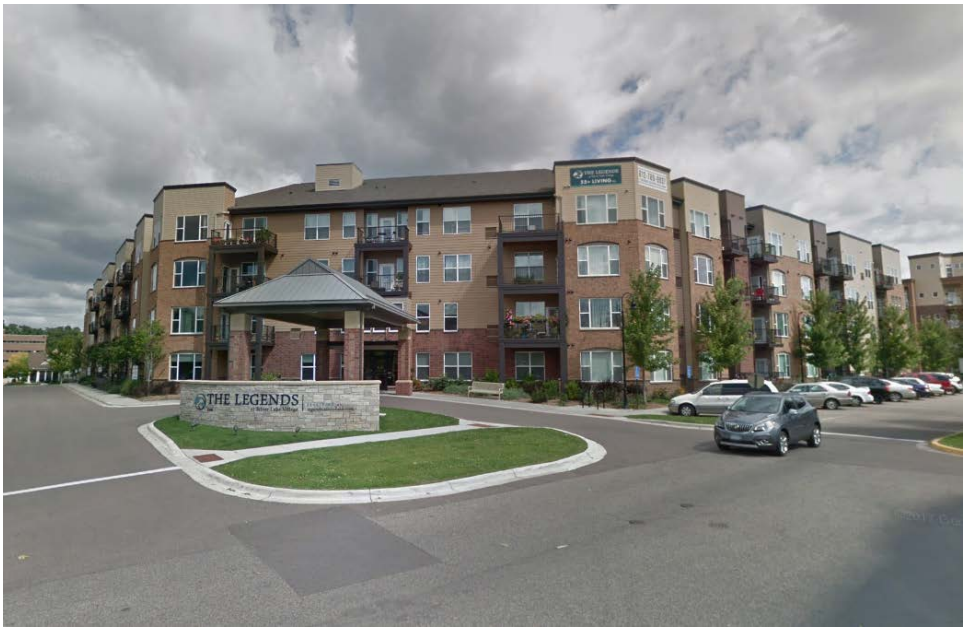
The median age in St. Anthony is 43, compared with 36 for Hennepin County and 35 for Ramsey County. Currently, St. Anthony has a higher proportion of seniors (over the age of 65) than either Hennepin or Ramsey County on the whole. In fact, St. Anthony's percentage of senior residents was nearly double that of Hennepin County in 2010. Providing adequate housing and services for residents of advanced age has been and will continue to be a priority for the City of St. Anthony. However, as senior residents age out of their long-time family homes, St. Anthony's population is transitioning to younger residents and families. FIGURE 3-6 below shows declines in seniors and a significant increase in the percentage of residents in their 20s in the decade from 2000 to 2010.

FIGURE 3-6: AGE DEMOGRAPHICS OF ST. ANTHONY POPULATION (2000, 2010 & 2015)



Source: Data from 2000 and 2010 are from U.S. Census counts. 2015 data is based on ACS estimates and is not as reliable as Census data at small geographic scales; however, it is the most recent demographic data available.

The inclusion of 2015 age data from the ACS indicates that the trend toward slight declines in senior residents and significant increases in younger families in St. Anthony has continued. But while the older senior population shows signs that it is shrinking, seniors remain one of the largest age cohorts in the city, and significant increases in the percentage of “empty nesters: (i.e. 50-59-year olds) signify that the provision of a diversity of housing and amenities for residents of all ages and life stages will continue to be a topic of significance for St. Anthony as the population of the city expands in the coming decades.



The Legends at Silver Lake Village, 55+ Affordable Living Community

Income diversity

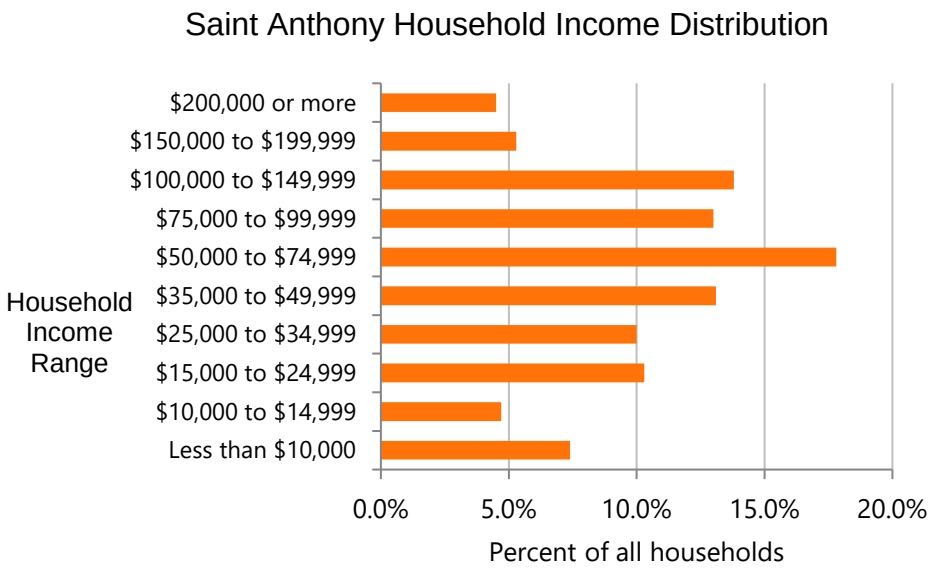
FIGURE 3-7: MEDIAN AND AVERAGE HOUSEHOLD INCOME

	Median household income ($)	Average household income ($)
Columbia Heights	48,857	60,479
Minneapolis	50,767	73,922
Saint Anthony	**54,943**	**81,452**
Ramsey County	55,460	74,375
New Brighton	61,324	78,284
Roseville	62,464	79,489
Hennepin County	65,033	91,395
Falcon Heights	66,635	88,166

*The data in this chart is not adjusted for household size

Compared to its surrounding communities and the two counties in which the city is located, St. Anthony has a lower median household income. However, its average household income level is relatively high (FIGURE 3-7). Indeed, a closer look at the income distribution of households across the city reveals a wide array of household incomes in the City.

FIGURE 3-8: HOUSEHOLD INCOME DISTRIBUTION (ACS 2014)



Data source: ACS 2010-2014 Estimates. ACS estimates are not as reliable as Census data at small geographic scales; however, ACS Estimates represent the most recent income data available (Census 2010 did not collect income data).

According to ACS 2014 estimates, approximately 32 percent of households earn less than $35,000 in annual income, while nearly a quarter of St. Anthony households have an annual income of $100,000 or more.

Poverty rate

The poverty rate is defined as the percentage of people who are living at or below the "poverty level", which in 2015 was measured at an income threshold of $24,457 for a family of four. The City's poverty rate has risen from 5.1 percent in 2000 to 6.1 percent in 2015, according to the latest ACS estimates. However, St. Anthony's poverty rate remains significantly lower today than almost all its surrounding communities, and significantly lower than the Hennepin and Ramsey County rate overall.

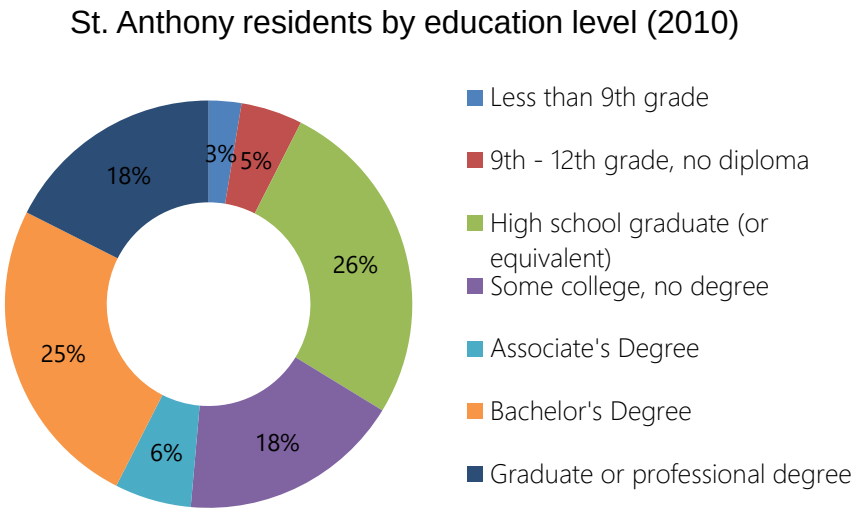
Community	Below poverty (%)
Saint Anthony	**6.1**
Falcon Heights	11.1
New Brighton	11.4
Roseville	11.5
Hennepin County	12.5
Ramsey County	16.5
Columbia Heights	16.8
Minneapolis	21.9

School-aged children may qualify for free or reduced lunch up to 185 percent of the poverty level. In the Twin Cities metro, affordable housing thresholds are applied to households making up to 80 percent of Area Median Income, which is $65,700 for a family of four.

Education

St. Anthony's population is becoming more educated. In 2000, 34 percent of residents had a bachelor's degree or higher. By 2010, that rate had risen to 43 percent, mirroring similar increases in education level in Hennepin County overall.

FIGURE 3-9: LEVEL OF EDUCATION OF ST. ANTHONY RESIDENTS

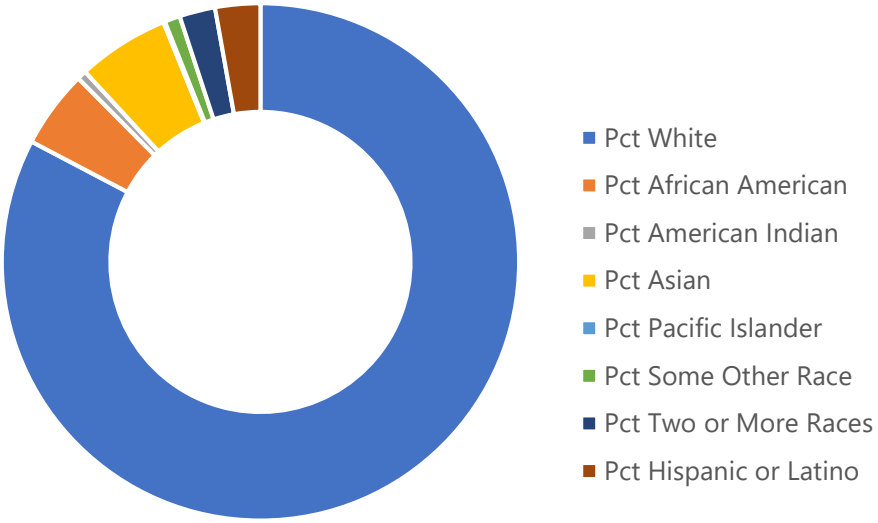


Enrollment in the St. Anthony – New Brighton School District has increased over the past decade. Findings from a Saint Anthony New Brighton School District 2016 report indicate that upward enrollment trends are expected to increase over the next ten years, speculating that a trend toward younger families and increased births will continue as older residents age out of their homes and younger families move into the area.

Racial demographics

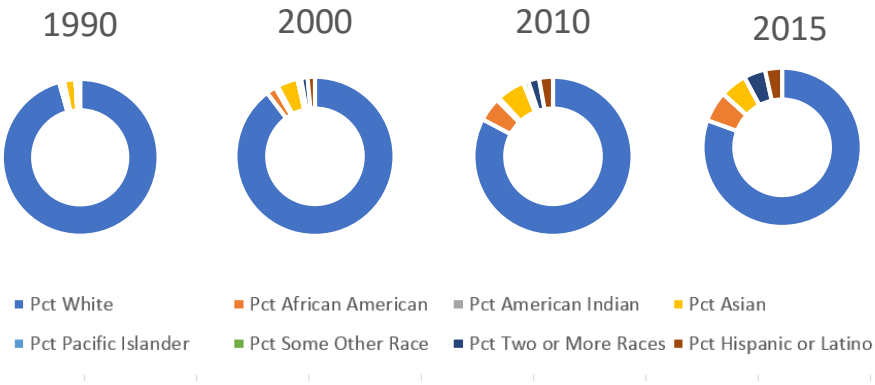
The latest Census data from 2010 indicates that St. Anthony's racial makeup is typical of a post-WWII Twin Cities suburb: 85 percent of the residents identify as white.

FIGURE 3-10: ST. ANTHONY RESIDENTS BY RACE (2010 CENSUS DATA)



A more nuanced look at the community's racial composition over time, however, reveals that the community has become more racially diverse over time. This is on par with the regional trend toward increasing shares of racial minorities in the population overall, a trend that is expected to continue as the region approaches the year 2040. Data from 1990, 2000 and 2010 are based on Census counts while the 2015 data is based on ACS estimates.

FIGURE 3-11: CHANGING RACIAL DEMOGRAPHICS IN ST. ANTHONY



The Housing Landscape

In 2010, there were just over 4,000 housing units in St. Anthony village according to the U.S. Census. More recent 2016 estimates put the number of housing units closer to 4,250. Housing is the predominant land use in St. Anthony, and residential land uses account for half of St. Anthony's total area.

Housing unit types

St. Anthony's housing units are split almost evenly between single-family and multifamily types of units. While only seven percent of the community's land use is dedicated to multifamily housing, FIGURE 3-12 shows that one half of all units are multifamily (according to 2016 estimates), which is a notable difference from surrounding communities, which have proportionately fewer multifamily units.

FIGURE 3-12: ST. ANTHONY HOUSING UNITS BY HOUSING TYPE

Single-family units		
Single-Family Detached	1,766	41.6%
Townhomes (single-family attached)	288	6.8%
Multifamily units		
Duplex and triplex and quad	39	0.9%
Multifamily (5 units or more)	2,155	50.7%
2016 Total	**4,248**	

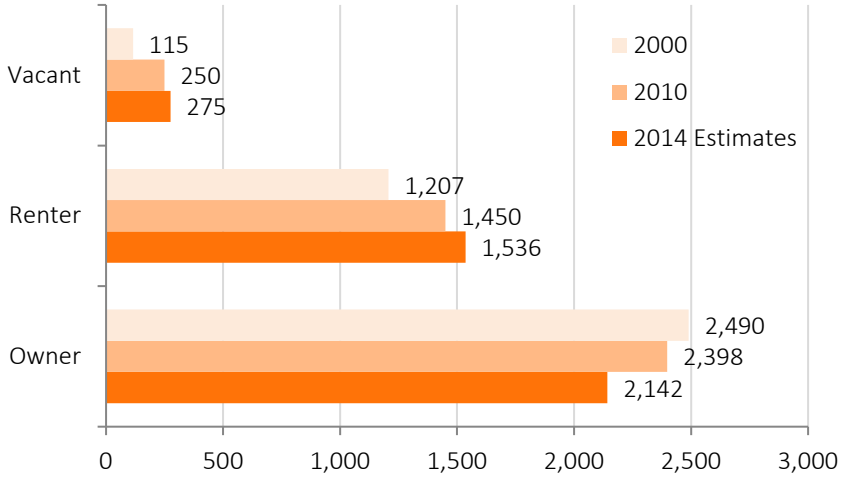
Source: Decennial Census and Metropolitan Council Housing Stock Estimates

About half of St. Anthony's homes were built before 1970. Around 42 percent of the city's land is dedicated to single family detached homes, forming the predominant land use type by a large margin.

Housing Tenure

FIGURE 3-13 shows that in 2010, approximately 62 percent of St. Anthony's inhabited housing units were owner-occupied. The housing tenure landscape of St. Anthony shifted slightly in the decade from 2000 to 2010. During that decade, the amount of renter-occupied housing increased by 243 units, while there were overall losses in owner-occupied housing units and gains in vacant housing units. Overall, the total stock of housing units increased by nearly 300 units from 2000 to 2010 and shifted away from owner-occupied housing. Estimates from 2014 show the trend toward rentership increasing.

FIGURE 3-13: ST. ANTHONY HOUSING UNITS BY TENURE

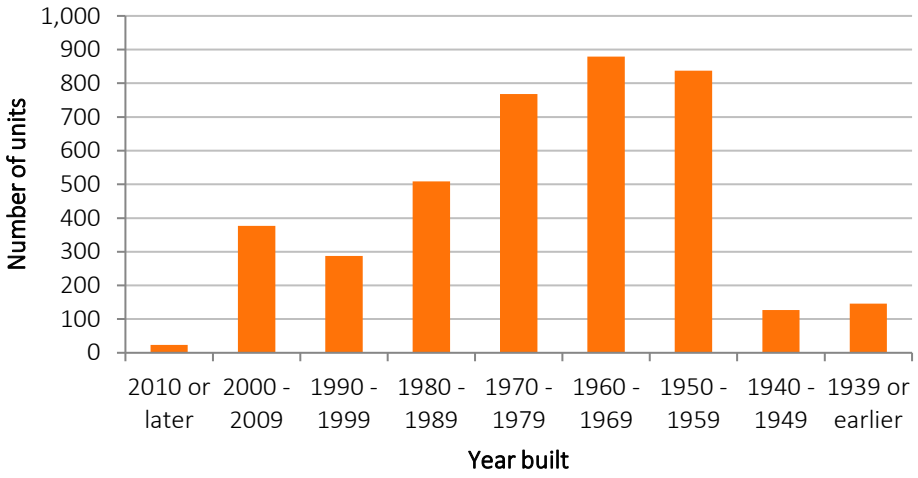


Source: 2000 to 2010 (U.S. Census) and 2014 (ACS estimates)

Age of Housing Stock

Half of St. Anthony's housing stock was built prior to 1970, but only 7 percent was built prior to 1950. This is a fairly common housing age distribution for a first-ring suburb community, although St. Anthony's housing stock is somewhat younger than several of its neighboring communities. Nearly 42 percent of Saint Anthony homeowners do not have a mortgage on their home, compared to just 25 percent of Hennepin County homeowners.

FIGURE 3-14: AGE OF ST. ANTHONY HOUSING STOCK



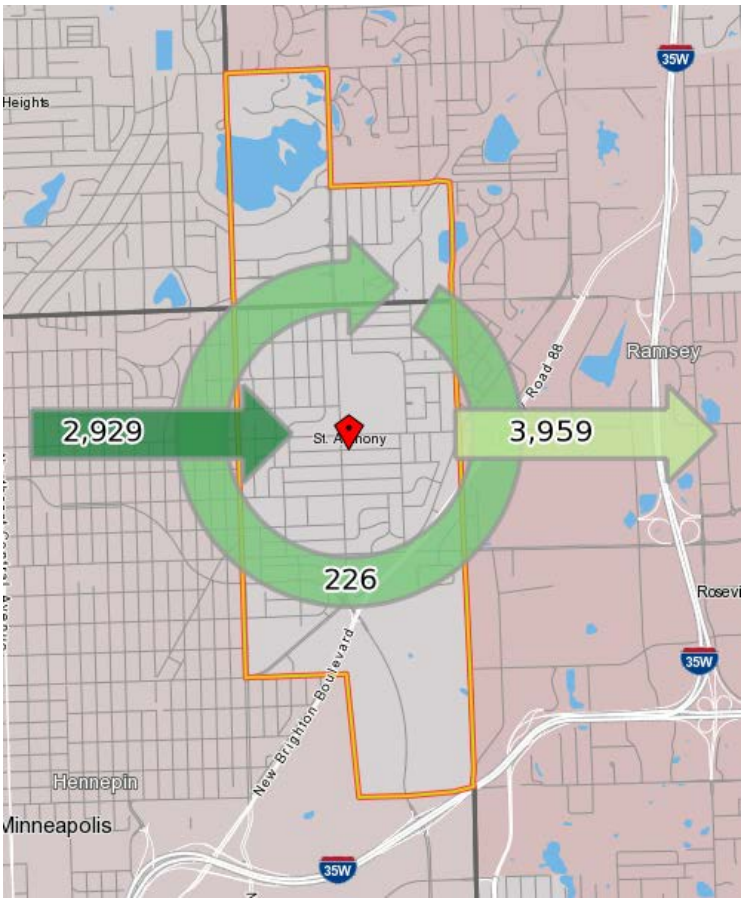
Source: ACS 2010-2014

Jobs and Employment

The Metropolitan Council estimates there are approximately 3,482 jobs in the City of St. Anthony in 2016, with only modest job growth expected within the 2040 planning horizon. Average annual wages for jobs in St. Anthony in 2016 are estimated at $40,718, which is $22,433 less than the average for Hennepin County and $17,398 less than Ramsey County. Employment data from the state department of Employment and Economic Development that there is no clear "dominant" industry in St. Anthony, as seen in the table below.

Industry	Employment Total
Finance and Insurance	35
Real Estate and Rental and Leasing	88
Public Administration	134
Accommodation and Food Services	135
Manufacturing	157
Other Services, Ex. Public Admin	168
Retail Trade	270
Health Care and Social Assistance	461
All Other Industries	2,034

FIGURE 3-15: ST. ANTHONY EMPLOYMENT FLOW



Data source: On the Map 2014 data for St. Anthony city geography, a product of the U.S. Census

The latest data from 2014 on employment inflow and outflow in St. Anthony indicates that only about 226 people, a small percentage of the 4,185 people who make up the employed population of St. Anthony, live and work within St. Anthony itself. About 1,000 more people leave the city to work elsewhere than come into the city from outside to work.

Past and Future Growth

Regional Context: Community Designation

In *Thrive MSP 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 described in Figure 3-16, St. Anthony's "Urban" 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.

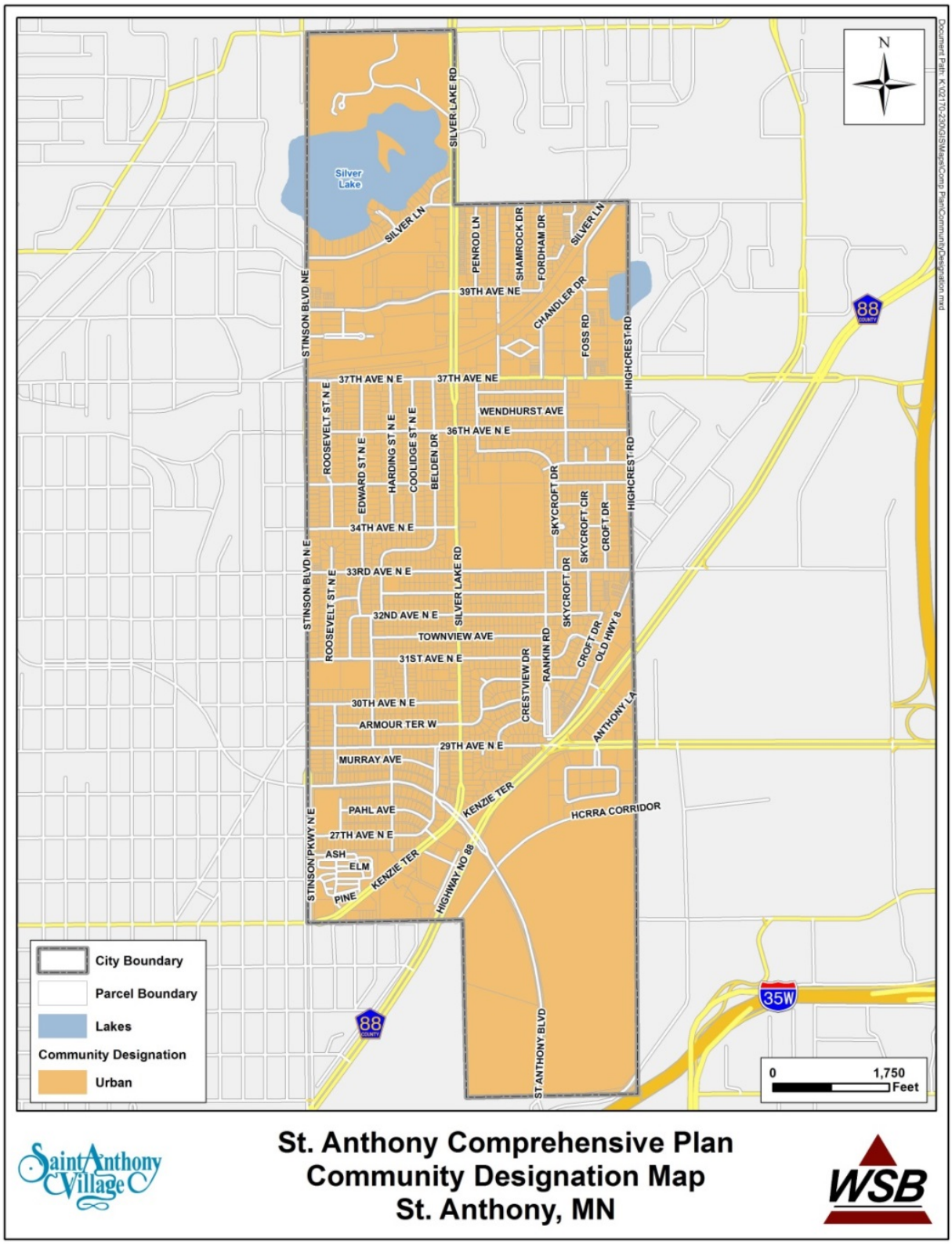
Comprehensive planning often involves planning for people and jobs that are not yet here. The Council develops population, housing and employment forecasts as a component of a community System Statement to help communities set realistic goals and policies to plan for the future needs and trajectories 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 St. Anthony Village as an Urban community. Urban communities experienced rapid development during the post-World War II era and exhibit the transition toward the development stage dominated by the influence of the automobile.

Urban communities are expected to plan for forecasted population and household growth at average densities of **at least 10 units per acre** for new development and redevelopment. In addition, Urban 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.*

FIGURE 3-16: ST. ANTHONY REGIONAL COMMUNITY DESIGNATION



Forecasts for St. Anthony

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

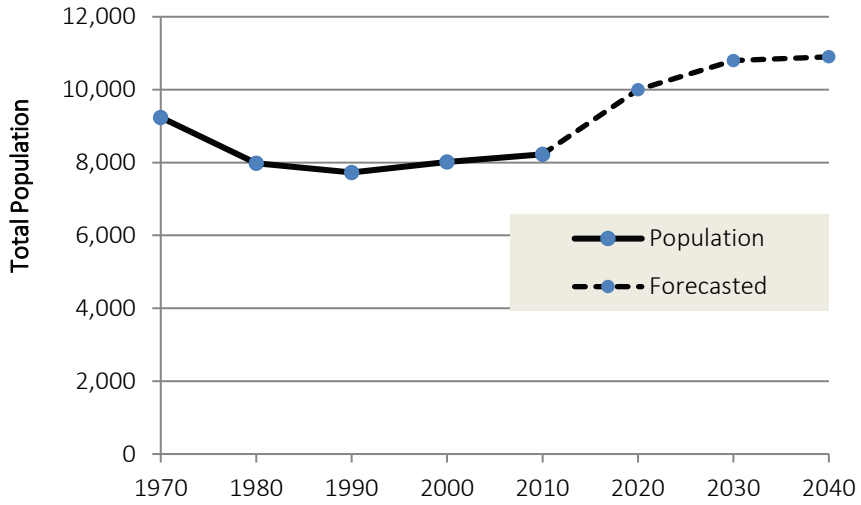
The total population of the City of St. Anthony is expected to grow by more than 1,500 people between 2016 and 2040. About half of that growth is projected to occur by the year 2020. St. Anthony can anticipate an increase of close to 1,000 households in the next quarter century. As an inner-ring developed suburb, accommodation of population growth will largely be achieved through strategic redevelopment opportunities that allow for new or denser configurations of housing within the community.

ST. ANTHONY FORECAST, 2010-2040

Forecast Year	Population	Households	Employment
2010	8,226	3,848	2,983
2016 (estimate)	**9,234**	**4,167**	**3,481**
2020	10,000	4,600	3,500
2030	10,800	5,000	3,630
2040	10,900	5,100	3,700
Overall Change from 2016	**+1,666**	**+933**	**+219**

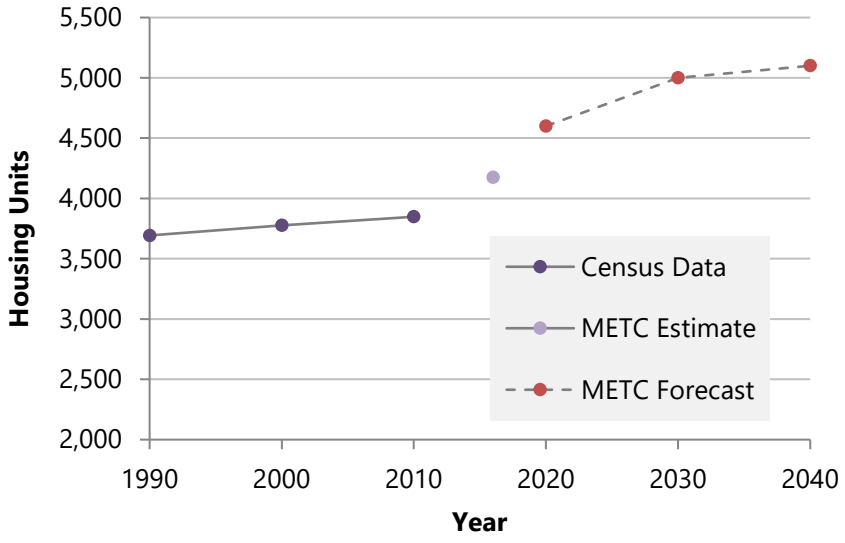
Source: 2010 U.S. Census & Metropolitan Council Forecasts

FIGURE 3-17: PAST AND FUTURE (PROJECTED) POPULATION FOR ST. ANTHONY



St. Anthony's overall number of households grew by 11 percent between 1990 and 2010. Future growth is expected to be more significant, with over 900 new units expected to be added by 2040.

FIGURE 3-18: PAST AND FUTURE (PROJECTED) HOUSING UNITS IN ST. ANTHONY





Chapter 4:
Land Use

CHAPTER 4: 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 through the creation of a future land use map. Updating the city's land use guidance offers the occasion to anticipate the physical landscape and development patterns that will best meet the needs of the community, and to make forward-thinking decisions that direct land use toward a particular o utcome.

As an inner-ring suburb community adjacent to a large metropolitan city, the land in St. Anthony is largely "built out" and only one percent of the City'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 create the most benefit for the community.

LAND USE: WHAT DID WE HEAR FROM THE COMMUNITY?

During the public engagement phase, the following land use themes emerged:

- The Walmart site is a priority redevelopment opportunity for residents.
- Redevelopment of business park areas will make them more future-oriented and attractive to prospective businesses.
- Citizens want to see green space better utilized and maintained across all land use types.
- Citizens want to see creative development of the few remaining vacant parcels in the city.
- The City must strike a balance between preservation of what exists now and inviting greater density and greater intensity of land use through the re-development of under-utilized land.

Current Land Use Guidance from the 2030 Plan

The land use districts identified in St. Anthony's 2030 Comprehensive Plan have served as the land use guidance since the plan's adoption. The 2030 Future Land Use map and its associated land use district descriptions are included here, to provide some background context for the land use policies that currently exist. It should be noted that while this 2030 Future Land Use map has guided St. Anthony land use and development over the past 10 years, it is not necessarily representative of the land uses that exist on the ground. That information is provided in the Community Profile chapter.

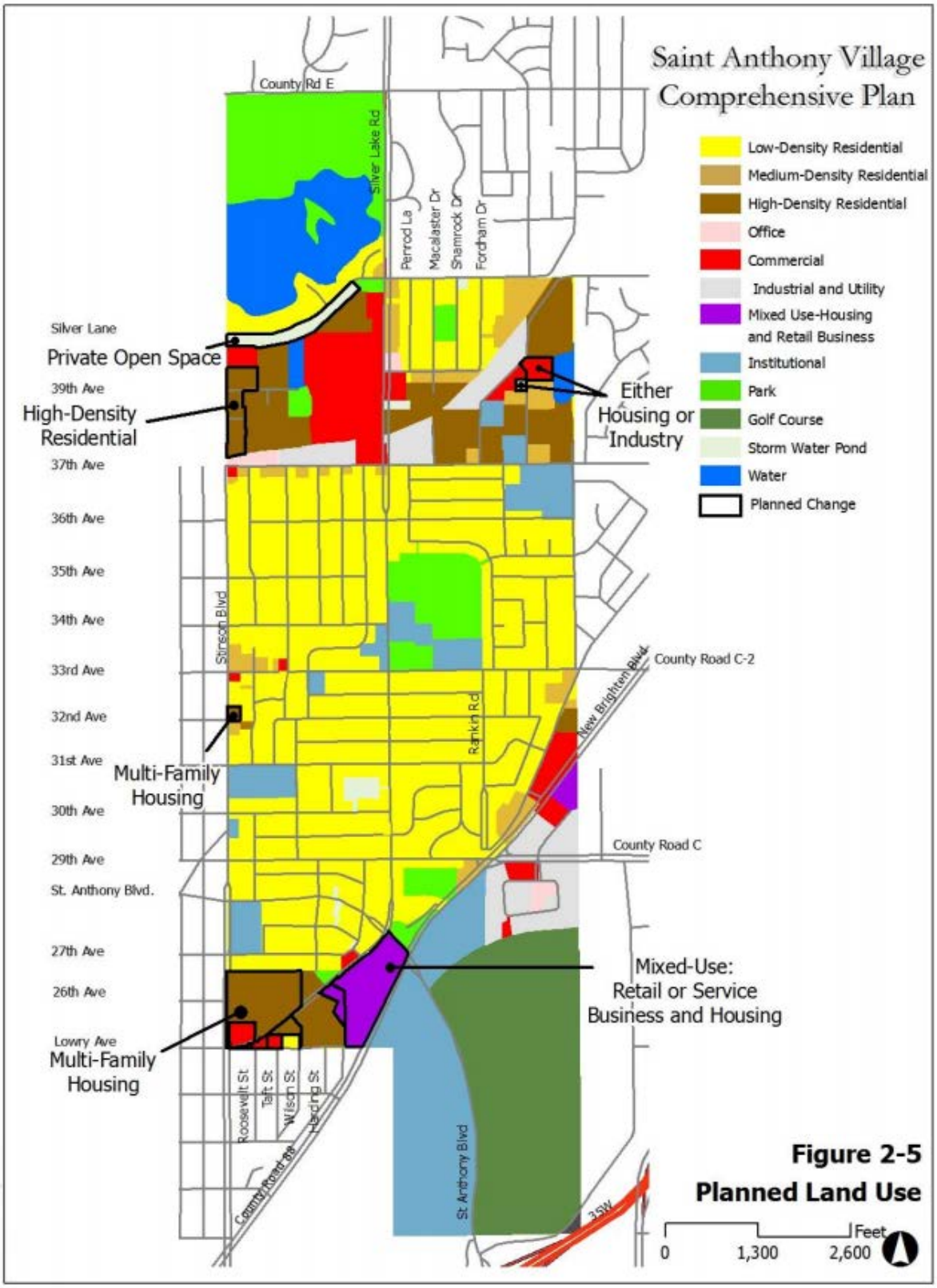
These land use categories and descriptions are taken from the 2030 Comprehensive Plan for St. Anthony.

Figure 4-1: Future Land Use Plan table from the 2030 Comprehensive Plan, adopted by the City in 2008.

Land Use Plan Categories and Corresponding Zoning Map Categories

Land Use Plan Map Category	Land Uses	Corresponding Zoning Districts
Low-Density Residential	Detached housing units. The corresponding zoning district allows lots as small as 9,000 square feet.	R-1, Single-Family R-1A, Lakeshore
Mid-Density Residential	Two-unit buildings and attached housing units with individual exterior entrances.	R-2, Two-Family R-3, Townhouse
High-Density Residential	Two-family dwellings, townhouses. 4-, 6- and 8-unit buildings with individual exterior entrances, and all forms of attached housing with central corridors and interior entrances.	R-4, Multiple-Family
Office	Office buildings.	LI, Light Industrial District
Commercial Retail	Businesses providing retail trade or services for individuals or businesses. Includes hospitals.	C, Commercial District
Industrial and Utility	Office buildings, office-showroom, light industrial buildings and manufacturing-related warehousing. .	LI, Light Industrial District
Mixed-Use – Housing and Retail Business	Retail or service businesses; high-density housing at 8 to 30 dwelling units per acre. May include vertical mixtures of land uses. The proportion of land use mixture is not mandated but will be determined upon application review.	Planned-Unit District or a combination of C and R-4.
Institutional	City offices or facilities; cemeteries.	R / O, Recreation and Open Space District
Park	City or County parks	R / O, Recreation and Open Space District
Golf Course	Public golf courses.	R / O, Recreation and Open Space District
Storm Water Pond	Public or private land dedicated for surface water ponding.	Any zoning district.
Private open space	Private property that is held undeveloped, usually for ponding or as steep slope.	Any zoning district.
Water	Silver Lake or Mirror Lake	Any zoning district

FIGURE 4-2: 2030 FUTURE LAND USE MAP FROM THE 2030 COMPREHENSIVE PLAN, ADOPTED IN 2008.



LAND USE: WHAT WILL BE HERE IN THE FUTURE?

Accommodating Growth and Change

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

FIGURE 4-3: ST. ANTHONY POPULATION, HOUSEHOLD AND EMPLOYMENT FORECASTS

St. Anthony forecast, 2010-2040

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

Forecast Year	Population	Households	Employment
2010	8,226	3,848	2,983
2016 (estimate)	**9,234**	**4,167**	**3,481**
2020	10,000	4,600	3,500
2030	10,800	5,000	3,630
2040	10,900	5,100	3,700
Overall Change from 2016	**+1,666**	**+933**	**+219**

Planning for growth in a developed community

The Twin Cities region overall is experiencing a period of growth, especially in areas closest to the region's urban core. That growth is expected to continue through the year 2040. It is predicted that the overall regional population in 2040 will be older, more racially diverse and more likely to live in smaller households than the current population. The needs and preferences of an aging and diversifying population are likely to translate to a need for more smaller housing units and multifamily development, and, if trends endure, a continued preference for locating in areas closer to the urban center.

Inner ring suburban communities like St. Anthony can respond to this regional trend by identifying areas where infill redevelopment is likely to occur. As a substantially built-out community, planning for an increase in population and housing in St. Anthony necessitates looking for redevelopment opportunity areas because little to no undeveloped land remains in the community. Redevelopment areas may be identified as such because they are areas that are currently

underutilized or mismatched with surrounding uses, they are strategic economic development opportunities for the City, or they are locations in which developers have recently expressed interest.

Potential opportunity areas were identified early in the planning process by the community and the Steering Committee based on known areas of development interest and inconsistencies in the current land use map guidance. Some of these target areas necessitated a change in land use guidance from the current land use map, while others are simply areas of discussion because of their "likely redevelopment" potential. City staff and the City Council also provided input on land use discussion areas.

Development of a Future Land Use Guide Plan

The City's 2030 Planned Land Use map (shown in FIGURE 4-5) is limited by the fact that it does not show specific parcels or lots in detail. The first step in developing an updated land use map was to recreate the existing planned land use map using better data and visualization. FIGURE 4-5 shows (on the left) a modified draft version of a land use map using 2030 Planned Future Land Uses from the Metropolitan Council's Regional Planned Land Use layer, overlaid with the land use "opportunity areas" identified early in the planning process by the community and the Steering Committee. The map on the right shows the final 2040 guide land use plan after holding land use discussions with the Steering Committee and City Council about appropriate choices for the target opportunity areas. FIGURE 4-4 describes each discussion area and the ultimate outcome of each area's 2040 land use guidance.

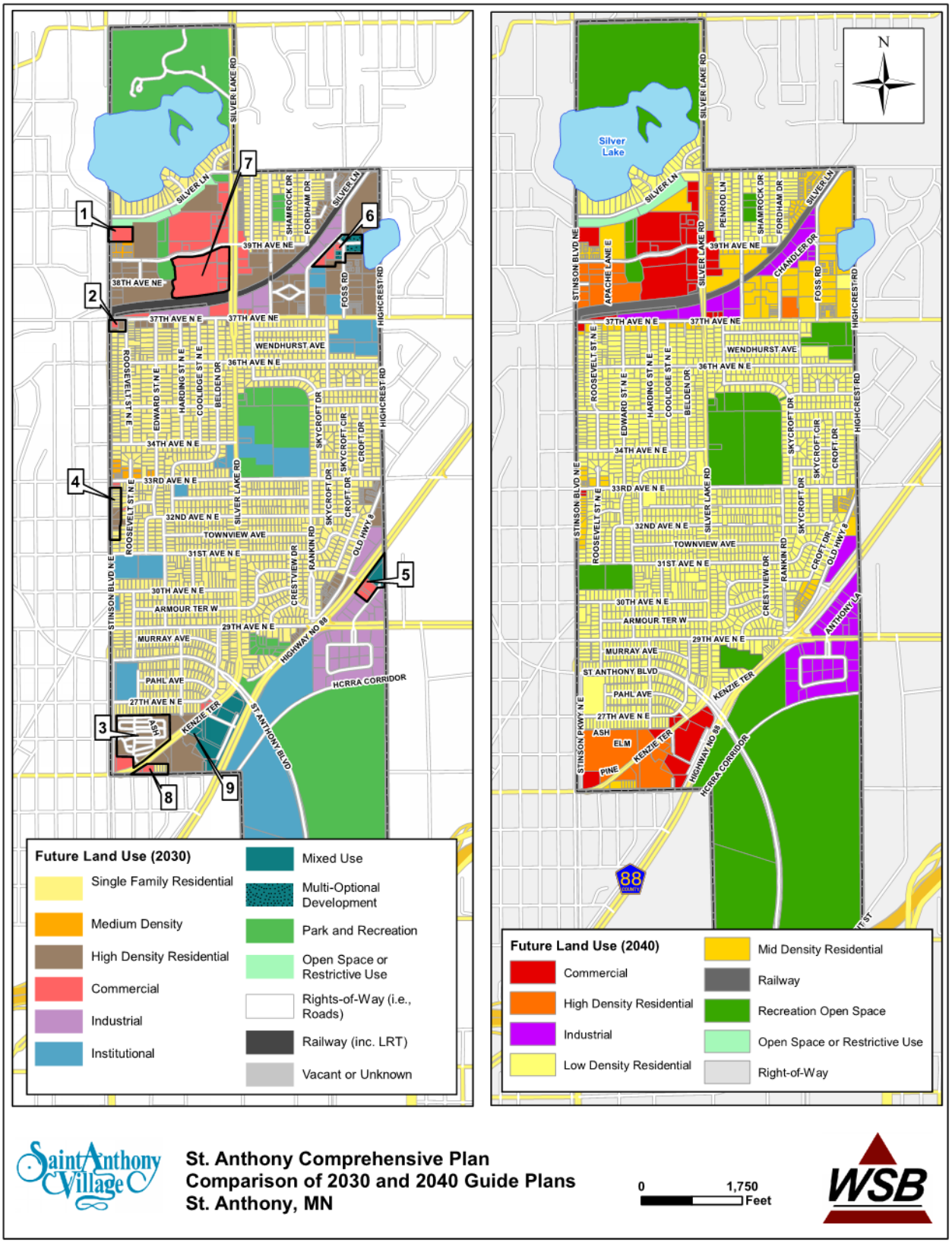
Additional updates to the 2030 land use guide plan include the following, as seen in the comparison map:

- **Removal of certain categories**. In this land use plan update, the guide plan will not include a district for Mixed Use, Multi-Optional Development, Golf Course, Water, or Storm Water Ponds.
- **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 Low Density Residential or Recreation Open Space 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.

FIGURE 4-4: GUIDE TO DISCUSSION AREAS SHOWN IN FIGURE 4-5

Area	Discussion Question	Decision
1	Keep commercial guidance	Commercial guidance stays
2	Keep commercial guidance	Commercial guidance stays
3	Maintain guidance at High Density Residential	High density guidance stays
4	Reflect desire for attached housing along block	All medium-density residential
5	Commercial and mixed use out of place	Re-guide all industrial
6	Re-guide so like uses are adjacent	West of Foss industrial, East of Foss residential
7	Keep commercial guidance	Commercial guidance stays, but high-density residential redevelopment is allowed/encouraged
8	Change guidance to all high-density residential	Guidance should be medium-density
9	Former "Bowling alley" site and gas station – commercial	Re-guide to high-density residential – a potential spot for affordable housing

FIGURE 4- 5: THE EVOLUTION OF THE 2040 FUTURE LAND USE MAP



A first iteration of Future Land Use map shows the land use Discussion Areas outlined in black overtop of the Metropolitan Council's Regional Planned Land Use Layer. A guide land use plan for 2040 (shown at right) evolved from reflection centering on the highlighted Discussion Areas.

Future Land Use Categories

The development of St. Anthony's 2040 land use plan involves updating the land use descriptions and density ranges of each land use category. FIGURE 4-6 below shows how St. Anthony's 2040 land use categories are defined.

FIGURE 4-6: ST. ANTHONY'S 2040 LAND USE CATEGORIES

Land Use Category	Land Uses	2040 Plan Density Range, per acre		2030 Plan Density Range, per acre	
		Min	Max	Min	Max
Low Density Residential	• Detached housing units • Accessory units • Duplexes • Churches, schools and institutional uses	2	4	2	4
Mid Density Residential	• Duplexes or multiplexes • Accessory units • Rowhomes or Side-by-Side townhomes • Garden apartments • Apartment buildings (2-3 stories) • Churches, schools and institutional buildings	4	20	3	8
High Density Residential	• Rowhomes or Side-by-Side townhomes • Accessory units • Garden apartments • Apartment buildings (2-5 stories) • Churches, schools and institutional uses	20	40	8	40
Commercial	• Retail goods, services and entertainment • Employment-based buildings or centers • Office uses • Business uses • Residential development (in areas where appropriate) at a minimum of 17.5% of all commercial areas	30	40	N/A	N/A
Industrial	• Office or showroom uses • Light industrial uses • Manufacturing or warehousing				
Recreation Open Space	• City or County parks • Golf course • Recreational uses • Public or privately-held open space • Outdoor preserve				

FIGURE 4-7: 2040 FUTURE LAND USE GUIDE PLAN FOR ST. ANTHONY

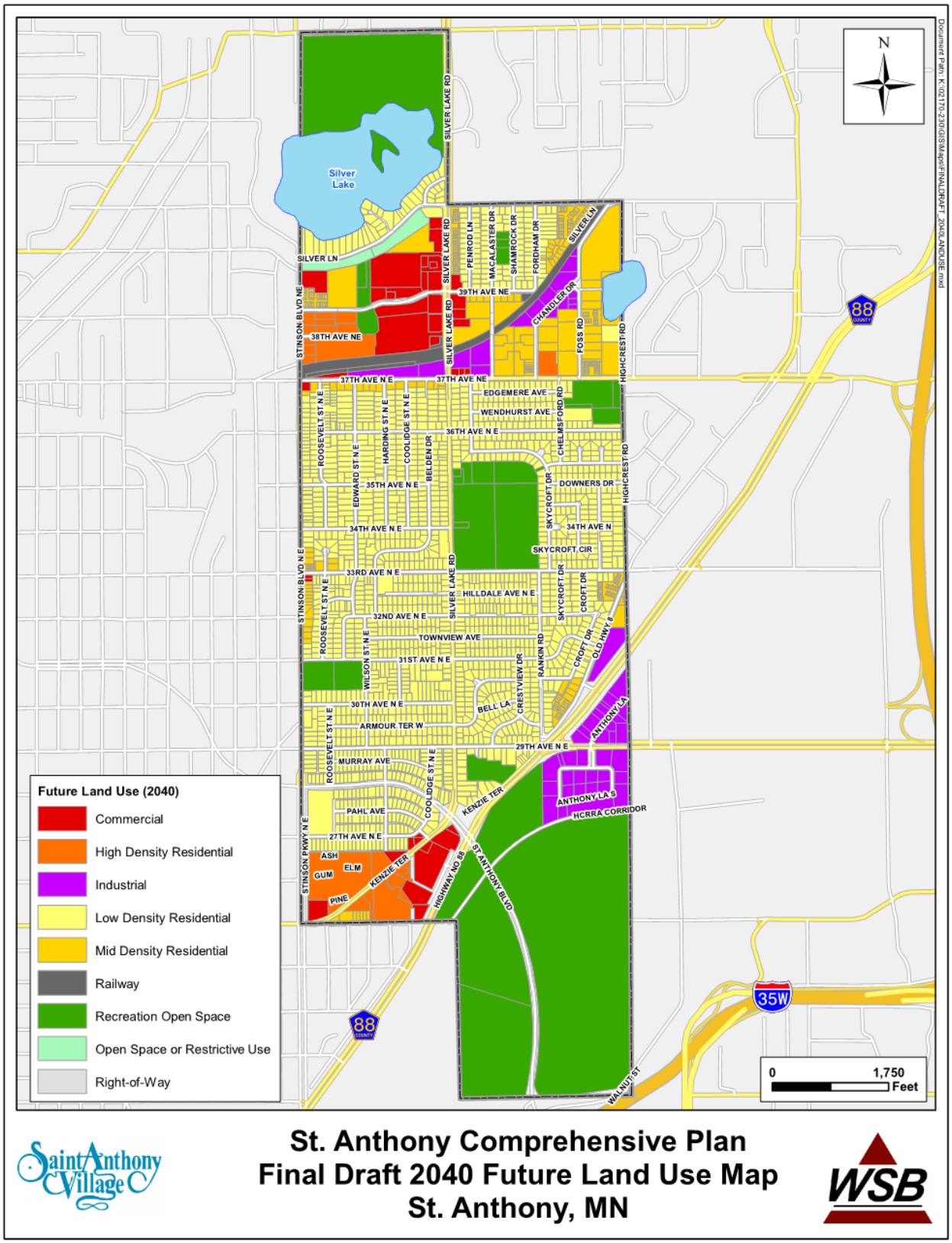


FIGURE 4-8: ST. ANTHONY 2040 PLANNED LAND USES BY AREA

2040 Land Use Category	Total Acres	Percent of total land area (%)
Low Density Residential	508	34%
Recreation Open Space	445	30%
ROW, Other	213	14%
Mid Density Residential	103	6.8%
Lakes	68	4.5%
Industrial	63	4.1%
Commercial	57	3.8%
High Density Residential	51	3.4%
Total	1,508	

Redevelopment Target Areas

Expected Growth from Residential Redevelopment

The areas that are expected to be residential redevelopment opportunities over the 2040 planning period are shown in FIGURE 4-10, and described in the table below. Expected decadal phasing is also included in the table below.

FIGURE 4-9: RESIDENTIAL GROWTH AND REDEVELOPMENT, BY LAND USE AND DECADE

Map Label	Opportunity Area	Guided density	Net Site Acreage	Density (Min)	Existing Units	Net Units	Staging		
							2020	2021-2030	2031-2040
1	Southern Gateway site	High density	15.4	20	0	308		308	
2	Stinson Silver Lake Village	High density	3.8	20	0	76		76	
3	Stinson south of 33rd	Medium density	4.11	4	11	17		17	
4	West of Mirror Lake	Medium density	2.36	4	0	10		10	
5	block south of the Legacy	Medium density	2.2	4	5	9			9
6	Bowling Alley site	High density	1.26	20	0	25			25
7	Scattered site high-density housing (commercial areas) (Walmart site in Silver Lake Village) 4001 Stinson Blvd	High density	10	30	0	300	300		
			39.13	19.0		745	300	411	34

Applying the expected density ranges to the land use areas, this table demonstrates the two ways in which the likely redevelopment areas will meet St. Anthony's forecasted and expected 2040 growth.

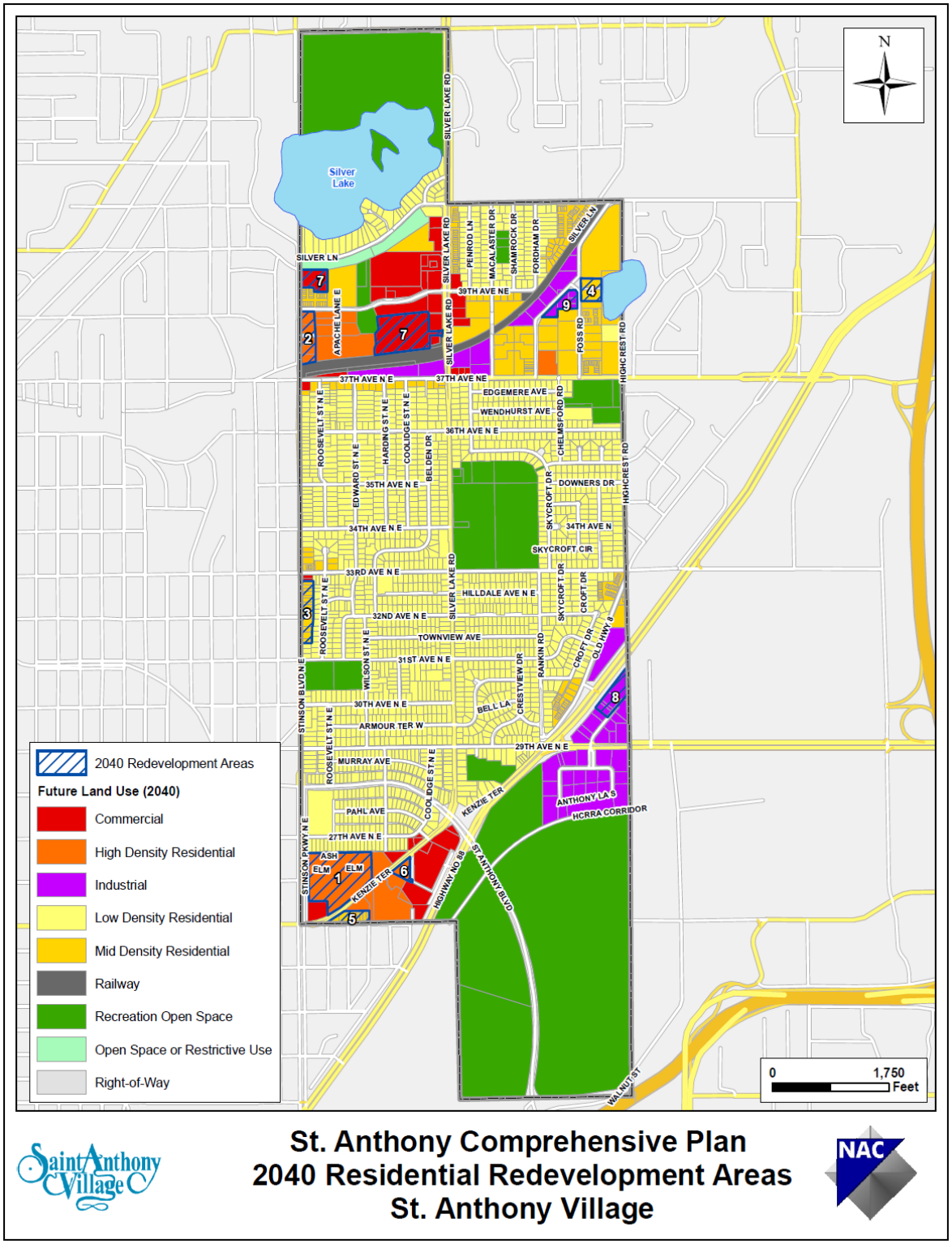
- **Overall Average Density:** Applying the *minimum* end of the density range to each residential land use category, the overall density is the total number of expected minimum units divided by the total number of acres in the likely redevelopment areas. St. Anthony's overall average density is **19 units per acre**, which is above the guided minimum of 10 units per acre for a community with an Urban designation.
- **Affordable Housing Allocation**: Given the expected staging of St. Anthony's opportunity areas, the number of "affordable units" (defined as minimum dwelling units that will develop between 2021 and 2030 at a minimum of 8 dwelling units per acre or more) is 384 units. The high density residential land use is the only category that is expected to produce affordable units using minimum densities. Of the expected affordable units, 308 are expected to come from the redevelopment of the Southern Gateway

site, calculated using minimum allowed density for the site, and 76 units from other sites. This total number of affordable units meets and exceeds the required allocation of 152 units for that time period.

Additionally, sites 8 and 9 on the redevelopment map are intended to redevelop into industrial uses that will provide additional employment for the community.

For the commercial land use designation, 17.5% of this land may be utilized for residential uses. This would be 10 acres of land. This will allow for the City to place higher density housing in the context of commercial areas, where appropriate. This provides for additional redevelopment opportunities as well as providing a customer base for certain commercial areas. Development densities in these areas is required to a be a minimum of 30 units per acre up to 40.

FIGURE 4-10: TARGET AREAS OF RESIDENTIAL REDEVELOPMENT WITHIN THE 2040 PLANNING TIME HORIZON



Residential Redevelopment

By majority land area, St. Anthony is guided to remain a largely low-to-medium density residential community. The most significant residential growth and redevelopment opportunities are, however, on sites that can accommodate higher density housing. Examples of housing redevelopment from within the last decade in the community include the Legacy assisted living apartments as well as the Landings and Legends apartment buildings at Silver Lake Village.



The Legacy of St. Anthony (left) at 2540 Kenzie Terrace is 73 units on a 1.25-acre parcel, while the housing developments at Silver Lake Village (the Landings is shown here) are about 38 units per acre overall.

This plan acknowledges some key areas that are most likely to become residential redevelopment opportunities within the time horizon of this plan. One of these key areas includes the site of the former Lowry Grove mobile home park, now referred to as the Southern Gateway site in the Southwest Area. This 15-acre site represents a very large redevelopment area for a community the size of St. Anthony, and its propensity to support higher density housing is underscored by its proximity to existing transit lines and nearby commercial development. Other high-opportunity sites for residential redevelopment include Silver Lake Village, sites along Stinson Boulevard and a portion of the northeast industrial park near Mirror Lake that is currently zoned medium-density residential.

Commercial and Industrial Infill and Redevelopment

St. Anthony has four significant commercial and industrial nodes: the Southwest Area (between Kenzie Terrace and Lowry Avenue); Silver Lake Village (north of 37th Avenue and west of Silver Lake Road; the industrial park on the southeast side of the city (south of New Brighton Boulevard); and the industrial area in the northeast corner of the city north of 37th Avenue.

Each of these four areas will retain their commercial and industrial guidance in the 2040 Comprehensive Plan update, but there may be opportunities to promote infill development at each of these sites as land ownership or tenancy changes hands. In particular, St. Anthony supports the creative use of commercial land for incorporating residential uses into commercial developments where the

integration of residential uses would be appropriate and well-supported by existing infrastructure. St. Anthony acknowledges that commercial areas will continue to adapt and change based on the changing retail environment and the age of many commercial properties. Furthermore, the future of parking requirements may also change as technologies advance and the ride sharing economy impacts transportation choices.

A short summary of foreseeable opportunities at each of these nodes is summarized here:

- **Southwest Area**. In 2016, St. Anthony was the recipient of a technical assistance panel (TAP) from ULI Minnesota in which ULI staff and experts analyzed the redevelopment potential of the Southwest Area of the city. The panel found that the cost of land acquisition and relatively good condition of the existing developments in this area may be prohibitive to redevelopment. However, they also suggest that placemaking improvements such as welcoming entry points and streetscape and commercial design elements could help to draw people to the location and create a unified "district feel". A possible catalyst that could spur redevelopment might be the attraction of a strong retail anchor. Another consideration is the impact that redevelopment of the nearby Southern Gateway site could have on the surrounding area and an increased demand for retail opportunities and livable spaces in the Southwest Area.

- **Silver Lake Village.** This area represents relatively recent development, but the current vacancy of the Walmart building on the corner of 37th Avenue and Silver Lake Road has been a priority for St. Anthony. The Walmart building and associated parking lot are currently targeted for redevelopment.

- **Southeast industrial park**. The industrial park area east of Highway 88 hosts a mixture of office and warehousing or light industrial uses. Some of the aging properties may become redevelopment target areas or sites for more modern industrial building as the properties undergo changes or sale.

- **Northeast industrial area.** The properties in the northeast industrial park area are located in close proximity to existing medium and high-density residential development. Some of these aging properties may become redevelopment target areas or sites for more modern industrial building as the properties undergo changes or sale.

Draft Land Use and Housing Goals

- Saint Anthony Village makes the best use of its land and focuses re-development on aging and underutilized commercial and industrial properties.
- Current public park and community center facilities are well maintained and enhanced to meet the demands of a diversity of residents.

- Our community is welcoming and accommodating to all ages and generations.
- Land uses are integrated, walkable, and well-connected
- The housing supply meets the spectrum of needs for all ages and income levels
- Our existing neighborhoods are well-maintained
- New development is environmentally friendly

Draft Land Use and Housing Policies (Action Items)

1. Allow for housing turnover of single-family homes by continuing to plan for senior housing options at all affordability levels.
2. Conduct further study and planning on the re-development or better utilization of the current industrial park.
3. Monitor the interest in teardowns and large expansions of single-family homes and examine the zoning code to ensure opportunities for investment are maximized.
4. Coordinate with school district and community education to plan for changing programming and spatial needs at the community center.
5. Explore the potential for affordable housing development at the city-owned site on Kenzie Terrace (former bowling alley site).
6. Identify areas in the city for co-operative senior housing at medium density, especially along Stinson Boulevard.
7. Utilize available financing techniques to encourage multi-family housing developments to include a component of affordable housing.
8. Plan for the re-development of underutilized commercial properties, especially those on higher volume streets and transit routes, for higher-density, multi-family and senior housing.
9. Evaluate the appropriateness for ordinances that encourage alternative and affordable housing options like accessory dwelling units and smaller apartment units.
10. Identify areas in the community for the development of new, higher end office space.
11. Utilize the Planned Unit Development re-zoning as a tool at key locations to promote market flexibility, integrated land uses, density and walkability.
12. Explore available grants and funding opportunities to promote the type of desired development.
13. Review and revise the purpose statement, allowed uses and dimensional standards of the R-4 Residential district as necessary to support the higher density residential uses guided in this Comprehensive Plan update.
14. Revise the zoning code to allow for residential uses in commercial districts, in order to better meet anticipated market and transportation trends.



Chapter 5: Housing

CHAPTER 5: HOUSING

St. Anthony is a self-described "village" located adjacent to a major metropolitan area. While a majority of the city's land area is devoted to single family homes that were largely built after the 1950s, the actual number of housing units in St. Anthony is split almost evenly between single family units (detached homes and attached housing) and multifamily unit types (multiplexes, apartments and condominiums). The images shown below represent the range of housing types that can be found in St. Anthony Village.



Traditional Single-Family Homes. Many, such as the home shown here, have tuck-under or attached garages.



Duplex/Multiplex. Similar in appearance to single family homes but with more than one dwelling unit per building.



Attached Townhomes. Housing units have shared walls and can be one or two stories.



Apartment Buildings. Some apartments in St. Anthony, such as the building shown here, are built in an older walk-up style. Newer construction apartments can be found at Silver Lake Village.



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

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:

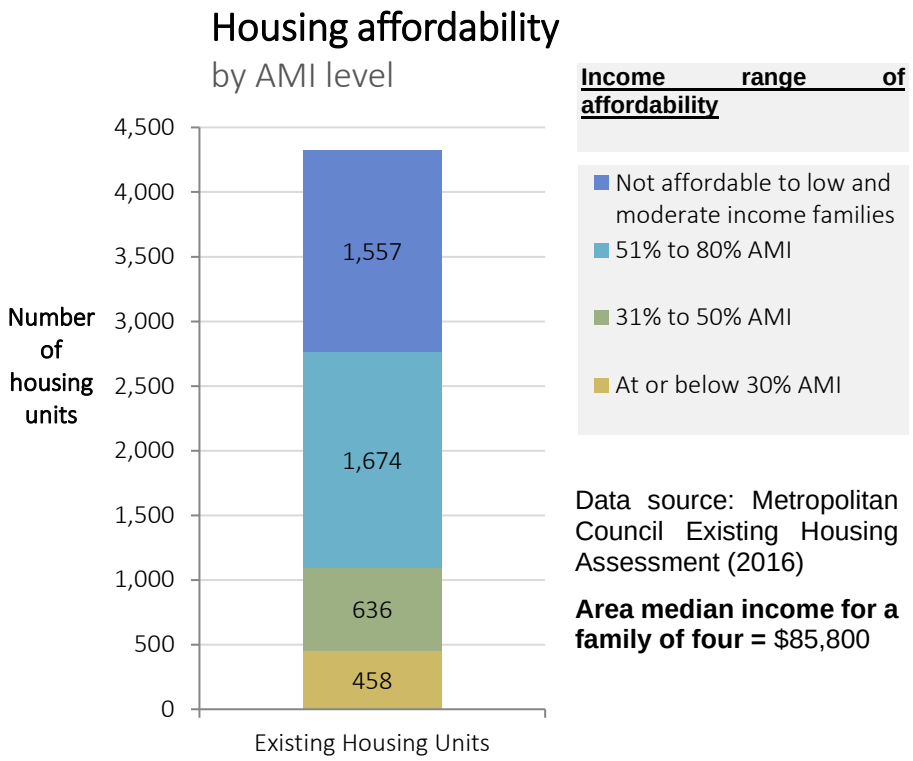
- Overwhelming positivity for the "small town feel" of St. Anthony.
- Balance the need for housing redevelopment and property improvements with the need to maintain an affordable housing stock.
- There is an interest in increasing housing density in strategic locations (along transit routes or in underutilized areas).
- Being inviting to new residents will keep the community vibrant.
- The City has housing for all types of families, households and residents at all stages of their lives.
- Prioritize mixed uses and allowing housing to co-occur within proximity to services, businesses, and critical infrastructure.

EXISTING HOUSING AFFORDABILITY IN ST. ANTHONY

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 St. Anthony is $54,943.

According to the Metropolitan Council's 2016 housing assessment, of the 4,325 total housing units in St. Anthony, around 65 percent are affordable to low or moderate-income households that are at or below 80% of AMI. As shown in FIGURE 5-1, most of St. Anthony's affordable housing is affordable to households in the highest AMI band, or those making incomes of $43,758 to $65,700 annually.

FIGURE 5-1: ST. ANTHONY HOUSING AFFORDABILITY



Data source: Metropolitan Council Existing Housing Assessment (2016)

Area median income for a family of four = $85,800

Publicly subsidized units often comprise the most deeply affordable units in a community. There are 453 publicly subsidized housing units in St. Anthony, as shown in FIGURE 5-2.

FIGURE 5-2: ST. ANTHONY SUBSIDIZED UNITS

All Publicly Subsided Units	Publicly Subsidized Senior Units	Publicly Subsidized Units for People with Disabilities	Publicly Subsidized Units: All Others
214	45	0	169

Data Source: Metropolitan Council Existing Housing Assessment (2016)

When looking at housing tenure, St. Anthony has a higher percentage of renter-occupied units available than does the Twin Cities Region. St. Anthony housing units are currently about 39 percent renter-occupied.

FIGURE 5-3: HOUSING UNITS BY TYPE

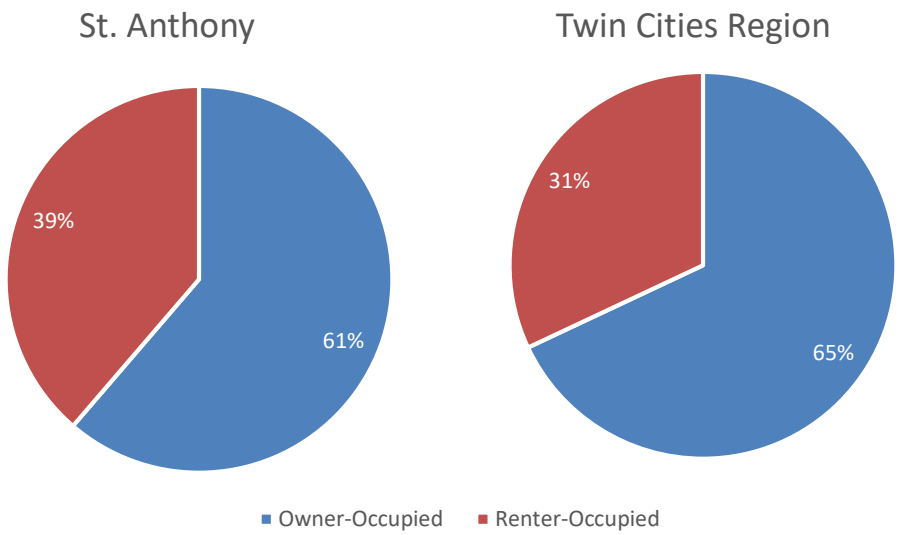
Single-family units	Multifamily units	Manufactured homes	Other Housing units
2,054	2,194	93	0

Data Source: Metropolitan Council Existing Housing Assessment (2016)

FIGURE 5-4: HOUSING TENURE

Ownership Units	Rental Units
2,560	1,781

FIGURE 5-5: HOUSING TENURE COMPARED TO TWIN CITIES REGION



Rental Affordability

St. Anthony's rental housing landscape looks different than it did 20 years or even a decade ago. About 30 percent of the city's existing rental stock has been constructed over just the past 15 years, which includes 235 units of below market, affordable housing developed at Silver Lake Village with tax credits, tax increment financing, and County HOME funds.

A 2017 Ehlers assessment looked in depth at the affordability of available rental housing in St. Anthony. Of the 13 rental properties and 1,458 rental units comprising the study, the assessment found that more than 80 percent of these units can be considered affordable at some level. In a similar manner to the Metropolitan Council's 2016 housing assessment, the Ehlers assessment shows affordability broken down by AMI bands. The greatest share of affordable rental housing in St. Anthony is affordable between 50% and 60% of the area median income.

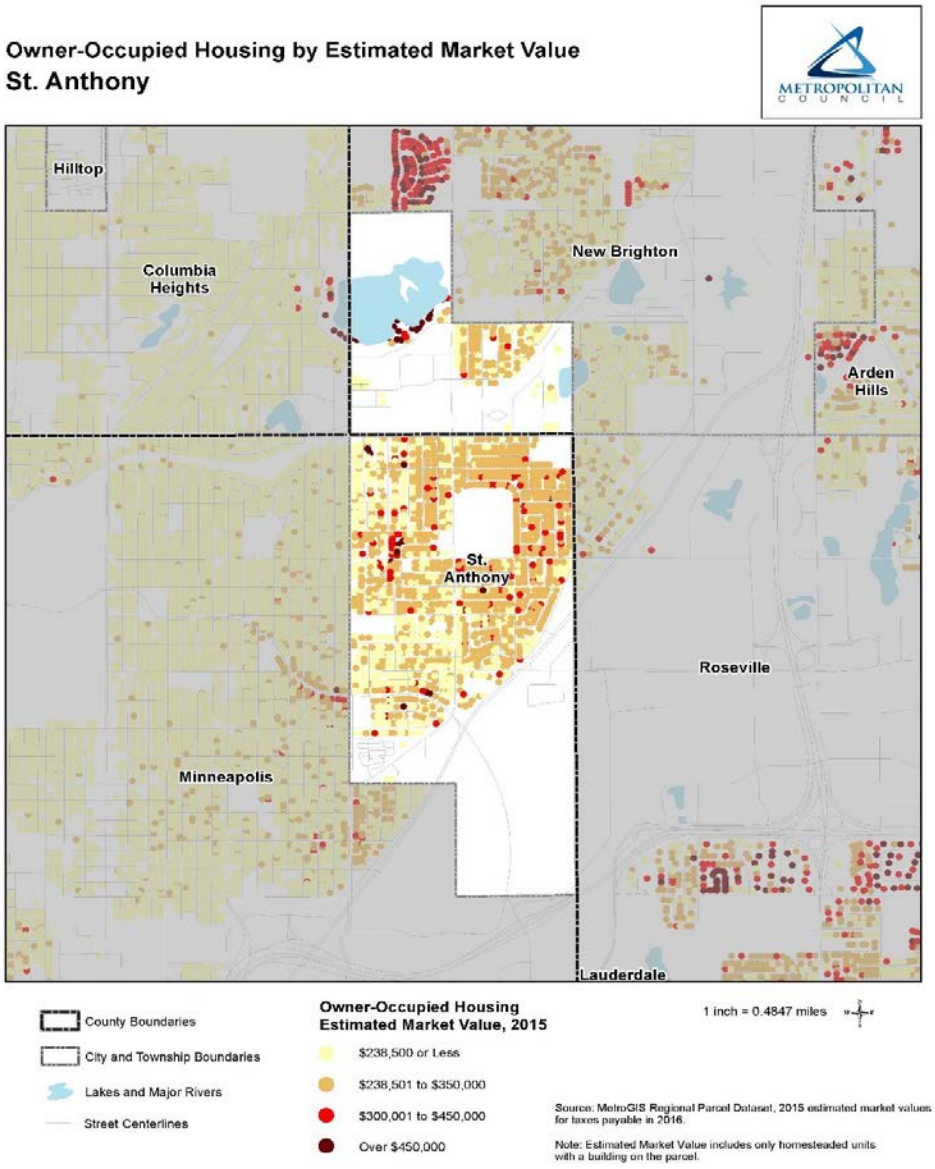
Number of Properties	Number of Units	Number of Affordable units	Percent of Units Affordable
13	**1,458**	**1,221**	**84%**

Number & Percent Affordable at 30% of AMI	Number & Percent Affordable at 50% of AMI	Number & Percent Affordable at 60% of AMI
45	423	753
4%	**35%**	**62%**

Owner Affordability

Figure 5-6 shows the market value of owner-occupied housing units in St. Anthony. Owner occupied housing units valued at $243,500 or less are deemed affordable for residents making less than 80% of the Area Median Income. St. Anthony has a surprisingly large percentage of affordable owner housing due to the existence of affordably priced condo units. In 2016, 42% of the owner-occupied units in St. Anthony, or 930 units of 2,218 owner-occupied units were affordable (or less than $243,500 in market value).

Figure 5-6: Owner-Occupied Housing Estimated Market Value



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 5-7 illustrates the share of low-to-moderate income households that are cost-burdened in St. Anthony, by AMI income level. One-quarter of St. Anthony's total households are cost-burdened, and almost 50 percent of those cost-burdened households have incomes in the lowest AMI tier.

FIGURE 5-7: COST-BURDENED HOUSEHOLDS

Source: Metropolitan Council Existing Housing Assessment 2017

AMI level	*Households*	*Percentage*
Income at or below 30% AMI	501	12%
Income 31-50% AMI	336	8%
Income 51-80% AMI	221	5%

The rate of cost burdened households in St. Anthony mirrors the cost-burdened households rate in the Twin Cities region overall, at about one in four households. In comparison to neighboring and comparable inner-ring suburb cities, St. Anthony's cost-burdened share is very similar to surrounding communities.

FIGURE 5-8: COST-BURDENED HOUSEHOLDS COMPARISON

City	Cost-burdened households			
	at <30% AMI	at 31-50% AMI	at 51-80% AMI	Total percent cost-burdened
St. Anthony	12%	8%	5%	25%
Roseville	12%	8%	7%	27%
New Brighton	14%	8%	4%	26%
Columbia Heights	14%	9%	5%	29%
Robbinsdale	14%	7%	7%	28%
Twin Cities Region	10%	8%	6%	24%

Source: Met Council Existing Housing Assessment 2017

Meeting the Regional Affordable Housing Allocation Share

St. Anthony, along with every community in the metro area, is responsible for planning for an adequate regional share of affordable housing. The Housing Element of Metropolitan Council's *Thrive 2040* plan has determined the affordable housing requirement for every community by affordability level, as determined by a household's relationship to the Area Median Income (AMI). St. Anthony's affordable housing requirement is shown in FIGURE 5-9.

FIGURE 5-9: AFFORDABLE HOUSING NEED ALLOCATION*

Affordable Housing Need Allocation, 2021-2030	
At or Below 30% AMI	74
From 31 to 50% AMI	53
From 51 to 80% AMI	25
Total Units	**152**

AMI = Area Median Income

* This is based on the Met Council revised allocation from the EAW comments for Southern Gateway Site, not the published need of 34 units in the 2015 system statement

Housing calculations from FIGURE 5-10 indicate that St. Anthony has guided sufficient high-density land at a minimum of 8 units per acre to produce 313 units of housing at affordable densities in the 2021-2030 decade, which exceeds the Metropolitan Council's affordable housing allocation. Based on the allocation of land at the guided densities, during the 2021-2030 decade, there would be approximately 15.5 acres of land to produce the 313 units.

Future Residential Land Use

From the 2040 guide land use map, FIGURE 5-10 below shows the total acreage within St. Anthony that is allotted to residential land uses in the 2040 plan.

Of the 660 total residential acres in St. Anthony, 39.13 of these acres are estimated to redevelop within the 2040 planning horizon. Affordable densities as defined by the Metropolitan Council are those with a minimum range of 8 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 – using the minimum density to calculate unit potential as directed by the Metropolitan Council. FIGURE 5-11

below summarizes the residential redevelopment potential from the land use chapter, and highlights in red the units that would be considered affordable to meet St. Anthony's regional affordable allocation.

Using minimum density to calculate unit potential, St. Anthony can expect to net 338 units of affordable housing in the decade from 2021-2030 using approximately 19 acres.

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 St. Anthony can employ to help ensure that housing affordability goals are achieved.

FIGURE 5-10: FUTURE RESIDENTIAL LAND USE

Land Use Category	Land Uses	Total 2040 Guided Residential Acres
Low Density Residential (2-4 units/acre)	• Detached housing units • Duplexes • Churches, schools and institutional uses • Duplexes or multiplexes	508 Acres
Mid Density Residential (4-20 units/acre)	• Rowhomes or Side-by-Side townhomes • Garden apartments • Apartment buildings (2-3 stories) • Churches, schools and institutional uses • Rowhomes or Side-by-Side townhomes	103 Acres
High Density Residential (20-40 units/acre)	• Garden apartments • Apartment buildings (2-5 stories) • Churches, schools and institutional uses	49 Acres
Commercial (30-40 units/acre)	• 17.5% of commercial land as residential • High Density Residential uses in a commercial context • Apartment buildings	10 Acres Residential

FIGURE 5-11: GUIDED DENSITY FOR RESIDENTIAL LAND USE

Guided density	Re-developable Acreage	Density (Min)	Net Unit Potential (Min)	Staging					
				2020 Units	2020 Acres	2021-2030 Units	2021-2030 Acres	2031-2040 Units	2031-2040 Acres
Mid density	8.67	4	36	0	0	27	6.47	9	2.2
High density	24.57	20	491	0	0	384	19.2	25	1.26
Commercial	10	30	300	300	10	0	0	0	0
TOTAL	37.13		827	300	10	411	25.67	34	3.46

EXISTING HOUSING NEEDS

From this assessment of the physical and cost characteristics of the housing stock in St. Anthony, 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 St. Anthony will take to address housing in the coming decades.

The following trends are noted:

- **Rental housing demand at all affordability levels is increasing.** The population of St. Anthony is aging and is also becoming more diverse. The need for affordable and appropriate rental housing will only increase with this trend. As this trend towards greater diversity and a higher share of older residents plays out across the region overall in the decades to come, the city could consider what initiatives to undertake if it wants to provide housing opportunities for people of all ages, incomes, backgrounds, and in all stages of life.
- In St. Anthony, renters represent an increasing share of the occupied households. Whereas in 2000 only 33 percent of households were renter-occupied, that share increased to 38 percent in 2010. As an inner-ring suburban community located close to jobs and transit, St. Anthony should expect the overall demand for housing to be strong and the rental demand to be maintained or increase. The regional observed trend predicts population movement toward redevelopment rather than greenfield development and increasing preferences for rental housing due to cost considerations and lifestyle choices. **The housing stock in St. Anthony is aging, and residents will have increasing maintenance and upkeep requirements in the coming decades.** St. Anthony contains a many smaller-lot single family homes developed in the 1950s and 1960s 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 St. Anthony's existing housing stock, 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.*

- **St. Anthony, along with many urban communities, is at risk of losing its naturally occurring affordable housing to rising rents**

  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.

There are steps that St. Anthony can take to recognize the important role that naturally occurring affordable housing plays in the community, typically supporting households between 30-80% AMI, and to pursue opportunities to preserve this housing and improve its safety and livability while maintaining its affordability.

Housing need goal: *Anticipate the need for preservation of naturally-occurring affordable housing within all affordability bands.*

Planning for Affordable Housing

Affordable housing implementation toolbox

St. Anthony has identified implementation tools that it is willing to consider. St. Anthony does already provide a variety of affordable rental housing options in comparison to many of its surrounding communities. Nonetheless. the City recognizes that the regional demand for affordable housing is great, and proactive policies and strategies by cities are needed across the region working in partnership with affordable housing developers and agencies. Strong partnerships are essential, as the city has limited tools at its disposal to produce and maintain affordable housing on its own.

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 St. Anthony has financially assisted affordable rental projects through TIF and other available means.

Many 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 (FIGURE 5-12). The section that follows explains each of the affordability tools in greater detail and gives more details about when these strategies might be used.

FIGURE 5-12: AFFORDABLE HOUSING TOOLS

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	Supportive Referrals	Local Fair Housing Policy	Homebuyer assistance programs	Foreclosure prevention	Repair & Rehab Support	City involvement in housing groups/initiatives	Site assembly	Zoning and subdivision policies allowing high density	Rental license and inspections program	MHFA Consolidated RFP	Livable Communities grant (Met Council)	CDBG grants & HOME funds	Aff. Housing Incentive Funds (Hennepin Cty)	Public housing and project based assistance	LIHTC properties	4(d) tax program & private unsubsidized	Community land trusts	Housing Improvement Areas (HIAs)
Anticipate and meet increased rental demand at all affordability levels. *Support housing maintenance assistance programs, particularly for lower-income households.*	P/E			P		P				P		P		E	P/E		E	E	E	E			
Anticipate the need for preservation of naturally-occurring affordable housing within all affordability bands.	P/E							E	E	P		P	P	E			E	E	E		E		

*"E" indicates a policy that the City can encourage and/or supports a partnership for this tool. "P" indicates the City can provide this tool directly.

Affordability tools

This section explains each of the affordability tools from FIGURE 5-12 in greater detail.

Affordability Category	Housing Affordability Tool
Local funding for Affordable Housing	**Development Authorities (local HRA, CDA, or EDA)** The Hennepin and Ramsey County HRAs can and do levy funds for affordable housing maintenance and production within St. Anthony. Activating the city's HRA would allow St. Anthony 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. **When we would use this**: The City would consider using funds 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 and senior housing at or below 80% AMI. This could support the development of "Missing Middle" housing in Low Density and Medium Density Residential Districts where multi-unit buildings can be built in scale with single family homes.
	Housing Bonds HRAs have the ability to 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. Bond-supported projects would typically support affordable housing for the 50% and 80% AMI bands. **When we would use this:** The City would consider using funds from Housing Bonds 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 and senior at or below 80% AMI.
	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. **When we would use this:** The City would consider using Tax Abatement to support the development of both rental and ownership housing units that are affordable at or below 80% of the AMI or that increase transit-oriented development or high density development such as the former Walmart site. Tax Abatement could be strategy the City may use to help remove blight and/or encourage redevelopment. Tax Abatement proposals that would receive priority consideration are those which would extensively rehabilitate existing multi-family 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 (pay as you go). The City has discretion over TIF allocations and will consider using TIF for housing projects that include affordable housing. By legislative definition, TIF used for affordable rental housing projects must meet affordability to those at 60% of AMI or less. The affordability threshold is 115% of AMI for owner-occupied housing projects. **When we would use this:** The City would consider using TIF to support the development of both rental and ownership housing units that are affordable at or below 80% of the AMI, or that increase transit-oriented development along key transit corridors or major redevelopment sites such as the former Walmart site. TIF may also be considered for projects which implement the City's vision and values for a City identified redevelopment area or in instances where a project would redevelop a blighted, contaminated or challenged site. The City would also consider using TIF for projects which would rehabilitate existing multi-family housing stock or provide new multi-family workforce or workforce housing having amenities similar to those found in market rate housing. Additionally, proposals for workforce housing that are innovative and do not include high-rise buildings would be given priority consideration for these types of funds.

Local policies and strategies to promote access to affordable housing	**Effective referrals** The City supports providing appropriate resources and education about existing housing support programs offered by other agencies and organizations. While the city does not have the capacity to provide 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 serving the area. Effective housing referrals will increase opportunities for residents to enter the community who would otherwise have barriers and improve the likelihood of existing housing maintenance.
	Fair Housing Policy Both Hennepin & Ramsey County HRA support Fair Housing Policies, and the City will support implementation of that policy. A Fair Housing Policy states that the City will not discriminate or allow others to discriminate against protected cases, in compliance with state law.
	First time homebuyer, down payment assistance, and foreclosure prevention programs The City encourages residents to access existing programs available through Hennepin & Ramsey counties, 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.
	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, Minnesota Housing, or others. The City will continue promoting its partnerships 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.
	Participation in housing-related organizations, partnerships, and initiatives City supports staff, 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 The City states an intention of supporting policies that encourage land banking, reserving publicly owned properties, and other site assembly techniques for affordable housing. The Twin Cities Land Bank serves communities in Hennepin and Ramsey counties. St. Anthony will consider pursuing partnership or collaboration with the Twin Cities Land Bank and support land banking opportunities as they arise.

	Manufactured Home Park Policies The City will work toward identifying homeownership resources applicable to owner occupied homes in the community, including manufactured housing. In addition, the City is supportive of voluntary cooperative conversions of manufactured home parks, and will work with owners to facilitate infrastructure needs, consistent with City policy applicable to all land uses.
	Zoning and subdivision ordinances City codes can encourage and streamline development of affordable housing. The City may consider proactive zoning policies that incentivize higher density or greater affordability. Such updates to zoning ordinances may help to meet rental demand and produce housing that is affordable to households at or above 50% AMI.
	Rental license and inspections programs St. Anthony already has a rental license and inspection program. These programs are enacted not only to ensure tenants are treated fairly but can also a data collection opportunity to keep tabs on rental properties. This data can help St. Anthony understand where naturally occurring affordable housing in the community exists and to better understand what steps need to be taken to help preserve it.
Regional & Federal funding for Affordable Housing	**MHFA Consolidated Request for Proposals** This is the big annual funding request from Minnesota Housing Finance Agency that supports affordable housing developments. The City will continue to work with developers in coordination with MHFA in supporting RFP submissions for projects that will help the City meet the Met Council's proposed Affordable and Lifecyle Unit Housing Goals. **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) St. Anthony is eligible for Met Council funding for developments within the community that will innovative projects often involving affordable and connected housing. The City will continue to work with developers in coordination with the Met Council in supporting RFP submissions for projects that will help the City meet the Met Council's proposed Affordable and Lifecyle Unit Housing Goals. **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) Hennepin & Ramsey counties manage these funds, which can be used on a number of housing and revitalization

	projects. St. Anthony may apply annually through a coordinated County RFP and will consider opportunities to apply for and use CDBG funds. 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 Hennepin & Ramsey County for construction or rehabilitation projects. St. Anthony may apply annually through a coordinated County RFP and will consider 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.
	Hennepin communities: Affordable Housing Incentive Fund (AHIF) Financing supports acquisition, rehabilitation or new construction activities. St. Anthony may apply annually through a coordinated County RFP and will consider opportunities to apply for and use AHIF funds, particularly for projects to mitigate the loss of naturally occurring affordable housing.
Affordable Housing Preservation Strategies	Project Based Rental Assistance Typically HUD-funded, this type of assistance is a deep subsidy that remains with the units of a project will consider supporting such projects.
	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, St. Anthony will consider supporting 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.
	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.
	Private unsubsidized affordable housing May be naturally occurring or supported through 4d tax program. St. Anthony supports private unsubsidized affordable housing and will consider exploring opportunities to work with property owners to retain the affordability of these properties over the long term.
	Community Land trusts and Land Banks. Land trusts provide permanent affordability for income eligible households. Typically, a land trust 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% of AMI typically qualify for these homes. Although there is not an

	active CLT working within St. Anthony, the city can signal its support for CLT initiatives as a means of providing homeownership affordability in perpetuity in the community.
	Housing Improvement Areas (HIAs) A housing improvement area (HIA) is 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.
	Public Housing Typically HUD-funded or supported through Federal funding, this type of assistance is a deep subsidy that remains with the units of a project or development.



Chapter 6: Transportation

CHAPTER 6: TRANSPORTATION

INTRODUCTION

The transportation system in St. Anthony Village 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 St. Anthony Village, Hennepin County, Ramsey County, Three Rivers Park District, Minneapolis Park and Recreation Board, Metro Transit, the Minnesota Department of Transportation (MnDOT), and the Canadian Pacific (CP) Railway.

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:

1. Summary of Regional Strategies
2. Existing Roadway System
3. 2040 Traffic Forecasts and Roadway Network Planning
4. Existing and Planned Non-Motorized Transportation Network
5. Freight Network
6. Transit
7. Aviation
8. Goals and Multimodal Strategies
9. Proposed Short and Long-Range Roadway Projects
10. Public Comments
11. 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 St. Anthony Village under the Urban 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 ten 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 St. Anthony Village, 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.

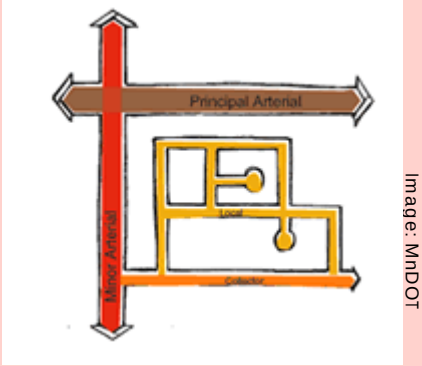


Image: MnDOT

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 6-1 shows the existing functional classification of each road in the City of St. Anthony Village and FIGURE 6-2 shows the existing roadway jurisdiction. The following sections describe each functional class in greater detail and indicate which roadways fall into each classification.

FIGURE 6-1: EXISTING FUNCTIONAL CLASSIFICATION

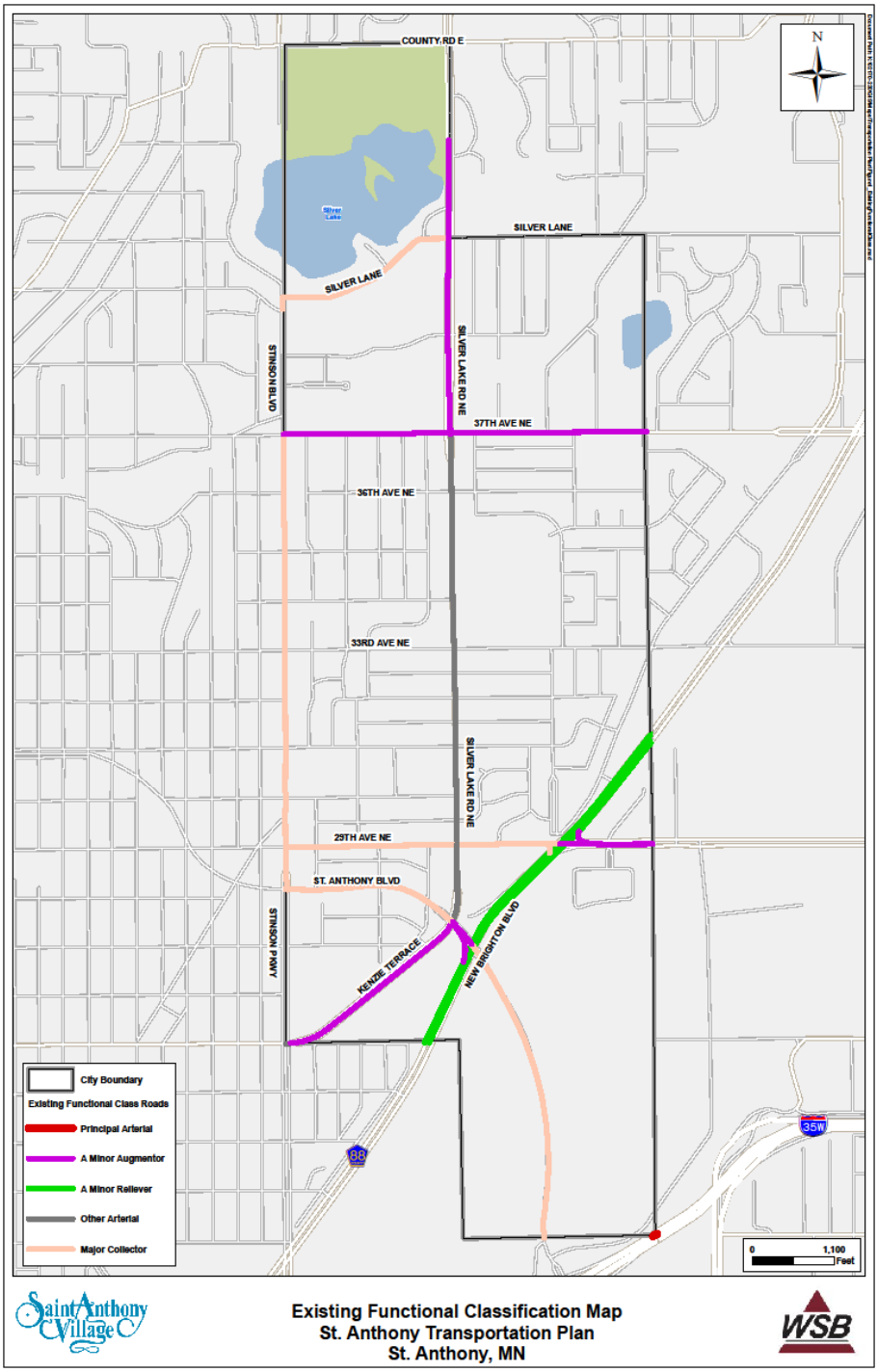
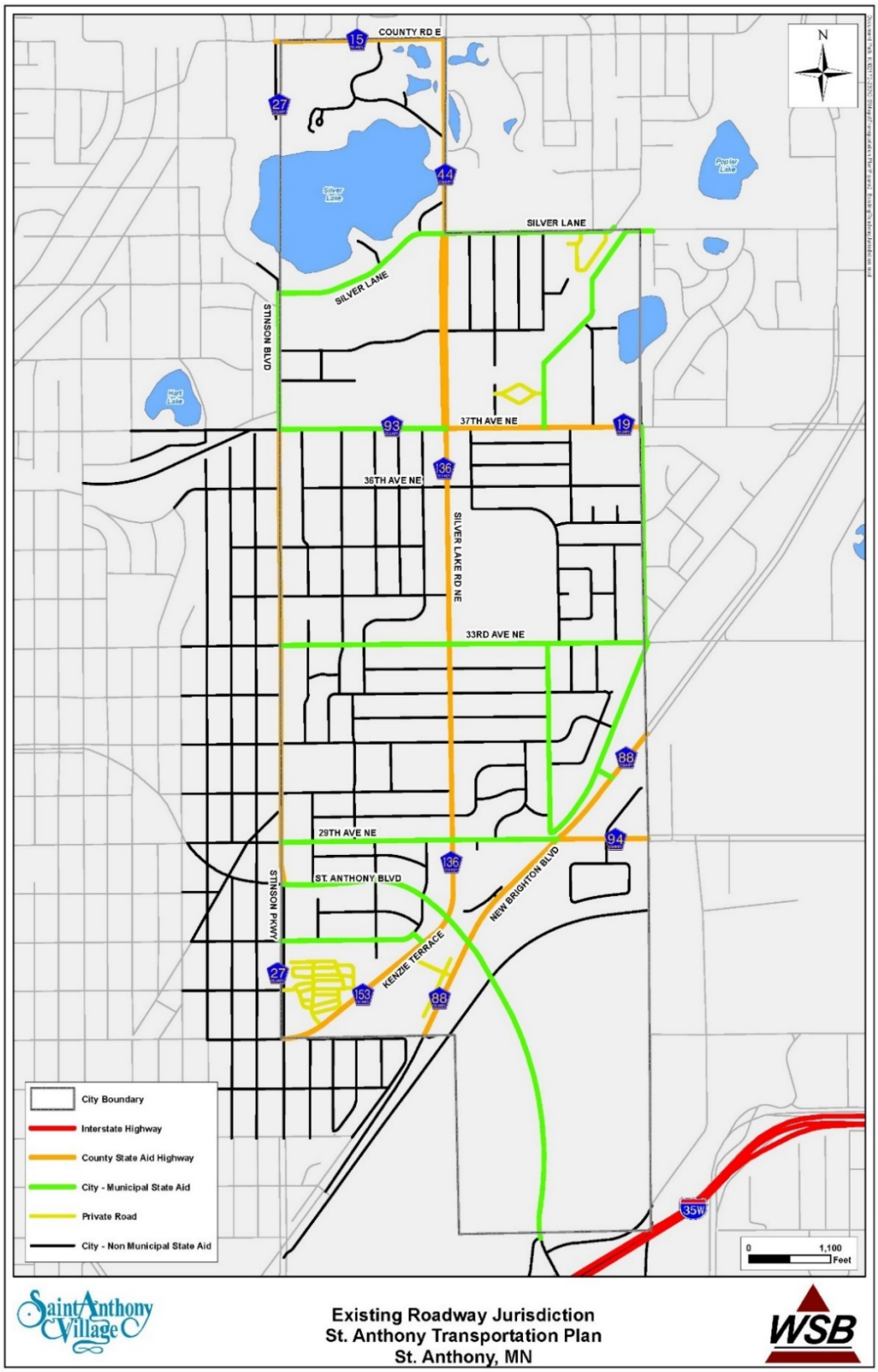


FIGURE 6-2: EXISTING ROADWAY JURISDICTION



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.

One existing principal arterial is located adjacent to St. Anthony Village. MnDOT Interstate (I-) 35W is located near the far southeast corner of the City, but it does not have any access points within the City. I-35W connects Minneapolis with Roseville, New Brighton, Arden Hills, and Blaine. 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 St. Anthony Village, the majority of minor arterials are under the jurisdiction of Hennepin County or Ramsey 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 Arterials and ”Other 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 are four "A" Minor Augmenters and one "A" Minor Reliever within the City:

"A" Minor Augmenters:

- Hennepin County State Aid Highway (CSAH) 94
- Hennepin CSAH 93
- Hennepin CSAH 153
- Ramsey CSAH 19
- Ramsey CSAH 44
- St. Anthony Boulevard from CSAH 136 to CSAH 88

"A" Minor Reliever:

- Hennepin CSAH 88

"Other Arterials" have a similar focus on mobility above land access. These roadways connect major traffic generators in the region. "Other Arterials" are not eligible for federal funding. "Other Arterials" within the City include the following:

- Hennepin CSAH 136
- Ramsey CSAH 15

No additional minor arterials are proposed within the City at this time.

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 St. Anthony Village, most collector roadways are owned and operated by the City, but Hennepin County 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:

- CSAH 27 (Stinson Boulevard Northeast)
- Silver Lane (west of CSAH 44)
- 29th Avenue Northeast (west of CSAH 88)
- St. Anthony Boulevard

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 St. Anthony Village. Local roadways are all roadways that are not arterials or collectors.

Planned Functional Classification

Several functional classification changes are recommended in response to changes in traffic patterns, development patterns, and increased population and employment in the City. Planned functional classification changes are listed below.

Change from a local street to major collector:

- Stinson Parkway from St. Anthony Boulevard to Lowry Avenue

Change from a local street to minor collector:

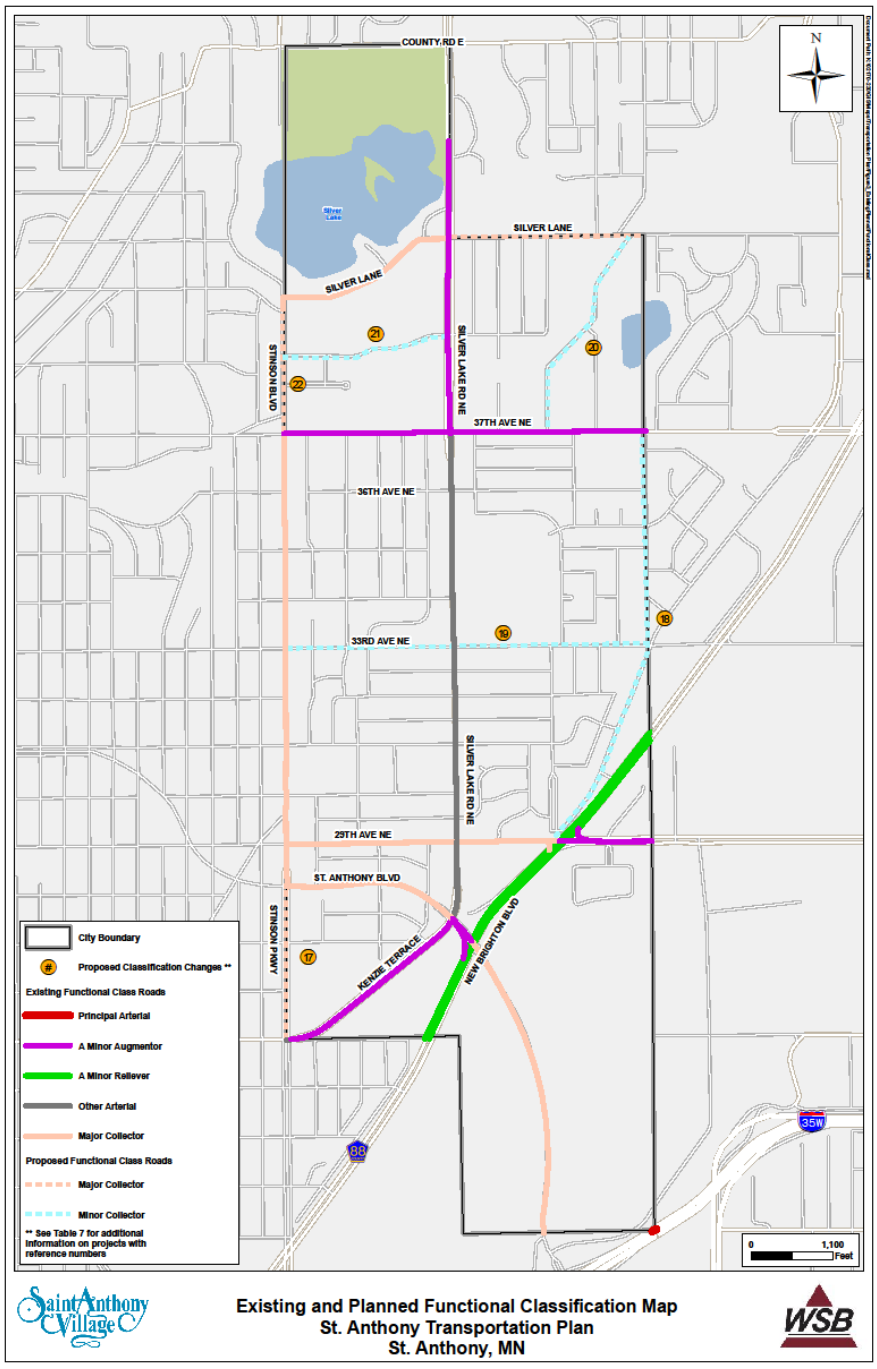
- Highcrest Road/Old Highway 8 from 37th Avenue to Rankin Road
- 33rd Avenue from Stinson Boulevard to Highcrest Road
- Chandler Drive/Foss Road from Silver Lane to 37th Avenue
- 39th Avenue from Silver Lake Road to Stinson Boulevard
- Stinson Boulevard from Silver Lane to 37th Avenue

FIGURE 6-3 on the following page provides a map illustrating the existing and planned functional classification system for St. Anthony Village.

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 FIGURE 6-20.

FIGURE 6-3: EXISTING AND PLANNED FUNCTIONAL CLASSIFICATION



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 St. Anthony Village.

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. FIGURE 6-4 below lists planning-level thresholds that indicate a roadway's capacity. 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.

FIGURE 6-4: 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 Divided	15,000	17,000
	Four-lane Undivided	18,000	22,000
	Four-lane Divided or Five-lane Undivided	28,000	32,000
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. FIGURE 6-7 and FIGURE 6-5 illustrate the existing number of lanes on arterial roadways within the City. FIGURE 6-6 illustrates existing traffic volumes on Principal Arterial, A-Minor Arterials and other significant roadways within the City.

As shown in the table, I-35W is the only arterial roadway located within or adjacent to the City that has more than four lanes. All other arterial roadways have four or fewer lanes. Two 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). All St. Anthony Village existing traffic volumes are below or within the planning level capacity thresholds shown in FIGURE 6-4**,** however, some congestion does occur along some primary routes, such as Silver Lake Road, due to operational constraints at intersections.

FIGURE 6-5: EXISTING NUMBER OF LANES

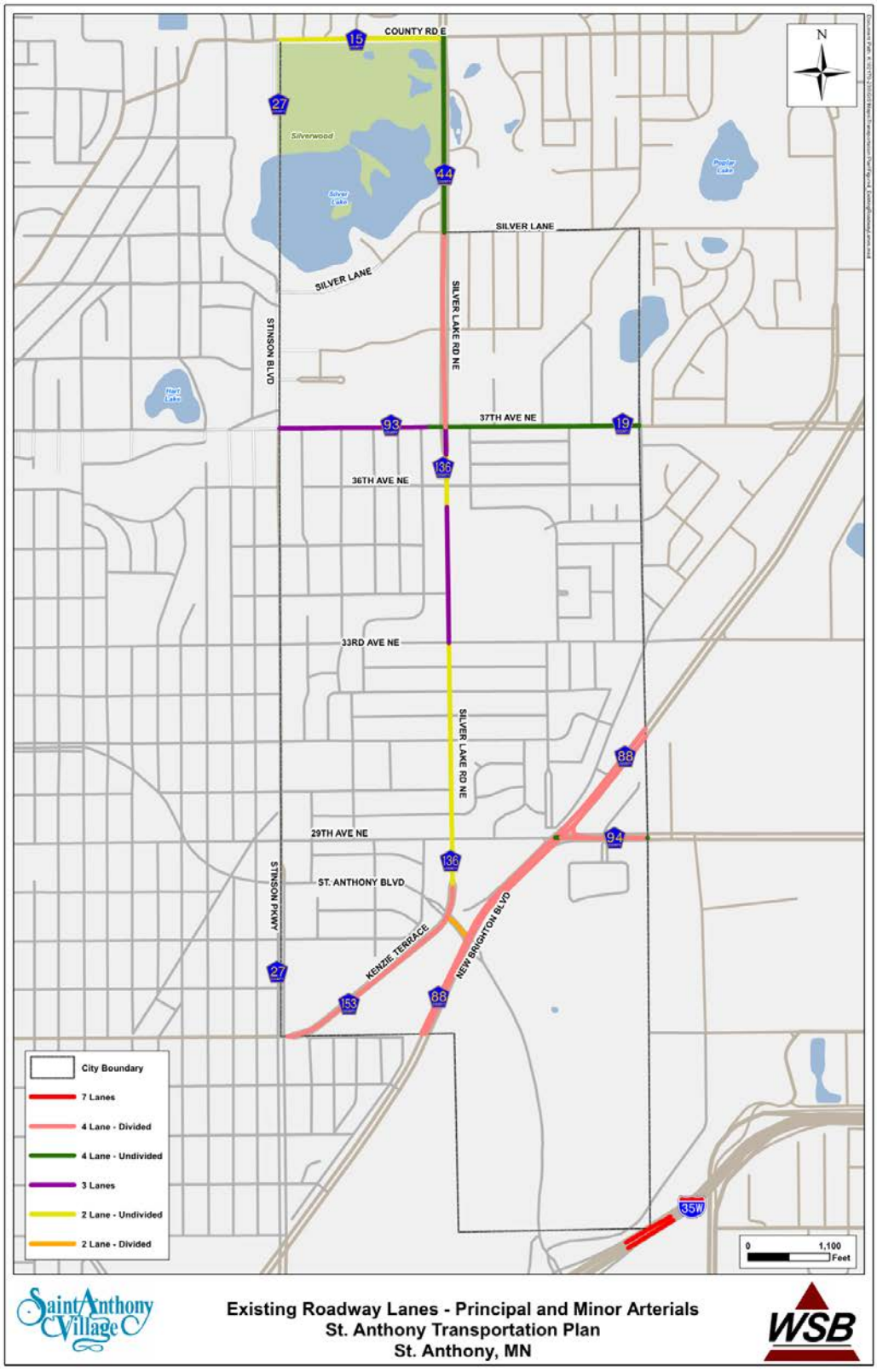


FIGURE 6-6: EXISTING TRAFFIC VOLUMES

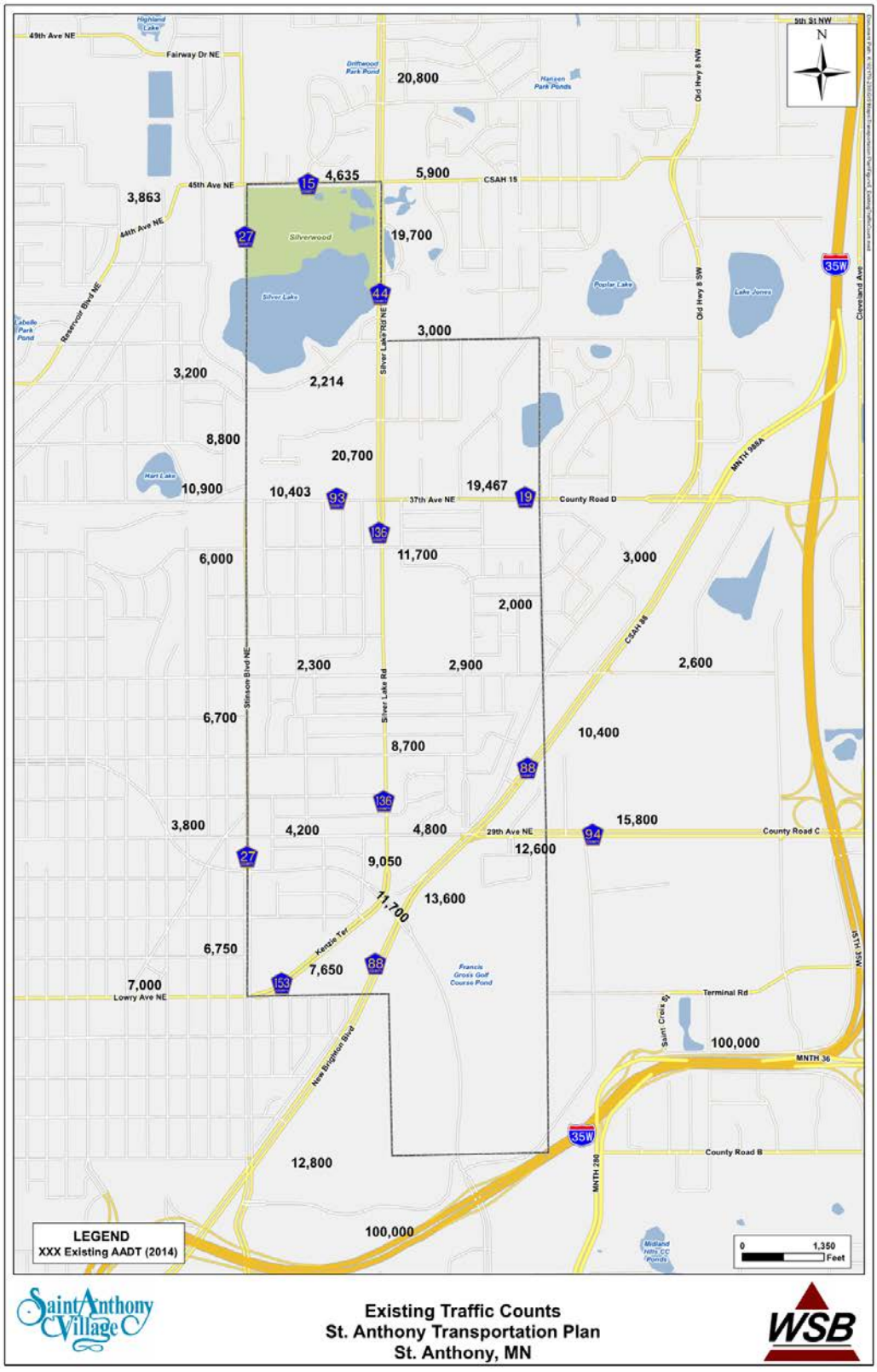


FIGURE 6-7: EXISTING NUMBER OF LANES ON ARTERIAL ROADS

Functional Classification	Roadway Name	Location	Number of Lanes
Principal Arterial	I-35W	St. Anthony Village-Minneapolis border to St. Anthony Village-Roseville border	7
"A" Minor Augmenter	Hennepin CSAH 94 (29th Avenue)	CSAH 88 (New Brighton Boulevard) to St. Anthony Village-Roseville border	4
	Hennepin CSAH 93 (37th Avenue)	CSAH 44 (Silver Lake Road) to Chandler Drive	3-4
	Hennepin CSAH 153 (Kenzie Terrace)	St. Anthony Village-Minneapolis border to St. Anthony Boulevard	4
	Ramsey CSAH 19 (37th Avenue)	Chandler Drive to St. Anthony Village-New Brighton border	4
	Ramsey CSAH 44 (Silver Lake Road)	CSAH 93 to St. Anthony Village-New Brighton/Roseville border	4
	St. Anthony Boulevard	CSAH 136 to CSAH 88	2
"A" Minor Reliever	Hennepin CSAH 88 (New Brighton Boulevard)	St. Anthony Village-Minneapolis border to St. Anthony Village-Roseville border	4
"Other Arterial"	Hennepin CSAH 136 (Silver Lake Road)	St. Anthony Boulevard to CSAH 93 (37th Avenue)	2-4
	Ramsey CSAH 15 (County Road E)	St. Anthony Village-Columbia Heights border to St. Anthony Village-New Brighton border	2

Existing Safety and Operational Issues

There are a number of locations within St. Anthony Village where safety and operational issues have been identified for motorists and pedestrians. These locations fall into one of three categories: intersections with general concerns regarding safety and operations, intersections where pedestrian facilities need to be upgraded to conform to Americans with Disabilities Act (ADA) standards, and roadway segments experiencing unwanted through traffic on neighborhood streets.

Corridors within the City that experience some level of congestion in the a.m. and p.m. peak periods as a result of intersection operational deficiencies include the following:

- Stinson Boulevard
- St. Anthony Boulevard
- New Brighton Boulevard
- Kenzie Terrace
- 29th Avenue
- Silver Lake Road
- 37th Avenue
- 39th Avenue

As outlined in FIGURE 6-20, Transportation Implementation Strategies, the City has new APS push buttons, countdown timers and ADA reconstructs programmed for construction during the summer of 2017 to make improvements at the following intersections:

- Silver Lake Road and Silver Lane
- 39th Avenue and Silver Lake Road
- 39th Avenue and Stinson Boulevard
- 37th Avenue and Stinson Boulevard
- 37th Avenue and Highcrest Road
- 37th Avenue and Silver Lake Road

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 I-35W must meet MnDOT access management guidelines associated with an interstate freeway (no signals, interchange access only).

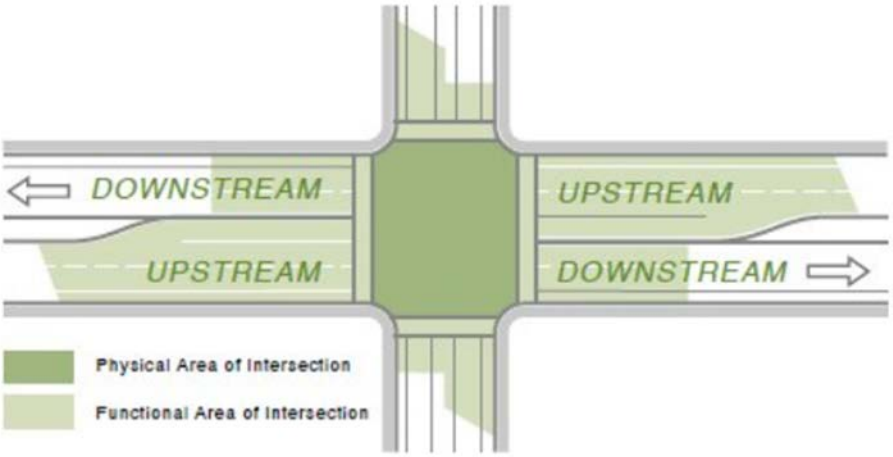
Hennepin County has established access management guidelines for urban (areas within the 20-year MUSA boundary) and rural areas (areas outside the MUSA boundary). Hennepin County access management guidelines are displayed in FIGURE 6-8. Hennepin County requires permits for new driveway access to County Roads and when land uses change at a site adjacent to a County Road. Hennepin County typically requires that new access points meet its guidelines; however, the County can make exceptions to the guidelines with sufficient justification.

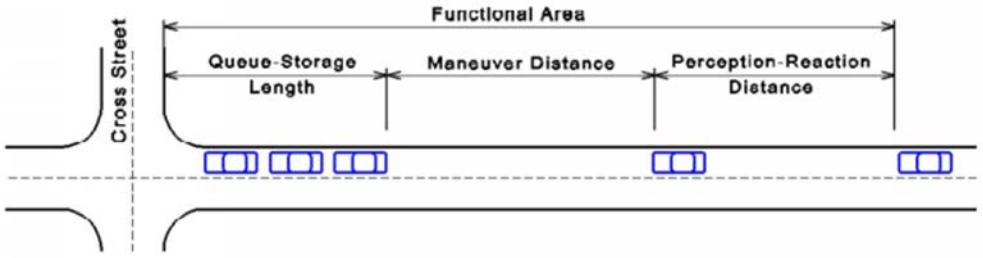
Ramsey County has also developed a draft set of access management policies. Rather than a set of specific standards, Ramsey County's draft policies "are intended to apply accepted access management principles in a context-sensitive manner to maximize the possible benefits as development occurs or as existing properties are modified." The draft policies are as follows.

- A parcel has the legal right to one access from a public street. If access can be obtained from an adjacent street, access from a County Road or County State Aid Highway should be directed to the minor street.
- Opportunities to combine or eliminate accesses shall be considered when new accesses are proposed.
- Where feasible, the access spacing standards of the MnDOT Access Management Manual shall be met.
- Where possible, new driveways shall be aligned with existing driveways or streets.
- Any proposed new access or modification of an existing access to a Ramsey County Road or County State Aid Highway requires a County access permit, with approval subject to review by the County Engineer.
- Any change in land use of a property with access to any County Road or County State Aid Highway, requires review of the access, in accordance with Minnesota Rules 8810.5200. Existing access is not automatically perpetuated.

- Unless no other option for access to a property exists, access will not be allowed within the functional area of a street intersection, or within the functional area of another existing access. As defined by MnDOT, the functional areas of intersections are defined as follows:
    - On roadways with posted speed limits less than 45 MPH, 435 feet.
    - On roadways with posted speed limits of 45 MPH or greater, 650 feet.

  The interpretation of the functional area of an intersection shall be made by the County Engineer and adjustments to these distances shall be made, as appropriate to the particular situation. Diagrams of intersection functional areas are shown below:





- If no access to a parcel can be obtained, except from a County Road or County State Aid Highway, Ramsey County acknowledges that a parcel has the right to one access, subject to approval by the County Engineer. More than one access may be approved but should not be assumed.
- The need for turn lanes, bypass lanes, medians or median improvements, signage, or any other accommodations necessary for safe operation of an access shall be determined by the County Engineer and incorporated into access permit provisions. All construction costs shall be paid for by the permit applicant. Ramsey County will not contribute to the costs of necessary improvements.

- The need for a Traffic Impact Study for any proposed access shall be determined by the County Engineer. The County Engineer may require installation of any mitigation measures recommended by a Traffic Impact Study.
- The County Engineer may require dedication of access control over the remainder of a parcel as a condition of granting access in a particular location.

It should be noted that there are existing access points within the City that do not meet Hennepin County access spacing guidelines or are inconsistent with Ramsey County's draft access management policies. 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.

FIGURE 6-8: HENNEPIN COUNTY ACCESS SPACING GUIDELINES

Access Type	Movements Allowed	Rural Arterial			Urban and Urbanizing Arterial		
		Greater than 7,500 ADT	Less than 7,500 ADT	Collector	Undivided	Divided	Collector
Single family residential driveway	Full movements allowed	1/4 mile (1,320 feet)	1/8 mile (660 feet)	1/8 mile (660 feet)	Not allowed	Not allowed	1/8 mile (660 feet)
	Limited access	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed	1/16 mile (330 feet)
Low Volume Driveway (less than or equal to 500 trips per day)	Full movements allowed	1/4 mile (1,320 feet)	1/8 mile (660 feet)	1/8 mile (660 feet)	Not allowed	Not allowed	1/8 mile (660 feet)
	Limited access	Not allowed	Not allowed	Not allowed	Not allowed	1/8 mile (660 feet)	1/16 mile (330 feet)
High Volume Driveway (greater than 500 trips per day)	Full movements allowed	1/4 mile (1,320 feet)	1/4 mile (1,320 feet)	1/8 mile (660 feet)	1/4 mile (1,320 feet)	1/4 mile (1,320 feet)	1/8 mile (660 feet)
	Limited access	Not allowed	Not allowed	Not allowed	Not allowed	1/8 mile (660 feet)	Not allowed
Low Volume Public Street (less than or equal to 2,500 ADT)	Full movements allowed	1/4 mile (1,320 feet)	1/4 mile (1,320 feet)	1/8 mile (660 feet)	1/4 mile (1,320 feet)	1/4 mile (1,320 feet)	1/8 mile (660 feet)
	Limited access	Not allowed	Not allowed	Not allowed	Not allowed	1/8 mile (660 feet)	Not allowed
High Volume Public Street (greater than 2,500 ADT)	Full movements allowed	1/2 mile (2,640 feet)	1/4 mile (1,320 feet)	1/4 mile (1,320 feet)	1/4 mile (1,320 feet)	1/4 mile (1,320 feet)	1/4 mile (1,320 feet)
	Limited access	Not allowed	Not allowed	Not allowed	Not allowed	1/8 mile (660 feet)	Not allowed

Recommendations from Recent Traffic Study

Due to the proposed Southern Gateway redevelopment, a traffic study was recently completed. The 15-acre redevelopment site is located in the northeast quadrant of the intersection of Kenzie Terrace (CR 153) and NE Stinson Parkway. The proposed Southern Gateway development is anticipated to consist of a combination of multi-family, senior living, and assisted living residential units, totaling 414 units. As a result of the traffic study completed for this project, specific operational improvements were outlined to support the safe and efficient performance of the transportation system in and around the redevelopment site. Recommendations were generally categorized into one group occurring with site development (2019), while others are intended to be implemented over a longer timeframe as the area continues to develop (2030).

Traffic study improvements recommended for implementation at the same time as the redevelopment include:

- Optimize signal time and coordination between St. Anthony Boulevard intersections at New Brighton Boulevard (CSAH 88) and Silver Lake Road/Kenzie Terrace (CR 153)
- Lengthen southwest bound left-turn lane from Silver Lake Road to southeast St. Anthony Boulevard from 100 feet to 175 feet
- Lengthen northwest bound left-turn lane from St. Anthony Boulevard to southbound New Brighton Boulevard (CSAH 88) from 125 feet to 225 feet
- Lengthen westbound left-turn lane from Kenzie Terrace to southbound Stinson Parkway when the Bremer Bank Building site is redeveloped
- Lengthen the northbound left-turn lane from Stinson Parkway to westbound Lowry Avenue from 150 feet to 250 feet
- At the proposed site driveway on Kenzie Terrace (CR 153) provide:
    - Two lanes exiting the site (one left-turn and one through/right-turn lane)
    - Left-turn lane from Kenzie Terrace (CR 153) into the site
    - Right-turn lane from Kenzie Terrace (CR 153) into the site

Traffic study improvements recommended for long-term implementation include:

- Consider a dual roundabout or other traffic control improvements at the St. Anthony Boulevard intersections at New Brighton Boulevard (CSAH 88) and Silver Lake Road (CR 136)/Kenzie Terrace (CR 153)
- Consider a roundabout or other intersection control improvements at the intersection of Kenzie Terrace (CR 153)/Lowry Avenue and Stinson Parkway

These recommended improvements are included in the list of Transportation Implementation Strategies outlined in FIGURE 6-18 and FIGURE 6-19, Roadway Strategies.

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 model was refined for application specifically for St. Anthony Village. 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 St. Anthony Village, 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 6-9 displays Metropolitan Council TAZs within St. Anthony Village.

The results of the St. Anthony Village modeling process are summarized in Figure 6-10, which displays Metropolitan Council 2040 projected average daily traffic volumes compared to the existing (2014) traffic volumes. For purposes of comparison, Figure 6-10 also includes 2030 forecasted traffic volumes resulting from adding the proposed Southern Gateway development in the southwestern portion of the City.

Table 5 provides a summary of existing and forecasted demographic growth by TAZ for St. Anthony Village through the year 2040. The St. Anthony Village population is forecasted to reach nearly 11,000 by the year 2040, with households and employment increasing by approximately 1,300 and 700 respectively. Allocated demographic growth and associated land use was generally located in the southwestern and northern portions of the community. High density residential was also generally allocated to the southwestern and northwestern portions of the City, with commercial and multi-optional development areas also generally identified within the northern portion of the City. For more information about the demographic allocation and associated land use forecast, please refer to the St. Anthony Village Land Use Plan in Chapter 4 of the St. Anthony Village Comprehensive Plan.

FIGURE 6-9: ST. ANTHONY VILLAGE TAZS – METROPOLITAN COUNCIL

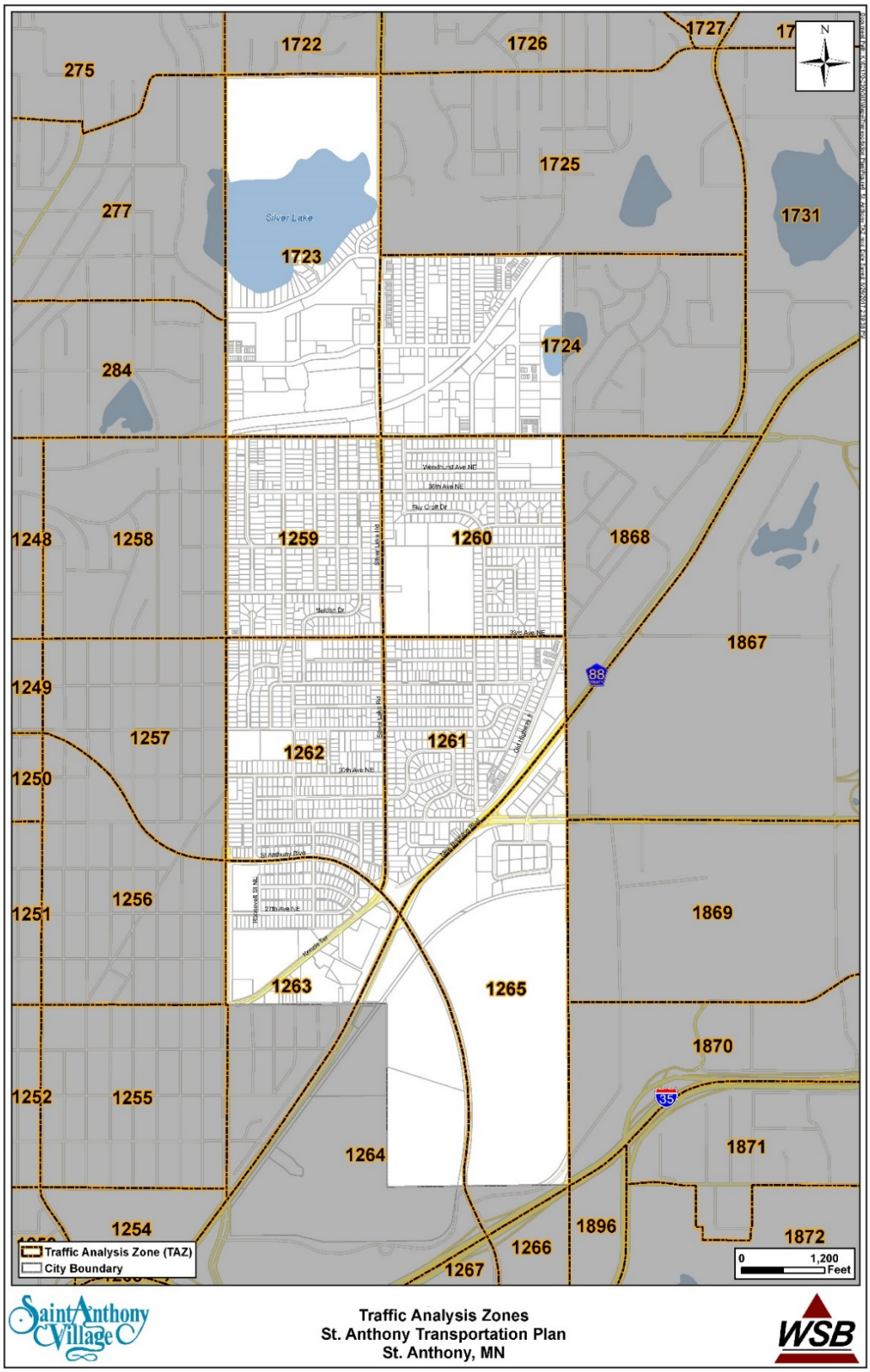


FIGURE 6-10: EXISTING AND FORECASTED TRAFFIC VOLUMES

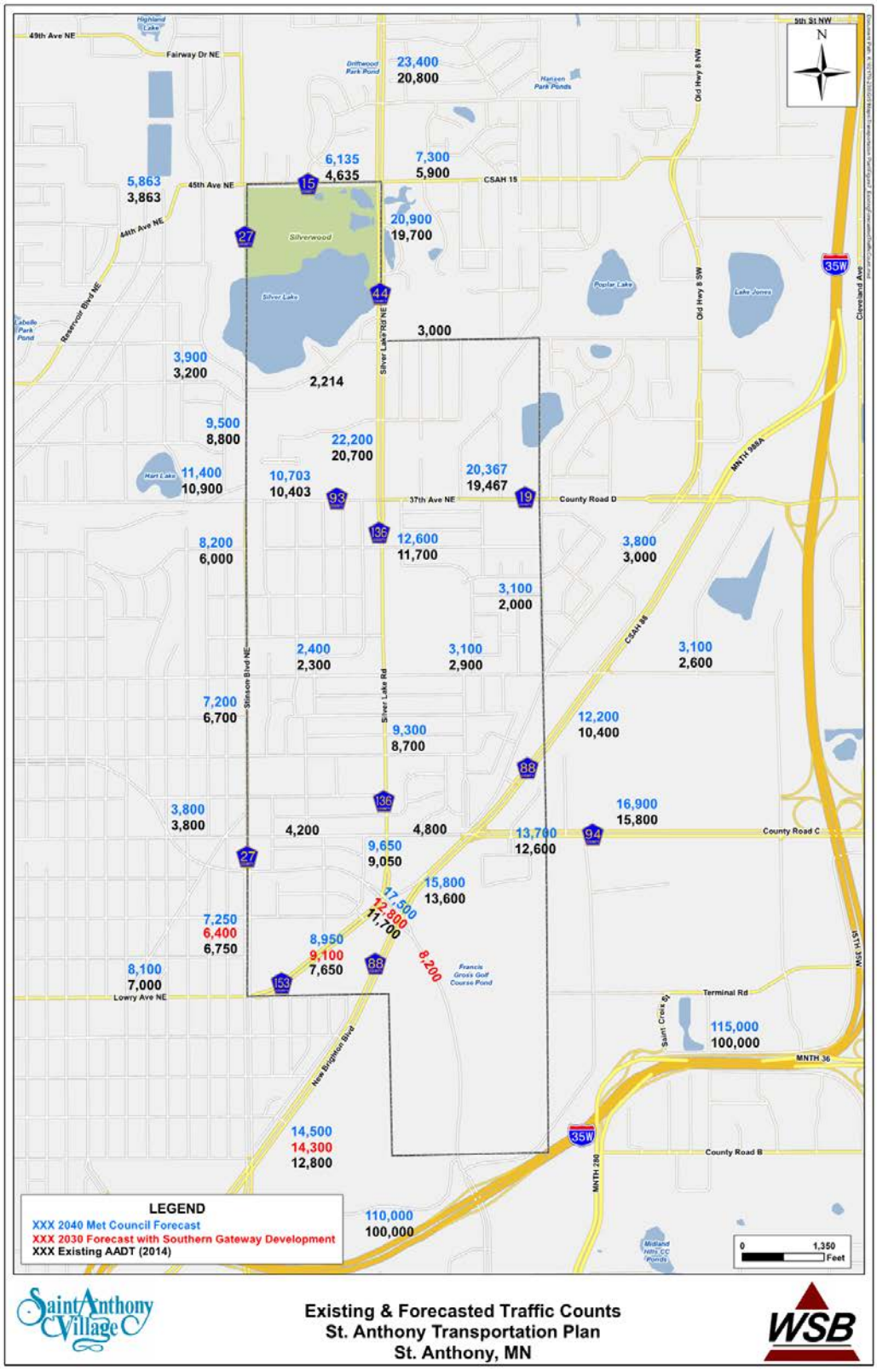


Table 5: St. Anthony Village 2040 Land Use Plan TAZ Growth Allocation

	2010			2020			2030			2040		
TAZ	**Population**	**Households**	**Employment**	**Population**	**Households**	**Employment**	**Population**	**Households**	**Employment**	**Population**	**Households**	**Employment**
1259	1124	430	44	935	430	44	1030	477	50	1019	477	55
1260	896	341	222	741	341	238	737	341	245	729	341	250
1261	1077	437	142	950	437	157	944	437	176	934	437	194
1262	1197	475	16	1033	475	17	1026	475	20	1015	475	25
1263	862	527	240	1550	713	318	1845	854	331	1917	897	343
1264	0	0	0	0	0	17	0	0	18	0	0	3
1265	0	0	962	0	0	1009	0	0	1030	0	0	1030
1723	1195	673	883	2694	1239	1084	3076	1424	1168	3059	1431	1241
1724	1875	965	474	2097	965	616	2142	992	592	2227	1042	559
Total	**8226**	**3848**	**2983**	**10000**	**4600**	**3500**	**10800**	**5000**	**3630**	**10900**	**5100**	**3700**

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 FIGURE 6-11 below. Based on this comparison, most roadways in the City have adequate capacity to accommodate forecasted Metropolitan Council 2040 travel demands. However, St. Anthony Boulevard between Kenzie Terrace and New Brighton Boulevard has a forecasted 2040 volume of 17,500, which is higher than both the lower and higher thresholds for a two-lane divided roadway. This indicates that congestion could occur along this segment as traffic volumes increase in the future.

FIGURE 6-11: 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 Divided	15,000	17,000
	Four-lane Undivided	18,000	22,000
	Four-lane Divided or Five-lane Undivided	28,000	32,000
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 and Planned Non-Motorized Transportation Network

This section addresses network needs for walking and bicycling within St. Anthony Village. 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 St. Anthony Village 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 St. Anthony Village, 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 St. Anthony Village is comprised primarily of sidewalks and one regional trail. As shown in Figure 6-12, there is existing sidewalk along one or both sides of the following roadways:

- St. Anthony Boulevard
- Kenzie Terrace
- Stinson Boulevard
- CSAH 44/Silver Lake Road
- Old Highway 8
- Highcrest Road
- 29th Avenue
- 33rd Avenue
- 37th Avenue
- 39th Avenue
- Silver Lane
- Chandler Drive
- Foss Road

Additionally, there is one regional multi-use trail located within the City of St. Anthony Village and two others that are located adjacent to the City. The Northeast Diagonal Regional Trail is an existing regional trail that is managed and maintained by the Three Rivers Park District. The trail runs along the south side of New Brighton Boulevard from Broadway Street NE to the boundary with the City of Roseville, where it connects to the County Road B-2 Trail in Roseville. The trail

includes a ramp connection to the existing sidewalk along the east side of St. Anthony Boulevard.

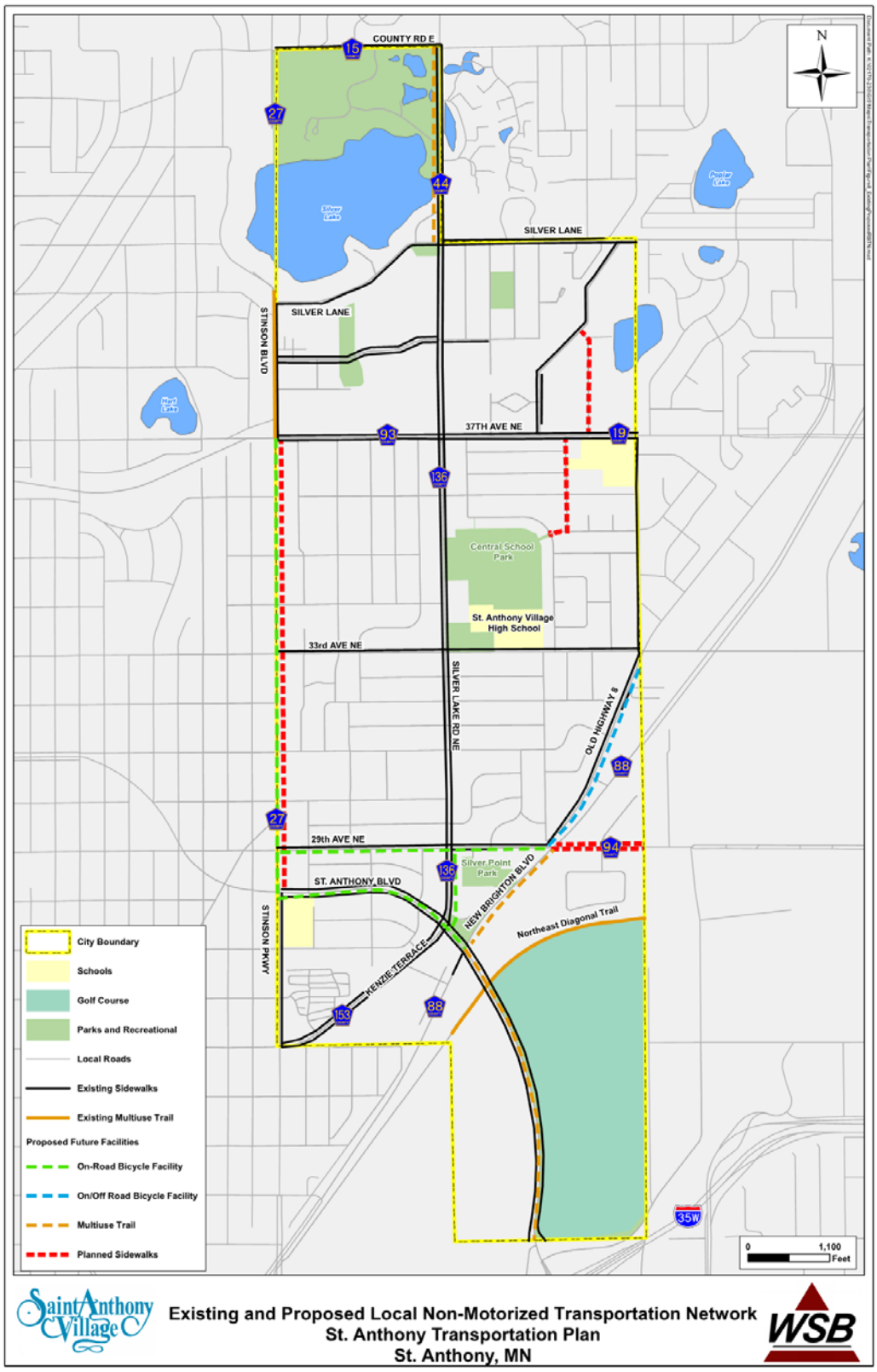
The Ridgway Parkway Regional Trail is also adjacent to the southern border of the City, where it connects to St. Anthony Boulevard at its junction with Ridgway Parkway. The St. Anthony Parkway Regional Trail is a regional multi-use trail that is located along the north side of St. Anthony Parkway and runs west from Stinson Parkway through Minneapolis, where it connects with other trails that are operated by the Minneapolis Park & Recreation Board as part of the Grand Rounds Scenic Byway System. Stinson Parkway south of St. Anthony Boulevard is also identified as a part of the regional parks and trails system; however, it does not currently include any bicycle-specific facilities.

Connections to Land Use Planning

St. Anthony Village has development patterns consistent with its designation as an Urban 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. This means that people walking and bicycling must cover greater distances to reach commercial areas from their homes. However, the development patterns in 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 St. Anthony Village that lie within walking or biking distance of many City residents, including Silver Lake Village Shopping Center in the northwest portion of the City and St. Anthony Shopping Center in the southwest portion of the City.

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.

FIGURE 6-12: EXISTING AND PROPOSED LOCAL BICYCLE AND PEDESTRIAN NETWORK



Planned Local Non-Motorized Transportation Network

Because the City's existing non-motorized transportation network is well-established, the planned network focuses on filling gaps that exist 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 shown in FIGURE 6-12. The identified non-motorized gaps in this network include the following locations:

- St. Anthony Boulevard between Ridgway Parkway and Stinson Boulevard (bicycle)
- New Brighton Boulevard/Old Highway 8 between St. Anthony Boulevard and 33rd Avenue NE (bicycle/pedestrian)
- 29th Avenue between Stinson Boulevard and St. Anthony Village-Roseville border (bicycle and pedestrian west of New Brighton Boulevard)
- Stinson Boulevard between St. Anthony Boulevard and 37th Avenue (bicycle/pedestrian)
- Maplewood Drive/Chelmsford Road between Skycroft Drive and 37th Avenue (pedestrian)
- Private road/driveway south of Silver Lane within Silver Lake Village Shopping Center (pedestrian)
- Silver Lake Road between Silver Lane and Silverwood Park (bicycle)

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 St. Anthony Village, the RBTN identifies three Tier 1 RBTN alignments and three Tier 1 RBTN corridors. SEE FIGURE 6-13. The alignments include the existing Northeast Diagonal Trail, Stinson Parkway between Kenzie Terrace and St. Anthony Boulevard, and St. Anthony Boulevard between Stinson Parkway and the Northeast Diagonal Trail. The Northeast Diagonal Regional Trail and Stinson Parkway alignments are also designated as regional trails. The RBTN corridors all

extend from the southwest corner of the City and include one corridor running north-south on the western edge of the City (centered on Stinson Boulevard north of St. Anthony Boulevard), and one running in a southwest/northeast direction (centered on Silver Lake Road, 29th Avenue, and Old Highway 8). There is also a corridor running to the east from St. Anthony Village centered on the existing Northeast Diagonal Trail; however, because that trail already exists, an alignment does not need to be identified for the segment within the St. Anthony Village.

The RBTN alignment identified along St. Anthony Boulevard, along with the remaining portion of St. Anthony Boulevard south of the Northeast Diagonal Regional trail, is also identified in the Hennepin County 2040 Bicycle Transportation Plan as part of the planned off-street bikeway system. The Minneapolis Park & Recreation Board has also identified this corridor for a regional trail as part of the Grand Rounds Missing Link project, a project to develop connections to the existing Grand Rounds trail system. The City of St. Anthony Village has passed a resolution opposing an off-street bike facility along St. Anthony Boulevard between Stinson Boulevard and New Brighton Boulevard. The Hennepin County plan also identifies Stinson Boulevard as part of the planned on-street bikeway system.

Hennepin County has a planned reconstruction project on 29th Avenue which will add sidewalk to CSAH 94 (29th Avenue) between CSAH 88 and the county line. This project also includes participation from the City and Ramsey County.

The Ramsey County-Wide Pedestrian & Bicycle Plan identifies a Connected Ramsey Communities Network, with a series of corridors that represent long-distance bikeways crossing the county. Within St. Anthony Village, there are three of these corridors: County Road D (37th Avenue), Stinson (Stinson Boulevard), and Silver Lake Road. County Road E (45th Avenue) is shown as a planned Local Corridor, while Silver Lane is identified as a Local Corridor with an identified need.

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

- Along Stinson Boulevard between St. Anthony Boulevard and 37th Avenue (coordination with City of Minneapolis and Hennepin County needed).
- Along New Brighton Boulevard (CSAH 88) and Old Highway 8.

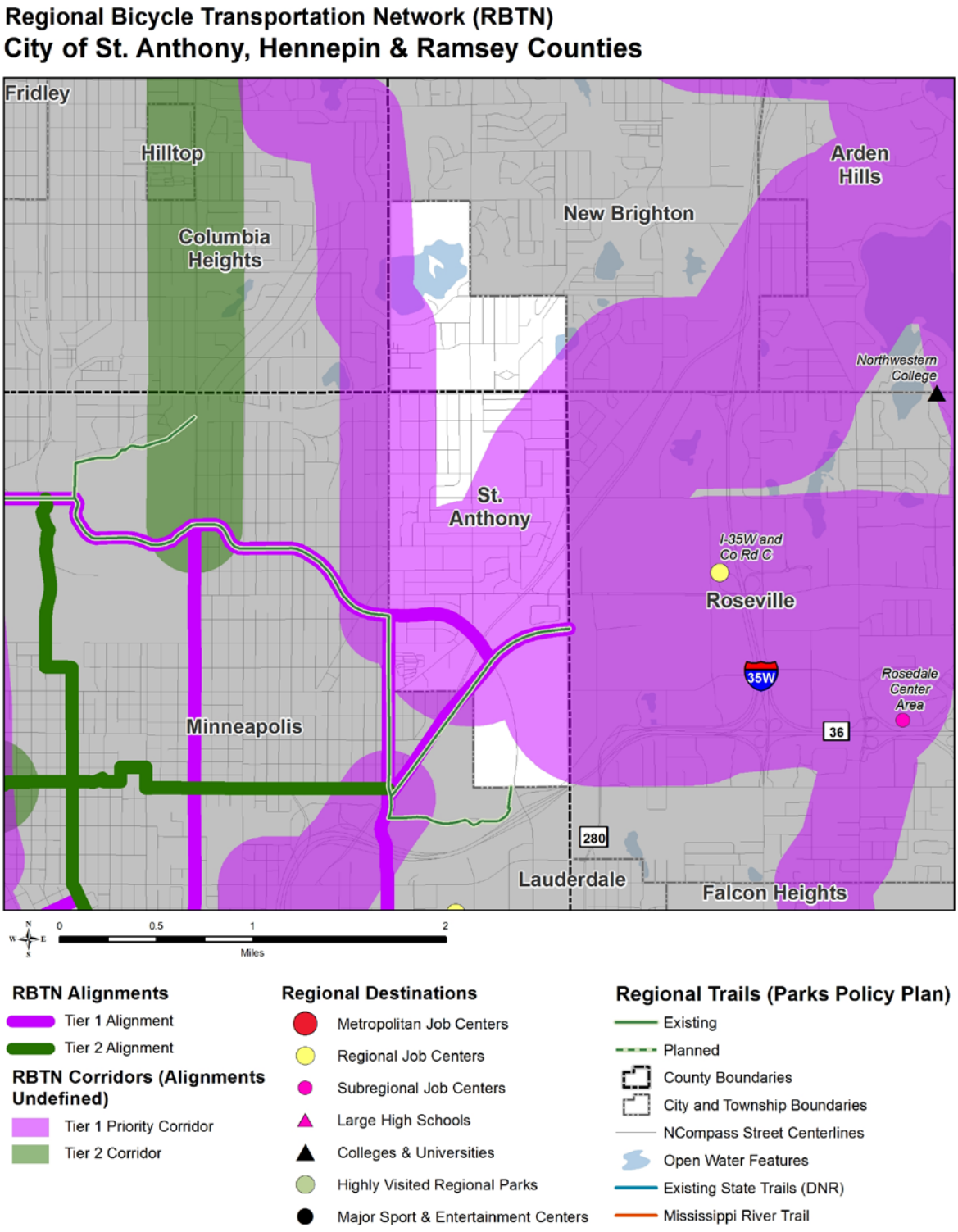
The existing and proposed regional network is shown in FIGURE 6-13.

Intersection Improvements for Bicycling and Walking

A number of intersections have been identified for improvements based on safety issues related to skew or operations for motor vehicles; however, improvements at many of these same intersections would also benefit pedestrians and bicyclists by slowing vehicles, shortening crossing distances, providing pedestrian refuges, and/or adding improved pavement markings or signals. Intersections include:

- Kenzie Terrace/Silver Lake Road and St. Anthony Boulevard
- CSAH 88 and St. Anthony Boulevard
- 29th Avenue and CSAH 88
- 33rd Avenue and Highway 8/Highcrest Road
- 29th Avenue and Silver Lake Road
- 37th Avenue and Silver Lake Road

FIGURE 6-13: REGIONAL BICYCLE TRANSPORTATION 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 Hennepin County Bicycle 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 6-14 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:

- Hennepin County Bicycle Transportation Plan
- Hennepin County Pedestrian Plan
- Ramsey County-Wide Pedestrian & Bicycle Plan
- 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
- Public Rights of Way Accessibility Guidelines (PROWAG) – US Access Board
- NACTO Guide for design

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 6-14: 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 10:
Example Bicycle Facilities
St. Anthony Transportation Plan
St. Anthony, MN

FREIGHT

Freight transportation in St. Anthony Village is primarily served by two rail lines and arterial roadways. FIGURE 6-15 shows the City's freight system and potential freight generators. A Canadian Pacific (CP) rail line passes through the northern portion of the City and a Minnesota Commercial (MNNR) rail line passes through the extreme southeast corner of the City. An abandoned rail line also passes diagonally across the southern portion of the City; this rail line was purchased by the Hennepin County Railroad Authority and developed into the Northeast Diagonal Regional Trail.

There are no large freight traffic generators within the City. Most truck and rail traffic is passing through St. Anthony Village on trips to, from, and through the Twin Cities. Shoreham Yard, a major CP rail/truck intermodal terminal is located to the west of the City along Central Avenue in Minneapolis. Freight-generating land uses are also located near the city's east border in Roseville. These land uses include a fuel distribution facility, a large mailing/shipping facility, and other industrial uses. Freight traffic generators within St. Anthony Village are located along portions of the CP rail line and along CSAH 88. Freight generators include concentrations of industrial land uses north of CSAH 93/CSAH 19 and south of CSAH 88. Silver Lake Village and the St. Anthony Shopping Center are also commercial centers that generate some freight traffic along CSAH 44 and CSAH 88 respectively.

FIGURE 6-16 shows Heavy Commercial Average Annual Daily Traffic (HCAADT) within St. Anthony Village. New Brighton Boulevard (CSAH 88) carries the greatest number of heavy commercial vehicles (1,234 vehicles per day). 37th Avenue NE (CSAH 19) also carries a substantial amount of heavy commercial traffic within the City.

As of January 2015, the CP rail line carries approximately 10 trains per day. The Metropolitan Council 2040 TPP notes that freight rail traffic has increased substantially since 2010. Throughout the region, freight rail traffic is expected to increase, especially as the regional population continues to grow.

There are two locations in the City where the CP rail line crosses public roadways: CSAH 27 (Stinson Boulevard Northeast) and CSAH 44 (Silver Lake Road Northeast). The CSAH 27 crossing is at-grade and is controlled by flashing lights and gates. The CSAH 44 crossing is grade-separated. There is also a sidewalk crossing of the rail line between Foss Road and Silver Lane. This crossing includes signing and sections of chain link fence in order to encourage pedestrians and bicyclists to slow and look for trains prior to crossing. The only MNNR railroad crossing within the City is a grade-separated crossing under I-35W.

The Metropolitan Council 2040 TPP acknowledges several freight challenges that impact the City and the region. As mentioned above, freight traffic is expected to increase and place pressure on the region's highway and rail systems. East-west

traffic on the CP lines has increased in recent years in part due to growth in the Bakken oil fields of North Dakota and Montana. Safety is also an increasing concern, particularly rail safety as related to Bakken crude oil being transported through the region on the CP lines. The CP Shoreham Yard in northeast Minneapolis has been identified as operating near full capacity, which has resulted in congestion and additional freight truck traffic on principal arterials in the region. Based on discussions with City fire department personnel, there have been periods during which nine freight trains move through St. Anthony Village in an average day. Depending on operations at the CP Shoreham Yard, trains sometimes need to idle within the St. Anthony Village City limits for an extended period of time while they wait to be loaded or unloaded at the railyard. The volume of rail traffic has therefore raised concerns about compatibility between freight traffic and adjacent land uses. While land use adjacent to the City's primary freight routes is generally compatible with these uses (industrial, commercial, etc.), there are several areas of single-family and multi-family residential housing that lie adjacent to the rail lines.

FIGURE 6-15: EXISTING FREIGHT SYSTEM

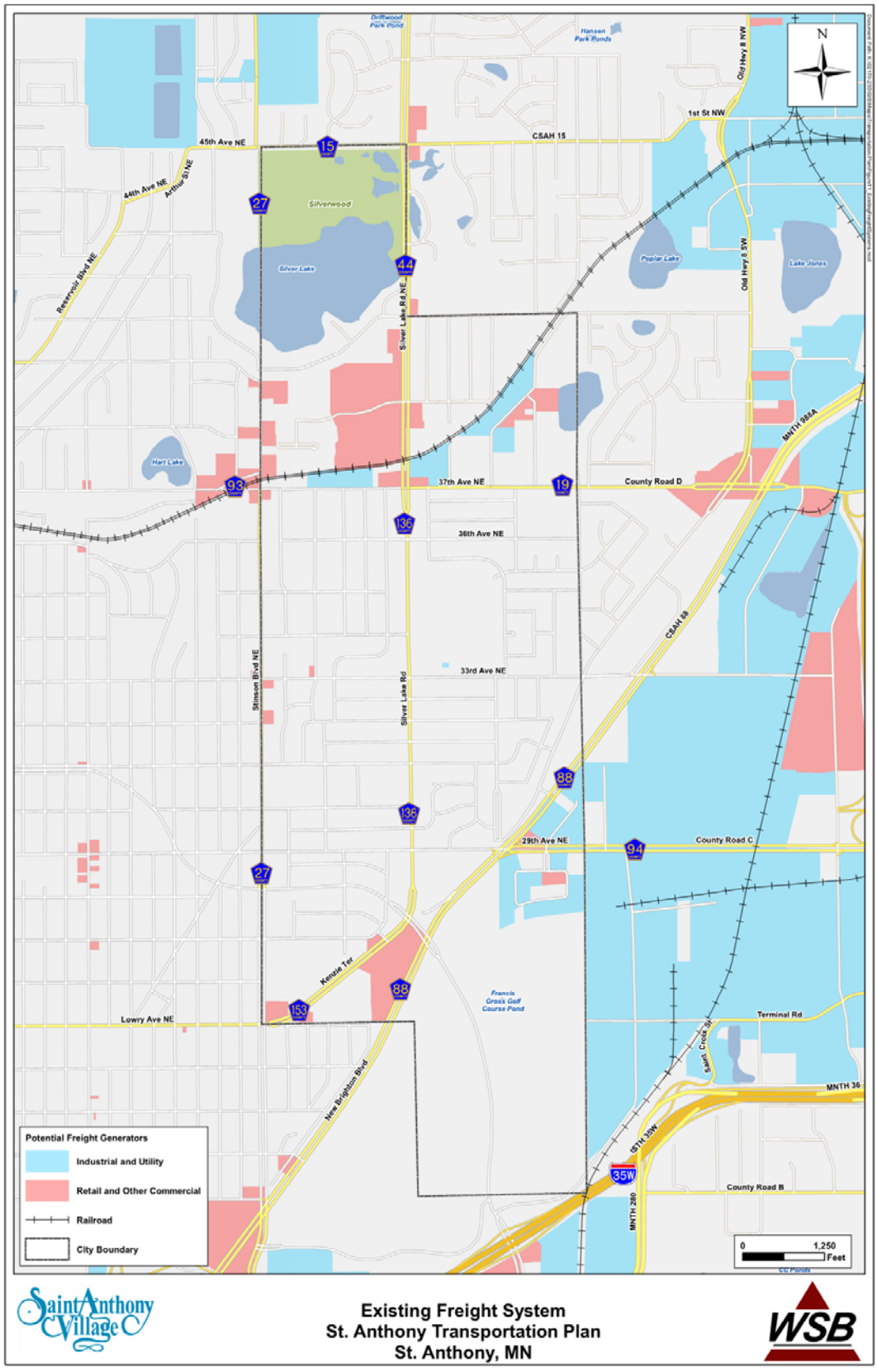
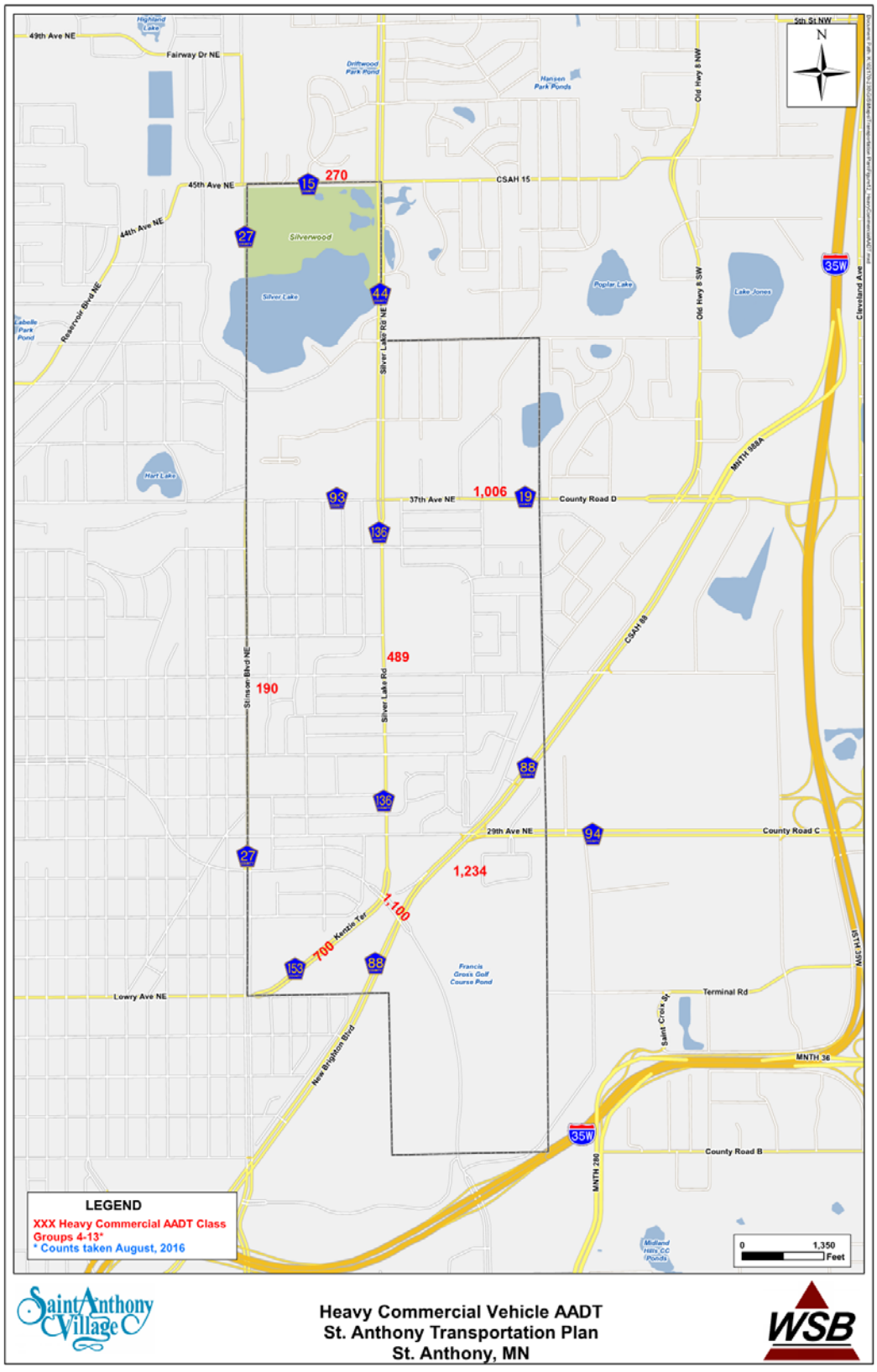


FIGURE 6-16: HEAVY COMMERCIAL AADT



TRANSIT

St. Anthony Village 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 southern portion of St. Anthony Village is located in Market Area III, and the northern portion is located within Market Area II. 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 St. Anthony Village provide connections to downtown Minneapolis; several also provide connections to regional destinations such as the Rosedale Mall. Fixed route bus service in St. Anthony Village is described below and shown on FIGURE 6-17. Note that there are several bus routes that cross the extreme southeast corner of the City along I-35W. These are not listed below because they do not include any stops within the City boundaries.

- Route 4: Daytime and evening service between New Brighton, downtown Minneapolis, and Bloomington via 37th Avenue and Silver Lake Village in St. Anthony Village.
- Route 25: Daytime service between Blaine, downtown Minneapolis, and south Minneapolis via Silver Lake Road, Silver Lake Village, 33rd Avenue, and Stinson Boulevard in St. Anthony Village.
- Route 32: Daytime service between Robbinsdale, north and northeast Minneapolis, and Rosedale via New Brighton Boulevard and Kenzie Terrace in St. Anthony Village.
- Route 141: Limited stop commuter service between downtown Minneapolis and New Brighton via 37th Avenue in St. Anthony Village.
- Route 801: Daytime service between the Rosedale Transit Center and the Brooklyn Center Transit Center via Silver Lake Road, 37th Avenue, and Silver Lake Village in St. Anthony Village.
- Route 825: Limited stop commuter service between downtown Minneapolis and Blaine via Silver Lake Road and New Brighton Boulevard in St. Anthony Village.

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. Between Kenzie Terrace and 29th Avenue NE, Route 25 diverges from Stinson Parkway/Stinson Boulevard, instead running along McKinley Street NE in the City of Minneapolis.

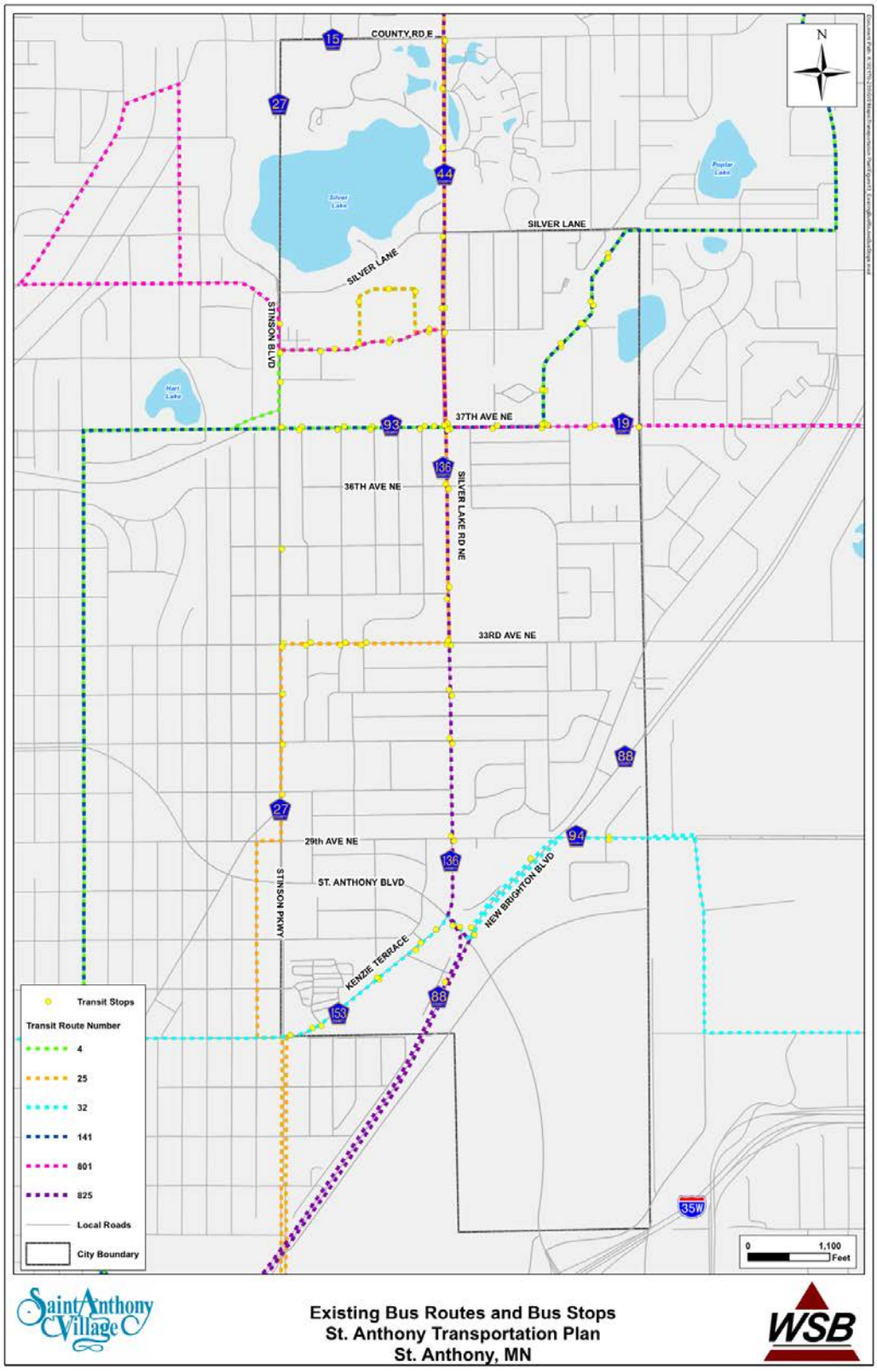
In addition to the fixed-route transit options, the City is also served by Hennepin County and Anoka County Transit Link, a dial-a-ride service for the general public (the portion of St. Anthony Village within Ramsey County is served by Anoka

County Transit Link). Transit Link provides connections to destinations within Hennepin and Ramsey Counties. Transit Link also connects to regular route transit for trips within the metro area, including outside of Hennepin and Ramsey Counties. St. Anthony Village 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.

The TPP's transit investment plan does not show any transitway investments planned for St. Anthony Village in the current revenue scenario. Under the increased revenue scenario, the TPP includes the Central Avenue arterial BRT corridor and the I-35W North transitway, both of which are located adjacent to St. Anthony Village. These corridors are not funded within the currently-expected resources for transitways. Nonetheless, residents and employees in St. Anthony Village may benefit from development of an arterial BRT corridor, depending on its final alignment and operational plan. According to the TPP, MnDOT led a feasibility study related to managed lanes and bus rapid transit along the I-35W corridor; however, it is unlikely that St. Anthony Village would be directly affected by any developments along this transitway, because there are no access points to I-35W within the City.

There are no formal park-and-ride lots located within St. Anthony Village and it is not anticipated that future demand will require a formal park-and-ride lot within the City.

FIGURE 6-17: TRANSIT FACILITIES



AVIATION

There are currently no existing or planned aviation facilities within the St. Anthony Village. However, the City is responsible for airspace protection in order to reduce hazards to air travel within the region. The closest airports to St. Anthony Village are:

- Anoka County-Blaine Airport approximately 5 miles north of St. Anthony Village
- Minneapolis Crystal Airport, approximately 5 miles northwest of St. Anthony Village

Due to the distance to the nearest airports, there are no radio beacons or other air navigation aids located in off-airport locations in St. Anthony Village. The City is not within the area of influence of either of the airports identified above and is therefore not subject to associated land use restrictions.

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 St. Anthony Village, 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 75 feet; therefore, it is unlikely that any structures in the City will require FAA notification.

There are currently no heliports in St. Anthony Village 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.

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 St. Anthony Village 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. Maintain a well-connected system of collector and arterial roadways.
2. Provide safe and efficient routes for emergency and public safety vehicles.
3. Provide adequate capacity to relieve congestion.
4. Encourage sound access management.
5. Preserve necessary rights-of-way for the 20-year planning horizon.
6. Maintain a safe and effective network of roadways for truck and rail freight movement.
7. Coordinate with Canadian Pacific Railroad to proactively address freight rail safety and minimize conflicts between rail operations and adjacent land use.
8. Coordinate transportation system investments with the St. Anthony Village Land Use Plan.
9. Design, construct, and maintain roadways that fit the character of the adjacent land use.
10. Implement safety improvements to address high crash locations.
11. Proactively address bicycle and pedestrian safety concerns and complete gaps along roadways and at crossings.
12. Bring sidewalks, trails, and intersections into compliance with ADA.
13. Support traffic calming and design to minimize speed on minor City collectors and local roadways, especially Silver Lake Road.
14. Support investments in multi-modal transportation solutions including bicycle and pedestrian infrastructure and public transit.
15. Preserve and accommodate adequate right of way for sidewalk and trail construction.
16. Support walkability through urban design and maintenance decisions that make walking safe, comfortable, desirable and convenient.
17. Manage storm water effectively and minimize the construction of new impervious surfaces.
18. Regularly assess transportation maintenance needs and include roadway, trail pavement, and other transportation infrastructure maintenance in the St. Anthony Village Capital Improvement Plan (CIP).

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 Safety/Operations
2. Roadway Functional Classification
3. Roadway Reconstruction
4. Bicycle/Pedestrian
5. Freight
6. Transit

Each strategy is tied to one or multiple goals; however, not all goals are associated with a specific strategy. In these cases, the City's goals apply across individual projects, and the City will identify opportunities to achieve them throughout its existing project and policy development processes. FIGURE 6-18 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. FIGURES 6-19 – 6-22 following the tables illustrate the strategies geographically with reference numbers tied back to the table information.

FIGURE 6-18: TRANSPORTATION IMPLEMENTATION STRATEGIES

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
Silver Lake Rd. & Silver Lane	Safety/Operations	Monitor for potential future safety and traffic operations needs. 2017 programmed improvements include upgrades to the existing signalized intersection including new APS push buttons, countdown timers and ADA reconstructs.	Figure 14, #1	Ramsey County/ St. Anthony Village	10, 12
39th Avenue & Silver Lake Rd.	Safety/Operations	Monitor for potential future safety and traffic operations needs. 2017 programmed improvements include upgrades to the existing signalized intersection including new APS push buttons, countdown timers and ADA reconstructs.	Figure 14, #2	Ramsey County/ St. Anthony Village	10, 12
39th Avenue & Stinson Blvd.	Safety/Operations	Monitor for potential future safety and traffic operations needs. 2017 programmed improvements include upgrades to the existing signalized intersection including new APS push buttons, countdown timers and ADA reconstructs.	Figure 14, #3	Ramsey County/ St. Anthony Village/ Minneapolis Park Board/Columbia Heights	10, 12

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
37th Avenue & Stinson Blvd.	Safety/Operations	Monitor for potential future safety and traffic operations needs. 2017 programmed improvements include upgrades to the existing signalized intersection including new APS push buttons, countdown timers and ADA reconstructs.	Figure 14, #4	Hennepin County/ Ramsey County/ St. Anthony Village/ Minneapolis Park Board/Columbia Heights	10, 12
37th Avenue & Silver Lake Rd.	Safety/Operations	Monitor for potential future safety and traffic operations needs. 2017 programmed improvements include upgrades to the existing signalized intersection including new APS push buttons, countdown timers and ADA reconstructs.	Figure 14, #5	Hennepin County/ Ramsey County/ St. Anthony Village	10, 12
37th Avenue & Highcrest Rd.	Safety/Operations	Monitor for potential future safety and traffic operations needs. 2017 programmed improvements include upgrades to the existing signalized intersection including new APS push buttons, countdown timers and ADA reconstructs.	Figure 14, #6	Hennepin County/ Ramsey County/ St. Anthony Village	10, 12
29th Avenue & Stinson Blvd.	Safety/Operations	Evaluate solutions to improve intersection safety and traffic operations.	Figure 14, #7	Hennepin County/ St. Anthony Village/ Minneapolis Park Board	10

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
29th Avenue & Silver Lake Rd.	Safety/Operations	Evaluate solutions to improve intersection safety and traffic operations.	Figure 14, #8	Hennepin County/St. Anthony Village	10
29th Avenue & New Brighton Blvd.	Safety/Operations	Evaluate solutions to improve intersection safety and traffic operations.	Figure 14, #9	Hennepin County/St. Anthony Village	10
Kenzie Terrace & St. Anthony Blvd.	Safety/Operations	Per Southern Gateway Traffic Study (2/19/18): 2019 recommendation to optimize signal time and coordination between St. Anthony Blvd. intersections at New Brighton Blvd. (CR 88) and Silver Lake Rd./Kenzie Terrace (CR 153).	Figure 14, #10	Hennepin County/St. Anthony Village	8, 9
Kenzie Terrace & St. Anthony Blvd.	Safety/Operations	Per Southern Gateway Traffic Study (2/19/18): 2019 recommendation to lengthen the southwest bound left turn lane from Silver Lake Rd. to southeast St. Anthony Blvd. from 100 feet to 175 feet.	Figure 14, #10	Hennepin County/St. Anthony Village	8, 9
Kenzie Terrace & St. Anthony Blvd.		Per Southern Gateway Traffic Study (2/19/18): 2030 recommendation to consider a roundabout or other intersection control		Hennepin County/St. Anthony	8, 9

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
		improvements at St. Anthony Blvd./Silver Lake Rd./Kenzie Terrace (CR 153).	Figure 14, #10	Village	
St. Anthony Blvd. & New Brighton Blvd.	Safety/Operations	Per Southern Gateway Traffic Study (2/19/18): 2019 recommendation to optimize the signal time and coordination between St. Anthony Blvd. intersections at New Brighton Blvd. (CR 88) and Silver Lake Road/Kenzie Terrace (CR 153).	Figure 14, #11	Hennepin County/St. Anthony Village	8, 9
St. Anthony Blvd. & New Brighton Blvd.	Safety/Operations	Per Southern Gateway Traffic Study (2/19/18): 2019 recommendation to lengthen the northwest bound left turn lane from St. Anthony Blvd. to southbound New Brighton Blvd (CR 88) from 125 feet to 225 feet.	Figure 14, #11	Hennepin County/St. Anthony Village	8, 9
St. Anthony Blvd. & New Brighton Blvd.	Safety/Operations	Per Southern Gateway Traffic Study (2/19/18): 2030 recommendation to consider a roundabout or other intersection control improvements at St. Anthony Blvd. & New Brighton Blvd (CR 88).	Figure 14, #11	Hennepin County/St. Anthony Village	3, 8, 9
Driveway Access to Stinson Parkway at Southern Gateway				Hennepin County/St. Anthony	9

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
Redevelopment Driveway Access along Kenzie Terrace (CR 153) at Southern Gateway Redevelopment	Safety/Operations	Monitor safety and operations of stop condition driveway access from Southern Gateway redevelopment to Stinson Blvd. (No recommendations made as part of the Southern Gateway Traffic Study (2/19/18).	Figure 14, #12	Village/ Minneapolis Park Board	
		Include a dedicated left turn lane and through/right turn lane exiting the site.	Figure 14, #13	Hennepin County/St. Anthony Village	8, 9
Stinson Parkway/Lowry Avenue/Kenzie Terrace	Safety/Operations	Include a dedicated left turn lane from Kenzie Terrace (CR 153) into the site. Include a dedicated right turn lane from Kenzie Terrace (CR 153) into the site.		Hennepin County/St. Anthony Village/ Minneapolis Park Board	8, 9
Stinson Parkway/Lowry Avenue/Kenzie Terrace	Safety/Operations	Per Southern Gateway Traffic Study (2/19/18): 2019 recommendation to lengthen the westbound left turn lane from Kenzie Terrace (CR 153) to southbound Stinson Parkway when the Bremer Bank Building site is redeveloped.	Figure 14, #14	Hennepin County/St. Anthony Village/Minneapolis Park Board	8, 9
Stinson Parkway/Lowry		Lengthen the northbound left turn lane from		Hennepin	

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
Avenue/Kenzie Terrace	Safety/Operations	Stinson Parkway to westbound Lowry Avenue from 150 feet to 250 feet. Per Southern Gateway Traffic Study (2/19/18):	Figure 14, #14	County/St. Anthony Village/Minneapolis Park Board	3, 8, 9
Stinson Parkway & New Brighton Blvd.	Safety/Operations	2030 recommendation to consider a roundabout or other intersection control improvements at the intersection of Kenzie Terrace (CR 153)/Lowry Avenue and Stinson Parkway.	Figure 14, #15	Hennepin County/St. Anthony Village/Minneapolis Park Board/ Minneapolis	3, 10
Various Neighborhood Streets	Safety/Operations	Explore safety and traffic operations improvements at this intersection, which lies immediately southwest of St. Anthony Village in Minneapolis. Explore solutions to deter or eliminate unwanted through traffic on the following neighborhood local streets: 1. 39th Avenue/Fordham Drive NE between Silver Lake Road and Silver Lane 2. Parking lot between New Brighton Blvd./Kenzie Terrace and along 27th Avenue to Stinson Blvd. 3. 36th Avenue between Silver Lake Road and Highcrest Road 4. 36th Avenue/Coolidge Street NE between	Figure 14, #16	St. Anthony Village	9, 13
Stinson Parkway from St. Anthony				Hennepin County/St. Anthony	1

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
Blvd. to Lowry Ave.	Functional Classification Change	Silver Lake Road and 37th Avenue 5. Belden Drive west of Silver Lake Road	Figure 14, #17	Village/ Minneapolis Park Board	
Highcrest Rd./Old Hwy 8 from 37th Ave. to Rankin Rd.	Functional Classification Change	Proposed functional classification change from local street to Major Collector.	Figure 14, #18	St. Anthony Village	1
33rd Ave. from Stinson Blvd. to Highcrest Rd.	Functional Classification Change	Proposed functional classification change from local street to Minor Collector.	Figure 14, #19	St. Anthony Village	1
Chandler Dr./ Foss Rd. from Silver Lane to 37th Ave.	Functional Classification Change	Proposed functional classification change from local street to Minor Collector.	Figure 14, #20	St. Anthony Village	1
39th Ave. from Silver Lake Rd. to Stinson Blvd.	Functional Classification Change	Proposed functional classification change from local street to Minor Collector.	Figure 14, #21	St. Anthony Village/ Minneapolis Park Board	1
Stinson Blvd. from Silver Lane to 37th Ave.	Functional Classification Change	Proposed functional classification change from local street to Minor Collector.	Figure 14, #22		1
Lowry Avenue from Johnson					

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
Ave. to Stinson Blvd.	Reconstruction	Proposed functional classification change from local street to Minor Collector.	Figure 14, #23	Hennepin County/City of Minneapolis	18
County Rd. C/County Rd. 94/29th Ave. from just East of New Brighton Blvd. to Long Lake Road	Reconstruction	Consider planning for potential long-term reconstruction to tie into Corridor Study and preliminary design plans to the east from Marshall St. to Johnson Ave. 2019 programmed reconstruction of County Road C/County Road 94, including right-of-way acquisition, drainage and utility work.	Figure 14, #24	Ramsey County/Hennepin County/St. Anthony Village	6, 11, 18
Various Intersections	Bicycle/Pedestrian Improvements	Evaluate solutions to improve crossing safety and conditions at the following intersections: 1. Kenzie Terrace/Silver Lake Road and St. Anthony Blvd. 2. New Brighton Blvd. and St. Anthony Blvd. 3. 29th Avenue and New Brighton Blvd. 4. 33rd Avenue and Highway 8/Highcrest Road	Figure 15, #25	St. Anthony Village/ Hennepin County/ Ramsey County/ Roseville	11, 14, 16

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
Stinson Blvd. from St. Anthony Blvd. to 37th Ave.	Bicycle/Pedestrian Improvements	Coordinate with Hennepin County and City of Minneapolis regarding planned bikeway and sidewalk (on east side of roadway between St. Anthony Blvd. and 37th Avenue). Designate as RBTN alignment.	Figure 15, #26	Hennepin County/ St. Anthony Village/ Minneapolis	11, 14
New Brighton Blvd./Old Highway 8 from St. Anthony Blvd. to 33rd Avenue	Bicycle/Pedestrian Improvements	Coordinate with Hennepin County to explore bicycle and pedestrian improvements along this corridor. Designate as RBTN alignment.	Figure 15, #27	Hennepin County/ St. Anthony Village	11, 14
29th Avenue from Stinson Blvd. to New Brighton Blvd.	Bicycle Improvements	Evaluate potential to add on-road bike lanes.	Figure 15, #28	St. Anthony Village	11, 14
Silver Lake Road from Silver Lane to County Road E	Bicycle and Pedestrian Improvements	Coordinate with Ramsey County regarding planned bikeway; evaluate potential for multiuse trail connection to Silverwood Park.	Figure 15, #29	Ramsey County/ St. Anthony Village	11, 14, 16
Maplewood Drive/ Chelmsford	Pedestrian Improvements	Evaluate solutions to improve pedestrian connections to St. Anthony Village High	Figure 15, #30	St. Anthony Village	11, 14, 16

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
Road between Skycroft Drive and 37th Avenue		School, Central School Park, and Wilshere Park Elementary School			
St. Anthony Blvd. from Stinson Blvd. to Ridgway Pkwy.	Bicycle Improvements	Evaluate potential for adding an on-road bicycle facility west of New Brighton Blvd. and an off-road bicycle facility east of New Brighton Blvd.	Figure 15, #31	St. Anthony Village/ Minneapolis Park and Recreation Board	11, 14
Various locations	Bicycle/pedestrian improvements	Encourage increased bicycle and pedestrian movement to both local and regional destinations	Figure 15, #32	St. Anthony Village	16
Railroad Crossings at Stinson Boulevard and Foss Road	Freight Improvement	Coordinate with Canadian Pacific Railroad to improve safety and operations while minimizing effects on other transportation system uses and adjacent land uses	Figure 16, #33	St. Anthony Village	7
Various locations	Transit Improvement	Evaluate adequacy of transit service in redevelopment areas and support planned increased frequency on bus routes 15 (formerly route 4), 25, 32, 801 within the City	Figure 17, #34	Metro Transit/ St. Anthony Village	14, 16
Stinson Parkway/ Stinson Blvd. between	Transit Improvement	Evaluate the potential to adjust Route 25 to remain on Stinson Parkway and Stinson Blvd. between Kenzie Terrace and 29th Street	Figure 17, #35	Metro Transit/ St. Anthony Village	14, 16

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
Kenzie Terrace and 29th Street					
Central Avenue (Minneapolis)	Transit Improvement	Coordinate with Metro Transit and Minneapolis regarding potential arterial bus rapid transit on Central Avenue (Increased Revenue Scenario – unfunded project)	Figure 17, #36	Metro Transit/ St. Anthony Village	14, 16
Various locations	Transit Improvement	Provide facilities and develop land use patterns that encourage transit use	Figure 17, #37	St. Anthony Village	14, 16

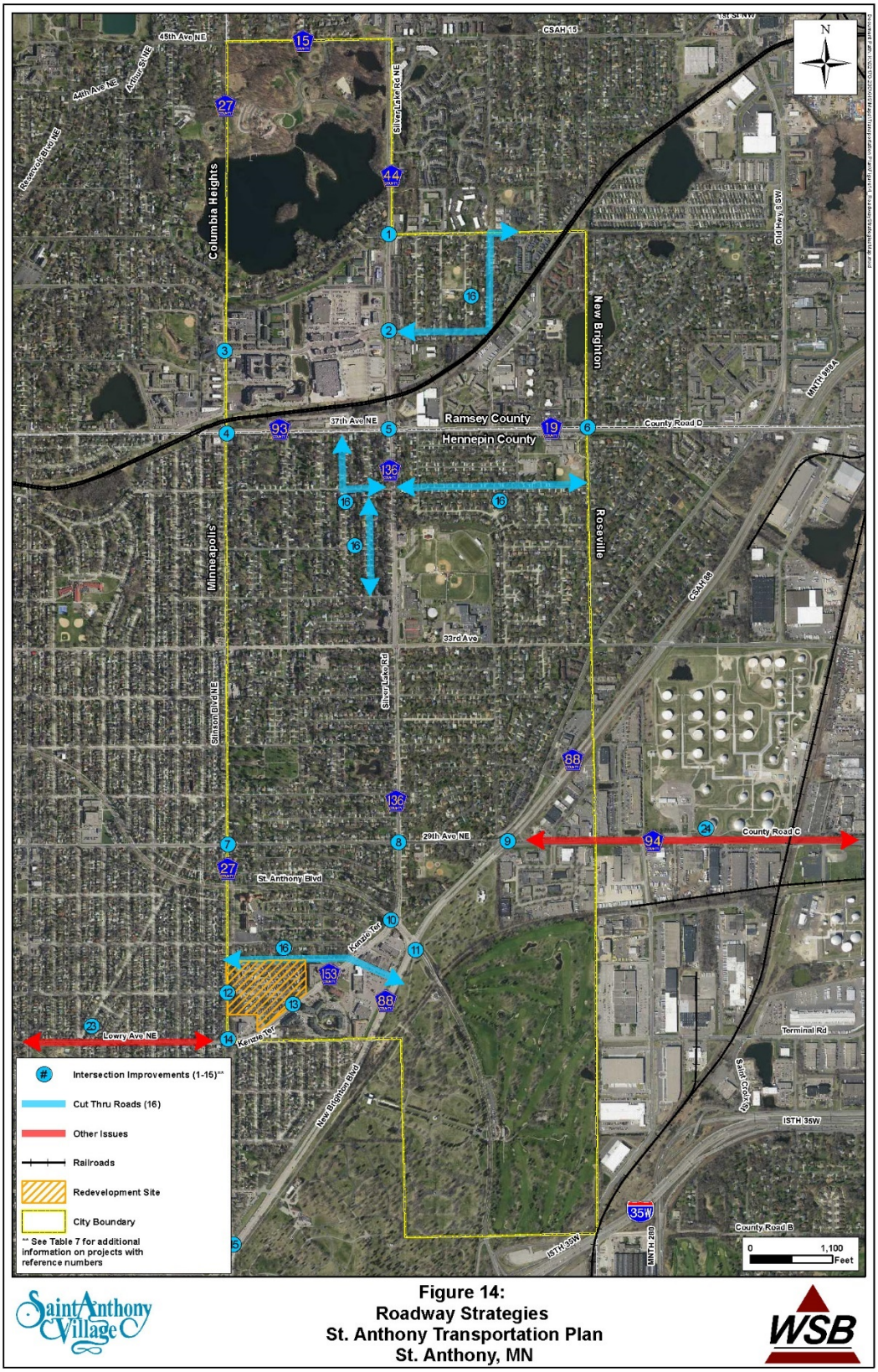


Figure 14:
Roadway Strategies
St. Anthony Transportation Plan
St. Anthony, MN

FIGURE 6-20: BICYCLE AND PEDESTRIAN STRATEGIES

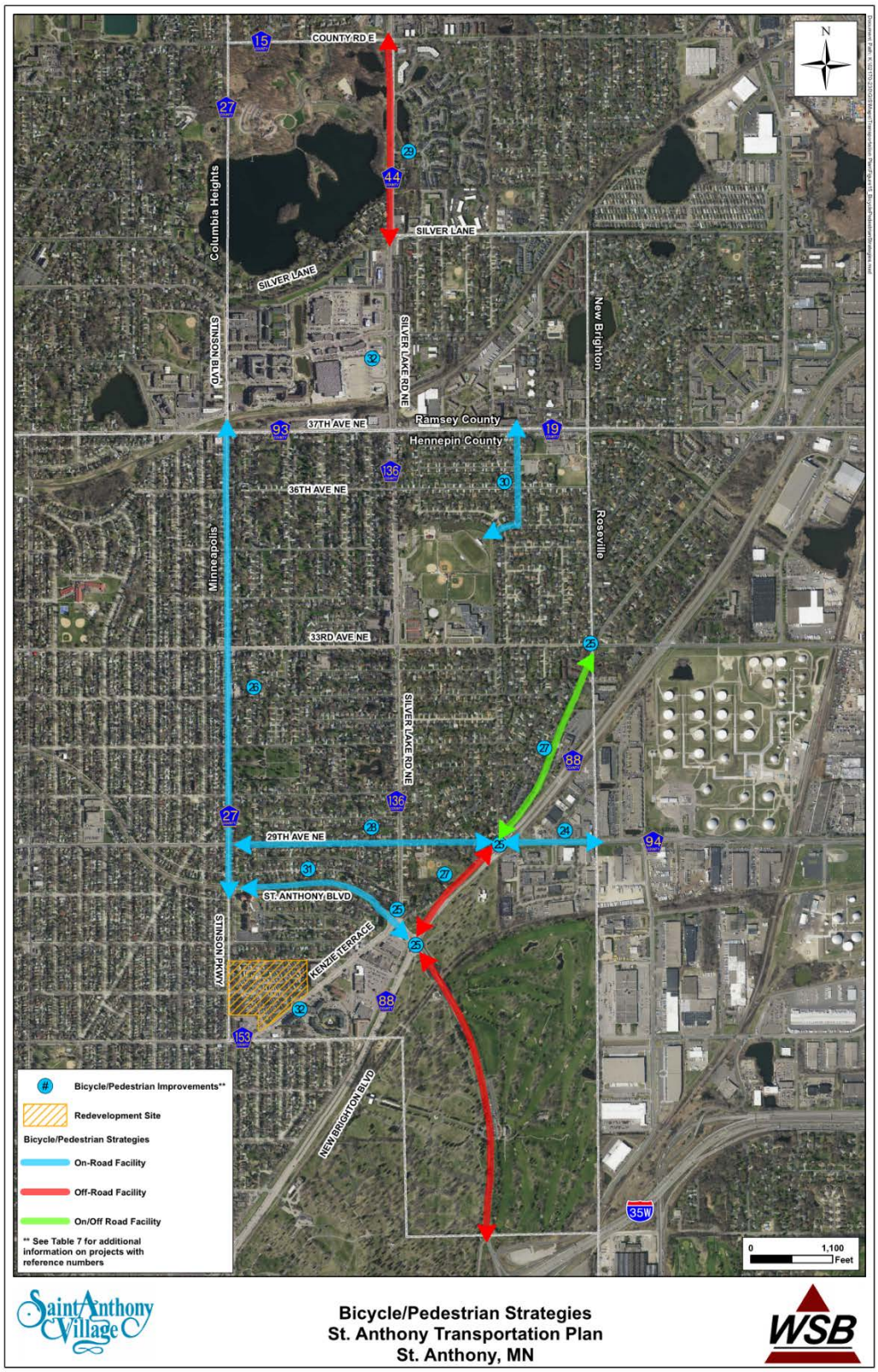


FIGURE 6-21: FREIGHT STRATEGIES

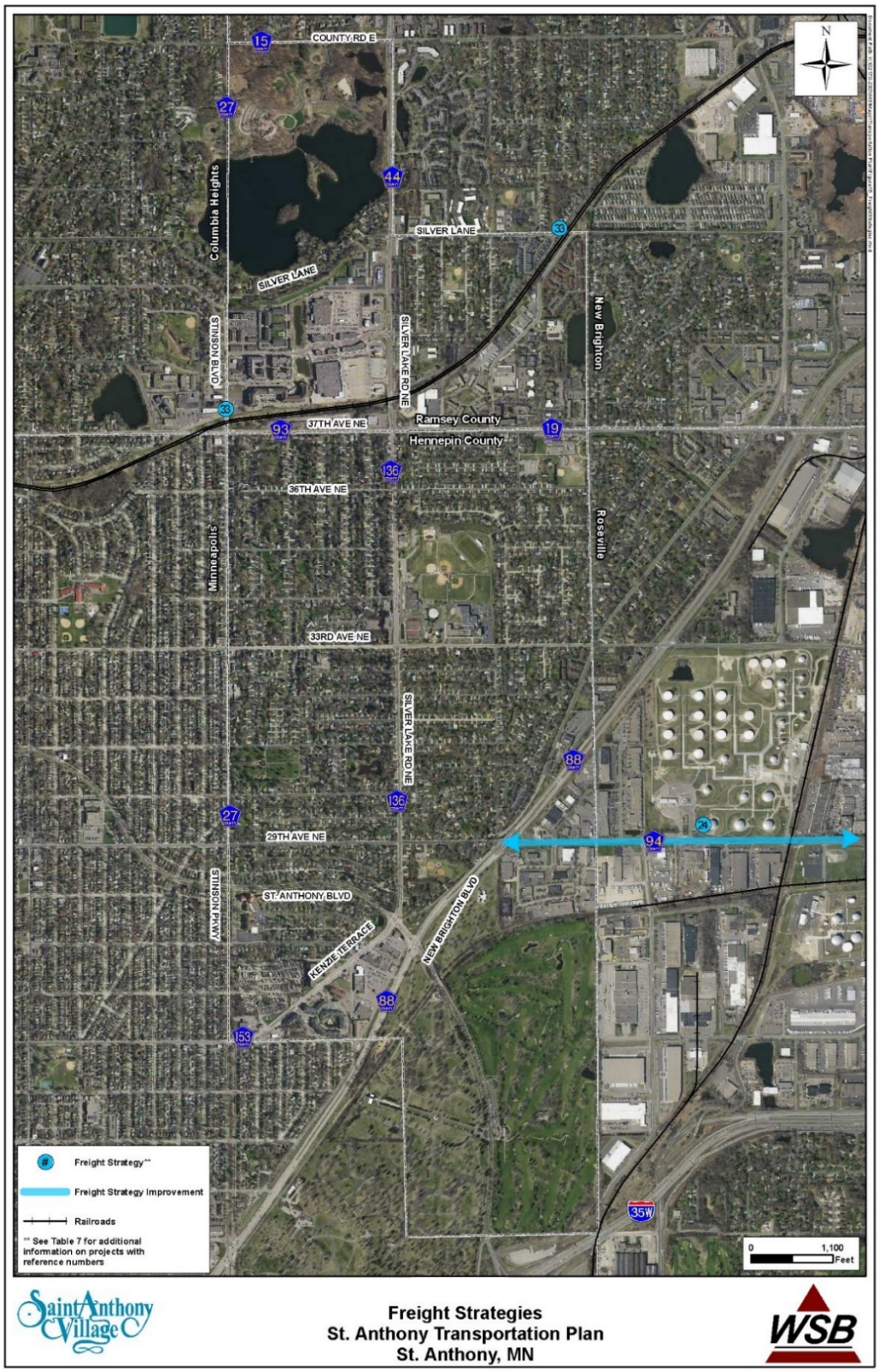
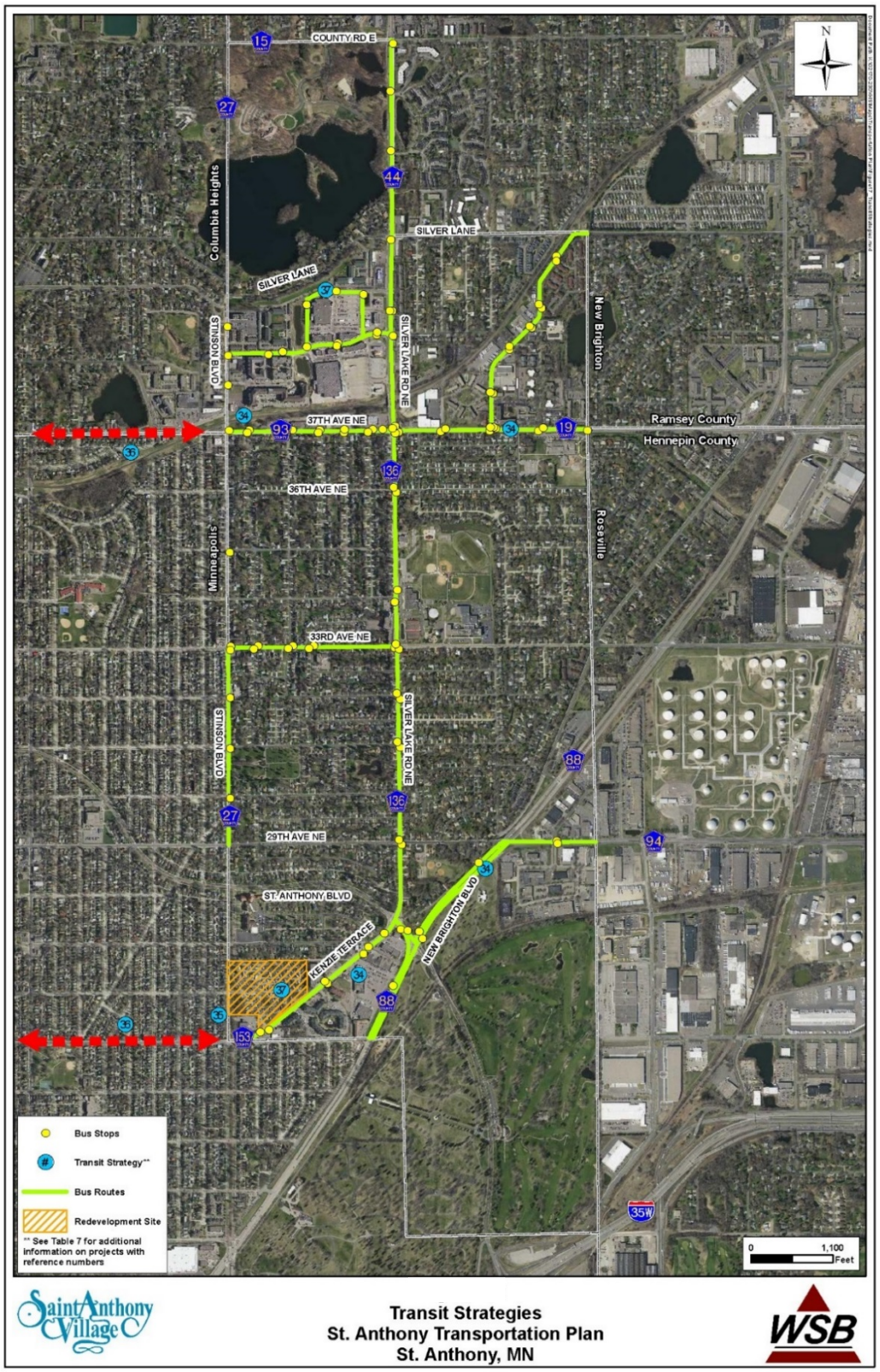


FIGURE 6-22: TRANSIT STRATEGIES



Proposed Short and Long-Range Roadway Projects

The sections below identify proposed short and long-range roadway projects identified in the City's CIP and based on the proposed land use and redevelopment activities described in previous sections of this Plan. This section does not include information on proposed projects from the Metropolitan Council 2040 TPP, as the TPP does not include any planned improvements to principal arterials in St. Anthony Village. No interchanges, MnPASS lanes, dedicated busways, or bus-only shoulders are proposed in the Current Revenue Scenario of the 2040 TPP.

Proposed Projects from CIPs

The City's CIP identifies a number of roadway projects. These projects are primarily utility and roadway reconstruction projects intended to improve and maintain the City's utilities and roadway surface. There are also a number of signal improvement projects associated with the Highway Safety Improvement Program (HSIP). These projects are expected to improve safety conditions at the intersections in question and upgrade pedestrian facilities to meet ADA standards. Hennepin County's CIP includes the reconstruction of 29th Avenue (CSAH 94) between CSAH 88 and the Hennepin-Ramsey County line.

Proposed Projects based on Land Use and Development

As described in the section "Recommendations from Recent Traffic Study," a number of roadway improvements are recommended based on forecasted increases in traffic volumes associated with the proposed Southern Gateway redevelopment site. These include six modifications recommended for implementation to occur at the same time as site redevelopment, including providing new turn lanes for vehicles entering and exiting the site, lengthening existing turn lanes, and optimizing signal timing at adjacent intersections. Several longer-term recommended projects were also identified as a result of this study. These include consideration of roundabout or other traffic control improvements at the following intersections: St. Anthony Boulevard and New Brighton Boulevard, St. Anthony Boulevard and Silver Lake Road/Kenzie Terrace, and Kenzie Terrace/Lowry Avenue and Stinson Parkway.

PUBLIC COMMENTS

The City has gathered public input through several open house meetings 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, improving traffic safety, improving transit connections and facilities, prioritizing transit use, and improving connections to Minneapolis and St. Paul.

The City also held a work session with the Parks Commission, City Council, Hennepin and Ramsey Counties, and groups of residents with interests in non-motorized transportation in order to identify existing gaps in the network and prioritize improvements. As an outcome of this meeting, a number of gaps in the non-motorized transportation network emerged. Meeting attendees identified the following locations within the City as priority areas for improvements, which served as a basis for developing the planned local non-motorized transportation network:

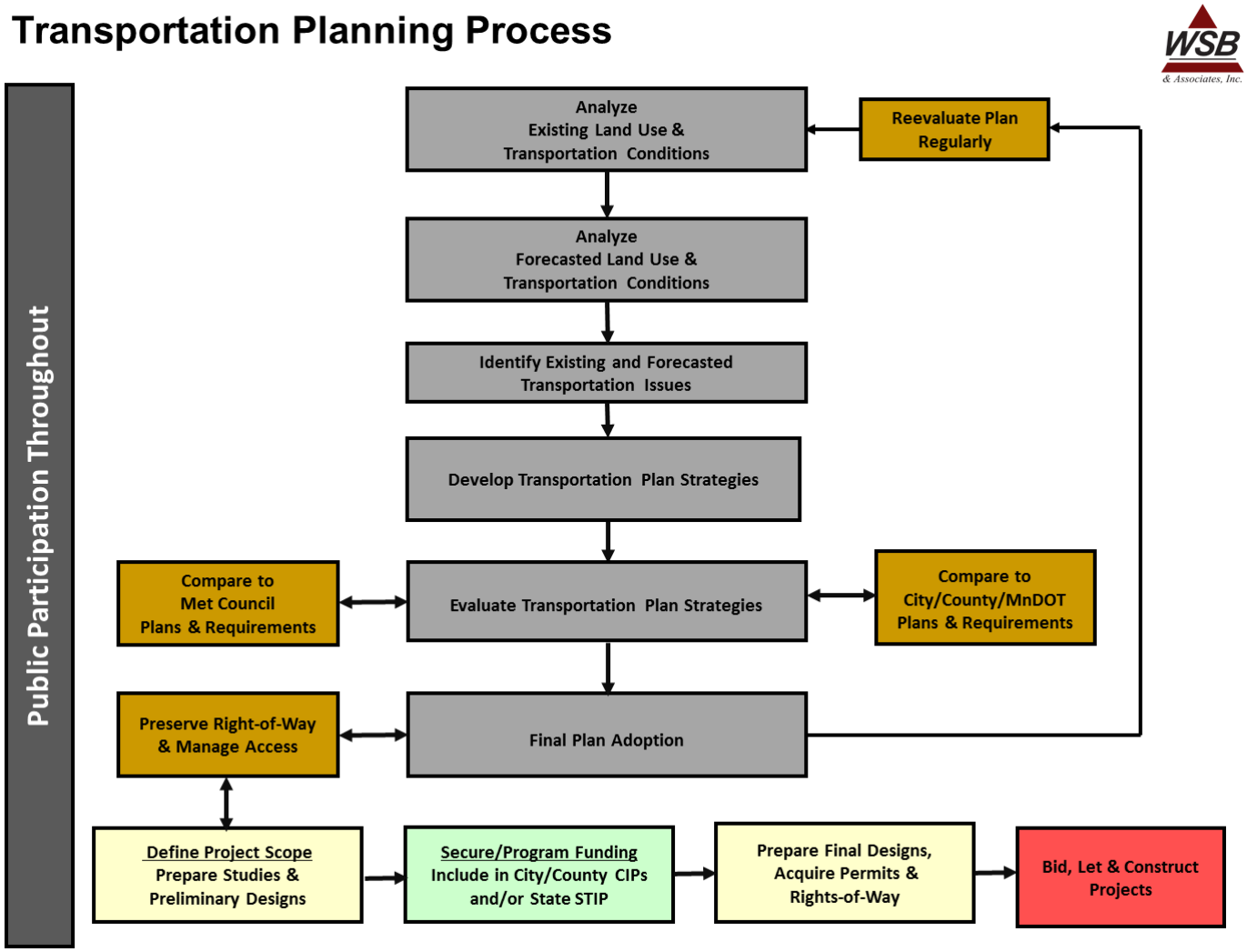
- Stinson Boulevard (throughout City)
- 33rd Avenue (throughout City)
- East-west access within the Silver Lake Village shopping center
- St. Anthony Boulevard between the Northeast Diagonal Regional Trail and Kenzie Terrace/Silver Lake Road
- CSAH 88 (New Brighton Boulevard) between St. Anthony Boulevard and 29th Avenue (including the intersection of CSAH 88 and 29th Avenue)
- Intersection of Silver Lake Road and 31st Avenue
- Intersection of 37th Avenue and Highcrest Road
- Bicycle Access to Silverwood Park along Silver Lake Road
- Bicycle Access to Wilshire Park Elementary School along 37th Avenue

Conclusion and Next Steps

The purpose of this Transportation Plan is to set a multimodal transportation vision for the City of St. Anthony Village through the year 2040. Goals and specific strategies have been identified collaboratively by the City, Hennepin County, Ramsey 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, St. Anthony Village priorities, regional travel patterns and a variety of other factors.

As the owners of the transportation network in St. Anthony Village (i.e. City of St. Anthony Village, Hennepin County, Ramsey County, Three Rivers Park District, Minneapolis Park and Recreation Board, MnDOT, and the Canadian Pacific Railway) 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 Met Council, residents and others to conduct traffic studies, finalize designs, preserve rights-of-way, obtain environmental clearances and leverage necessary financial resources. Figure 6-23 on the following page outlines the entire planning and project development process required for transportation projects from concept plans to construction implementation.

Figure 6-23: Transportation Planning Process





Chapter 7:
Sanitary Sewer

Chapter 7: Sanitary Sewer

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INTRODUCTION

Purpose

Every ten years, the City of St. Anthony is required to prepare a Comprehensive Plan that aligns with the Metropolitan Council's Metropolitan System Plan, per Minnesota Rule 473.858. The Sanitary Sewer Chapter of the Comprehensive Plan describes and evaluates the existing sanitary sewer system and proposes improvements to the system to accomodate future wastewater flows. The Sanitary Sewer Plan allows the City and 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.

The City of St. Anthony's Sanitary Sewer Plan was developed to align with the Metropolitan Council's Thrive MSP 2040 Water Resources Policy Plan. The Thrive MSP 2040 Plan was approved in May 2015 and outlines regional goals for the wastewater system, including environmental sustainability, water reuse, and water conservation. Additionally, the Thrive MSP 2040 Plan includes population, household, and employment projections and projected wastewater flows.

St. Anthony is fully built out, and any additional developments should have minor impacts on the sanitary sewer system. This Sanitary Sewer Plan outlines the locations in which the Metropolitan Council can expect to see changes in 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.

Background

The City of St. Anthony is located in Hennepin and Ramsey County and is bordered by Minneapolis to the southwest, Columbia Heights to the northwest, New Brighton to the north, and Roseville to the east. The City of St. Anthony is primarily residential, and approximately 5 percent of the City is covered by lakes or wetlands.

St. Anthony has been designated entirely as an urban community. This designation indicates that the Metropolitan Council expects population and household growth at average densities of at least 10 units per acre for new development and redevelopment, targeting more intensive development near regional transit investments. The City of St. Anthony is anticipating some medium and high density residential development in the north, as well as more significant medium and high density residential development in the south, including the potential redevelopment of Lowry Grove.

EXISTING SYSTEM

Public Collection System

The City of St. Anthony's existing sanitary sewer system is divided into two service areas, north and south, which discharge into the Metropolitan Council Environmental Services (MCES) regional sewer system. The north area includes meters M055 and M055A and discharges into MCES interceptor 1-RV-430 which flows east through Roseville. The south area includes meter M104 and discharges into MCES interceptor 1-MN-302 which flows south through Minneapolis. A small area along the City's western boundary with Minneapolis between 35th and 37th Avenue is unmetered and discharges directly into the Minneapolis system, which later connects to MCES interceptor 1-MN-303. A summary of the existing lift stations within the City of St. Anthony is presented in Table 1, and maps of the meter service areas and existing sanitary sewer system are shown in *Figure 1* and *Figure 2*, respectively.

All wastewater collected in the City of St. Anthony is conveyed through the MCES system to the Metropolitan Wastewater Treatment Plant (WWTP) in St. Paul. The Metropolitan WWTP has a capacity of 251 MGD and discharges treated effluent to the Mississippi River.

Table 1: Existing Lift Station Summary

Lift Station	Pumping Capacity (gpm)	Location	Existing Max Flow (gpm)
3	2,000	Foss Road	1,832
4	300	Harding Street NE	240
5	5	Silver Point Park	5

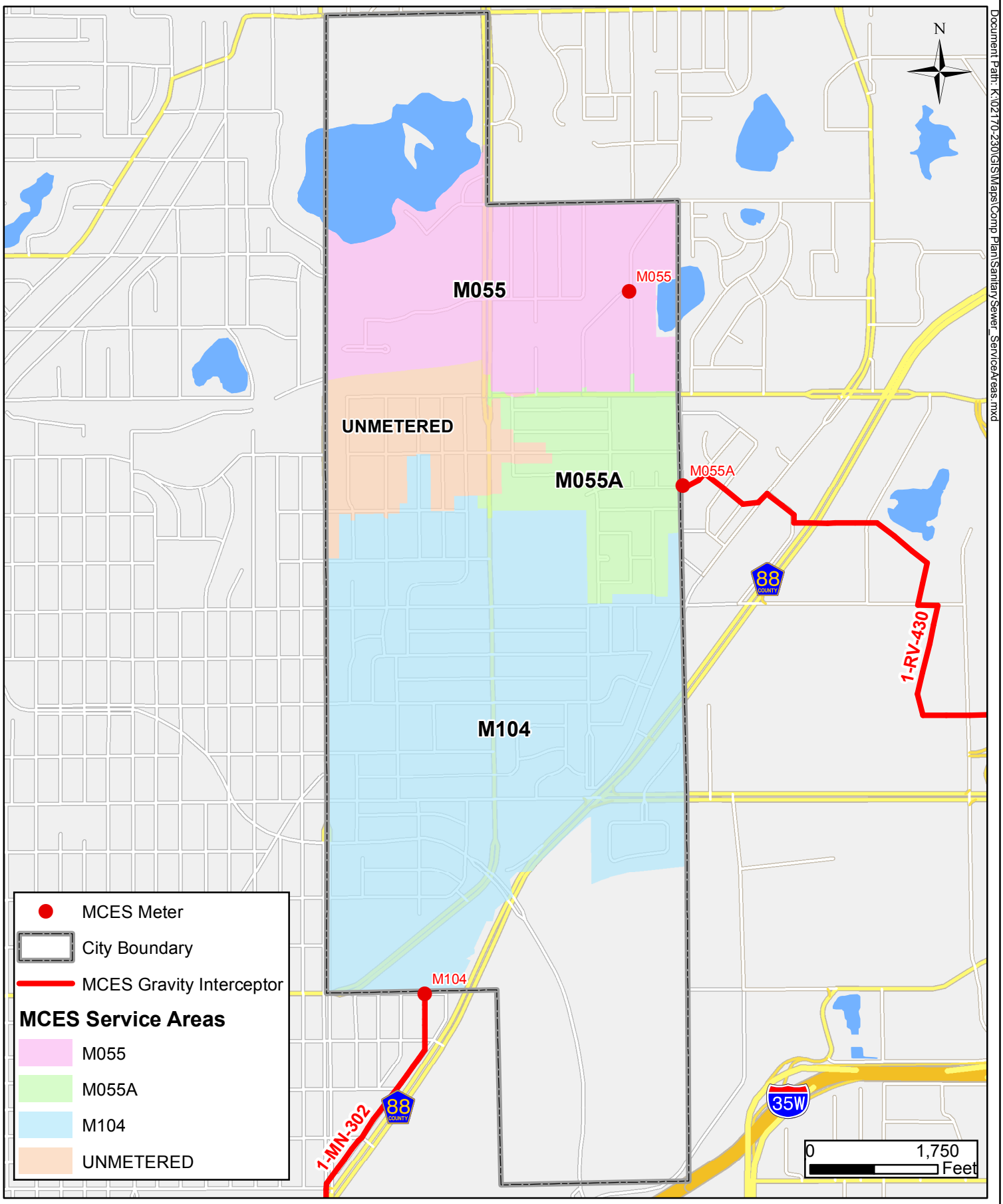


Figure 1
Sanitary Sewer Service Areas
Comprehensive Sewer Plan
St. Anthony, MN

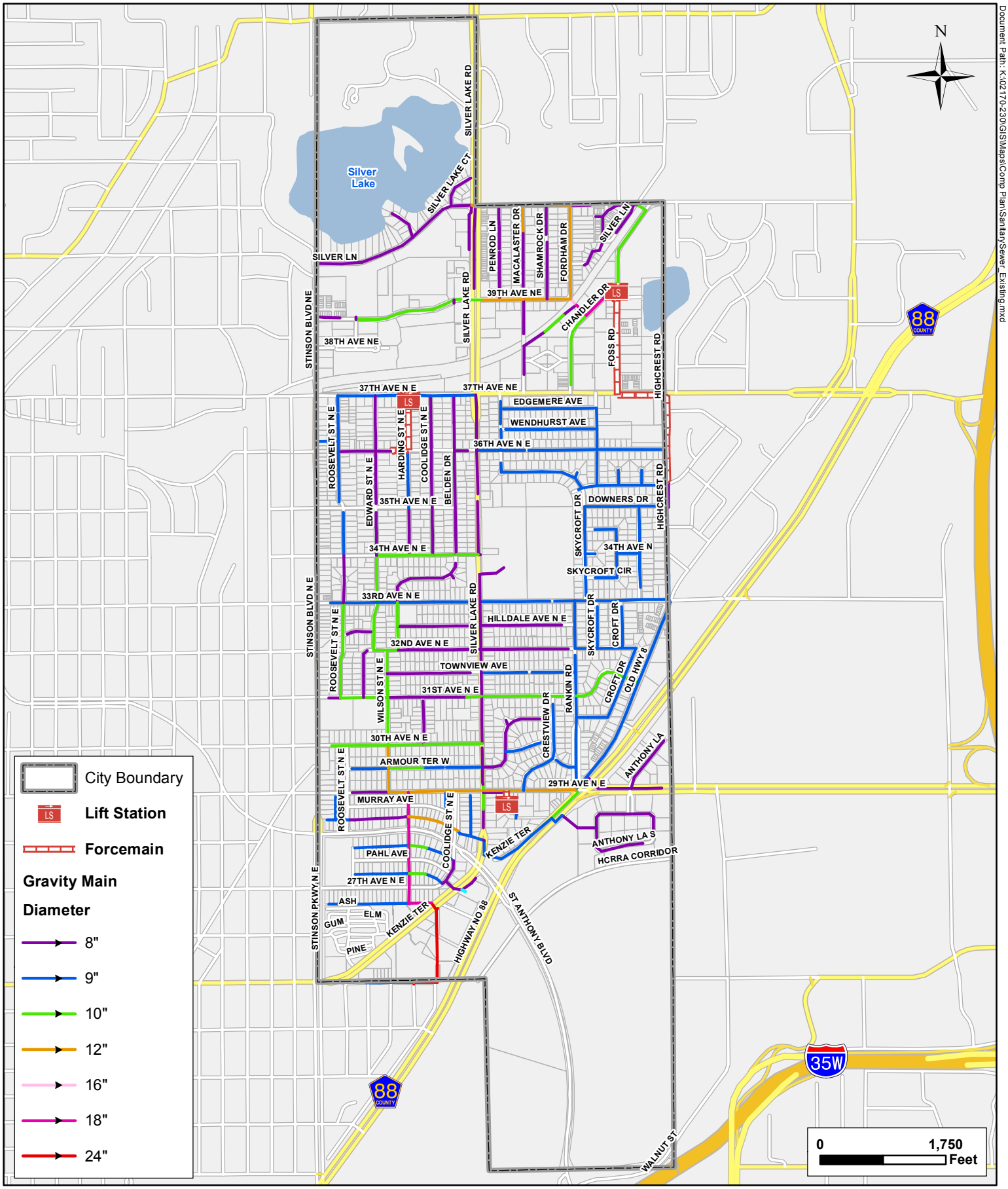


Figure 2
Existing Sanitary Sewer System
Comprehensive Sewer Plan
St. Anthony, MN

Private Treatment Systems

None of the properties within the City of St. Anthony are served by individual sewage treatment systems (ISTS's, septic systems, or on-site sewer treatment systems). The section of St. Anthony City Code regarding ISTS's is consistent with Minnesota Pollution Control Agency (MPCA) regulations (Minnesota Rules Chapters 7080-7083). Owners of property abutting upon any street or alley with sewer line must connect to the municipal sewer system. If a property has a toilet connected to the City's sewer system, any septic tank on that property is deemed a nuisance and must be removed by the owner.

Community Treatment Systems

There are no public or private community wastewater treatment plants within the City of St. Anthony. All properties within the City are served by the public collection system.

FORECASTS

Projected Population

The Metropolitan Council publishes population and sewer usage forecasts for each city in the Metropolitan Area. These forecasts serve to help cities prepare infrastructure for growth and to promote continued maintenance of municipal infrastructure. The forecast data in **Table 2** is from the Metropolitan Council's Local Planning Handbook Community Page for St. Anthony and includes the sewered population, number of households, and employment. Because there are no private treatment systems in St Anthony, the sewered population projections in **Table 2** below are equal to the total projected populations. **Table 3** below summarizes the projections for each service area and accompanying interceptor. The projections in **Table 3** were calculated using parcel zoning designations and anticipated growth from the 2040 Land Use Plan.

Table 2: Projected Population – City of St. Anthony

	Total & Sewered		
Year	Population	Households	Employment
2020	10,000	4,600	3,500
2025*	10,400	4,800	3,565
2030	10,800	5,000	3,630
2035*	10,850	5,050	3,665
2040	10,900	5,100	3,700

** interpolated values*

Table 3: Projections by Meter Service Area & Interceptor

	M055 Service Area Interceptor 1-RV-430			M055A Service Area Interceptor 1-RV-430			M104 Service Area Interceptor 1-MN-302			Unmetered Area Interceptor 1-MN-305		
Year	Ppn	Hhds	Empl	Ppn	Hhds	Empl	Ppn	Hhds	Empl	Ppn	Hhds	Empl
2020	5,059	2,327	753	664	305	233	3,612	1,662	2,381	664	306	133
2025*	5,261	2,428	767	691	319	237	3,757	1,734	2,425	691	319	136
2030	5,464	2,530	781	717	332	242	3,901	1,806	2,469	718	332	138
2035*	5,489	2,555	788	721	335	244	3,919	1,824	2,493	721	335	140
2040	5,514	2,580	796	724	339	246	3,938	1,842	2,517	724	339	141

** interpolated values*

Projected Wastewater Flows

All of the existing sewage flow from the City of St. Anthony is treated at the Metropolitan WWTP in St. Paul. Any growth in sewered population is expected to occur within the existing meter service areas and will be treated at the Metropolitan WWTP as well.

Table 4 below lists the 2040 forecasted flow to each MCES interceptor and total flow to the Metropolitan WWTP. The maximum flows given in Table 4 were calculated by applying peak flow factors determined from historical meter flow data for St Anthony. These forecasts are used by the Metropolitan Council to plan for regional sanitary sewer and wastewater treatment improvements.

Table 4: Projected 2040 MCES Interceptor Use and Total Flow

Interceptor	Meter	2040 Projected Flow	
		Average Flow (MGD)	Max Flow (MGD)
1-RV-430	M055A & M055	0.403	3.433
1-MN-302	M104	0.493	6.020
1-MN-303	Unmetered	0.053	0.544
Total (Metro WWTP)		0.950	9.997

Sewage from both the M055 and M055A sewer service areas flows into interceptor 1-RV-430. The future development anticipated by 2040 in the M055 sewer service area includes a high density residential area near the Silver Lake Village on Stinson Rd and a medium density residential area located just west of Mirror Lake on Foss Rd. No future developmnent in the M055A sewer service area is anticipated by 2040.

Flows into interceptor 1-MN-302 constitute the largest proportion of sewage produced in St. Anthony, compared to the other two interceptors. Four future developments are anticipated in the M104 sewer service area: three high denisty housing residential developments and one medium density residential

development. The largest future development, at Lowry Grove, is located in this region and would flow into interceptor 1-MN-302.

The potential development of Lowry Grove would have an impact on projected wastewater flow. A recent environmental assessment concluded that the development will increase average day sanitary sewer flows by an estimated 230,000 gallons per day. As a result of the redevelopment, St. Anthony will surpass the Metropolitan Council's wastewater projections, bringing the City's total average wastewater flow to 0.96-0.99 MGD.

Since there are no plans for future development in the unmetered sewer service area of St. Anthony, it is anticipted that there will be no major changes in the projected flows of this region's flow contribution to interceptor 1-MN-303.

Sanitary Sewer Design Criteria

Land Use

The City's existing and 2040 land use maps were used in the development of this plan. Detailed information and figures regarding St. Anthony's land use is included in the City's 2040 Comprehensive Land Use Plan. Using existing land-use, metering data, and future land use information, existing and future flows were calculated and divided by meter service area as described below.

Existing Average Flow

To estimate the flows in trunk mains throughout the City, metering data was retrieved from the Metropolitan Council. Flows were assigned proportionally to each meter service area based on the acreage of residential, commercial/retail/industrial/institutional/utility, and park/undeveloped land within each area, and typical flows per acre for each particular land use.

Future Average Flow – 2040 Build Out

Once average flows were estimated, future flows were projected based on the planned 2040 land use from the Land Use Plan. Parcels that are planned to be developed were assigned wastewater flow rates in accordance with their land use type. Table 5 lists the assigned flows based on the residential densities in the 2040 Land Use Plan and typical flows recommended by MCES, which

include design considerations for inflow and infiltration (I/I). Refer to the Inflow and Infiltration section of this report for more information about I/I as it relates to St. Anthony's sanitary sewer system.

Table 5: Projected Water Demand

Land Use	Flow per Acre (gpd)
Detached Single Family	540
Attached Single Family	990
Manufactured Housing	990
Multifamily	4,320
Commercial, Retail, Industrial, Institutional, Utility	800
Park, Undeveloped	None

Peak Flow Factors

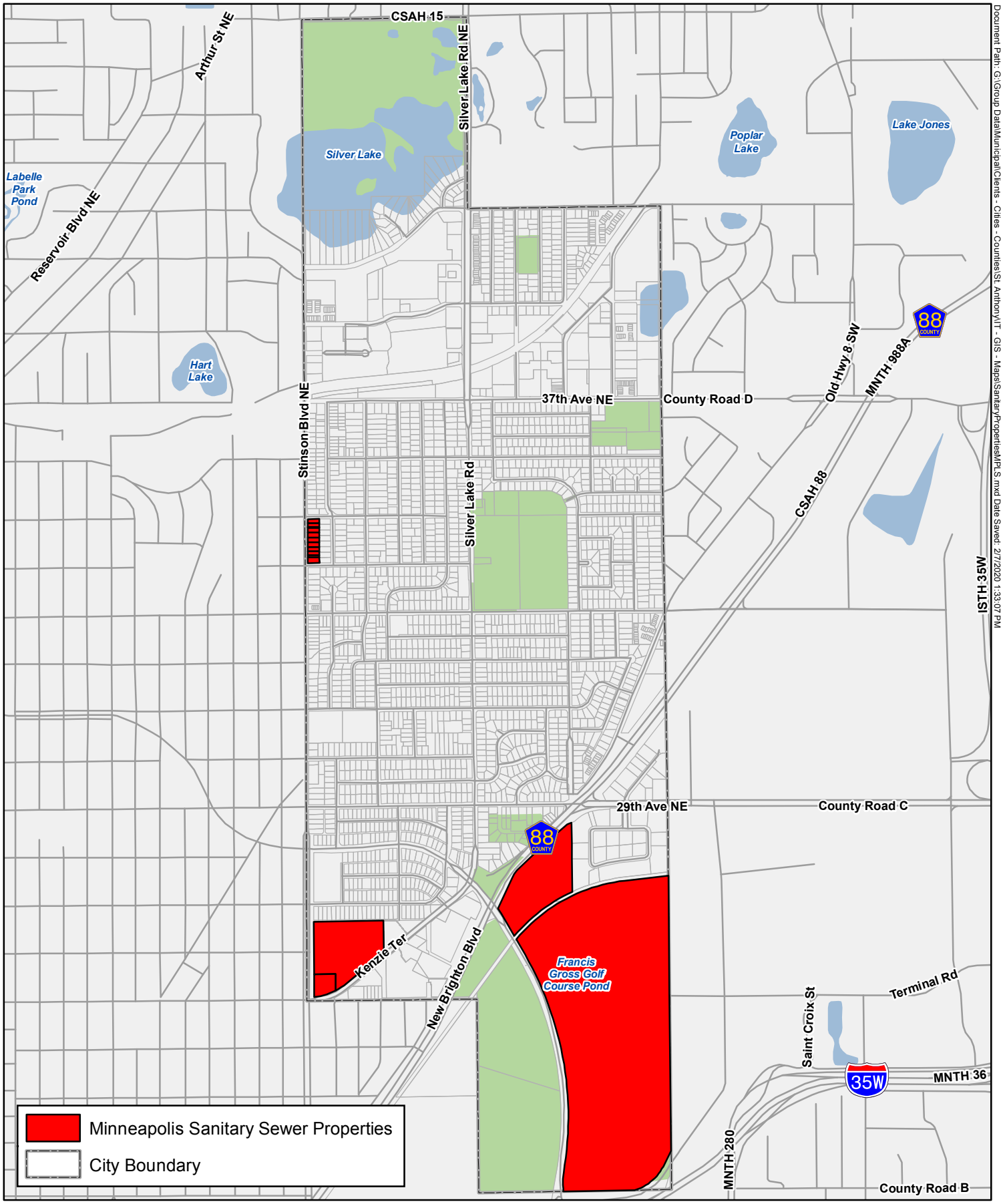
To ensure that the sanitary sewer system is capable of handling flow fluctuations throughout the day, peak flow factors are assigned based on average flows. Typical peak factors are outlined by the Metropolitan Council and are based on average flow rates. Pipes that serve small generator customers are more likely to experience large fluctuations in flows. Therefore, the peak factor decreases as average flow increases. Since St. Anthony serves a small population with four unique sewer districts, the larger peak factors used in this report were calculated using flow data from the MCES meters in the city. This thorough usage of daily city data from the last five years helped ensure a more accurate peak flow factor specific to each sewer district.

Intercommunity Flow

St. Anthony currently has one interconnection for intercommunity wastewater flow with Minneapolis, as shown in ***Figure 1***. The service area for this interconnection includes a small portion of western St. Anthony between 35th and 37th Avenue, and wastewater flow from that portion is unmetered.

There are no interconnect agreements other than long-standing cooperative billing practices. Those practices are that St Anthony bills these properties for their sewer and water usage and then forwards the fees collected on to the City

of Minneapolis. Properties served directly by the City of Minneapolis are identified on *Figure 3*.



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Saint Anthony Village

Sanitary Sewer Properties

St. Anthony Comprehensive Plan
St. Anthony, MN

Figure 3

N

0 1,750 Feet

1 inch = 1,750 feet

wsb

Proposed Improvements

The required infrastructure additions were determined based on the areas the City is planning to develop by 2040. The estimated timing and costs of improvements are summarized in the Cost Estimates and Financing section.

Table 6 below summarizes the lift station capacity analysis that was conducted to determine if the current lift station pumping capacities are sufficient to handle the anticipated 2040 max flows.

Table 6: Lift Station Capacity Analysis

Lift Station	Pumping Capacity (gpm)	Location	Existing Max Flow (gpm)	2040 Max Flow (gpm)	Remaining Capacity (gpm)
3	2,000	Foss Road	1,830	1,970	30
4	300	Harding Street NE	240	240	60
5	5	Silver Point Park	5	5	-

A trunk sewer capacity analysis was conducted in order to determine whether the existing sewer service trunk lines would be sufficiently sized to handle the increased wastewater flows due to development by 2040. The capacities of the major sewer trunk lines in St Anthony were calculated and compared to the 2040 maximum flows within each meter region. All four meter regions (M055, M055A, M104, and unmetered M131) have tunk sewer lines with sufficeint capacity to serve the 2040 maximum flows. Therefore, there is currently no anticipated need for trunk upsizing in St Anthony, given the current 2040 development plan. A summary of this analysis is provided in Table 7 below.

Table 7: Trunk Sewer Capacity Analysis

Metershed	Trunk Sewer Location	Total Capacity (gpm)	Existing Max Flow (gpm)	2040 Max Flow (gpm)	2040 Remaining Capacity (gpm)
M131 (unmetered)	Flowing west across parcels from Roosevelt St to Stinson Blvd	412	378	378	34

M055	Chandler Dr, from 10'' pipe add-in to Lift Station	4,686	1,833	1,973	2,713
M055A	Parallel to Highcrest Rd, leading to 1-RV-430 interceptor	533	416	416	117
M104	Flowing west on Lowry Ave to 1-MN-302 Interceptor	4,460	2,960	4,180	226

The wastewater from the potential development of Lowry Grove is planned to enter the system at the 24-inch diameter PVC gravity main in the alley south of 27th Avenue NE. The pipe and downstream system are capable of handling the increased sanitary flows proposed from the development, according to the City's sanitary sewer model. Depending on the final grading of the site, a 600 gpm sanitary sewer lift station with a 10-inch inner diameter forcemain will likely be required.

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. The MCES establishes annual I/I goals for each community discharging wastewater into the Metropolitan Disposal System (MDS) based on historical wastewater flows, adjustments for community growth, and I/I mitigation peak hourly flow factors.

The City of St. Anthony had serious inflow and infiltration before 1979. In the late 1990s and early 2000s, the City televised and rehabilitated the sanitary sewer lines and implemented an ordinance prohibiting the discharge of stormwater from drain tile into the sanitary sewer (enforced at time of sale). In 2006, the City inspected every home for sump pump and foundation drain conformance. These efforts have significantly reduced inflow and infiltration into St. Anthony's sanitary sewer system.

I/I Analysis

St. Anthony's sanitary sewer system currently consists of approximately 25 miles of gravity main, three lift stations, and 4,500 feet of forcemain. At least 66 percent of the residential housing in the City was constructed prior to 1970, and of the pre-1970 private services, all have been inspected for sump pump and foundation drain conformance. Non-conforming properties must be brought into compliance at time of sale. The City has also begun pre and post-construction I/I monitoring as part of its street reconstruction projects. This monitoring will help the City quantify the impacts of the reconstruction and identify which private services may be contributing to I/I.

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 2011-2015. The average flow, both annual and monthly, was calculated from MCES meter data. The peak month flow was determined for each year from 2011-2015, and then those peak month flows were averaged to give the value listed in Table 9. The base flow was estimated as winter water usage from 2011-2015, calculated using pumping records from January to December times a historical fraction of water used of water pumped.

Table 9: I/I Estimate

Parameter	Value (MGD)
Average Annual Flow	0.782
Peak Month Flow	1.171
Base Flow	0.580
Average Annual I/I Rate	0.202 (26%)
Peak Month I/I Rate	0.591 (50%)

Because the City has reconstructed nearly all of the public sanitary sewer system over the last 30 years, it is likely that the majority of the remaining I/I is from private sources. Potential private sources include unidentified foundation drains and failing or leaking private service laterals. In order to identify and eliminate

these sources, the City requires inspection for foundation drains and disconnection at the time of sale. In addition, the City has begun televising service laterals during its street reconstruction projects and providing the results to property owners.

I/I Reduction

The City's strategy for preventing excess I/I is based on requiring all development to conform to City standards. City code prohibiting the discharge of storm water to the sanitary sewer system and requiring the disconnection of existing I/I sources is excerpted below.

> *§ 50.16 PROHIBITED DISCHARGES INTO SANITARY SEWER SYSTEM.*
>
> ...
>
> *(B) No person shall discharge or cause to be discharged, directly or indirectly, any storm water, surface water, groundwater, roof runoff, subsurface drainage, or cooling water into the sanitary sewer system. Any person having a roof drain, sump pump, foundation drain, unauthorized swimming pool discharge, cistern overflow pipe, or surface drain connected and/or discharging into the sanitary sewer system shall disconnect and remove any piping or system conveying the water to the sanitary sewer system.*

The City of St. Anthony has I/I reduction projects every year in conjunction with its Street & Utility Reconstruction Program. The projects completed since 2004 and the costs associated with those projects are summarized in Table 10. The City has also completed flood control projects to mitigate inflow during flooding.

Table 10: I/I Reduction Activities

Year	Description	Cost
2016	Pipe televising, removal, replacement.	$ 148,042.00
2015	Pipe televising, removal, replacement.	$ 263,805.22
2014	Pipe televising, removal, replacement.	$ 216,714.65
2013	Pipe televising, removal, replacement.	$ 124,008.57
2012	Pipe installation (Emerald Park).	$ 47,750.00
2012	Pipe bursting, replacement (Macalester Drive).	$ 118,485.25

2012	Pipe televising, removal, replacement.	$ 205,580.53
2011	Pipe televising, removal, replacement.	$ 160,236.37
2010	Pipe televising, removal, replacement.	$ 118,396.03
2009	Pipe televising, removal, replacement.	$ 178,772.54
2008	Pipe televising, removal, replacement.	$ 1,470,959.00
2007	Pipe televising, removal, replacement.	$ 525,671.10
2006	Pipe televising, removal, replacement.	$ 192,766.61
2005	Pipe removal, bursting, replacement.	$ 196,600.34
2004	Pipe televising, removal, bursting, replacement.	$ 171,491.80

I/I Implementation

The City has planned and budgeted for additional sanitary sewer improvements through 2025 as part of its Street & Utility Reconstruction Program. The City replaces sanitary sewer trunks, laterals, and services up to the property line. From 2004-2016, the City has invested an average of $318,406 per year in sanitary sewer rehabilitation. The improvements completed during 2017 along Skycroft Drive and Maplewood Drive cost an estimated $327,785 and include pipe televising, removal, and replacement. The City of St. Anthony has dramatically reduced its I/I over the last 20 years with the flood control projects, in-home inspections, and sanitary sewer system reconstruction described above. The City will continue to diagnose and rehabilitate both the public and private sanitary sewer systems through the following mechanisms:

- Foundation drain inspection and disconnection at time of sale.
- Televising of service laterals and provision of results to property owners.
- Monitoring of pre and post-construction I/I to quantify impacts and identify private sources.
- Flood control projects to reduce inflow.
- Pipe televising, removal, and replacement as part of the Street & Utility Reconstruction Program.

Cost Estimates and Financing

Table 11 lists the capital improvements and the significant maintenance and rehabilitation work planned for the City of St. Anthony's sewer system.

Table 11: Capital Improvements

Year	Improvement	Estimated Cost
Annual	I/I Reduction – Pipe Replacement	Varies (see Table 10)
2018	Foss Road Lift Station Pump Replacement	$154,000
2019	Harding Lift Station Pump Replacement	$36,000
2020	Lift Station SCADA System	$40,000
2024	Foss Road Lift Station Pump Rehab	$10,000
2026	Harding Lift Station Pump Rehab	$5,000

Summary and Outcomes

The analysis provided in this Comprehensive Sanitary Sewer Plan is aimed to provide the City of St. Anthony 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. Tables and figures can be utilized to create budget-level estimates and schematic representations of infrastructure improvements, with specific sizing and routing to be determined during the design phase.



Chapter 8:
Water Supply

Chapter 8: Water Supply

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Executive Summary

Introduction

The City of St. Anthony's Comprehensive Water Supply Plan describes the City's existing water distribution system and water demands, projects future water demands through the year 2040, and proposes infrastructure improvements to accommodate those demands. This Plan has been prepared according to the guidelines established by the Metropolitan Council and the Minnesota Department of Natural Resources (DNR). The Water Supply Plan immediately following this report follows the template provided by the DNR, while this Comprehensive Water Supply Plan expands upon the template and provides further information for City and Metropolitan Council planning.

Existing System

The City of St. Anthony's water distribution system provides nearly 300 million gallons of water each year to about 2,330 service connections. The system draws groundwater from three wells and is treated at the water treatment plant in the center of the City and stored between one ground storage tank and one water tower. The City has a single pressure zone, apart from the neighborhood just south of St. Anthony High School where pressures are augmented by a booster station located inside the Advanced Oxidation Process (AOP) Water Treatment Plant.

Population and Water Demand

The population served by the City's water system has stayed constant over the last ten years. However, total water demands and per capita demands have been steadily decreasing, especially in the last five years. Higher efficiency appliances, reduced irrigation, general attitudes toward conservation, rainfall, and climate likely all play a role in that trend.

Growth and Demand Projections

The Metropolitan Council projects that the City of St. Anthony will grow over the lifetime of this Plan, and that its total per capita water use will remain constant. The population served by the City of St. Anthony's water distribution system is expected to increase to 10,900 people by the year 2040, at which time the projected total per capita water use of 98 gallons per capita per day will result in an average day demand of 1.07 million gallons per day and a maximum day demand of 2.24 million gallons per day.

Proposed Improvements

Most of the system improvements required to sustain the City's future water demands involve the upkeep of existing infrastructure. As detailed in the following sections, these include the installation of SCADA systems at the production wells and water treatment plant, the maintenance and restoration of the well pumps, and the repair and maintenance of the ground storage tank and water tower.

INTRODUCTION

Purpose

This Comprehensive Water Supply Plan is a section of the City's 2040 Comprehensive Plan. The purpose of the Comprehensive Water Supply Plan is to provide an overview of the City's current drinking water resources, infrastructure, policies, and challenges, and to present future plans. A water distribution map is included in Figure 1.

This Comprehensive Water Supply Plan has been prepared according to the guidelines established by the Metropolitan Council and the Minnesota Department of Natural Resources (DNR) per Minnesota Statute 473.859 which requires water supply plans be completed by all local units of government in the seven-county Metropolitan Area. The attached Water Supply Plan conforms to the template provided by the DNR, while this Comprehensive Plan satisfies the Metropolitan Council's requirements.

Background

The City of St. Anthony, 2.37 square miles in area, is located in Hennepin and Ramsey Counties to the northeast of Minneapolis and is fully developed. The majority of the properties within the City limits are currently serviced by the City's water utility.

This report uses historical population and water use data with population estimates provided in St. Anthony's Metropolitan Council Environmental Services (MCES) System Statement to assess current water demand and to project water demand through the year 2040. The 2040 service area was defined based on the future Land Use Plan prepared for the City's 2040 Comprehensive Plan.

The City of St. Anthony has identified the following goals and aspirations for the administration of their water system:

1. Continue to provide reliable and cost effective utility services allowing growth to dictate timing and location of new infrastructure.
2. Provide residents and businesses with affordable potable water that is safe and high quality. Operate and maintain the water system to ensure its long-term function with equitable user charges.
3. Continue to educate the community about water conservation using the City's website, fliers at City hall, and provide tours of the new water treatment plant and water reuse facility.
4. Protect the groundwater source from contamination by conforming to the Wellhead Protection Plan.
5. Provide adequate water supply and pressure for residents and businesses.
6. Continue to manage existing utility infrastructure efficiently, anticipating the need for repair or replacement and combining reconstruction projects where possible to minimize the expenses over time.
7. Continue to be an adaptive and resilient community that utilizes the latest environmentally conservative methods of drinking water conservation, water reuse, and stormwater and wastewater management.
8. Continue efforts to become a "green community" by integrating sustainability practices into existing City ordinances.
9. Consider developing a system to recognize and encourage water conservation in City facilities. Progress towards achieving water use reduction will be communicated to City staff and facility users.

Data Available

The following sources of information were used to prepare this report:

- Water Supply Plan for the City of St. Anthony, prepared by WSB & Associates, Inc.
- MCES System Statement for the City of St. Anthony
- MCES Community Profile for the City of St. Anthony
- Water usage data as reported by the City to the DNR's Minnesota Permitting and Reporting System (MPARS)

General Contact Information

City of St. Anthony Water System
DNR Water Appropriation Permit Numbers: 1960-0907
Ownership: Public
Metropolitan Council Area, Hennepin & Ramsey Counties
MDH Supplier Classification: Municipal

Director of Public Works: Jay Hartman
3301 Silver Lake Road NE
St. Anthony, MN 55418
Phone: (612) 782-3314

Water Use Categories and Definitions

General water use categories and definitions used in this report, as defined by the Department of Natural Resources, are as follows:

- *Residential* uses consist of water being used for normal household purposes, such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens.
- *Institutional* uses consist of those for hospitals, nursing homes, day care centers, and other facilities that use water for essential domestic requirements. This includes public facilities and public metered uses. Institutional water-use records are typically maintained for emergency planning and allocation purposes.
- *Commercial* uses consist of water used by motels, hotels, restaurants, office buildings, and commercial facilities.
- *Industrial* uses consist of water used for thermoelectric power (electric utility generation) and other industrial uses such as steel, chemical and allied products, food processing, paper and allied products, mining, and petroleum refining.
- *Wholesale deliveries* consist of bulk water sales to other public water suppliers.
- *Unaccounted water* is the volume of water withdrawn from all sources minus the volume sold.
- *Non-essential water uses* as defined by Minnesota Statutes 103G.291, include lawn sprinkling, vehicle washing, golf course and park irrigation, and other non-essential uses. Some of the above categories also include non-essential uses of water.

FIGURE 1

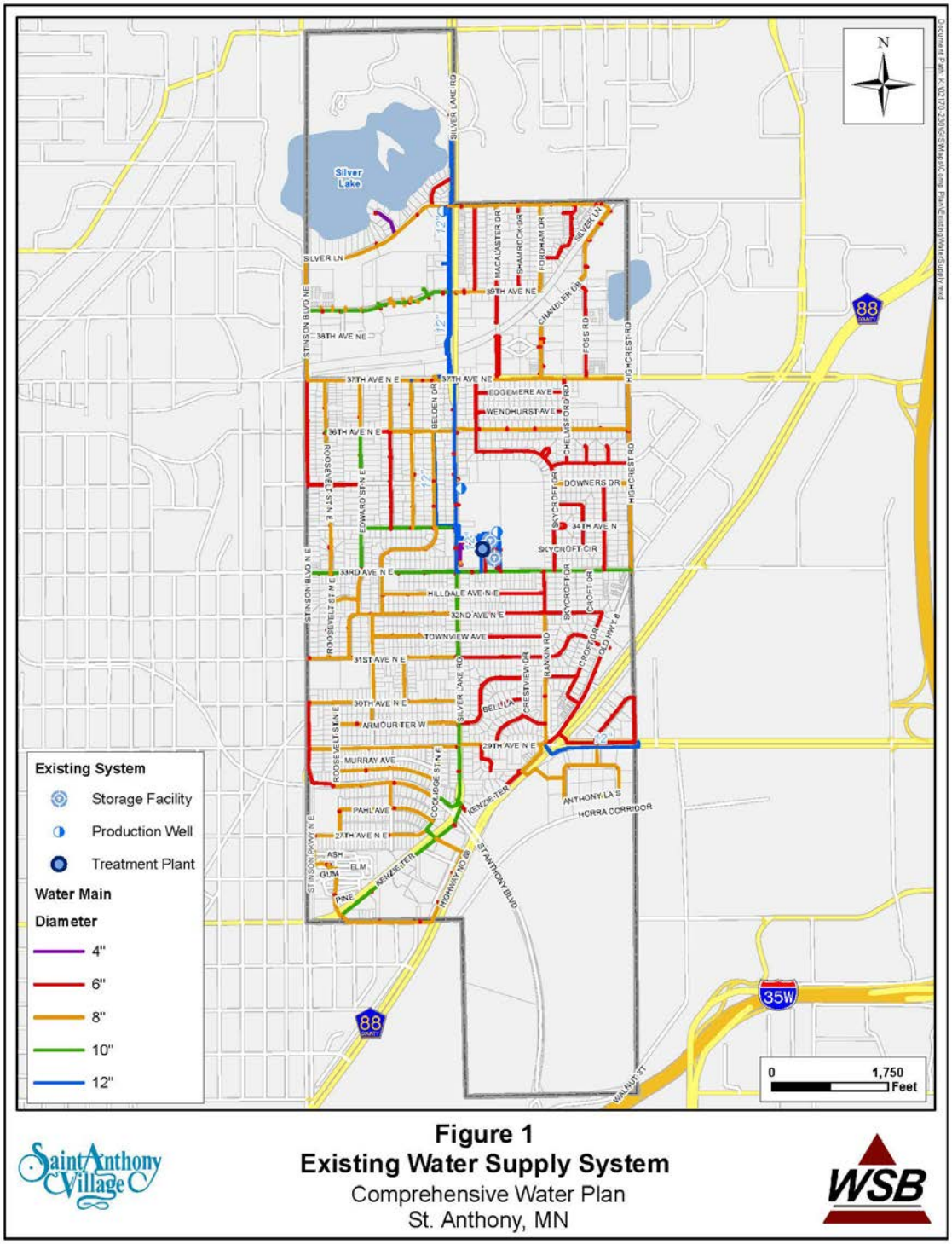


Figure 1
Existing Water Supply System
Comprehensive Water Plan
St. Anthony, MN

EXISTING SYSTEM

The City's existing water distribution system, shown in Figure 1, consists of three deep wells, a water treatment plant (WTP), a ground storage reservoir, and a water tower. The WTP, ground storage, water tower, and one of the wells are located together in the center of the City. The system currently serves an area of approximately 1,110 acres with 2,330 connections.

Water Sources

The City currently uses three groundwater sources: Wells 3, 4, and 5. (Wells 1 and 2 were capped in the early 1990s and resealed per MDH requirements in 2017.) Well 3 is located adjacent to the WTP; Well 4 is located just north of the WTP on Silver Lake Road; and Well 5 is located at the southwest corner of Silver Lake Road and Silver Lane. Each is capable of pumping about 1,200 gallons per minute. Well information is provided in **Table 1**, and well logs and maintenance reports are included in **Appendix 1**.

Table 1: Existing Well Summary

Well Name and ID	Year Installed	Aquifer	Capacity (gpm)	Depth (feet)	Status
Well 3 #200804	1967	Prairie du Chien Jordan	1,200	539	Active
Well 4 #200803	1959	Jordan	1,200	541	Active
Well 5 #200524	1961	Jordan	1,200	472	Active

The City's water level monitoring plan is included in **Appendix 2**, and water level graphs for each well are included in **Appendix 3**.

Water Treatment

Water is pumped from the three wells to the St. Anthony WTP, which has a treatment capacity of approximately 5.0 million gallons per day. The plant was originally constructed in 1965 and was subsequently upgraded in 1995 and expanded in 2016-2017 with an Advanced Oxidation Process (AOP). It includes three treatment processes:

1. Filtration – Iron and manganese are removed by two horizontal pressure filters that contain greensand filter media. Chlorine and permanganate are applied before filtration, the chlorine to oxidize and preciptate iron and the permanganate to oxidize and preciptate manganese prior to filtration.
2. Advanced Oxidation Process (AOP) – An advanced oxidation process that utilizes hydrogen peroxide and ultraviolet (UV) light treats 1,4-dioxane, a carinogenic organic contaminant, that exists in the City's raw water source. Hydrogen peroxide absorbs UV light and forms hydroxyl radicals that oxidize and breakup the 1,4-dioxane into non-toxic compounds.
3. Granular Activated Carbon – Granular Activated Carbon (GAC) filters adsorb organic contaminants such as trichloroethylene (TCE) and dichloroethane (DCA) in addition to taste and odor compounds. The GAC filters also quench and remove any exceess hydrogen peroxide that is not consumed during the advanced oxidation process.

Chlorine, fluoride, and polyphosphate are applied at the end of the treatment train to disinfect, prevent tooth decay, and inhibit pipe corrosion, respectively.

The treated effluent from the WTP is discharged into the 2 million gallon ground storage reservoir. From there it is pumped into the distribution network by four high service pumps. The capacities of these pumps are listed in Table 2.

Table 2: High Service Pump Summary

Pump	Individual Capacity (gpm)	Paired Capacity (gpm)
1	2,200	3,800
2	2,200	
3	1,200	1,200
4	1,200	

Water Storage

St. Anthony has one elevated storage facility and one ground storage facility. The elevated storage is a steel, multi-leg water tower constructed in 1953 and has a storage capacity of 250,000 gallons. The ground storage is a concrete reservoir constructed in 1991 and has a storage capacity of 2 million gallons.

Water Distribution

The distribution system consists of approximately 32 miles of water main, consisting of cast iron, ductile iron and PVC pipe ranging from 6 inches to 12 inches in diameter. The larger 12-inch water mains are concentrated around the treatment complex in the center of the City and extend north from there along Silver Lake Road.

Population and Water Demands

The population served by the City of St. Anthony's water system has remained fairly constant over the last ten years; in 2015 the population served by the City's water system was 8,226 people. Population, water use, and water demand data from the past ten years for the City's water system are listed in Table 3 and Table 4.

Table 3: Population and Water Demand

Year	Population Served	Total Connections	Total Water Use (MG)	Total Water Pumped (MG)	Percent Unmetered/ Unaccounted
2005	8,250	2,295	280.4	329.7	14.93%
2006	8,250	2,307	299.6	336.5	10.98%
2007	8,250	2,323	340.2	361.7	5.94%
2008	8,250	2,332	307.4	329.4	6.66%
2009	8,250	2,333	307.7	323.1	4.78%
2010	8,250	2,333	259.8	294.2	11.68%
2011	8,250	2,333	268.5	299.7	10.40%
2012	8,250	2,333	295.6	322.5	8.36%
2013	8,226	2,329	299.2	299.9	0.23%
2014	8,226	2,320	265.0	278.6	4.87%
2015	8,226	2,325	259.2	281.2	7.82%
Avg. 2010-2015	8,338	2,329	274.6	296.0	7.23%

MG – million gallons

Average Day Demand, Maximum Day Demand, and Total Per Capita Demand show a slight decreasing trend over the last ten years (see Table 4). It is likely that high efficiency appliances, reduced irrigation, general attitudes toward conservation, rainfall, and climate all play a role in that trend.

Table 4: Population and Water Demand

Year	Average Day Demand (MGD)	Max. Day Demand (MGD)	Date of Max. Day Demand	Residential Per Capita Demand (GPCD)	Total Per Capita Demand (GPCD)
2005	0.90	2.19	7/15/2005	69	109
2006	0.92	2.45	7/13/2006	74	112
2007	0.99	2.40	7/7/2007	87	120
2008	0.90	2.16	7/3/2008	77	109
2009	0.89	2.29	7/11/2009	76	107
2010	0.81	1.40	8/29/2010	66	98
2011	0.82	1.59	7/1/2011	68	100
2012	0.88	1.88	7/2/2012	74	107
2013	0.82	1.72	8/30/2013	69	100
2014	0.76	1.63	8/9/2014	65	93
2015	0.77	1.57	8/15/2015	64	94
Avg. 2010-2015	0.81	1.63	-	68	98

MGD – million gallons per day GPCD – gallons per capita per day

Table 5 lists the top ten water users by volume, from largest to smallest, for the City of St. Anthony.

Table 5: Large Volume Users

Customer	Category	Use (gallons/year)	Percent of Total Use
Happy's Potato Chip	Industrial	20,608,427	7.95%
Emerald Park	Institutional	9,312,083	3.59%
Central Park Irrigation	Institutional	6,921,370	2.67%
Landings East	Residential	5,219,000	2.01%
Sentinel Management	Residential	4,970,230	1.92%
St. Anthony Nursing Home	Residential	4,838,843	1.87%
School District	Institutional	4,439,190	1.71%
Sentinel Management	Residential	4,435,750	1.71%
Chandler Place	Residential	3,304,360	1.27%
Landings West	Residential	3,264,180	1.26%

Existing Water Conservation Policies

Although Minnesotans benefit from the state's abundant water supplies, those supplies are finite and potential threats exist that could impact the quality of our drinking water. Factors that can potentially limit water supply include: population increases, economic trends, uneven statewide availability of groundwater, climate change, and degraded water quality. There are many benefits to enacting the types of water conservation policies that the City has already implemented and will continue to pursue.

The average total water used per year in the City of St. Anthony from 2010 to 2015 was 274.6 million gallons, with an average of 7.23% of that usage being unmetered or unaccounted. The average residential per capita demand has been decreasing steadily since 2012. From 2010 to 2015 it averaged 68 gallons per capita per day, which is less than the DNR's recommended residential demand of 75 gallons per capita per day. The decrease in residential per capita demand may be attributed to high efficiency appliances, reduced irrigation, general attitudes toward conservation, rainfall, and climate.

Wellhead Protection

Long-term preventative programs and measures for the City's existing water system will help reduce the risk of emergency situations. The City of St. Anthony has a number of programs to help reduce these risks. This includes a Wellhead Protection Plan (WHPP) that was approved by the Minnesota Department of Health (MDH) in January of 2017 and is due to be updated in 2027. It lists the following goals:

1. Maintain or improve the current level of water quality so that the municipal water supply will continue to meet or exceed all applicable state and federal water quality standards.
2. Continue to supply sufficient water quantity for system users and emergency needs.
3. Provide and promote activities that protect the source water aquifers which provide water to the municipal system. This will include increased public education of the Wellhead and Source Water Protection Program and groundwater-related issues, as well as management of the identified potential contaminant sources and conveyance mechanisms within the Drinking Water Supply Management Area (DWSMA).
4. Continue to collect data to support future wellhead and source water protection efforts.

In order to achieve these objectives, the WHPP lists the following measures to be implemented:

- Well Management
    - Promote the proper sealing of and identify and inform properties with abandoned, unused, unmaintained, or damaged wells
    - Educate the public about proper well management
    - Identify new high-capacity wells within the DWSMA
    - Continue to monitor water quality and quantity
    - Monitor the Inner Wellhead Management Zone (IWMZ) for potential contaminant sources
    - Minimize potential contaminant sources in order to reduce the DWSMA

- Public Education
    - Foster public support for and understanding of WHPP
    - Educate private utility owners about the DWSMA
    - Educate emergency management officials on the importance of spill clean-up within the DWSMA
    - Provide information on proper tank maintenance and preventing leaks to tank owners in WHP areas
- Storage Tank Management
    - Notify owners of storage tanks within the DWSMA that they are within the DWSMA and educate owners on the importance of spill prevention
- Stormwater Management
    - Educate the public on proper stormwater management, turf management, lawn care practices, and water conservation
    - Cooperate with other agencies and programs to manage stormwater quality
- Hazardous Waste Management
    - Educate the public on the proper disposal of hazardous waste
    - Educate hazardous waste generators on proper management
- Data Collection
    - Cooperate with and support future data collection efforts by other agencies
    - Conduct stable isotope test on all public water supply wells, precipitation, and Silver Lake
    - Maintain up-to-date information on wells and potential contaminant sources within the DWSMA
    - Collect and maintain local geologic data
- Water Conservation
    - Implement a community-wide conservation program
- Land Use Management
    - Incorporate WHPP initiatives into City Plans
- Implementation
    - Track and report completed WHPP activities
- Evaluation
    - Evaluate the WHPP

Growth and Demand Projections

The City of St. Anthony is currently built-out, although there is potential for population growth with the redevelopment of land at a higher density. The City's projected population and demands are listed in Table 6. The population projections were linearly extrapolated using the MCES System Statement projections for the years 2020, 2030, and 2040. As of 2016, any new population growth will be serviced by the municipal water system. The average day per capita demands were obtained from the MCES Water Supply Profile, and the peak factor applied to calculate the max day per capita demands was obtained from the City's reported water use data. The maximum day demand is expected to increase to 2.24 MGD by the year 2040.

Table 6: Projected Water Demand

Year	Projected Population Served	Projected Total Per Capita Demand (GPCD)	Projected Average Day Demand (MGD)	Projected Max Day Demand (MGD)
2017	8,936	98	0.88	1.84
2018	9,290	98	0.91	1.91
2019	9,645	98	0.95	1.99
2020	10,000	98	0.98	2.06
2021	10,080	98	0.99	2.07
2022	10,160	98	1.00	2.09
2023	10,240	98	1.00	2.11
2024	10,320	98	1.01	2.12
2025	10,400	98	1.02	2.14
2030	10,800	98	1.06	2.22
2040	10,900	98	1.07	2.24

Future Water Conservation Policies

The Minnesota DNR has established eight water conservation objectives and strategies. These are listed below with a summary of the City's progress towards the completion of each.

1. Reduce unaccounted (non-revenue) water loss to less than 10%.
    - The City's average unaccounted water use from 2010 to 2015 was 7.23%, which is below the recommended goal of 10%. Leak detection surveys are performed as needed.
    - There are a total of 2,325 metered connections in St. Anthony which are tested as needed or requested. The average age of these meters is 10 years, and they are replaced every 15 years. The City does not have any unmetered connections, and all meters were replaced in 2008 over the course of a recently completed AMR program.
2. Achieve residential demand of less than 75 gallons per capita per day.
    - The average residential per capita water demand for the City of St. Anthony from 2010 to 2015 was 68 gallons per capita per day (gpcd), which is less than the 75 gpcd target. Data from the DNR and the City indicates that residential water demand has an overall decreasing trend since the year 2007.
    - In order to continue reducing residential demand, the City will revise its ordinances on water efficient landscaping 1-3 years following the adoption of this plan, review its ordinances on water reuse annually, revise its ordinances limiting irrigation 3-6 years following the implementation of this plan, continue to make water system improvements, continue to provide incentives to reduce outdoor water use, and continue water conservation education and outreach.
    - The City participated in the Regional Indicators Initiative (RII) from 2008 to 2013 in order to track water usage by customer category.
3. Achieve at least a 15% reduction in per capita daily demand across all customer categories over the next 10 years.
    - The City of St. Anthony will conduct facility water use audits annually, install enhanced water meters, install conservation fixtures and appliances, repair leaking system components, investigate

water reuse, reduce outdoor water use, and train employees how to conserve water.

4. Achieve a decreasing trend in total per capita demand.
    - Each customer category shows a decreasing water use trend. The decrease in water usage may be attributed to the new water reuse facility, water efficient fixtures, and public education on water conservation. A graph showing total per capita water demand by customer category is included in Appendix 8.
5. Reduce peak day demand so that the ratio of maximum to average day demand is less than 2.6.
    - The City's ten year average (2005-2014) ratio of maximum to average day demand is 2.3, less than the DNR's recommended target.
6. Implement a conservation water rate structure.
    - The water rates in St. Anthony are based on an increasing block rate structure. This rate structure promotes water conservation because the price is volume-tiered, meaning that the price of water increases with the amount of gallons used. Water billing in St. Anthony is on a quarterly schedule, and the billing structure is evaluated every year with the last change made on January 1, 2015. The current rate structure is included in Appendix 9.
    - The City has also implemented an odd/even watering restriction to reduce peak day demands during months of high water usage.
7. Additional strategies to reduce water use and support wellhead protection planning.
    - The City of St. Anthony will continue participating in the GreenStep Cities program, implement a Water Conservation Outreach Program, and continue to use backwash water from the water treatment facility for irrigation of the twenty-acre park and City Hall site.
8. Tracking success.
    - The City will continue to monitor water usage by customer category and continue to participate in the GreenStep Cities program.

Regulation

The City of St. Anthony has implemented several regulations to reduce demand and improve efficiency in its water system. Rainfall sensors are required on landscape irrigation systems; water use is restricted by odd/even days and time of day; splash pad use in City parks is reduced during months of high water usage; tree ratios are enforced for new development in Districts R-3 and R-4; and a critical water deficiency ordinance has been established. A summary of these regulations with links to more information on them is included in Appendix 10.

Retrofitting Programs

The City partnered with the gas company and the EPA to distribute toilet leak tablets and faucet aerators. The City also hosted a rain barrel seminar and pays for half of a resident's first rain barrel.

Education and Outreach

The City has implemented, or plans to implement, the following education and outreach programs:

- Billing inserts include educational information
- Consumer Confidence Reports prepared annually
- Staff training includes awareness of conservation goals
- Facility tours are available on request
- Sustainability Fair to educate about everyday sustainability
- Rain barrel seminar and rebate program
- Village Notes community newsletter quarterly
- Information available at the water reuse facility
- Information available on City website (http://www.ci.saint-anthony.mn.us/)

PROPOSED IMPROVEMENTS

The City of St. Anthony's existing water system will need maintenance and restoration work to satisfy projected demand through 2040. Table 7 lists the proposed maintenance and improvements, along with estimated dates of implementation and costs. In addition, the City's Capital Improvement Plan for 2016 to 2032 is included in Appendix 4.

Table 7: Proposed Improvements

Year	Improvement	Estimated Cost
2017	WTP and Well SCADA Systems	$120,000
2018	Well 5 Rehabilitation	$100,000
2020	High Service Pump Upgrades and Piping	$341,000
2021	Well 3 Casing	$37,500
	Well 4 Pump Restoration	$75,000
2025	Tower Painting	$275,000
2028	Well 4 Permanent Generator	$275,000
2030	Well 5 Replace Standby Generator	$300,000

Proposed Sources and Treatment

It is generally recommended that a City's treatment or production capacity be equal to at least the maximum day demand with the largest well out of service, known as the system's *firm capacity*.

The City of St. Anthony's firm capacity is 3.46 MGD. By the year 2040, the maximum day demand is projected to increase to 2.24 MGD, which is well within the existing firm capacity. Additional production capacity should not be required over the lifetime of this plan. The City is planning to rehabilitate Well 5 in 2018.

The City just completed the addition of the advanced oxidation process to its water treatment facility, and the overall treatment capacity of the WTP is approximately 5.0 MGD. This capacity easily satisfies the projected maximum day demand.

Proposed Storage

It is generally recommended that a City's storage capacity be equal to at least the average day demand. The City's projected average day demand in 2040 is 1.07 MG, which is easily satisfied by the City's existig storage capacity of 2.25 MG. Additional storage capacity should not be required over the lifetime of this plan.

Proposed Distribution

The City will conduct water main rehabilitation and replacement as necessary in conjunction with street reconstruction. The City has also designated funds for fire hydrants in 2018 and 2027 as indicated in the Capital Improvement Plan.

New development will require a reassessment of existing water main capacity. A recent environmental assessment of the potential high density development of Lowry Grove, which included computer modeling of the system using the water modeling program InfoWater, concluded that the 10-inch trunk main along Silver Lake Road and Kenzie Terrace may need to be upsized to provide adequate fire fighting flow. Fire fighting requirements and the implications for trunk main sizing should be carefully considered in the design of this development. Existing production, treatment, and storage capacity are sufficient for this potential development.

Emergency Preparedness Procedures

Water emergencies can occur as a result of vandalism, sabotage, accidental contamination, mechanical problems, power failures, drought, flooding, and other natural disasters. The purpose of emergency planning is to develop emergency response procedures and to identify actions needed to improve emergency preparedness. In the case of a municipality, these procedures should be in support of, and part of, an all-hazard emergency operations plan.

Federal Emergency Response Plan

Section 1433(b) of the Safe Drinking Water Act, as amended by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188, Title IV – Drinking Water Security and Safety), requires community water suppliers serving over 3,300 people to prepare an Emergency Response Plan.

The City of St. Anthony has a Federal Emergency Response Plan that was certified on August 2, 2004. The contacts for this plan are:

Emergency Response Lead: Jay Hartman
Phone: (612) 782-3314
Email: jay.hartman@ci.saint-anthony.mn.us

Alternate Emergency Response Lead: Jeremy Gumke
Phone: (612) 782-3441
Email: jeremy.gumke@ci.saint-anthony.mn.us

Operational Contingency Plan

The State recommends that all utilities develop an operational contingency plan that describes measures to be taken for water supply mainline breaks and other common system failures, as well as for routine maintenance. A contact list for contractors and suppliers and a water emergency telephone list that act as an Operational Contingency Plan are included in Appendix 5.

Emergency Response Procedures

Quick access to concise and detailed information on water sources, water treatment, and the distribution system may be needed in an emergency. System operation and maintenance records should be maintained in secured central and back-up locations so that the records are accessible for emergency purposes. A detailed map of the system showing the water sources, treatment plant, storage facilities, supply lines, interconnections, and other information that would be useful in an emergency should also be readily available. It is critical that public water supplier representatives and emergency response personnel communicate about the response procedures and be able to easily obtain this kind of information both in electronic and hard copy formats (in case of a power outage).

The City of St. Anthony maintains records and maps of the water system. City staff can access these resources from a central secured location in the event of an emergency, and appropriate staff know where these resources are located.

Procedures for Augmenting Water Supplies

The City of St. Anthony has two partial interconnections with neighboring water supply systems, to be used only in the event of an emergency. One interconnection is with the City of St. Paul via Roseville in the southern portion of the system, which has a capacity of 144 MGD. The second interconnection is with adjacent fire hydrants of the City of Minneapolis, which has a capacity of 180 MGD. Copies of cooperative agreements for these interconnections are included in Appendix 6.

In the case of a short-term emergency, the City would need to obtain and distribute bottled water. In the case of a long-term emergency, the City will evaluate the cause of service disruption and will determine if a new water source or improved water treatment is necessary. The scale of the response will depend on the cause of the disruption. In this case, a feasibility study should be conducted to determine how to address the issue in the most cost-effective manner.

Allocation and Demand Reduction Procedures and Triggers

The City must prepare procedures to address gradual decreases in water supply, as well as emergencies and the sudden loss of water due to line breaks, power failures, sabotage, etc. These allocation and demand reduction procedures must be consistent with Minnesota State Statute 103G.261, that identifies and defines the priorities in which water usage will be allocated in the event of an emergency. They are defined as follows:

1. Domestic water supply only, excluding industrial and commercial uses of municipal water supply. The first priority also includes uses for power production that meet contingency requirements. Domestic use is defined by MN Rules 6115.0630, Subp. 9, as use for general household purposes for human needs such as cooking, cleaning, drinking, washing, and waste disposal, and uses for on-farm livestock watering excluding commercial livestock operations which use more than 10,000 gallons per day or one million gallons per year.
2. Consumption of less than 10,000 gallons per day (usually from private wells or surface water intakes).
3. Agricultural irrigation and processing of agricultural products of more than 10,000 gallons per day.
4. Power production in excess of the use provided for in the contingency plan.
5. All other water use of more than 10,000 gallons per day.
6. Non-essential uses. These uses are defined by Minnesota Statutes 103G.291 as lawn sprinkling, vehicle washing, golf course and park irrigation, and other non-essential uses.

Table 8 lists the priority ranking, average day demand, and demand reduction potential for each customer category in the City.

Table 8: Water Use Priorities

Category	Allocation Priority	Average Daily Demand (GPD)	Short-Term Emergency Demand Reduction Potential (GPD)
Residential	1	533,170	-
Institutional	2	39,160	-
Commercial/Industrial	3	145,200	-
Non-Essential	4	-	328,250
Total	-	718,070	328,250

GPD – Gallons per Day

*Non-essential use is calculated as average difference in summer and winter usage across all customer categories from 2011 to 2015

The City of St. Anthony will use the following conditions to trigger an emergency response:

- Contamination
- Loss of Production
- Infrastructure Failure
- Governor's Executive Order

The City of St. Anthony has identified the following short-term and long-term actions to be implemented as part of an emergency response:

Short-term Actions

- Enforce its critical water deficiency ordinance
- Allocate water through emergency action of the City Council
- Encourage voluntary reduction through public service announcements

Long-term Actions

- Supply augmentation through Roseville
- Enforce its critical water deficiency ordinance
- Allocate water through emergency action of the City Council
- Meet with large water users to discuss their contingency plan

Notification Procedures

The City of St. Anthony has developed the following plan to inform customers regarding conservation requests, water use restrictions, and suspensions; with the support of City staff, neighboring communities, and local news outlets:

Short-term demand reduction declared (within one year)

Frequency: Monthly

- Website
- Social media (e.g. Twitter, Facebook)
- Direct customer mailing
- Press release (TV, radio, newspaper)

Long-term demand reduction declared (over one year)

Frequency: Annually

- Website
- Social media (e.g. Twitter, Facebook)
- Direct customer mailing
- Press release (TV, radio, newspaper)

Governor's Critical water deficiency declared

Frequency: As Needed

- Website
- Social media (e.g. Twitter, Facebook)
- Direct customer mailing
- Press release (TV, radio, newspaper)

Enforcement

Minnesota Statutes require public water supply authorities to adopt and enforce water conservation restrictions during periods of critical water shortages. As stated in Minnesota Statutes 103G.291, Subdivision 1, regarding public water supply appropriation during deficiency, if the governor determines and declares by executive order that there is a critical water deficiency, public water supply authorities appropriating water must adopt and enforce water conservation restrictions within their jurisdiction that are consistent with rules adopted by the commissioner. The restrictions must limit lawn sprinkling, vehicle washing, golf course and park irrigation, and other nonessential uses, and have appropriate penalties for failure to comply with the restrictions.

The City has a critical water deficiency ordinance defined in St. Anthony City Code, Chapter 52: Section 52.08. A copy of this ordinance is included in Appendix 7. The City Council will sit as an Emergency Water Supply Board to impose and enforce water use restrictions.



Chapter 9: Sustainability

CHAPTER 9: SUSTAINABILITY

WHAT DOES SUSTAINABILITY MEAN TO ST. ANTHONY?

For the city of St. Anthony, sustainability takes the stage front and center with its presence in the city's mission: to be a progressive, and livable community, a "walkable" Village which is sustainable, safe and secure. Since its addition to the mission, sustainability has been approached considering impacts to the environment, economy and equity of the community. In 2007, the city partnered with its watershed organizations and county to bring the first water re-use project to the state of Minnesota, with the Central Park Water Re-Use Facility. This system collects stormwater and water treatment backwash to irrigate the Central Park fields and Community Center campus and has lead the way for water re-use to be implemented in other large-scale facilities. In the following years, the city collaborated further with partners to bring online the Silver Lake Stormwater Treatment System at Salo Park, Silver Lake Carp tracking and winter netting, the Central Park Biofiltration Basin, the Stormwater Treatment and Research Facility, and the Mirror Lake Flooding and Water Quality Improvement project. Over the years, the city also provided cost-share opportunities for residents to acquire oak rain barrels for residential water re-use and aided in design and installation of rain gardens on residential and faith-based properties.

St. Anthony has been an active participant in the Pollution Control Agency's GreenStep Cities program since its inception in 2010, achieving Steps 1 and 2 in 2011, Step 3 in 2012, Step 4 in 2016 and Step 5 in 2017. The continuation of Steps 4 and 5 require the city to measure a set of identified metrics on an annual basis. In order to show continuous improvement in these metrics, the city must continue to implement sustainable best practice actions. Should improvements not be calculated, the city will return to Step 4 in any given year.

Additionally, the city was recognized by the program administrators in 2014, between the release of the 3rd and 4th steps. The city has also hosted two different GreenCorps members, 2012-13 and 2015-16, who focused on sustainability, stormwater and community outreach and education.

On principle, the city approaches sustainability through collaboration. At the staff level, it is every departments' responsibility to identify areas of opportunity, and from the city to partner with organizations and community members, everyone must contribute in order to get the best end product.

EXISTING SUSTAINABILITY EFFORTS



At the 2016 League of Minnesota Cities Annual Conference, St. Anthony was recognized with the Sustainable City Award. This acknowledged the years of work and multiple approaches the city has been pursuing to create a more sustainable village. Some of these focuses include: being a leader in organized collection of residential refuse and recycling; the many stormwater projects completed in partnership with water resource professionals; progress in adding routes for safe biking and walking for all residents; considering higher density and mixed-use development when possible; creating and strengthening a pollinator pathway for native insects; and subscribing to a community solar garden and considering future options in energy efficiency and renewable energy. The city continues to seek out the next opportunity to further its mission of being more sustainable and aiding residents to do the same.

The city has also partnered with the University of Minnesota Sustainability Studies capstone course to engage community members in a Sustainability Fair at Silverwood Park. At these annual fairs, attendees were introduced to resources and best practices they could bring home with them, research projects conducted by students of the course and further engagement opportunities to keep them involved in city-wide initiatives. The University Studies program also developed sustainability goals that were published on the city's website in 2013. These goals contained specific outcomes that help guide the City of St. Anthony in sustainability action.

In preparation for this Comprehensive Plan Update, the city received a sponsorship grant from the Pollution Control Agency to host a United States Green Building Council ADVANCE workshop to incorporate sustainability into this plan. At this event, Steering Committee, Parks Commissions and community advocates for native plants, walking and biking, and renewable energy conducted round table discussions with industry experts in understanding current conditions and shaping future goals and policies. This type of strategic planning creates a clearer picture of the city's priorities and how to move forward.

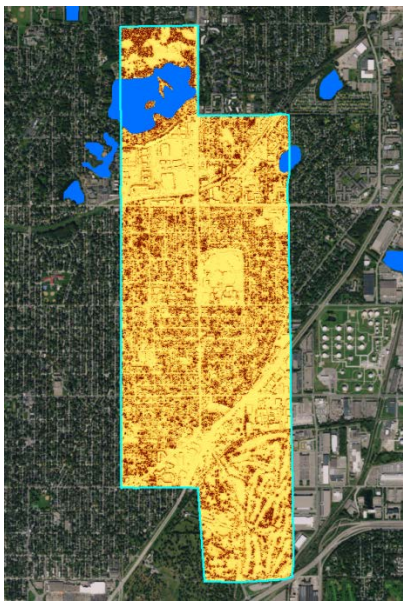
In 2016, the City completed a St. Anthony Sustainability Tour (available on the city's website) outlining through a StoryMap all the initiatives completed by the city to date.

Planning for Solar

The Metropolitan Land Planning Act requires that the comprehensive plan shall contain "an element for the protection and development of access to direct sunlight for solar energy systems" (Minn. Stat. 473.859). An analysis of St. Anthony's solar energy capacity, based on exposure to sunlight, indicates that the city does have solar resources available for alternative energy production. Currently, the City of St. Anthony uses 65 gigawatt hours of electricity annually.

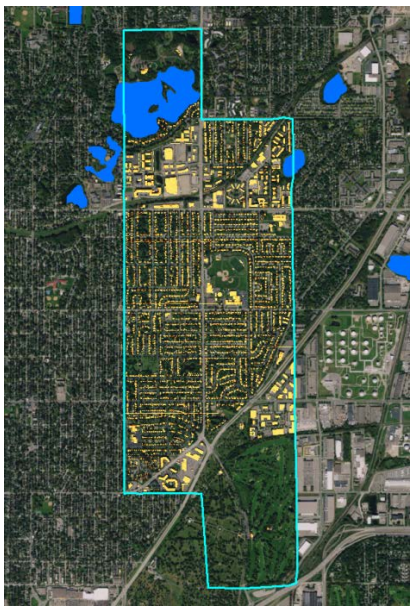
Gross solar capacity

240 megawatts of solar capacity that could produce 308 gigwatt-hours of electricity with current technology



Rooftop solar capacity

30 megawatts of solar capacity that could produce 45 gigwatt-hours of electricity with current technology



Greater solar resource capacity is shown in brighter yellow on the maps above.

Solar access is a resource that, if used, could be used to offset the costs associated with traditional electricity consumption. If all of St. Anthony's rooftop solar energy was built out to full capacity, it would generate the equivalent of 69 percent of the City's annual electric use. The City's solar energy systems ordinance was developed in 2015 and permits or conditionally permits solar energy systems in all zoning districts.

WHAT HAVE WE HEARD FROM THE COMMUNITY?

Sustainability is a critically important issue for St. Anthony residents. An established and well-organized group of residents have started Citizens for Sustainability and have formulated plans and recommendations for city consideration. Additionally, people at the visioning session and at the Parks Commission planning session (which was open to the public) expressed interest and desire in a variety of sustainability principles and policies. These included:

- Improve bikeway connections and infrastructure
- Improve decaying or nonexistent pedestrian infrastructure
- Increase tree plantings
- Allow for alternative/renewable energy (solar, wind)
- Compost and organics collection
- Reduce usage of pesticides and herbicides
- Urban agriculture (apiculture, chickens)
- Decrease water use
- Improve stormwater management and water reclamation
- Cleaner water (Silver Lake)
- Promote rain gardens, native plantings
- More community gardens
- Parks become “natural playgrounds”
- Continue with GreenStep Cities leadership (step 5)

WHERE IS ST. ANTHONY HEADED?

The following list of goals and policies combine the city's vision statements, past efforts, technical support and resources from USGBC, Great Plains Institute, the sustainability class at the University of Minnesota, and community desires. The community has a strong desire to set goals related to CO2 emission reduction, acknowledging the state's efforts in this matter. Therefore, the city has taken the statewide goal of an 80 percent reduction in CO2 emissions (from a 2005 baseline) and adapted them based on a baseline established through St. Anthony's benchmarking (Regional Indicators Initiative and B3 Benchmarking project). Additionally, the policies set are intended to achieve these adjusted goals.

Goals

1. Continue to be leaders in implementing a sustainable vision for our future.
2. Achieve a city-wide CO2 emissions reduction goal of 80 percent by 2040, over a 2005 baseline. In conjunction with Goal #1 listed above, the city will establish interim goals every 5 to 10 years to assure city emissions reductions track against this primary goal and to adjust policies and strategies as needed.
3. Achieve a CO2 emissions reduction goal of 100 percent for city facilities for 2040, over a 2005 baseline. In conjunction with Goal #1 listed above, the city will establish interim goals every 5 to 10 years to assure city emissions reductions track against this primary goal and to adjust policies and strategies as needed.
4. Improve the health of the overall ecosystem and pollinator health.
5. Support the growth of urban agriculture.
6. Promote and reward the development of sustainable landscapes.
7. Improve the safety and connectivity of the City's bicycle and pedestrian infrastructure.
8. Support the production of alternative energy.
9. Improve water quality and minimize flooding.
10. Become an electric vehicle and autonomous vehicle-ready city.

Policies and Actions

1. Grow a robust urban tree canopy by developing a street tree strategy that capitalizes on street reconstruction as an opportunity to budget for and achieve urban canopy/tree planting goals.
    a. Continue participation in Tree City USA by planting trees, financing plantings, and holding an annual Arbor Day celebration.
    b. Consider solar access rights to businesses, homeowners, and city facilities when planning for tree planting locations.

   c. Consider tree species selection that is compliant with predicted climate changes in our region.
2. Create incentives and programming to increase tree plantings on private lots and in public right of way.
   a. Consider solar access rights to businesses, homeowners, and city facilities when planning for tree planting locations.
   b. Consider tree species selection that is compliant with predicted climate changes in our region.
3. Reduce chemical use citywide by engaging with public works, the school district, and property owners in a conversation about best practices.
4. Adopt and report on measurable, publicly announced surface water improvement targets for water bodies.
5. Continue to implement effective and innovative stormwater management practices and rain gardens and incentivize private rain gardens and stormwater BMPs.
6. Encourage and incentivize bike parking at business locations and in public spaces.
7. Dedicate key pedestrian infrastructure gaps as identified on the map as priority projects in the Capital Improvement Program.
8. Continue implementation of Best Practice Actions in all areas.
9. Encourage installation of renewable energy generation capacity by re-evaluating and expanding existing city ordinances related to solar by becoming a SolSmart City.
   a. Explore additional renewable energy generation such as solar storage, wind, biomass, geothermal, etc.
   b. Consider an increase in city community solar purchases as part of the Energy Action Plan.
   c. Explore a partnership with the Minnesota Center for Energy and Environment.
   d. Join other Minnesota communities by installing rooftop solar on city facilities and encouraging the school district to do the same.
   e. Consider updating building requirements to require “rooftop ready” solar capacity.
   f. Encourage, through economic development, green energy businesses, manufacturing, and jobs.
10. Collaborate with the Parks Commission to create park/city land management standards/practices that maximize native landscaping and low-maintenance management. Encourage and incentivize private property owners to do the same.
11. Facilitate creation of community gardens: defining them and addressing them as an allowed use in particular zoning districts in City Code.

   a. Encourage and incentivize private multi-unit dwelling property owners to create community garden space.
   b. Explore the facilitation of a private homeowner garden rental program.
   c. Create space on public land for a community garden or other urban agriculture space.
   d. Consider an ordinance that more clearly allows and regulates urban agriculture, specifically bees and chickens.
   e. Support access to local foods through Community Supported Agriculture (CSA) and farmers markets.
12. Conserve drinking/groundwater resources by strengthening a watering ordinance, water-wise landscaping ordinance/guidance, and/or guidance on rainwater harvesting. Expand education in this area.
13. Consider development of an Energy Action Plan that outlines community education, outreach, and financing/incentives for private households and businesses to invest in energy efficient appliances, vehicles, and other efforts.
14. Develop an Energy Action Plan that audits current city facilities and identifies areas of energy reduction for city fleet, and city-owned buildings.
15. Develop a policy, grounded in City data, best practices and specific local benchmarks, related to CO2 emission reduction.
16. Consider an organics recycling program by installing a public drop off site.
17. Consider recycling and organics collection at any public events by purchasing transportable containers to be rented by event organizers and by providing guidance on proper disposal through signage and disposal site options.
18. Continue a 2x/year electronics recycling program for the community.
19. Encourage front yard residential patios and gardens to facilitate neighborhood communication.
20. Increase public meeting spaces through green and open space.



Chapter 10: Implementation

CHAPTER 10: 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 community's future. The goals explain what the community wants to accomplish, and the vision desired as an outcome. This chapter outlines the process to work toward achieving 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 to follow over the first 5 to 10 years after plan adoption. This can be used to complete an annual work plan and contribute to a capital improvement program. 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 expense plans**.

VISION STATEMENT

The implementation action items outlined in this chapter should ultimately reinforce St. Anthony's Mission, Vision and Strategic Initiatives. The Strategic Initiative themes are broad and touch 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 Mission, Vision and Strategic Initiatives.

Implementation Matrix

The implementation work plan outlined in the following table expands upon the Strategies and Action Items addressed in all preceding chapters of this plan by assigning a responsible body or actor (**who**), a timeframe for action (**when**), and a suggestion of where the funding that will enable the action will come from (**how**).

While the following lays out a work plan for the next 5 to 10 years, it is to be expected that the task list will change from year to year. As time goes on, some tasks will take longer than expected and will shift into the next year's list. Priorities will change, and tasks will be moved up to be accomplished earlier. New ideas will be presented to accomplish the goals and vision citied here and will be added to the task 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
	Transportation
	Sanitary Sewer
	Water Supply
	Surface Water
	Sustainability

FIGURE 8-2: ST. ANTHONY 2040 PLAN ACTION ITEM IMPLEMENTATION MATRIX

Comprehensive Plan Action or Strategy	Who	When	How ($)
Coordinate with school district and community education to plan for changing programming and spatial needs at the community center.	City staff	2018	General fund
Utilize the Planned Unit Development re-zoning as a tool at key locations to promote market flexibility and integrated land uses.	City staff, Planning Commission, City Council	2018, ongoing	General fund
Explore available grants and funding opportunities to promote the type of desired development.	City staff	2018, ongoing	MN DEED grants, ULI advisory, LCDA grants
Conduct further study and planning on the re-development or better utilization of the current industrial park.	City staff, Planning Commission	2019	General fund
Monitor the interest in teardowns and large expansions of single-family homes and examine the zoning code to ensure opportunities for investment are maximized.	City staff	2019	General fund
Review and revise the purpose statement, allowed uses and dimensional standards of the R-4 Residential district as necessary to support the higher density residential uses guided in this Comprehensive Plan update.	City staff, Planning Commission, City Council	2019	General fund
Plan for the re-development of underutilized commercial properties, especially those on higher volume streets and transit routes, for higher-density, multi-family and senior housing.	City staff, Planning Commission	2020	General fund; LCDA grants; MN DEED funds

	Explore options that revise the zoning code to allow for residential uses in commercial districts, in order to better meet anticipated market and transportation trends.	City staff, Planning Commission, City Council	2020	General fund
	Identify areas in the community for the development of new, higher end office space.	City staff	2020	General fund
	Identify areas in the city for co-operative senior housing at medium density.	City staff	2022	General fund
	Utilize available financing techniques to encourage multi-family housing developments to include a component of affordable housing.	City staff, developers	2018, ongoing	TIF, tax abatement, MHFA funding, LCDA grants
	Explore the potential for affordable housing development at the city-owned site on Kenzie Terrace (former bowling alley site).	City staff, affordable housing developers	2018	General fund; MHFA funding; TIF
	Allow housing churn of single-family homes by continuing to plan for senior housing options at all affordability levels.	City staff, senior housing project developers	2018, ongoing	MHFA financing; TIF
	Evaluate the appropriateness for ordinances that encourage smaller apartment units.	City staff, Planning Commission, City Council	2019	General fund
	Anticipate and meet increased rental demand at all affordability levels. *(Refer to Tools Matrix in the Housing Plan Chapter)*	City staff; affordable housing developers; Country HRAs; current rental property owners	2019, ongoing	County HRA levy; MHFA funding; LCDA grants; housing vouchers; LIHTC
	Reduce overall community housing cost burden, particularly by supporting those projects that provide	City staff, Planning Commission, City Council	2019, ongoing	TIF, tax abatement, MHFA funding, LCDA grants

	affordability for households in the <50% AMI categories. *(Refer to Tools Matrix in the Housing Plan Chapter)*			
	Anticipate the need for preservation of naturally-occurring affordable housing within all affordability bands. *(Refer to Tools Matrix in the Housing Plan Chapter)*	City staff	2019, ongoing	LIHTC; General Fund (city policy development); NOAH Impact Fund (GMHF)
	Support housing maintenance assistance programs, particularly for lower-income households. *(Refer to Tools Matrix in the Housing Plan Chapter)*	City staff	2020	Partnership with non-profits; MHFA programs;
	Encourage increased bicycle and pedestrian movement to both local and regional destinations	City staff	Ongoing	General Fund
	Provide facilities and develop land use patterns that encourage transit use	City staff	Ongoing	General Fund
	Monitor for potential future safety and traffic operations needs at: • Silver Lake Rd & Silver Lane • 39th Ave & Silver Lake Rd • 39th Ave & Stinson Blvd • 37th Ave & Stinson Blvd • 37th Ave & Silver Lake Rd • 37th Ave & Highcrest Rd	City Staff, Hennepin and Ramsey Counties, Minneapolis Park Board, City of Columbia Heights	2018, ongoing	General Fund

	2017 programmed improvements include upgrades to the existing signalized intersection including new APS push buttons, countdown timers and ADA reconstructs.			
	Optimize signal time and coordination between St. Anthony Blvd. intersections at New Brighton Blvd. (CR 88) and Silver Lake Rd./Kenzie Terrace (CR 153)	City staff, Hennepin County	2018	County
	Lengthen the northeast bound right turn lane from Kenzie Terrace (CR 153) to southeast St. Anthony Blvd. from 170 feet to 200 feet.	City staff, Hennepin County	2018	Development Funds
	Lengthen the westbound left turn lane from Kenzie Terrace (CR 153) to southbound Stinson Parkway by shortening or removing the existing left turn lane from Kenzie Terrace to the Bremer Bank Building.	City staff, Hennepin County	2018	Development Funds
	Lengthen the northbound left turn lane from Stinson Parkway to westbound Lowry Avenue from 150 feet to 300 feet.	City staff, Minneapolis Park Board, Hennepin County	2018	Development Funds
	Evaluate solutions to improve intersection safety and traffic operations at: • 29th Avenue & Stinson Blvd. • 29th Avenue & Silver Lake Rd. • 29th Avenue & New Brighton Blvd.	City staff, Minneapolis Park Board, Hennepin County	2019	Multi-Agency Financial Participation

	Programmed reconstruction of County Road C/County Road 94, including right-of-way acquisition, drainage and utility work.	Ramsey County, Hennepin County, St. Anthony Village	2019	Multi-Agency Financial Participation
	Evaluate solutions to improve crossing safety and conditions at the following intersections: 1. Kenzie Terrace/Silver Lake Road and St. Anthony Blvd. 2. New Brighton Blvd. and St. Anthony Blvd. 3. 29th Avenue and New Brighton Blvd. 4. 33rd Avenue and Highway 8/Highcrest Road	Ramsey County, Hennepin County, St. Anthony Village, City of Roseville	2019	Multi-Agency Financial Participation
	Evaluate solutions to improve pedestrian connections to St. Anthony Village High School, Central School Park, and Wilshere Park Elementary School	City staff	2019	Multi-Agency Financial Participation
	Explore solutions to deter or eliminate unwanted through traffic on the following neighborhood local streets: 1. 39th Avenue/Fordham Drive NE between Silver Lake Road and Silver Lane 2. Parking lot between New Brighton Blvd./Kenzie Terrace and along 27th Avenue to Stinson Blvd. 3. 36th Avenue between Silver Lake Road and Highcrest Road	City Staff, Hennepin County	2020	Multi-Agency Financial Participation

	4. 36th Avenue/Coolidge Street between Silver Lake Road and 37th Avenue 5. Belden Drive west of Silver Lake Road			
	Proposed functional classification change from local street to Minor Collector on the roadways identified in the Transportation Chapter of this Plan (Figure 6-14).	City staff	2020	Multi-Agency Financial Participation
	Evaluate potential to add on-road bike lanes on 29th Ave from Stinson Blvd to New Brighton Blvd.	City staff	2020	Multi-Agency Financial Participation
	Evaluate potential for adding an on-road bicycle facility on St. Anthony Boulevard between Stinson and Ridgway Pkwy.	City staff	2020	Multi-Agency Financial Participation
	Evaluate adequacy of transit service in redevelopment areas and support planned increased frequency on bus routes 15 (formerly route 4), 25, 32, 801 within the City	Metro Transit, City staff	2020, ongoing	Multi-Agency Financial Participation
	Evaluate the potential to adjust Route 25 to remain on Stinson Parkway and Stinson Blvd. between Kenzie Terrace and 29th Street	Metro Transit, City staff	2020, ongoing	Multi-Agency Financial Participation
	Coordinate with Hennepin County and City of Minneapolis regarding planned bikeway and sidewalk (on east side of roadway between St. Anthony Blvd. and 37th Avenue). Designate as RBTN alignment.	City staff, Hennepin County, City of Minneapolis	2021	Multi-Agency Financial Participation

	Coordinate with Ramsey County regarding planned bikeway along Silver Lake Road from Silver Lane to County Road E; evaluate potential for multiuse trail connection to Silverwood Park.	City staff, Ramsey County	2021	Multi-Agency Financial Participation
	At railroad crossings on Stinson Blvd, coordinate with Canadian Pacific Railroad to improve safety and operations while minimizing effects on other transportation system uses and adjacent land uses	City staff	2021, Ongoing	Multi-Agency Financial Participation
	Coordinate with Metro Transit and Minneapolis regarding potential arterial bus rapid transit on Central Avenue (Increased Revenue Scenario – unfunded project)	Metro Transit, City staff	2022	Multi-Agency Financial Participation
	Consider planning for potential long-term reconstruction to tie into Corridor Study and preliminary design plans to the east from Marshall St. to Johnson Ave.	Hennepin County, City of Minneapolis	2025	Multi-Agency Financial Participation
	Consider a roundabout or other intersection control improvements at St. Anthony Blvd./Silver Lake Rd./Kenzie Terrace (CR 153).	City staff, Hennepin County	2030	Multi-Agency Financial Participation
	Consider a roundabout or other intersection control improvements at the intersection of Kenzie Terrace (CR 153)/Lowry Avenue and Stinson Parkway.	City staff, Minneapolis Park Board, Hennepin County	2030	Multi-Agency Financial Participation
	Zoning updates, per “Suggested Zoning Code Updates” on p. 198	City staff	2018	General fund

	Foss Road Lift Station Pump Replacement/Rehab	City of St. Anthony Public Works Staff	2016	Capital improvements budget
	Harding Lift Station Pump Replacement/Rehab	City of St. Anthony Public Works Staff	2017	Capital improvements budget
	Lift Station SCADA System	City of St. Anthony Public Works Staff	2018	Capital improvements budget
	Foss Road Lift Station Pump Replacement/Rehab	City of St. Anthony Public Works Staff	2024	Capital improvements budget
	Harding Lift Station Pump Replacement/Rehab	City of St. Anthony Public Works Staff	2026	Capital improvements budget
	Continue to rehabilitate sanitary sewer system in an effort to reduce inflow and infiltration, completing budgeted improvements through 2025 that include upgrades along Skycroft and Maplewood drive in 2017.	City of St. Anthony Public Works Staff	2017 through 2025	Capital improvements budget
	The City has implemented, or plans to implement, the following education and outreach programs related to water supply: • Billing inserts include educational information • Consumer Confidence Reports prepared annually • Staff training includes awareness of conservation goals • Facility tours are available on request	City of St. Anthony Public Works Staff	2017 and ongoing	General fund

	• Sustainability Fair to educate about everyday sustainability • Rain barrel seminar and rebate program • Village Notes community newsletter quarterly • Information available at the water reuse facility • Information available on City website (http://www.ci.saint-anthony.mn.us/)			
	WTP and Well SCADA Systems	City of St. Anthony	2017	Capital improvements budget
	Ground Storage Repair	City of St. Anthony	2019	Capital improvements budget
	High Service Pump Upgrades and Piping	City of St. Anthony	2020	Capital improvements budget
	Well 3 Casing	City of St. Anthony	2021	Capital improvements budget
	Well 4 Pump Restoration	City of St. Anthony	2021	Capital improvements budget
	Well 5 Pump Restoration	City of St. Anthony	2022	Capital improvements budget
	Tower Painting	City of St. Anthony	2025	Capital improvements budget
	Well 4 Permanent Generator	City of St. Anthony	2028	Capital improvements budget
	See Appendix 1			
	Continue to implement effective and innovative stormwater management practices and rain gardens.	City of St. Anthony Public Works Staff, City Engineer	Ongoing	Stormwater Fund

	Adopt and report on measurable, publicly announced surface water improvement targets for water bodies.	City of St. Anthony Public Works Staff, City Engineer	2018, ongoing	Stormwater Fund
	Select key locations for the addition of on-road, protected, and off-road bicycle trails, as shown on the transportation map.	City of St. Anthony Public Works Staff, City Engineer	2018	Capital improvements budget
	Dedicate key pedestrian infrastructure gaps as identified on the map as priority projects in the Capital Improvement Program.	City of St. Anthony Public Works Staff, City Engineer	2018, ongoing	Capital improvements budget
	Reduce chemical use citywide by engaging with public works and the school district in a conversation about best practices.	City Staff	2019	General Fund
	Encourage installation of renewable energy generation capacity by re-evaluating and expanding existing city ordinances related to solar.	City Staff	2019	Grant, Incentive Programs
	Facilitate creation of community gardens: defining them and addressing them as an allowed use in particular zoning districts in City Code.	City Staff	2019	General Fund
	Write an ordinance that more clearly allows and regulates urban agriculture, specifically bees and chickens.	City Staff	2019	General Fund
	Create incentives and programming to increase tree plantings on private lots and in public right of way.	City Staff	2020	General Fund

	Collaborate with the Parks Commission to create park/city land management standards/practices that maximize native landscaping and low-maintenance management.	City Staff	2020	General Fund
	Conserve drinking/groundwater resources by strengthening a watering ordinance, water-wise landscaping ordinance/guidance, and/or guidance on rainwater harvesting.	City Staff	2020	General Fund
	Develop a policy, grounded in City data, best practices and specific local benchmarks, related to CO2 emission reduction.	City Staff	2020	General Fund
	Develop an Energy Action Plan that audits current city facilities and identifies areas of energy reduction for city fleet, and city-owned buildings.	City Staff	2021	General Fund
	Consider development of an Energy Action Plan that outlines community education, outreach, and financing/incentives for private households and businesses to invest in energy efficient appliances, vehicles, and other efforts.	City Staff	2022	General Fund
	Grow a robust urban tree canopy by develop a street tree strategy that capitalizes on street reconstruction as an opportunity to budget for and achieve urban canopy/tree planting goals.	City Staff	2025	General Fund

ZONING AND THE COMPREHENSIVE PLAN

Under Minnesota State Statute, a city's zoning ordinance should "carry out the policies and goals of the land use plan" (MN Statute 462.357 Subd. 2). The Metropolitan Council requires that official controls, such as zoning, "must not be in conflict" with the comprehensive plan or its subsequent updates. As such, all cities that update their land use plans must then follow up with necessary revisions to the zoning ordinance to bring zoning controls into alignment with the goals and policies of the adopted comprehensive plan.

St. Anthony's current zoning map and zoning category descriptions are included here, followed by a discussion of the anticipated zoning updates that may be necessary to bring the City's zoning code into harmony with the comprehensive plan.

FIGURE 8-3: ST. ANTHONY VILLAGE ZONING DISTRICTS

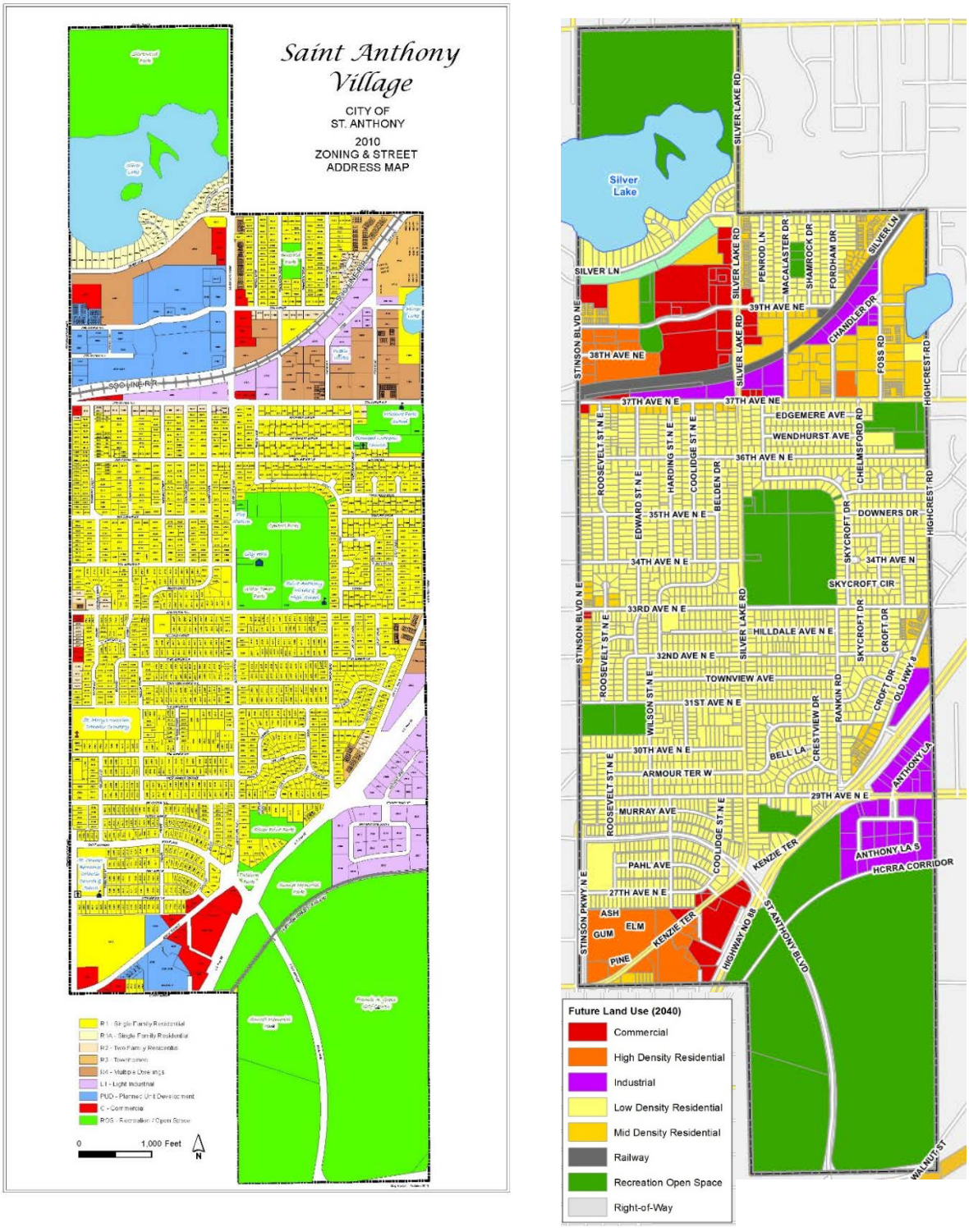
Zoning District	Description	Dimensional Standards
R-1 Single Family District Corresponding Land Use: Low Density Residential	This is the primary single-family zoning district in the city. Permitted uses: single family detached dwellings, public or parochial schools, publicly-owned recreational facilities, and state-licensed facilities.	Height – 25 feet Minimum lot – 9,000 sq. feet Dwelling minimum – 1,000 sq. feet (one story) FAR: 0.3 maximum Lot coverage: 35% maximum
R-1A Single Family Lakeshore Corresponding Land Use: Low Density Residential	This district is reserved for lakefront along Silver Lake. Permitted uses: single family detached dwellings, public or parochial schools, publicly-owned recreational facilities, and state-licensed facilities.	Height – 25 feet Minimum lot – 9,000 sq. feet Dwelling minimum – 1,100 sq. feet (one story) FAR: 0.3 maximum

		Lot coverage: 35% maximum
R-2 Two-Family District Corresponding Land Use: Low-Density Residential, Mid Density Residential	This district provides areas which are best suited for a higher density than single-family dwellings, and which may serve as a transitional use. Permitted uses: All R-1 and R-1A uses, Two-family detached dwellings	Height – 25 feet Minimum lot – 12,000 sq. feet Dwelling minimum – 850 sq. feet (one story) FAR: 0.3 maximum Lot coverage: 35% maximum
R-3 Townhouse District Corresponding Land Use: Low-Density Residential, Mid Density Residential	This district provides areas where the natural amenities such as trees, hills and bodies of water are preserved by encouraging development of medium density housing surrounded by common open space. Permitted uses: All R-1, R-1A and R-2 uses, townhouse buildings containing 3-8 units.	Height – 30 feet Minimum lot – 15,000 sq. feet Dwelling minimum – 650 sq. feet (1 bedroom) FAR: 0.6 maximum Lot coverage: 50% maximum
R-4 Multiple-Family District Corresponding Land Use: Mid Density Residential, High Density Residential	This district provides areas for housing other than 1- and 2-family dwellings and townhouses, and which may serve as a transitional use between less dense residential uses and nonresidential uses. Permitted uses: Rental apartment and condominium apartment uses.	Height – 35 feet Minimum lot – depends on unit count of building Dwelling minimum – 650 sq. feet (1 bedroom) FAR: 1.0 maximum Lot coverage: 50% maximum

C General Commercial District Corresponding Land Use: Commercial, Industrial (in case of certain uses)	This district provides areas for retail sales and services located and regulated to minimize adverse effects on neighboring residential districts and congestion of public streets. Permitted uses: various related to office and professional services, retail sales, business, dining and entertainment, other (§152.121)	Height – 35 feet Minimum lot – 15,000 sq. feet FAR: 1.0 maximum Lot coverage: N/A
LI Light Industrial District Corresponding Land Use: Industrial, Commercial (in case of certain uses)	This district designates areas for (and regulates) light industry. Intended to be in close proximity to high capacity roadways or rail lines. Permitted uses: various light industrial (§152.141)	Height – 35 feet Minimum lot – 15,000 sq. feet FAR: 1.5 maximum Lot coverage: N/A
R/O Recreational/Open Space District Corresponding Land Use: Low Density Residential, Recreation Open Space	The purpose of the R/O District is to regulate development in those areas which have significant natural amenities such as trees, terrain, and water resources, and to regulate development for recreational purposes in areas which have significant public or private recreational potential.	Height – 35 feet

	Permitted uses: Outdoor recreational facilities, trails and pathways, cemeteries, schools and government buildings	
PUD (Planned Unit Development) Corresponding Land Use: Low Density Residential, Mid Density Residential, High Density Residential, Commercial, Recreation Open Space	A zoning district and development plan which may include single or mixed uses, and 1 or more lots or parcels, and which is intended to create a more flexible, creative, and efficient approach to the use of land. Permitted uses: Those allowed in underlying zoning districts unless otherwise approved. May contain a mixture of land uses.	Minimum 3-acre site

FIGURE 8-4: ST. ANTHONY VILLAGE ZONING MAP (LEFT) COMPARED WITH 2040 FUTURE LAND USE MAP (RIGHT)



Suggested Zoning Code Updates

There are very few locations within the City of St. Anthony where the current zoning district does not align with the proposed 2040 land use. The places that will require closer examination and possible changes to zoning designation are the following:

- Former Lowry Grove mobile home park (2501 Lowry Avenue), also known as the Southern Gateway site, and adjacent commercial parcel (2401 Lowry Avenue). Currently zoned R-1 Single Family and C Commercial (respectively), the zoning for these properties will likely be changed with a successful development proposal for these sites. To match the High Density Residential guidance for these sites, the zoning designation is likely to change to R-4 High Density Residential or (more likely) Planned Unit Development.
- Select properties along Stinson Boulevard. The 2040 land use plan re-guides some commercial properties on Stinson north of 31st to Mid Density Residential to align with surrounding uses. These properties should eventually be rezoned to R-2 or R-3 to match the intent of the land use plan.
- Area north of 37th Avenue NE and south of the railroad (northeast corner of the city). The 2040 future land use map clarifies the guidance in this area and better aligns it with both existing uses and expected future uses of these properties. A handful of properties around Mirror Lake are zoned in a different manner than they are now guided, and may need to be re-zoned to align with the land use plan.

Additional Opportunities to update Zoning Code

In addition to locational zoning designation updates, this Plan suggests there are opportunities to review and update the substantive content of Zoning Code language in order to better match the intent and purpose of the land use plan. Some of these opportunities have already been identified in this chapter and throughout the plan. A series of potential Zoning Code updates is presented here as suggested opportunities rather than mandatory updates, in order to give the City of St. Anthony some direction on further aligning the City's code with the land use plan.

Potential updates to Zoning Code may include:

- Review of the dimensional standards in all residential districts, to evaluate whether height, setback and lot coverage requirements support the intended uses prescribed in the land use plan and are practical requirements for developers. In particular, studying the height and massing requirements for higher density uses in other comparable cities may provide some insight into effective dimensional standards.

- Add residential uses as conditionally permitted uses in Commercial districts, to match expected market and transportation trends and to more easily allow for a mixture of uses where appropriate.
- Evaluate whether the prescribed permitted uses in the Commercial and Industrial districts reflect desired City outcomes and support modern commercial and industrial development trends. This will become more relevant as opportunities to redevelop or enhance existing industrial parks and shopping centers arise.
- Make certain that the Zoning Code and Zoning Map effectively supports the re-development of underutilized commercial properties, especially those on higher volume streets and transit routes, for higher-density, multi-family and senior housing.
- Review the Zoning Code in its entirety for consistency and clarity, to ensure that residents, business owners, and prospective developers can easily understand the City's expectations.

City of St. Anthony Village
3301 Silver Lake Road
St. Anthony, Minnesota 55418
www.savmn.com

City of St. Anthony

CAPITAL FUNDS

2020-2024 & 2025-2036

INDEX:

Fund Summaries:
- Buildings Improvement
- Capital Equipment
- Park Improvement
- Utilities Infrastructure
- Stormwater
- Streets Improvement & Debt Service

APPENDIX:
- Sources & Uses





Fiscal Year 2020

BUILDINGS IMPROVEMENT PLAN 2020 - 2036

		2019	Est. Actual 2019	2020	2021	2022	2023	2024	2025-2030	2031-2036
SOURCES										
	Community Center Fund Transfer (1)	$ 90,000	$ 94,694	$ 96,588	$ 98,520	$ 118,520	$ 120,000	$ 120,000	$ 720,000	$ 720,000
	Reimbursement for Liquor Stores	-	-	-	-	99,000	-	5,500	118,460	-
	Public Facilities Capital Levy (2)	78,000	78,000	83,000	88,000	93,000	98,000	103,000	712,000	750,000
	TOTAL	**$ 168,000**	**$ 172,694**	**$ 179,588**	**$ 186,520**	**$ 310,520**	**$ 218,000**	**$ 228,500**	**$ 1,550,460**	**$ 1,470,000**
USES	City Hall/Community Center	$ 109,000	$ -	$ 120,000	$ 177,100	$ 207,500	$ -	$ 16,000	$ 414,122	$ 383,350
	Fire Station	12,000	-	12,000	-	30,000	-	31,000	185,917	67,500
	Public Works	12,000	-	12,000	-	7,500	48,861	40,640	384,553	140,000
	Park Shelters	8,000	16,954	-	34,000	5,000	14,000	-	70,730	24,000
	Liquor Stores	-	-	-	-	99,000	-	5,500	118,460	-
	TOTAL	**$ 141,000**	**$ 16,954**	**$ 144,000**	**$ 211,100**	**$ 349,000**	**$ 62,861**	**$ 93,140**	**$ 1,173,782**	**$ 614,850**
	NET CHANGE	**27,000**	**155,740**	**35,588**	**(24,580)**	**(38,480)**	**155,139**	**135,360**	**376,678**	**855,150**
	BEGINNING CASH BALANCE	**347,435**	**347,435**	**503,175**	**538,763**	**514,183**	**475,703**	**630,842**	**766,202**	**1,142,880**
	ENDING CASH BALANCE	**$ 374,435**	**$ 503,175**	**$ 538,763**	**$ 514,183**	**$ 475,703**	**$ 630,842**	**$ 766,202**	**$ 1,142,880**	**$ 1,998,030**

(1) Community Center fund transfer increase coincides with increase in School District rent in 2022.

(2) Additional Building Improvement Levy of $5,000 annually, beginning in 2019, ending in 2029.

BUILDINGS IMPROVEMENT PROGRAM

BLDG	YEAR BUILT	DESCRIPTION	LIFE	CONDITION GOOD FAIR POOR	QTY	COST EST. INTERNAL SEBESTA	2019	EST ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
City Hall	1996	**Building Components**																							
		Metal Door Frame & Replacement		PD and EE Entrances 2018	Multi.	Internal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 28,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		Security upgrades - Cameras		2016	7	Internal	-	-	-	-	-	-	-	-	-	-	22,710	-	-	-	-	-	-	-	-
		Security upgrades -Control Server		2016	1	Internal	-	-	-	-	-	-	-	-	-	-	46,706	-	-	-	-	-	-	-	-
		Security upgrades - Entrance controls		2017	Multi.	Internal	-	-	-	-	-	-	-	-	-	-	46,706	-	-	-	-	-	-	-	-
		Replacement of Fire Alarm Panel		2016	1	Internal	-	-	-	-	-	-	-	-	-	-	-	-	25,000	-	-	-	-	-	-
		Parking Lot LED Lighting		2015	Multi.	Internal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15,000	-
		Building LED Lighting		2015	Multi.	Internal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25,000	-
		Boilers/Fans etc		Replaced in 2015-130K	2	Sebesta	-	-	-	-	7,500	-	-	-	7,500	-	-	-	7,500	-	160,850	-	7,500	-	-
		RTU-3 (Day Care)		Fair	1	Sebesta	64,000	-	64,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		RTU-4 (City)		Fair	1	Sebesta	-	-	-	69,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		RTU-1 (Gym)		Fair	1	Sebesta	-	-	-	46,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		RTU-2 (Multi-purpose)		Fair	1	Sebesta	-	-	-	27,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		RTU-5 (Police)		Fair	1	Sebesta	-	-	-	34,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		HVAC Controls for 5 RTU		update with RTU Units	1	TBD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Domestic Water Heaters		Fair	2	Sebesta	-	-	-	-	-	-	16,000	-	-	-	-	-	-	-	-	-	-	-	-
		Relamp & Reballast (LED-PD)		Done w/2015 LED project	Multi.	Sebesta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,000	-
		Roof		Poor - Fair	1	Sebesta	-	-	-	-	180,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Acoustic panels/overflow AV		2017	1	Internal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15,000	-	-	-
		Community Service VCF Tiles		2017	1	Sebesta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15,000	-	-	-
		Overhead garage doors		25 years	2	Internal	-	-	-	-	20,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Outdoor sign		Fair	1	Internal	45,000	-	56,000	-	-	-	-	-	-	-	-	55,000	-	-	-	-	-	-	-
		Tuck pointing -brick		35 years	1	Internal	-	-	-	-	-	-	-	-	-	-	-	-	-	140,000	-	-	-	-	-
		Parking Lot mill and overlay		30 years	1	Internal	-	-	-	-	-	-	-	-	175,000	-	-	-	-	-	-	-	-	-	-
		TOTAL					**$ 109,000**	**$ -**	**$ 120,000**	**$ 177,100**	**$ 207,500**	**$ -**	**$ 16,000**	**$ -**	**$ 182,500**	**$ -**	**$ 144,122**	**$ 55,000**	**$ 32,500**	**$ 140,000**	**$ 160,850**	**$ 30,000**	**$ 7,500**	**$ 45,000**	**$ -**
Fire Station	2005	**Building Components**																							
		Metal Door Frame & Replacement		Fair		Internal	-	-	-	-	12,500	-	-	-	-	-	-	15,000	-	-	-	-	-	-	-
		Security upgrades -Cameras		2016	4	Internal	-	-	-	-	-	-	-	-	-	-	8,360	-	-	-	-	-	-	-	-
		Security upgrades - Entrance controls		2017	Multi.	Internal	-	-	-	-	-	-	-	-	-	-	7,005	-	-	-	-	-	-	-	-
		Rooftop Units		Fair - Good	Multi.	Sebesta	-	-	-	-	-	-	31,000	-	-	-	-	-	-	-	-	-	-	-	-
		Makeup Air Unit		Fair	2	Sebesta	-	-	-	-	17,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Domestic Water Heaters		2016	1	Sebesta	-	-	-	-	-	-	-	-	12,880	-	-	-	-	-	-	-	-	-	-
		Relamp & Reballast		Done w/2015 LED project	Multi.	Sebesta	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Roof		Fair	1	Sebesta	-	-	-	-	-	-	-	47,672	-	-	-	-	-	-	-	-	-	-	-
		Exterior Paint			1	Internal	12,000	-	12,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Tuck pointing -brick		35 years	1	Internal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67,500	-
		Parking Lot mill and overlay		30 years	1	Internal	-	-	-	-	-	-	-	-	35,000	-	-	-	-	-	-	-	-	-	-
		Overhead garage doors		25 years	3	Internal	-	-	-	-	-	-	-	-	-	-	-	-	60,000	-	-	-	-	-	-
		TOTAL					**$ 12,000**	**$ -**	**$ 12,000**	**$ -**	**$ 30,000**	**$ -**	**$ 31,000**	**$ 47,672**	**$ 47,880**	**$ -**	**$ 15,365**	**$ 15,000**	**$ 60,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 67,500**	**$ -**
Public Works	2004	**Building Components**																							
		Metal Door Frame & Replacement		Fair		Internal	-	-	-	-	7,500	-	-	-	-	-	-	9,000	-	-	-	-	-	-	-
		Security upgrades -Cameras		2016	3	Internal	-	-	-	-	-	-	-	-	-	-	6,990	-	-	-	-	-	-	-	-
		Security upgrades - Entrance controls		2017	Multi.	Internal	-	-	-	-	-	-	-	-	-	-	17,515	-	-	-	-	-	-	-	-
		Rooftop Unit		2017	1	Sebesta	-	-	-	-	-	23,000	-	-	-	-	-	-	-	-	-	-	-	-	-
		Makeup Air Unit		Good	3	Sebesta	-	-	-	-	-	-	19,250	-	-	-	-	-	-	-	-	-	-	-	-
		Air Handling Unit		Good	1	Sebesta	-	-	-	-	-	-	8,050	-	-	-	-	-	-	-	-	-	-	-	-
		Exhaust Fans		Good	6	Sebesta	-	-	-	-	-	-	13,340	-	-	-	-	-	-	-	-	-	-	-	-
		Domestic Water Heaters		Good	2	Sebesta	-	-	-	-	-	25,861	-	-	-	-	-	-	-	-	-	-	-	-	-
		Relamp & Reballast (LED)		Done w/2015 LED project	Multi.	Sebesta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Roof		Fair	1	Sebesta	-	-	-	-	-	-	-	206,048	-	-	-	-	-	-	-	-	-	-	-
		Overhead garage doors/Shop fixtures		25 years	7	Internal	-	-	-	-	-	-	-	-	-	-	-	105,000	-						
		Exterior Paint				Internal	12,000	-	12,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Parking Lot mill and overlay		30 years		Internal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140,000	-	-
		Rehab salt storage		25 years		Internal	-	-	-	-	-	-	-	-	-	-	-	40,000	-	-	-	-	-	-	-
		TOTAL					**$ 12,000**	**$ -**	**$ 12,000**	**$ -**	**$ 7,500**	**$ 48,861**	**$ 40,640**	**$ 206,048**	**$ -**	**$ -**	**$ 24,505**	**$ 154,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 140,000**	**$ -**	**$ -**

BUILDINGS IMPROVEMENT PROGRAM

BLDG	YEAR BUILT	DESCRIPTION	LIFE	CONDITION GOOD FAIR POOR	QTY	COST EST. INTERNAL SEBESTA	2019	EST ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Central Park Pavilion	2003																								
		Roof		2018			-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Security upgrades -Cameras		2016			-	9,000	-	-	-	-	-	-	-	-	8,360	-	-	-	-	-	-	-	-
		Security upgrades - Entrance controls		2016			-		-	-	-	-	-	-	-	-	7,005	-	-	-	-	-	-	-	-
		HVAC		Fair			-		-	12,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Domestic water heaters		Fair			-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,000	-	-
		Exterior updates		Fair			8,000	7,954	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Interior updates		2018			-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Parking Lot mill and overlay		30 years			-		-	-	-	-	-	-	15,000	-	-	-	-	-	-	-	-	-	-
							$ 8,000	**$ 16,954**	**$ -**	**$ 12,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 15,000**	**$ -**	**$ 15,365**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 4,000**	**$ -**	**$ -**
Emerald Park Pavilion	2009						**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Roof		Fair			-	-	-	-	-	-	-	25,000	-	-	-	-	-	-	-	-	-	-	-
		Security upgrades -Cameras		2016			-	-	-	-	-	-	-	-	-	-	8,360	-	-	-	-	-	-	-	-
		Security upgrades - Entrance controls		2016			-	-	-	-	-	-	-	-	-	-	7,005	-	-	-	-	-	-	-	-
		HVAC		Fair			-	-	-	-	-	14,000		-	-	-	-	-	-	-	-	-	-	-	-
		Domestic water heaters		Fair			-	-	-	-	5,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Exterior updates		Fair			-	-	-	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Interior updates		Fair			-	-	-	12,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Parking Lot mill and overlay		30 years			-	-	-	-	-	-	-	-	-	-	-	-	-	20,000	-	-	-	-	-
							$ -	**$ -**	**$ -**	**$ 22,000**	**$ 5,000**	**$ 14,000**	**$ -**	**$ 25,000**	**$ -**	**$ -**	**$ 15,365**	**$ -**	**$ -**	**$ 20,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
		Park Shelters					**$ 8,000**	**$ 16,954**	**$ -**	**$ 34,000**	**$ 5,000**	**$ 14,000**	**$ -**	**$ 25,000**	**$ 15,000**	**$ -**	**$ 30,730**	**$ -**	**$ -**	**$ 20,000**	**$ -**	**$ -**	**$ 4,000**	**$ -**	**$ -**
		TOTAL IMPROVEMENTS GOVERMENTAL					**$ 141,000**	**$ 16,954**	**$ 144,000**	**$ 211,100**	**$ 250,000**	**$ 62,861**	**$ 87,640**	**$ 278,720**	**$ 245,380**	**$ -**	**$ 214,722**	**$ 224,000**	**$ 92,500**	**$ 160,000**	**$ 160,850**	**$ 30,000**	**$ 151,500**	**$ 112,500**	**$ -**
Marketplace Liquor	2005	**Building Components**																							
		Rooftop Unit		Fair	2	Sebesta	-	-	-	-	35,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Security upgrades -Cameras		2016	1	Internal	-	-	-	-	-				10,800		2,925	-	-	-	-	-	-	-	-
		Security upgrades - Entrance controls		2017	1	Internal	-	-	-	-	-	-	-	-	-	-	5,915	-	-	-	-	-	-	-	-
		Domestic Water Heaters		Good	1	Sebesta	-	-	-	-	-	-	5,500	-	-	-	-	-	-	-	-	-	-	-	-
		Install New Walk-In Cooler Refrigeration		Fair	Multi.	Sebesta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Relamp & Reballast (LED)		Done w/2015 LED project	Multi.	Sebesta	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Roof		Fair	1	Sebesta	-	-	-	-	-	-	-	36,398	-	-	-	-	-	-	-	-	-	-	-
		TOTAL					**$ -**	**$ -**	**$ -**	**$ -**	**$ 35,000**	**$ -**	**$ 5,500**	**$ 36,398**	**$ 10,800**	**$ -**	**$ 8,840**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Silver Lake Liquor	2005	**Building Components**																							
		Rooftop Units		Good	1	Sebesta	-	-	-	-	64,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Security upgrades -Cameras		2016	1	Internal	-	-	-	-	-	-	-	-	10,800	-	2,925	-	-	-	-	-	-	-	-
		Security upgrades - Entrance controls		2017		Internal	-	-	-	-	-	-	-	-	-	-	5,915	-	-	-	-	-	-	-	-
		Exhaust Fans		Good	1	Sebesta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Domestic Water Heaters		Good	1	Sebesta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Relamp & Reballast (LED)		Done w/2015 LED project	Multi.	Sebesta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Roof		Fair	1	Sebesta	-	-	-	-	-	-	-	42,782	-	-	-	-	-	-	-	-	-	-	-
		TOTAL					**$ -**	**$ -**	**$ -**	**$ -**	**$ 64,000**	**$ -**	**$ -**	**$ 42,782**	**$ 10,800**	**$ -**	**$ 8,840**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
		TOTAL IMPROVEMENTS ENTERPRISE					**$ -**	**$ -**	**$ -**	**$ -**	**$ 99,000**	**$ -**	**$ 5,500**	**$ 79,180**	**$ 21,600**	**$ -**	**$ 17,680**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
		COMBINED TOTAL IMPROVEMENTS					**$ 141,000**	**$ 16,954**	**$ 144,000**	**$ 211,100**	**$ 349,000**	**$ 62,861**	**$ 93,140**	**$ 357,900**	**$ 266,980**	**$ -**	**$ 232,402**	**$ 224,000**	**$ 92,500**	**$ 160,000**	**$ 160,850**	**$ 30,000**	**$ 151,500**	**$ 112,500**	**$ -**

Buildings



1996 St. Anthony Community Center



2005 St. Anthony Fire Station



2004 St. Anthony Public Works Facility

Buildings

2005 St. Anthony Village Liquor Store Marketplace





2005 St. Anthony Village Liquor Store Silver Lake Village

Fiscal Year 2020

CAPITAL EQUIPMENT 2020 - 2036

SOURCES	2019	Est. Actual 2019	2020	2021	2022	2023	2024	2025-2030	2031-2036
Capital Improvement Levy	$ 258,200	$ 258,200	$ 283,200	$ 308,200	$ 333,200	$ 358,200	$ 383,200	$ 2,824,200	$ 3,724,200
MSA/Revolving Funds	90,000	90,000	90,000	90,000	90,000	90,000	90,000	540,000	540,000
Trade/Sale of Equipment	5,000	25,000	15,000	15,000	15,000	15,000	15,000	90,000	90,000
Donations/Grants	-	-	-	-	-	61,600	90,000	-	33,000
Interest / Equipment note proceeds	6,500	9,500	8,000	5,000	4,000	2,000	625,750	754,000	5,000
TOTAL	$ 359,700	$ 382,700	$ 396,200	$ 418,200	$ 442,200	$ 526,800	$ 1,203,950	$ 4,208,200	$ 4,392,200
Uses									
Police	$ 146,380	$ 73,935	$ 125,407	$ 192,196	$ 201,801	$ 154,486	$ 105,180	$ 1,022,818	$ 1,140,665
Fire	107,297	93,808	104,554	175,002	141,184	325,890	240,300	1,227,399	1,553,561
Administration/Finance	23,096	31,376	4,240	26,500	30,307	5,825	65,850	153,962	122,289
Streets	170,350	92,320	105,123	78,258	46,800	81,730	38,083	322,910	326,165
Parks	18,530	10,384	67,152	83,708	72,486	9,599	5,082	105,831	537,776
DAILY OPERATIONS-MINIMAL EQUIPMENT NEEDS	465,653	301,824	406,476	555,665	492,578	577,530	454,495	2,832,919	3,680,456
MINIMAL SHORTFALL	**$ (105,953)**	**$ 80,876**	**$ (10,276)**	**$ (137,465)**	**$ (50,378)**	**$ (50,730)**	**$ 749,455**	**$ 1,375,281**	**$ 711,744**
SPECIFIC OPERATIONS - EQUIPMENT NEEDS									
Scheduled Items									
Fire Engines*	-	-	-	-	-	-	591,701	706,522	-
Dump Trucks (moved 1 DT to utility fund)	-	-	-	-	-	220,000	-	270,108	331,870
F750 High Ranger Aerial Truck	-	-	-	-	-	-	-	184,566	-
1995 Street 444G Front-End Loader	-	-	185,000	-	-	-	-	-	-
1999 Parks 4500 Tractor	-	-	-	-	-	83,022	-	-	-
	-	-	185,000	-	-	303,022	591,701	1,161,195	331,870
OVERALL SHORTFALL	**$ (105,953)**	**$ 80,876**	**$ (195,276)**	**$ (137,465)**	**$ (50,378)**	**$ (353,752)**	**$ 157,754**	**$ 214,085**	**$ 379,874**
NET CHANGE	**$ (105,953)**	**$ 80,876**	**$ (195,276)**	**$ (137,465)**	**$ (50,378)**	**$ (353,752)**	**$ 157,754**	**$ 214,085**	**$ 379,874**
BEGINNING CASH BALANCE	**$ 696,746**	**$ 590,793**	**$ 671,669**	**$ 476,393**	**$ 338,928**	**$ 288,550**	**$ (65,202)**	**$ 92,552**	**$ 306,637**
ENDING CASH BALANCE	**$ 590,793**	**$ 671,669**	**$ 476,393**	**$ 338,928**	**$ 288,550**	**$ (65,202)**	**$ 92,552**	**$ 306,637**	**$ 686,511**

*** CURRENT PLAN IS TO FINANCE FUTURE ENGINE PURCHASES, UNLESS POST 2023 DEBY LEVY FUNDING IS AVAILABLE**

DEPARTMENTAL SUMMARIES 2020-2036

	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025-2030	2031-2036
Police Department									
Squads	85,655	-	81,675	84,050	83,996	37,129	89,112	454,393	526,039
Unmarked	-	-	-	32,630	33,446	34,282	-	116,579	135,231
Retired to Other Services	-	-	796	820	1,689	-	896	7,011	4,712
Technology	38,000	35,299	18,570	22,401	29,359	47,472	3,456	228,724	193,102
Specialty Equipment	22,172	23,147	15,396	15,110	6,636	17,273	10,111	96,598	126,869
Investigative Equipment	-	-	3,412	4,100	-	-	965	14,963	6,985
General Equipment	552	15,489	5,559	33,086	46,676	18,329	640	104,551	147,727
TOTAL PD	**$ 146,380**	**$ 73,935**	**$ 125,407**	**$ 192,196**	**$ 201,801**	**$ 154,486**	**$ 105,180**	**$ 1,022,818**	**$ 1,140,665**
Fire Department									
Apparatus	-	-	-	90,000	46,897	-	591,701	821,159	63,026
Station Based Equipment	-	-	-	-	-	-	1,920	13,183	62,966
Protective Gear	5,520	6,285	16,398	-	14,478	246,400	51,197	54,548	154,934
Technology	13,289	10,189	6,319	5,505	7,359	10,340	5,760	81,637	47,668
Protective Equipment/Tools	20,900	16,099	3,700	10,000	6,650	-	27,855	99,470	69,561
Office Furniture	1,987	-	9,038	2,047	-	5,000	-	43,274	22,853
Debt Service Payments	65,600	61,235	69,100	67,450	65,800	64,150	153,568	820,649	1,132,553
TOTAL FD	**$ 107,297**	**$ 93,808**	**$ 104,554**	**$ 175,002**	**$ 141,184**	**$ 325,890**	**$ 832,001**	**$ 1,933,920**	**$ 1,553,561**
Administration/Finance									
Computer Hardware	5,330	10,697	2,250	16,500	15,655	825	10,850	55,462	54,318
Computer Software	-	-	-	-	-	-	55,000	7,500	-
Furniture and Equipment	15,834	18,747	-	-	5,000	-	-	75,000	50,000
Council Chambers	1,932	1,932	1,990	10,000	9,652	5,000	-	16,000	17,971
TOTAL AF	**$ 23,096**	**$ 31,376**	**$ 4,240**	**$ 26,500**	**$ 30,307**	**$ 5,825**	**$ 65,850**	**$ 153,962**	**$ 122,289**

DEPARTMENTAL SUMMARIES 2020-2036

PUBLIC WORKS	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025-2030	2031-2036
Streets Department									
Fleet replacements	34,779	29,163	-	55,638	38,003	59,026	32,643	41,527	269,978
Plows/Dump trucks	-	-	-	-	-	220,000	-	277,938	331,870
Heavy Equipment	6,623	3,832	189,928	5,051	5,177	5,307	5,439	252,285	41,301
Speciality Equipment	128,949	59,325	100,195	17,570	3,619	17,397	-	21,267	14,886
TOTAL	**$ 170,350**	**$ 92,320**	**$ 290,123**	**$ 78,258**	**$ 46,800**	**$ 301,730**	**$ 38,083**	**$ 593,018**	**$ 658,035**
Parks Department									
Fleet replacements	-	-	-	49,781	-	-	-	103,894	133,495
Heavy Equipment	7,729	4,588	1,137	5,857	5,302	73,727	-	103,460	59,655
Mowers	9,753	552	62,546	18,571	45,744	-	1,280	29,291	224,740
Field Maintenance	-	-	-	4,685	18,906	-	-	21,132	54,214
Rink Maintenance	-	2,539	-	586	-	12,029	640	4,380	31,484
Speciality Equipment	1,049	2,705	3,468	4,228	2,534	6,866	3,162	28,238	34,189
TOTAL	**$ 18,530**	**$ 10,384**	**$ 67,152**	**$ 83,708**	**$ 72,486**	**$ 92,621**	**$ 5,082**	**$ 290,397**	**$ 537,776**
TOTAL PW	**$ 188,881**	**$ 102,704**	**$ 357,275**	**$ 161,967**	**$ 119,286**	**$ 394,351**	**$ 43,165**	**$ 883,414**	**$ 1,195,811**
GRAND TOTAL	**$ 465,653**	**$ 301,824**	**$ 591,476**	**$ 555,665**	**$ 492,578**	**$ 880,552**	**$ 1,046,196**	**$ 3,994,115**	**$ 4,012,326**

FIXED ASSET SCHEDULE
POLICE DEPARTMENT

ASSET REPLACEMENT PROGRAM

3% AVERAGE ANNUAL INFLATION

FIXED ASSET #		YEAR	MAKE	DESCRIPTION	LIFE	QTY	UNIT COST	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
				Active Squads																						
1576	705	2016	DODGE	DODGE CHARGER - PATROL	3	1	37,433	41,775	-	33,979	-	-	-	38,243	-	-	-	43,043	-	-	-	48,445	-	-	-	54,526
1577	706	2016	FORD	FORD EXPLORER SUV - PATROL	3	1	39,876	43,880	-	47,696	-	-	-	50,868	-	-	-	57,253	-	-	-	64,439	-	-	-	72,526
1598	707	2017	DODGE	DODGE CHARGER - PATROL	3	1	39,377	-	-	-	34,998	-	37,129	-	-	-	41,789	-	-	-	47,034	-	-	-	52,938	-
1599	708	2017	DODGE	DODGE CHARGER - PATROL	3	1	39,377	-	-	-	49,052	-	-	-	52,394	-	-	-	58,970	-	-	-	66,372		-	-
1629	709	2018	FORD	FORD INTERCEPTOR SUV - PATROL	3	1	43,335	-	-	-		47,948	-	-	-	53,966	-	-	-	60,740	-	-	-	68,363	-	-
1630	710	2018	DODGE	DODGE CHARGER - PATROL	3	1	32,989	-	-	-	-	36,048	-	-	-	40,572	-	-	-	45,664	-	-	-	51,396	-	-
								85,655	**-**	**81,675**	**84,050**	**83,996**	**37,129**	**89,112**	**52,394**	**94,539**	**41,789**	**100,296**	**58,970**	**106,404**	**47,034**	**112,884**	**66,372**	**119,759**	**52,938**	**127,052**
				Unmarked																						
1557	6	2016	CHEV	CHEV IMPALA - INVESTIGATOR	6	1	24,577	-	-	-	32,630	-	-	-	-	-	37,841	-	-	-	-	-	43,896	-	-	-
1600		2017	CHEV	CHEV IMPALA - CHIEF	6	1	23,000	-	-	-	-	33,446	-	-	-	-	-	38,787	-	-	-	-	-	44,993	-	-
1631	6902	2018	FORD	FORD TAURUS - CAPTAIN	6	1	31,191	-	-	-	-	-	34,282	-	-	-	-	-	39,951	-	-	-	-	-	46,343	-
								-	**-**	**-**	**32,630**	**33,446**	**34,282**	**-**	**-**	**-**	**37,841**	**38,787**	**39,951**	**-**	**-**	**-**	**43,896**	**44,993**	**46,343**	**-**
				Retired To Other Services (1)																						
1558	702	2015	FORD	FORD INTERCEPTOR SUV - CSO	7	1	700	-	-	-	-	845	-	-	-	951	-	-	-	1,070	-	-	-	1,204	-	-
1513	698	2013	FORD	FORD INTERCEPTOR SUV - RESERVE	7	1	700	-	-	796	-	-	-	896	-	-	-	1,008	-	-	-	1,135	-	-	-	-
1559	703	2015	DODGE	DODGE CHARGER - COURT	7	1	700	-	-	-	-	845	-	-	-	951	-	-	-	1,070	-	-	-	1,204	-	-
1482		2011	FORD	FORD FUSION - COURT/SCHOOL	7	1	700	-	-	-	820	-	-	-	923	-	-	-	1,039	-	-	-	1,169	-	-	-
								-	**-**	**796**	**820**	**1,689**	**-**	**896**	**923**	**1,901**	**-**	**1,008**	**1,039**	**2,140**	**-**	**1,135**	**1,169**	**2,408**	**-**	**-**
				Technology																						
NA	NA	2018	VARIOUS	SQUAD COMPUTERS	5	9	4,550	-	-	-	3,519	-	47,472	-	3,960	-	-	55,033	-		4,729	-	63,799	-	-	-
1486	NA	2011	VARIOUS	ETHERNET SWITCH	10	1	13,000	-	-	13,000	-	-	-	-	-	-	-	-	-	19,868	-	-	-	-	-	-
NA	NA	NEW	VARIOUS	BODY CAMERAS / VIDEO/WEARABLES	5	23	400	-	7,103	-	-	10,562	-	-	-	-	12,244	-	-	-	-	-	14,203	-	-	-
NA	NA	NEW	VARIOUS	SQUAD VIDEO CAMERAS	7	7	4,895	-	3,830	-	4,808		-	-	42,142	-	-	5,913	-	-	-	51,829	-	-	7,273	7,491
NA	NA	NEW	VARIOUS	FACILITY VIDEO CAMERAS	5	6	3,680	38,000	24,366	2,500	14,074	15,539	-	-	-	29,982	-	-	-	-	34,757	-	-	-	-	-
NA	NA	VARIOUS	VARIOUS	PORTABLE/SQUAD RADIOS (2)	varies	varies	varies	-	-	3,070	-	3,257	-	3,456	-	3,666	-	51,789	-	4,126	-	4,378	-	4,644	-	-
								38,000	**35,299**	**18,570**	**22,401**	**29,359**	**47,472**	**3,456**	**46,102**	**33,648**	**12,244**	**112,735**	**-**	**23,994**	**39,486**	**56,207**	**78,002**	**4,644**	**7,273**	**7,491**
				Specialty Equipment																						
NA	NA	~ 2005	VARIOUS	REDMAN SUIT & TASER SUIT	15	1 ea	1,000	-	-	-	-	-	-	-	1,318	1,358	-	-	-	-	-	-	-	-	-	-
NA	NA	VARIOUS	VARIOUS	BULLET RESISTANT SHIELDS	5	2	2,500	-	-	-	5,857	-	-	-	-	6,789	-	-	-	-	7,871	-	-	-	-	-
NA	NA	VARIOUS	VARIOUS	PBT (BREATHLIZERS)	5	10	500	552	552	569	586	603	621	640	659	679	699	720	742	764	787	811	835	860	886	912
NA	NA	VARIOUS	VARIOUS	RIOT GEAR - 12 sets total	10	6/6	1,000	-	-	-	-	-	7,456	-	-	-	-	8,643	-	-	-	-	10,020	-	-	-
NA	NA	VARIOUS	VARIOUS	TASERS/BATTERIES	5	23	1,500	3,312	4,312	3,412	3,514	3,619	3,728	3,840	3,955	4,074	4,196	4,322	4,451	4,585	4,722	4,864	5,010	5,160	5,315	5,475
NA	NA	VARIOUS	VARIOUS	FIREARMS	15	23+	varies	2,208	3,621	2,274	2,343	2,413	2,485	2,560	2,637	2,716	2,797	2,881	2,968	3,057	3,148	3,243	3,340	3,440	3,543	3,650
NA	NA	VARIOUS	VARIOUS	P.DEPT ISSUED SIDE ARMS+HOLSTERS	8-10	23	700	16,100	14,662	-	-	-	-	-	-	-	20,700	-	-	-	-	-	-	-	36,675	-
NA	NA	VARIOUS	VARIOUS	SQUAD RADAR	4	7	1,200	-	-	2,729	2,811	-	2,982	3,072	-	-	3,357	3,457	-	-	3,778	3,891	-	-	4,252	4,380
NA	NA	VARIOUS	VARIOUS	HAND HELD RADAR	10	2	3,000	-	-	3,000																
NA	NA	2014	VARIOUS	BIKES	10	2	1,500	-	-	3,412	-	-	-	-	-	4,074	-	-	-	-	-	-	-	-	-	-
								22,172	**23,147**	**15,396**	**15,110**	**6,636**	**17,273**	**10,111**	**8,569**	**19,689**	**31,749**	**20,024**	**8,161**	**8,406**	**20,307**	**12,809**	**19,205**	**9,461**	**50,671**	**14,417**

FIXED ASSET SCHEDULE
POLICE DEPARTMENT

ASSET REPLACEMENT PROGRAM

3% AVERAGE ANNUAL INFLATION

FIXED ASSET #		YEAR	MAKE	DESCRIPTION	LIFE	QTY	UNIT COST	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
				Investigative Equipment																						
NA	NA	VARIOUS	VARIOUS	TRANSCRIPTION EQUIP/RECORDERS	5-7	7	500	-	-	-	4,100	-		965	-	-	4,895	-	-	1,528	-	-	1,670	-	-	-
NA	NA	VARIOUS	VARIOUS	SECURITY CAMERAS/DVR/INTERVIEWS (3)	5	16	5,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	NA	~2007	VARIOUS	SURVEILLANCE EQUIPMENT	10-15	1	3,000	-	-	3,412	-	-	-	-	3,955	-	-	-	-	4,585	-	-	-	-	5,315	-
								-	**-**	**3,412**	**4,100**	**-**	**-**	**965**	**3,955**	**-**	**4,895**	**-**	**-**	**6,113**	**-**	**-**	**1,670**	**-**	**5,315**	**-**
				Administrative Equipment																						
1583	NA	2016	VARIOUS	COPIER	1	7	11,250	-	-	-	-	13,573	-	-	-	-	-	16,206	-	-	-	-	-	19,351	-	-
NA	NA	VARIOUS	VARIOUS	OFFICE COMPUTERS -18 / PRINTERS-2	6	20	750	-	1,065	2,559	-	-	17,708	-	2,966	-	-	20,528	-	3,439	-	-	23,798	-	3,986	-
NA	NA	VARIOUS	VARIOUS	VARDA UNITS	10	2	3,000	-	-	-	-	-	-	-	-	8,147	-	-	-	-	-	-	-	-	-	-
NA	NA	VARIOUS	VARIOUS	MAIN OFFICE FURNITURE / CHAIRS	15	30+	250	552	552	3,000	586	603	621	640	659	679	699	720	742	764	787	811	835	860	886	912
NA	NA	2014	VARIOUS	FRONT OFFICE FURNITURE / LOCKER ROOM	10-15	NA	EST	-	-	-	-	-	-	-	7,500	-	-	-	-	35,000	-	-	-	-	7,500	-
NA	NA	VARIOUS	VARIOUS	FITNESS EQUIPMENT/CARPET	10-15	6-8	VAR	-	13,872	-	-	-	-	-	-	6,500	-	-	-	-	6,500	-	-	-	-	6,500
1483	NA	2011	LETG	RECORDS RETENTION MGMT SYSTEM	10-15	1	65K	-	-	-	32,500	32,500	-	-	-	-	-	-	-	-	-	-	-	-	75,000	-
								552	**15,489**	**5,559**	**33,086**	**46,676**	**18,329**	**640**	**11,125**	**15,326**	**699**	**37,455**	**742**	**39,203**	**7,287**	**811**	**24,633**	**20,211**	**87,372**	**7,412**
				TOTAL POLICE				**146,380**	**73,935**	**125,407**	**192,196**	**201,801**	**154,486**	**105,180**	**123,069**	**165,103**	**129,218**	**310,306**	**108,862**	**186,260**	**114,114**	**183,845**	**234,946**	**201,476**	**249,912**	**156,372**

FOOTNOTES

(1) EXTENDING LIFE OF ACTIVE/UNMARKED OFFICER VEHICLES WITH BUILD-UP/TEAR DOWN COSTS, ALSO REPLACES FIRE DEPARTMENT INSPECTION VEHICLE

(2) PORTABLE RADIOS LEASED RATHER THAN PURCHASED IN 2018

(3) REMOVED AS EQUIPMENT BEING REPLACED AS PART OF THE PANASONIC INTEGRATED VIDEO SYSTEM

Police Department



2015-2018 Dodge Charger (5)



2016 Ford Explorer (1)



2015, 2018
Ford Interceptor SUV (2)



2018 Ford Taurus



2016, 2017 Chevrolet Impala (3)



2011 Ford Fusion (1)

FIXED ASSET SCHEDULE
FIRE DEPARTMENT

ASSET REPLACEMENT PROGRAM — 3% AVERAGE ANNUAL INFLATION OR ESTIMATED ACTUAL

FIXED ASSET #	YEAR	MAKE	DESCRIPTION	LIFE	QTY	UNIT COST	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
			Apparatus																						
1636	2018	CUSTOM FIRE	ENGINE - 14	25-30	1	495,540	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1154	1999	TOYNE	ENGINE - 11	25-30	1	425,000	-	-	-	-	-	-	591,701	-	-	-	-	-	-	-	-	-	-	-	-
1288	2000	HME	ENGINE - 12	25-30	1	425,000	-	-	-	-	-	-	-	-	-	-	-	-	706,522	-	-	-	-	-	-
1156	1991	ROAD RESCUE	UTILITY TRUCK (rebuild vs replace)	30	1	150,000	-	-	-	90,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1575	2016	FORD	RESCUE - F350	10	1	80,000	-	-	-	-	-	-	-	-	100,189	-	-	-	-	-	-	-	-	-	-
1487	2011	FORD	CHIEF VEHICLE 150	10	1	31,500	-	-	-	-	46,897	-	-	-	-	-	-	-	-	-	63,026	-	-	-	-
1385	2006	FORD	INSPECTIONS VEHICLE (1)	n/a	1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2006		BOAT AND MOTOR	20	1	8,000	-	-	-	-	-	-	-	-	14,449	-	-	-	-	-	-	-	-	-	-
							-	**-**	**-**	**90,000**	**46,897**	**-**	**591,701**	**-**	**114,638**	**-**	**-**	**-**	**706,522**	**-**	**63,026**	**-**	**-**	**-**	**-**
			Station Based Equipment																						
1390	2006		COMPRESSOR	25-30	1	40,000	-	-	-	-	-	-	-	-	-	-		-	-	62,966	-	-	-	-	-
	2007		POWER WASHER	15-20	1	1,500	-	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-
	2003		TO WASHER DRYER	20	2	10,000	-	-	-		-	-	-	13,183	-	-	-	-	-	-	-	-	-	-	-
							-	-	-	-	-	-	1,920	13,183	-	-	-	-	-	62,966	-	-	-	-	-
			Protective Gear																						
	Various		TURNOUT GEAR	10	25	2,000	-	-	16,398	-	-	-	51,197	-	-	-	-	-	21,396	-	-	66,801	-	-	-
	Various		ROOKIE TURN OUT GEAR	10	6	2,000	-	-	-	-	14,478	-	-	-	-	16,783	-	-	-	-	19,457	-	-	-	-
	Dated		EMS COATS / PANTS	15	32	225	-	765	-	-	-	-	-	-	9,777	-	-	-	-	-	-	-	-	-	-
	2001/2004		SCBA COMPLETE PACK	20	36	7,700	-	-	-	-	-	246,400	-	-	-	-	-	-	-	-	-	-	-	-	-
	Various		SCBA BOTTLES/FACEPIECE	15	65	800	-	-	-	-	-	-	-	-	-	-	-	-	-	59,818		-	-	-	-
	2005		ICE RESCUE EQUIPMENT	10	4	1,250	5,520	5,520	-	-	-	-	-	6,592	-	-	-	-	-	-	-	-	-	8,859	-
							5,520	**6,285**	**16,398**	**-**	**14,478**	**246,400**	**51,197**	**6,592**	**9,777**	**16,783**	**-**	**-**	**21,396**	**59,818**	**19,457**	**66,801**	**-**	**8,859**	**-**
			Technology																						
1501	Various		PAGERS/BATTERIES	5	35	600	4,637	4,637	-	4,920	-	5,219	-	5,537	-	5,874	-	6,232	-	6,611	-	7,014	-	7,441	-
	2006		VEHICLE COMPUTERS	5	2	2,000	4,000	5,000	-	-	-	-	5,120	-	-	-	-	5,935	-	-	-	-	6,880	-	-
	Various		OFFICE COMPUTERS	5	7	800	-	-	-	-	6,756	-	-	-	-	6,713	-	-	-	-	7,783	-	-	-	-
	2014		RADIOS/BATTERIES	12	12	2,500	-	-	-	-	-	-	-	-	20,368	20,979	-	-	-	-	-	-	-	-	-
	2008		EOC TECHNOLOGY	6	5	Various	4,100	-	5,750	-	-	4,500	-	-	-	5,734	-	-	-	-	-	6,847	-	-	-
	Various		OTHER BATTERIES			500	552	552	569	586	603	621	640	659	679	699	720	742	764	787	811	835	860	886	912
							13,289	**10,189**	**6,319**	**5,505**	**7,359**	**10,340**	**5,760**	**6,196**	**21,047**	**40,000**	**720**	**12,909**	**764**	**7,399**	**8,593**	**14,696**	**7,741**	**8,327**	**912**
			Protective Equipment/Tools																						
	2017		DEFIBRILLATOR	7	5	1,700	-	-	-	-	-	-	6,528	4,482	-	-	-	-	-	8,028	5,513	-	-	-	-
	2017		DEFIBRILLATOR FOR POLICE DEPT	7	6	1,700	-	-	-	-	-	-	6,528	6,723	-	-	-	-	-	8,028	8,269	-	-	-	-
	Various		HOSE REPLACEMENT	15	116	100-425	7,700	7,622	2,500	-	2,650	-	2,800	-	2,800	-	3,000	-	3,000	-	3,250	-	3,250	-	3,500
	Various		HOSE APPLIANCES	10	30	150	-	-	-	3,000	-	-	-	-	-	-	-	-	-	4,722	-	-	-	-	-
1468	Various		THERMAL IMAGER	10	5	5,500-12,000	10,000	8,002	-	-	-	-	12,000	-	-	-	-	12,000	-	-	-	-	-	-	-
	Various		NOZZLE REPLACEMENT		15	1,000-2,500	-	-	-	7,000	-	-	-	-	7,300	-	-	-	-	7,500	-	-	-	-	7,700
	2013		LUCAS DEVICE	15	1	16,500	-	-	-	-	-	-	-	-	-	-	23,769	-	-	-	-	-	-	-	-
	Various		FANS AND BLOWERS	15	8	2,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,000	-	-
	Various		SAWS (CHAIN AND CUT OFF)	10	6	1,650	2,000	475	-	-	4,000	-	-	-	-	4,500	-	-	-	-	5,000	-	-	-	-
	Various		GAS MONITOR	6	10	600	1,200	-	1,200	-	-	-	-	1,350	-	-	750	-	-	-	-	-	1,800	-	-
1290	Various		OUTDOOR WARNING SIRENS	30	2	22,600	-	-	-	-	-	-		29,794	-	-	-	-	-	-	-	-	-	-	-
							20,900	**16,099**	**3,700**	**10,000**	**6,650**	**-**	**27,855**	**42,350**	**10,100**	**4,500**	**27,519**	**12,000**	**3,000**	**28,279**	**22,032**	**-**	**8,050**	**-**	**11,200**

FIXED ASSET SCHEDULE
FIRE DEPARTMENT

ASSET REPLACEMENT PROGRAM — 3% AVERAGE ANNUAL INFLATION OR ESTIMATED ACTUAL

FIXED ASSET #	YEAR	MAKE	DESCRIPTION	LIFE	QTY	UNIT COST	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
			Office Furniture																						
	2004		OFFICE CHAIRS/FURNITURE	15	9	315	-	-	-	-	-	5,000	-	-	-	6,000	-	-	-	-	6,000	-	-	-	-
	2004		TRAINING ROOM CHAIRS	15	35	85	-	-	-	-	-	-	-	-	-	-	-	-	4,547	-	-	-	-	-	-
	2004		DAY ROOM/KITCHEN/APPLIANCES	15	6	600	1,987	-	1,987	2,047	-	-	-	-	-	-	-	2,671	2,751	-	-	-	-	-	-
	2014		COPIER	6	1	6,200	-	-	7,051	-	-	-	-	-	8,419	-	-	-	-	-	10,053	-	-	-	-
	2003		FITNESS EQUIPMENT	10	3	4,500	-	-	-	-	-	-	-	-	6,110	6,294	6,483	-	-	-	-	-	-	-	6,800
							1,987	**-**	**9,038**	**2,047**	**-**	**5,000**	**-**	**-**	**14,529**	**12,294**	**6,483**	**2,671**	**7,298**	**-**	**16,053**	**-**	**-**	**-**	**6,800**
			TOTAL FIRE				**41,697**	**32,574**	**35,454**	**107,552**	**75,384**	**261,740**	**678,433**	**68,321**	**170,091**	**73,578**	**34,722**	**27,580**	**738,980**	**158,462**	**129,160**	**81,497**	**15,791**	**17,186**	**18,912**
			FIRE ENGINE DEBT SERVICE				**65,600**	**61,235**	**69,100**	**67,450**	**65,800**	**64,150**	**153,568**	**151,768**	**154,968**	**153,018**	**86,068**	**86,068**	**188,759**	**188,759**	**188,759**	**188,759**	**188,759**	**188,759**	**188,759**
							107,297	**93,808**	**104,554**	**175,002**	**141,184**	**325,890**	**832,001**	**220,089**	**325,059**	**226,596**	**120,790**	**113,648**	**927,739**	**347,220**	**317,919**	**270,256**	**204,549**	**205,945**	**207,671**

FOOTNOTES

(1) REPLACED WITH RETIRING UNMARKED SQUAD

Fire Department



2018 Engine 14



2016 Rescue 11



2011 Staff Vehicle



2000 Engine 12



1999 Engine 11



1991 Utility 11

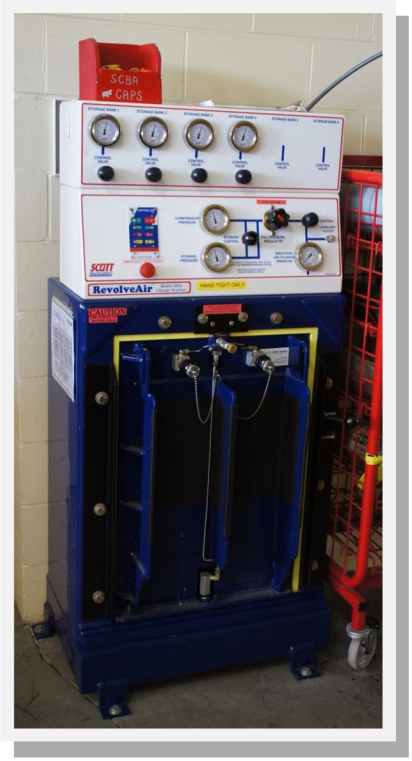
Fire Department



2006 Inspections Vehicle



2006 Boat and Motor



2006 Compressor

FIXED ASSET SCHEDULE

ADMINISTRATION/FINANCE

ASSET REPLACEMENT PROGRAM

FIXED ASSET #	YEAR	DESCRIPTION	LIFE	QTY	UNIT COST	2019	EST. ACTUAL 2019	ESTIMATED ACTUAL 2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
ADMINISTRATION/FINANCE																								
		Computer Hardware																						
1511	2012	CISCO ETHERNET SWITCH/FIBER SWITCHS (RUNS ALL CITY BLDGS)	5	5	1,500	4,605	7,319	-	-	2,495	-	8,500	-	925	-	3,600	-	10,350	-	1,000	-	4,200	-	12,500
NA	VARIOUS	FILE SERVER & SOFTWARE UPGRADES/ROSEVILLE	10	1	23,059	725	725	750	4,500	800	825	850	875	900	925	5,500	975	1,000	1,025	1,025	1,050	1,050	1,050	1,075
UNASSIGNED	2014	CITY HALL - BIZHUB	7	1	12,000	-	-	-	12,000	-	-	-	-	-	-	13,000	-	-	-	-	-	-	14,000	-
NA	VARIOUS	COMPUTER EQUIPMENT	5	10	1,200	-	2,653	1,500	-	12,360	-	1,500	1,545	-	12,731	-	1,545	1,591	-	13,113	-	1,591	1,639	-
						5,330	**10,697**	**2,250**	**16,500**	**15,655**	**825**	**10,850**	**2,420**	**1,825**	**13,656**	**22,100**	**2,520**	**12,941**	**1,025**	**15,138**	**1,050**	**6,841**	**16,689**	**13,575**
		Computer Software																						
1532/1639	2012	FINANCIAL SOFTWARE (CIVIC)	15	1	55,000	-	-	-	-	-	-	55,000	-	-	-	-	-	-	-	-	-	-	-	-
UNASSIGNED	2014	LASERFICHE	15	1	7,000	-	-	-	-	-	-	-	-	-	-	7,500	-	-	-	-	-	-	-	-
1641	2018	POS LIQOUR CC SYSTEM MP	15	1	9,030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1642	2018	POS LIQOUR CC SYSTEM SLV	15	1	9,030																			
						-	**-**	**-**	**-**	**-**	**-**	**55,000**	**-**	**-**	**-**	**7,500**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Furniture and Equipment																						
1581RC	NA	ELECTION MACHINES & EQUIPMENT	10	2	10,000	5,834	5,834	-	-	-	-	-	35,000	-	-	-	-	-	-	-	-	-	40,000	-
1523	2012/2015	OFFICES/CUBES/CARPET ETC	NA	NA	VARIOUS	10,000	12,913	-	-	5,000	-	-	-	40,000	-	-	-	-	-	-	-	10,000	-	-	-
						15,834	**18,747**	**-**	**-**	**5,000**	**-**	**-**	**35,000**	**40,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**10,000**	**-**	**40,000**	**-**
		Council Chambers																						
NA	VARIOUS	COUNCIL CHAMBERS A/V UPGRADES	20	VAR	VARIOUS	-	-	-	-	-	5,000	-	-	-	-	5,000	-	-	-	-	5,000	-	-	-
MULTIPLE	VARIOUS	COUNCIL CHAMBERS CAMERAS (1)	10	5	8,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	VARIOUS	COUNCIL CHAMBERS COMPUTERS/MONITORS	7-10	4	1,750-8,000	1,932	1,932	1,990	-	9,652	-	-	-	-	-	-	-	-	-	12,971	-	-	-	-
NA	VARIOUS	COUNCIL CHAMBERS FURNITURE	NA	NA	VARIOUS	-	-	-	10,000	-	-	-	-	-	-	-	11,000	-	-	-	-	-	-	-
						1,932	**1,932**	**1,990**	**10,000**	**9,652**	**5,000**	**-**	**-**	**-**	**-**	**5,000**	**11,000**	**-**	**-**	**12,971**	**5,000**	**-**	**-**	**-**
		TOTAL ADMIN/FINANCE				**23,096**	**31,376**	**4,240**	**26,500**	**30,307**	**5,825**	**65,850**	**37,420**	**41,825**	**13,656**	**34,600**	**13,520**	**12,941**	**1,025**	**28,109**	**16,050**	**6,841**	**56,689**	**13,575**

(1) ALL BROADCAST EQUIPMENT NOW INCLUDED IN A/V UPGRADES

FIXED ASSET SCHEDULE
PUBLIC WORKS
STREETS

ASSET REPLACEMENT PROGRAM

3% AVERAGE ANNUAL INFLATION

FIXED ASSET #	YEAR	MAKE	DESCRIPTION	LIFE	QTY	UNIT COST	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
			Fleet																						
1536	2014	CHEVY 5	MALIBU PW DIRECTOR	10	1	22,000	-	-	-	-	-	-	32,643	-	-	-	-	-	-	-	-	-	56,150	-	-
1464	2010	FORD 1	F150 PICKUP	15	1	31,500	-	-	-	-	-	-	-	41,527	-	-	-	-	-	-	-	-	-	-	-
1289	2004	FORD 2	F150 4X4 REPLACED BY FORD EDGE	15	1	31,500	34,779	29,163	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54,184	-	-
1409	2007	FORD 6	F150 PICKUP 4X4 (SUPR TO MECH)	15	1	31,500	-	-	-	-	38,003	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1601	2017	FORD 8	F350 PICKUP 4X4	15	1	45,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72,962	-	-	-	-
1421	2008	FORD 9	F450 MINI DUMP 2 TON 4X4	15	1	47,500	-	-	-	-	-	59,026	-	-	-	-	-	-	-	-	-	-	-	-	-
1338	2006	FORD 10	F450 MINI DUMP 2 TON 4X4	15	1	47,500	-	-	-	55,638	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86,682
						256,500	**34,779**	**29,163**	**-**	**55,638**	**38,003**	**59,026**	**32,643**	**41,527**	**-**	**-**	**-**	**-**	**-**	**-**	**72,962**	**-**	**110,334**	**-**	**86,682**
			Plows/Dump Trucks																						
1508	2013	IHC 14	7400 DUMP TRUCK	15-25	1	181,859	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	331,870
1186	2003	STERLING 11	M8500 DUMP TRUCK	15-25	1	187,500	-	-	-	-	-	-	-	-	-	-	270,108	-	-	-	-	-	-	-	-
1181	1995	FORD 12	L8000 DUMP TRUCK	15-25	1	187,500	-	-	-	-	-	220,000	-	-	-	-	-	-	-	-	-	-	-	-	-
1582	2016	WESTERN	8 FT PLOW BLADE	15	1	6,682	-	-	-	-	-	-	-	-	-	-	-	-	7,830	-	-	-	-	-	-
						563,541	**-**	**-**	**-**	**-**	**-**	**220,000**	**-**	**-**	**-**	**-**	**270,108**	**-**	**7,830**	**-**	**-**	**-**	**-**	**-**	**331,870**
			Heavy Equipment																						
1450	2010	VERMEER	BRANCH CHIPPER	15	1	32,105	-	-	-	-	-	-	-	32,105	-	-	-	-	-	-	-	-	-	-	-
1425	2008	FORD 17	F750 HIGH RANGER AERIAL TRUCK	15	1	140,000	-	-	-	-	-	-	-	184,566	-	-	-	-	-	-	-	-	-	-	-
1635	NA	BOBCAT	BOBCAT REPLACEMENT PROGRAM	NA	1	6,000	6,623	3,832	4,928	5,051	5,177	5,307	5,439	5,575	5,715	5,858	6,004	6,154	6,308	6,466	6,627	6,793	6,963	7,137	7,315
1216	1995	JOHN DEERE 32	444G FRONT END LOADER	20	1	160,000	-	-	185,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						338,105	**6,623**	**3,832**	**189,928**	**5,051**	**5,177**	**5,307**	**5,439**	**222,247**	**5,715**	**5,858**	**6,004**	**6,154**	**6,308**	**6,466**	**6,627**	**6,793**	**6,963**	**7,137**	**7,315**
			Specialty Equipment																						
	2017	DOOSAN	AIR COMPRESSOR PULL BEHIND	20-25	1	23,350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2017	DOOSAN	JACK HAMMER	10-15	1	6,000	-	-	-	-	-	-	-	-	-	-	6,429	-	-	-	-	-	-	-	-
	1997	RHINO	PD55 POST POUNDER	15-25	1	5,000	-	-	-	-	-	6,213	-	-	-	-	-	-	-	-	-	-	-	-	-
1222	1999	CRAFCO	200 PAVEMENT ROUTER (2)	15-25	1	20,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TBD	2019	STEPP 43	CRACK SEALER	15-20	1	45,000	49,684	52,304	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1201	1995	ROSCO 42	VIBRASTAT 111(3) ASPHALT ROLLER	15-20	1	15,000	-	-	17,058	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1202	1999	STEPP 51	SPH-2.0T ASPHALT HOT BOX	15-20	1	50,000	55,204	-	55,204	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1997	WHACKER	WP 1550AW VIBROPLATE	15-20	1	3,000	-	-	-	-	3,619	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1998	TRAFFIC MANAGER	SY3913060 ARROW BOARD 30X60"	15-20	1	9,000	-	-	-	-	-	11,184	-	-	-	-	-	-	-	-	-	-	-	-	-
	1997	ERSKINE	2418 - 61" SNOWBLOWER (1)	15-20	1	5,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1999	BOBCAT	70" ANGLE BROOM	15-20	1	10,000	-	-	11,372	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1184	2000	MASTER TOW	CAR DOLLY (2)	NA	1	15,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1183	1998	TOWMASTER	T-5T SINGLE AXEL TRAILER	15-20	1	15,000	16,561	-	16,561	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1182	1999	TOWMASTER	T-10DDT TANDEM AXEL TRAILER	15-20	1	15,000	-	-	-	17,570	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2015	WHACKER	BS50-2I DIRT COMPACTOR	15	1	2,550	-	-	-	-	-	-	-	-	-	-	-	-	-	3,542	-	-	-	-	-
1579	2016	GRACO	LINELAZER STREETS PAINTER 3900	13	1	10,000	-	-	-	-	-	-	-	-	-	-	-	14,838	-	-	-	-	-	-	-
	1991	MUD TUB	CONCRETE HAULER/DUMPER (2)	NA	1	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	**NEW		CADLINK VINYL CUTTER/PRINTER	15	1	7,500	7,500	3,516	-	-	-	-	-	-	-	-	-	-	-	-	-	11,344	-	-	-
			GARAGE & OFFICE COMPUTERS	7	4		-	3,505	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						258,900	**128,949**	**59,325**	**100,195**	**17,570**	**3,619**	**17,397**	**-**	**-**	**-**	**-**	**6,429**	**14,838**	**-**	**3,542**	**-**	**11,344**	**-**	**-**	**-**
			TOTAL STREETS				**170,350**	**92,320**	**290,123**	**78,258**	**46,800**	**301,730**	**38,083**	**263,774**	**5,715**	**5,858**	**282,541**	**20,992**	**14,138**	**10,008**	**79,589**	**18,137**	**117,297**	**7,137**	**425,867**
																				593,018					

FOOTNOTES

(1) REPLACEMENT MADE RETAINED FOR BACKUP

(2) NOT SCHEDULED FOR REPLACEMENT

Public Works Department—Street
FLEET



2017 Ford F350 Pickup



2014 Chevrolet Malibu



2010 Ford F150 Pickup



2008 Ford F450
Mini Dump 2 Ton 4x4



2007 Ford F150 4x4



2006 Ford F450
Mini Dump 2 Ton 4x4

Public Works Department—Street
FLEET



2004 Ford F150 Pickup 4x4

Public Works Department—Street
PLOW/DUMP TRUCKS



2018 International 7500
Dump Truck



2013 International 7400
Dump Truck



2003 Sterling M8500 Acterra



1995 Ford L8000 Dump Truck



1990 Ford L8000 Dump Truck

Public Works Department—Street
HEAVY EQUIPMENT



2011 Vermeer BC1500 Chipper



2018 Bobcat Replacement Program



2008 Ford F750
High Ranger Aerial Truck



1995 John Deere 444G Front End Loader

Public Works— Streets
SPECIALTY EQUIPMENT



2019 Stepp Crack Sealer



2016 Linelazer Streets Painter 3900



2016 Streets Painter Trailer



1999 Towmaster T-10
DDT Tandem Axel Trailer



1999 Stepp SPH-2.0
Asphalt Hot Box



1998 Towmaster T-5T
Single Axel Trailer

Public Works— Streets
SPECIALTY EQUIPMENT



1995 Rosco Asphalt Roller



1992 Leroy Q185 Air Compressor

FIXED ASSET SCHEDULE
PUBLIC WORKS
PARKS

ASSET REPLACEMENT PROGRAM

3% AVERAGE ANNUAL INFLATION

FIXED ASSET #	YEAR	MAKE	DESCRIPTION	LIFE	QTY	UNIT COST	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
		Fleet																							
1379	2006	FORD 20	F350 MINI DUMP 1 TON 4X4	15	1	42,500	-	-	-	49,781	-	-	-	-	-	-	-	-	-	-	-	-	-	77,557
1516	2014	FORD 18	F250 CREW CAB FLATBED	15	1	37,500	-	-	-	-	-	-	-	-	-	-	-	55,642	-	-	-	-	-	-	-
1462	2011	FORD 21	F250 PICKUP 4X4	15	1	34,500	-	-	-	-	-	-	-	-	48,252	-	-	-	-	-	-	-	-	-	-
1604	2017	FORD 22	F250 PICKUP 4X4	15	1	34,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55,938	-	-	-	-
						149,000	**-**	**-**	**-**	**49,781**	**-**	**-**	**-**	**-**	**48,252**	**-**	**-**	**55,642**	**-**	**-**	**55,938**	**-**	**-**	**-**	**77,557**
		Heavy Equipment																							
	2015	BOBCAT	BOBCAT 3400G UTIL VEH (ATV)	10	1	10,000	-	-	-	-	-	-	-	13,183	-	-	-	-	-	-	-	-	-	17,717	-
1188	1999	JOHN DEERE 38	4500 TRACTOR	15-25	1	35,000	-	-	-	-	-	43,493	-	-	-	-	-	-	-	-	-	-	-	-	-
	1999	JOHN DEERE	20" PTO AUGER (W/ TRACTOR)	15-25	1	8,000	-	-	-	-	-	9,652	-	-	-	-	-	-	-	-	-	-	-	-	-
	1999	JOHN DEERE	72" FLAIL MOWER (W/ TRACTOR)	15-25	1	15,000	-	-	-	-	-	18,097	-	-	-	-	-	-	-	-	-	-	-	-	-
1488	2011	BOBCAT 36	TOOL CAT 5600 (V-Blade, Snblw, BF Drag)	15	1	46,507	-	-	-	-	-	-	-	-	63,151	-	-	-	-	-	-	-	-	-	-
	2012	MB	HT HYDRAULIC TRACTOR SWEEPER	15	1	15,000	-	-	-	-	-	-	-	-	-	20,979	-	-	-	-	-	-	-	-	-
1634	2018	GIANT-VAC	2501 LEAF VACCUM ATTACHMENT	10	1	6,320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10,247	-	-	-	-
	2019	BIG TEX	TRAILER	15	1	7,000	7,729	4,588	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,041	-	-
N/A	2018	TRAC VAC	1070 LEAF MOWER ATTACHMENT	10	1	4,395	-	-	-	-	5,302	-	-	-	-	6,147	-	-	-	-	7,126	-	-	-	-
	2006	CARRY-ON	TRAILER 5X8 2000 LBS	15	1	5,000	-	-	-	5,857	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,124
	2001	TRAFFIC CT JR	ROAD COUNTER	15	1	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,574	-	-	-	-
	2000	HONDA	1400W GENERATOR	15	1	1,000	-	-	1,137	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,825
	1974	VERMEER	TREE SPADE	25+	1	VARIES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1974	GIBSON	CEMENT MIXER	25+	1	2,000	-	-	-	-	-	2,485	-	-	-	-	-	-	-	-	-	-	-	-	-
						156,222	**7,729**	**4,588**	**1,137**	**5,857**	**5,302**	**73,727**	**-**	**13,183**	**63,151**	**27,126**	**-**	**-**	**-**	**1,574**	**17,373**	**-**	**12,041**	**17,717**	**10,949**
		Mowers																							
1449	2010	TORO 47	GRANDSTAND MOWER (SPRD., VAC)	10	1	17,500	-	-	-	18,571	-	-	-	-	-	24,476	-	-	-	-	-	-	-	-	-
1491	2011	TORO 45	GROUNDSMASTER 360 (BLW, SWP, CAB)	10	1	37,916	-	-	-	-	45,744	-	-	-	-	-	-	-	-	59,685	-	-	-	-	-
1578	2016	TORO	ZERO TURN MOWER 5000 MYRIDE 60"	15	1	25,000	-	-	-	-	-	-	-	-	-	-	-	-	-	39,354	-	-	-	-	-
1196	2001	DEWEZE 44	SLOPE MOWER 72LC	15	1	55,000	-	-	62,546	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100,368
1606	2017	TORO 48	Z MASTER G3 MOWER	10	1	15,000	-	-	-	-	-	-	-	-	-	-	-	-	-	23,612	-	-	-	-	-
	2014	TORO	LAWN MOWER	10	1	500	-	-	-	-	-	-	640	-	-	-	-	-	-	-	-	-	860	-	-
	2014	TORO	LAWN MOWER	10	1	500	-	-	-	-	-	-	640	-	-	-	-	-	-	-	-	-	860	-	-
	1999	JOHN DEERE	5'6" FLAIL MOWER (not replacing)	15	1	8,500	9,201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2005	HONDA	PUSH MOWER	10	1	500	552	552	-	-	-	-	-	-	-	-	-	742	-	-	-	-	-	-	-
	1975	JERRI	JERRI SICLE MOWER	25+	1	3,000	-	-	-	-	-	-	-	-	4,074	-	-	-	-	-	-	-	-	-	-
						163,416	**9,753**	**552**	**62,546**	**18,571**	**45,744**	**-**	**1,280**	**-**	**4,074**	**24,476**	**-**	**742**	**-**	**122,652**	**-**	**-**	**1,720**	**-**	**100,368**
		Field Maintenance																							
1580	2016	GRACO	LINELAZER FIELD PAINTER	10	1	15,000	-	-	-	-	-	-	-	-	20,368	-	-	-	-	-	-	-	-	-	27,373
	1999	INFIELD BLUES	BALL FIELD DRAG/SCARIFIER/GROOMER	15	1	4,000	-	-	-	4,685	-	-	-	-	-	-	-	-	-	6,297	-	-	-	-	-
	1999	NEW STRIPE	BALL/SOCCER FIELD LINE STRIPER	15	1	500	-	-	-	-	-	-	-	-	-	-	-	-	764	-	-	-	-	-	-
	2000	INFIELD BLUES	BALL FIELD DRAG (1)	na	1	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2002	RYAN	SOD CUTTER	20	1	5,000	-	-	-	-	6,032	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1999	JOHN DEERE	3 PT POST HOLE AUGER HAND (2)	15	1	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,243	-	-	-	-
	2012	LAND PRIDE	CA 1572 AIRATOR	10	1	2,500	-	-	-	-	3,016	-	-	-	-	-	-	-	-	-	4,053	-	-	-	-
1490	2012	LAND PRIDE	OS 1548 SLIT SEEDER	10	1	8,171	-	-	-	-	9,857	-	-	-	-	-	-	-	-	-	13,248	-	-	-	-
						39,171	**-**	**-**	**-**	**4,685**	**18,906**	**-**	**-**	**-**	**20,368**	**-**	**-**	**-**	**764**	**6,297**	**20,544**	**-**	**-**	**-**	**27,373**

Public Works - Parks
FLEET



2017 Ford F250 Park Utility 4x4



2014 Ford F250 Flatbed



2011 Ford F250 Pickup 4x4



2006 Ford F350
Mini Dump 1 Ton 4x4

Public Works - Parks
HEAVY EQUIPMENT



2019 Big Tex 18’ Tandem
Park Utility Trailer



2015 Bobcat 3400G UTV



2018 Echo Bearcat Tow Behind
Vacuum Debris Loader



2012 Hydraulic Tractor Sweeper
Sidewalks and Ice Rinks



2011 Bobcat Tool Cat 5600

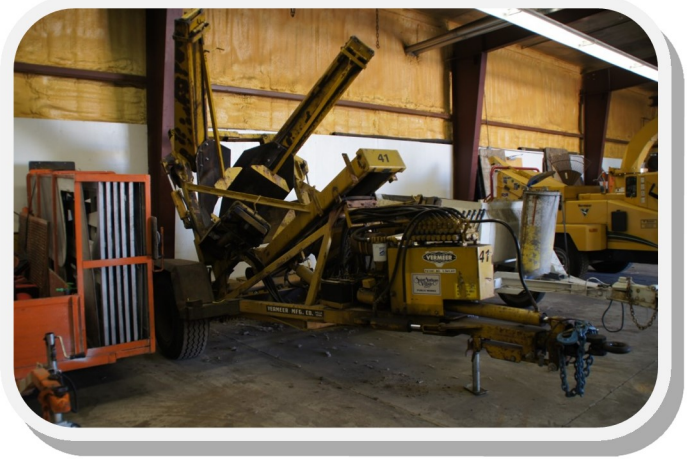
Public Works - Parks
HEAVY EQUIPMENT



2004 Trac Vac 880 Leaf Vaccum Dethatcher



1999 John Deere 4500 Tractor



1974 Vermeer Tree Spade

Public Works - Parks
MOWERS



2017 Toro Z Master
G3 5000 Mower



2016 Toro Zero Turn Mower
5000 MYRIDE 60”



2011 Toro Grounds Master 360



2010 Toro Grandstand Mower



2001 Deweze Slope Mower 72LC

Public Works - Parks
FIELD MAINTENANCE



2016 Linelazer Field Painter

FIXED ASSET SCHEDULE
PUBLIC WORKS
PARKS

ASSET REPLACEMENT PROGRAM

3% AVERAGE ANNUAL INFLATION

FIXED ASSET #	YEAR	MAKE	DESCRIPTION	LIFE	QTY	UNIT COST	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
			Rink Maintenance																						
	NA	SHOP MADE	RINK ICE SHAVER (2)	10	1	5,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NA	LITTLE WONDER	SHO WALK BLOWER 5HP	5	1	500	-	-	-	586	-	-	-	-	679	-	-	-	-	787	-	-	-	-	912
1633	2018	ES1600	SNOWBLOWER	15	1	5,786	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,663	-	-	-
	NA	TORO	CCR POWERLITE 20" SNOWBLOWER	5	1	500	-	552	-	-	-	-	640	-	-	-	-	742	-	-	-	-	860	-	-
	NA	MB	MCD-WB WALK BEHIND BROOM	10	1	1,800	-	1,987	-	-	-	-	-	-	-	-	-	2,671	-	-	-	-	3,096	-	-
	NA	STIHL	KW 85 PADDLE BROOM	5	1	200	-	-	-	-	-	249	-	-	-	-	288	-	-	-	-	334	-	-	-
	NA	JOHN DEERE	ICE RINK BROOM	10	1	9,480	-	-	-	-	-	11,780	-	-	-	-	-	-	-	-	-	15,832	-	-	-
						23,266	**-**	**2,539**	**-**	**586**	**-**	**12,029**	**640**	**-**	**679**	**-**	**288**	**3,413**	**-**	**787**	**-**	**25,829**	**3,956**	**-**	**912**
			Parkland/Sidewalks/Trees																						
	NA	VARIOUS	WEED WHIPS	5	4	VARIES	166	166	-	305	181	186	192	-	353	210	216	223	-	409	243	251	258	-	474
	NA	VARIOUS	CHAIN SAWS	5	5	VARIES	221	221	284	586	724	870	283	330	679	839	1,008	419	382	787	973	1,169	721	443	912
	NA	STIHL	LEAF BLOWERS	5	5	VARIES	221	221	227	234	241	311	256	264	272	280	360	297	306	315	324	418	344	354	365
	NA	STIHL	BACKPACK LEAF BLOWERS	5	2	300	-	-	341	-	362	-	-	395	-	420	-	-	458	-	486	-	-	532	-
	NA	BROYHILL	WEED SPRAYER	5	1	2,500	-	-	-	-	-	3,107	-	-	-	-	3,601	-	-	-	-	4,175	-	-	-
	NA	EARTHWAY	FERTILIZER SPREADER	5	1	400	-	-	455	-	-	-	-	527	-	-	-	-	611	-	-	-	-	-	-
	NA	VARIOUS	EDGERS	5	3	VARIES	-	-	-	586	-	186	-	-	679	-	216	-	-	787	-	251	-	-	912
	NA	VARIOUS	TRIMMERS	5	4	VARIES	-	-	455	176	181	-	-	527	204	210	-	-	611	236	243	-	-	709	274
	NA	STIHL	FS 86 BRUSH CUTTER	5	1	200	-	-	-	-	241	-	-	-	-	280	-	-	-	-	324	-	-	-	-
	NA	NA	WHEEL BLOWER	5	1	275	-	-	-	-	-	342	-	-	-	-	396	-	-	-	-	459	-	-	-
	NA	STIHL	HT75 POLE PRUNER 14'	5	1	400	442	442	-	-	-	-	512	-	-	-	-	594	-	-	-	-	688	-	-
	NA	SHOP MADE	SIGN PAINTING TRAILER	10	2	1,500	-	-	1,706	-	-	-	-	1,977	-	-	-	-	2,292	-	-	-	-	2,658	-
	NA	NA	TRAFFIC WARNING SIGNS	5	MLTP	2,000	-	-	-	2,343	-	-	-	-	2,716	-	-	-	-	3,148	-	-	-	-	3,650
	NA	NA	TRAFFIC WARNING CONES	5	MLTP	500	-	-	-	-	603	-	-	-	-	699	-	-	-	-	811	-	-	-	-
	NA	NA	TRAFFIC WARNING BLINKER BARRICADE	5	MLTP	1,500	-	-	-	-	-	1,864	-	-	-	-	2,161	-	-	-	-	2,505	-	-	-
	NA	NA	TRAFFIC WARNING BARRICADES	5	MLTP	1,500	-	1,656	-	-	-	-	1,920	-	-	-	-	2,226	-	-	-	-	2,580	-	-
	NA	NA	EVENT BARRICADES	5	MLTP	1,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						18,535	**1,049**	**2,705**	**3,468**	**4,228**	**2,534**	**6,866**	**3,162**	**4,021**	**4,902**	**2,937**	**7,959**	**3,758**	**4,661**	**5,683**	**3,405**	**9,227**	**4,592**	**4,695**	**6,588**
			TOTAL PARKS				**18,530**	**10,384**	**67,152**	**83,708**	**72,486**	**92,621**	**5,082**	**17,204**	**141,426**	**54,539**	**8,247**	**63,555**	**5,425**	**136,992**	**97,259**	**35,055**	**22,309**	**22,412**	**223,748**

FOOTNOTES

(1) DUPLICATE REMOVED

(2) NOT SCHEDULED FOR REPLACEMENT

PARK IMPROVEMENT 2020 - 2036

		2019	Est. Actual 2019	2020	2021	2022	2023	2024	2025-2030	2031-2036
SOURCES										
	Park Dedication Fees	$ 1,500	$ 1,500	$ 2,000	$ 7,500	$ 1,500	$ 1,500	$ 1,500	$ 9,000	$ 9,000
	Donations	-	-	-	-	-	-	-	-	-
	Micellaneous Income	725	725	800	850	900	900	900	5,795	5,853
	TOTAL	**$ 2,225**	**$ 2,225**	**$ 2,800**	**$ 8,350**	**$ 2,400**	**$ 2,400**	**$ 2,400**	**$ 14,795**	**$ 14,853**
USES										
	Central Park	4,150	5,612	2,800	-	-	-	-	-	-
	Emerald Park	5,000	6,686	2,100	-	-	-	-	-	-
	Salo Park	-	-	-	-	-	-	-	-	-
	Silver Point Park	3,434	32,108	1,200	-	-	-	-	-	-
	Trillium Park	-	-	-	-	-	-	-	-	-
	Water Tower Park	1,905	10,141	-	-	63,000	-	-	-	-
	TOTAL	**14,489**	**54,546**	**6,100**	**-**	**63,000**	**-**	**-**	**-**	**-**
	NET CHANGE	**$ (12,264)**	**$ (52,321)**	**$ (3,300)**	**$ 8,350**	**$ (60,600)**	**$ 2,400**	**$ 2,400**	**$ 14,795**	**$ 14,853**
	BEGINNING CASH BALANCE	**121,660**	**121,660**	**69,339**	**66,039**	**74,389**	**13,789**	**16,189**	**13,789**	**28,584**
	ENDING CASH BALANCE	**$ 109,396**	**$ 69,339**	**$ 66,039**	**$ 74,389**	**$ 13,789**	**$ 16,189**	**$ 18,589**	**$ 28,584**	**$ 43,437**

PARKS IMPROVEMENT PROGRAM

PARK	CIRA	DESCRIPTION	CONDITION GRADE	COST / INTERNAL EST / QUOTE	2019	EST ACT. 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Central Park	2003	**Park Amenities**																					
		Signage			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		Ballfields - multi-use			950	537	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Ballfields - soccer			400	1,074	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Batting Cages			-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Off-Street Parking			-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Picnic Area					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Play Equipment			1,500		1,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Skateboard Park			600		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Skating Rink - general			350		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Skating Rink - hockey			350	4,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Walking Paths			-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Splash Pad water reuse assessment			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Splash Pad/Shade Structures & Seating			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TOTAL			**$ 4,150**	**$ 5,612**	**$ 2,800**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Emerald Park	2009	**Park Amenities**																					
		Signage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Ballfields - multi-use			800	269	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Ballfields - soccer			1,500	537	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Basketball Half-Court			200		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Off-Street Parking			-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Picnic Area			300		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Play Equipment			1,500		1,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Skating Rink - general			350		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Skating Rink - hockey			350	5,880	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Walking Paths			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Splash Pad/Shade Structures & Seating			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TOTAL			**$ 5,000**	**$ 6,686**	**$ 2,100**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Salo Park	2006	**Park Amenities**																					
		Signage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Amphitheater			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TOTAL			**$ -**	**$ -**	**$ -**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

PARKS IMPROVEMENT PROGRAM

PARK	CIRA	DESCRIPTION	CONDITION GRADE	COST / INTERNAL EST / QUOTE	2019	EST ACT. 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Silver Point Park	1998	**Park Amenities**	[redacted]																				
		Signage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Ballfields - multi-use	PARK COMMISSION		800	269	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Basketball Full-Court	EVALUATION IN PROGRESS		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Off-Street Parking			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Picnic Area			318	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Play Equipment			1,736	-	1,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Skating Rink - general			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Skating Rink - hockey	OLD LED lighting		579	2,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Walking Paths			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Drinking Fountains			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		New hockey rink			-	29,439	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TOTAL			**$ 3,434**	**$ 32,108**	**$ 1,200**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trillium Park	1980	**Park Amenities**																					
		Signage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Water Fountain			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Off-Street Parking			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TOTAL			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Water Tower Park	2004	**Park Amenities**																					
		Signage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Basketball Half-Court			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Off-Street Parking			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Picnic Area			405	419	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Play Equipment			1,500	2,522	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Tennis Courts / Repairs Resurface			-	7,200	-	-	63,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Walking Paths			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TOTAL			**$ 1,905**	**$ 10,141**	$ -	$ -	**$ 63,000**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
		TOTAL PARK IMPROVEMENTS			**$ 14,489**	**$ 54,546**	**$ 6,100**	$ -	**$ 63,000**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Parks

Park Amenities	Amphitheater	Ballfields - multi-use	Ballfields - soccer	Basketball Courts	Batting Cages	Off-Street Parking	Picnic Area	Play Equipment	Shelter	Skateboard Park	Skating Rink - general	Skating Rink - hockey	Tennis Courts	Walking Paths	Splash Pads
Central Park—2003		X	X	1/2	X	X	X	X	X	X	X	X		X	X
Emerald Park —2009		X	X	1/2		X	X	X	X		X	X		X	X
Salo Park—2006	X													X	
Silver Point Park—1998		X		X		X	X	X	X		X	X		X	
Trillium Park—1980						X									
Water Tower Park—2004						X	X	X					X	X	



UTILITIES INFRASTRUCTURE 2020 - 2036

SOURCES	2019	Est. Actual 2019	2020	2021	2022	2023	2024	2025-2030	2031-2036
Interfund Loan collections (1)	45,766	45,766	45,470	198,667	191,976	185,285	178,594	690,050	-
Utility Fund Transfer (2)	-	-	-	-	-	-	-	225,000	1,350,000
Connection fees	8,500	8,500	85,000	17,000	-	-	-	-	-
Interest and other income	46,183	46,183	55,058	48,256	47,691	58,868	58,868	288,348	360,318
TOTAL	**$ 100,449**	**$ 100,449**	**$ 185,529**	**$ 263,923**	**$ 239,667**	**$ 244,153**	**$ 237,462**	**$ 1,203,398**	**$ 1,710,318**
USES									
Water Infrastructure	80,920	37,871	12,500	18,843	17,500	197,675	43,450	1,487,129	562,421
Water Equipment	2,492	2,492	2,232	38,791	905	1,933	1,600	72,973	152,012
Sewer Infrastructure	15,000	-	15,000	-	-	-	-	25,000	60,000
Sewer Equipment	382,492	2,492	382,232	3,651	905	1,933	1,600	72,973	736,709
Fiber Infrastructure	33,213	2,500	-	-	15,000	-	-	22,000	29,000
TOTAL	**$ 514,117**	**$ 45,355**	**$ 411,964**	**$ 61,285**	**$ 34,310**	**$ 201,542**	**$ 46,650**	**$ 1,680,076**	**$ 1,540,142**
NET CHANGE	**$ (413,669)**	**$ 55,093**	**$ (226,435)**	**$ 202,638**	**$ 205,357**	**$ 42,611**	**$ 190,812**	**$ (476,678)**	**$ 170,176**
BEGINNING CASH BALANCE	**2,949,349**	**2,949,349**	**3,004,442**	**2,778,007**	**2,980,645**	**3,186,002**	**3,228,613**	**2,980,645**	**2,503,967**
ENDING CASH BALANCE	**$ 2,535,680**	**$ 3,004,442**	**$ 2,778,007**	**$ 2,980,645**	**$ 3,186,002**	**$ 3,228,613**	**$ 3,419,425**	**$ 2,503,967**	**$ 2,674,143**

(1) Principal collection of $959,326 estimated to begin 2021.

(2) Utility Fund Transfer available upon retirement of Water Bonds in 2024.

UTILITES INFRASTRUCTURE
PLANT, PRODUCTION,STORAGE, WASTE AND FIBER SYSTEM

DEPT	PURPOSE	DESCRIPTION	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
WATER UTILITY																					
	Plant Facilities																				
		AOP Plant																			
		Electrical Panels serviced - placeholder	-	-	-	-	-	-	-	-	-	-	-	-	175,000	-	-	-	-	-	-
		Peroxide Equipment - placeholders	-	-	-	-	-	-	-	-	-	25,000	-	-		-	-	-	-	15,000	-
		GAC / Iron plants (moved from Buildings CIP in 2017)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Metal Door Frame & Replacement	-	-	-	-	15,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Security upgrades -Cameras	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15,000	-	-	-
		Security upgrades - Entrance controls / Fiber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Reznor Heating Units	14,900	14,750	-	-	-	-	-	-	-	-	24,190	-	-	-	-	-	-	27,000	-
		Dehumidifier	-	-	-	-	-	102,500	-	-	-	-	-	-	-	-	-	-	-	-	-
		Domestic Water Heaters	-	-	-	-	-	-	3,450	-	-	-	-	-	-	-	-	-	5,000	-	-
		Dehumidifier	-	-	-	-	-	-	-	-	-	77,900	-	-	-	-	-	-	-	-	-
		Boiler	-	-	-	-	-	-	-	27,600	-	-	-	-	-	-	-	-	-	29,000	-
		Relamp & Reballast	-	-	-	5,343	-	-	-	-	-	-	-	-	-	7,000	-	-	-	-	-
		Flow meters- GAC & Iron	-	-	-	-	-	-	-	-	-	-	-	18,492	-	-	-	-	-	-	20,000
		Chorine booster pump -GAC	-	-	-	-	-	5,796	-	-	-	-	-	-	-	6,000	-	-	-	-	-
		GAC Roof 2016 / Iron plant roof 2026/AOP roof 2041	-	-	-	-	-	-	-	-	95,000	-	-	-	-	-	-	-	-	-	-
	Production																				
		Well No. 3 Well casing	-	-	-	-	-	-	-	-	-	80,000	-	-	-	-	-	-	-	-	-
		Well No. 3 Pump restoration	-	-	-	-	-	-	-	-	-	-	-	102,730		-	-	-	-	-	-
		Well No. 4 Pump restoration	-	-	-	-	-	86,878	-	-	-	-	-	-	-	-	-	108,894	-	-	-
		Well No. 5 Pump restoration	-	1,621	-	-	-	-	-	-	-	-	100,716	-	-	-	-	-	-	-	-
		Retro fit Well No. 5 for mobile Generator	-	-	-	-	-	-	-	-	-	-	-	-	-	300,000	-	-	-	-	-
		Add permanent generator Well No. 4	-	-	-	-	-	-	-	-	-	-	275,000	-	-	-	-	-	-	-	-
		Central Park water re-use Done in 2018	59,520	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Wellhouse 3, 4, 5 maintenance, roofs in 2024	4,000	4,000	-	-	-	-	37,500	-	-	-	-	-	-	-	-	-	-	-	-
	Storage																-				
		Ground Storage and Tower Cleaning & Inspection	-	-	-	11,000	-	-	-	12,000	-	-	-	-	13,500	-	-	-	14,500	-	-
		Tower Painting (last painted in 2000)	-	-	-	-	-	-	-	300,000	-	-	-	-	-	-	-	-	-	-	-
	Distribution System															-	-				
		Watermains (Included in streets reconstruction)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Meter reading software upgrade / Customer portal	-	-	-	-	-	-	-	-	-	-	-	80,000	-	-	-	-	-	-	-
	Mandates															-	-				
		Wellhead Protection Plan Documentation (MDHS)	-	15,000	10,000	-	-	-	-	30,000	-	-	-	-	35,000	-	-				
		Education/Public Awareness	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,001	1,001	1,001	1,001	1,001
		Update Inventory of Potential Contamination Sources	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,001	1,001	1,001	1,001	1,001
		Annual Well Sampling	500	500	500	500	500	500	500	500	500	500	500	500	501	502	503	503	503	503	503
			80,920	**37,871**	**12,500**	**18,843**	**17,500**	**197,675**	**43,450**	**372,100**	**97,500**	**185,400**	**402,406**	**203,722**	**226,001**	**315,502**	**2,505**	**126,399**	**22,005**	**73,505**	**22,505**
SEWER UTILITY																					
	Lift Stations																				
		Lift Stations - SCADA system/Fiber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60,000	-	-	-
		Foss Road Lift Station Pump Replacement/re-hab	15,000	-	15,000	-	-	-	-	10,000	-	-	-	-	-	-	-	-	-	-	-
		Harding Lift Station Pump Replacement/re-hab	-	-	-	-	-	-	-	-	-	15,000	-	-	-	-	-	-	-	-	-
	Collection System																				
		Collection System (Included in streets reconstruction)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			15,000	**-**	**15,000**	**-**	**-**	**-**	**-**	**10,000**	**-**	**15,000**	**-**	**-**	**-**	**-**	**-**	**60,000**	**-**	**-**	**-**
FIBER	**Backbone**																				
		Fiber expansion from Fire Station to Central Park-2019	-	2,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Silver Point Park-2018 est 13K / Project date TBD		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Regional SW Treatment-2018 est 23K / Project date TBD		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Network switch City Hall	-	-	-	-	15,000	-	-	-	-	-	-	22,000	-	-	-	-	-	29,000	-
			33,213	**2,500**	**-**	**-**	**15,000**	**-**	**-**	**-**	**-**	**-**	**-**	**22,000**	**-**	**-**	**-**	**-**	**-**	**29,000**	**-**
TOTAL PUBLIC UTILITES INFRASTRUTURE PLAN			**$ 129,133**	**$ 40,371**	**$ 27,500**	**$ 18,843**	**$ 32,500**	**$ 197,675**	**$ 43,450**	**$ 382,100**	**$ 97,500**	**$ 200,400**	**$ 402,406**	**$ 225,722**	**$ 226,001**	**$ 315,502**	**$ 2,505**	**$ 186,399**	**$ 22,005**	**$ 102,505**	**$ 22,505**

UTILITES INFRASTRUCTURE
EQUIPMENT

3% AVERAGE ANNUAL INFLATION

FIXED ASSET #	YEAR	MAKE		DESCRIPTION	LIFE	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
				Fleet *Reassigned from Capital Equipment Fund*																				
1403	2006	SPRINTER 4	W	WATER UTILITY VAN	15	-	-	-	35,140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2015	FORD 7	D	F350 UTILITY 4X4 W /CRANE	10	-	-	-	-	-	-	-	68,224	-	-	-	-	-	-	-	-	-	-	94,437
						-	**-**	**-**	**35,140**	**-**	**-**	**-**	**68,224**	**-**	**1,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**94,437**
												-												
				Heavy Equipment *Reassigned from Capital Equipment Fund*																				
	1999	STERLING 19	S	STERLING VACTOR/JETTER	15	380,000	-	380,000	-	-	-	-	-	-	-	-	-	-	471,200	-	-	-	-	-
1644	2018	FORD 15	D	L8000 DUMP TRUCK	15-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2007	ZIEGLER CAT	S	200KW - FOSS RD LS	25-30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	113,497	-	-	-	-
1292	2004	FREIGHTLINER 16	W	M2 WATER TANKER/FLUSHER	15-20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2013	CASE 590	D	BACKHOE	20-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175,290	-	-	-
						380,000	**-**	**380,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**471,200**	**113,497**	**175,290**	**-**	**-**	**-**
				Specialty Equipment *Reassigned from Capital Equipment Fund*																				
1212	2002	SPEEDSHORE	D	VARIABLE 4X6 TRENCH BOX	25-30	-	-	-	-	-	-	-	-	-	6,993	-	-	-	-	-	-	-	-	-
1213	1990	SHORING INT	D	8X6, 24" & 48" TRENCH SHORING	25-30	-	-	-	-	-	-	-	-	-	6,993	-	-	-	-	-	-	-	-	-
	1999	MAGNA TRAK	D	100 FERROUS IRON LOCATOR	10	-	-	-	1,288	-	-	-	-	1,494	-	-	-	-	-	-	-	-	-	2,007
	2013	LINE LOCATOR	D	RD400 UNDERGROUND LOCATOR	10	-	-	-	-	1,810	-	-	-	-	2,098	-	-	-	-	2,432	2,505	-	-	-
EST	2008	MINIGAS	D	OFCH MULTI-GAS MONITOR	5	-	-	-	-	-	1,367	-	-	-	-	1,585	-	-	-	-	-	-	-	2,007
1247	2008	HACH	D	DR2000 SPECTROPHOTOMETER	5	-	-	1,706	-	-	-	-	1,977	-	-	-	-	2,292	-	-	-	-	-	2,737
1209	2005	INGERSOL RAND	D	ROTO HAMMER	10	276	276	-	-	-	-	-	-	-	-	-	371	-	-	-	-	-	-	-
1417	2005	HONDA	D	EG1500W GENERATOR	10	552	552	-	-	-	-	-	-	-	-	-	742	-	-	-	-	-	-	-
EST	2005	HOMELITE	D	3" TRASH PUMP 250 GPM	5-10	-	-	-	-	-	-	1,280	-	-	-	-	-	1,528	-	-	-	-	-	-
EST	2005	HOMELITE	D	2" TRASH PUMP 173 GPM	5-10	-	-	1,137	-	-	-	-	1,318	-	-	-	-	-	1,574	-	-	-	-	-
EST	2005	NA	D	ELECTRIC SEWER SNAKE	5-10	-	-	1,621	2,343	-	-	-	-	-	-	-	2,968	-	-	-	-	3,440	-	-
EST	2005	NA	D	12V POWER VENT	5-10	-	-	-	-	-	-	1,920	-	-	-	-	-	2,433	-	-	-	-	-	-
1246	2005	MOHAWK	D	PERSONNEL SAFETY LIFT	5-10	1,656	1,656	-	-	-	-	-	-	2,037	-	-	-	-	-	-	2,505	-	-	-
	NEW		D	Transfered to 2018 street project fund)	5-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2018	HACH		WATER TESTING EQUIPMENT	5-10	-	-	-	-	-	-	-	4,542	-	-	-	-	-	-	5,586	-	-	-	-
EST	2005	STIHL	D	TS460 PARTNER SAW	5-10	-	-	-	1,171	-	-	-	-	-	-	-	1,484	-	-	1,001	1,001	-	-	-
						2,484	**2,484**	**4,464**	**4,802**	**1,810**	**1,367**	**3,200**	**7,837**	**3,530**	**16,084**	**1,585**	**5,564**	**6,254**	**1,574**	**9,019**	**6,011**	**3,440**	**-**	**6,752**
				Technology *Reassigned from Capital Equipment Fund*																				
	2016	RTA	D	RTA FLEET SOFTWARE (SHOP)	15-20	-	-	-	-	-	-	-	9,000	-	-	-	-	-	-	-	-	-	-	-
			D	COMPUTERS/PRINTERS	7-10	2,500	2,500	-	2,500	-	2,500	-	2,500	-	2,500	-	2,500	-	2,500	-	2,500	-	2,500	-
1442	2009	SENSUS	D	COMPUTER SOFTWARE	20	-	-	-	-	-	-	-	-	20,368	-	-	-	-	-	-	-	-	-	-
						2,500	**2,500**	**-**	**2,500**	**-**	**2,500**	**-**	**11,500**	**20,368**	**2,500**	**-**	**2,500**	**-**	**2,500**	**-**	**2,500**	**-**	**2,500**	**-**
				TOTAL UTILITY		**384,984**	**4,984**	**384,464**	**42,442**	**1,810**	**3,867**	**3,200**	**87,561**	**23,899**	**19,584**	**1,585**	**8,064**	**6,254**	**475,274**	**122,515**	**183,802**	**3,440**	**2,500**	**101,189**
				EQUIPMENT SPECIFIC TO WATER		0	0	0	35,140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				EQUIPMENT SPECIFIC TO SEWER		380,000	0	380,000	0	0	0	0	0	0	0	0	0	0	471,200	113,497	0	0	0	0
				DUAL PURPOSE EQUIPMENT		4,984	4,984	4,464	7,302	1,810	3,867	3,200	87,561	23,899	18,584	1,585	8,064	6,254	4,074	9,019	183,802	3,440	2,500	101,189
						384,984	**4,984**	**384,464**	**42,442**	**1,810**	**3,867**	**3,200**	**87,561**	**23,899**	**18,584**	**1,585**	**8,064**	**6,254**	**475,274**	**122,515**	**183,802**	**3,440**	**2,500**	**101,189**

Utilities Infrastructure



1953 St. Anthony Water Treatment Facility, 1991 GAC, 2017 AOP



1953 Water Tower



2001 Harding Lift Station



2007 Foss Lift Station

Utilities Infrastructure



1957 Well #3



1959 Well #4



1961 Well #5

Utility Infrastructure
FLEET



1999 Sterling Vactor/Jetter



2006 Sprinter Utility Van



2015 Ford F350 Utility 4x4

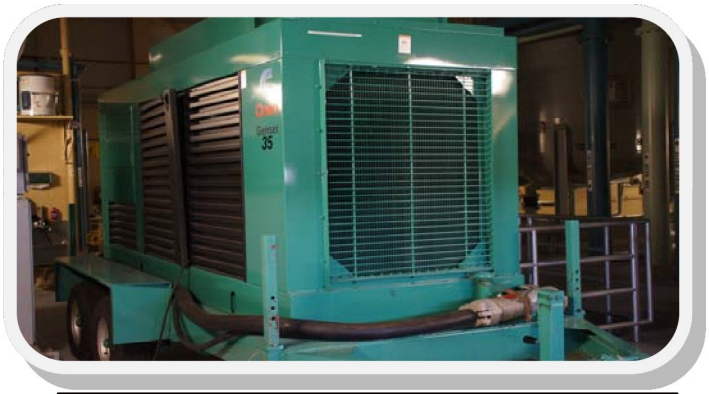


2004 Freightliner M2 Water Tanker/Flusher

Utility Infrastructure
HEAVY EQUIPMENT



1992 Onan 375K Gen Set



1999 Onan 400K Gen Set



1989 Sreco RSR-38TR
Sewer Rodder



2013 Case 590 Loader/Backhoe

Fiscal Year 2020

STORMWATER 2020 - 2036

SOURCES	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025-2030	2031-2036
Stormwater fees UB	$ 205,734	$ 206,200	$ 210,324	$ 214,530	$ 218,821	$ 223,198	$ 227,661	$ 1,274,563	$ 1,287,309
Bond Proceeds- SLR Flooding (1)	293,700	-	-	-	-	-	-	-	-
Grants-Silver Lake Rd Flooding (1)	500,000	-	-	-	-	-	-	-	-
Grants-Industrial Park Flooding (2)	250,000	-	250,000	-	-	-	-	-	-
Grant-prior projects	-	11,432	-	-	-	-	-	-	-
Interest	2,750	2,750	3,250	3,500	3,500	3,500	3,500	48,000	76,750
TOTAL	**$ 1,252,184**	**$ 220,382**	**$ 463,574**	**$ 218,030**	**$ 222,321**	**$ 226,698**	**$ 231,161**	**$ 1,322,563**	**$ 1,364,059**
USES									
Stormwater Maintenance	$ -	$ -	$ -	$ 50,000	$ -	$ -	$ -	$ 155,000	$ 280,000
Flood Improvements (1)	1,002,000	-	300,000	-	-	-	-	-	-
Water Quality	31,530	32,289	53,104	49,160	50,663	317,217	53,823	434,832	878,095
Mandates	8,100	8,200	8,260	8,422	8,587	8,755	18,925	57,289	64,233
Annual Reconstruction	85,000	85,000	-	85,000	85,000	105,000	75,000	150,000	-
TOTAL	**1,126,630**	**125,489**	**361,364**	**192,582**	**144,251**	**430,972**	**147,748**	**797,121**	**1,222,329**
NET CHANGE	**$ 125,554**	**$ 94,893**	**$ 102,210**	**$ 25,448**	**$ 78,071**	**$ (204,274)**	**$ 83,413**	**$ 525,442**	**$ 141,730**
BEGINNING CASH BALANCE	**97,650**	**97,650**	**192,543**	**294,753**	**320,201**	**398,272**	**193,997**	**277,411**	**802,853**
ENDING CASH BALANCE	**$ 223,204**	**$ 192,543**	**$ 294,753**	**$ 320,201**	**$ 398,272**	**$ 193,997**	**$ 277,411**	**$ 802,853**	**$ 944,583**

STORMWATER CAPITAL PLAN

Improvement Type	Location	Potential Financial Sources	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Stormwater Pond Maintenance																					
	Mirror Lake	SAV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150,000	-	-	-	-
	Silver Lake	Ramsey, CH, SAV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Harding Pond	SAV	-	-	-	50,000	-	-	-	-	-	-	-	-	60,000	-	-	-	-	-	-
	Salo Pond	SAV	-	-	-	-	-	-	-	45,000	-	-	-	-	-	-	-	-	60,000	-	-
	Central Park Rain Garden	SAV	-	-	-	-	-	-	-	-	50,000	-	-	-	-	-	-	-	-	70,000	-
			-	-	-	50,000	-	-	-	45,000	50,000	-	-	-	60,000	-	150,000	-	60,000	70,000	-
Flood Improvements																					
	Industrial Park Flood Improvements	SAV/MWMO	300,000	-	300,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mirror Lake - capacity increased	RCWD, Ramsey County	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mirror Lake - Erioslon/Pipe re-route	RCWD, SAV Street Imp																			
	Silver Lake Rd Flooding Preliminary Analysis	SAV																			
	Silver Lake Rd Flooding Project	SAV,DNR,Ramsey,RCWS	702,000		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			1,002,000	-	300,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Quality																					
	Street Sweeper	SAV	-	-	-	-	-	235,000	-	-	-	-	-	-	-	-	-	350,000	-	-	-
	Salo Pond Treatment System	SAV	18,980	19,739	20,529	21,350	22,204	23,092	24,016	24,976	25,975	27,014	28,095	29,219	30,388	31,603	32,867	34,182	35,549	36,971	38,450
	Regional Stormwater Treatment system (1)	MWMO	1,550	1,550	1,575	21,600	22,032	22,473	22,922	23,381	23,848	24,325	24,812	25,308	25,814	26,330	26,857	27,394	27,942	28,501	29,071
	Clean Streets maintenance costs	SAV	6,000	6,000	6,000	6,210	6,427	6,652	6,885	7,126	7,376	7,634	7,901	8,177	8,464	8,760	9,066	9,384	9,712	10,052	10,404
	Silver Lake Delisting / Weed mgmt	CO-OP	5,000	5,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Re-use Maintenance	SAV	-	-	25,000	-	-	30,000	-	-	35,000	-	-	40,000	-	-	45,000	-	-	50,000	-
			31,530	32,289	53,104	49,160	50,663	317,217	53,823	55,483	92,199	58,973	60,808	102,704	64,665	66,693	113,791	420,960	73,203	125,524	77,925
Mandates																					
SWIPP	Stormwater Management Plan update	SAV	-	-	-	-	-	-	10,000	-	-	-	-	-	-	-	-	-	-	-	-
MS4	MS4-Engineer costs	SAV	1,500	1,500	1,560	1,622	1,687	1,755	1,825	1,898	1,974	2,053	2,135	2,220	2,309	2,402	2,498	2,598	2,701	2,809	2,922
Internal	SW Education / Green Step Program	SAV	6,600	6,700	6,700	6,800	6,900	7,000	7,100	7,200	7,300	7,400	7,500	7,600	7,700	7,800	7,900	8,000	8,100	8,200	8,300
			8,100	8,200	8,260	8,422	8,587	8,755	18,925	9,098	9,274	9,453	9,635	9,820	10,009	10,202	10,398	10,599	10,802	11,010	11,223
Annual Reconstruction (2)																					
	Internal use for debt levy reduction		85,000	85,000	-	85,000	85,000	105,000	-	-	-	-	-	-	-	-	-	-	-	-	-
	Contribution to streets reconstruction 2024-2026		-	-	-	-	-	-	75,000	75,000	75,000	-	-	-	-	-	-	-	-	-	-
			85,000	85,000	-	85,000	85,000	105,000	75,000	75,000	75,000	-	-	-	-	-	-	-	-	-	-
TOTAL STORMWATER CAPITAL PLAN			**1,126,630**	**125,489**	**361,364**	**192,582**	**144,251**	**430,972**	**147,748**	**184,581**	**226,473**	**68,426**	**70,442**	**112,524**	**134,674**	**76,895**	**274,188**	**431,558**	**144,006**	**206,534**	**89,148**

NOTES:

(1) Final Project costs paid in 2017, subsequent year's costs are utilities and maintenance

(2) Reconstruction of Street based Stormwater Improvements included within the Streets Capital Plan

Stormwater Retention



2004-2005 Salo Pond North



2004-2005 Salo Pond South



2003 Harding Pond



1962 Mirror Lake

Stormwater Treatment Systems



2015 Silver Lake Stormwater Treatment Facility at Salo Pond



2016 St. Anthony Regional Stormwater Treatment System



2014 Central Park Rain Garden

Stormwater Reuse



2008 Water Reuse Fountain

Stormwater Equipment



2006 Elgin Pelican

Street Sweeper

Fiscal Year 2020

STREETS IMPROVEMENT PLAN 2020 - 2036

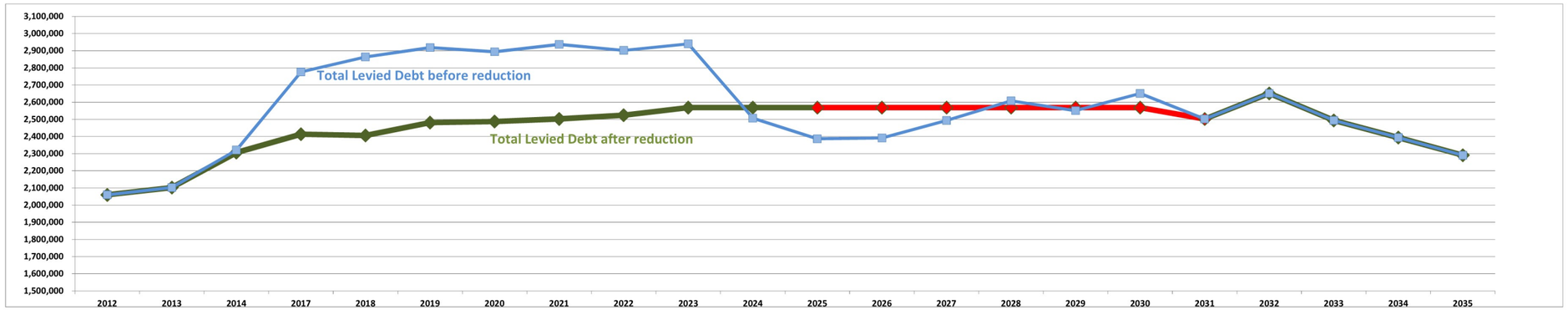
SOURCES	2019	Est. Actual 2019	2020	2021	2022	2023	2024	2025-2030	2031-2036
Bond Proceeds	$ 1,150,000	$ 1,213,141	$ 1,982,000	$ 2,352,000	$ 2,351,000	$ 1,826,000	$ 2,413,000	$ 14,358,000	$ 1,819,000
Road Improvement Levy	1,914,886	1,914,886	1,927,204	1,928,941	1,948,102	1,990,213	2,399,681	15,646,465	12,331,369
Prepaid Assessments	-	-	166,152	146,548	173,867	146,189	205,641	1,222,486	485,163
MSA Funds - not part of DLR	-	-	-	-	30,000	60,000	340,000	1,250,000	1,250,000
Grant Funding	-	-	-	-	-	-	-	-	-
Debt Levy Reduction Funding	377,509	377,509	343,177	375,591	313,049	302,016	13,722	-	-
Miscellaneous	-	-	-	-	-	-	-	-	-
TOTAL	**$ 3,442,395**	**$ 3,505,536**	**$ 4,418,533**	**$ 4,803,080**	**$ 4,816,018**	**$ 4,324,418**	**$ 5,372,044**	**$ 32,476,951**	**$ 15,885,532**
USES									
Streets/Utilities Reconstruction (1)	$ 1,471,640	$ 1,471,640	$ 1,915,440	$ 2,372,212	$ 3,275,140	$ 2,256,639	$ 2,603,009	15,251,045	-
Mill and Overlays	-	-	-	-	-	-	-	253,278	1,808,914
Alleys	-	-	-	-	-	80,000	60,000	188,851	373,380
Sidewalks/Street Lights	-	-	-	-	-	-	-	458,481	1,723,111
Road Improvement debt	2,292,395	2,292,395	2,258,694	2,293,275	2,250,324	2,281,832	2,273,813	14,983,742	14,482,420
Miscellaneous	-	-	-	-	-	-	-	-	-
TOTAL	**$ 3,764,035**	**$ 3,764,035**	**$ 4,174,134**	**$ 4,665,487**	**$ 5,525,464**	**$ 4,618,471**	**$ 4,936,822**	**$ 31,135,397**	**$ 18,387,826**
NET CHANGE	**$ (321,640)**	**$ (258,499)**	**$ 244,399**	**$ 137,593**	**$ (709,446)**	**$ (294,053)**	**$ 435,222**	**$ 1,341,555**	**$ (2,502,294)**
BEGINNING ACTIVITY	**-**	**(321,640)**	**(321,640)**	**(77,241)**	**60,352**	**(649,094)**	**(943,147)**	**(943,147)**	**398,408**
CUMULATIVE ACTIVITY	**$ (321,640)**	**$ (580,139)**	**$ (77,241)**	**$ 60,352**	**$ (649,094)**	**$ (943,147)**	**$ (507,925)**	**$ 398,408**	**$ (2,103,886)**

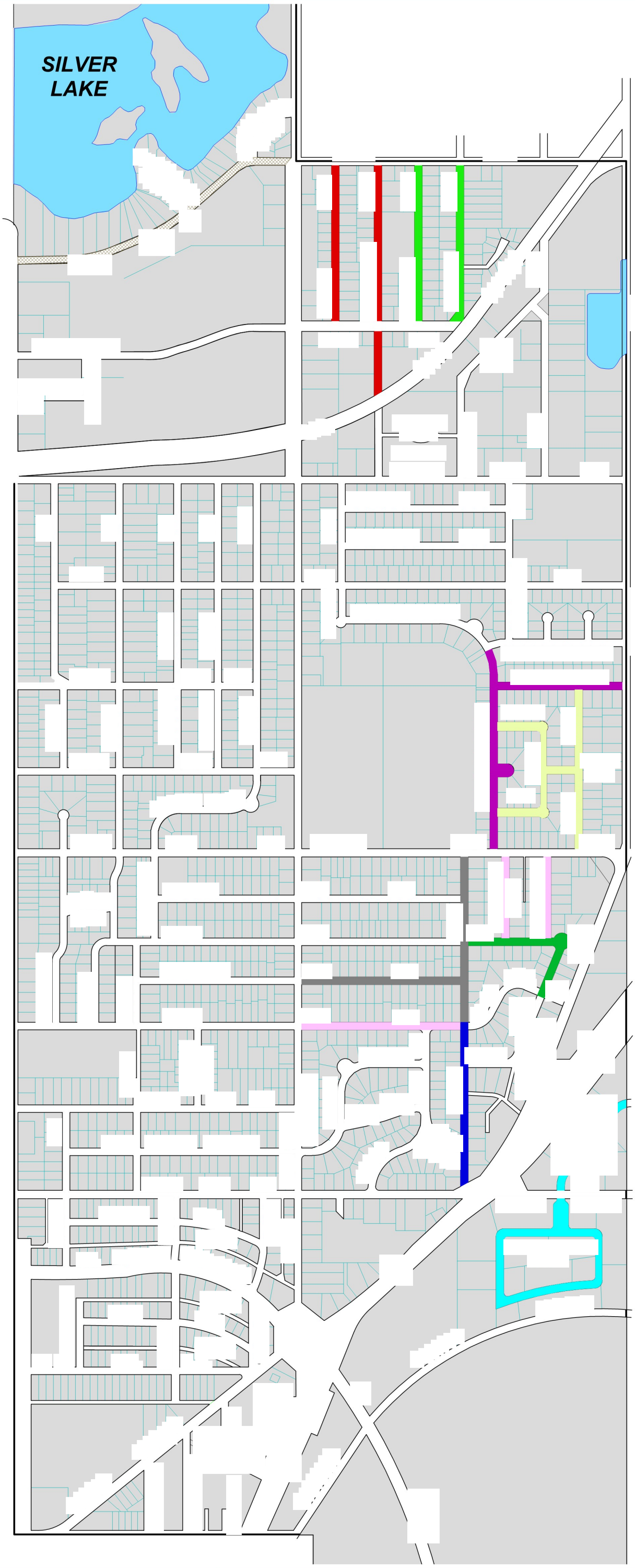
STREETS IMPROVEMENTS PLAN

Improvement Type	Location	YEAR	Financial Source	Estimated cost	2019	EST. ACTUAL 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Street /Utility Reconstruction Program																							
	Foss, Macalaster and Highcrest	2018	Debt Levy/Assmts/Grants & Aids	2,638,200	527,640	527,640			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Silver Lake Rd Flood Mitgation, County Rd C - Utilities & Trails	2019	Debt Levy/Assmts/Grants & Aids	1,180,000	944,000	944,000	236,000	-	-	-	-	-	-	-									
	Croft Dr, 32nd Ave and Silver Lake Terrace	2020	Debt Levy/Assmts/Grants & Aids	2,099,300			1,679,440	419,860	-	-	-	-	-	-									
	Skycroft Dr, Croft Dr, 31st Ave. Silver Lane M/O	2021	Debt Levy/Assmts/Grants & Aids	2,440,440	-	-	-	1,952,352	488,088	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	No. Rankin, Townview	2022	Debt Levy/Assmts/Grants & Aids	3,483,815	-	-	-	-	2,787,052	696,763	-	-	-	-	-	-	-	-	-	-	-	-	-
	So. Rankin	2023	Debt Levy/Assmts/Grants & Aids	1,949,845	-	-	-	-	-	1,559,876	389,969	-	-	-	-	-	-	-	-	-	-	-	-
	Penrod , MaCalaster	2024	Debt Levy/Assmts/Grants & Aids	2,766,300	-	-	-	-	-	-	2,213,040	553,260	-	-	-	-	-	-	-	-	-	-	-
	Shamrock, Fordham	2025	Debt Levy/Assmts/Grants & Aids	2,565,700	-	-	-	-	-	-	-	2,052,560	513,140	-	-	-	-	-	-	-	-	-	-
	Skycroft and Downers	2026	Debt Levy/Assmts/Grants & Aids	2,776,800	-	-	-	-	-	-	-	-	2,221,440	555,360	-	-	-	-	-	-	-	-	-
	Skycroft Cir. and Skycroft Dr	2027	Debt Levy/Assmts/Grants & Aids	2,945,000	-	-	-	-	-	-	-	-	-	2,356,000	589,000	-	-	-	-	-	-	-	-
	So. Anthony Ln	2028	Debt Levy/Assmts/Grants & Aids	3,375,500	-	-		-	-	-	-	-	-	-	2,700,400	675,100	-	-	-	-	-	-	-
	No. Anthony Lane	2029	Debt Levy/Assmts/Grants & Aids	3,034,785	-	-		-	-	-	-	-	-	-	-	2,427,828	606,957	-	-	-	-	-	-
	TOTAL RECONSTRUCTION			**31,255,685**	**1,471,640**	**1,471,640**	**1,915,440**	**2,372,212**	**3,275,140**	**2,256,639**	**2,603,009**	**2,605,820**	**2,734,580**	**2,911,360**	**3,289,400**	**3,102,928**	**606,957**	**-**	**-**	**-**	**-**	**-**	**-**
Mill and Overlays																							
	Estimated M/O program	2023+	Debt Levy/Assmts	TBD	-	-	-	-	-	-	-	-	-	-			253,278	265,942	279,239	293,201	307,861	323,254	339,417
	TOTAL MILL AND OVERLAY			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**253,278**	**265,942**	**279,239**	**293,201**	**307,861**	**323,254**	**339,417**
Alleys																							
	Coolidge -1	2026	Debt Levy/Assmts	98,851	-	-	-	-	-	-	-	-	-	98,851	-	-	-	-	-	-	-	-	-
	Roosevelt-1	2020	Debt Levy/Assmts	80,000	-	-	-	-	-	80,000	-	-	-	-	-	-	-	-	-	-	-	145,000	-
	Pahl Ave. area -3	2022	Debt Levy/Assmts	90,000	-	-	-	-	-	-	-	90,000	-	-	-	-	-	-	-	-	133,509	-	-
	Alleys North of Sliver Lake Blvd	2021	Debt Levy/Assmts	60,000	-	-	-	-	-	-	60,000	-	-	-	-	-	-	-	-	-	94,871	-	-
	TOTAL ALLEYS			**328,851**	**-**	**-**	**-**	**-**	**-**	**80,000**	**60,000**	**90,000**	**-**	**98,851**	**-**	**-**	**-**	**-**	**-**	**94,871**	**133,509**	**145,000**	**-**
Sidewalks / Intersections / Signals / Lighting / Drainage																							
Sidewalk / Lighting	Stinson South of 37th	2028-29	Debt Levy	299,785	-	-	-	-	-	-	-	-	-	-	-	-	-	401,400	222,355				
Sidewalk / Lighting	Stinson Boulevard South of 33rd	2030-31	Debt Levy	374,731	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	294,871	303,717	-
Street lighting	37th Avenue NE (County Road D)	2030	Debt Levy	327,890	-	-	-	-	-	-	-	-	-	-	-	-	458,481	-	-	-	-	-	-
Street lighting	33rd Avenue NE (County Road C2)	2026	Debt Levy	368,876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500,768	-	-	-
	TOTAL SIDEWALKS/LIGHTING ETC.			**1,371,282**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**458,481**	**401,400**	**222,355**	**500,768**	**294,871**	**303,717**	**-**
TOTAL STREETS IMPROVEMENT PLAN				**32,955,818**	**1,471,640**	**1,471,640**	**1,915,440**	**2,372,212**	**3,275,140**	**2,336,639**	**2,663,009**	**2,695,820**	**2,734,580**	**3,010,211**	**3,289,400**	**3,102,928**	**1,318,716**	**667,342**	**501,594**	**888,840**	**736,241**	**771,971**	**339,417**

City of St. Anthony
Debt Levy - Roads, Tax Abatement, Public Facilities
2020 Levy Year

	Fund	2012	2013	2014	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Existing Bonds																												
$1,700,000 - 2003A (Refunding 2011A)	503	118,057	121,103	123,992	132,028	134,286																						
$1,305,000 - 2008A (2014C)	365	175,652	177,319	178,526	172,436	169,496	171,806	168,761	170,966	172,673	173,040																	
$2,630,000 - 2009A (Refunded in 2017A)	512	184,768	185,450	185,975	186,605	172,921	179,549	180,612	181,518	187,516	187,949	182,974																
$1,645,000 - 2009B (2001B & 2002A)	503	196,995	192,401	187,808	106,150																							
$1,375,000 - 2010A (Refunded in 2019A)	514	108,587	112,065	110,175	109,413	112,209	114,624	**103,271**	**110,587**	**112,233**	**108,419**	**109,854**	**111,080**															
$1,940,000 - 2011A (Refunded in 2019A)	516	141,991	138,684	140,626	140,416	141,886	142,871	**125,653**	**121,883**	**123,363**	**124,633**	**125,694**	**126,544**	**121,934**														
$2,210,000 - 2011B (2004A and 2005A)	503	250,300	226,977	226,899	223,441	226,430	223,537	109,589																				
$9,495,000 - 2012A (2006A & 2007A)	503/518	324,405	423,185	518,973	520,758	520,968	526,218	531,153	535,773	306,356	141,358	142,865	138,581	139,547	140,033													
$1,775,000 - 2013B	520	-	-	118,685	119,120	119,063	118,523	117,984	117,082	115,939	119,864	118,133	116,402	119,133	116,476	119,070	-											
$2,230,000 - 2014A	522	-	-	-	159,318	157,433	155,548	153,663	157,028	154,896	151,488	153,330	155,015	151,292	152,820	154,190	154,914											
$2,580,000 - 2015A	524	-	-	-	182,847	185,869	183,537	186,454	184,016	186,829	184,286	186,993	183,886	186,029	182,331	183,884	184,819	185,111										
$1,455,000 - 2016A	526				102,173	106,135	104,742	103,349	101,956	105,813	104,315	102,817	106,568	104,965	103,362	107,009	105,025	103,042	105,757									
$2,600,000 - 2017A	528					189,734	191,592	193,296	189,591	191,136	192,523	193,753	189,575	190,647	191,562	192,320	192,919	193,362	193,646	193,774								
$2,610,000 - 2018A	530						179,849	180,959	181,585	177,298	177,998	178,467	178,737	178,797	180,484	176,764	178,294	179,666	180,382	180,927	181,302							
$1,145,000 - 2019A	532							**103,950**	**101,430**	**104,160**	**101,430**	**103,950**	**101,010**	**103,320**	**100,170**	**103,058**	**100,537**	**103,268**	**100,590**	**103,162**	**100,328**	**102,742**						
Total Levy		**1,500,755**	**1,577,184**	**1,791,659**	**2,154,706**	**2,236,431**	**2,292,395**	**2,258,694**	**2,153,415**	**1,938,212**	**1,767,303**	**1,598,830**	**1,407,398**	**1,295,664**	**1,167,238**	**1,036,295**	**916,508**	**764,449**	**580,375**	**477,863**	**281,630**	**102,742**	**-**	**-**	**-**	**-**	**-**	**-**
2020 Road Improvements Bonds																												
$1,982,000 - 2020A	2020A								139,860	139,860	139,860	139,860	139,860	139,860	139,860	139,860	139,860	139,860	139,860	139,860	139,860	139,860	139,860					
2021-2027 Road Improvements Bonds																												
$2,352,000 - 2021A	2021A									172,252	172,252	172,252	172,252	172,252	172,252	172,252	172,252	172,252	172,252	172,252	172,252	172,252	172,252	172,252				
$2,351,000 - 2022A	2022A										202,417	202,417	202,417	202,417	202,417	202,417	202,417	202,417	202,417	202,417	202,417	202,417	202,417	202,417	202,417			
$1,826,000 - 2023A	2023A											160,454	157,514	157,514	157,514	157,514	157,514	157,514	157,514	157,514	157,514	157,514	157,514	157,514	157,514	157,514		
$2,413,000 - 2024A	2024A												211,100	204,497	204,497	204,497	204,497	204,497	204,497	204,497	204,497	204,497	204,497	204,497	204,497	204,497	204,497	
$2,502,000 - 2025A	2025A													219,153	215,083	215,083	215,083	215,083	215,083	215,083	215,083	215,083	215,083	215,083	215,083	215,083	215,083	215,083
$2,628,000 - 2026A	2026A														233,993	233,993	233,993	233,993	233,993	233,993	233,993	233,993	233,993	233,993	233,993	233,993	233,993	233,993
$2,787,000 - 2027A	2027A															245,924	245,924	245,924	245,924	245,924	245,924	245,924	245,924	245,924	245,924	245,924	245,924	245,924
$2,889,000 - 2029A	2029A																	252,162	252,681	252,681	252,681	252,681	252,681	252,681	252,681	252,681	252,681	252,681
$2,872,000 - 2031A	2031A																			252,162	252,162	252,162	252,162	252,162	252,162	252,162	252,162	252,162
2030-2032 Mill/Overlays, Sidewalks and Street Lighting																												
$680,000 - 2028A	2028																62,477	62,477	62,477	62,477	62,477	62,477	62,477	62,477	62,477	62,477	62,477	62,477
$544,000 - 2030A	2030																		34,619	34,619	34,619	34,619	34,619	34,619	34,619	34,619	34,619	34,619
$461,000 - 2032A	2032																				38,661	49,216	49,216	49,216	49,216	49,216	49,216	49,216
$814,000 - 2033A	2033																					68,215	68,215	68,215	68,215	68,215	68,215	68,215
Additional levy		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**139,860**	**312,112**	**514,529**	**674,983**	**883,143**	**1,095,693**	**1,325,616**	**1,571,540**	**1,634,018**	**1,886,179**	**1,921,318**	**2,173,480**	**2,212,140**	**2,290,911**	**2,290,911**	**2,151,051**	**1,978,799**	**1,776,382**	**1,618,867**	**1,414,371**
Road levy before debt reduction		**1,500,755**	**1,577,184**	**1,791,659**	**2,154,706**	**2,236,431**	**2,292,395**	**2,258,694**	**2,293,275**	**2,250,324**	**2,281,832**	**2,273,813**	**2,290,541**	**2,391,357**	**2,492,854**	**2,607,835**	**2,550,526**	**2,650,629**	**2,501,693**	**2,651,343**	**2,493,770**	**2,393,653**	**2,290,911**	**2,151,051**	**1,978,799**	**1,776,382**	**1,618,867**	**1,414,371**
Stormwater Utility					**(150,000)**	**(95,000)**	**(85,000)**	**-**	**(85,000)**	**(85,000)**	**(105,000)**		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
MSA Advance					**(85,000)**	**(168,000)**	**(152,500)**	**-**	**(10,000)**		**(75,688)**																		
Excess Bond Balance/Project Savings					**(92,500)**	**(140,000)**	**(140,009)**	**(215,310)**	**(189,300)**	**(213,115)**	**(107,000)**																		
Conduit Fee/ **2010 & 2011 refunding savings/assmts**				**(15,079)**				**(116,180)**	**(80,034)**	**(4,107)**	**(3,931)**	**(3,756)**	**(3,520)**	**(0)**														
Public Facilities/Abatement Excess					**(35,000)**	**(55,000)**	**(60,000)**	**(75,000)**	**(70,000)**	**(75,000)**	**(80,000)**																		
Infrastructure Levy											**-**	**64,812**	**184,933**	**176,927**	**75,430**	**(39,551)**	**17,758**	**(82,345)**										
Road improvement levy		**1,500,755**	**1,577,184**	**1,776,580**	**1,792,206**	**1,778,431**	**1,854,886**	**1,852,204**	**1,858,941**	**1,873,102**	**1,910,213**	**2,334,869**	**2,471,954**	**2,568,284**	**2,568,284**	**2,568,284**	**2,568,284**	**2,568,284**	**2,501,693**	**2,651,343**	**2,493,770**	**2,393,653**	**2,290,911**	**2,151,051**	**1,978,799**	**1,776,382**	**1,618,867**	**1,414,371**
% Increase in Road levy			**5.09%**	**12.64%**	**-2.00%**	**-0.77%**	**4.30%**	**-0.14%**	**0.36%**	**0.76%**	**1.98%**	**22.23%**	**5.87%**	**3.90%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**-2.59%**	**5.98%**	**-5.94%**	**-4.01%**	**-4.29%**	**-6.10%**	**-8.01%**	**-10.23%**	**-8.87%**	**-12.63%**
$ Increase in Road levy			**76,429**	**199,396**	**(36,641)**	**(13,775)**	**76,455**	**(2,682)**	**6,737**	**14,160**	**37,111**	**424,656**	**137,085**	**96,330**	**1**	**(1)**	**(0)**	**0**	**(66,591)**	**149,650**	**(157,572)**	**(100,118)**	**(102,742)**	**(139,860)**	**(172,252)**	**(202,417)**	**(157,514)**	**(204,497)**
TAX ABATEMENT (2016B/2017A)		149,395	146,480	151,025	224,877	227,430	222,653	228,375	228,585	228,638	233,782	233,415	96,390	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PUBLIC FACILITIES (Refunded 2012A)		409,773	379,197	378,462	396,207	399,882	403,347	406,602	414,897	422,683	424,289	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		559,168	**525,677**	**529,487**	**621,084**	**627,312**	**626,000**	**634,977**	**643,482**	**651,321**	**658,071**	**233,415**	**96,390**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total levied debt after reduction		**2,059,923**	**2,102,861**	**2,306,067**	**2,413,290**	**2,405,743**	**2,480,886**	**2,487,181**	**2,502,423**	**2,524,423**	**2,568,284**	**2,568,284**	**2,568,344**	**2,568,284**	**2,568,284**	**2,568,284**	**2,568,284**	**2,568,284**	**2,501,693**	**2,651,343**	**2,493,770**	**2,393,653**	**2,290,911**	**2,151,051**	**1,978,799**	**1,776,382**	**1,618,867**	**1,414,371**
Total levied debt before reduction		**2,059,923**	**2,102,861**	**2,321,146**	**2,775,790**	**2,863,743**	**2,918,395**	**2,893,671**	**2,936,757**	**2,901,645**	**2,939,903**	**2,507,228**	**2,386,931**	**2,391,357**	**2,492,854**	**2,607,835**	**2,550,526**	**2,650,629**	**2,501,693**	**2,651,343**	**2,493,770**	**2,393,653**	**2,290,911**	**2,151,051**	**1,978,799**	**1,776,382**	**1,618,867**	**1,414,371**
% Increase in Debt Levied			**2.08%**	**9.66%**	**1.77%**	**-0.31%**	**3.12%**	**0.25%**	**0.61%**	**0.88%**	**1.74%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**-2.59%**	**5.98%**	**-5.94%**	**-4.01%**	**-4.29%**	**-6.10%**	**-8.01%**	**-10.23%**	**-8.87%**	**-12.63%**
% Increase in Debt Scheduled to be levied			*2.08%*	*10.38%*	*3.84%*	*3.17%*	*1.91%*	*-0.85%*	*1.49%*	*-1.20%*	*1.32%*	*-14.72%*	*-4.80%*	*0.19%*	*4.24%*	*4.61%*	*-2.20%*	*3.92%*	*-5.62%*	*5.98%*	*-5.94%*	*-4.01%*	*-4.29%*	*-6.10%*	*-8.01%*	*-10.23%*	*-8.87%*	*-12.63%*
$ Increase in levied Debt			**42,939**	**203,205**	**42,009**	**(7,547)**	**75,143**	**6,295**	**15,242**	**21,999**	**43,861**	**0**	**59**	**(60)**	**1**	**(1)**	**(0)**	**0**	**(66,591)**	**149,650**	**(157,572)**	**(100,118)**	**(102,742)**	**(139,860)**	**(172,252)**	**(202,417)**	**(157,514)**	**(204,497)**





STREET & UTILITY RECONSTRUCTION PROGRAM

- 2020
- 2021
- 2022
- 2023
- 2024
- 2025
- 2026
- 2027
- 2028

Schedule subject to change

MILL & OVERLAY PROGRAM

- 2021: SILVER LANE

N

wsb

St. Anthony Village, Minnesota

Street & Utility CIP for 2020 and Beyond

Revised June 2020

Saint Anthony Village

BUILDINGS IMPROVEMENT FUND

SOURCES

- Building improvement levy
- Community Center transfer



USES

- HVAC
- Roofs
- Lighting
- Security
- Windows & Doors
- Tuck-pointing

CAPITAL EQUIPMENT FUND

SOURCES

- Capital equipment levy
- Equipment sales, trade-ins & donations
- MSA allocation



USES

- Fleet
  - Squads & unmarked
  - Public Works trucks
  - Fire trucks & rescue vehicles
- Heavy equipment
- Specialty equipment
- Technology

PARK IMPROVEMENT FUND

SOURCES

- Parkland dedication fees
- Donations & grants



USES

- Athletic facilities & playground structures
- Park shelters
- Splash pads
- Trail construction

UTILITIES INFRASTRUCTURE FUND

SOURCES

- Connection fees
- Collection of inter-fund loans
- Grants as available
- Utility Fund transfer
  (Beginning in 2024)



USES

- Water infrastructure & equipment
- Sewer infrastructure & equipment
- Fiber infrastructure & equipment

STORMWATER FUND

SOURCES

- Stormwater fees
- Watershed grants & cost sharing



USES

- Permitting (MS4) & agency reporting
- Engineering studies
- Stormwater pond maintenance
- Flood improvements
- Water quality activities

STREET IMPROVEMENT & DEBT SERVICE FUNDS

SOURCES

- Street improvement levy
- Bond proceeds
- Assessments
- MSA allocation
- One-time revenues & project savings



USES

- Street improvement debt
- Street reconstruction
- Utility reconstruction
- Street lights
- Sidewalks
- Mill & overlays
- Alleys

WATER RESOURCES MANAGEMENT PLAN

CITY OF ST. ANTHONY VILLAGE, MN

December 2017

WSB Project No. 01626-670

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.

_____

Todd Hubmer, PE Reg. No. 24043

_____

Jacob Newhall, PE Reg. No. 49170

Title Page

Certification

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Glossary

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SECTION 4: Assessment of Problems and Issues

SECTION 5: Goals and Policies

SECTION 6: Implementation Program

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Appendix B – MS4 & SWPPP Items

Appendix C – City of St. Anthony 2012 Alternate Compliance Sequencing Plan and associated signed Memorandum of Agreement.

Appendix D – St. Anthony City Code of Relevant Ordinances

Latest City Stormwater Ordinances can be found at: http://www.savmn.com/

BMPs – Best Management Practices

BWSR – Board of Water and Soil Resources

City – City of St. Anthony Village

CMP – Corrugated Metal Pipe

DNR – Department of Natural Resources

DWSMA – Drinking Water Supply Management Area

EPA – Environmental Protection Agency

FEMA – Federal Emergency Management Agency

FIRM – Flood Insurance Rate Map

FIS – Flood Insurance Study

HWL – High Water Level

IESF – Iron-Enhanced Sand Filter

LiDAR – Light Detection and Ranging

LGU – Local Governing Unit

MCBS – Minnesota Bounty Biological Survey

MDH – Minnesota Department of Health

MLCCS – Minnesota Land Cover Classification System

MnRAM – Minnesota Routine Assessment Method for Evaluating Wetland Functions

MPCA – Minnesota Pollution Control Agency

MS4 – Municipal Separate Storm Sewer System

MWMO – Mississippi Watershed Management Organization

NURP – Nationwide Urban Runoff Program

NPDES – National Pollutant Discharge Elimination System

NOAA – National Oceanic and Atmospheric Administration

NWI – National Wetland Inventory

OHWL – Ordinary High Water Level

PAHs – Polycyclic Aromatic Hydrocarbons

PCBs – Polychlorinated Biphenyl

RCD – Ramsey County Ditch

RCWD – Rice Creek Watershed District

SSTS – Subsurface Sewage Treatment System

SWMP – Surface Water Management Plan (also called the plan, City plan and local plan)

SWPPP – Storm Water Pollution Prevention Plan

TCAAP – Twin Cities Army Ammunition Plant

TMDL – Total Maximum Daily Load

WCA – Wetland Conservation Act

1. EXECUTIVE SUMMARY

1.1. Water Resource Management Plan Purposes

The City of St. Anthony Village's Water Resource Management Plan (plan, City plan, and local plan) is a local management plan that meets the requirements of Minnesota Statutes 103B.235, Minnesota Rules 8410, and the Rice Creek Watershed District (RCWD) Water Resource Management Plan (dated January 2010, as amended January 25, 2012). 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 water and groundwater.

The St. Anthony Village Water Resource Management Plan addresses these purposes.

In 2012, the City of St. Anthony Village (the City) published an Alternate Compliance Sequencing Plan that outlines how the RCWD is to regulate the City's street projects with regard to stormwater management. The RCWD Board approved this plan on August 22, 2012. **Appendix C** contains this report and the signed Memorandum of Agreement between the City and RCWD.

1.2. Water Resource Management Responsibilities and Related Agreements

The City of St. Anthony Village has entered into a joint cooperation agreement for the Mississippi Watershed Management Organization (MWMO) with the City of Columbia Heights, the City of Fridley, the City of Hilltop, the City of Lauderdale, the City of Minneapolis, the City of St. Paul, and the Minneapolis Park and Recreation Board. Contact the MWMO for a copy of this agreement.

The City of St. Anthony Village is responsible for the construction, maintenance, and operation of the City's stormwater management systems (i.e., ponds, pipes, channels) that are not considered part of RCWD's trunk system. The RCWD is responsible for maintaining the function of the District's trunk system, specifically Ramsey County Ditch #3 (RCD #3), which is an important stormwater conveyance ditch that carries a significant portion of St. Anthony Village's runoff to the northeast and is considered a watercourse within the City. After it leaves the City, RCD #3 eventually empties into RCD #2 in New Brighton.

1.3. Executive Summary

The St. Anthony Village Water Resource Management Plan is divided into six sections:

- ***Section 1 Executive Summary*** provides background information and summarizes the plan contents.
- ***Section 2 Land and Water Resource Inventory*** presents information about the topography, geology, groundwater, soils, land use, public utilities, surface waters, hydrologic system and data, and the drainage system.
- ***Section 3 Agency Cooperation*** describes the governmental controls and programs that affect water resources.
- ***Section 4 Assessment of Problems and Issues*** presents the City's water management related problems and issues.
- ***Section 5 Goals and Policies*** outlines the City's goals and policies pertaining to water management.
- ***Section 6 Implementation Program*** presents the program elements and discusses the responsibilities, priorities and financial considerations associated with the implementation program.

1.3.1. Background

The City of St. Anthony Village (population 8,226) is located in both Hennepin and Ramsey Counties. The City covers approximately 2.35 square miles. It is located five miles northeast of downtown Minneapolis and eight miles northwest of downtown St. Paul. The City is bordered by Minneapolis to the southwest, Columbia Heights to the northwest, New Brighton to the northeast, and Roseville to the east.

St. Anthony Village is located within two watershed districts: Rice Creek Watershed District (RCWD) and Mississippi Watershed Management Organization (MWMO). These districts regulate development impacts on water resources. This plan addresses the rules and regulations put forth by the RCWD as well as the MWMO.

Surface water in the north and northeast portions of St. Anthony Village generally drains north through the storm sewer system to Silver Lake and Mirror Pond. Silver Lake flows into RCD #3, which carries a significant portion of the City's surface runoff to the northeast. Surface water in the south portion of the City generally drains south to the City of Minneapolis' storm sewer system and eventually to the Mississippi River. Both of St. Anthony Village's major bodies of water, Silver Lake and Mirror Pond, are considered Department of Natural Resources (DNR) Public Waters as well as National Wetland Inventory (NWI) classified wetlands.

The City developed several policies for environmental protection that are referenced in the St. Anthony Village Comprehensive Plan.

Only about one percent of the available land in St. Anthony Village is undeveloped. **Section 2.4** of this plan discusses land use in St. Anthony Village.

1.3.2. Summary of Goals, Problems, and Potential Solutions

1.3.2.1. Goals

Section 5 of this plan outlines the City's goals and policies pertaining to water management. The goals are as follows:

- **Water Quality.** Maintain or enhance the water quality of St. Anthony Village's lakes, wetlands, and watercourses.
- **Runoff Management and Flood Control.** Preserve, maintain and expand

(where possible) the stormwater storage and detention systems to control excessive runoff volumes and rates, prevent flooding, protect public health and safety, and minimize public capital expenditures.

- **Wetlands.** Achieve no net loss of wetlands including acreage, functions, and values. Where practicable, improve the functions, values, biological diversity, and acreage of existing wetlands.
- **Erosion and Sediment Control.** Protect the capacity of the City's stormwater management system, prevent flooding, maintain water quality by preventing erosion and sedimentation from occurring, and correct existing erosion and sedimentation problems.
- **Groundwater.** Protect the quality and quantity of groundwater resources.
- **Recreation, Habitat and Shoreland Management.** Protect and enhance fish and wildlife habitat and recreation opportunities.
- **Education and Public Involvement.** Increase public awareness, understanding and involvement in water and natural resource management issues.
- **Financing.** Minimize public expenditures for plan implementation, with emphasis on using the City's stormwater utility to finance projects and collaborating/partnering with other entities.

1.3.2.2. Summary of Problems and Issues

Section 4 of this plan presents a detailed assessment of the water management related problems and issues in the City of St. Anthony Village. Some of the problems and issues identified include:

- Near full development condition makes providing additional treatment of stormwater runoff difficult.
- Existing and potential flooding problems at various locations in the City.
- Water quality in Silver Lake and Mirror Pond and other public waters that provide recreational opportunities.
- Need to reduce pollutant discharge and sediment loadings that eventually affect the Mississippi River.
- Importance of continued development of community education programs regarding water resource management.
- Importance of maintaining the City's stormwater management system.

1.3.2.3. Summary of Implementation Section

Section 6 of this plan presents the implementation program for the City of St. Anthony Village, which includes defining responsibilities, prioritizing, and listing the program elements. **Table 6-1** outlines the projects, programs, and studies that have been identified to address the problem areas contained in this Plan.

2. LAND AND WATER RESOURCE INVENTORY

2.1. Topography and Geology

The City of St. Anthony Village is located in both Ramsey and Hennepin Counties. The City is bordered by the Cities of New Brighton, Roseville, Minneapolis, and Columbia Heights. The total area within the City is approximately 2.5 square miles.

Glacial activity has created an undulating landscape within the City. According to the Bedrock Geologic Map and Bedrock Topographic Map of Ramsey and Hennepin County (Minnesota Geologic Survey 1992), the geomorphology of the City in the uppermost geologic formation is quaternary deposits.

The unconsolidated quaternary deposits of glacial and post glacial material conceal a majority of the bedrock within the City. All of the bedrock formations are marine sedimentary rocks from the Early Paleozoic age when shallow seas covered southeastern Minnesota and the surrounding regions. The surface till is composed of a complex mixture of loamy sand and clay.

The bedrock formations include St. Peter sandstone, Prairie Du Chein Group, Jordan sandstone, St. Lawrence and Franconia formations, and a small amount of Decorah Shale, Platteville, and Glenwood formations. Depth of the bedrock can vary from approximately 700 to 850 feet above sea level.

Four aquifers are located within the City boundaries: the St. Peter Aquifer, the Prairie Du Chien-Jordan Aquifer, the Franconia-Ironton-Galesville Aquifer, and the Mt. Simon Aquifer.

Additional geologic information for areas within the City can be found in the following plans:

- Ramsey County Geologic Atlas
- Hennepin County Geologic Atlas
- Rice Creek Watershed District Watershed Management Plan

2.2. Climate and Precipitation

The climate within the Minneapolis/St. Paul metropolitan area is described as a humid continental climate with moderate precipitation, wide daily temperature variations, warm humid summers, and cold winters. The total average annual precipitation in this area is approximately 29 inches, of which approximately one-third occurs in the months of June, July, and August. The annual snowfall average is about 56 inches and is equivalent to approximately 5.6 inches of water.

The 1-year rainfall event occurring over a 24-hour period produces approximately 2.47 inches. The 100-year rainfall event occurring over a 24-hour period produces approximately 7.42 inches. The 100-year, 10-day runoff is approximately 10.1 inches. This data was derived from the Atlas 14 report produced by the National Oceanic and Atmospheric Administration (NOAA). Additional climatological information for the area can be obtained from the State Climatologist website at http://climate.umn.edu/.

- 1-year event = 99% chance of occurring in a given year
- 100-year event = 1% chance of occurring in a given year

2.3. Soils

The soils within the City generally have low infiltration rates and create a minimal susceptibility to ground water contamination. The hydrologic soil classification map is shown in **Figure 6,**

Appendix A. The four soil classifications are defined as follows:

Group A - These soils have high infiltration rates even when thoroughly wetted. The infiltration rates range from 0.8 to 1.6 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, therefore resulting in a low runoff potential.

Group B - These soils have moderate infiltration rates ranging from 0.3 to 0.6 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 averaging about 0.2 inches per hour when thoroughly wetted. Group C soils have moderately fine to fine texture.

Group D - These soils have very slow infiltration rates typically less than 0.2 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.

The infiltration rates listed above come from the RCWD Watershed Management Plan, updated in 2013. The City of St. Anthony Village contains a mixture of many soils, including Hayden and Kingsley soils. These soils have an undulating, well drained, moderately coarse texture. The remaining soils are loam-textured till ranging from loamy sand to clay.

Additional information on the geology and soil for the City can be found in the Ramsey County Soil Survey, the Hennepin County Soil Survey, and the Rice Creek Watershed District Watershed Management Plan.

2.4. Land Use

The City of St. Anthony Village's designation by the Metropolitan Council is that of a developed community, meaning that over 85% of it is developed. St. Anthony Village is essentially fully developed, with its 2018 Comprehensive Plan calling for a focus on redevelopment opportunities to enhance the City's image. Low-density residential land uses comprise 43% of all of the City's useable land. Medium density residential land uses comprise only 3% and high density residential land use comprise 5% of the City's developable area. Commercial development occupies 2% of the City's land area, and industrial land uses occupy 5% of the City's total land area. Parks and open space occupy 36% of the City's total land area. The remaining 6% of land in St. Anthony Village is designated as a Planned-Unit Development which entails a mixture of commercial, retail, and high density housing. The existing and future land uses in St. Anthony Village are shown on **Figure 2** and **Figure 3**, respectively, in **Appendix A**. Land use data is an important factor for estimating surface water runoff. The hard or impervious surface areas associated with each land use greatly affect the amount of runoff generated from an area. Future land use projections indicate those areas that may be available for water resource enhancement and where improvements should be a priority. Significant changes in land use can increase runoff due to added impervious surfaces. The City of St. Anthony Village expects very little change in land use.

The Metropolitan Council expects that household growth will be limited to infill development and redevelopment areas, which is consistent with the City's future land use plan. The City's Comprehensive Plan indicates the addition of 23 acres of high density residential housing by 2040.

2.5. Public Utilities

St. Anthony Village is completely within the Metropolitan Urban Service Area. Sanitary sewer and water service is provided throughout the City. The St. Anthony Village sanitary sewer system consists of approximately 25 miles of sewer mains and three lift stations. The City handles its wastewater on a metropolitan level, sending it to the Metro Wastewater Treatment Plant located in St. Paul. The Metropolitan Plant is the largest in the state of Minnesota, serving 1.8 million users with a maximum capacity of 251 million gallons per day.

Storm sewers, ditches, curbs, and gutters provide drainage for the City. The individual watershed maps (**Figure 4**, **Appendix A**) show the City's stormwater system of pipes, channels, ponds, and other current and planned stormwater management facilities. Future street maintenance and redevelopment will likely dictate the extension or reconstruction of the storm drainage system.

2.6. Surface Waters

Figure 5, Appendix A shows the major water resources in the City of St. Anthony VIllage. The following table lists the named DNR-protected lakes and wetlands within the City and the associated ordinary high water level (OHWL).

DNR ID#	*Waterbody Name*	*OHW**	*Lake ID #*
83 P	Silver Lake	898.1	62-0083-00
198 W	Mirror Pond	907.5	27-0055-00

*Data provided by DNR Lake Finder

Wetland Conservation Act of 1991 (WCA) - Local Government Units (LGUs) are responsible for administering the rules. The intent of the WCA is to promote no net loss of wetlands. The City of St. Anthony Village is the WCA LGU for the portion of the City within the boundaries of the MWMO. The RCWD is the WCA LGU responsible for administering the WCA for the portion of the City within the boundaries of the RCWD. Refer to **Figure 5, Appendix A** for the location of NWI wetlands throughout the City.

2.6.1. Water Quality Data

Water quality data for the City has been obtained from the Minnesota Pollution Control Agency (MPCA) Environmental Data Access site. This database is utilized by participating agencies to compile water quality testing data and is almost entirely used for the storage of water quality parameters. This water quality monitoring information/data and monitoring locations can be found at the MPCA's Environmental Data Access website.

2.6.2. Impaired Waters

The MPCA lists the following water bodies located within or near the City as being impaired:

- Silver Lake (ID – 62-0083-00) is listed for nutrient/eutrophication biological indicators.
- Pike Lake (ID –62-0069-00) is listed for nutrient/eutrophication biological indicators. A TMDL study for Pike Lake began in 2012 and is anticipated to be complete in 2015.
- Long Lake (ID –62-0067-00) is listed for nutrient/eutrophication biological indicators.
- Lower Rice Creek (ID –07010206-584) is listed for aquatic macroinvertebrate bioassessments.
- Mississippi River (ID –07010206-503) is listed for mercury in fish tissue and fecal coliform.
- Lake Pepin (ID –20-0001-00) is listed for nutrient/eutrophication biological indicators.

The City continues to work with RCWD, MWMO, MPCA, Three Rivers Park District, Ramsey County, New Brighton, and others to address the requirements of the impaired waters listed

above. These are further addressed in the City's MS4 permit, which is available from the City for review annually.

The locations of the impaired water bodies within or downstream of the City are shown on the water resource problem areas map, **Figure 7, Appendix A**.

The City will be required to implement the TMDL plans for the water bodies listed above once complete.

2.6.3. R-1A Single-Family Lakeshore

The City of St. Anthony Village has adopted the R-1A Single-Family Lakeshore zoning designation to ensure the preservation of natural areas within that specific residential zone. A copy of specific zoning requirements in this area can be found on the City's website.

The City of St. Anthony Village does not have floodplain management regulations.

2.7. Groundwater

Various agencies are responsible for groundwater management and protection. The DNR regulates groundwater usage rate and volume as part of its charge to conserve and use the waters of the state. For example, suppliers of domestic water to more than 25 people or applicants proposing a use that exceeds 10,000 gallons per day or 1,000,000 gallons per year must obtain a water appropriation permit from the DNR. The Minnesota Department of Health (MDH) is the official state agency responsible for addressing all environmental health matters, including groundwater protection. For example, the MDH administers the well abandonment program and regulates installation of new wells. The MPCA administers and enforces laws relating to pollution of the state's waters, including groundwater. The Minnesota Geological Survey provides a complete account of the state's groundwater resources. RCWD is charged with general responsibilities for groundwater protection and use, but its role is limited to cooperating and assisting the DNR, MDH and MPCA in their groundwater protection efforts.

Within the City of St. Anthony Village, ground water wells serve the City and private water needs. Each of these wells has a ground water appropriation permit from the DNR. **Figure 11, Appendix A** shows the types and locations of the DNR permitted ground water appropriation sites within the City.

The City of St. Anthony Village's ground water flows generally from north to south through the Prairie Du Chein-Jordan Aquifer, and from the northeast to southwest for the St. Peter and Mt. Simon Aquifers. The City does not contain any significant ground water recharge areas, and a moderate to low rating for pollution sensitivity of the Prairie Du Chein-Jordan Aquifer. Additional water resources information for the City of St. Anthony Village may be found in the Ramsey County and Hennepin County Geologic Atlas, the Ramsey County and Hennepin County groundwater plans, and the City's Wellhead Protection Plan.

The primary recharge areas into the Prairie Du Chein Aquifer are located north of St. Anthony Village in the City of Arden Hills. The City's water supply has been contaminated by the Twin Cities Army Ammunition Plant (TCAAP) site and the City operates a granular activated carbon water treatment plant to remove the pollutants. Further information, including pollutant levels, is available in the Annual Water Quality Report found on the City's website.

2.8. Hydrologic System and Data

A water quality model has been developed to provide additional information on water quality within the City. Since this model was completed, the Apache Plaza site in northern St. Anthony

Village has been redeveloped. The redevelopment involved the demolition of the existing Apache Plaza mall and parking lot and construction of townhomes and commercial areas. Stormwater treatment ponds were also incorporated into the design. While the City's existing P8 model does not reflect these changes, the RCWD has completed a P8 model for Silver Lake, which includes this area.

2.9. Natural Communities and Rare Species

The Minnesota DNR produces the Minnesota County Biological Survey (MCBS) identifying natural communities and rare species. The city of St. Anthony Village is located in both Ramsey County and Hennepin County, each of which has its own county survey. However, the Ramsey County survey and the Hennepin County survey indicate no natural plant communities or rare species. In addition to possible natural plant communities and rare plants, the survey also identifies the original vegetation of St. Anthony Village. Both the Ramsey County and Hennepin County maps indicate the original vegetation of the area was mostly oak openings and barrens, which consist of scattered trees and groves of oaks with some brush and thickets.

The entirety of the City of St. Anthony Village has been categorized according to the Minnesota Land Cover Classification System (MLCCS). **Figure 9, Appendix A** shows a map of the MLCCS areas that have been classified.

2.10. NPDES Phase II

The MPCA implemented the National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater Program in March 2003. Phase II requires Municipal Separate Storm Sewer Systems (MS4s) to obtain an NPDES permit. 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 B** for a copy of the City's MS4 SWPPP (Storm Water Pollution Prevention Plan).

2.11. Water Resource Problem Areas

Water resource problem areas were identified through information obtained from City staff, residents, and other agencies. Each problem was analyzed and potential solutions to address the problems were developed as detailed in **Section 4**. Refer to **Figure 7, Appendix A** for the location of site-specific problem areas.

2.12. Flood Insurance Studies

Flood insurance is provided to residents of St. Anthony Village. It is classified as a Zone X level of insurance. Residents do not receive full coverage because St. Anthony Village is not in the floodplain. However, because flooding can still occur, partial coverage flood insurance is

provided. 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 Ramsey County in 2010.

3. AGENCY COOPERATION

There are a number of local, state, and federal agencies that have rules and regulations related to water resource management. The City recognizes the roles of these other agencies and will cooperate, coordinate, and, when possible, partner with these agencies.

This Plan is in conformance with but does not restate all other agency rules that are applicable to water resource management. The following agencies deal with or regulate water resources throughout the City:

- Minnesota Department of Health
- Minnesota Pollution Control Agency
- Board of Water and Soil Resources and the Wetland Conservation Act
- Minnesota Department of Natural Resources
- US Army Corps of Engineers
- Minnesota Department of Agriculture
- US Fish and Wildlife Service
- Hennepin County
- Hennepin County Environmental Services
- Ramsey County
- Ramsey Conservation District
- Rice Creek Watershed District
- Mississippi Watershed Management Organization
- Minnesota Environmental Quality Board
- Metropolitan Council

While these other agencies' rules, policies, and guidelines are not all restated in this Plan, they are applicable to projects, programs, and planning within the City. The MPCA Minnesota Stormwater Manual, which is a document intended to be frequently updated, is also incorporated by reference into this Plan.

4. ASSESSMENT OF PROBLEMS AND ISSUES

Outlined below is an assessment of existing and potential water resource-related problems that are known at this time. These problems have been identified based on an analysis of the land and water resource data collected during the preparation of this plan and through information provided by the City, its residents, and the watershed organizations. A description of any existing or potential problem within the City has been listed and potential future corrective actions have been incorporated into an implementation plan. Refer to **Figure 7, Appendix A** for the location of many of the problem areas discussed below.

4.1. Water Quality Problems

Problem 4.1.A
There are concerns regarding water quality, sediment deposition and floatable material entering Silver Lake from direct storm sewer discharges. Silver Lake has been listed as impaired by the MPCA due to excess nutrients and mercury in fish.

Corrective Action 4.1.A
The City will work with the RCWD, Ramsey County SWCD, Three Rivers Park District, and the cities of New Brighton and Columbia Heights to implement improvements consistent with the Silver Lake Total Maximum Daily Load (TMDL) implementation plan.

The City will continue to implement a catch basin stenciling program within the Silver Lake drainage area.

The City has recently implemented water quality improvements upstream of Silver Lake, including the Salo Ponds and Apache redevelopment. In addition, the City has completed an alum treatment system in Salo Ponds (2014) and is participating in an ongoing carp removal program (first removal was winter 2013-2014).

As of 2017 the City is very near achieving its TMDL waste load allocation and is planning on fully achieving this during the course of this plan.

Problem 4.1.B
The Mississippi River just south of the City has been listed as an impaired water for fecal coliform, mercury, and polychlorinated biphenyl (PCBs). In addition, Lake Pepin has been listed as impaired for excess nutrients. These regional water body impairments will affect upstream communities.

Corrective Action 4.1.B
The City partnered with the MWMO to complete the St. Anthony Regional Stormwater Treatment System in the right-of-way of CSAH 88 near the border of Minneapolis. The project provides treatment to 602 acres of previously untreated land prior to discharging it to the Mississippi River. The City will also continue to work with the MWMO, MPCA, and others as necessary to integrate monitoring data, public works activities, and educational opportunities to address the completed TMDLs and implementation plans.

Problem 4.1.C
The City anticipates that there may be additional, future impaired waters listed that will affect the City.

Corrective Action 4.1.C
The City will work with the RCWD, MWMO, MPCA, New Brighton, and others to develop and implement future TMDLs that affect the City.

In 2014, the City constructed a biofiltration rain garden in Central Park that is designed to remove more than 20 pounds of total phosphorous from runoff per year. This runoff discharges downstream to Pike Lake and Long Lake in New Brighton and Fridley, which are resources of concern.

4.2. Flooding and Stormwater Rate Control Concerns

Problem 4.2.A
Flooding has occurred in the Anthony Lane Industrial Area.

Corrective Action 4.2.A
The City has completed a feasibility study to identify options to provide additional flood protection to the Anthony Lane Industrial Area. The City will construct improvements to address this flooding.

Problem 4.2.B
Limited stormwater conveyance capacity of the downstream storm sewer system through New Brighton has in part resulted in street flooding in the vicinity of 39th Avenue and Fordham Drive, on Foss Road, as well as near the Mirror Pond condos.

Corrective Action 4.2.B
The City of St. Anthony Village is currently working with the RCWD and the City of New Brighton to address these water quantity problems which transcend municipal boundaries. Refer to the City of St. Anthony Village's July 2011 Flood Investigation and Stormwater Modeling Report, which outlines the collective efforts towards the resolution of flooding and water quality issues within the subwatersheds of RCD #2, #3, and #5.

The City intends to work with the RCWD to investigate options to discharge more flow into New Brighton through RCD #3 to alleviate flooding in the northeast portion of the City. The City intends to investigate modifications to the Remmele culverts in RCD #3 as a potential solution.

4.3. Impacts of Stormwater Management Practices on Recreational Opportunities

Problem 4.3.A
There is a concern regarding water quality, sediment deposition and floatable material entering Silver Lake from direct storm sewer discharges. Additionally, Silver Lake is listed as impaired for excess nutrients.

Corrective Action 4.3.A
The City will work with the RCWD and Ramsey County SWCD to develop a feasibility study for Silver Lake which will establish a recommended long-term management program. This study should identify alternatives available for protecting or improving water quality, maintaining reasonably stable lake levels, and outlining a management program that will ensure that proper and reasonable management measures are implemented. The City will cooperate with the RCWD, Ramsey County SWCD, and Three Rivers Park District to complete and implement the TMDL for Silver Lake.

4.4. Impacts of Stormwater Quality on Fish and Wildlife Resources

Problem 4.4.A
Poor water quality of Silver Lake has impacted recreational opportunities and fish populations.

Corrective Action 4.4.A

The City has implemented a carp removal program within Silver Lake to help benefit the fish and wildlife as well as improve water quality.

4.5. Adequacy of Existing Regulations and Programs to Address Adverse Impacts on Water Resources

Problem 4.5.A
Ordinances need to be reviewed and updated periodically to track changes in science, policies, and rules for stormwater management.

Corrective Action 4.5.A
The City will periodically update ordinances to be consistent with changes in either RCWD or MWMO rules or standards.

The following is a list of City ordinances as of the date of this plan and their associated stormwater management applications:

- §153.08 divisions (G) & (H) – Stormwater Management Standards, Rate Control
- §153.08 division (M) – Modeling Methodology
- §153.08 division (M) – Maintenance
- §153.08 divisions (D), (E), & (F) – Erosion and sediment control
- Multiple divisions of §153.08 list the City's current stormwater management plan as the governing standard for specific stormwater management elements.

Please see the City's website for the latest City Stormwater Ordinances as the above references may change with time.

4.6. Impacts of Erosion and Sedimentation on Water Resources

Problem 4.6.A
Soil erosion and sediment transportation associated with past and new development may have impacted the quality of water and storage volume available within Silver Lake and Mirror Lake.

Corrective Action 4.6.A
The City will continue to perform stormwater system maintenance to address sedimentation and siltation in area lakes, streams, stormwater storage basins and ditches.

The City regularly inspects and maintains outfalls throughout the city consistent with its MS4 program.

Problem 4.6.B
Current programs need additional enforcement mechanisms to limit soil erosion from areas under redevelopment within the City. The City will continue to implement their existing erosion control permitting program and work with the MPCA to ensure that erosion control program is adequately implemented and enforced, and complete periodic inspections of the City for the purpose of identifying and correcting areas where soil erosion is occurring.

Corrective Action 4.6.B
The City will work to revise erosion control ordinances to include additional penalties on violations and provide City staff the authority to enforce the ordinance.

4.7. Impact of Land Use Practices and Development on Water Resource Issues

Problem 4.7.A
Stormwater management associated with redevelopment activities.

Corrective Action 4.7.A
The City will continue to identify opportunities to implement Best Management Practices (BMPs) to control erosion, sedimentation, and improve stormwater management.

The City has redeveloped the former Apache Retail complex into what is now Silver Lake Village, which includes the Salo Park and Pond.

4.8. Education Program

Problem 4.8.A
The City of St. Anthony Village recognizes the need for local water education programs to increase public awareness of local water management and improve the quality of stormwater runoff.

Corrective Action 4.8.A
The City of St. Anthony Village will continue to provide educational content and opportunities to residents, businesses, developers, and others. These efforts may include regular notices in the City's monthly newsletter, articles in the local paper, postings on the City website, and flyers in the utility bill. The City may work with RCWD and MWMO to improve the efficiency of educational efforts and reduce duplication.

The City will continue to implement educational programs to increase public awareness of the benefits of proper animal waste disposal, rain barrel use, composting, stormwater basin function, controlling invasive species, illicit discharge to stormwater, and utility easements. The City also coordinates a salt best practices program for area stormwater and has also developed a pet-waste education program with the “Doggy Doo Doo” video.

4.9. Identification of Potential Problems which are anticipated in the Next 20 Years

Problem 4.9.A
The City anticipates residents will exert increased pressure to improve the quality of water within the City and the appearance of storm water retention areas.

Corrective Action 4.9.A
Implementation of this Water Resource Management Plan will address water quantity, quality, and maintenance issues associated with stormwater retention areas. Maintenance of these stormwater retention areas will be further defined in the Stormwater System Maintenance Plan outlined in **Section 6**.

4.10. Availability and Adequacy of Existing Technical Information to Manage Water Resources

Problem 4.10.A
Additional water quality information may be necessary to address the TMDL on Silver Lake

Corrective Action 4.10.A
Cooperate with RCWD, MWMO, and Three Rivers Park District to improve to water quality data available within the City.

The City has made improvements in this regard and expects to meet TMDL needs during the life of this plan.

Problem 4.10.B
Additional information regarding pollutant discharges to the Mississippi River is needed.

Corrective Action 4.10.B
The City will continue to work with the MWMO to obtain data regarding water quality of the river and pollutant loadings discharged to the river.

5. GOALS AND POLICIES

5.1. General

The goals and policies in the City of St. Anthony Village's Water Resource Management Plan are consistent with the goals of the RCWD and MWMO, while meeting the more specific and changing needs of the City. The goals of this plan were established in accordance with the guidelines contained in Minnesota Statutes 103B and Minnesota Rules 8410. Furthermore, each goal has several corresponding policies. These goals and policies provide for future development and redevelopment while minimizing surface water problems and enhancing the environment. These goals and policies are subject to conformance with current RCWD and MWMO policies and standards. Additional goals and policies of the City are contained throughout this section.

A general goal of the City is to cooperate, collaborate, and partner with other entities—such as RCWD, MWMO, and the MPCA—as much as possible as the City implements this plan. Cooperation, collaboration, and partnering results in projects that are less likely to conflict with the goals of the affected entities, are better able to meet long-term goals, and are generally more cost-effective.

In addition to the goals and policies outlined below, the City will annually review and update its SWPPP to effectively manage its stormwater system and be in conformance with the NPDES MS4 Program. The following are components of the SWPPP:

- Public information and education plan relating to water resources and stormwater
- An inspection and maintenance schedule
- City housekeeping practices (e.g., street sweeping priorities)
- BMPs used by the City to control and/or reduce pollutants
- Methods used to control and manage post-construction stormwater

5.2. Water Quality

5.2.1. Goal

Maintain or enhance the water quality of St. Anthony Village's lakes, wetlands, and water courses.

5.2.2. Policies

1. It is the intention of the City to utilize natural ponding areas, such as wetlands, for the impoundment and treatment of surface water runoff. These natural ponding areas are preferred over impoundments constructed in upland areas.
2. In the design and construction of all new stormwater conveyance systems and modifications to existing stormwater conveyance systems, pretreatment of stormwater runoff to Nationwide Urban Runoff Program (NURP) recommendations will be required prior to discharge where feasible and practical to do so. These NURP recommendations (Walker 1987) include the following:
    a. A permanent pool ("dead storage") volume below the principal spillway (normal outlet) which shall be greater than or equal to the runoff from a 2.5" storm over the entire contributing drainage area assuming full development.
    b. A permanent pool average depth (basin volume/basin area) which shall be equal to or over four feet (≥ 4'), with a maximum depth of equal to or less than ten feet (≤ 10').
    c. An emergency spillway (emergency outlet) adequate to control the 100-year critical duration rainfall event.

   d. Basin side slopes above the normal water level should be no steeper than four to one, and preferably flatter. A basin shelf with a minimum width of ten feet and one foot deep below the normal water level is recommended to enhance wildlife habitat, reduce potential safety hazards, and improve access for long-term maintenance.
   e. To prevent short-circuiting, the distance between major inlets and the normal outlet shall be maximized.
   f. Retardance of peak discharges for the more frequent storms can be achieved through a principal spillway design which may include a perforated vertical riser, small orifice retention outlet, or compound weir.
3. Outfall structures discharging to wetlands or Public Waters/Wetlands need to incorporate energy dissipation at the outfall to minimize erosion.
4. The City of St. Anthony Village will sweep the streets at least five times annually. Furthermore, future purchases of street sweeping units will give consideration to street sweepers which have the greatest ability to remove nutrients from the streets.
5. The City of St. Anthony Village will require the inclusion of skimmers in the construction of new pond outlets, and add skimmers to the existing system whenever feasible and practical to prevent floatables from being discharged downstream. Skimmer structures will have a minimum four-inch overlap and the maximum 1-year storm event discharge velocity should not exceed 0.5 feet per second, and should provide skimming to the 1-year event water elevation.
6. The City will include provisions for coarse sedimentation and skimming floatable materials prior to stormwater discharge to lakes and DNR-protected wetlands as well as to the public drainage system managed by the RCWD. This requirement will apply in all cases except where it is deemed not feasible or not practical to do so. Considerations for variance to this policy will only be made in cases where the direct drainage area is limited in size and the probability that a significant pollutant discharge from the area to areas outside the City would be extremely unlikely.
7. The City will encourage programs aimed at fostering responsible water quality management practices by its residents.
8. The City will encourage homeowners with properties adjacent to water resources to establish a vegetative buffer strip at the shoreline. This strip should consist of legumes or other perennial grasses to limit erosion and nutrient transport across the buffer strip.
9. The City will inspect stormwater treatment basins at least every five years and sump catch basins/manholes every year. Maintenance will be conducted as necessary.
10. The City may develop and implement a water quality monitoring program capable of establishing that the stormwater treatment basins constructed within the City are not only designed to NURP standards, but also meet the anticipated design removal efficiencies based on actual monitoring of the system. This program will be carried out to the extent deemed necessary and reasonable by the St. Anthony Village City Council. The City will keep the RCWD and MWMO informed of all water quality monitoring program updates.
11. No fringe encroachment within shoreline areas associated with public water shall be permitted if the encroachment would have an adverse impact on natural vegetation buffer areas which provide water quality and habitat benefits.

5.3. Runoff Management and Flood Control

5.3.1. Goal

Preserve, maintain, and expand (where possible) the stormwater storage, conveyance, and detention systems to control excessive runoff volumes and rates, prevent flooding, protect public health and safety, and minimize public capital expenditures.

5.3.2. Policies

1. Any development or redevelopment within the City of St. Anthony Village will be required to control runoff to the extent necessary to be consistent with this plan. Redevelopment projects shall provide stormwater controls such that the critical 1-year, 2-year and 100-year storm events existing condition peak discharge rates are not increased following site development.
2. The design of all major stormwater storage facilities shall attempt to accommodate a critical duration 100-year storm event. These facilities include lakes, ponds, and their outlets. New storm sewer systems shall be designed to accommodate a critical duration, 10-year storm event, provided that the downstream system has adequate capacity or storage available to accommodate this design. Street ponding may be necessary to provide flood protection to residents.
3. Any new or redevelopment within the City will maintain two feet of freeboard over the 100-year high water elevation or one foot of freeboard over the emergency overflow elevation, and the lowest building floor elevation.
4. The City of St. Anthony Village prefers the development of municipal drainage systems whenever possible to the development of private drainage systems. Design of drainage systems shall attempt to accommodate existing drainage systems, including tile lines. Existing drainage systems will be protected and drainage perpetuated.
5. The City requires as-builts of all ponding areas and designated emergency overflows.
6. The City will continue to promote and encourage water conservation and reuse to reduce downstream stormwater discharges.
7. The City of St. Anthony Village recognizes the Rice Creek Watershed District's jurisdiction and will have the RCWD continue to implement RCWD rules through plan review and permit issuance for stormwater management within that area of the City that lies within RCWD jurisdiction.

5.4. Wetlands

5.4.1. Goal

Achieve no net loss of wetlands, including acreage, functions, and values. Where practicable, improve the functions, values, biological diversity, and acreage of existing wetlands.

5.4.2. Policies

1. Wetlands will be protected within the City boundaries to ensure that the value of wetlands in relation to their surface water quantity benefits is not significantly impacted by development.
2. The City will protect wetlands to ensure that their fish and wildlife, environmental quality, and socio-economic values are maintained.
3. The City of St. Anthony Village designates the Rice Creek Watershed District as the local governmental unit responsible for wetland management in conformance with the Wetland Conservation Act. The City will retain the LGU authority within the MWMO boundaries.
4. For wetland impacts within the RCWD for wetlands not regulated by the WCA and not determined to be exempt, wetland mitigation at a one to one ratio is required by the RCWD.
5. The City will utilize wetland inventory information developed by the U.S. Fish and Wildlife Service and the Minnesota DNR.
6. Prior to any site development activities, the City will require a site inspection to identify the location and extent of any wetlands present. The proponent of the site development shall have the burden of providing to the City a report showing the on-site inspection and delineation of all wetland areas by a qualified consultant. If any wetland encroachment is proposed, wetland values and impacts will be evaluated on a case by case basis in conformance with the rules associated with the WCA of 1991.
7. Any review of a proposed wetland encroachment will initially address the issue of

avoidance. It will be the City's policy that prior to allowing any wetland encroachment all reasonable attempts to avoid such alteration must be demonstrated. This avoidance review must also consider the reasonableness of the no-build alternative.

8. Wetland alterations due to excavation, water level changes, or other activities which alter the character of a wetland will require a permit from the RCWD and the MWMO.
9. Wetland alterations shall satisfy additional constraints of flood management policy (spoils placement in non-floodplain upland areas).
10. Alterations to wetlands for wildlife enhancements must comply with the criteria described in the publication "Wildlife Habitat Improvements in Wetlands", dated December 2000, and available from the Board of Soil and Water Resources.

5.5. Erosion and Sediment Control

5.5.1. Goal

Protect the capacity of the City's stormwater management system, prevent flooding, and maintain water quality by preventing erosion and sedimentation from occurring and correcting existing erosion and sedimentation problems.

5.5.2. Policies

1. The City shall require, in conformance with the MPCA NPDES rules, the submission and implementation of erosion and sediment control plans for land disturbance activities of one acre or more in size. The RCWD also requires submittal of plans for projects that disturb vegetation cover between 10,000 square feet and 1.0 acres within 300 feet of a wetland or water body.
2. The City will inspect sites that require a NPDES permit for erosion and sedimentation control for all new developments and redevelopments one acre and larger in size.
3. Erosion and sedimentation control plans shall be reviewed and enforced by the City of St. Anthony Village for all new developments.
4. The City of St. Anthony Village will sweep the streets at least five times annually. Furthermore, future purchases of street sweeping units will give consideration to street sweepers which have the greatest ability to remove nutrients from the streets.
5. The City may prohibit work in areas having steep or very steep slopes and high erosion potential where the impacts of significant erosion cannot be protected against or mitigated in accordance with the City of St. Anthony Village erosion control ordinances. City ordinances can be viewed online.

5.6. Groundwater

5.6.1. Goal

Protect the quality and quantity of groundwater resources.

5.6.2. Policies

1. Coordinate with other agencies to promote the continuation of existing groundwater monitoring, inventorying or permitting programs.
2. Encourage the development of spill prevention, control, and countermeasure plans that are consistent with State and/or Federal Government regulations.
3. Provide assistance to State or other governmental agencies in resolving groundwater quality problems.
4. The City will encourage preservation of wetlands, ponds, and parks to encourage infiltration of precipitation in areas where land use is not anticipated to adversely affect surface water runoff.

5. The City of St. Anthony Village will cooperate with the Environmental Health Department in Hennepin and Ramsey Counties to ensure that all unsealed or improperly abandoned wells within the watershed are properly sealed. Technical requirements for the abandonment of these wells will be in conformance with the Minnesota Department of Health Water Well Code.
6. The City of St. Anthony Village will sweep the streets at least five times annually. Furthermore, future purchases of street sweeping units will give consideration to street sweepers which have the greatest ability to remove nutrients from the streets.
7. The City of St. Anthony Village has developed a wellhead protection plan in accordance with State requirements.
8. The City of St. Anthony Village will cooperate with both Hennepin and Ramsey Counties to implement appropriate actions of the Counties groundwater quality protection plans.
9. Groundwater appropriation users shall demonstrate that surface water discharges do not create drainage problems.

5.7. Recreation, Habitat, and Shoreland Management

5.7.1. Goal

Protect and enhance fish and wildlife habitat and recreation opportunities.

5.7.2. Policies

1. Cooperate with RCWD and other units of government to complete habitat and recreation corridor connections (greenways).
2. Maintain, enhance, or provide new habitat as part of wetland modification, stormwater facility construction, or other appropriate projects.
3. Encourage alternative landscape designs that:
   a. increase beneficial habitat, wildlife and recreational uses; promote infiltration and vegetative water use; and that
   b. decrease detrimental wildlife uses (such as beaver dams or goose overabundance) which damage water control facilities, shoreline vegetation, water quality, or recreational facilities.

5.8. Education and Public Involvement

5.8.1. Goal

Increase public awareness, understanding, and involvement in water and natural resource management issues.

5.8.2. Policies

1. Develop and distribute educational materials to the general public and targeted groups in accordance with the City SWPPP. Specific topics could include water resources, groundwater, wetlands, native vegetation, buffers, wildlife habitat, litter control, pet wastes, recycling, trash disposal, leaf collection, grass clippings, lawn chemicals, and hazardous materials. Information may be distributed via the City's quarterly newsletter, City website, local newspapers, cable television, and any other appropriate media.
2. Work with schools to fund education programs that focus on sustainability, waste reduction, and environmental awareness. The City will work to include environmental awareness projects or sessions during City events and festivals.
3. Encourage and practice the use of sustainable land treatment activities such as using organic phosphorus-free fertilizers and discourage the use of herbicides and pesticides.
4. Support City-wide efforts in recycling, recovery, and reuse of waste materials.

5. Coordinate education efforts with RCWD where appropriate.

5.9. Financing

5.9.1. Goal

Minimize public expenditures to the extent practicable to manage water resources in accordance with this plan.

5.9.2. Policies

1. Partner with others to achieve regional solutions to water resource issues and capitalize on the financial and environmental benefits that larger, regional systems can have on water resources.

6. IMPLEMENTATION PROGRAM

6.1. Implementation Program Components

Table 6.1 contains a comprehensive list of the MS4 activities and projects, programs, and studies that make up the City of St Anthony Village's implementation program for the next ten 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**), identifying potential and existing problems (**Section 4**), developing goals and policies (**Section 5**), 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. Watershed districts may offer various cost-sharing programs with the City to provide funding for stormwater management projects.

6.2. Implementation Priorities

The implementation components listed in **Table 6.1** 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. 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 St Anthony Village.

6.3. Financial Considerations

The City plans to use funds generated from its Stormwater Utility as the primary funding mechanism for its implementation program. If funds from this utility fee do not cover 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.

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.

6.4. 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 St Anthony Village may also revise/amend the plan in response to City-identified needs. This Plan is intended to be in effect for ten years. The Plan will be revised/updated at that time, to the extent necessary.

TABLE 6.1

WATER RESOURCE MANAGEMENT IMPLEMENTATION PLAN

No.	Project Description	10 Year Cost Estimate[1]	Possible Funding Sources [3]	Proposed Cost By Year[1,2]										Comments
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
1	Education Activity Implementation Plan - Complete outline of education activity implementation program and implementation schedule for the upcoming MS4 permit year. Complete this by June 30th each year. Include procedures to meet requirements for the following stormwater educational programs and distribute using one of the following delivery mechanisms: - Quarterly Newsletter - Website - Social Media - Partnerships with RCWD and MWMO - Public meetings - Presentations - Village Fest displays	$30,000	Stormwater Utility Fund	$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 B)
2	Annual Public Meeting/Event - Present the draft MS4 annual report at one public event per year to solicit public input regarding the adequacy of the City's SWPPP. Public input received (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 Fund	$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 B)
3	Public Notice and Input - Notice the annual public meeting in the official newspaper following local public notice requirements a minimum of once per year. - The City will provide at a minimum (1) opportunity annually for the public to provide input on the adequacy of the SWPPP. This opportunity could be at a council meeting, planning commission meeting, environmental event, or other City-sponsored function.	$2,000	Stormwater Utility Fund	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	See SWPPP Application for Reauthorization (Appendix B)
4	Online Availability of the Stormwater Pollution Prevention Plan (SWPPP) Program Document - The City will make the SWPPP and annual reports available on the City's webpage. This will be completed within 12 months from the date the MS4 permit coverage is extended to the City.	$5,000	Stormwater Utility Fund	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	See SWPPP Application for Reauthorization (Appendix B)

No.	Project Description	10 Year Cost Estimate[1]	Possible Funding Sources [3]	Proposed Cost By Year[1,2]										Comments
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
5	IDDE Plan - Develop and implement an illicit discharge detection plan, consisting of staff training and procedures for inspections and corrective actions.	$5,000	Stormwater Utility Fund	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	See SWPPP Application for Reauthorization (Appendix B)
6	Storm Sewer System Map - The City currently has a storm sewer system map. This map will be updated on an annual basis.	$1,500	Stormwater Utility Fund	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	See SWPPP Application for Reauthorization (Appendix B)
7	Regulatory Control Program - Review existing city ordinances (Sections 400 & 1200) relating to illicit discharges, and revise/develop an illicit discharge ordinance (if necessary). Code of Ordinances: Chapter 153, Storm Water Management - The City established an Illicit Discharge and Connection Ordinance in 2009. This ordinance will be evaluated annually and updated as necessary.	$4,000	Stormwater Utility Fund		$2,000				$2,000					See SWPPP Application for Reauthorization (Appendix B)
8	Public and Employee Illicit Discharge Information Program - Public education of illicit discharges. Provide a minimum of one training event for city staff per year.	$2,000	Stormwater Utility Fund	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	See SWPPP Application for Reauthorization (Appendix B)
9	Illicit Discharge Investigation - As needed televise a section of the sewer system, collect grab samples, or perform other testing procedures to find illicit connections in the system.	$5,000	Stormwater Utility Fund	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	See SWPPP Application for Reauthorization (Appendix B)
10	IDDE Program Updates - Update written procedures for illicit discharge inspections, investigations, and response actions. Develop a process to document information as described in the Permit (Part III.3.h) within 12 months following the date permit coverage is extended.	$2,000	Stormwater Utility Fund		$2,000									See SWPPP Application for Reauthorization (Appendix B)
11	Ordinance or other Regulatory Mechanism - Review existing construction site erosion control ordinances, and revise if they do not conform to the new NPDES Phase II construction permit requirements.	$4,000	Stormwater Utility Fund		$2,000				$2,000					See SWPPP Application for Reauthorization (Appendix B)
12	Construction Site Implementation of Erosion and Sediment Control BMPs: Waste Controls for Construction Site Operators - Construction site operators must conform to NPDES Phase II, watershed district, and City ordinances pertaining to erosion, sediment, and waste controls.	$1,000	Stormwater Utility Fund	$500					$500					See SWPPP Application for Reauthorization (Appendix B)

No.	Project Description	10 Year Cost Estimate[1]	Possible Funding Sources [3]	Proposed Cost By Year[1,2]										Comments
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
13	Procedure for Site Plan Review - Every applicant for a City permit to allow land disturbing activities must submit a project-specific stormwater management plans (if applicable) and/or erosion control plan to the City for approval.	$1,000	General Fund/ Development Fees		$1,000									See SWPPP Application for Reauthorization (Appendix B)
14	Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance - Provide a phone number, website, and point of contact for the public to report stormwater pollution issues.	$500	Stormwater Utility Fund		$500									See SWPPP Application for Reauthorization (Appendix B)
15	Establishment of Procedures for Site Inspections and Enforcement - Continue to enforce the City's erosion control and waste disposal standards. Add procedures or requirements as necessary.	$2,000	Stormwater Utility Fund		$1,000				$1,000					See SWPPP Application for Reauthorization (Appendix B)
16	Develop Priority Site Inspection Procedures - Develop internal procedures for identifying priority sites for inspections in 2014.	$150	Stormwater Utility Fund	$150										See SWPPP Application for Reauthorization (Appendix B)
17	Document Procedures - Develop written procedures to track and archive all plan review and inspection documents within 12 months following the date permit coverage is extended.	$2,000	Stormwater Utility Fund		$1,000				$1,000					See SWPPP Application for Reauthorization (Appendix B)
18	Development and Implementation of Structural and/or Non-Structural BMPs - The City will evaluate all structural and non-structural BMPs during the plan review process for the potential of new and/or revised BMPs. The City will also actively look for non-structural opportunities where prudent and feasible.	$5,000	Developer's Fees	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	See SWPPP Application for Reauthorization (Appendix B)
19	Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment - The City will implement the requirements of the Water Resource Management Plan and applicable City ordinances.	$25,000	Developer's Fees	$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 B)
20	Develop Written Procedures for Site Plan Review - Develop site plan review procedures that must be completed prior to the start of construction activity within 12 months of extension of permit coverage.	$2,000	Stormwater Utility Fund		$1,000				$1,000					See SWPPP Application for Reauthorization (Appendix B)
21	Document Pertinent Project Information - Maintain all related documents pertaining to each new or redevelopment project in a user-friendly filing system for better records management. Implement within 12 months.	$8,000	General Fund	$8,000										See SWPPP Application for Reauthorization (Appendix B)

No.	Project Description	10 Year Cost Estimate[1]	Possible Funding Sources [3]	Proposed Cost By Year[1,2]										Comments
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
22	Street Sweeping Program - Sweep streets five times annually. Record the annual number of times streets are brush swept as well as document any additional activities that were undertaken regarding this program.	$450,000	Public Works	$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 B)
23	Annual Inspection of All Structural Stormwater BMPs Inspect and document maintenance needs on all structural stormwater BMPs.	$10,000	Stormwater Utility Fund	$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 B)
24	Inspection of a Minimum of 20% of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis. - The City will inspect all mapped outfalls, sediment basins, and ponds, with a minimum of 20% each year (on a rotating schedule during permit coverage) and record the number inspected and rate the condition of each outfall.	$10,000	Stormwater Utility Fund	$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 B)
25	Inspection of All Exposed Stockpile, Storage, and Material Handling Areas - Locate and inspect all exposed stockpile, storage and material handling areas located on City-owned properties. Record inspections and correct and document all remedial actions quarterly.	$10,000	Stormwater Utility Fund	$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 B)
26	Inspection Follow-up, Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures - The City will determine whether repair, replacement, or maintenance measures are necessary from evaluating inspections records and other pertinent information. All corrective maintenance, repair, and/or replacement measures will be recorded.	$5,000	Stormwater Utility Fund	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	See SWPPP Application for Reauthorization (Appendix B)
27	Record Reporting and Retention of All Inspections and Responses to the Inspections - The City will retain all records of inspection, maintenance, and corrective actions for a minimum of three years past the expiration of the MS4 permit.	$5,000	Stormwater Utility Fund	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	See SWPPP Application for Reauthorization (Appendix B)
28	Evaluation of Inspection Frequency - Continue to implement annually.	$2,000	Stormwater Utility Fund	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	See SWPPP Application for Reauthorization (Appendix B)
29	Landscaping & Lawn Care Practices Review - Continue to evaluate current practices of fertilizer, pesticide, and herbicide application, mowing operations, grass clipping collection, mulching, and composting.	$5,000	Stormwater Utility Fund	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	See SWPPP Application for Reauthorization (Appendix B)

No.	Project Description	10 Year Cost Estimate[1]	Possible Funding Sources [3]	Proposed Cost By Year[1,2] 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
30	Road Salt Application Review - Continue to evaluate current practices of road salt applications, alternative products, calibration of equipment, inspection of vehicles and staff training. Minimum of once annually.	$2,000	Stormwater Utility Fund	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	See SWPPP Application for Reauthorization (Appendix B)
31	Training - Provide a presentation annually to generate Staff awareness of SWPPP regulations and to develop projects with appropriate BMPs applied.	$10,000	Stormwater Utility Fund	$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 B)
32	Spill Prevention & Control Plans for Municipal Facilities - Ensure that plans describing spill prevention and control procedures are consistent among all departments. Conduct annual spill prevention and response training sessions to all municipal employees. Distribute education materials to each municipal facility by the end of year 2.	$1,000	Stormwater Utility Fund		$500				$500					See SWPPP Application for Reauthorization (Appendix B)
33	Facility Inventory - Update facility inventories to identify potential pollutants at each site. Create a map of all identified facilities and BMPs implemented to prevent detrimental impacts to water quality.	$1,000	Stormwater Utility Fund		$1,000									See SWPPP Application for Reauthorization (Appendix B)
34	Pond Assessment Procedures & Schedule - In year 1, develop procedures for determining TSS and TP treatment effectiveness of city-owned stormwater treatment ponds. Implement schedule in years 2-5.	$1,500	Stormwater Utility Fund		$1,500									See SWPPP Application for Reauthorization (Appendix B)
35	Salo Ponds - Operation and maintenance of the Salo Ponds chemical treatment system.	$205,400	Stormwater Utility Fund	$10,000	$30,000	$18,000	$18,700	$19,400	$20,200	$21,000	$21,800	$22,700	$23,600	See SWPPP Application for Reauthorization (Appendix B)
36	Silver Lake Water Quality - The City will work cooperatively with RCWD, TRPD, and the MPCA to implement the Silver Lake TMDL Plan. The City will continue to implement a catch basin stenciling program within the Silver Lake drainage area.	$15,000	Stormwater Utility Fund, RCWD, MWMO, & Grants	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	See Section 4 of WRMP
37	Mississippi River Water Quality - The City will work with the MWMO, MPCA, and others as necessary to integrate monitoring data, public works activities, and educational opportunities to address the completed TMDLs and implementation plans.	$5,000	MWMO		$1,000		$1,000		$1,000		$1,000		$1,000	See Section 4 of WRMP
38	Feasibility Study - Construct Anthony Lane flood improvements.	$200,000	Stormwater Utility Fund			$200,000								See Section 4 of WRMP

No.	Project Description	10 Year Cost Estimate[1]	Possible Funding Sources [3]	Proposed Cost By Year[1,2] 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
39	Addressing Street Flooding near 39th Avenue & Fordham Drive, Foss Road, and from Mirror Lake Overtopping - The City of St. Anthony will work with the RCWD and the City of New Brighton to address these water quantity problems which transcend municipal boundaries. Stormwater ponding requirements for redeveloping areas within the City will be determined on a site-by-site basis and in conformance with City and RCWD requirements.	$400,000	Stormwater Utility Fund, RCWD, & Grants		$400,000									See Section 4 of WRMP
40	Addressing Recreation Impact of Silver Lake Impairment - Work with the RCWD, Ramsey Conservation District, New Brighton, Columbia Heights, and the Three Rivers Park District to develop a long-term management program for Silver Lake.	$4,000	Stormwater Utility Fund, Anoka Conservation District		$4,000									See Section 4 of WRMP
41	Addressing Soil Erosion and Sedimentation Impacts for Silver Lake - Develop and implement a stormwater system maintenance plan to address sedimentation and siltation in area lakes, streams, stormwater storage basins and ditches. Develop and implement a water quality monitoring assessment program.	$80,000	New Brighton, Columbia Heights, St Anthony, Ramsey County, RCWD		$80,000									See Section 4 of WRMP
42	Addressing Soil Erosion and Sedimentation Impacts for Mirror Pond - Develop and implement a stormwater system maintenance plan to address sedimentation and siltation in area lakes, streams, stormwater storage basins and ditches. Develop and implement a water quality monitoring assessment program.	Complete	BWSR Targeted Watershed, Ramsey County, RCWD											See Section 4 of WRMP
43	Improve Adequacy of Silver Lake TMDL Data - Cooperate with RCWD, MWMO, and Three Rivers Park District to increase the availability of the City's water quality data.	$20,000	Stormwater Utility Fund & Grants			$5,000		$5,000		$5,000		$5,000		See Section 4 of WRMP
44	Improve Adequacy of Mississippi River Pollutant Discharge Data - The City will work with the MWMO to obtain data regarding water quality of the River and pollutant loadings discharged to the River.	$100,000	MWMO Maintenance - no cost to St Anthony	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	See Section 4 of WRMP
45	St. Anthony Regional System - Remove pollutants from City stormwater runoff that discharges south and ultimately into the Mississippi. Ongoing maintenance conducted by MWMO. Project to break ground in 2015.	Complete	MWMO Grant											See Section 4 of WRMP
	TOTAL	**$1,659,050**		**$90,100**	**$599,950**	**$294,450**	**$91,150**	**$95,850**	**$100,650**	**$97,450**	**$94,250**	**$99,150**	**$96,050**	

SECTION VI

No.	Project Description	10 Year Cost Estimate[1]	Possible Funding Sources [3]	Proposed Cost By Year[1,2]										Comments
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	

[1] Cost estimates are preliminary and subject to review and revision as engineer's reports are completed and more information becomes available. Table reflects 2014 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 2019

[3] Funding for stormwater program activities projected to come from following sources - Surface Water Management Fund, Developers Agreements, Grant Funds, General Operating Fund, Special Assessments, or Watershed Districts. Watershed Districts may offer various cost-share programs to the City to help fund stormwater management projects.

APPENDIX A - FIGURES

Document Path: K:\01626-670\GIS\Maps\Figure1_LocationMap.mxd Date: 6/23/2015

City of St. Anthony Village

Saint Anthony Village

Water Resource MANAGEMENT PLAN

FIGURE 1: Location Map

1 inch equals 5 miles

N

Document Path: K:\01626-670\GIS\Maps\Figure2_ExistingLandUse.mxd Date: 6/23/2015

Columbia Heights
New Brighton
Anoka
Ramsey
Anoka
Hennepin
Hennepin
Ramsey
Roseville
Minneapolis

Legend

- Low-Density Residential
- Medium-Density Residential
- High-Density Residential
- Office
- Industrial and Utility
- Commercial
- Institutional
- Park
- Golf Course
- Major Highway
- Undeveloped
- Water

Source: City of St. Anthony, 2008

Saint Anthony Village

Water Resource MANAGEMENT PLAN

FIGURE 2: Existing Land Use

1 inch equals 1,200 feet

N

Document Path: K:\01626-670\GIS\Maps\Figure3_FutureLandUse.mxd Date: 6/23/2015

Columbia Heights

New Brighton

Roseville

Minneapolis

Anoka

Ramsey

Anoka

Hennepin

Hennepin

Ramsey

Legend

- Low-Density Residential
- Medium-Density Residential
- High-Density Residential
- Office
- Industrial and Utility
- Commercial
- Institutional
- Park
- Storm Water Pond
- Golf Course
- Major Highway
- Undeveloped
- Water

Source: City of St. Anthony, 2008

Saint Anthony Village

Water Resource MANAGEMENT PLAN

FIGURE 3: Future Land Use

1 inch equals 1,200 feet

N

Document Path: K:\01626-670\GIS\Maps\Figure4_Subwatersheds.mxd Date: 6/23/2015

Cub Foods Stormwater Pond

Culvers Structural Device

Salo Ponds

Ramsey County Ditch #3

Biofiltration Swale

Central Park Rain Garden

City Hall Water Reuse Facility

Harding St. Water Quality Holding Pond

Future Water Quality & Flood Improvement

Structural Device

Rain Garden

Regional Treatment System

Columbia Heights

New Brighton

Roseville

Anoka

Ramsey

Hennepin

Ramsey

35

Legend

- Outlets
- Storm Manholes

Storm Sewer Diameter

- 6"
- 8"
- 10"
- 12"
- 15"
- 16"
- 18"
- 21"
- 24"
- 27"
- 30"
- 36"
- 42"
- 48"
- 51"
- 54"
- 60"
- 66"
- 72"
- Other
- National Wetland Inventory
- Stormwater Ponds
- Streams
- DNR Waters

Subwatersheds

- Mirror
- Mpls 1
- Mpls 2
- Mpls 3
- RCD #3
- Salo
- Silver Lake
- Silver Lake Direct
- Stinson

Source: City of St. Anthony, 2008

Saint Anthony Village

Water Resource MANAGEMENT PLAN

FIGURE 4: Subwatersheds

1 inch equals 1,200 feet

N

Document Path: K:\01626-670\GIS\Maps\Figure5_NWI&DNR.mxd Date: 6/23/2015

Columbia Heights
New Brighton
Anoka
Ramsey
Ramsey County Ditch #3
Anoka
Hennepin
Hennepin
Ramsey
Roseville
Minneapolis
35

Legend

- Streams
- National Wetland Inventory
- DNR Waters

Source: U.S. Fish & Wildlife Service (2013), MN DNR (2008)

Saint Anthony Village

Water Resource MANAGEMENT PLAN

FIGURE 5: NWI and DNR Waters Map

1 inch equals 1,200 feet

N

Document Path: K:\01626-670\GIS\Maps\Figure6_SoilsMap.mxd Date: 6/23/2015

Columbia Heights
New Brighton
Roseville
Minneapolis
Anoka
Ramsey
Hennepin
Anoka
Hennepin
Hennepin
Ramsey

Legend

- A - These soils have high infiltration rates even when thoroughly wetted. These soils consist chiefly of deep, well drained to excessively drained sands and gravel. These soils have a high rate of water transmission, therefore resulting in a low runoff potential.
- B - These soils have moderate infiltration rates. These soils consist of deep moderately well to well drained soils with moderately fine to moderately coarse textures.
- C - These soils have slow infiltration rates. These soils typically consist of clayey gravel or clayey sand.
- D - These soils have very slow infiltration rates. These soils are are typically clay soils with high swelling potential at or near the surface or shallow soils over nearly impervious material.
- Urban - These soils have been greatly affected by development and are frequently compacted, cut, and filled, resulting in variable runoff rates and a poor environment for plant growth.
- Water

Source: Hennepin and Ramsey Counties Soil Data, 2014

Saint Anthony Village

Water Resource MANAGEMENT PLAN

FIGURE 6: Hydrologic Soils and Infiltration

1 inch equals 1,200 feet

N

Document Path: K:\01626-670\GIS\Maps\Figure7_ProblemAreas.mxd Date: 6/23/2015

Silver Lake:
- Floatables, Sedimentation, Erosion
- Nutrients Impairment

Silver Lake Road Flooding

Flooding: 39th & Fordham and Mirror Pond Condos

Foss Road Flooding

Mirror Pond Sedimentation, Erosion, & Flooding

Flooding: Anthony Lane Industrial Area

Discharge from South Flows to Mississippi River

Columbia Heights
New Brighton
Roseville
Minneapolis
Anoka
Ramsey
Silver Lake
Anoka
Hennepin
Hennepin
Ramsey
35

Legend

- Problem Areas
- Impaired Water

Impairments:
Silver Lake (Nutrients)

Source: City of St. Anthony (2014), MPCA (2010)

Saint Anthony Village

Water Resource MANAGEMENT PLAN

FIGURE 7: Problem Areas Map

1 inch equals 1,250 feet

N

Document Path: K:\01626-670\GIS\Maps\Figure8_WQMonitoring.mxd Date: 6/23/2015

Columbia Heights
New Brighton
Anoka
Ramsey
Silver Lake
Anoka
Hennepin
Hennepin
Ramsey
Roseville
Minneapolis
35

Note: Monitoring sites shown have been used to collect data at some point between 1959 and 2012. Not all sites shown are active monitoring sites. Refer to Equis database on the MPCA website for detailed information for each site.

Legend

Monitoring Type

LAKE

Source: MPCA (2012), RCWD (2013)

Saint Anthony Village

Water Resource Management Plan

FIGURE 8: Water Quality Monitoring Stations

1 inch equals 1,200 feet

N

Document Path: K:\01626-670\GIS\Maps\Figure9_MLCCS.mxd Date: 6/23/2015

Columbia Heights
New Brighton
Anoka
Ramsey
Silver Lake
Anoka
Hennepin
Hennepin
Ramsey
Roseville
Minneapolis

Legend

- Developed
- Planted or Cultivated Vegetation
- Forest
- Woodland
- Herbaceous
- Water

Source: MN DNR, 2008

Saint Anthony Village

Water Resource MANAGEMENT PLAN

FIGURE 9: Minnesota Land Cover Classification System (MLCCS)

1 inch equals 1,200 feet

N

Document Path: K:\01626-670\GIS\Maps\Figure10_PollutantSources.mxd Date: 6/23/2015

Columbia Heights
New Brighton
Roseville
Minneapolis
Anoka
Ramsey
Hennepin
Silver Lake

Legend

ACTIVITY

- Air Permit
- Hazardous Waste
- Leak Site
- Tank Site
- Unpermitted Dump Site
- Voluntary Investigation & Cleanup
- Industrial Stormwater Permit
- Petroleum Brownfield
- Wastewater Discharger
- Multiple of above Activities

Source: MPCA - "What's in my neighborhood", 2012

Saint Anthony Village

Water Resource MANAGEMENT PLAN

FIGURE 10: Pollutant Sources Map

1 inch equals 1,200 feet

N

Document Path: K:\01626-670\GIS\Maps\Figure11_GWAppropriations.mxd Date: 6/23/2015

Columbia Heights

New Brighton

Anoka

Ramsey

Silver Lake

Anoka

Hennepin

Hennepin

Ramsey

Roseville

Minneapolis

35

Legend

- Non-Crop Irrigation
- Waterworks

Source: MN DNR, 2013

Saint Anthony Village

Water Resource MANAGEMENT PLAN

FIGURE 11: Water Appropriations

1 inch equals 1,200 feet

N

Document Path: K:\01626-670\GIS\Maps\Figure12_WMOBoundaries.mxd Date: 6/23/2015

Columbia Heights
Anoka
Ramsey
Silver Lake
New Brighton
Anoka
Hennepin
Hennepin
Ramsey
Roseville
Minneapolis
35

Legend

- Rice Creek Watershed District
- Mississippi Watershed Management Organization

Source: RCWD, 2009

Saint Anthony Village

Water Resource MANAGEMENT PLAN

FIGURE 12: Watershed Organization Boundary Map

1 inch equals 1,200 feet

N

Document Path: K:\01626-670\GIS\Maps\Figure13_DWSMA.mxd Date: 6/23/2015

Anoka

Ramsey

Anoka

Hennepin

Hennepin

Ramsey

Legend

35

City Boundary

Well Sensitivity

Moderate

Low

Source: City of St Anthony, 2004

Saint Anthony Village

Water Resource Management Plan

FIGURE 13: Drinking Water Supply Management Area (DWSMA)

1 inch = 1,200 feet

N

APPENDIX B – MS4 & SWPPP ITEMS

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 St. Anthony Village *County: Hennepin/Ramsey
(city, county, municipality, government agency or other entity)

*Mailing address: 3301 Silver Lake Rd.

*City: St. Anthony Village *State: MN *Zip code: 55418-1603

*Phone (including area code): 612-782-3301 *E-mail: jay.hartman@ci.saint-anthony.mn.us

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

*Last name: Hartman *First name: Jay
(department head, MS4 coordinator, consultant, etc.)

*Title: Director of Public Works

*Mailing address: 3301 Silver Lake Rd.

*City: St. Anthony Village *State: MN *Zip code: 55418

*Phone (including area code): 612-782-3314 *E-mail: jay.hartman@ci.saint-anthony.mn.us

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

Last name: Carlson First name: Jesse
(department head, MS4 coordinator, consultant, etc.)

Title: WSB & Associates

Mailing address: 477 Temperance Street

City: St. Paul State: MN Zip code: 55101

Phone (including area code): 651-286-8464 E-mail: jcarlson@wsbeng.com

Verification

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

Certification (All fields are required)

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

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

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

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

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

Name: Jay Hartman
(This document has been electronically signed)

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

Mailing address: 3301 Silver Lake Rd.

City: City of St. Anthony State: MN Zip code: 55418

Phone (including area code): 612-782-3301 E-mail: jay.hartman@ci.saint-anthony.mn.us

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
Rice Creek Watershed District	MCM 1, 4, and 5
Mississippi River Watershed Management Organization	MCM 1, 3, 4, and 5
Three Rivers Park District	MCM 1

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.*

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:

   Code of Ordinances: Chapter 50, Storm Water and Sanitary Sewers

   Direct link:

   http://www.ci.saint-anthony.mn.us/vertical/sites/{5ED4AFB9-D450-4F68-BA29-2600D3C2A620}/uploads/FULL_ORDINANCE12312013.pdf

   ☐ 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:

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:

Code of Ordinances: Chapter 153, Storm Water Management

Direct link:

http://www.ci.saint-anthony.mn.us/vertical/sites/{5ED4AFB9-D450-4F68-BA29-2600D3C2A620}/uploads/FULL_ORDINANCE12312013.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:

The City's construction site stormwater runoff control requlatory mechanism will be updated to be at least as stringent as the MPCA Construction Stormwater Permit (CSW Permit) The City will either adopt the CSW Permit by reference or use the MPCA guidance document to update its ordinance language. This effort will completed within 12 months of the date permit coverage is extended.

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

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

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

The City of St. Anthony Village City Code, Chapter 153, Stormwater Management has requirements for construction site erosion and sediment control. These requirements will be evaluated for items C.1 through C.8 above. If any of the requirements are not as stringent as the MPCA CSW Permit they will be revised by either referencing the MPCA CSW Permit or using the MPCA guidance document to update its ordinance language. The amended ordinance will be placed on the City Council's meeting agenda for approval within 12 months following the date permit coverage is extended. At a minimum items C.2, C.4, C.5, and C.8 will be updated as follows:

C. (2): Chapter 153, Storm Water Management; will be amended to include BMPs to minimize the discharge of sediment of other pollutants. The City will revise the City Ordinance using the MPCA model erosion and sediment control ordinance as a guideline. The amended ordinance will be placed on the City Council's meeting agenda for approval within 12 months following the date permit coverage is extended.

C. (4): Chapter 153, Storm Water Management; will be amended to include requirements to complete site inspections and records for rainfall events. The amended ordinance will be placed on the City Council's meeting agenda for approval within 12 months following the date permit coverage is extended.

C. (5): Chapter 153, Storm Water Management; will be amended to include requirements for BMP maintenance. The City will revise the City Ordinance using the MPCA model erosion and sediment control ordinance as a guideline. The amended ordinance will be placed on the City Council's meeting agenda for approval within 12 months following the date permit coverage is extended.

C. (8): Chapter 153, Storm Water Management; will be amended to include the use of BMP's for temporary sediment basins. The City will revise the City Ordinance using the MPCA model erosion and sediment control ordinance as a guideline. The amended ordinance will be placed on the City Council's meeting agenda for approval within 12 months following the date permit coverage is extended.

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: Comprehensive Water Resources Management Plan

   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:

   Code of Ordinances: Chapter 153, Storm Water Management

   Direct link:

   http://www.ci.saint-anthony.mn.us/vertical/sites/{5ED4AFB9-D450-4F68-BA29-2600D3C2A620}/uploads/FULL_ORDINANCE12312013.pdf

   ☒ 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 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. ☐ Yes ☒ No

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 ☐ Yes ☒ No

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.

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

B.2.a. The City has established an aggreement with the Rice Creek Watershed District to provide alternative forms of treatment to manage runoff volumes due to clay soils that minimize the ability to conduct infiltration. The City will amend stormwater ordinance to maintain TSS and TP during new developments. These amendments they will be placed on the City Councils meeting agenda for approval within 12 months following the date permit coverage is extended.

B.2.b.The City has established an aggreement with the Rice Creek Watershed District to provide alternative forms of treatment to manage runoff volumes due to clay soils that minimize the ability to conduct infiltration. The City will amend stormwater ordinance to reduce TSS and TP during redevelopment. These amendments they will be placed on the City Councils meeting agenda for approval within 12 months following the date permit coverage is extended.

B.3.a.3: The City will amend the ordinance to include the exceptions for linear projects as described in the Permit (PartIII.D.5.a(3)(b)). This will occur in the schedule as in B.2.b.

B.4.f.: The City will not amend the ordinance to mandate that money received from an owner/operator of construction activity, in lieu of meeting the conditions for post-construction stormwater management, shall be used for a public stormwater project as described in the Permit (PartIII.D.5.a(4)(f)). The City does not accept payment in lieu of providing stormwater treatment on-site.

B.5.c.: The City will amend the ordinance to include conditions to address BMP modification in the future as described in the Permit (PartIII.D.5.a(5)(c)). This will occur on the same schedule as B.2.a.

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:

   The City has ERPs identified in their City Code, Chapter 50, Storm Water and Sanitary Sewers regarding Illicit Discharge Detection and Elimination as summarized below. The City will revise City Code, Chapter 153, Stormwater Management to include ERPs for construction site erosion and sediment control and post-construction stormwater management. Additionally the City will develop written procedures to describe the process for implementing these enforcement mechanisms. This will be completed within 12 months of the date that permit coverage is extended.

B. Describe your ERPs:

City Code: Chapter 50.42 Enforcement

- Notice of Violation

- Payment of a fine to cover adminstrative and remediation costs

- Implementation of source control or treatment.

City Code: Chapter 50.36 Suspension of MS4 access

- Suspension due to the detection of illicit discharge

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

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

The GIS storm sewer system map is updated as the City inspects their system and completes public projects. The City's consultant updates and maintains all of the City's GIS Information.

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

1. The permittee's entire small MS4 as a goal, but at a minimum, all pipes 12 inches or greater in diameter, including stormwater flow direction in those pipes. ☒ Yes ☐ No

2. Outfalls, including a unique identification (ID) number assigned by the permittee, and an associated geographic coordinate. ☐ Yes ☒ No

3. Structural stormwater BMPs that are part of the permittee's small MS4. ☒ Yes ☐ No

4. All receiving waters. ☒ Yes ☐ No

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

B.2.: The City will amend the storm sewer system map to include the identification of outfalls. This will occur within 12 months following the date permit coverage is extended. Storm sewer discharging into receiving waters is identified and will be used to assist in making this determination.

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:

D.1. The City GIS consultant will update the storm sewer map to include a geographic coordinate for each stormwater feature inventoried as described in the Permit (Part III.C.2.b).

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 is comprised of a large percentage of single family residential. The other land uses include industrial, commercial, multi-family residential, and parks. The priority of the education program has been mainly centered on issues associated with single family residential. The City sends educational information using the following:

- Quarterly Newsletter

- Workshops conducted by partnering groups such as the Rice Creek Watershed District, Mississippi Watershed Management Organization, and Three Rivers Park District

- Website

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
Distribute Educational Materials	*Distribute a minimum of 3 educational publications via City mailings, workshops, presentations, website postings, or newsletters per year. Begin working collaboratively with the MWMO, RCWD, and RCD in distributing educational materials and promoting/supporting outreach programs.* *This BMP will be continued into the new permit term and will be completed annually.*
Implement an Education Program	*Implement educational activities and coordinate with the RCWD and MWMO. Record attendances, web site visits, keep minutes, record statements/requests, and written comments.* *This BMP will be continued into the new permit term and will be completed annually.*
Education Program: Public Education and Outreach Program	*Maintain the City webpage devoted to water resource related issues. Distribute 2 water resource related articles in the City newsletter per year.* *This BMP will be continued into the new permit term and will be completed annually.*
Education Program: Public Participation	*Encourage public participation to public presentations, outreach programs, and the City's website.* *This BMP will be continued into the new permit term and will be completed annually.*
Education Program: Illicit Discharge Detection and Elimination	*Distribute a minimum of one illicit discharge related publication to residents per year. Provide illicit discharge education to City staff.* *This BMP will be continued into the new permit term and will be completed annually.*
Education Program: Construction Site Run-off Control	*Meet with contractors and residents prior to the start of construction to discuss implementing project specific BMP's. Provide erosion control education to City staff. Continue with the plan review process/pre-construction meetings.* *This BMP will be continued into the new permit term and will be completed annually.*
Education Program: Post-Construction Stormwater Management in New Development and Redevelopment	*Distribute a minimum of one post-construction stormwater management related publication to residents per year.* *This BMP will be continued into the new permit term and will be completed annually.*
Education Program: Pollution Prevention/Good Housekeeping for Municipal Operations	*Provide a minimum of one pollution prevention related training opportunity to City staff per year.* *This BMP will be continued into the new permit term and will be completed annually.*
Coordination of Educational Programming	*Continue to coordinate educational components, programming, and schedule with outside organizations.* *This BMP will be continued into the new permit term and will be completed annually.*
Annual Public Meeting	*Hold an annual public meeting to distribute educational*

	materials and present an overview of the MS4 program and City's SWPPP. *This BMP will be continued into the new permit term and will be completed annually.*

BMP categories to be implemented	**Measurable goals and timeframes**
Education Activity Implementation Plan	*Complete outline of education activity implementation program and implementation schedule for the upcoming permit year. This will include a process for prioritizing education into three areas at a minimum and may be based on:* • *TMDLs* • *Industrial land uses* *This will be completed annually by June 30th. The information will be distributed using the following techniques:* *- Quarterly Newsletter* *- Website* *- Social Media*
Program Evaluation	*During yearly SWPPP review, consider which materials are most effective for our program and audiences, Use this information to determine printing numbers for future education materials.* *Consider information from citizen feedback related to all aspects of our SWPPP to determine education needs on a yearly basis.*

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

   Public Works Director

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:

   An opportunity to hear comments on the SWPPP is provided each year. This meeting is typically held as a stand alone meeting.

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

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

Established BMP categories	**Measurable goals and timeframes**
Comply with Public Notice Requirements	*Notice the annual public meeting in the official newspaper 30 days prior to the meeting date. Minimum of once per year.* *This BMP is replaced with the BMP as stated below.*
Solicit Public Input and Opinion on the Adequacy of the SWPPP	*Hold an annual public meeting and host a web page to solicit public opinion on the SWPPP. Minimum of once per year.* *This BMP is replaced with the BMP as stated below.*
Consider Public Input	*Record attendance, keep minutes, record statements, and written comments and document changes made to the SWPPP. Minimum of once per year.*

BMP categories to be implemented	**Measurable goals and timeframes**
Comply with Public Notice Requirements	*Notice the annual public meeting in the official newspaper following local public notice requirements a minimum of once per year.*

Solicit Public Input and Opinion on the Adequacy of the SWPPP	*The city will provide at a minimum (1) opportunity annually for the public to provide input on the adequacy of the SWPPP. This potentially could be at a council meeting, planning commission meeting, environmental event or other city sponsored function.*

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:

   B.3. The City will develop written procedures for receiving, documenting and storing citizen input as described in the permit (Part III.C.2.b). Procedures will be in place within 12 months following the date permit coverage is extended.

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

   Public Works Director

C. MCM 3: Illicit discharge detection and elimination

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

   The City has an ordinance that prohibits illicit discharges and connections. City Staff and public works employees are trained to look for any signs of an illicit discharge while on the job.

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:

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

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

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

Established BMP categories	**Measurable goals and timeframes**
Storm Sewer System Map	*This BMP will be continued into the new permit term and will be*

	completed annually.
Regulatory Control Program	*Review existing city ordinances (sections 400 & 1200) relating to illicit discharges, and revise/develop an illicit discharge ordinance (if necessary). Review existing ordinances (sections 400 & 1200) in 2010. Code of Ordinances: Chapter 153, Storm Water Management* *This BMP will be replaced with the BMP as indicated below.*
Illicit Discharge Detection and Elimination Plan	*Develop and implement an illicit discharge detection plan, consisting of staff training and procedures for inspections and corrective actions.* *This BMP will be continued into the new permit term and updates to the plan will be updated annually.*
Public and Employee Illicit Discharge Information Program	*Public education of illicit discharges. Provide a minimum of one training event for city staff per year.* *This BMP will be continued into the new permit term and will be completed annually.*
Identification of Non Stormwater Discharges and Flows	*The City has identified and evaluated all non-storm water discharges (as defined in Part I.A.2) to be insignificant pollutant contributors.* *This BMP has been completed. As necessary the City will evaluate these non-stormwater discharges to determine if this list needs to be updated.*

BMP categories to be implemented	**Measurable goals and timeframes**
Regulatory Control Program	The City established an Illicit Discharge and Connection Ordinance in 2009. This ordinance will be evaluated annually and updated as necessary.
IDDE Program Updates	*Update written procedures for illicit discharge inspections, investigations, and response actions. Develop a process to document information as described in the Permit (Part III.3.h) within 12 months following the date permit coverage is extended.*
Illicit Discharge Investigation	*As needed televise a section of the sewer system, collect grab samples or perform other effective testing procedures to find illicit connection in the system.*

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

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

   C.4., The City will develop written procedures for receiving, documenting and storing citizen input as descriped in the permit (Part III.D.3.h). Procedueres will be in place within 12 months following the date permit coverage is extended.

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

   Public Works Director

   Fire Chief

D. MCM 4: Construction site stormwater runoff control

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

   The City requires review of construction site erosion and sediment control (ESC) plans before projects begin, and work with contractors to ensure appropriate and correct use of erosion and sediment control BMPs on sites.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Established BMP categories	**Measurable goals and timeframes**
Ordinance or other Regulatory Mechanism	*Review existing construction site erosion control ordinances, and revise if found non-conforming to new NPDES Phase II construction permit requirements.* *The City will evaluate the pre-existing City Code, Chapter 153 Stormwater Management and update as necessary to conform to the MPCA CSW Permit that was approved in 2013.*
Construction Site Implementation of Erosion and Sediment Control BMP's: Waste Controls for Construction Site Operators	*Construction site operators must conform to NPDES Phase II, watershed district, and City ordinances pertaining to erosion, sediment, and waste controls.* *This BMP will be continued into the new permit term and will be completed annually.*
Procedure for Site Plan Review	*Every applicant for a City permit to allow land disturbing activities must submit a project specific stormwater management plans (if applicable) and/or erosion control plan to the City for approval.* *This BMP will be continued into the new permit term and will be completed annually.*
Establishment of Procedures for the Receipt and	*Provide a phone number, website, and point of contact for the*

Consideration of Reports of Stormwater Noncompliance	*public to report storm water pollution issues.* *This BMP will be continued into the new permit term and will be completed annually.*
Establishment of Procedures for Site Inspections and Enforcement	*Continue to enforce the City's erosion control and waste disposal standards. Add additional procedures or requirements as necessary.* *This BMP will be continued into the new permit term and will be completed annually.*

BMP categories to be implemented	**Measurable goals and timeframes**
Prioritize Inspections	*The City will develop a process to determine the frequency for inspecting high priority inspection sites (e.g., near sensitive receiving waters, projects larger than 5 acres).*
Documentation Procedures	*Develop written procedures to track and archive all plan review and inspection documents within 12 months following the date permit coverage is extended.*

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

   Public Works Director

E. MCM 5: Post-construction stormwater management

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

   The City has a post-construction stormwater management ordinance that references the Comprehensive Water Resources Management Plan (CWMP). The CWMP that requires the utilization of BMPs for stormwater runoff from new and redevelopment projects, as well as to ensure the maintenance and operation of the stormwater BMPs.

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

3. Answer **yes** or **no** to indicate whether you have the following listed procedures for documentation of post-construction stormwater management according to the specifications of Permit (Part III.D.5.c.):
   a. Any supporting documentation that you use to determine compliance with the Permit (Part III.D.5.a), including the project name, location, owner and operator of the construction activity, any checklists used for conducting site plan reviews, and any calculations used to determine compliance? ☒ Yes ☐ No
   b. All supporting documentation associated with mitigation projects that you authorize? ☒ Yes ☐ No
   c. Payments received and used in accordance with Permit (Part III.D.5.a.(4)(f))? ☒ Yes ☐ No
   d. All legal mechanisms drafted in accordance with the Permit (Part III.D.5.a.(5)), including date(s) of the agreement(s) and names of all responsible parties involved? ☐ Yes ☒ No

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

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

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

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

Established BMP categories	**Measurable goals and timeframes**
Development and Implementation of Structural and/or Non-Structural BMP's	*The City will evaluate all structural and non-structural BMP's during the plan review process for the potential of new and/or*

	revised BMP's. The City will also actively look for non-structural opportunities where prudent and feasible. *This BMP will be continued into the new permit term and will be completed annually.*
Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment	*The City will implement the requirements of the Comprehensive Water Resource Management Plan and applicable City ordinances.* *This BMP will be continued into the new permit term and will be completed annually.*
Long-term Operation and Maintenance of BMP's	*The City will continue to annually inspect a minimum of 20% of all its MS4 outfalls, sediment basins, and ponds, then evaluate and record the number of proposed maintenance projects and successful funding of each project (if applicable). Success of this BMP is defined as achieving the measurable goals of minimum control measure 6* *This BMP will be continued into the new permit term and will be completed annually.*

BMP categories to be implemented	**Measurable goals and timeframes**
Develop Written Procedures for Site Plan Review	*Develop site plan review procedures that must be completed prior to the start of construction activity within 12 months of extension of permit coverage.*
Document Pertinent Project Information	*Maintain all related documents pertaining to each new or redevelopment project in more user-friendly filing system for better records management. Implement within 12 months.*

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

   Public Works Director

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

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

   The City currently inspects its structural pollution control devices on an annual basis and inspects all of its outfalls, sediment basins and ponds every 5 years. The City inspects stockpiles, storage and material handling areas at the maintenance yard for potential discharges and maintenance of BMPs. The City is evaluating the use of road salt for winter road maintenance activities to reduce chlorides entering our water resources. The City sweeps streets on a regular basis. Maintenance staff is trained annually on various topics related to pollution prevention during maintenance activities.

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

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

   The city will create a facilities inventory as outlined in the permit 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**
Municipal Operations and Maintenance Program	*The City will implement the requirements of the Comprehensive Water Resource Management Plan and applicable City ordinances.*

	This BMP will be continued into the new permit term and will be completed annually.
Street Sweeping Program	*Street sweep once annually. Record the annual number of times streets are brush swept as well as document any additional activities that were undertaken regarding this program.* *This BMP will be continued into the new permit term and will be completed annually.*
Annual Inspection of All Structural Pollution Control Devices	*Inspect and document all structural pollution control devices a minimum of once per year.* *This BMP will be continued into the new permit term and will be completed annually.*
Inspection of a Minimum of 20% of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis.	*The City will inspect all mapped outfalls, sediment basins, and ponds a minimum of 20% each year (on a rotating schedule during permit coverage) and record the number inspected, and rate the condition of each outfall.* *This BMP will be revised as stated below.*
Inspection of All Exposed Stockpile, Storage, and Material Handling Areas.	*Locate and inspect all exposed stockpile, storage and material handling areas located on City-owned properties, record inspections, correct and document all remedial actions quarterly.* *This BMP has been update to include a quarterly frequency for inspection.*
Inspection Follow-up, Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures.	*The City will determine whether repair, replacement, or maintenance measures are necessary from evaluating inspections records and other pertinent information. All corrective maintenance, repair, and/or replacement measures will be recorded.* *This BMP will be continued into the new permit term and will be completed annually.*
Record Reporting and Retention of All Inspections and Responses to the Inspections	*The City will retain all records of inspection, maintenance, and corrective actions for a minimum period of three years past the expiration of this permit.* *This BMP will be continued into the new permit term.*
Evaluation of Inspection Frequency	*Continue to implement annually.*
Landscaping & Lawn Care Practices Review	*Continue to evaluate current practices of fertilizer, pesticide, and herbicide application, mowing operations, grass clipping collection, mulching, and composting.* *This BMP will be continued into the new permit term and will be completed annually.*
Road Salt Application Review	*Continue to evaluate current practices of road salt applications, alternative products, calibration of equipment, inspection of vehicles and staff training. Minimum of one/year, annually.* *This BMP will be continued into the new permit term.*

BMP categories to be implemented	**Measurable goals and timeframes**
Training	*Provide a presentation annually to generate Staff awareness of SWPPP regulations and to develop projects with appropriate BMPs applied.*
Inspection of the MS4 Outfalls, Sediment Basins and Ponds	*The City will inspect all mapped outfalls, sediment basins, and ponds a minimum of once per permit term. The inspections will be prioritized based on potential maintenance need. The inspections will include recording the number inspected, conditions, and if any illicit discharges were detected.*
Spill Prevention & Control Plans for Municipal Facilities	*Ensure that plans describing spill prevention and control procedures are consistent among all departments. Conduct annual spill prevention and response training sessions to all municipal employees. Distribute education materials to each*

	municipal facility by the end of year 2.
Facility Inventory	*Update facilities inventory to identify potential pollutants at each site. Create a map of all identified facilities and BMPs implemented to prevent detrimental impacts to water quality.*
Pond Assessment Procedures & Schedule	*In year 1, develop procedures for determining TSS and TP treatment effectiveness of city owned ponds used for treatment of stormwater. Implement schedule in year 2-5*

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

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

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

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

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

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

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

7. Do you have inspection procedures that meet the requirements of the Permit (Part III.D.6.e.(1)-(3)) for structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material 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.5.b.1:The City is within the City of New Brighton's Source Water Protection Area (SWPA), but no map has been developed for the City of St. Anthony. Once a map is created it will be incorporated in the City SWPPP.

F.5.b.2: The City does not have any known surface water intakes.

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

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

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

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

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

Public Works Director

Streets Supervisor

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

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

1. If **no**, continue to section VII.
2. If **yes**, fill out and attach the MS4 Permit TMDL Attachment Spreadsheet with the following naming convention**:** *MS4NameHere_TMDL.*

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

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

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

1. If **no**, this section requires no further information.
2. If **yes**, you own and/or operate an Alum or Ferric Chloride Phosphorus Treatment System within your small MS4, then you must submit the Alum or Ferric Chloride Phosphorus Treatment Systems Form supplement to this document, with the following naming convention: *MS4NameHere_TreatmentSystem*.

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

VIII. Add any Additional Comments to Describe Your Program

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

Alum or Ferric Chloride Phosphorus Treatment System Form

Attachment to 2013 MS4 SWPPP
Application for Reauthorization for the NPDES/SDS
Small MS4 General Permit MNR040000
Stormwater Pollution Prevention Program (SWPPP) Document

Doc Type: Permit Application

Instructions: Only complete this form if your Municipal Separate Storm Sewer System (MS4) uses an alum or ferric chloride phosphorus treatment system for stormwater. Refer to Part III.F. of National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Small MS4 General Permit MNR040000 with an effective date of August 1, 2013, for alum or ferric chloride phosphorus treatment system requirements. In-lake phosphorus treatment activities are not authorized under this application attachment to the 2013 MS4 SWPPP Application for Reauthorization (SWPPP Document).

Submittal: This form must be submitted electronically via e-mail to the Minnesota Pollution Control Agency (MPCA) at ms4permitprogram.pca@state.mn.us from the person that is duly authorized to certify this form. Submit this form along with the 2013 MS4 SWPPP Application for Reauthorization (SWPPP Document). Title your form appropriately, such as: *MS4NameHere_TreatmentSystem*.doc.

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 Information

1. Provide the geographic coordinates of the alum or ferric chloride phosphorus treatment system, in decimal degrees. *(Approximate centroid of treatment system within five-foot accuracy):*

   Latitude: 45.03872 Longitude: -93.22336

2. Provide the name or the position title of the individual(s) who is responsible for the operation of the treatment system*:*

   Jay Hartman, Public Works Director

3. If the system is constructed at the time the 2013 MS4 SWPPP Application for Reauthorization (SWPPP Document) is submitted to the MPCA, provide the following information:

   a. Dates of operation: May through September

   b. Chemical(s) used for treatment: Alum

   c. Gallons of water treated: estimated to be: 19,872,000 gallons

   d. Gallons of alum or ferric chloride treatment used: estimated to be: 2,884 gallons

   e. Calculated pounds of phosphorus removed: estimated to be: 21 lbs

   f. Any performance issue(s) and the corrective action(s), including the date(s) when corrective action(s) was taken:

      This system will be constructed March of 2014 and be operational during the summer of 2014.

Alum or Ferric Chloride Phosphorus Treatment System Permit Requirements

Answer **yes** or **no** below to indicate if your alum or ferric chloride phosphorus treatment system meets the following requirements in the Permit (Part III.F.1.):

4. Minimum requirements of an Alum or Ferric Chloride Phosphorus Treatment System:

   a. Limitations

      1) Is your treatment system ***only used*** for the treatment of phosphorus in stormwater (non-stormwater discharges shall not be treated by this system)? ☒ Yes ☐ No

      *If no, contact MPCA MS4 Permit Program staff for appropriate next steps.

2) Is your treatment system contained within the conveyances and structural stormwater Best Management Practices (BMPs) of a small MS4 (the utilized conveyances and structural stormwater BMPs shall not include any receiving waters)? ☒ Yes ☐ No

*If no, contact MPCA MS4 Permit Program staff for appropriate next steps.

3) Does your treatment system utilize chemicals other than alum or ferric chloride? ☐ Yes ☒ No

*If yes, you must receive written approval from the MPCA. Contact MPCA MS4 Permit Program staff for appropriate next steps.

4) Does your treatment system include in-lake phosphorus treatment activities? ☐ Yes ☒ No

*If yes, in-lake phosphorus treatment is not authorized under this permit. Contact MPCA MS4 Permit Program staff for appropriate next steps.

b. Treatment system design

1) Is your treatment system constructed in a manner that diverts the stormwater flow away from the main conveyance system for treatment? ☒ Yes ☐ No

2) Is a High Flow Bypass part of the inlet design for your treatment system? ☒ Yes ☐ No

3) Does your treatment system include a flocculent storage/settling area incorporated into the design, and adequate maintenance access provided (minimum of eight-feet wide) for the removal of accumulated sediment? ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements in 4.b.1) – 3) (Treatment System Design), 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.

Answer **yes** or **no** below to indicate if your alum or ferric chloride phosphorus treatment system meets the following requirements in the Permit:

c. Monitoring

1) During operation, does your treatment system have a designated responsible person performing 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? ☒ Yes ☐ No

2) Following visual monitoring which occurs within 24 hours after a rainfall event, do you conduct the next visual monitoring of your system seven (7) days after that rainfall event? ☒ Yes ☐ No

3) Does your treatment system utilize three benchmark monitoring stations? Table B-1(Monitoring Parameters During Operation) in the Permit shall be used for the parameters, units of measure, and frequency of measurement for each station. ☒ Yes ☐ No

4) Do you collect grab samples or flow-weighted 24-hour composite samples at your treatment system? ☒ Yes ☐ No

5) Are your treatment system samples, excluding pH samples, analyzed by a certified laboratory by the Minnesota Department of Health and or the MPCA? ☒ Yes ☐ No

(a) Do your sample preservation and test procedures for the analysis of pollutants conform to 40 CFR Part 136 and Minn. R. 7041.3200? ☒ Yes ☐ No

(b) Are your detection limits for dissolved phosphorus, dissolved aluminum, and dissolved iron at a minimum of 6 micrograms per liter (µg/L), 10 µg/L, and 20 µg/L, respectively? ☒ Yes ☐ No

(c) Do you measure pH within 15 minutes of sample collection using properly calibrated and maintained equipment? ☒ Yes ☐ No

6) In the following situations, will you perform corrective actions and immediately notify the Minnesota Department of Public Safety Duty Officer, if:

(a) The pH of the discharged water is not within the range of 6.0 and 9.0? ☒ Yes ☐ No

(b) There are any indications of toxicity or measurements exceeding water quality standards? ☒ Yes ☐ No

(c) There is a spill, as defined in Minn. Stat. § 115.01, subd. 13, of alum or ferric chloride. ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements in 4.c.1) – 6), 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.

Answer **yes** or **no** to indicate whether you have a record of the following design parameters on-site:

5. On-Site recordkeeping

a. Do you have site-specific jar testing conducted using typical and representative water samples in accordance with ASTM D2035-08 (2003) at your treatment system location? ☒ Yes ☐ No

b. Do you have baseline concentrations of the following parameters in the influent and receiving waters at your treatment system location?

1) Aluminum or iron. ☐ Yes ☒ No

2) Phosphorus. ☒ Yes ☐ No

c. Do you have the following system parameters and how each was determined on-site at your treatment system?

1) Flocculent settling velocity. ☒ Yes ☐ No

2) Minimum required retention time. ☒ Yes ☐ No

3) Rate of diversion of stormwater into the system. ☒ Yes ☐ No

4) The flow rate from the discharge of the outlet structure. ☒ Yes ☐ No

5) Range of expected dosing rates. ☒ Yes ☐ No

d. Treatment System Management. Site-specific procedures shall be developed and a copy kept on-site.

1) Do you have a copy of procedures on-site for the installation, operation, and maintenance of all pumps, generators, control systems, and other equipment? ☒ Yes ☐ No

2) Do you have a copy of procedures on-site for determining when the solids must be removed from the system and how the solids will be handled and disposed of? ☒ Yes ☐ No

3) Do you have a copy of procedures on-site for cleaning up and/or containing a spill of each chemical stored on site? ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements in 5.a. – d., 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.

Baseline concentrations will be gathered prior to system operation to determine appropriate dosing rates. The system will be constructed in the March 2014 with the anticipation that the system will be coming on-line in the summer of 2014.

Add any Additional Comments

APPENDIX C – CITY OF ST. ANTHONY 2012 ALTERNATE COMPLIANCE SEQUENCING PLAN AND ASSOCIATED SIGNED MEMORANDUM OF AGREEMENT.

MEMORANDUM of AGREEMENT
City of St. Anthony and the Rice Creek Watershed District

This Memorandum of Agreement (MOA) is made by the City of St. Anthony, a statutory city and governmental subdivision of the State of Minnesota, and the Rice Creek Watershed District (RCWD), a special purpose governmental subdivision with powers set forth in Minnesota Statutes chapters 103B and 103D (together, the parties).

Recitals

A. Pursuant to Minnesota Statutes §§103B.211, 103D.341 and 103D.345, the RCWD has adopted and implements Rule C, Stormwater Management Plans, which imposes water quality and runoff retention requirements on land-disturbing projects.

B St. Anthony intends to undertake a street reconstruction program over the years 2012 to 2024 (hereinafter, "SRP"). The SRP is described in Exhibit A, attached to and incorporated into this Agreement.

C. To facilitate efficient public budgeting, planning and coordination, the parties are entering into this MOA to establish a framework for St. Anthony to meet the requirements of the RCWD's stormwater management rule for its SRP. This MOA includes an advance determination of the eligible methods and locations for stormwater management Best Management Practices (BMPs) and sets forth procedures for the parties to cooperate on regulatory review related to street reconstruction during the 2012-24 period. St. Anthony and the RCWD agree that this MOA is binding and rests on good and valuable consideration.

Terms

1. Projects in the SRP are within three subwatersheds, delineated on Exhibit B hereto and identified as follows:

- Silver Lake;
- Ramsey County Ditch 3;
- Mississippi River.

Each of these subwatersheds lies in whole or part within the RCWD. Stormwater management BMPs for a particular road project are intended to be located within the same subwatershed as the project disturbance.

2. RCWD Rule C.5 sets a hierarchy of preferred stormwater management methods for water quality and volume control and requires that infiltration be used where feasible. St. Anthony has demonstrated through soils data that infiltration is not feasible at any location on city right-of-way or other city property within RCWD. Therefore, in individual applications for SRP projects, St. Anthony will not be required to use infiltration BMPs or further substantiate that infiltration is infeasible.

3. Individual permit applications for SRP projects will:

a. Include submittals meeting RCWD requirements except for infiltration sequencing

b. Be allowed to use stormwater treatment BMPs within the same subwatershed to meet Rule C requirements

c. Calculate phosphorus removal requirements using the equivalency factor stated below and present a proposed BMP approach to meet those requirements

d. Demonstrate compliance with standards of Rule C (except with respect to infiltration) and other applicable RCWD rules

e. Provide BMPs for on-site total suspended solids control to the extent practicable; unless the regional BMP treats the total suspended solids prior to discharging to what the RCWD has determined is a resource of concern

f. Determine regional water quality BMP requirements by using a factor equating annual volume abstraction and annual total phosphorus removal. The "equivalence factor" to be used in implementing this MOA is 0.97 pounds of total phosphorus per acre-foot of runoff volume abstracted

g. Estimate annual total suspended solid removal achieved by regional BMPs.

In the event that RCWD Rule C is revised during the term of this MOA, the infiltration sequencing outcome of this MOA and phosphorus removal credits established under terms of this MOA will be protected, but the project will be subject to the water quality standard applicable at the time of application. The District retains the authority to condition a permit to address potential local water resource impacts.

5. Rule C requires that a stormwater management BMP be operational prior to or in conjunction with the land disturbance that requires it. The RCWD will maintain records of St. Anthony's phosphorus removal credit balance for each subwatershed. With each SRP application, St. Anthony will be responsible to demonstrate that the existing balance is sufficient, or provide for additional BMPs.

6. St. Anthony may establish phosphorus removal credits in two ways:

a. Credits may be established by calculating performance of existing or modified BMPs. Credits will be granted for the portion of the phosphorus removal beyond the sum of: (i) past compliance requirements for which the BMP was constructed and (ii) the proportion of the BMP funded by RCWD cost-share.

b. Credits may be established by calculating performance of new BMPs or modifications to existing BMPs.

The term "BMP" as used herein does not include pollutant removal techniques or treatments within a natural water basin or wetland.

7. St. Anthony will prepare and submit BMP design calculations to RCWD for review and approval. Design, as-built and other appropriate data will be included in the submittal. For non-standard BMPs, the RCWD and St. Anthony will cooperate to determine the credit. Such BMPs may require a monitoring period before the credit can be determined. Each BMP providing credit must conform to applicable design standards in Rule C and be subject to St. Anthony's maintenance commitment in accordance with that rule.

8. Nothing in this MOA creates or establishes a partnership, joint venture or agency relationship between the parties. RCWD review or approval of design plans and specifications is solely for the purpose of fulfilling its responsibilities under this MOA in its regulatory capacity. As between the parties, St. Anthony is solely responsible for selection of BMPs and the means, method and manner of BMP construction. Nothing in

this MOA creates any right in any third party or affects any immunity, defense or liability limitation enjoyed by either party.

9. This MOA is effective as of the date on which it is executed by both parties and expires on December 31, 2024. It may be amended only in a writing signed by both parties.

10. The recitals stated above are incorporated as part of this MOA.

IN WITNESS WHEREOF, the parties execute this MOA.

Rice Creek Watershed District

By _____ Date: 8-22-12
Name (print) Patricia Pheiner
President, Board of Managers

Approved as to Form and Execution

By _____
Name (print) Louis N. Smith
Its Attorney

City of St. Anthony

By: _____ Date:
Name (print) _____
Its City Manager

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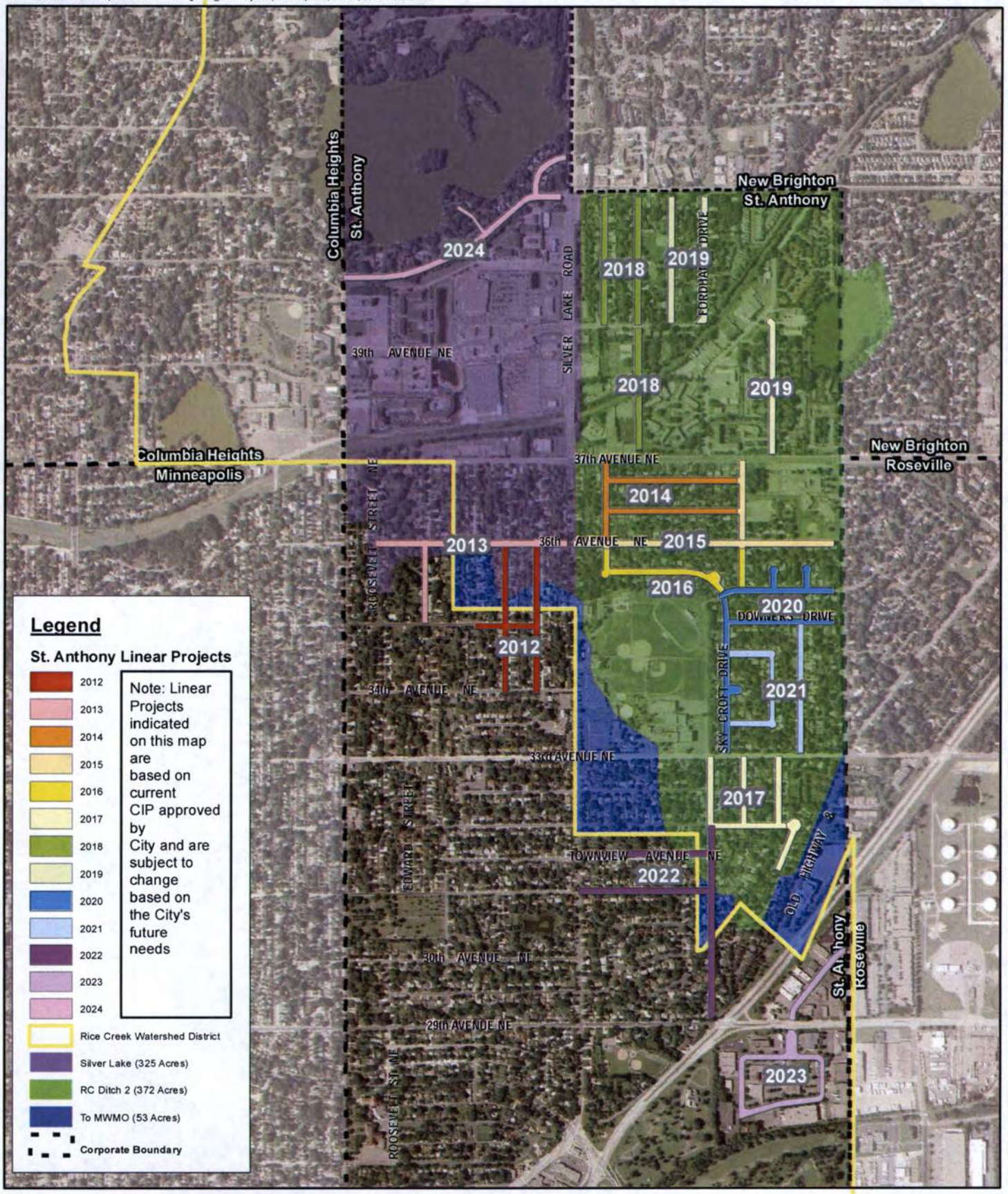


Exhibit A & B

0 625 1,250 Feet

Figure 1

Watershed Boundaries and Future Linear Reconstruction Projects

RCWD Alternative Compliance Sequencing Report

MAY 17, 2012

Saint Anthony Village

Rice Creek Watershed District

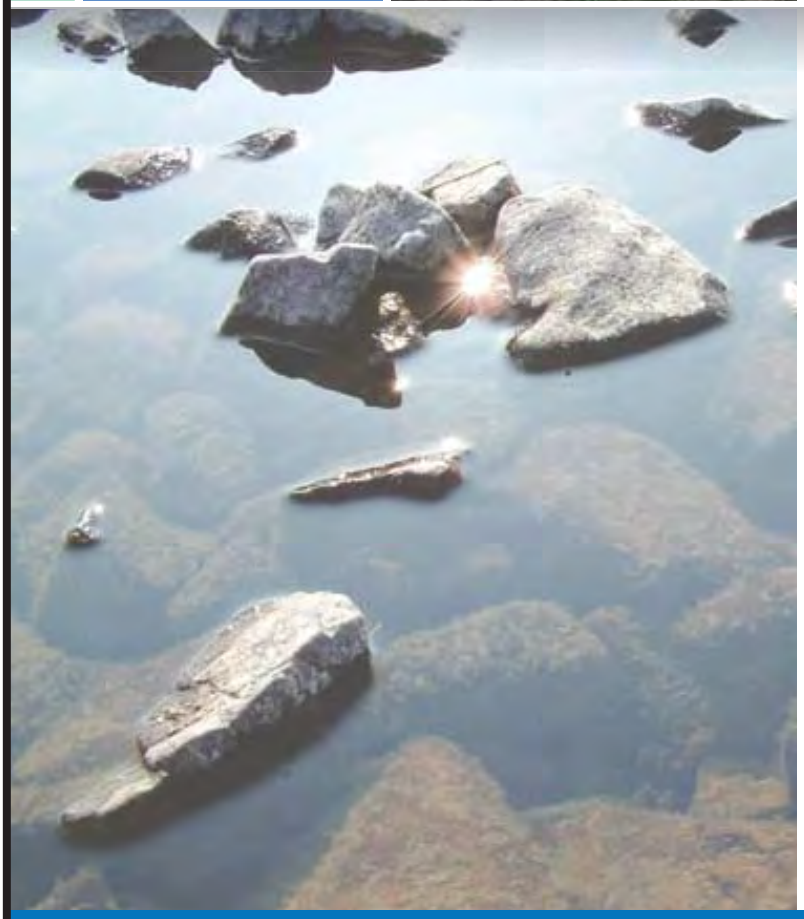
Alternative Compliance Sequencing Report

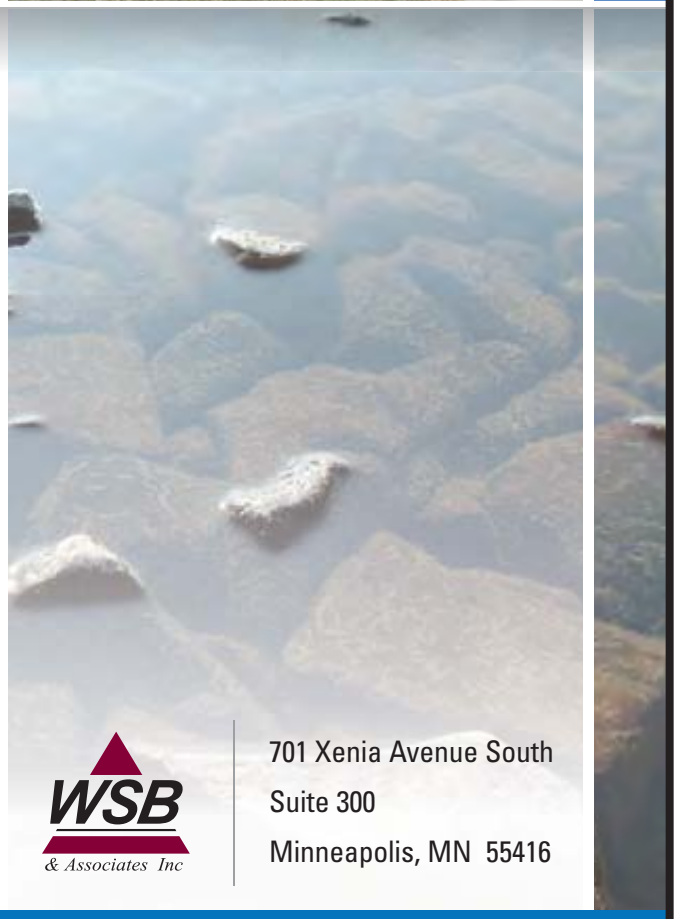
WSB Project Number: 01626-53











WSB & Associates Inc

701 Xenia Avenue South
Suite 300
Minneapolis, MN 55416

RICE CREEK WATERSHED DISTRICT
ALTERNATIVE COMPLIANCE
SEQUENCING REPORT

For the City of St. Anthony Village

May 17, 2012

Prepared by:

WSB & Associates, Inc.
701 Xenia Avenue South
Suite 300
Minneapolis, MN 55416
(763)541-4800

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I. INTRODUCTION AND PURPOSE

This report has been prepared by the City of St. Anthony (City) in an effort to address the Rice Creek Watershed District (RCWD) stormwater volume reduction and water quality requirements for the City's Street and Utility Reconstruction Plan. **Figure 1** shows the boundary of the RCWD within the City.

The City has a strong commitment to improving water quality and reducing the impact that municipal operations can have on our environment. The City of St. Anthony is a recognized leader in the implementation of Green Technologies in Municipal Operations. They have received a Step 2 Green Steps Award from the MPCA for their municipal operations. The City has also received recognition for their:

1. Stormwater and Backwash Water Reuse Facility
2. Salt and sanding reductions in roadway de-icing operations
3. Street sweeping and municipal maintenance to reduce pollutant contact with storm water runoff

In addition to the above, the City is currently exploring several technologies, some of which are described in this report, to further improve water quality and to reduce our impact on the environment.

The City desires to comply with, or exceed, the water quality and volume control rules of RCWD. Furthermore, the City's existing and proposed water quality initiatives are able to exceed the RCWD's water quality standards. However, RCWD's Rules and standard permitting process do not provide a streamlined method to account for water quality initiatives outside of the linear project area. Due to constraints common on linear projects, it has been necessary for the City to request volume control debits from RCWD to maintain street and utility infrastructure. The City is deeply concerned about the runoff volume debit that has accumulated, and debits for Street and Utility Reconstruction Projects will continue to occur if the current RCWD Rules and standard permitting process is continued.

RCWD Rules require that runoff volume debits be offset by volume control BMPs elsewhere in the City. However, soil conditions throughout the City eliminate feasible opportunities for volume reduction BMPs. Therefore, under the current framework of RCWD Rules, the City will perpetually run a volume reduction deficit with RCWD and compliance is unattainable. This places the City Council in precarious position of appearing to be out of compliance with environmental regulations, despite their progressive efforts to improve water quality.

This report addresses the RCWD's Alternative Compliance Sequencing Requirements allowed under RCWD Rule C.5.f.2, and provides a plan to comply with water quality standards of the RCWD. Alternative sequencing is necessary for the City of St. Anthony to continue its Street and Utility Reconstruction efforts and to comply with RCWD Rules.

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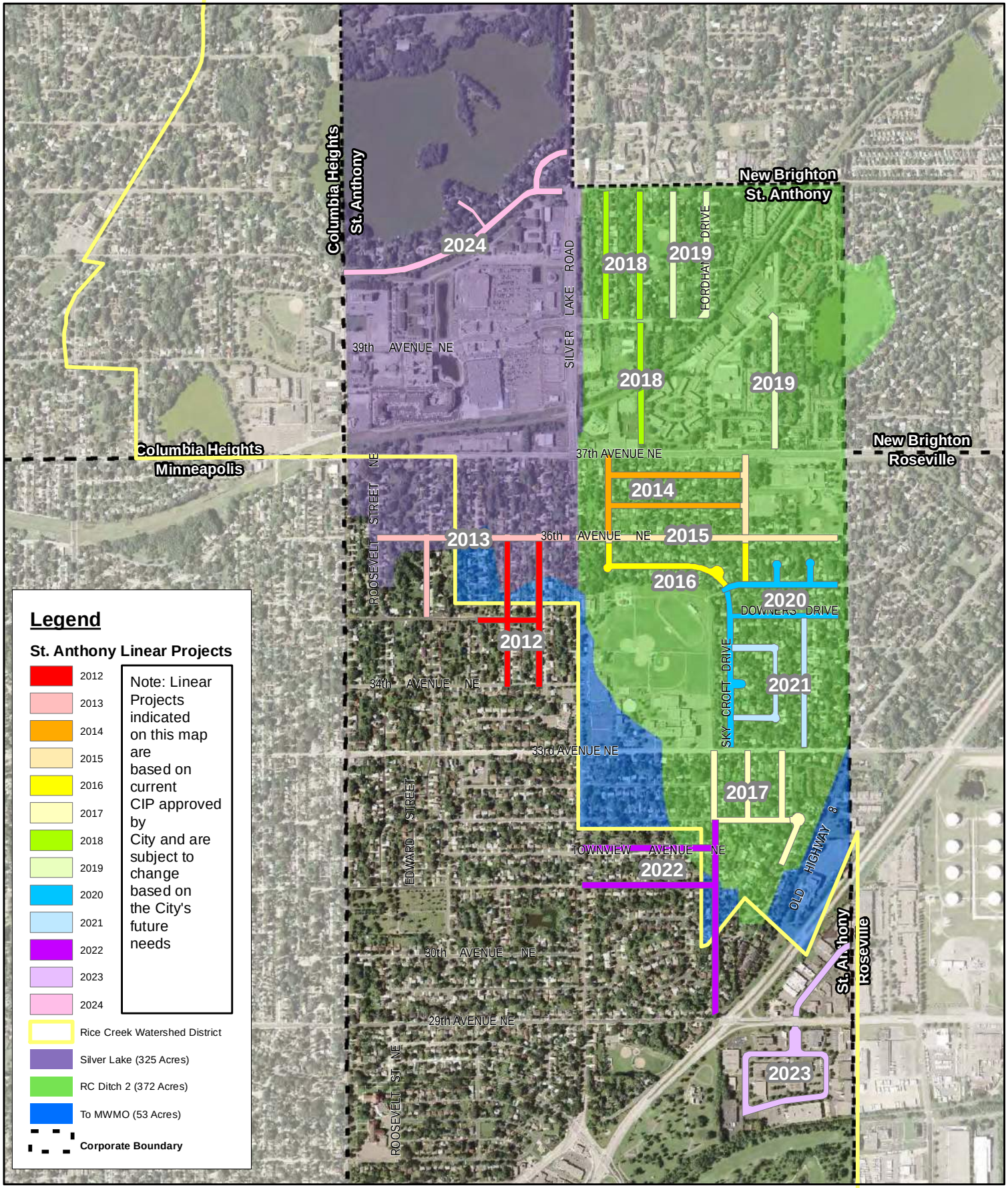


Figure 1
Watershed Boundaries and Future Linear Reconstruction Projects
RCWD Alternative Compliance Sequencing Report

The City is planning to perform twelve street reconstruction projects within the RCWD in the next thirteen years. Rather than completing water quality BMPs within each project area during construction of the project, the City believes it would be more effective, and have greater environmental benefit, to construct the regional improvements outlined in this Report to address the RCWD's water quality rules.

The following is a brief description of each section contained in this report:

Section II – Sequencing

This section addresses the sequencing requirements outlined in RCWD Rules. Soil information is presented showing that infiltration BMPs are not possible within the City. The sequencing process for other BMPs is also discussed for the linear projects proposed within the City.

Section III – Water Quality and Volume Control Requirements

This section quantifies the water quality and volume reduction requirements for anticipated linear reconstruction projects within the City. The requirements to treat all impervious right of way within the City is also quantified.

Section IV – Best Management Practices

This section outlines the City's existing and proposed stormwater management BMPs. The extent that these BMPs can be used to meet the RCWD's water quality and volume control rules is discussed and quantified.

Section V – Alternative Compliance Sequencing Plan

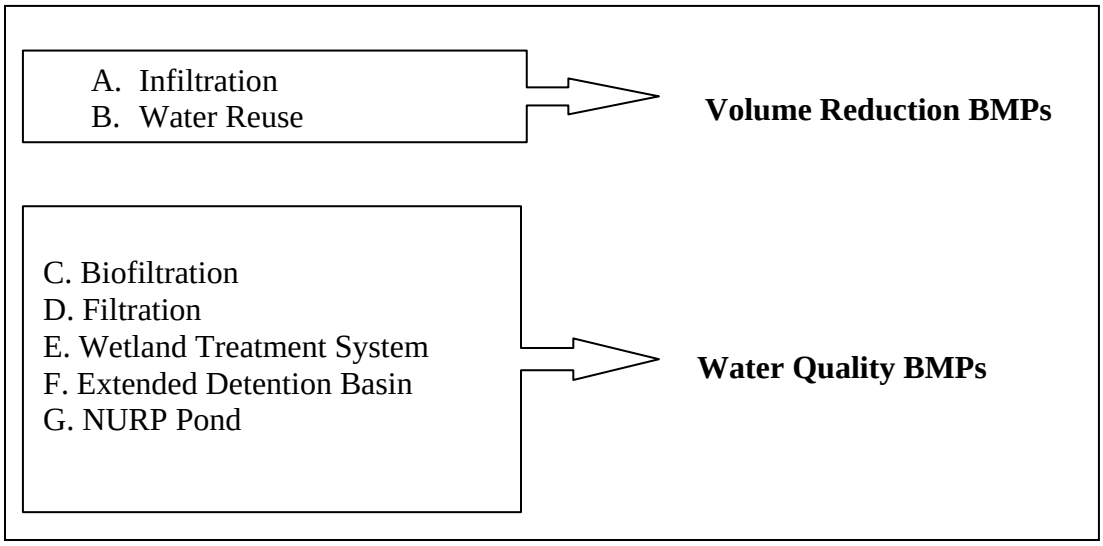
This section proposes a Plan for the City to address the Water Quality requirements of the RCWD for anticipated linear projects initiated by the City.

Section V – Alternative Compliance Sequencing Plan

This section outlines the City's Plan to provide water quality improvements consistent with RCWD standards. Proposed stormwater management BMPs are tabulated by subwatershed and anticipated linear projects that will benefit from those BMPs are identified.

II. SEQUENCING

This section addresses the sequencing requirements outlined in RCWD Rules and demonstrates that opportunities for infiltration-based BMPs are not feasible within the entire City of St. Anthony. Rule C.5(e) outlines the RCWD's preferred order to meet volume control and water quality standards.



Volume Control BMPs

Infiltration BMPs are the only BMPs designed specifically to reduce runoff volumes leaving a site. These volume control BMPs are able to accomplish water quality standards of the RCWD, and may also alleviate downstream problems that could occur due to excess runoff rates and volumes. Other environmental benefits such as groundwater recharge can also be accomplished using these BMPs.

Water Quality BMPs

Other priority BMPs listed focus primarily on water quality treatment. Although some marginal volume reduction benefits could potentially be provided by these BMPs, they are not typically intended to reduce runoff volumes. Any tangible volume reduction benefits of these BMPs are negligible from a watershed management perspective, particularly when the BMPs are hosted in clay soils that are not conducive to infiltration. The RCWD does not give volume reduction credit for these BMPs.

Addition of Impervious Surfaces

Evaluating the need for impervious surface coverage is a primary consideration to reduce runoff volumes and water quality impacts. The City does not currently plan to add any impervious surfaces within public right of way other than the addition of sidewalk in locations where pedestrian safety is a concern. Instead, existing streets are planned to be constructed based on their existing width or narrower when existing street widths exceed the current City Street design standards. This commitment to maintain existing impervious

surface coverage will allow the existing runoff from streets to be maintained or reduced, thereby protecting downstream resources.

The City's ability to implement priority BMPs outlined by the RCWD are addressed on a City-wide basis as follows:

A. Infiltration

Opportunities for infiltration BMPs do not exist within the City due to the poor-draining soils present. Native soils within the City of St. Anthony Village are clay or clayey soils (Hydrologic Soil Groups C and D) that have poor infiltration characteristics and are unsuitable for infiltration BMPs. These clay / clayey soil characteristics are uniform throughout the entire City. Extensive observation and substantial documentation of the clay / clayey soils is summarized below and demonstrates that opportunities for reasonable infiltration BMPs do not exist.

1. Infrastructure Improvement Projects

Numerous infrastructure improvement projects have occurred throughout the City over the past two decades. These projects include street and utility reconstruction, park renovations, flood improvements, and private redevelopment sites. Throughout all of these efforts, clay / clayey soils were observed, and soils suitable for infiltration BMPs were not encountered in any location.

Figure 2 shows the location of these projects, and illustrates that the majority of native soils within the City's right of way have been exposed and observed during these projects.

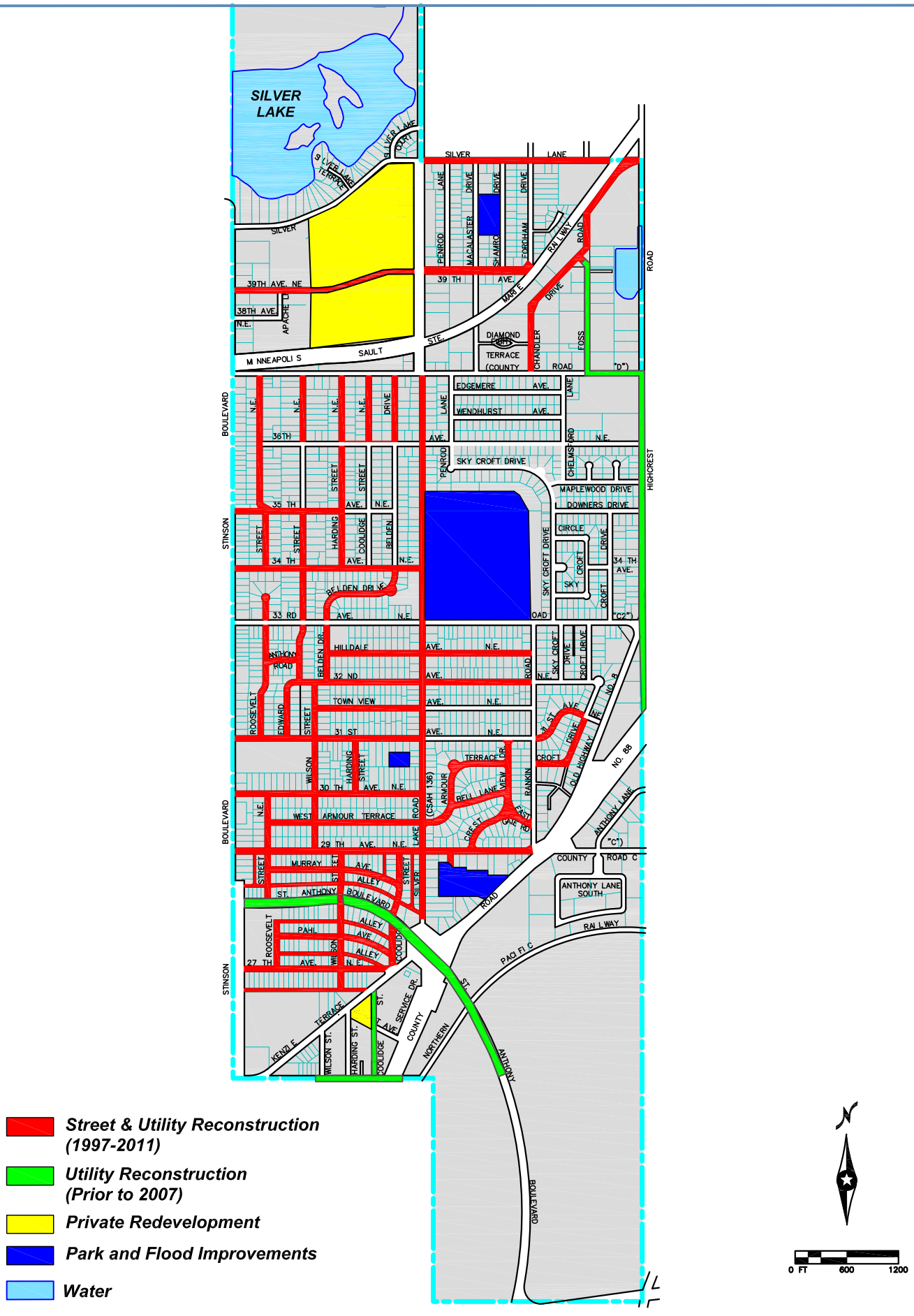
2. Soil Sampling

Soil borings were completed for nearly all of the improvement projects indicated on **Figure 2**. Soil boring logs indicate that clay / clayey soils native are present and no soils suitable for infiltration BMPs were observed. Available soil boring logs and a summary of available geotechnical reports are provided in **Appendix A**.

Additional soil samples were taken at select locations where RCWD staff felt there were gaps in soil data. **Figure 3** shows the sampling locations. All of the additional samples were classified as clay or clayey soil. See **Appendix B** for classification of soils for each sample.

3. Repair of Watermain Breaks

The City has repaired hundreds of watermain breaks and or curb stop leaks over the past decades. Throughout all of this work, the same uniform clay soils have been observed by Public Works Department Staff. The location of these breaks are scattered throughout the entire City including many additional areas that are not in soil sampling data. See **Appendix C** for a list of watermain break repairs.



Street & Utility Reconstruction (1997-2011)

Utility Reconstruction (Prior to 2007)

Private Redevelopment

Park and Flood Improvements

Water

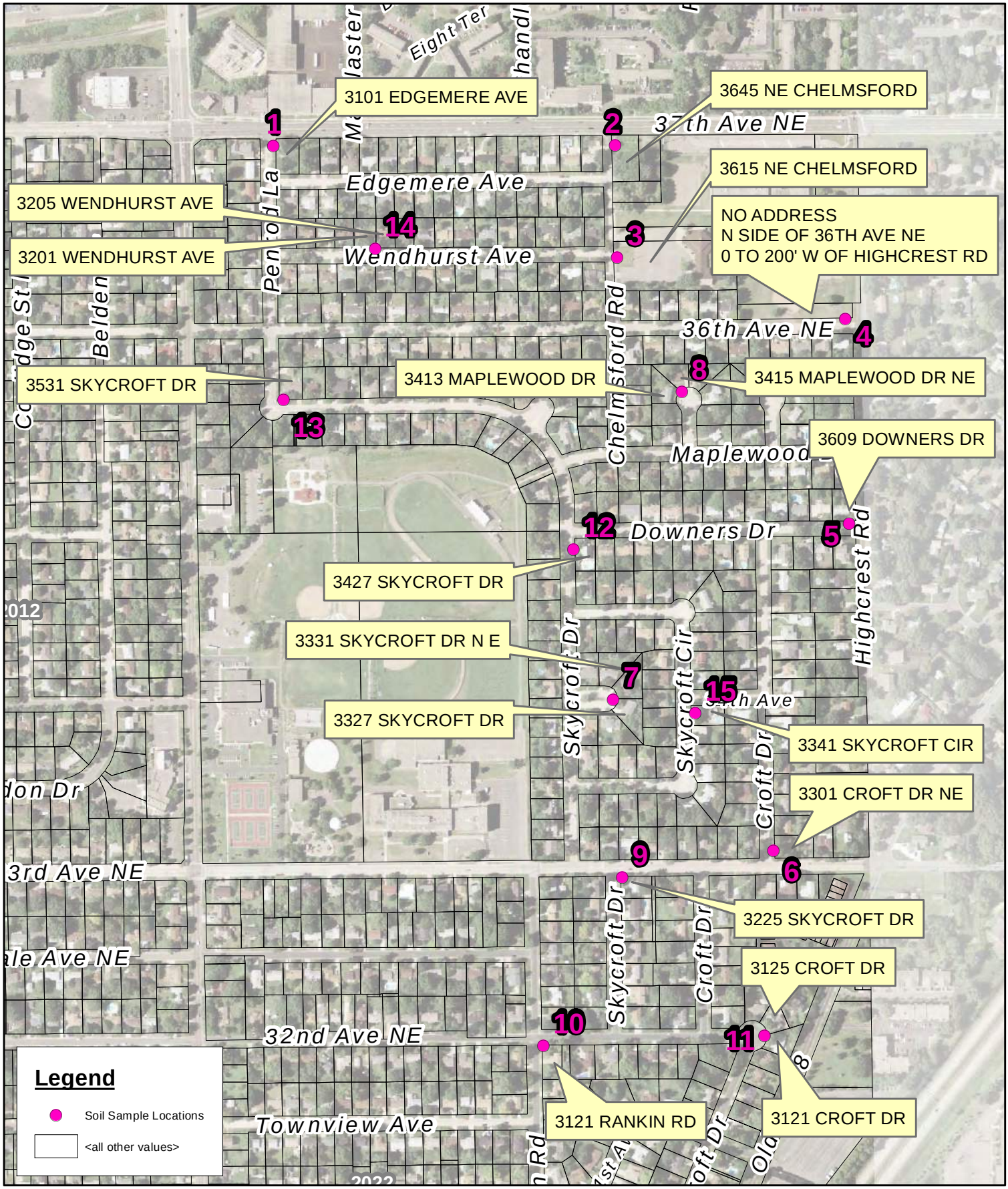
Saint Anthony Village

Figure 2
Soil Observations for Past Projects

RCWD Alternative Compliance Sequencing Report

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INFRASTRUCTURE ENGINEERING PLANNING CONSTRUCTION

File: K:\01626-53\GIS\Maps\Treatment Plan\Figure 1_CIP-Projects (8.5 x 11).mxd, Oct 07, 2010 11:57:54 AM



0 300 600 Feet

Figure 3
Soil Samples in Select Locations

RCWD Alternative Compliance Sequencing Report

4. **Miscellaneous Public Works Efforts**
   In addition to the soil observations listed above, City Staff routinely observe soils when constructing, maintaining and repairing City infrastructure such as sanitary sewer, sidewalk panels, electric, and irrigation systems. Staff has reported that throughout all of these efforts, no sandy native soils, or other soils suitable for infiltration have been encountered.

5. **Twin Cities Army Ammunition Plant Study**
   A geotechnical report was prepared for the Twin Cities Army Ammunition Plant (TCAAP) site. This report indicates that clay soils are present at the surface throughout the City of St. Anthony to depths ranging from 25 to 90 feet deep. See **Appendix D** for the Figure provided in the TCAAP Study.

The soil information presented above thoroughly documents that no options for conventional infiltration BMPs exist within the City.

B. Water Reuse

The City has also explored options for non-traditional infiltration BMPs. This led to the construction of a water reuse / irrigation system that was installed at Central Park. The City has investigated other potential sites for water reuse projects but additional locations for this type of project within the City were not feasible due to several factors including:

- Irrigation area too small
- Incompatible with land use
- Runoff volume too low
- Limited public land

Therefore, opportunities for water reuse BMPs have been exhausted at this time.

C. Biofiltration

The City has constructed or plans to construct biofiltration / filtration BMPs where this type of BMP was identified to be potentially effective. The existing and proposed BMPs of this type are discussed under **Section IV** of this Report.

Additional opportunities for biofiltration BMPs beyond those identified are limited and generally not possible within the public properties. This is due to several site constraints that are present on future linear improvement projects undertaken by the City including the following:

- *Space Constraints*
  Narrow right of way and limited public property are available to treat public drainage. The only space even available for the depressional storage needed is on boulevards adjacent to the streets. However, for many numerous

reasons discussed below, it is not reasonable to consider biofiltration BMPs as a feasible option for the City to pursue in the narrow space available.

- *Public Utilities*
  Placement of drainage infrastructure including BMPs, is not typically allowed within ten horizontal feet of a watermain. The City's utility design standards offset the watermain approximately ten feet from the center of the road where the sanitary sewer is located. This positions the watermain in a manner that does not allow BMPs to be constructed near the curb line on one side of the street. In addition, the City does not allow placement of utility services under drainage BMPs so that the service lines can be maintained or reconstructed without damaging BMPs.

- *Topography*
  In many cases, the lots adjacent to the street have been well-established and include trees, landscaping, driveways, carriage walks, and other obstacles that, while are desirable to the City and its residents, do not allow for BMPs to be constructed. In many cases, basins within the boulevard cannot be constructed due to the adjacent lot and house elevations.

- *Maintenance*
  Efforts for maintaining many small facilities within the boulevards are substantial and need constant attention. If timely maintenance is not performed it can lead to premature failure of these types of BMPs, and result in costly BMP reconstruction efforts. The City encourages the use of regional BMPs to limit the number of sites that are a focus for maintenance efforts.

- *Efficiency*
  Since a reasonable amount of space is not available within the right of way, any basins constructed would have a very small capacity, and would not provide an efficient means to treat stormwater runoff. By using regional water quality BMPs, the efficiency of the BMPs will increase substantially resulting in better downstream surface water quality.

D. Filtration

Additional opportunities for filtration BMPs within public properties are also limited and generally not possible. This is due to the space constraints, public utilities, and topography associated with constructing these BMPs as described in detail under the biofiltration option above.

E. Wetland Treatment System

Options for implementing a wetland treatment system within the City have been investigated. Due to topography and major drainage conveyance systems present,

no feasible locations for this type of BMP are present within public properties in the City.

F. Extended Detention Basin

Mirror Lake Pond was constructed to serve as a regional extended detention basin for runoff generated in the City. This BMP is described under **Section IV** of this Report.

Additional opportunities for this type of BMP are not possible at this time due to limited public land available and the large space that would be needed for this type of BMP.

G. NURP Pond

Several privately-owned NURP ponds exist within the City. Additional NURP ponds hosted on public property is not possible at this time due to limited public property.

Summary and Conclusion

The evaluation of the sequencing measures above indicates the following:

- Traditional infiltration BMPs are not possible and no feasible water reuse site exists within the City of St. Anthony. Under the RCWD's rules, this will not allow the City to create additional volume reduction credits within the City.

- On-site volume control water quality BMPs within boulevards are impossible to construct in many circumstances, and are not desired by the City.

- Small, on-site water quality BMPs require substantial maintenance and are less efficient than BMPs treating larger drainage areas.

- The City encourages regional water quality BMPs to treat public stormwater runoff to reduce maintenance efforts and to improve treatment efficiencies.

Given that volume control BMPs are not effective in the City's soils, it is difficult, or impossible, to reduce discharge volumes leaving the City. In addition, volume control is not required by the RCWD for the soil conditions present throughout the City. Therefore, the focus of the City's efforts will be to provide greater or equivalent water quality benefits to address the RCWD's Rules. In attempt to provide more effective treatment BMPs, the City will focus on constructing regional treatment projects to address the objective of RCWD Rules.

III. WATER QUALITY / VOLUME CONTROL REQUIREMENTS

This Section outlines the water quality and volume control standards and requirements of RCWD, and quantifies the required standards to meet RCWD Rules for all of the City's right of way within the RCWD. The requirements to meet RCWD Rules for upcoming linear projects are also presented.

A. RCWD Volume Reduction Standards

Volume reduction standards for linear reconstruction projects are based on the following street classifications:

- If a Highway, County Road, or Arterial Road; infiltration of 1.0-inch of runoff is required from the new and reconstructed impervious surface

- If a Collector, Subcollector, or Access Road; infiltration of 0.8-inches of runoff is required from the new and reconstructed impervious surface and the directly connected impervious surfaces within the project corridor

It is our understanding that the RCWD's Rules have been established to reduce runoff volumes, peak discharge rates, and pollutant loads discharged to surface waters.

B. Required Volume Reduction for All City Right of Way

The RCWD's volume reduction requirement for all impervious areas within the City Right of Way and within the RCWD was calculated based on the information provided below.

The study area has been divided into three subwatersheds. Each subwatershed represents drainage to a discharge point of concern. A list of the subwatersheds and a description of the discharge point of concern are listed below (see **Figure 1**):

- **Silver Lake**
  This subwatershed includes portions of the City that drain to Silver Lake. This subwatershed draining to the Lake is a priority for stormwater management to ensure that this resource of the City remains protected and to ensure RCWD Rules and TMDL Goals can be achieved for areas draining to the Lake. Silver Lake is among the highest valued natural resources within the City. It offers recreational opportunities and a natural setting to urban residents. The Lake is listed by MPCA as impaired and a TMDL Plan has been developed to address water quality standards within the Lake.

- **Ramsey County Ditch 3**
  This subwatershed includes runoff that drains to Foss Road and Silver Lane storm sewer (Ramsey County Ditch 3), including the

217 acres that drains through Mirror Lake Pond. Drainage leaving this subwatershed crosses the City's boundary into the City of New Brighton and eventually discharges into Rice Creek. This subwatershed is a priority for stormwater management to ensure that compliance with RCWD Rules is attainable within St. Anthony's City Limits.

- **Mississippi River**
  This subwatershed includes runoff within RCWD's jurisdictional boundaries that do not drain to Rice Creek, but drain directly to the Mississippi River.

The RCWD volume reduction requirement was calculated based on the following:

- 30-foot wide streets (City standard)
- 60-foot wide street for Silver Lake Road
- 16' x 15' driveways (average width and distance from back of curb to the ROW)
- 3' x 15' carriage walks for 20% of residential parcels (average width and distance from back of curb to the ROW)
- 0.8-inches runoff over impervious

The RCWD's event-based volume reduction standard was equated to an annual runoff reduction using twenty years of daily precipitation data (1988 – 2007) for the City of St. Anthony Village. This is similar to the methodology used during the RCWD permit review for the St. Anthony water reuse facility. **Table 1** shows RCWD's event-based volume reduction requirement and the annual runoff volume reduction that would be required if all right of way within the City and RCWD were reconstructed. Existing stormwater volume reduction debits are also noted for reference.

Table 1: Required Volume Reduction based on RCWD Rules

Subwatershed	Drainage area (Acres)	Directly connected impervious area within ROW (Acres)	RCWD volume reduction standard for impervious within ROW (0.8-inches of runoff) (ft^3)	Annual volume reduction resulting from RCWD requirements (ft^3/year)
Silver Lake	325	26.3	76,375	1,362,648
Ramsey County Ditch 3	372	39.2	113,837	2,036,987
Mississippi River	53	7.1	20,618	367,918
Previously Permitted Projects				
Central Park Parking Lot (01-103)	-	-	666	11,888
St. Anthony Schools (09-004)	-	-	2,195	39,181
Silver Lake Road (08-016)	-	-	13,068*	233,264*
2009 Street & Utility Improvements (08-070)	-	-	12,478*	222,732*
2010 Silver Lane Street & Utility Improvements (10-002)	-	-	4,100*	73,185*
2011 Street & Utility Improvements (10-086)	-	-	10,594*	189,103*
TOTAL	**750**	**72.6**	**213,691**	**3,818,622**

*Note: Volume reduction requirement for these projects are also included in the subwatershed volume reduction calculation

C. Equivalent Pollutant Reduction Requirement for City Right of Way

The City of St. Anthony is unable to achieve the RCWD's volume reduction requirements using volume control BMPs. As a result, the City proposes to provide equivalent water quality treatment to address the RCWD's Rules.

In order to meet the RCWD's water quality standards, the City of St. Anthony Village would be required to reduce stormwater discharged from the City by 3,818,622 cubic feet per year. This volume-based standard of the RCWD has been converted to a pollutant-based standard focusing primarily on total phosphorus (TP) and also considering total suspended solids (TSS). **Table 2** indicates the annual volume reduction and equivalent pollutant reduction needed to meet the RCWD's water quality standard.

Table 2: Equivalent Annual Total Phosphorus and Total Suspended Solids Removal

Subwatershed	Annual volume reduction resulting from infiltration system to meet RCWD requirements (ft^3)	Equivalent annual total phosphorus removal (lbs/year)	Equivalent annual total suspended solids removal (tons/year)
Silver Lake ROW	1,362,648	30.1	5.90
RC Ditch 3 ROW	2,036,987	45.6	8.94
Mississippi River ROW	367,918	8.2	1.61
Public Projects (outside of ROW)			
Central Parking Lot (RCWD 01-103)	11,888	0.3	0.06
St. Anthony Schools (RCWD 09-004)	39,181	0.9	0.18
TOTAL	**3,818,622**	**85**	**16.65**

The pollutant-based standards indicated on Table 2 are calculated based on the following:

Total Phosphorus

A TP concentration of 0.97 pounds per acre-foot (0.36 mg/L) of runoff was used to convert runoff volume to TP load removal. This is consistent with event mean concentrations established under the approved TMDL for Silver Lake.

The RCWD Engineer has noted that this TP concentration is higher than what is typically observed within this portion of the RCWD. To remain consistent with the TMDL documents, however, the concentration has been found acceptable for this analysis. It should be noted that most BMP benefits in the report, including the benefits of volume reduction BMPs, are measured as a percentage of retained load. Therefore the finite load is less important than the percent of load that must be retained to meet the water quality standard. By using the load concentration presented in the TMDL, the extent that BMPs are able to meet TMDL goals can be better estimated.

Total Suspended Solids

A TSS concentration of 0.190 tons per acre-foot (140 mg/L) of runoff was used to convert runoff volume to TSS load removal. This is based on data presented in "Protecting Water Quality in Urban Areas", which is founded in part by the Nationwide Urban Runoff Program (NURP) Studies.

Although both TP and TSS removal equivalents are quantified, TP is the primary pollutant considered for water quality improvements within the City of St. Anthony. Silver Lake is impaired for nutrients and targeting TP will help ensure that TMDL

goals can be achieved. In addition, BMPs that are able to target TP loads typically achieve much higher removal efficiencies for TSS. For these reasons, TP is the primary pollutant load targeted to address the RCWD's water quality standards.

D. Required Volume & Equivalent Pollutant Reduction for Future Projects

In addition to the calculation of city-wide requirements provided, the specific requirements for future street and utility reconstruction projects is estimated to help plan future BMP construction and to demonstrate compliance with RCWD water quality standards over the upcoming years.

Using the methods outlined above, the required volume reduction, and associated equivalent pollutant reduction has been calculated for anticipated linear reconstruction projects outlined in the City's Capital Improvement Plan. See **Figure 1** for a map of the project. A list of the project year, the receiving water, and linear footage estimates for the projects are presented in **Table 3** below.

Table 3: Linear Footage of Future Projects by Watershed

Project Year	Project Streets (See Figure 1 for Exact Locations)	Linear Footage to Receiving Watershed			
		Silver Lake	Ramsey County Ditch 2	Within RCWD, draining to Miss River	Outside of RCWD
2012	Belden, Coolidge & 35th	880		340	2,250
2013	Edward & 36th	2,000			650
2014	Penrod, Edgemere & Wendhurst		3,320		
2015	Chelmsford & 36th		3,460		
2016	Penrod, Chelmsford & Skycroft		1,820		
2017	Rankin, Skycroft, Croft & 32nd		3,330		
2018	Penrod & MacAlaster		3,560		
2019	Shamrock, Fordham & Foss		2,580		
2020	Skycroft, Downers & Maplewood		3,330		
2021	Skycroft Cir, Croft & 34th		3,100		
2022	Rankin, Townview & 31st		920	610	2,850
2023	Anthony Ln				3,740
2024	Silver Ln	3,360			

Although this reflects the current street reconstruction plan approved by the City, the order of, and magnitude of street reconstruction projects are periodically adjusted based on the current needs of the City.

Using the linear footage estimates in **Table 3**, the required RCWD volume reduction standard, annual runoff volume reduction, and equivalent annual phosphorus removal has been calculated and listed in **Table 4** below. The impervious surface area is based on 32 foot wide roadways (two feet wider than the standard width to account for possible deviations from standard), and an additional 20% to account for driveways and carriage walks within right of way.

Table 4: Required Volume Reduction & Equivalent Treatment for Future Linear Projects by Subwatershed

	Silver Lake			Ramsey County Ditch 3		
Project Year	RCWD volume reduction standard for impervious within ROW (0.8-inches of runoff) (ft3)	Annual volume reduction resulting from RCWD requirements (ft3 / year)	Equivalent annual total phosphorus removal (lbs/year)	RCWD volume reduction standard for impervious within ROW (0.8-inches of runoff) (ft3)	Annual volume reduction resulting from RCWD requirements (ft3 / year)	Equivalent annual total phosphorus removal (lbs/year)
2012	2,253	40,190	0.9	0	0	0.0
2013	5,120	91,341	2.0	0	0	0.0
2014	0	0	0.0	8,499	151,626	3.4
2015	0	0	0.0	8,858	158,020	3.5
2016	0	0	0.0	4,659	83,120	1.9
2017	0	0	0.0	8,525	152,082	3.4
2018	0	0	0.0	9,114	162,587	3.6
2019	0	0	0.0	6,605	117,830	2.6
2020	0	0	0.0	8,525	152,082	3.4
2021	0	0	0.0	7,936	141,578	3.2
2022	0	0	0.0	2,355	42,017	0.9
2023	0	0	0.0	0	0	0.0
2024	8,602	153,453	3.4	0	0	0.0
TOTAL	**15,975**	**284,984**	**6.3**	**65,076**	**1,160,942**	**25.9**

IV. STORMWATER MANAGEMENT BMPS

Existing and future stormwater management BMPs undertaken by the City are provided in this Section. The water quality benefits provided by these BMPs are also estimated based on equivalent annual volume reduction conversion presented in **Section III**. Constructed and planned linear projects that will benefit from these BMPs are listed in the Plan under **Section V**.

A. Inventory of Existing Water Quality BMPs Recognized by RCWD

The following stormwater BMPs have been constructed by the City of St. Anthony Village to address the volume reduction requirements set forth by the RCWD. A brief description of existing BMPs that have been used to meet RCWD permit requirements along with the stormwater volume credits achieved is listed below. Refer to **Figure 4** for the location of the existing BMPs.

1. St. Anthony Water Reuse Facility (RC Ditch 3 Watershed)

The City constructed a stormwater system in 2008 that captures and stores stormwater to be reused for irrigation. The system has a storage capacity of 66,840 cubic feet and provides irrigation to 20 acres. The RCWD recognizes that credits for the facility are warranted and the City is continuing monitoring activities on the facility to determine the final credits that will be granted by the RCWD. At this time, monitoring results indicate that the project reduces discharges to surface waters by 683,156 cubic feet annually.

2. Foss Road Biofiltration Swale (RC Ditch 3 Watershed)

The City constructed a biofiltration swale off of Foss Road as part of the 2009 Street and Utility Improvement Project. RCWD estimated a credit of 12,478 cubic feet of water quality treatment for the first 0.8-inches of runoff for this BMP. This credit can be converted to an equivalent annual volume reduction credit of 222,732 cubic feet using an estimated conversion factor of 17.85. This conversion factor is the estimated ratio of annual stormwater volume reduction to volume reduction for the first 0.8-inches of runoff.

It should be noted that the RCWD has limited recognized credits for this BMP based on the impervious surfaces reconstructed for the project. However, the filtration BMP treats runoff from a much larger drainage area than the limits of the project.

3. Filtration BMPs for 2011 Street Improvements (Silver Lake Watershed)

The City constructed three filtration BMPs to obtain a RCWD permit to construct its 2011 Street Improvement Project. 1,742 cubic feet of equivalent volume reduction credits are provided by these BMPs. This credit is converted to an annual volume reduction of 31,095 cubic feet using the estimated conversion factor of 17.85.

B. Inventory of Existing Water Quality BMPs Constructed Prior to 2008

The following stormwater BMPs were constructed by the City of St. Anthony Village prior to the RCWD's volume reduction requirements that were initiated in 2008. Since the credit system was not initiated by the RCWD at that time, these BMPs have not been formally recognized by RCWD at this time. However, these BMPs provide significant treatment and should be accounted for when considering the level of treatment needed to meet the RCWD's Rules. A brief description of each BMP along with the anticipated stormwater volume credit provided by the BMP is listed below. Refer to **Figure 4** for the location of the existing BMPs.

1. Shamrock Drive/Silver Lane Biofiltration Basin (RC Ditch 3 Watershed)
The City constructed a biofiltration basin off of Shamrock Drive and Silver Lane in 2007. This basin provides treatment to approximately 2.9 acres, of which 0.85 acres (29%) is impervious. This basin currently provides an equivalent annual volume reduction of approximately 46,660 cubic feet.

2. Mirror Pond (RC Ditch 3 Watershed)
Mirror pond was constructed in 1973 by the City of St. Anthony Village. The stormwater pond receives runoff from 217 acres. The existing stormwater pond reduces total phosphorus loading by approximately 58% or 78 pounds annually. Using the concentration of 0.97 pounds of total phosphorus per acre foot of runoff from the Silver Lake TMDL, the equivalent annual volume reduction is 3,502,763 cubic feet.

Table 5 below provides a summary of equivalent annual runoff decreases that are achieved by existing stormwater BMPs controlled by the City of St. Anthony Village.

Table 5: Equivalent Annual Volume Reduction from Existing BMPs

Existing BMP	Equivalent Annual Volume Reduction (ft^3)*
St. Anthony Reuse Facility	683,156
Foss Road Biofiltration Swale	222,732
Filtration BMPs – 2011 Street Reconstruction	31,095
Shamrock Drive/Silver Lane Biofiltration Basin	46,660
Mirror Pond	3,502,763
TOTAL	**4,486,406**

*Equivalent annual volume reduction calculated using 0.97 lbs of total phosphorus/acre-foot of runoff consistent with TMDL study for Silver Lake

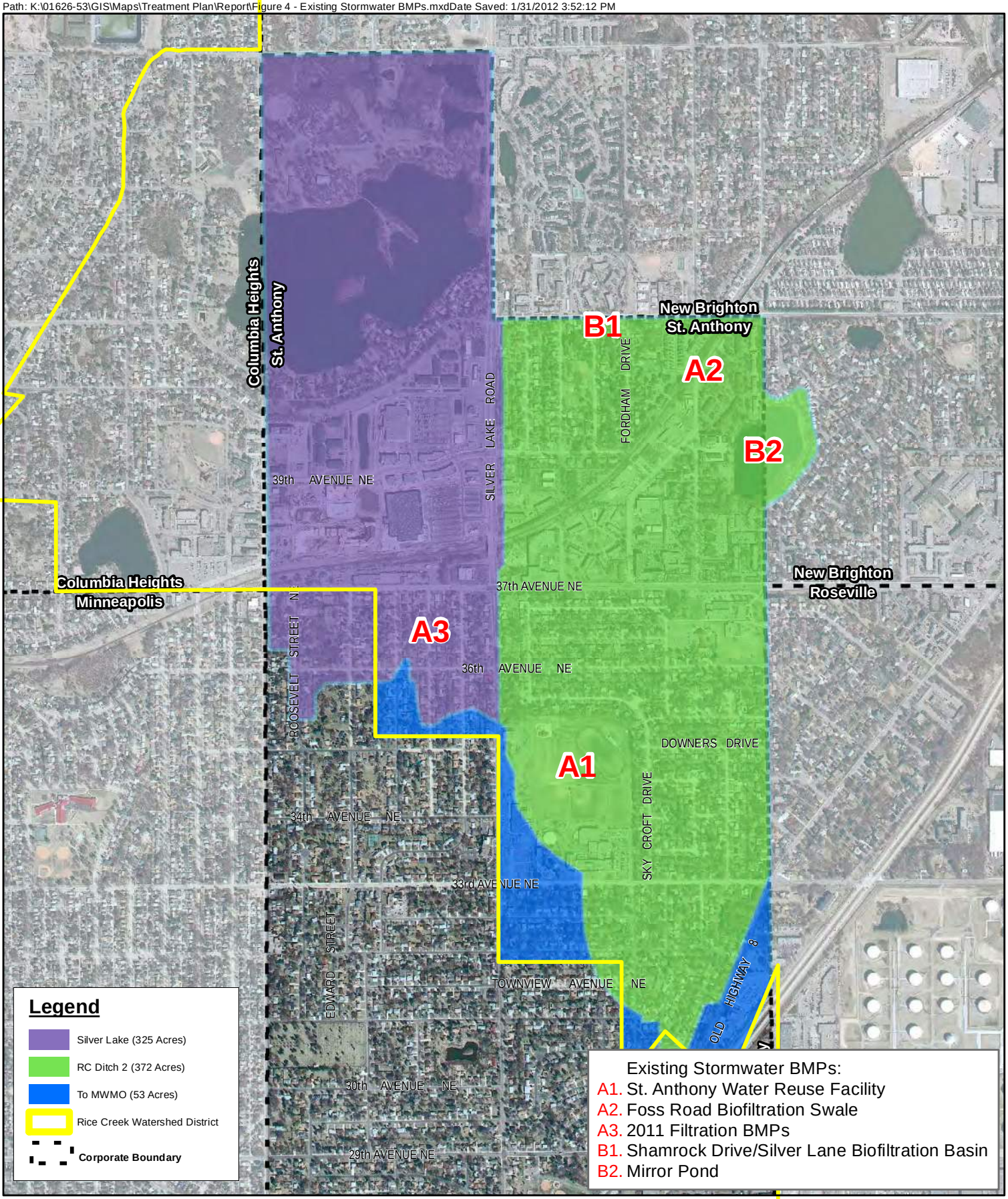


Figure 4
Existing Stormwater BMPs

RCWD Alternative Compliance Sequencing Report

C. Proposed Water Quality BMPs

The City of St. Anthony Village anticipates completing multiple linear construction projects in the near future. Due to the overwhelming presence of Hydrologic Soil Goups C and D throughout the City, there is little opportunity to provide feasible volume reduction BMPs. The City proposes using an equivalence factor to allow for the achievement of volume reduction credits by implementing phosphorous reducing BMPs. Refer to **Figure 5** for the location of proposed BMPs.

Possible stormwater management BMPs have been identified to achieve volume reduction credits through the use of equivalent total phosphorus reduction. Using the annual total phosphorous loading rate provided in the Silver Lake TMDL of 0.97 pounds of total phosphorus per acre foot of runoff, the equivalent annual volume reduction was estimated. Calculations or procedures to determine water quality benefits of each BMP will be submitted for RCWD staff review and approval prior to construction. These credits will be used to offset the volume reduction requirements resulting from the City's planned linear reconstruction projects. The following projects are possible improvement options for consideration in the near future:

1. Salo Ponds Alum Treatment System (Silver Lake Watershed)

Project Description:

This project includes a permanent alum injection system in Salo Park, south of Silver Lake, to remove total phosphorus and total suspended solids and improve the water quality discharged to Silver Lake, which has been classified by the MPCA as impaired due to excess nutrients.

Project Benefit:

The existing ponds remove approximately 66% of total phosphorus or 59 pounds annually as shown in the Silver Lake TMDL. The proposed project is anticipated to increase the removal efficiency to 90% of total phosphorus or an additional 21 pounds annually. Using the total phosphorus loading rate from the Silver Lake TMDL (0.97 lbs of TP/AF of runoff), an equivalent annual volume reduction of 943,051 cubic feet is estimated.

A portion of this project may be paid for under RCWD grant funding. If grant funding is used for this project, RCWD has indicated that a portion of the water quality credits may not be used to benefit linear project improvements.

2. **Mirror Lake Pond Water Quality and Habitat Improvements** (RC Ditch 3 Watershed)

   Project Description:
   This project includes increasing the depth of Mirror Pond and providing topographic features in the lake to aid in pollutant removal. The project also includes enhancement of fish and wildlife habitat by planting native vegetation along the shoreline.

   Project Benefit:
   The existing pond removes approximately 58% of total phosphorus or 78 pounds annually. The proposed project is anticipated to increase the removal efficiency of total phosphorus to 61% which would result in removal of an additional 4 pounds of total phosphorus annually. Using the anticipated loading rate from the Silver Lake TMDL (0.97 lbs of TP/AF of runoff), an equivalent annual volume reduction of 169,012 cubic feet is estimated.

3. **Mirror Lake Pond Alum Treatment System** (RC Ditch 3 Watershed)

   Project Description:
   This project includes a permanent alum treatment system in Mirror Pond which is located on the eastern border of the City. The alum treatment system would remove additional phosphorus to improve both the water quality in the pond as well as stormwater discharged downstream.

   Project Benefit:
   After water quality and habitat improvements described above, the pond will remove approximately 61% of total phosphorus or 82 pounds annually. The proposed project is anticipated to increase the removal efficiency of total phosphorus to 90% which would result in removal of an additional 38 pounds of total phosphorus annually. Using the anticipated loading rate from the Silver Lake TMDL (0.97 lbs of TP/AF of runoff), an equivalent annual volume reduction of 1,605,622 cubic feet is estimated.

4. **37th Avenue In-line Treatment System** (Silver Lake Watershed)

   Project Description:
   This project includes the construction of an in-line treatment system on 37th Avenue west of Silver Lake Road. The in-line treatment system would provide stormwater treatment to approximately 48 acres prior to discharge into Silver Lake.

   Project Benefit:
   The proposed in-line treatment system on 37th Avenue is anticipated to remove approximately 20% of total phosphorus or 9 pounds annually. Using the anticipated loading rate from the Silver Lake TMDL (0.97 lbs of TP/AF of runoff), an equivalent annual volume reduction of 421,560 cubic feet is estimated.

5. **Stinson Boulevard In-line Treatment System** (Silver Lake Watershed)

   Project Description:
   This project includes the construction of an in-line treatment system on Stinson Boulevard. The in-line treatment system would provide stormwater treatment to approximately 18 acres from St. Anthony prior to discharging into Silver Lake. Additional treatment will be provided for areas within Columbia Heights, but has not been considered as a part of this analysis.

   Project Benefit:
   The proposed in-line treatment system on Stinson Boulevard is anticipated to remove approximately 20% of total phosphorus or 3 pounds from the City of St. Anthony annually. Using the anticipated loading rate from the Silver Lake TMDL (0.97 lbs of TP/AF of runoff), an equivalent annual volume reduction of 134,722 cubic feet is estimated.

6. **Central Park Biofiltration System** (RC Ditch 3 Watershed)

Project Description:
The project consists of a biofiltration system which will be constructed in an existing low area at Central Park that collects untreated runoff from the majority of the 42 acre drainage area. The biofiltration system will consist of draintile pipe encased in a rock trench and located beneath a sand/compost filtration medium. Native vegetation will be planted throughout the raingarden to provide evapotranspiration of stormwater and minimize standing water following rainfall events.

Project Benefit:
The proposed biofiltration system at Central Park is anticipated to remove approximately 37.5% of total phosphorus or 15 pounds annually. Using the anticipated loading rate from the Silver Lake TMDL (0.97 lbs of TP/AF of runoff), an equivalent annual volume reduction of 673,608 cubic feet is estimated.

A portion of this project may be paid for under RCWD grant funding. If grant funding is used for this project, RCWD has indicated that a portion of the water quality credits may not be used to benefit linear project improvements.

Table 6 below summarizes the equivalent annual volume reduction resulting from total phosphorus removals for possible improvement projects in the City of St. Anthony Village.

Table 6: Equivalent Annual Volume Reduction from Proposed Improvement Projects

Project	Equivalent Annual Volume Reduction (ft^3)*
Salo Ponds Alum Treatment System	943,051
Mirror Pond Improvement Project	169,012
Mirror Pond Alum Treatment System	1,605,622
37th Avenue In-line Treatment System	421,560
Stinson Boulevard In-line Treatment System	134,722
Central Park Biofiltration System	673,608
TOTAL	**3,947,575**

*Equivalent annual volume reduction calculated using 0.97 lbs of total phosphorus/acre-foot of runoff consistent with TMDL study for Silver Lake

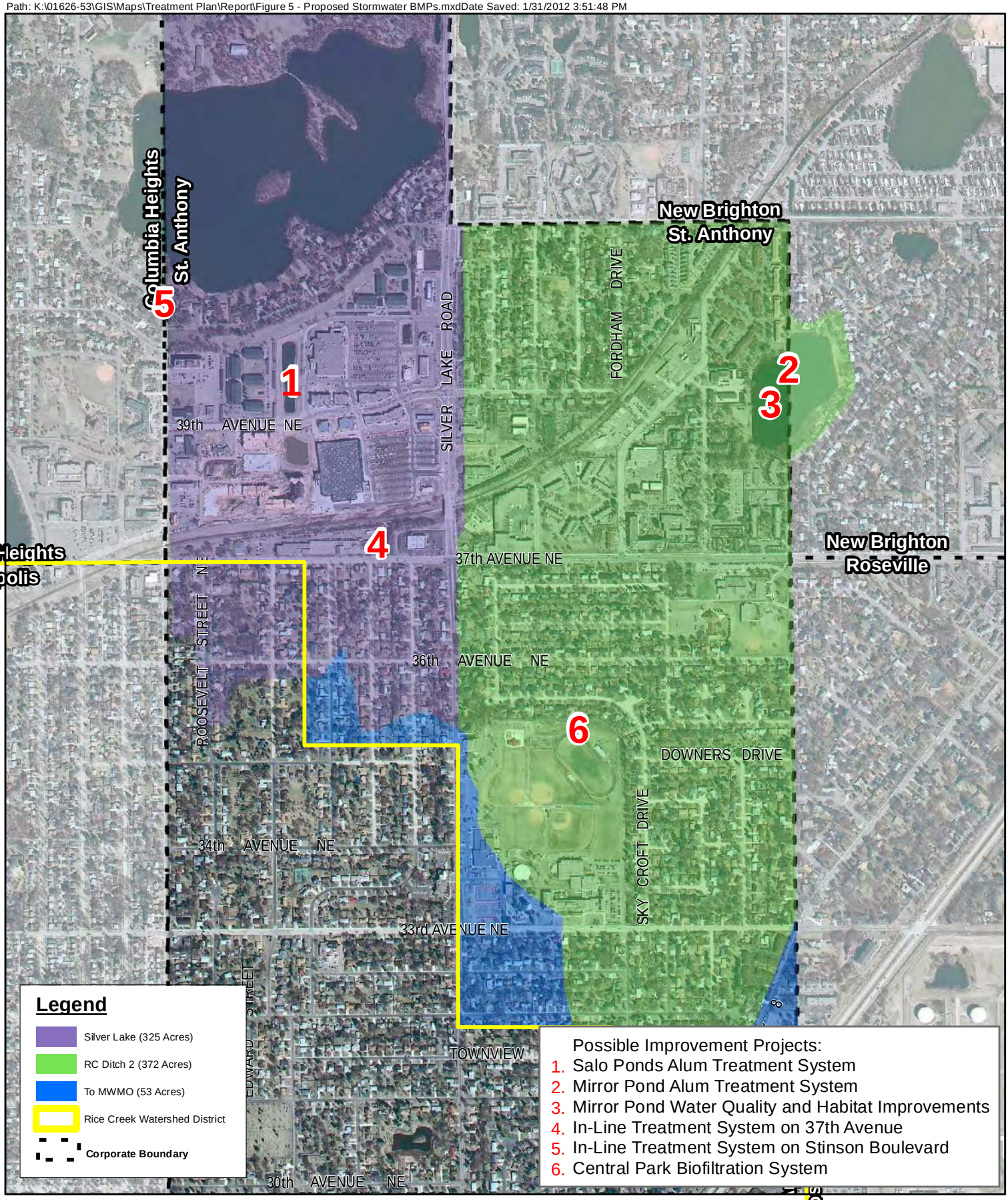


Figure 5
Proposed Stormwater BMPs

RCWD Alternative Compliance Sequencing Report

V. ALTERNATIVE COMPLIANCE SEQUENCING PLAN

Construction of infiltration-based BMPs in conjunction with City Street and Utility Reconstruction Projects is not possible in the City of St. Anthony Village. Due to the soil characteristics throughout the City, and based on the sequencing measures considered under **Section II**, the City proposes construction of stormwater treatment BMPs in lieu of volume reduction BMPs.

A. City-wide Analysis

A City-wide analysis was completed to determine the extent that municipal water quality BMPs can address RCWD Rules for all right of way within the City. **Table 5** below contains a summary of the volume reduction requirements for impervious and directly connected impervious areas within the three subwatersheds located within the RCWD and the City. Also included in the table are existing BMPs constructed by the City, proposed BMPs to be constructed, and the associated water quality benefits in terms of annual volume reduction.

Table 7: Summary of Equivalent Annual Volume Reduction Debits and Credits for Reconstructing ROW and Implementing BMPs within the City of St. Anthony

Project	Debits (ft^3)	Equivalent Annual Volume Reduction (ft^3)*
Silver Lake Subwatershed Reconstruction	1,362,648	
RC Ditch 3 Subwatershed Reconstruction	2,036,987	
Mississippi River Subwatershed Reconstruction	367,918	
Central Parking Lot (01-103)	11,888	
Silver Lake Road (08-016)	39,181	
Mirror Pond		3,502,763*
Shamrock Drive/Silver Lane Biofiltration Basin		46,660
St. Anthony Water Reuse Facility		683,156
Foss Road Biofiltration Swale		222,732
Filtration BMPs – 2011 Street Reconstruction		31,095
Salo Ponds Alum Treatment System		943,051*
Mirror Pond Improvement Project		169,012*
Mirror Pond Alum Treatment System		1,605,622*
In-Line Treatment System on 37th Avenue		421,560*
In-Line Treatment System on Stinson Boulevard		134,722*
Central Park Biofiltration System		673,608*
TOTAL	**3,818,622**	**8,725,079**
BALANCE	**-**	**4,906,457**

*Equivalent annual volume reduction calculated using 0.97 lbs of total phosphorus/acre-foot of runoff consistent with TMDL study for Silver Lake

Results shown on **Table 7** indicate that the City can meet the RCWD's water quality/volume control requirements for all right of way within the City by using equivalent TP reduction of the water quality BMPs outlined above.

B. Compliance Plan by Subwatershed

To better define the course of action that the City will use to meet the Alternative Compliance Sequencing requirements, the proposed linear reconstruction projects and existing / proposed water quality improvement projects have been grouped by subwatershed. Each existing/proposed water quality improvement BMP has been assigned to address requirements of one or more projects within the subwatershed. This will allow the City to demonstrate compliance with RCWD Rules on future projects. It is anticipated that each water quality BMP will be constructed prior to, or within two years of the linear project(s) that will benefit from the BMP. See **Tables 8 and 9** below.

Table 8: Silver Lake Subwatershed Alternative Compliance Plan

	Year	Linear Project / BMP Project	Benefitted Improvement Project(s)	Equivalent Annual Volume Reduction (ft^3)	
				Credit	Debit
PAST	2011	Street Improvements		-	189,103
PAST	2011	Street Filtration Basins	2011	31,095	-
PAST	**Subtotal**			31,095	189,103
PAST	**Subtotal Balance**			**-**	**158,008**
FUTURE	2012	Street Improvements		-	40,190
FUTURE	2013	Street Improvements		-	91,341
FUTURE	2013 - 2015	37th Avenue In-line Treatment System	2011 2012 2013 2024 Future	421,560	-
FUTURE	2013 - 2015	Salo Ponds Alum Treatment		943,051	-
FUTURE	2024	Street Improvements		-	153,453
FUTURE	2015	Stinson Blvd In-line Treatment System	Future	134,722	-
FUTURE	**Subtotal**			**1,499,333**	**284,984**
FUTURE	**Subtotal Balance**			**1,214,349**	**-**
TOTAL				**1,395,706**	**474,087**
TOTAL BALANCE				**921,619**	-

Table 9: Ramsey County Ditch 3 Subwatershed Alternative Compliance Plan

	Year	Linear Project / BMP Project	Benefitted Improvement Project(s)	Equivalent Annual Volume Reduction (ft^3)	
				Credit	Debit
Prior to Vol Rule	1960s	Mirror Lake Pond		3,502,763	-
	2007	Shamrock Dr / Silver Lane Biofiltration	2007 Streets	46,660	-
	Subtotal			**3,549,423**	**-**
	Subtotal Balance			**3,549,423**	**-**
PAST	2001	Central Park Parking Lot (01-103)		-	11,888
	2008	Silver Lake Road (08-016)		-	233,264
	2008	Water Reuse Facility	Central Park Silver Lk Rd School Parking 2010 Streets 2014 Streets 2015 Streets	683,156	-
	2009	St. Anthony Schools Parking Lot (09-004)		-	39,181
	2009	Street Improvements (08-070)		-	222,732
	2009	Street Biofiltration Swale (08-070)	2009 Streets	222,732	-
	2010	Street Improvements (10-002)		-	73,185
	Subtotal			**905,888**	**580,250**
	Subtotal Balance			**325,638**	**-**
FUTURE	2014	Street Improvements		-	151,626
	2015	Street Improvements		-	158,020
	2015	Central Park Biofiltration System	2016 - 2020 Streets	673,608	-
	2016	Street Improvements		-	83,120
	2017	Street Improvements		-	152,082
	2018	Street Improvements		-	162,587
	2019	Street Improvements		-	117,830
	2020	Street Improvements		-	152,082
	2015	Mirror Pond Alum Treatment System	2021 - 2022 Streets	1,605,622	-
	2021	Street Improvements		-	141,578
	2022	Street Improvements		-	42,017
	2020 - 2025	Stinson Blvd In-line Treatment System	Future Projects	134,722	-
	2020 - 2025	Mirror Pond WQ and Habitat Improvements	Future Projects	169,012	-
	Subtotal			**2,582,964**	**1,160,942**
	Subtotal Balance			**1,422,022**	**-**
TOTAL				**7,038,275**	**1,741,192**
TOTAL BALANCE				**5,297,083**	**-**

APPENDIX D – ST. ANTHONY CITY CODE OF RELEVANT ORDINANCES

CHAPTER 153: STORM WATER MANAGEMENT

Section

153.01 Statutory authorization
153.02 Findings
153.03 Purpose
153.04 Definitions
153.05 Scope and effect
153.06 Plan approval procedures
153.07 Plan review procedure
153.08 Approval standards
153.09 Other controls

§ 153.01 STATUTORY AUTHORIZATION.

This chapter is adopted pursuant to M.S. §§ 462.351 through 462.365, as they may be amended from time to time.
(1993 Code, § 1675.01)

§ 153.02 FINDINGS.

The city hereby finds that uncontrolled and inadequately planned use of wetlands, woodlands, natural habitat areas, areas subject to soil erosion and areas containing restrictive soils, adversely affects the public health, safety and general welfare by impacting water quality and contributing to other environmental problems, creating nuisances, impairing other beneficial uses of environmental resources and hindering the ability of the city to provide adequate water, sewage, flood control, and other services.
(1993 Code, § 1675.02)

§ 153.03 PURPOSE.

The purpose of this chapter is to address the findings in § 153.02 and to promote, preserve, and enhance the natural resources within the city.
(1993 Code, § 1675.03)

§ 153.04 DEFINITIONS.

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

APPLICANT. Any person who wishes to obtain a building permit, zoning or subdivision approval.

CONTROL MEASURE. A practice or combination of practices to control erosion and attendant pollution.

DETENTION FACILITY. A permanent natural or human-made structure, including wetlands, for the temporary storage of runoff which contains a permanent pool of water.

FLOOD FRINGE. The portion of the flood plain outside of the flood way.

FLOOD PLAIN. The areas adjoining a watercourse or water basin that have been or may be covered by a regional flood.

FLOOD WAY. The channel of the watercourse, the bed of water basins, and those portions of the adjoining flood plains that are reasonably required to carry and discharge flood water and provide water storage during a regional flood.

HYDRIC SOILS. Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part.

HYDROPHYTIC VEGETATION. Macrophytic plant life growing in water, soil, or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

LAND DISTURBING OR DEVELOPMENT ACTIVITIES. Any change of the land surface including removing vegetative cover, excavating, filling, grading, and the construction of any structure.

PERSON. Any individual, firm, corporation, partnership, franchisee, and association.

PLAN. A storm water management plan governed by this chapter.

PUBLIC WATERS. Waters of the state as defined in M.S. § 103G.005, Subd. 15, as it may be amended from time to time.

REGIONAL FLOOD. A flood that is representative of large floods known to have occurred generally in the state and reasonably characteristic of what can be expected to occur on an average frequency in the magnitude of a 100-year recurrence interval.

RETENTION FACILITY. A permanent natural or human-made structure that provides for the storage of storm water runoff by means of a permanent pool of water.

SEDIMENT. Solid matter carried by water, sewage, or other liquids.

STRUCTURE. Anything manufactured, constructed, or erected which is normally attached to or positioned on land, including portable structures, earthen structures, roads, parking lots, and paved storage areas.

THIS CHAPTER. This Chapter 153.

WETLANDS. Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this definition, ***WETLANDS*** must have the following 3 attributes:

(1) Have a predominance of hydric soils;

(2) Are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions; and

(3) Under normal circumstances support a prevalence of the vegetation.
(1993 Code, § 1675.04)

§ 153.05 SCOPE AND EFFECT.

(A) *Applicability.* Every applicant for a building permit, subdivision approval, or a permit in the Commercial, Industrial, R-3, and R-4 Zoning Districts of the city must submit a Storm Water Management Plan to the Public Works Director. No building permit, subdivision approval, or permit to allow land disturbing activities shall be issued until approval of the plan or a waiver of the approval requirement has been obtained under this chapter.

(B) *Exemptions.* The provisions of this chapter do not apply to fences, signs, or poles or emergency work, or to the following items if approved before the effective date of this chapter:

(1) Any part of a subdivision approved by the City Council before the effective date of this chapter;

(2) Any land disturbing activity for which plans have been approved by the watershed management organization;

(3) A lot for which a building permit has been approved; and

(4) Building permits issued in the R-1, R-1A, or R-2 Zoning District. In these districts, the property owner must obtain prior approval from only the Public Works Director of a storm water plan appropriate in scale and scope to the proposed activity when it is over one acre in size.
(1993 Code, § 1675.05)

§ 153.06 PLAN APPROVAL PROCEDURES.

(A) *Application.* Any plan and an application for its approval shall be filed with the Public Works Director. It must state the grounds for approval, that the proposed use is permitted by the zoning ordinances, and adequate evidence that the proposed use will conform to this chapter. Prior to applying, an applicant may have the plan reviewed by the appropriate departments of the city. The applicant must submit 2 sets of clearly legible blue or black lined drawings in appropriate scale (not less than 1 inch equals 100 feet) and the required additional information with evidence of payment of all fees required under § 153.07.

(B) *Plan.* At a minimum, the plan shall contain the following information.

(1) *Existing site map.* A map of existing site conditions showing the site and immediately adjacent areas, including:

(a) The name and address of the applicant, the section, township and range, north point, date and scale of drawing and number of sheets;

(b) Location of the tract by an insert map at a scale sufficient to clearly identify the location of the property and giving the information as the names and numbers of adjoining roads, railroads, utilities, subdivisions, towns and districts or other landmarks;

(c) Existing topography with a contour interval appropriate to the topography of the land but in no case having a contour interval greater than 2 feet;

(d) A delineation of all streams, rivers, public waters, and wetlands located on and immediately adjacent to the site;

(e) Location and dimensions of existing storm water drainage systems and natural drainage patterns on and immediately adjacent to the site delineating in which direction and at what rate storm water is conveyed from the site, identifying the receiving stream, river, public water, or wetland, and setting forth those areas of the unaltered site where storm water collects;

(f) A description of the soils of the site, including a map indicating soil types of areas to be disturbed as well as a soil report containing information on the suitability of the soils for the type of development proposed;

(g) Vegetative cover and clearly delineating any vegetation proposed for removal; and

(h) One hundred year flood plains, flood fringes, and flood ways.

(2) *Site construction plan.* A site construction plan, including:

(a) Locations and dimensions of all proposed land disturbing activities and any phasing of those activities;

(b) Locations and dimensions of all temporary soil or dirt stockpiles;

(c) Locations and dimensions of all construction site erosion control measures necessary to meet the requirements of this chapter;

(d) Schedule of anticipated starting and completion date of each land disturbing activity including the installation of construction site erosion control measures needed to meet the requirements of this chapter; and

(e) Provisions for maintenance of the construction site erosion control measures during construction.

(3) *Drawing of final site conditions.* A drawing of final site conditions on the same scale as the existing site map showing the site changes, including:

(a) Finished grading shown at contours at the same interval as provided above or as required to clearly indicate the relationship of proposed changes to existing topography and remaining features;

(b) A landscape plan, drawn to an appropriate scale, including dimensions and distances and the location, type, size, and description of all proposed landscape materials which will be added to the site as part of the development;

(c) A drainage plan of the developed site delineating in which direction and at what rate storm water will be conveyed from the site and setting forth the areas of the site where storm water will be allowed to collect;

(d) The proposed size, alignment, and intended use of any structures to be erected on the site;

(e) A clear delineation and tabulation of all areas which shall be paved or surfaced, including a description of the surfacing material to be used; and

(f) Any other information pertinent to the particular project which in the opinion of the applicant is necessary for the review of the project.
(1993 Code, § 1675.06)

§ 153.07 PLAN REVIEW PROCEDURE.

(A) *Process.* Plans meeting the requirements of § 153.06 shall be submitted by the Public Works Director to the Planning Commission for review under § 153.08. The Commission shall recommend approval, approval with conditions, or denial. Following Planning Commission action, the plan shall be submitted to the City Council at its next available meeting. City Council action on the plan must be accomplished within 120 days following the date the application is filed with the Public Works Director.

(B) *Duration.* Approval of a plan shall expire 1 year after the date of approval unless construction has commenced in accordance with the plan, unless the applicant makes a written request to the Public Works Director for an extension of setting forth the reasons for it. The Public Works Director shall make a decision on the extension within 30 days. The Public Works Director may grant 1 extension of not more than 12 months. Any plan may be revised in the same manner as originally approved.

(C) *Conditions.* A plan may be approved subject to conditions related to the requirements of this chapter. The conditions may, among other matters, limit the size, kind or character of the proposed development, require the construction of structures, drainage facilities, storage basins and other facilities, require replacement of vegetation, establish required monitoring procedures, stage the work over time, require alteration of the site design to insure buffering, and require the conveyance to the city or other public entity of certain lands or interests therein.

(D) *Security.* Prior to approval, the applicant shall execute an agreement in form acceptable to the City Council to construct any required improvements, to dedicate property or easements, and to comply with any required conditions. The agreement must be accompanied by cash or a letter of credit in form and amount determined by the City Council sufficient to secure performance of the applicant's obligations.

(E) *Fees.* All applications for plan approval shall be accompanied by a processing and approval fee of $150.
(1993 Code, § 1675.07)

§ 153.08 APPROVAL STANDARDS.

(A) *Requirements.* The standards contained in this chapter must be met to the degree required by the City Council.

(B) *Site dewatering.* Water pumped from the site shall be treated by temporary sedimentation basins, grit chambers, sand filters, upflow chambers, hydro-calcines, swirl concentrators or other controls as appropriate. Water may not be discharged in a manner that causes erosion or flooding of the site or receiving channels or a wetland.

(C) *Waste and material disposal.* All waste and unused building materials (including garbage, debris, cleaning wastes, wastewater, toxic materials or hazardous materials) shall be properly disposed of off-site and not allowed to be carried by runoff into a receiving channel or storm sewer system.

(D) *Tracking.* Each site shall have graveled roads, access drives and parking areas of sufficient width and length to prevent sediment from being tracked onto public or private roadways. Any sediment reaching a public or private road shall be removed by street cleaning (not flushing) before the end of each workday.

(E) *Drain inlet protection.* All storm drain inlets shall be protected during construction until control measures are in place with a straw bale, silt fence, or equivalent barrier meeting accepted design criteria, standards, and specifications contained in the Minnesota Pollution Control Agency publication *Protecting Water Quality in Urban Areas*.

(F) *Site erosion control.* The requirements of this division (F) apply only to construction activities that result in runoff leaving the site.

(1) Channelized runoff from adjacent areas passing through the site shall be diverted around disturbed areas, if practical. Otherwise, the channel shall be protected as described below. Sheetflow runoff from adjacent areas greater than 10,000 square feet in area shall also be diverted around disturbed areas, unless shown to have resultant runoff velocity of less than 0.5 ft./sec. across the disturbed area for the 1-year storm. Diverted runoff shall be conveyed in a manner that will not erode the conveyance and receiving channels.

(2) All activities on the site shall be conducted in a logical sequence to minimize the area of bare soil exposed at any 1 time.

(3) Runoff from the entire disturbed area on the site shall be controlled by meeting either divisions (F)(3)(a) and (F)(3)(b) or divisions (F)(3)(a) and (F)(3)(c).

(a) All disturbed ground left inactive for 14 or more days shall be stabilized by seeding or sodding (only available prior to September 15) or by mulching or covering or other equivalent control measure.

(b) For sites with more than 3 acres disturbed at 1 time, or if a channel originates in the disturbed area, 1 or more temporary or permanent sedimentation basins shall be constructed. Each sedimentation basin shall have a surface area of at least 1% of the area draining to the basin and at least 3 feet of depth and constructed in accordance with accepted design specifications. Sediment shall be removed to maintain a depth of 3 feet. The basin discharge rate shall also be sufficiently low as to not cause erosion along the discharge channel or the receiving water.

(c) For sites with less than 10 acres disturbed at 1 time, silt fences, straw bales, or equivalent control measure shall be placed along all side slope and downslope sides of the site. If a channel or area of concentrated runoff passes through the site, silt fences shall be placed along the channel edges to reduce sediment reaching the channel. The use of silt fences, straw bales, or equivalent control measure must include a maintenance and inspection schedule.

(4) If remaining for more than 7 days, they shall be stabilized by mulching, vegetative cover, tarps or other means. Erosion from piles which will be in existence for less than 7 days shall be controlled by placing straw bales or silt fence barriers around the pile. In-street utility repair or construction soil or dirt storage piles located closer than 25 feet of a roadway or drainage channel must be covered with tarps or suitable alternative control, if exposed for more than 7 days, and the storm drain inlets must be protected with straw bale or other appropriate filtering barriers.

(G) *Storm water management criteria for permanent facilities.* Storm water management criteria for permanent facilities shall be in conformance with the city's current Comprehensive Water Resource Management Plan.

(H) *Design standards.* Storm water detention facilities constructed in the City of St. Anthony shall be designed in conformance with the city's current Comprehensive Water Resource Management Plan.

(I) *Wetlands.* Wetlands shall be maintained and protected in conformance with the city's current Comprehensive Storm Water Management Plan.

(J) *Steep slopes.* No land disturbing or development activities shall be allowed on slopes of 18% or more.

(K) *Catch basins.* When deemed necessary by the Public Works Director, all newly installed and rehabilitated catch basins shall be provided with a sump area for the collection of coarse-grained material. The basins shall be cleaned when they are half filled with material.

(L) *Drain leaders.* When deemed necessary by the Public Works Director, all newly constructed and reconstructed buildings will route drain leaders to pervious areas wherein the runoff can be allowed to infiltrate. The flow rate of water exiting the leaders shall be controlled so no erosion occurs in the previous areas.

(M) *Inspection and maintenance.* All storm water management facilities shall be designed to minimize the need of maintenance, to provide access for maintenance purposes and to be structurally sound. All storm water management facilities be inspected and maintained in accordance with the city's Comprehensive Storm Water Management Plan. It shall be the responsibility of the applicant to obtain any necessary easements or other property interests allow access to the storm water management facilities for inspection maintenance purposes.

(N) *Models/methodologies/computations.* Hydrologic models and design methodologies used for the determination of runoff and analysis of storm water management structures shall be approved by the Public Works Director. Plans, specification, and computations for storm water management facilities submitted for review shall be sealed and signed by a registered professional engineer. All computations shall appear on the plans submitted for review, unless otherwise approved by the Public Works Director.

(O) *Watershed management plans/ground water management plans.* Plans shall be consistent with adopted watershed management plans and groundwater management plans prepared in accordance with M.S. §§ 103B.231 and 103B.255, as they may be amended from time to time, respectively, and as approved by the Minnesota Board of Water and Soil Resources in accordance with the state law.

(P) *Easements.* If a plan involves direction of some or all runoff off of the site, it shall be the responsibility of the applicant to obtain from adjacent property owners any necessary easements or other property interests concerning flowage of water.

(Q) *Lawn maintenance education.* The city shall participate in on-going educational opportunities to inform the residents of the harmful impacts to the environment by doing any of the following: improperly applying fertilizer; leaving or depositing grass clippings, leaves, and the like in any storm drainage area, street or natural drainage area; and, in addition, to discuss the benefits of using fertilizer containing less than 3% by weight of phosphorus.
(1993 Code, § 1675.08)

§ 153.09 OTHER CONTROLS.

In the event of any conflict between the provisions of this chapter and the provisions of any other ordinance of the city, the more restrictive standard prevails.
(1993 Code, § 1675.09)

ILLICIT DISCHARGE AND CONNECTION

§ 50.30 PURPOSE AND INTENT.

(A) The purpose of this subchapter is to provide for the health, safety, and general welfare of the citizens of the City of St. Anthony through the regulation of non-storm water discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This subchapter establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process.

(B) The objectives of this subchapter are:

(1) To regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) by stormwater discharges by any user;

(2) To prohibit illicit connections and discharges to the municipal separate storm sewer system; and

(3) To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this subchapter.
(Ord. 2009-002, passed 2-24-2009)

§ 50.31 DEFINITIONS.

For the purpose of this subchapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

AUTHORIZED ENFORCEMENT AGENCY. The City of St. Anthony.

BEST MANAGEMENT PRACTICES (BMPs). Schedules of activities, prohibitions of practices, general good house keeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. ***BMPs*** also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

CLEAN WATER ACT. The federal Water Pollution Control Act (33 U.S.C. § 1251 *et seq.*), and any subsequent amendments thereto.

CONSTRUCTION ACTIVITY. Activities subject to NPDES construction permits. These include construction projects resulting in land disturbance of one acre or more. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

HAZARDOUS MATERIALS. Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

ILLEGAL DISCHARGE. Any direct or indirect non-storm water discharge to the storm drain system, except as exempted in this subchapter.

ILLICIT CONNECTIONS. Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether the drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency or, any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

INDUSTRIAL ACTIVITY. Activities subject to NPDES industrial permits as defined in 40 CFR § 122.26 (b)(14).

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER DISCHARGE PERMIT. A permit issued by MPCA that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual group, or general area-wide basis.

NON-STORM WATER DISCHARGE. Any discharge to the storm drain system that is not composed entirely of storm water.

PERSON. Any individual, association, organization, partnership, firm, corporation or other entity recognized by law and action as either the owner or as the owner's agent.

POLLUTANT. Anything which causes or contributes to pollution. ***POLLUTANTS*** may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, pesticides, herbicides, and fertilizers; hazardous substances and wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

PREMISES. Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

STORM DRAIN SYSTEM. Publicly-owned facilities by which storm water is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

STORM WATER. Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

STORMWATER POLLUTION PREVENTION PLAN. A document which describes the best management practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to stormwater, stormwater conveyance systems, and/or receiving waters to the maximum extent practicable.

WASTEWATER. Any water or other liquid, other than uncontaminated storm water, discharged from a facility.
(Ord. 2009-002, passed 2-24-2009)

§ 50.32 APPLICABILITY.

This subchapter shall apply to all water entering the storm drain system generated on any developed or undeveloped lands unless explicitly exempted by an authorized enforcement agency.
(Ord. 2009-002, passed 2-24-2009)

§ 50.33 RESPONSIBILITY FOR ADMINISTRATION.

The authorized enforcement agency shall administer, implement, and enforce the provisions of this subchapter. Any powers granted or duties imposed upon the authorized enforcement agency may be delegated in writing by the director of the authorized enforcement agency to persons or entities acting in the beneficial interest of or in the employ of the agency.
(Ord. 2009-002, passed 2-24-2009)

§ 50.34 ULTIMATE RESPONSIBILITY.

The standards set forth herein and promulgated pursuant to this subchapter and minimum standards; therefore this subchapter does not intend or imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.
(Ord. 2009-002, passed 2-24-2009)

§ 50.35 DISCHARGE PROHIBITIONS.

(A) *Prohibition of illegal discharges.*

(1) No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water.

(2) The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

(a) The following discharges are exempt from discharge prohibitions established by this subchapter: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, noncommercial washing of vehicles, natural riparian habitat or wet-land flows, swimming pools (if dechlorinated - typically less than one ppm chlorine), fire fighting activities, and any other water source not containing pollutants.

(b) Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.

(c) Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test.

(d) The prohibition shall not apply to any non-storm water discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

(B) *Prohibition of illicit connections.*

(1) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.

(2) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of the connection.

(3) A person is considered to be in violation of this subchapter if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.
(Ord. 2009-002, passed 2-24-2009) Penalty, see § 10.99

§ 50.36 SUSPENSION OF MS4 ACCESS.

(A) *Suspension due to illicit discharges in emergency situations*. The City Council may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the MS4 or waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the MS4 or waters of the United States, or to minimize danger to persons.

(B) *Suspension due to the detection of illicit discharge.* Any person discharging to the MS4 in violation of this subchapter may have their MS4 access terminated if such termination would abate or reduce an illicit discharge. The authorized enforcement agency will notify a violator of the proposed termination of its MS4 access. The violator may petition the authorized enforcement agency for reconsideration and a hearing. A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this section, without the prior approval of the authorized enforcement agency.
(Ord. 2009-002, passed 2-24-2009)

§ 50.37 INDUSTRIAL OR CONSTRUCTION ACTIVITY DISCHARGES.

Any person subject to an industrial or construction activity NPDES storm water discharge permit shall comply with all provisions of such permit. Proof of compliance with the permit may be required in a form acceptable to the City Council prior to the allowing of discharges to the MS4.
(Ord. 2009-002, passed 2-24-2009)

§ 50.38 MONITORING OF DISCHARGES.

(A) *Applicability*. This section applies to all facilities that have storm water discharges associated with industrial activity, including construction activity.

(B) *Access to facilities*.

(1) The authorized enforcement agency shall be permitted to enter and inspect facilities subject to regulation under this subchapter as often as may be necessary to determine compliance with this subchapter. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the authorized enforcement agency.

(2) Facility operators shall allow the authorized enforcement agency ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must

be kept under the conditions of an NPDES permit to discharge storm water, and the performance of any additional duties as defined by state and federal law.

(3) The authorized enforcement agency shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the authorized enforcement agency to conduct monitoring and/or sampling of the facility's storm water discharge.

(4) The authorized enforcement agency has the right to require the discharger to install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy.

(5) Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the operator at the written or oral request of the authorized enforcement agency and shall not be replaced. The costs of clearing such access shall be borne by the operator.

(6) Unreasonable delays in allowing the authorized enforcement agency access to a permitted facility is a violation of a storm water discharge permit and of this subchapter. A person who is the operator of the facility with a NPDES permit to discharge storm water associated with industrial activity commits an offense if the person denies the authorized enforcement agency reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this subchapter.

(7) If the authorized enforcement agency has been refused access to any part of the premises from which stormwater is discharged, and the city is able to demonstrate probable cause to believe that there may be a violation of this subchapter, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this subchapter or any order issued hereunder, or to protect the overall public health, safety and welfare of the community, then the authorized enforcement agency may seek issuance of a search warrant from any court of competent jurisdiction.
(Ord. 2009-002, passed 2-24-2009)

§ 50.39 REQUIREMENT TO PREVENT, CONTROL, AND REDUCE STORM WATER POLLUTANTS BY THE USE OF BEST MANAGEMENT PRACTICES.

(A) The city will adopt requirements identifying best management practices (BMPs) of any activity, operation, or facility which may cause or contribute to pollution or contamination of storm water, the storm drain system, or waters of the U.S.

(B) The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and

non-structural BMPs. Further, any person responsible for a property or premises, which is, or may be, the source of an illicit discharge, may be required to implement, at the person's expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the municipal separate storm sewer system. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of storm water associated with industrial activity, to the extent practicable, shall be deemed compliant with the provisions of this section. These BMPs shall be part of a storm water pollution prevention plan (SWPP) as necessary for compliance with requirements of the NPDES permit.
(Ord. 2009-002, passed 2-24-2009)

§ 50.40 WATERCOURSE PROTECTION.

Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.
(Ord. 2009-002, passed 2-24-2009)

§ 50.41 NOTIFICATION OF SPILLS.

Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation, has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into storm water, the storm drain system, or water of the U.S. that person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials the person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, the person shall notify the authorized enforcement agency in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the city within three business days of the phone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.
(Ord. 2009-002, passed 2-24-2009)

§ 50.42 ENFORCEMENT.

(A) *Notice of violation.* Whenever the city finds that a person has violated a prohibition or failed to meet a requirement of this subchapter, the authorized enforcement agency may order compliance by written notice of violation to the responsible person. Such notice may require without limitation:

(1) The performance of monitoring, analysis, and reporting;

(2) The elimination of illicit connections or discharges;

(3) That violating discharges, practices, or operations shall cease and desist;

(4) The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property;

(5) Payment of a fine to cover administrative and remediation costs; and

(6) The implementation of source control or treatment BMPs.

(B) If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such remediation or restoration must be completed. The notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.
(Ord. 2009-002, passed 2-24-2009)

§ 50.43 ENFORCEMENT MEASURES AFTER APPEAL.

If the violation had not been corrected pursuant to the requirements set forth in the notice of violation, or, in the event of an appeal, within 15 days of the decision of the municipal authority upholding the decision of the authorized enforcement agency, then representatives of the authorized enforcement agency shall enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above.
(Ord. 2009-002, passed 2-24-2009) Penalty, see § 10.99

§ 50.44 COST OF ABATEMENT OF THE VIOLATION.

Within 30 days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the amount of the assessment within 15 days. If the amount due is not paid within a timely manner as determined by the decision of the municipal authority, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this article shall become liable to the city by reason of such violation.
(Ord. 2009-002, passed 2-24-2009)

§ 50.45 INJUNCTIVE RELIEF.

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this subchapter. If a person has violated and continues to violate the provisions of this subchapter, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.
(Ord. 2009-002, passed 2-24-2009)

§ 50.46 COMPENSATORY ACTION.

In lieu of enforcement proceedings, penalties, and remedies authorized by this subchapter, the authorized enforcement agency may impose upon a violator alternative compensatory actions, such as storm drain stenciling, attendance at compliance workshops, creek cleanup, and the like.
(Ord. 2009-002, passed 2-24-2009)

§ 50.47 VIOLATIONS DEEMED A PUBLIC NUISANCE.

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this subchapter is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.
(Ord. 2009-002, passed 2-24-2009)

§ 50.48 CRIMINAL PROSECUTION.

Any person that has violated or continues to violate this subchapter shall be liable to criminal prosecution to the fullest extent of the law, and shall be subject to a criminal penalty of $1,000 per violation per day and/or imprisonment for a period of time not to exceed 90 days. The authorized enforcement agency may recover all attorney's fees, court costs, and other expenses associated with enforcement of this subchapter, including sampling and monitoring expenses.
(Ord. 2009-002, passed 2-24-2009)

CHAPTER 51: STORM WATER FACILITIES, CHARGES, AND FUND

Section

51.01 Establishment of Storm Water Facilities Fund
51.02 Findings and determinations
51.03 Rates and charges
51.04 Other land uses
51.05 Exemptions
51.06 Separate fund
51.07 Adjustment of charges
51.08 Public hearing and notice
51.09 Establishment of a tax lien
51.10 Recalculation of charges

§ 51.01 ESTABLISHMENT OF STORM WATER FACILITIES FUND.

Pursuant to M.S. § 444.075, as it may be amended from time to time, the city establishes a Storm Water Facilities Fund and authorizes the imposition of just and equitable charges for the use and availability of storm sewer facilities. For purposes of this chapter, all provisions of M.S. § 444.075, as it may be amended from time to time, relating to storm water facilities are incorporated by reference and are made a part of this chapter.
(1993 Code, § 405.01)

§ 51.02 FINDINGS AND DETERMINATIONS.

(A) In the exercise of its governmental authority and in order to promote the public health, safety, convenience, and general welfare, the city has constructed, operated, and maintained a storm sewer system, including mains, holding areas, and ponds, and other appurtenances and related facilities (the "facilities"). This chapter is adopted in the further exercise of the authority in the future, for the same purposes, and for purposes of financing the cost of building, constructing, reconstructing, repairing, operating, maintaining, enlarging, improving, or in any other manner obtaining, the facilities or any portion of them (the "facilities costs").

(B) The facilities have heretofore been financed and paid for through the imposition of special assessments and ad valorem taxes. It is now necessary and desirable to provide an alternative method of recovering some or all of the future facilities costs through the imposition of charges as provided in this chapter.

(C) In imposing charges for the facilities ("facilities charges"), it is necessary to establish a procedure designed to make the charges just and equitable. Taking into account the status of completion of the facilities, past methods of recovering facilities costs, the topography of the city, and other relevant factors, it is determined that it would be just and equitable to assign responsibility for some or all of the future facilities costs on the basis of the expected storm water runoff from the various parcels of land within the city during a standard rainfall event. For purposes of this chapter, a standard rainfall event is defined as a 10-year rainfall of 24-hour duration, assuming Hydrologic Soil Group §B§ soils according to methods in the Hydrology Guide for Minnesota, published by the Soil Conservation Service.

(D) The City Council finds that assigning costs and making facilities charges based upon expected typical storm water runoff cannot be done with mathematical precision but can only be accomplished within reasonable and practical limits. The provisions of this chapter undertake to establish a reasonable and practical method for imposing the charges.
(1993 Code, § 405.02)

§ 51.03 RATES AND CHARGES.

(A) Rates and charges for the use and availability of the facilities will be determined by the use of a Residential Equivalent Factor ("REF"). For purposes of this chapter, 1 REF is defined as the ratio of runoff volume (in inches) for a particular land use, to the runoff volume (in inches) for a typical single-family residential lot.

(B) The City Council hereby adopts the charges set forth in § 33.090 for the use and availability of the facilities. The charges to be made against each parcel of land in the city will be determined by multiplying the REF for the parcel, based on actual land use, times the parcel's acreage, times the facilities charge per acre, except that all R-1, R-1A, and R-2 residential parcels will be presumed to be 1/3 acre per dwelling unit on the presumption that most such parcels in the city are approximately that size and in order to avoid computation of the actual area of every such parcel in the city.
(1993 Code, § 405.03)

§ 51.04 OTHER LAND USES.

Other land uses not listed in the table in § 33.090 will be classified by the Public Works Director by assigning them to classes most nearly like the listed uses from the standpoint of runoff volume for the standard rainfall event. An appeal from the Public Works Director's determination of the property classification may be made to the City Council.
(1993 Code, § 405.04)

§ 51.05 EXEMPTIONS.

The following land uses are exempt from facilities charges:

(A) City, county, and state road and highway rights-of-way;

(B) Lakes and ponds; and

(C) City-owned property.

(1993 Code, § 405.05)

§ 51.06 SEPARATE FUND.

All facilities charges, when collected, and all moneys received from the sale of any facilities or equipment or any byproducts, will be placed in a separate fund, and used first to pay the normal, reasonable, and current costs of operating and maintaining the facilities. The net revenues received in excess of the costs may be pledged by resolutions of the City Council, or may be used though not so pledged, for the payment of principal and interest on obligations issued as provided in M.S. § 444.075, Subd. 2, as it may be amended from time to time, or to pay the portion of the principal and interest as may be directed in the resolutions.

(1993 Code, § 405.06)

§ 51.07 ADJUSTMENT OF CHARGES.

The City Council may by ordinance adopt policies providing for the adjustment of facilities charges for parcels or groups of parcels, based upon land use data supplied by affected property owners, which data demonstrates a runoff volume for the standard rainfall event substantially different from the REF being used for the parcel or parcels. The adjustment will be made only upon recommendation of the Public Works Director and will not be made effective retroactively.

(1993 Code, § 405.07)

§ 51.08 PUBLIC HEARING AND NOTICE.

The city will hold a hearing prior to determining whether to build, construct, enlarge, or improve facilities financed in whole or in part by the imposition of facility charges. Notice of the hearing will be published in the official city newspaper at least 10 days prior to the date of hearing. Owners of all property adjoining a proposed improvement will be mailed or served with a notice at least 10 days in advance of the hearing. Failure to give mailed notice or any defects in the notice will not invalidate the proceedings.

(1993 Code, § 405.08)

§ 51.09 ESTABLISHMENT OF A TAX LIEN.

Any facilities charges in excess of 90 days past due on October 1 of any year may be certified to the County Auditor for collection with real estate taxes in the following year pursuant to M.S. § 444.075, Subd. 3, as it may be amended from time to time. In addition, the city may bring a civil action or exercise other legal remedies to collect unpaid facilities charges.
(1993 Code, § 405.09)

§ 51.10 RECALCULATION OF CHARGES.

If a property owner or other person responsible for paying facilities charges questions the correctness of the charges, the person may have the determination of the facilities charges recomputed by written request to the Public Works Director. The request must be made within 30 days of the mailing of the billing in question.
(1993 Code, § 405.10)

Local Water Supply Plan Template
Third Generation for 2016-2018

Formerly called Water Emergency & Water Conservation Plan



Cover photo by Molly Shodeen



For more information on this Water Supply Plan Template, please contact the DNR Division of Ecological and Water Resources at (651) 259-5034 or (651) 259-5100.

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This information is available in an alternative format upon request.

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DEPARTMENT OF NATURAL RESOURCES – DIVISION OF ECOLOGICAL AND WATER RESOURCES AND METROPOLITAN COUNCIL

INTRODUCTION TO WATER SUPPLY PLANS (WSP)

Who needs to complete a Water Supply Plan

Public water suppliers serving more than 1,000 people, and large private water suppliers in designated Groundwater Management Areas, and all water suppliers in the Twin Cities metropolitan area, are required to prepare and submit a water supply plan.

The goal of the WSP is to help water suppliers: 1) implement long term water sustainability and conservation measures; and 2) develop critical emergency preparedness measures. Your community needs to know what measures will be implemented in case of a water crisis. A lot of emergencies can be avoided or mitigated if long term sustainability measures are implemented.

Groundwater Management Areas (GWMA)

The DNR has designated three areas of the state as Groundwater Management Areas (GWMAs) to focus groundwater management efforts in specific geographies where there is an added risk of overuse or water quality degradation. A plan directing the DNRs actions within each GWMA has been prepared. Although there are no specific additional requirements with respect to the water supply planning for communities within designated GWMAs, communities should be aware of the issues and actions planned if they are within the boundary of one of the GWMAs. The three GWMAs are the North and East Metro GWMA (Twin Cities Metro), the Bonanza Valley GWMA and the Straight River GWMA (near Park Rapids). Additional information and maps are included in the DNR webpage at http://www.dnr.state.mn.us/gwmp/areas.html

Benefits of completing a WSP

Completing a WSP using this template, fulfills a water supplier's statutory obligations under M.S. M.S.103G.291 to complete a water supply plan. For water suppliers in the metropolitan area, the WSP will help local governmental units to fulfill their requirements under M.S. 473.859 to complete a local comprehensive plan. Additional benefits of completing WSP template:

- The standardized format allows for quicker and easier review and approval
- Help water suppliers prepare for droughts and water emergencies.
- Create eligibility for funding requests to the Minnesota Department of Health (MDH) for the Drinking Water Revolving Fund.
- Allow water suppliers to submit requests for new wells or expanded capacity of existing wells.
- Simplify the development of county comprehensive water plans and watershed plans.
- Fulfill the contingency plan provisions required in the MDH wellhead protection and surface water protection plans.
- Fulfill the demand reduction requirements of Minnesota Statutes, section 103G.291 subd 3 and 4.

- Upon implementation, contribute to maintaining aquifer levels, reducing potential well interference and water use conflicts, and reducing the need to drill new wells or expand system capacity.
- Enable DNR to compile and analyze water use and conservation data to help guide decisions.
- Conserve Minnesota's water resources

If your community needs assistance completing the Water Supply Plan, assistance is available from your area hydrologist or groundwater specialist, the MN Rural Waters Association circuit rider program, or in the metropolitan area from Metropolitan Council staff. Many private consultants are also available.

WSP Approval Process

10 Basic Steps for completing a 10-Year Water Supply Plan

1. Download the DNR/Metropolitan Council Water Supply Plan Template www.mndnr.gov/watersupplyplans
2. Save the document with a file name with this naming convention: WSP_cityname_permitnumber_date.doc.
3. The template is a form that should be completed electronically.
4. Compile the required water use data (Part 1) and emergency procedures information (Part 2)
5. The Water Conservation section (Part 3) may need discussion with the water department, council, or planning commission, if your community does not already have an active water conservation program.
6. Communities in the seven-county Twin Cities metropolitan area should complete all the information discussed in Part 4. The Metropolitan Council has additional guidance information on their webpage http://www.metrocouncil.org/Handbook/Plan-Elements/Water-Resources/Water-Supply.aspx. All out-state water suppliers do *not* need to complete the content addressed in Part 4.
7. Use the Plan instructions and Checklist document to insure all data is complete and attachments are included. This will allow for a quicker approval process. www.mndnr.gov/watersupplyplans
8. Plans should be submitted electronically – no paper documents are required. https://webapps11.dnr.state.mn.us/mpars/public/authentication/login
9. DNR hydrologist will review plans (in cooperation with Metropolitan Council in Metro area) and approve the plan or make recommendations.
10. Once approved, communities should complete a Certification of Adoption form, and send a copy to the DNR.

Complete Table 1 with information about the public water supply system covered by this WSP.

Table 1. General information regarding this WSP

Requested Information	Description
DNR Water Appropriation Permit Number(s)	1960-0907
Ownership	Public
Metropolitan Council Area	Yes – Hennepin, Ramsey
Street Address	3301 Silver Lake Road Northeast
City, State, Zip	St. Anthony, Minnesota 55418
Contact Person Name	Jay Hartman
Title	Director of Public Works
Phone Number	612-782-3314
MDH Supplier Classification	Municipal

PART 1. WATER SUPPLY SYSTEM DESCRIPTION AND EVALUATION

The first step in any water supply analysis is to assess the current status of demand and availability. Information summarized in Part 1 can be used to develop Emergency Preparedness Procedures (Part 2) and the Water Conservation Plan (Part 3). This data is also needed to track progress for water efficiency measures.

A. Analysis of Water Demand

Complete Table 2 showing the past 10 years of water demand data.

- Some of this information may be in your Wellhead Protection Plan.
- If you do not have this information, do your best, call your engineer for assistance or if necessary leave blank.

If your customer categories are different than the ones listed in Table 2, please describe the differences below:

The City has not had any wholesale deliveries or water supplier services, so these columns were removed from the table.

Table 2. Historic water demand (see definitions in the glossary after Part 4 of this template)

Year	Pop. Served	Total Connections	Residential Water Delivered (MG)	C/I/I Water Delivered (MG)	Water used for Non-essential	Total Water Delivered (MG)	Total Water Pumped (MG)	Percent Unmetered/ Unaccounted	Average Daily Demand (MGD)	Max. Daily Demand (MGD)	Date of Max. Demand	Residential Per Capita Demand (GPCD)	Total per capita Demand (GPCD)
2005	8,250	2,295	208.96	71.48	-	280.44	329.66	14.93%	0.90	2.19	7/15/2005	69.39	109.48
2006	8,250	2,307	221.69	77.88	-	299.57	336.52	10.98%	0.92	2.45	7/13/2006	73.62	111.75
2007	8,250	2,323	260.80	79.41	-	340.20	361.69	5.94%	0.99	2.40	7/7/2007	86.61	120.11
2008	8,250	2,332	232.43	75.01	-	307.44	329.36	6.66%	0.90	2.16	7/3/2008	77.19	109.38
2009	8,250	2,333	230.17	77.51	-	307.69	323.15	4.78%	0.89	2.29	7/11/2009	76.44	107.31
2010	8,250	2,333	198.62	61.23	-	259.85	294.22	11.68%	0.81	1.40	8/29/2010	65.96	97.71
2011	8,250	2,333	203.83	64.70	-	268.53	299.70	10.40%	0.82	1.59	7/1/2011	67.69	99.53
2012	8,250	2,333	221.70	73.88	-	295.58	322.55	8.36%	0.88	1.88	7/2/2012	73.62	107.11
2013	8,826	2,329	207.16	68.81	23.20	299.17	299.87	0.23%	0.82	1.72	8/30/2013	64.31	93.08
2014	8,226	2,320	196.26	68.75	-	265.01	278.58	4.87%	0.76	1.63	8/9/2014	65.37	92.78
2015	8,226	2,325	193.35	65.84	-	259.18	281.19	7.82%	0.77	1.57	8/15/2015	64.40	93.65
Avg. 2010-2015	8,338	2,329	203.49	67.20	23.20	274.55	296.02	7.23%	0.81	1.63		66.89	97.31

MG – Million Gallons **MGD –** Million Gallons per Day **GPCD** – Gallons per Capita per Day

Complete Table 3 by listing the top 10 water users by volume, from largest to smallest. For each user, include information about the category of use (residential, commercial, industrial, institutional, or wholesale), the amount of water used in gallons per year, the percent of total water delivered, and the status of water conservation measures.

Table 3. Large volume users

Customer	Use Category (Residential, Industrial, Commercial, Institutional, Wholesale)	Amount Used (Gallons per Year)	Percent of Total Annual Water Delivered	Implementing Water Conservation Measures? (Yes/No/Unknown)
1. Happy's Potato Chip	Industrial	20,608,427	7.95	Unknown
2. Emerald Park	Institutional	9,312,083	3.59	Yes
3. Central Park Irrigation	Institutional	6,921,370	2.67	Yes
4. Landings East	Residential	5,219,000	2.01	Unknown
5. Sentinel Management	Residential	4,970,230	1.92	Unknown
6. St. Anthony Nursing Home	Residential	4,838,843	1.87	Unknown
7. School District	Institutional	4,439,190	1.71	Unknown
8. Sentinel Management	Residential	4,435,750	1.71	Unknown
9. Chandler Place	Residential	3,304,360	1.27	Unknown
10. Landings West	Residential	3,264,180	1.26	Unknown

B. Treatment and Storage Capacity

Complete Table 4 with a description of where water is treated, the year treatment facilities were constructed, water treatment capacity, the treatment methods (i.e. chemical addition, reverse osmosis, coagulation, sedimentation, etc.) and treatment types used (i.e. fluoridation, softening, chlorination, Fe/MN removal, coagulation, etc.). Also describe the annual amount and method of disposal of treatment residuals. Add rows to the table as needed.

Table 4. Water treatment capacity and treatment processes

Treatment Site ID (Plant Name or Well ID)	Year Constructed	Treatment Capacity (GPD)	Treatment Method	Treatment Type	Annual Amount of Residuals (MG)	Disposal Process for Residuals	Do You Reclaim Filter Backwash Water?
Water Treatment Plan	1965/1995/ 2016	5,000,000	Filtration, advanced oxidation, chemical addition	Granular activated carbon, hydrogen peroxide, ultraviolet disinfection	8.3	Water reuse facility	Yes
Total	NA	5,000,000	NA	NA	8.3	NA	NA

Complete Table 5 with information about storage structures. Describe the type (i.e. elevated, ground, etc.), the storage capacity of each type of structure, the year each structure was constructed, and the primary material for each structure. Add rows to the table as needed.

Table 5. Storage capacity, as of the end of the last calendar year

Structure Name	Type of Storage Structure	Year Constructed	Primary Material	Storage Capacity (Million Gallons)
Water Tower	Elevated storage	1953	Steel	0.25 MG
Ground Storage Reservoir	Ground storage	1991	Concrete	2.0 MG
Total	NA	NA	NA	2.25 MG

Treatment and storage capacity versus demand

It is recommended that total storage equal or exceed the average daily demand.

Discuss the difference between current storage and treatment capacity versus the water supplier's projected average water demand over the next 10 years (see Table 7 for projected water demand):

The mean average day demand from 2010 to 2015 is 811,000 gallons, well below the 2.25 million gallons of storage. It is estimated that the City of St. Anthony's population is projected to increase slightly over the lifetime of this plan; however, no additional storage will be required to incorporate the projected average daily demands.

C. Water Sources

Complete Table 6 by listing all types of water sources that supply water to the system, including groundwater, surface water, interconnections with other water suppliers, or others. Provide the name of each source (aquifer name, river or lake name, name of interconnecting water supplier) and the Minnesota unique well number or intake ID, as appropriate. Report the year the source was installed or established and the current capacity. Provide information about the depth of all wells. Describe the status of the source (active, inactive, emergency only, retail/wholesale interconnection) and if the source facilities have a dedicated emergency power source. Add rows to the table as needed for each installation.

Include copies of well records and maintenance summary for each well that has occurred since your last approved plan in **Appendix 1.**

Table 6. Water sources and status

Resource Type (Groundwater, Surface water, Interconnection)	Resource Name	MN Unique Well # or Intake ID	Year Installed	Capacity (Gallons per Minute)	Well Depth (Feet)	Status of Normal and Emergency Operations (active, inactive, emergency only, retail/wholesale interconnection))	Does this Source have a Dedicated Emergency Power Source? (Yes or No)
Groundwater	Prairie du Chien - Jordan Aquifer	Well 3 – 200804	1967	1,200	539	Active	Yes
Groundwater	Jordan Aquifer	Well 4-200803	1959	1,200	541	Active	No

Resource Type (Groundwater, Surface water, Interconnection)	Resource Name	MN Unique Well # or Intake ID	Year Installed	Capacity (Gallons per Minute)	Well Depth (Feet)	Status of Normal and Emergency Operations (active, inactive, emergency only, retail/wholesale interconnection))	Does this Source have a Dedicated Emergency Power Source? (Yes or No)
Groundwater	Jordan Aquifer	Well 5 - 200524	1961	1,200	472	Active	Yes
Interconnect	Roseville		n/a	100,000		Emergency only	No

Limits on Emergency Interconnections

Discuss any limitations on the use of the water sources (e.g. not to be operated simultaneously, limitations due to blending, aquifer recovery issues etc.) and the use of interconnections, including capacity limits or timing constraints (i.e. only 200 gallons per minute are available from the City of Prior Lake, and it is estimated to take 6 hours to establish the emergency connection). If there are no limitations, list none.

There is not an official interconnection with the City of Minneapolis, only the adjacent fire hydrants are available in emergency situations. The interconnection with the City of Roseville only serves the southern portion of the City.

D. Future Demand Projections – *Key Metropolitan Council Benchmark*

Water Use Trends

Use the data in Table 2 to describe trends in 1) population served; 2) total per capita water demand; 3) average daily demand; 4) maximum daily demand. Then explain the causes for upward or downward trends. For example, over the ten years has the average daily demand trended up or down? Why is this occurring?

There is currently no trend seen in population served and a general decrease in total capita water demand, average daily demand, and maximum daily demand. Since the City is fully built out, population changes are not driving trends in water demand. It is likely that improved appliances, decrease in irrigation, general attitude towards conservation, rainfall and climate play a much larger role in water usage than other factors.

Use the water use trend information discussed above to complete Table 7 with projected annual demand for the next ten years. Communities in the seven-county Twin Cities metropolitan area must also include projections for 2030 and 2040 as part of their local comprehensive planning.

Projected demand should be consistent with trends evident in the historical data in Table 2, as discussed above. Projected demand should also reflect state demographer population projections and/or other planning projections.

Table 7. Projected annual water demand

Year	Projected Total Population	Projected Population Served	Projected Total Per Capita Water Demand (GPCD)	Projected Average Daily Demand (MGD)	Projected Maximum Daily Demand (MGD)
2016	8,391	8,391	98	0.841	1.766
2017	8,556	8,556	98	0.876	1.839
2018	8,720	8,720	98	0.910	1.912
2019	8,885	8,885	98	0.945	1.985
2020	10,000	10,000	98	0.980	2.058
2021	10,080	10,080	98	0.988	2.074
2022	10,160	10,160	98	0.996	2.091
2023	10,240	10,240	98	1.004	2.107
2024	10,320	10,320	98	1.011	2.124
2025	10,400	10,400	98	1.019	2.140
2030	10,800	10,800	98	1.058	2.223
2040	10,900	10,900	98	1.068	2.243

GPCD – Gallons per Capita per Day **MGD** – Million Gallons per Day

Projection Method

Describe the method used to project water demand, including assumptions for population and business growth and how water conservation and efficiency programs affect projected water demand:

Population estimates were linearly extrapolated from Metropolitan Council projections for 2020, 2030, and 2040. As of 2016, any new population growth will be serviced by the municipal water system. The per capita demands (daily average and max day peaking factors) were obtained from MCES projections and from the City's annual water use data.

E. Resource Sustainability

Monitoring – *Key DNR Benchmark*

Complete Table 8 by inserting information about source water quality monitoring efforts. The list should include all production wells, observation wells, and source water intakes or reservoirs. Additional information on groundwater level monitoring program at: http://www.dnr.state.mn.us/waters/groundwater_section/obwell/index.html Add rows to the table as needed.

Table 8. Information about source water quality and quantity monitoring

MN Unique Well # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
Well 3 – 200804	☑ production well ☐ observation well ☐ source water intake ☐ source water reservoir	☑ Routine MDH sampling ☑ Routine water utility sampling ☐ other	☐continuous ☐hourly ☑ daily ☑ monthly ☐quarterly ☐annually	☑ SCADA ☑ grab sampling ☐ steel tape ☐ stream gauge

MN Unique Well # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
Well 4- 200803	☑ production well ☐ observation well ☐ source water intake ☐ source water reservoir	☑ Routine MDH sampling ☑ Routine water utility sampling ☐ other	☐continuous ☐hourly ☑ daily ☑ monthly ☐quarterly ☐annually	☑ SCADA ☑ grab sampling ☐ steel tape ☐ stream gauge
Well 5 - 200524	☑ production well ☐ observation well ☐ source water intake ☐ source water reservoir	☑ Routine MDH sampling ☑ Routine water utility sampling ☐ other	☐continuous ☐hourly ☑ daily ☑ monthly ☐quarterly ☐annually	☑ SCADA ☑ grab sampling ☐ steel tape ☐ stream gauge
Obwell - 225652	☐ production well ☑ observation well ☐ source water intake ☐ source water reservoir	☐ Routine MDH sampling ☑ Routine water utility sampling ☐ other	☐continuous ☐hourly ☑ daily ☐ monthly ☐quarterly ☐annually	☐ SCADA ☐ grab sampling ☑ steel tape ☐ stream gauge

Water Level Data

A water level monitoring plan that includes monitoring locations and a schedule for water level readings must be submitted as **Appendix 2**. If one does not already exist, it needs to be prepared and submitted with the WSP. Ideally, all production and observation wells are monitored at least monthly.

Complete Table 9 to summarize water level data for each well being monitored. Provide the name of the aquifer and a brief description of how much water levels vary over the season (the difference between the highest and lowest water levels measured during the year) and the long-term trends for each well. If water levels are not measured and recorded on a routine basis, then provide the static water level when each well was constructed and the most recent water level measured during the same season the well was constructed. Also include all water level data taken during any well and pump maintenance. Add rows to the table as needed.

Provide water level data graphs for each well in **Appendix 3** for the life of the well, or for as many years as water levels have been measured. See DNR website for Date Time Water Level http://www.dnr.state.mn.us/waters/groundwater_section/obwell/waterleveldata.html

Table 9. Water level data

Unique Well Number or Well ID	Aquifer Name	Seasonal Variation (Feet)	Long-term Trend in water level data	Water level measured during well/pumping maintenance
Well 3 – 200804	Prairie du Chien Aquifer	Approximately 3-ft	☐ Falling ☐ Stable ☑ Rising	monthly 2009-2015
Well 4- 200803	Jordan Aquifer	Approximately 3-ft	☐ Falling ☐ Stable	monthly 2009-2015

Unique Well Number or Well ID	Aquifer Name	Seasonal Variation (Feet)	Long-term Trend in water level data	Water level measured during well/pumping maintenance
			☑ Rising	
Well 5 - 200524	Jordan Aquifer	Approximately 5-ft	☐ Falling ☐ Stable ☑ Rising	monthly 2009-2015
Observation Well 6203	Multiple Aquifers	Approximately 3-ft	☐ Falling ☐ Stable ☑ Rising	n/a

Potential Water Supply Issues & Natural Resource Impacts – *Key DNR & Metropolitan Council Benchmark*

Complete Table 10 by listing the types of natural resources that are or could be impacted by permitted water withdrawals. If known, provide the name of specific resources that may be impacted. Identify what the greatest risks to the resource are and how the risks are being assessed. Identify any resource protection thresholds – formal or informal – that have been established to identify when actions should be taken to mitigate impacts. Provide information about the potential mitigation actions that may be taken, if a resource protection threshold is crossed. Add additional rows to the table as needed. See the glossary at the end of the template for definitions.

Some of this baseline data should have been in your earlier water supply plans or county comprehensive water plans. When filling out this table, think of what are the water supply risks, identify the resources, determine the threshold and then determine what your community will do to mitigate the impacts.

Your DNR area hydrologist is available to assist with this table.

For communities in the seven-county Twin Cities metropolitan area, the *Master Water Supply Plan Appendix 1 (Water Supply Profiles*, provides information about potential water supply issues and natural resource impacts for your community.

Table 10. Natural resource impacts

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
☐ River or stream		☐ Flow/water level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered,	☐ GIS analysis ☐ Modeling ☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		☐ Revise permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other	

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
		threatened, or special concern species habitat or other natural resource impacts ☐Other: _____				
☐ Calcareous fen		☐ Flow/water level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐Other: _____	☐ GIS analysis ☐ Modeling ☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		☐ Revise permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other	
☑ Lake	Silver Lake, and Mirror Lake	☑ None anticipated. ☐ Flow/water level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural	☐ GIS analysis ☐ GIS analysis ☐ Modeling ☐ Mapping ☑ Monitoring ☐ Aquifer testing ☑ Other: The City's Wellhead Protection Plan, and the Metropolitan Council's Regional Groundwater and	N/A	☐ Revise permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other ☑ N/A	N/A

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
		resource impacts ☐Other: _____	Stormwater Capture and Reuse Study.			
☐ Wetland		☐ Flow/water level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐Other: _____	☐ GIS analysis ☐ Modeling ☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		☐ Revise permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other	
☐ Trout Stream		☐ Flow/water level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐Other: _____	☐ GIS analysis ☐ Modeling ☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		☐ Revise permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other	
☑ Aquifer	Prairie-du-Chien Jordan	☑ Flow/water level decline ☑ Degrading water quality	☐ GIS analysis ☐ Modeling ☐ Mapping ☐ Monitoring	Lower limit on acceptable water levels in aquifer. Water quality	☐ Revise permit ☑ Change groundwater pumping	The DNR monitors appropriation permits and

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
		trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐Other: _____	☐ Aquifer testing ☐ Other: DNR	outside acceptable range.	☑ Increase conservation ☑ Other: Consider additional water reuse/stormwater irrigation projects.	groundwater withdrawals.
☐ Endangered, threatened, or special concern species habitat, other Natural resource impacts						

Wellhead Protection (WHP) and Surface Water Protection (SWP) Plans

Complete Table 11 to provide status information about WHP and SWP plans.

The emergency procedures in this plan are intended to comply with the contingency plan provisions required in the Minnesota Department of Health's (MDH) Wellhead Protection (WHP) Plan and Surface Water Protection (SWP) Plan.

Table 11. Status of Wellhead Protection and Surface Water Protection Plans

Plan Type	Status	Date Adopted	Date for Update
WHP	☑ In Process ☐Completed ☐ Not Applicable	N/A	N/A
SWP	☐ In Process ☐ Completed ☑ Not Applicable		

WHP – Wellhead Protection Plan **SWP** – Source Water Protection Plan

F. Capital Improvement Plan (CIP)

Please note that any wells that received approval under a ten-year permit, but that were not built, are now expired and must submit a water appropriations permit.

Adequacy of Water Supply System

Complete Table 12 with information about the adequacy of wells and/or intakes, storage facilities, treatment facilities, and distribution systems to sustain current and projected demands. List planned capital improvements for any system components, in chronological order. Communities in the seven-county Twin Cities metropolitan area should also include information about plans through 2040.

The assessment can be the general status by category; it is not necessary to identify every single well, storage facility, treatment facility, lift station, and mile of pipe.

Please attach your latest Capital Improvement Plan as **Appendix 4**.

Table 12. Adequacy of Water Supply System

System Component	Planned action	Anticipated Construction Year	Notes
Wells/Intakes	☐ No action planned - adequate ☑ Repair/replacement ☐ Expansion/addition		-HSP upgrades & piping -well casing -well pump restoration -wellhouse generators
Water Storage Facilities	☐ No action planned - adequate ☑ Repair/replacement ☐ Expansion/addition	2016 - 2017	- Ground storage reservoir -repaint water tower
Water Treatment Facilities	☐ No action planned - adequate ☐ Repair/replacement ☑ Expansion/addition	2016 - 2017	To address 1,4-dioxane in the water as a result of the Twin Cities Army Ammunition Plant, the City is expanding to its water treatment plant with an advanced oxidation process that will remove 1,4-dioxane.
Distribution Systems (pipes, valves, etc.)	☐ No action planned - adequate ☑ Repair/replacement ☐ Expansion/addition	2016-2032	-watermain replacement
Pressure Zones	☐ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		

System Component	Planned action	Anticipated Construction Year	Notes
Other: SCADA	☐ No action planned - adequate ☐ Repair/replacement ☑ Expansion/addition		-SCADA System upgrade

Proposed Future Water Sources

Complete Table 13 to identify new water source installation planned over the next ten years. Add rows to the table as needed.

Table 13. Proposed future installations/sources

Source	Installation Location (approximate)	Resource Name	Proposed Pumping Capacity (gpm)	Planned Installation Year	Planned Partnerships
Groundwater	N/A				
Surface Water	N/A				
Interconnection to another supplier	N/A				

Water Source Alternatives - *Key Metropolitan Council Benchmark*

Do you anticipate the need for alternative water sources in the next 10 years? __ Yes ✓ No

For metro communities, will you need alternative water sources by the year 2040? __ Yes ✓ No

If you answered yes for either question, then complete table 14. If no, insert NA.

Complete Table 14 by checking the box next to alternative approaches that your community is considering, including approximate locations (if known), the estimated amount of future demand that could be met through the approach, the estimated timeframe to implement the approach, potential partnerships, and the major benefits and challenges of the approach. Add rows to the table as needed.

For communities in the seven-county Twin Cities metropolitan area, these alternatives should include approaches the community is considering to meet projected 2040 water demand.

Table 14. Alternative water sources

Alternative Source Considered	Source and/or Installation Location (approximate)	Estimated Amount of Future Demand (%)	Timeframe to Implement (YYYY)	Potential Partners	Benefits	Challenges
☐ Groundwater						
☐ Surface Water						
☐ Reclaimed Stormwater						
☐ Reclaimed Wastewater						

Alternative Source Considered	Source and/or Installation Location (approximate)	Estimated Amount of Future Demand (%)	Timeframe to Implement (YYYY)	Potential Partners	Benefits	Challenges
☐ Interconnection to another supplier						

Part 2. Emergency Preparedness Procedures

The emergency preparedness procedures outlined in this plan are intended to comply with the contingency plan provisions required by MDH in the WHP and SWP. Water emergencies can occur as a result of vandalism, sabotage, accidental contamination, mechanical problems, power failings, drought, flooding, and other natural disasters. The purpose of emergency planning is to develop emergency response procedures and to identify actions needed to improve emergency preparedness. In the case of a municipality, these procedures should be in support of, and part of, an all-hazard emergency operations plan. Municipalities that already have written procedures dealing with water emergencies should review the following information and update existing procedures to address these water supply protection measures.

A. Federal Emergency Response Plan

Section 1433(b) of the Safe Drinking Water Act, (Public Law 107-188, Title IV- Drinking Water Security and Safety) requires community water suppliers serving over 3,300 people to prepare an Emergency Response Plan.

Do you have a federal emergency response plan? ☑ Yes ☐ No

If yes, what was the date it was certified? ___August 2, 2004_____

Complete Table 15 by inserting the noted information regarding your completed Federal Emergency Response Plan.

Table 15. Emergency Preparedness Plan contact information

Emergency Response Plan Role	Contact Person	Contact Phone Number	Contact Email
Emergency Response Lead	Jay Hartman	612-782-3314	Jay.hartman@ci.saint-anthony.mn.us
Alternate Emergency Response Lead	Jeremy Gumke	612-782-3441	Jeremy.gumke@ci.saint-anthony.mn.us

B. Operational Contingency Plan

All utilities should have a written operational contingency plan that describes measures to be taken for water supply mainline breaks and other common system failures as well as routine maintenance.

Do you have a written operational contingency plan? ☑ Yes ☐ No

At a minimum, a water supplier should prepare and maintain an emergency contact list of contractors and suppliers.

C. Emergency Response Procedures

Water suppliers must meet the requirements of MN Rules 4720.5280. Accordingly, the Minnesota Department of Natural Resources (DNR) requires public water suppliers serving more than 1,000 people to submit Emergency and Conservation Plans. Water emergency and conservation plans that have been approved by the DNR, under provisions of Minnesota Statute 186 and Minnesota Rules, part 6115.0770, will be considered equivalent to an approved WHP contingency plan.

Emergency Telephone List

Prepare and attach a list of emergency contacts, including the MN Duty Officer (1-800-422-0798), as **Appendix 5**. A template is available at www.mndnr.gov/watersupplyplans

The list should include key utility and community personnel, contacts in adjacent water suppliers, and appropriate local, state and federal emergency contacts. Please be sure to verify and update the contacts on the emergency telephone list and date it. Thereafter, update on a regular basis (once a year is recommended). In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the Emergency Manager for that community. Responsibilities and services for each contact should be defined.

Current Water Sources and Service Area

Quick access to concise and detailed information on water sources, water treatment, and the distribution system may be needed in an emergency. System operation and maintenance records should be maintained in secured central and back-up locations so that the records are accessible for emergency purposes. A detailed map of the system showing the treatment plants, water sources, storage facilities, supply lines, interconnections, and other information that would be useful in an emergency should also be readily available. It is critical that public water supplier representatives and emergency response personnel communicate about the response procedures and be able to easily obtain this kind of information both in electronic and hard copy formats (in case of a power outage).

Do records and maps exist? ☑ Yes ☐ No

Can staff access records and maps from a central secured location in the event of an emergency?

☑ Yes ☐ No

Does the appropriate staff know where the materials are located?

☑ Yes ☐ No

Procedure for Augmenting Water Supplies

Complete Tables 16 – 17 by listing all available sources of water that can be used to augment or replace existing sources in an emergency. Add rows to the tables as needed.

In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the warning point for that community. Municipalities are encouraged to execute cooperative agreements for potential emergency water services and copies should be included in **Appendix 6**. Outstate Communities may consider using nearby high capacity wells (industry, golf course) as emergency water sources.

WSP should include information on any physical or chemical problems that may limit interconnections to other sources of water. Approvals from the MDH are required for interconnections or the reuse of water.

Table 16. Interconnections with other water supply systems to supply water in an emergency

Other Water Supply System Owner	Capacity (GPM & MGD)	Note Any Limitations On Use	List of services, equipment, supplies available to respond
St. Paul via Roseville	100,000 gpm/ 144 MGD	Partial service, emergency only	Water connection to southern portion of system
Minneapolis	125,000 gpm/ 180 MGD	Partial service, emergency only	Adjacent hydrants

GPM – Gallons per minute MGD – million gallons per day

Table 17. Utilizing surface water as an alternative source

Surface Water Source Name	Capacity (GPM)	Capacity (MGD)	Treatment Needs	Note Any Limitations On Use
Water Reuse facility	8.75	0.013	Settling tank and self-cleaning disc filter	Volume, non-potable irrigation only

If not covered above, describe additional emergency measures for providing water (obtaining bottled water, or steps to obtain National Guard services, etc.)

For a short-term emergency, the City would need to obtain and distribute bottled water. For long-term water emergency, bulk water distribution would be set up at public facilities.

Allocation and Demand Reduction Procedures

Complete Table 18 by adding information about how decisions will be made to allocate water and reduce demand during an emergency. Provide information for each customer category, including its priority ranking, average day demand, and demand reduction potential for each customer category. Modify the customer categories as needed, and add additional lines if necessary.

Water use categories should be prioritized in a way that is consistent with Minnesota Statutes 103G.261 (#1 is highest priority) as follows:

1. Water use for human needs such as cooking, cleaning, drinking, washing and waste disposal; use for on-farm livestock watering; and use for power production that meets contingency requirements.
2. Water use involving consumption of less than 10,000 gallons per day (usually from private wells or surface water intakes)
3. Water use for agricultural irrigation and processing of agricultural products involving consumption of more than 10,000 gallons per day (usually from private high-capacity wells or surface water intakes)
4. Water use for power production above the use provided for in the contingency plan.
5. All other water use involving consumption of more than 10,000 gallons per day.
6. Nonessential uses – car washes, golf courses, etc.

Water used for human needs at hospitals, nursing homes and similar types of facilities should be designated as a high priority to be maintained in an emergency. Lower priority uses will need to address water used for human needs at other types of facilities such as hotels, office buildings, and manufacturing plants. The volume of water and other types of water uses at these facilities must be carefully considered. After reviewing the data, common sense should dictate local allocation priorities to protect domestic requirements over certain types of economic needs. Water use for lawn sprinkling, vehicle washing, golf courses, and recreation are legislatively considered non-essential.

Table 18. Water use priorities

Customer Category	Allocation Priority	Average Daily Demand (GDP)	Short-Term Emergency Demand Reduction Potential (GPD)
Residential	1	533,710	*
Institutional	2	39,160	*
Commercial/Industrial	3	145,200	*
Non-Essential	4		256,960 *
TOTAL	NA	718,070	256,960 *

GPD – Gallons per Day; 2014-2015 Water Use Data; *Non-essential calculated as increased summer demand between all customer categories

Tip: Calculating Emergency Demand Reduction Potential

The emergency demand reduction potential for all uses will typically equal the difference between maximum use (summer demand) and base use (winter demand). In extreme emergency situations, lower priority water uses must be restricted or eliminated to protect priority domestic water requirements. Emergency demand reduction potential should be based on average day demands for customer categories within each priority class. Use the tables in Part 3 on water conservation to help you determine strategies.

Complete Table 19 by selecting the triggers and actions during water supply disruption conditions.

Table 19. Emergency demand reduction conditions, triggers and actions (Select all that may apply and describe)

Emergency Triggers	Short-term Actions	Long-term Actions
☑ Contamination ☑ Loss of production ☑ Infrastructure failure ☑ Executive order by Governor	☐ Supply augmentation through ____ ☑ Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☑ Water allocation through emergency action of City Council ☐ Meet with large water users to discuss their contingency plan. ☑ Voluntary reduction measures encouraged by public service announcements, i.e. bill stuffers,	☑ Supply augmentation through Roseville ☑ Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☑ Water allocation through emergency action of City Council ☑ Meet with large water users to discuss their contingency plan.

Emergency Triggers	Short-term Actions	Long-term Actions
	fliers, and notices in local newspapers	

Notification Procedures

Complete Table 20 by selecting trigger for informing customers regarding conservation requests, water use restrictions, and suspensions; notification frequencies; and partners that may assist in the notification process. Add rows to the table as needed.

Table 20. Plan to inform customers regarding conservation requests, water use restrictions, and suspensions

Notification Trigger(s)	Methods (select all that apply)	Update Frequency	Partners
☑ Short-term demand reduction declared (< 1 year)	☑ Website ☐ Email list serve ☑ Social media (e.g. Twitter, Facebook) ☑ Direct customer mailing, ☑ Press release (TV, radio, newspaper), ☐ Meeting with large water users (> 10% of total city use) ☐ Other: _____	☐ Daily ☐ Weekly ☑ Monthly ☐ Annually	• City Staff • Neighboring communities • Local news outlets
☑ Long-term Ongoing demand reduction declared	☑ Website ☐ Email list serve ☑ Social media (e.g. Twitter, Facebook) ☑ Direct customer mailing, ☑ Press release (TV, radio, newspaper), ☐ Meeting with large water users (> 10% of total city use) ☐ Other: _____	☐ Daily ☐ Weekly ☐ Monthly ☑ Annually	• City Staff, • Neighboring communities • Local news outlets
☑ Governor's Critical water deficiency declared	☑ Website ☐ Email list serve ☑ Social media (e.g. Twitter, Facebook) ☑ Direct customer mailing, ☑ Press release (TV, radio, newspaper), ☐ Meeting with large water users (> 10% of total city use) ☐ Other: _____	☐ Daily ☐ Weekly ☐ Monthly ☐ Annually ☑ As needed	• City Staff • Neighboring communities • Local news outlets

Enforcement

Prior to a water emergency, municipal water suppliers must adopt regulations that restrict water use and outline the enforcement response plan. The enforcement response plan must outline how conditions will be monitored to know when enforcement actions are triggered, what enforcement tools will be used, who will be responsible for enforcement, and what timelines for corrective actions will be expected.

Affected operations, communications, and enforcement staff must then be trained to rapidly implement those provisions during emergency conditions.

Important Note:

Disregard of critical water deficiency orders, even though total appropriation remains less than permitted, is adequate grounds for immediate modification of a public water supply authority's water use permit (2013 MN Statutes 103G.291)

Does the city have a critical water deficiency restriction/official control in place that includes provisions to restrict water use and enforce the restrictions? (This restriction may be an ordinance, rule, regulation, policy under a council directive, or other official control) ☑Yes ☐ No

If yes, attach the official control document to this WSP as **Appendix 7**.

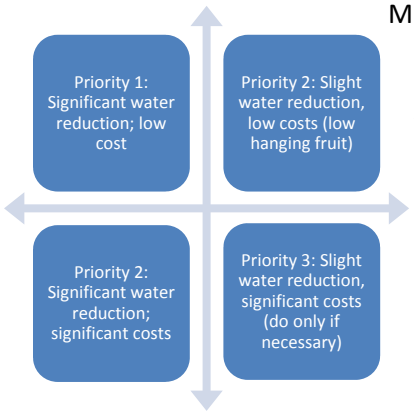
If no, the municipality must adopt such an official control within 6 months of submitting this WSP and submit it to the DNR as an amendment to this WSP.

Irrespective of whether a critical water deficiency control is in place, does the public water supply utility, city manager, mayor, or emergency manager have standing authority to implement water restrictions? ☑ Yes ☐ No

If yes, cite the regulatory authority reference: __Ordinance Code 52.08_____.

If no, who has authority to implement water use restrictions in an emergency?

PART 3. WATER CONSERVATION PLAN



Minnesotans have historically benefited from the state's abundant water supplies, reducing the need for conservation. There are however, limits to the available supplies of water and increasing threats to the quality of our drinking water. Causes of water supply limitation may include: population increases, economic trends, uneven statewide availability of groundwater, climatic changes, and degraded water quality. Examples of threats to drinking water quality include: the presence of contaminant plumes from past land use activities, exceedances of water quality standards from natural and human sources, contaminants of emerging concern, and increasing pollutant trends from nonpoint sources.

There are many incentives for conserving water; conservation:

- reduces the potential for pumping-induced transfer of contaminants into the deeper aquifers, which can add treatment costs
- reduces the need for capital projects to expand system capacity
- reduces the likelihood of water use conflicts, like well interference, aquatic habitat loss, and declining lake levels
- conserves energy, because less energy is needed to extract, treat and distribute water (and less energy production also conserves water since water is use to produce energy)
- maintains water supplies that can then be available during times of drought

It is therefore imperative that water suppliers implement water conservation plans. The first step in water conservation is identifying opportunities for behavioral or engineering changes that could be made to reduce water use by conducting a thorough analysis of:

- Water use by customer
- Extraction, treatment, distribution and irrigation system efficiencies
- Industrial processing system efficiencies
- Regulatory and barriers to conservation
- Cultural barriers to conservation
- Water reuse opportunities

Once accurate data is compiled, water suppliers can set achievable goals for reducing water use. A successful water conservation plan follows a logical sequence of events. The plan should address both conservation on the supply side (leak detection and repairs, metering), as well as on the demand side (reductions in usage). Implementation should be conducted in phases, starting with the most obvious and lowest-cost options. In some cases one of the early steps will be reviewing regulatory constraints to water conservation, such as lawn irrigation requirements. Outside funding and grants may be available for implementation of projects. Engage water system operators and maintenance staff and customers in brainstorming opportunities to reduce water use. Ask the question: "How can I help save water?"

Progress since 2006

Is this your community's first Water Supply Plan? ☐ Yes ☑ No

If yes, describe conservation practices that you are already implementing, such as: pricing, system improvements, education, regulation, appliance retrofitting, enforcement, etc.

If no, complete Table 21 to summarize conservation actions taken since the adoption of the 2006 water supply plan.

Table 21. Implementation of previous ten-year Conservation Plan

2006 Plan Commitments	Action Taken?
Change Water Rates Structure to provide conservation pricing	☑ Yes ☐ No
Water Supply System Improvements (e.g. leak repairs, valve replacements, etc.)	☑ Yes ☐ No
Educational Efforts: Rain barrel seminar	☑ Yes ☐ No
New water conservation ordinances	☐ Yes ☐ No
Rebate or retrofitting Program (e.g. faucet aerators, leak tablets, City pays for 50% of 1st rain barrel)	☑ Yes ☐ No
Enforcement	☐ Yes ☐ No
Describe Other: Participation Green Step Cities, Splash pad reduction, water reuse facility, and supplied leak tablets	☑ Yes ☐ No

What are the results you have seen from the actions in Table 21 and how were results measured?

The City installed new AM system that alerts the City of leaky fixtures. The City has also seen a decreasing trend in water use in all customer categories since the implementation of previous water supply plan.

A. Triggers for Allocation and Demand Reduction Actions

Complete table 22 by checking each trigger below, as appropriate, and the actions to be taken at various levels or stages of severity. Add in additional rows to the table as needed.

Table 22. Short and long-term demand reduction conditions, triggers and actions

Objective	Triggers	Actions
Protect Surface Water Flows	☐ Low stream flow conditions ☑ Reports of declining wetland and lake levels	☑ Increase promotion of conservation measures ☑ Other: Consider additional water reuse/stormwater irrigation projects

Objective	Triggers	Actions
	☑ Other: declining surface water quality	
Short-term demand reduction (less than 1 year	☑ Extremely high seasonal water demand (more than double winter demand) ☐ Loss of treatment capacity ☑ Lack of water in storage ☑ State drought plan ☐ Well interference ☐ Other: _____	☑ Enforce the critical water deficiency ordinance to restrict or prohibit lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☑ Supply augmentation through Roseville interconnection. ☑ Water allocation through Roseville interconnection. ☐ Meet with large water users to discuss user's contingency plan.
Long-term demand reduction (>1 year)	☑ Per capita demand increasing ☑ Declared emergency ☐ Total demand increase (higher population or more industry) Water level in well(s) below elevation of	☑ Develop a critical water deficiency ordinance that is or can be quickly adopted to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☑ Enact a water waste ordinance that targets overwatering (causing water to flow off the landscape into streets, parking lots, or similar), watering impervious surfaces (streets, driveways or other hardscape areas), and negligence of known leaks, breaks, or malfunctions. ☐ Meet with large water users to discuss user's contingency plan. ☑ Enhanced monitoring and reporting: audits, meters, billing, etc.
Governor's "Critical Water Deficiency Order" declared	☑ Governor Declaration as needed	☑ Take action as directed by the governor

B. Conservation Objectives and Strategies – *Key benchmark for DNR*

This section establishes water conservation objectives and strategies for eight major areas of water use.

Objective 1: Reduce Unaccounted (Non-Revenue) Water loss to Less than 10%

The Minnesota Rural Waters Association, the Metropolitan Council and the Department of Natural Resources recommend that all water uses be metered. Metering can help identify high use locations and times, along with leaks within buildings that have multiple meters.

It is difficult to quantify specific unmetered water use such as that associated with firefighting and system flushing or system leaks. Typically, water suppliers subtract metered water use from total water pumped to calculate unaccounted or non-revenue water loss.

Is your ten-year average (2005-2014) unaccounted Water Use in Table 2 higher than 10%?

☐ Yes ☑ No

What is your leak detection monitoring schedule? (e.g. monitor 1/3rd of the city lines per year)

Leak detection surveys are performed as needed.

Water Audits - are intended to identify, quantify and verify water and revenue losses. The volume of unaccounted-for water should be evaluated each billing cycle. The American Water Works Association (AWWA) recommends that ten percent or less of pumped water is unaccounted-for water. Water audit procedures are available from the AWWA and MN Rural Water Association www.mrwa.com . Drinking Water Revolving Loan Funds are available for purchase of new meters when new plants are built.

What is the date of your most recent water audit? __n/a___

Frequency of water audits: ☐ **yearly** ☑ **other (specify frequency) _as needed___**
Leak detection and survey: ☐ **every year** ☐ **every three years** ☑ **periodic as needed**
Year last leak detection survey completed: __2008____

If Table 2 shows annual water losses over 10% or an increasing trend over time, describe what actions will be taken to reach the <10% loss objective and within what timeframe

Metering -AWWA recommends that every water supplier install meters to account for all water taken into its system, along with all water distributed from its system at each customer's point of service. An effective metering program relies upon periodic performance testing, repair, maintenance or replacement of all meters. AWWA also recommends that water suppliers conduct regular water audits to ensure accountability. Some cities install separate meters for interior and exterior water use, but some research suggests that this may not result in water conservation.

Complete Table 23 by adding the requested information regarding the number, types, testing and maintenance of customer meters.

Table 23. Information about customer meters

Customer Category	Number of Customers	Number of Metered Connections	Number of Automated Meter Readers	Meter testing intervals (years)	Average age/meter replacement schedule (years
Residential	2,196	2,196	2,196	As needed or requested	10 / 15
Institutional	10	10	10	As needed or requested	10 / 15
Commercial/Industrial	119	119	119	As needed or requested	10 / 15
TOTALS	2,325	2,325	2,325	NA	NA

For unmetered systems, describe any plans to install meters or replace current meters with advanced technology meters. Provide an estimate of the cost to implement the plan and the projected water savings from implementing the plan.

The City does not have any unmetered connections. All meters in St. Anthony were replaced in 2008 over the course of a recently completed AMR program.

Table 24. Water source meters

	Number of Meters	Meter testing schedule (years)	Number of Automated Meter Readers	Average age/meter replacement schedule (years
Water Source (wells/intakes)	6	8	8	4 / as needed
Treatment Plant	4	4	4	10 / as needed

Objective 2: Achieve Less than 75 Residential Gallons per Capita Demand (GPCD)

The 2002 average residential per capita demand in the Twin Cities Metropolitan area was 75 gallons per capita per day.

Is your average 2010-2015 residential per capita water demand in Table 2 more than 75? ☐ Yes ☑ No

What was your 2005 – 2014 ten-year average residential per capita water demand? 72 g/person/day

Describe the water use trend over that timeframe:

From the MnDNR and City water use reports from 2007 to 2015, there has been a steady decrease in water usage with the exception of 2012 where water usage increased from the previous year.

Complete Table 25 by checking which strategies you will use to continue reducing residential per capita demand and project a likely timeframe for completing each checked strategy (Select all that apply and add rows for additional strategies):

Table 25. Strategies and timeframe to reduce residential per capita demand

Strategy to reduce residential per capita demand	Timeframe for completing work
☑ Revise city ordinances/codes to encourage or require water efficient landscaping.	1-3 years following adoption of this plan
☑ Review city ordinance/codes to permit water reuse options, especially for non-potable purposes like irrigation, groundwater recharge, and industrial use. Check with plumbing authority to see if internal buildings reuse is permitted	Annually
☑ Revise ordinances to limit irrigation. Describe the restricted irrigation plan:	3-6 years following adoption of this plan

Strategy to reduce residential per capita demand	Timeframe for completing work
☐ Revise outdoor irrigation installations codes to require high efficiency systems (e.g. those with soil moisture sensors or programmable watering areas) in new installations or system replacements.	
☑ Make water system infrastructure improvements	Ongoing
☐ Offer free or reduced cost water use audits) for residential customers.	
☐ Implement a notification system to inform customers when water availability conditions change.	
☐ Provide rebates or incentives for installing water efficient appliances and/or fixtures indoors (e.g., low flow toilets, high efficiency dish washers and washing machines, showerhead and faucet aerators, water softeners, etc.)	
☑ Provide rebates or incentives to reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	Ongoing
☐ Identify supplemental Water Resources	
☑ Conduct audience-appropriate water conservation education and outreach.	Ongoing
☑ Describe other plans: City has participated in the Regional Indicators Initiative (RII) in order to track water usage by customer category	2008-2013

Objective 3: Achieve at least a 1.5% per year water reduction for Institutional, Industrial, Commercial, and Agricultural GPCD over the next 10 years or a 15% reduction in ten years.

Complete Table 26 by checking which strategies you will used to continue reducing non-residential customer use demand and project a likely timeframe for completing each checked strategy (add rows for additional strategies).

Where possible, substitute recycled water used in one process for reuse in another. (For example, spent rinse water can often be reused in a cooling tower.) Keep in mind the true cost of water is the amount on the water bill PLUS the expenses to heat, cool, treat, pump, and dispose of/discharge the water. Don't just calculate the initial investment. Many conservation retrofits that appear to be prohibitively expensive are actually very cost-effective when amortized over the life of the equipment. Often reducing water use also saves electrical and other utility costs. Note: as of 2015, water reuse, and is not allowed by the state plumbing code, M.R. 4715 (a variance is needed). However several state agencies are addressing this issue.

Table 26. Strategies and timeframe to reduce institutional, commercial, industrial, and agricultural and non-revenue use demand

Strategy to reduce total business, industry, agricultural demand	Timeframe for completing work
☑ Conduct a facility water use audit for both indoor and outdoor use, including system components	Annually
☑ Install enhanced meters capable of automated readings to detect spikes in consumption	Ongoing
☐ Compare facility water use to related industry benchmarks, if available (e.g., meat processing, dairy, fruit and vegetable, beverage, textiles, paper/pulp, metals, technology, petroleum refining etc.),	

Strategy to reduce total business, industry, agricultural demand	Timeframe for completing work
☑ Install water conservation fixtures and appliances or change processes to conserve water	Ongoing
☑ Repair leaking system components (e.g., pipes, valves)	Ongoing
☑ Investigate the reuse of reclaimed water (e.g., stormwater, wastewater effluent, process wastewater, etc.)	Ongoing
☑ Reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	Ongoing
☑ Train employees how to conserve water	Ongoing – include for new employee training
☐ Implement a notification system to inform non-residential customers when water availability conditions change.	
☐ [Rainwater catchment systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, industrial processes, water features, vehicle washing facilities, cooling tower makeup, and similar uses shall be approved by the commissioner. Proposed plumbing code 4714.1702.1 http://www.dli.mn.gov/PDF/docket/4714rule.pdf	
☑ Describe other plans: City has participated in the Regional Indicators Initiative (RII) in order to track water usage by customer category	Ongoing

Objective 4: Achieve a Decreasing Trend in Total Per Capita Demand

Include as **Appendix 8** one graph showing total per capita water demand for each customer category (i.e., residential, institutional, commercial, industrial) from 2005-2014 and add the calculated/estimated linear trend for the next 10 years.

Describe the trend for each customer category; explain the reason(s) for the trends, and where trends are increasing.

Each customer category shows a decreasing water use trend. The decrease in water usage can be attributed to implementing the water reuse facility, water efficient fixtures, and public education on the importance of water conservation.

Objective 5: Reduce Peak Day Demand so that the Ratio of Average Maximum day to the Average Day is less than 2.6

Is the ratio of average 2005-2014 maximum day demand to average 2005-2014 average day demand reported in Table 2 more than 2.6? ☐ Yes ☑ No

Calculate a ten year average (2005 – 2014) of the ratio of maximum day demand to average day demand: 2.3

The position of the DNR has been that a peak day/average day ratio that is above 2.6 for in summer indicates that the water being used for irrigation by the residents in a community is too large and that efforts should be made to reduce the peak day use by the community.

It should be noted that by reducing the peak day use, communities can also reduce the amount of infrastructure that is required to meet the peak day use. This infrastructure includes new wells, new water towers which can be costly items.

Objective 6: Implement a Conservation Water Rate Structure and/or a Uniform Rate Structure with a Water Conservation Program

Water Conservation Program

Municipal water suppliers serving over 1,000 people are required to adopt demand reduction measures that include a conservation rate structure, or a uniform rate structure with a conservation program that achieves demand reduction. These measures must achieve demand reduction in ways that reduce water demand, water losses, peak water demands, and nonessential water uses. These measures must be approved before a community may request well construction approval from the Department of Health or before requesting an increase in water appropriations permit volume (*Minnesota Statutes*, section 103G.291, subd. 3 and 4). Rates should be adjusted on a regular basis to ensure that revenue of the system is adequate under reduced demand scenarios. If a municipal water supplier intends to use a Uniform Rate Structure, a community-wide Water Conservation Program that will achieve demand reduction must be provided.

Current Water Rates

Include a copy of the actual rate structure in **Appendix 9** or list current water rates including base/service fees and volume charges below.

Volume included in base rate or service charge: _7,500 gallons or less__

Frequency of billing: ☐ Monthly ☐ Bimonthly ☑ Quarterly ☐ Other: _____

Water Rate Evaluation Frequency: ☑ every year ☐ every ___ years ☐ no schedule

Date of last rate change: ___January 1, 2015____

Table 27. Rate structures for each customer category (Select all that apply and add additional rows as needed)

Customer Category	Conservation Billing Strategies in Use *	Conservation Neutral Billing Strategies in Use **	Non-Conserving Billing Strategies in Use ***
Residential	☐ Monthly Billing ☑ Increasing block rates (volume tiered rates) ☐ Seasonal rates ☐ Time of Use rates ☐ Water bills reported in gallons ☐ Individualized goal rates ☐ Excess Use rates ☐ Drought surcharge ☐ Use water bill to provide comparisons ☐ Service charge not based on water volume	☐ Uniform ☑ Odd/Even day watering	☐ Service charge based on water volume ☐ Declining block ☐ Flat ☐ Other (describe)

Customer Category	Conservation Billing Strategies in Use *	Conservation Neutral Billing Strategies in Use **	Non-Conserving Billing Strategies in Use ***
	☐ Other (describe)		
Commercial/ Industrial/ Institutional	☐ Monthly Billing ☑ Increasing block rates ☐ Seasonal rates ☐ Time of Use rates ☐ Bill water use in gallons ☐ Individualized goal rates ☐ Excess Use rates ☐ Drought surcharge ☐ Use water bill to provide comparisons ☐ Service charge not based on water volume ☐ Other (describe)	☐ Uniform	☐ Service charge based on water volume ☐ Declining block ☐ Flat ☐ Other (describe)
☐ Other			

*** Rate Structures components that may promote water conservation:**

- **Monthly billing:** is encouraged to help people see their water usage so they can consider changing behavior.
- **Increasing block rates (also known as a tiered residential rate structure):** Typically, these have at least three tiers: should have at least three tiers.
    - The first tier is for the winter average water use.
    - The second tier is the year-round average use, which is lower than typical summer use. This rate should be set to cover the full cost of service.
    - The third tier should be above the average annual use and should be priced high enough to encourage conservation, as should any higher tiers. For this to be effective, the difference in block rates should be significant.
- **Seasonal rate:** higher rates in summer to reduce peak demands
- **Time of Use rates:** lower rates for off peak water use
- **Bill water use in gallons:** this allows customers to compare their use to average rates
- **Individualized goal rates:** typically used for industry, business or other large water users to promote water conservation if they keep within agreed upon goals. **Excess Use rates**: if water use goes above an agreed upon amount this higher rate is charged
- **Drought surcharge:** an extra fee is charged for guaranteed water use during drought
- **Use water bill to provide comparisons**: simple graphics comparing individual use over time or compare individual use to others.
- **Service charge or base fee that does not include a water volume** – a base charge or fee to cover universal city expenses that are not customer dependent and/or to provide minimal water at a lower rate (e.g., an amount less than the average residential per capita demand for the water supplier for the last 5 years)
- **Emergency rates** -A community may have a separate conservation rate that only goes into effect when the community or governor declares a drought emergency. These higher rates can help to protect the city budgets during times of significantly less water usage.

****Conservation Neutral****

- **Uniform rate**: rate per unit used is the same regardless of the volume used
- **Odd/even day watering** –This approach reduces peak demand on a daily basis for system operation, but it does not reduce overall water use.

***** Non-Conserving *****

- **Service charge or base fee with water volume:** an amount of water larger than the average residential per capita demand for the water supplier for the last 5 years
- **Declining block rate:** the rate per unit used decreases as water use increases.
- **Flat rate:** one fee regardless of how much water is used (usually unmetered).

Provide justification for any conservation neutral or non-conserving rate structures. If intending to adopt a conservation rate structure, include the timeframe to do so:

The City has implemented an odd/even watering restriction to reduce peak day demands during months of high water usage.

Objective 7: Additional strategies to Reduce Water Use and Support Wellhead Protection Planning

Development and redevelopment projects can provide additional water conservation opportunities, such as the actions listed below. If a Uniform Rate Structure is in place, the water supplier must provide a Water Conservation Program that includes at least two of the actions listed below. Check those actions that you intent to implement within the next 10 years.

Table 28. Additional strategies to Reduce Water Use & Support Wellhead Protection

☑	Continue to participate in the GreenStep Cities Program, including implementation of at least one of the 20 "Best Practices" for water
☐	Prepare a Master Plan for Smart Growth (compact urban growth that avoids sprawl)
☐	Prepare a Comprehensive Open Space Plan (areas for parks, green spaces, natural areas)
☐	Adopt a Water Use Restriction Ordinance (lawn irrigation, car washing, pools, etc.)
☐	Adopt an Outdoor Lawn Irrigation Ordinance
☐	Adopt a Private well Ordinance (private wells in a city must comply with water restrictions)
☐	Implement a Stormwater Management Program
☐	Adopt Non-Zoning Wetlands Ordinance (can further protect wetlands beyond state/federal laws-for vernal pools, buffer areas, restrictions on filling or alterations)
☐	Adopt a Water Offset Program (primarily for new development or expansion)
☑	Implement a Water Conservation Outreach Program
☐	Hire a Water Conservation Coordinator (part-time)
☐	Implement a Rebate program for water efficient appliances, fixtures, or outdoor water management
☑	Other: City reuses backwash water from the water treatment facility to replace potable water used for irrigation in a +20 acre park and City Hall site.

Objective 8: Tracking Success: How will you track or measure success through the next ten years?

Continue to monitor water usage by customer category and continue to participate in the GreenStep Cities program.

Tip: The process to monitor demand reduction and/or a rate structure includes:

a) The DNR District Hydrologist or Groundwater Appropriation Hydrologist will call or visit the community the first 1-3 years after the water supply plan is completed.

b) They will discuss what activities the community is doing to conserve water and if they feel their actions are successful. The Water Supply Plan, Part 3 tables and responses will guide the discussion. For example, they will discuss efforts to reduce unaccounted for water loss if that is a problem, or go through Tables 33, 34 and 35 to discuss new initiatives.
c) The city representative and the hydrologist will discuss total per capita water use, residential per capita water use, and business/industry use. They will note trends.
d) They will also discuss options for improvement and/or collect case studies of success stories to share with other communities. One option may be to change the rate structure, but there are many other paths to successful water conservation.
e) If appropriate, they will cooperatively develop a simple work plan for the next few years, targeting a couple areas where the city might focus efforts.

A. Regulation

Complete Table 29 by selecting which regulations are used to reduce demand and improve water efficiencies. Add additional rows as needed.

Copies of adopted regulations or proposed restrictions or should be included in **Appendix 10** (a list with hyperlinks is acceptable).

Table 29. Regulations for short-term reductions in demand and long-term improvements in water efficiencies

Regulations Utilized	When is it applied (in effect)?
☑ Rainfall sensors required on landscape irrigation systems	☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
☐ Water efficient plumbing fixtures required	☐ New Development ☐ Replacement ☐ Rebate Programs
☑Critical/Emergency Water Deficiency ordinance	☑Only during declared Emergencies
☑ Watering restriction requirements (time of day, allowable days, etc.)	☑ Odd/Even ☐ 2 days/week ☐ Only during declared Emergencies ☑Time of day
☐ Water waste prohibited (for example, having a fine for irrigators spraying on the street)	☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
☐ Limitations on turf areas (requiring lots to have 10% - 25% of the space in natural areas)	☐ New Development ☐ Shoreland/zoning ☐ Other
☐ Soil preparation requirement s (after construction, requiring topsoil to be applied to promote good root growth)	☐ New Development ☐ Construction Projects ☐ Other
☑ Tree ratios (requiring a certain number of trees per square foot of lawn): R-3 and R-4 Districts require specific number of trees per building	☑ New development ☐ Shoreland/zoning ☐ Other
☐ Permit to fill swimming pool and/or requiring pools to be covered (to prevent evaporation)	☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies

Regulations Utilized	When is it applied (in effect)?
☑ Ordinances that permit stormwater irrigation, reuse of water, or other alternative water use (Note: be sure to check current plumbing codes for updates)	☐ Describe

B. Retrofitting Programs

Education and incentive programs aimed at replacing inefficient plumbing fixtures and appliances can help reduce per capita water use, as well as energy costs. It is recommended that municipal water suppliers develop a long-term plan to retrofit public buildings with water efficient plumbing fixtures and appliances. Some water suppliers have developed partnerships with organizations having similar conservation goals, such as electric or gas suppliers, to develop cooperative rebate and retrofit programs.

A study by the AWWA Research Foundation (Residential End Uses of Water, 1999) found that the average indoor water use for a non-conserving home is 69.3 gallons per capita per day (gpcd). The average indoor water use in a conserving home is 45.2 gpcd and most of the decrease in water use is related to water efficient plumbing fixtures and appliances that can reduce water, sewer and energy costs. In Minnesota, certain electric and gas providers are required (Minnesota Statute 216B.241) to fund programs that will conserve energy resources and some utilities have distributed water efficient showerheads to customers to help reduce energy demands required to supply hot water.

Retrofitting Programs

Complete Table 30 by checking which water uses are targeted, the outreach methods used, the measures used to identify success, and any participating partners.

Table 30. Retrofitting programs (Select all that apply)

Water Use Targets	Outreach Methods	Partners
☐ low flush toilets, ☑ toilet leak tablets, ☑ low flow showerheads, ☑ faucet aerators;	☑ Education about ☑ free distribution of ☐ rebate for ☐ other	☑ Gas company ☐ Electric company ☐ MPCA ☑ EPA & Clean Energy Resource Teams
☐ water conserving washing machines, ☐ dish washers, ☐ water softeners;	☐ Education about ☐ free distribution of ☐ rebate for ☐ other	☐ Gas company ☐ Electric company ☐ Watershed organization
☐ rain gardens, ☑ rain barrels, ☐ Native/drought tolerant landscaping, etc.	☑ Education about ☐ free distribution of ☑ rebate for ☐ other	☐ Gas company ☐ Electric company ☐ Watershed organization

Briefly discuss measures of success from the above table (e.g. number of items distributed, dollar value of rebates, gallons of water conserved, etc.):

The City distributed toilet leak tablets, faucet aerators, and put on a rain barrel seminar. The City also pays for 50% of resident's first rain barrel.

C. Education and Information Programs

Customer education should take place in three different circumstances. First, customers should be provided information on how to conserve water and improve water use efficiencies. Second, information should be provided at appropriate times to address peak demands. Third, emergency notices and educational materials about how to reduce water use should be available for quick distribution during an emergency.

Proposed Education Programs

Complete Table 31 by selecting which methods are used to provide water conservation and information, including the frequency of program components. Select all that apply and add additional lines as needed.

Table 31. Current and Proposed Education Programs

Education Methods	General summary of topics	#/Year	Frequency
Billing inserts or tips printed on the actual bill	Educational information supplied as billing insert		☑ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Consumer Confidence Reports	Report of City's water quality	1/year	☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Press releases to traditional local news outlets (e.g., newspapers, radio and TV)			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Social media distribution (e.g., emails, Facebook, Twitter)			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Paid advertisements (e.g., billboards, print media, TV, radio, web sites, etc.)			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Presentations to community groups			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Staff training	General awareness among staff about the City's goals for conservation	Continuous	☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Facility tours	As requested	Continuous	☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Displays and exhibits	Sustainability Fair: educating the community	Annually	☑ Ongoing ☐ Seasonal

Education Methods	General summary of topics	#/Year	Frequency
	about incorporating sustainability into daily lives; Informative signage at water reuse facility		☐ Only during declared Emergencies
Marketing rebate programs (e.g., indoor fixtures & appliances and outdoor practices)	Rain barrel seminar, City pays for 50% of first rain barrel; Distributed toilet leak tablets and faucet aerators		☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Community news letters	Village Notes	4/year	☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Direct mailings (water audit/retrofit kits, showerheads, brochures)			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Information kiosk at utility and public buildings			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Public Service Announcements			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Cable TV Programs			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Demonstration projects (landscaping or plumbing)	Water reuse facility - Presentations and an educational information were distributed to educate community about stormwater management		☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
K-12 Education programs (Project Wet, Drinking Water Institute, presentations)			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Community Events (children's water festivals, environmental fairs)			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Community education classes	Rain barrel seminar	1/year	☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Water Week promotions			☐ Ongoing ☐ Seasonal

Education Methods	General summary of topics	#/Year	Frequency
			☐ Only during declared Emergencies
Website (include address: http://www.ci.saint-anthony.mn.us/)	Description of projects St. Anthony has completed, as well as future projects; Sustainability Report; Consumer Confidence Report	Continuous	☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Targeted efforts (large volume users, users with large increases)			☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Notices of ordinances		As needed	☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Emergency conservation notices	Contact residents through necessary means to alert to emergency action.	As needed	☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
Other: Regional indicators initiative	City-wide data tracking		☑ Ongoing ☐ Seasonal ☐ Only during declared Emergencies

Briefly discuss what future education and information activities your community is considering in the future:

St. Anthony will maintain all of the above-mentioned activities in order to educate, promote, and facilitate water conservation within the City.

Part 4. ITEMS FOR METROPOLITAN AREA COMMUNITIES

Minnesota Statute 473.859 requires WSPs to be completed for all local units of government in the seven-county Metropolitan Area as part of the local comprehensive planning process.

Much of the information in Parts 1-3 addresses water demand for the next 10 years. However, additional information is needed to address water demand through 2040, which will make the WSP consistent with the Metropolitan Land Use Planning Act, upon which the local comprehensive plans are based.

This Part 4 provides guidance to complete the WSP in a way that addresses plans for water supply through 2040.

A. Water Demand Projections through 2040

Complete Table 7 in Part 1D by filling in information about long-term water demand projections through 2040. Total Community Population projections should be consistent with the community's system statement, which can be found on the Metropolitan Council's website and which was sent to the community in September 2015.

Projected Average Day, Maximum Day, and Annual Water Demands may either be calculated using the method outlined in *Appendix 2* of the *2015 Master Water Supply Plan* or by a method developed by the individual water supplier.

B. Potential Water Supply Issues

Complete Table 10 in Part 1E by providing information about the potential water supply issues in your community, including those that might occur due to 2040 projected water use.

The *Master Water Supply Plan* provides information about potential issues for your community in *Appendix 1 (Water Supply Profiles).* This resource may be useful in completing Table 10.

You may document results of local work done to evaluate impact of planned uses by attaching a feasibility assessment or providing a citation and link to where the plan is available electronically.

C. Proposed Alternative Approaches to Meet Extended Water Demand Projections

Complete Table 12 in Part 1F with information about potential water supply infrastructure impacts (such as replacements, expansions or additions to wells/intakes, water storage and treatment capacity, distribution systems, and emergency interconnections) of extended plans for development and redevelopment, in 10-year increments through 2040. It may be useful to refer to information in the community's local Land Use Plan, if available.

Complete Table 14 in Part 1F by checking each approach your community is considering to meet future demand. For each approach your community is considering, provide information about the amount of

future water demand to be met using that approach, the timeframe to implement the approach, potential partners, and current understanding of the key benefits and challenges of the approach.

As challenges are being discussed, consider the need for: evaluation of geologic conditions (mapping, aquifer tests, modeling), identification of areas where domestic wells could be impacted, measurement and analysis of water levels & pumping rates, triggers & associated actions to protect water levels, etc.

D. Value-Added Water Supply Planning Efforts (Optional)

The following information is not required to be completed as part of the local water supply plan, but completing this can help strengthen source water protection throughout the region and help Metropolitan Council and partners in the region to better support local efforts.

Source Water Protection Strategies

Does a Drinking Water Supply Management Area for a neighboring public water supplier overlap your community? ☑ Yes ☐ No

If you answered no, skip this section. If you answered yes, please complete Table 32 with information about new water demand or land use planning-related local controls that are being considered to provide additional protection in this area.

Table 32. Local controls and schedule to protect Drinking Water Supply Management Areas

Local Control	Schedule to Implement	Potential Partners
☐ None at this time		
☑ Comprehensive planning that guides development in vulnerable drinking water supply management areas	Wellhead Protection Plan; Comprehensive Plan Update	City of New Brighton
☐ Zoning overlay		
☐ Other:		

Technical assistance

From your community's perspective, what are the most important topics for the Metropolitan Council to address, guided by the region's Metropolitan Area Water Supply Advisory Committee and Technical Advisory Committee, as part of its ongoing water supply planning role?

- ☑ Coordination of state, regional and local water supply planning roles
- ☐ Regional water use goals
- ☑ Water use reporting standards
- ☑ Regional and sub-regional partnership opportunities
- ☐ Identifying and prioritizing data gaps and input for regional and sub-regional analyses
- ☐ Others: _____

GLOSSARY

Agricultural/Irrigation Water Use - Water used for crop and non-crop irrigation, livestock watering, chemigation, golf course irrigation, landscape and athletic field irrigation.

Average Daily Demand - The total water pumped during the year divided by 365 days.

Calcareous Fen - Calcareous fens are rare and distinctive wetlands dependent on a constant supply of cold groundwater. Because they are dependent on groundwater and are one of the rarest natural communities in the United States, they are a protected resource in MN. Approximately 200 have been located in Minnesota. They may not be filled, drained or otherwise degraded.

Commercial/Institutional Water Use - Water used by motels, hotels, restaurants, office buildings, commercial facilities and institutions (both civilian and military). Consider maintaining separate institutional water use records for emergency planning and allocation purposes. Water used by multi-family dwellings, apartment buildings, senior housing complexes, and mobile home parks should be reported as Residential Water Use.

Commercial/Institutional/Industrial (C/I/I) Water Sold - The sum of water delivered for commercial/institutional or industrial purposes.

Conservation Rate Structure - A rate structure that encourages conservation and may include increasing block rates, seasonal rates, time of use rates, individualized goal rates, or excess use rates. If a conservation rate is applied to multifamily dwellings, the rate structure must consider each residential unit as an individual user. A community may have a separate conservation rate that only goes into effect when the community or governor declares a drought emergency. These higher rates can help to protect the city budgets during times of significantly less water usage.

Date of Maximum Daily Demand - The date of the maximum (highest) water demand. Typically this is a day in July or August.

Declining Rate Structure - Under a declining block rate structure, a consumer pays less per additional unit of water as usage increases. This rate structure does not promote water conservation.

Distribution System - Water distribution systems consist of an interconnected series of pipes, valves, storage facilities (water tanks, water towers, reservoirs), water purification facilities, pumping stations, flushing hydrants, and components that convey drinking water and meeting fire protection needs for cities, homes, schools, hospitals, businesses, industries and other facilities.

Flat Rate Structure - Flat fee rates do not vary by customer characteristics or water usage. This rate structure does not promote water conservation.

Industrial Water Use - Water used for thermonuclear power (electric utility generation) and other industrial use such as steel, chemical and allied products, paper and allied products, mining, and petroleum refining.

Low Flow Fixtures/Appliances - Plumbing fixtures and appliances that significantly reduce the amount of water released per use are labeled "low flow". These fixtures and appliances use just enough water to be effective, saving excess, clean drinking water that usually goes down the drain.

Maximum Daily Demand - The maximum (highest) amount of water used in one day.

Metered Residential Connections - The number of residential connections to the water system that have meters. For multifamily dwellings, report each residential unit as an individual user.

Percent Unmetered/Unaccounted For - Unaccounted for water use is the volume of water withdrawn from all sources minus the volume of water delivered. This value represents water "lost" by miscalculated water use due to inaccurate meters, water lost through leaks, or water that is used but unmetered or otherwise undocumented. Water used for public services such as hydrant flushing, ice skating rinks, and public swimming pools should be reported under the category "Water Supplier Services".

Population Served - The number of people who are served by the community's public water supply system. This includes the number of people in the community who are connected to the public water supply system, as well as people in neighboring communities who use water supplied by the community's public water supply system. It should not include residents in the community who have private wells or get their water from neighboring water supply.

Residential Connections - The total number of residential connections to the water system. For multifamily dwellings, report each residential unit as an individual user.

Residential Per Capita Demand - The total residential water delivered during the year divided by the population served divided by 365 days.

Residential Water Use - Water used for normal household purposes such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens. Should include all water delivered to single family private residences, multi-family dwellings, apartment buildings, senior housing complexes, mobile home parks, etc.

Smart Meter - Smart meters can be used by municipalities or by individual homeowners. Smart metering generally indicates the presence of one or more of the following:

- Smart irrigation water meters are controllers that look at factors such as weather, soil, slope, etc. and adjust watering time up or down based on data. Smart controllers in a typical summer will reduce water use by 30%-50%. Just changing the spray nozzle to new efficient models can reduce water use by 40%.
- Smart Meters on customer premises that measure consumption during specific time periods and communicate it to the utility, often on a daily basis.
- A communication channel that permits the utility, at a minimum, to obtain meter reads on demand, to ascertain whether water has recently been flowing through the meter and onto the

premises, and to issue commands to the meter to perform specific tasks such as disconnecting or restricting water flow.

Total Connections - The number of connections to the public water supply system.

Total Per Capita Demand - The total amount of water withdrawn from all water supply sources during the year divided by the population served divided by 365 days.

Total Water Pumped - The cumulative amount of water withdrawn from all water supply sources during the year.

Total Water Delivered - The sum of residential, commercial, industrial, institutional, water supplier services, wholesale and other water delivered.

Ultimate (Full Build-Out) - Time period representing the community's estimated total amount and location of potential development, or when the community is fully built out at the final planned density.

Unaccounted (Non-revenue) Loss - See definitions for "percent unmetered/unaccounted for loss".

Uniform Rate Structure - A uniform rate structure charges the same price-per-unit for water usage beyond the fixed customer charge, which covers some fixed costs. The rate sends a price signal to the customer because the water bill will vary by usage. Uniform rates by class charge the same price-per-unit for all customers within a customer class (e.g. residential or non-residential). This price structure is generally considered less effective in encouraging water conservation.

Water Supplier Services - Water used for public services such as hydrant flushing, ice skating rinks, public swimming pools, city park irrigation, back-flushing at water treatment facilities, and/or other uses.

Water Used for Nonessential Purposes - Water used for lawn irrigation, golf course and park irrigation, car washes, ornamental fountains, and other non-essential uses.

Wholesale Deliveries - The amount of water delivered in bulk to other public water suppliers.

Acronyms and Initialisms

AWWA – American Water Works Association

C/I/I – Commercial/Institutional/Industrial

CIP – Capital Improvement Plan

GIS – Geographic Information System

GPCD – Gallons per capita per day

GWMA – Groundwater Management Area – North and East Metro, Straight River, Bonanza,

MDH – Minnesota Department of Health

MGD – Million gallons per day

MG – Million gallons

MGL – Maximum Contaminant Level

MnTAP – Minnesota Technical Assistance Program (University of Minnesota)

MPARS – MN/DNR Permitting and Reporting System (new electronic permitting system)

MRWA – Minnesota Rural Waters Association

SWP – Source Water Protection

WHP – Wellhead Protection

APPENDICES TO BE SUBMITTED BY THE WATER SUPPLIER

Appendix 1: Well records and maintenance summaries – see Part 1C

Appendix 2: Water level monitoring plan – see Part 1E

Appendix 3: Water level graphs for each water supply well - see Part 1E

Appendix 4: Capital Improvement Plan - see Part 1E

Appendix 5: Emergency Telephone List – see Part 2C

Appendix 6: Cooperative Agreements for Emergency Services – see Part 2C

Appendix 7: Municipal Critical Water Deficiency Ordinance – see Part 2C

Appendix 8: Graph showing annual per capita water demand for each customer category during the last ten-years – see Part 3 Objective 4

Appendix 9: Water Rate Structure – see Part 3 Objective 6

Appendix 10: Adopted or proposed regulations to reduce demand or improve water efficiency – see Part 3 Objective 7

Appendix 11: Implementation Checklist – summary of all the actions that a community is doing, or proposes to do, including estimated implementation dates – see www.mndnr.gov/watersupplyplans

Appendix 1

Well Records and Maintenance Summaries

Minnesota Unique Well Number

200524

County Ramsey
Quad New
Quad ID 119C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 08/14/1991
Update Date 04/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
ST. ANTHONY 5	30	23	W	31	CAABAA

Elevation 943 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Contact 2900 KENZIE TR MINNEAPOLIS MN 55418
Well SILVER LAKE RD ST ANTHONY MN 55418

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	15		
CLAY & GRAVEL	15	63		
LIMEROCK	63	77		
SOAPSTONE	77	81		
SANDROCK	81	104		
SANDROCK	104	171		
SANDROCK	171	246		
SHAKOPEE LIMEROCK	246	367		
JORDAN SANDROCK	367	462		
SANDROCK & SHALE	462	467		
SHALE	467	472		

Remarks

ST. ANTHONY WELL NO. 5. COPIED FROM D.N.R.
LAKEVIEW DRIVE AND SILVER LAKE ROAD

Well Depth	Depth Completed	Date Well Completed
472 ft.	472 ft.	04/00/1961

Drill Method **Drill Fluid**

Use community supply(municipal) **Status** Active

Well Hydrofractured? **Yes** ☐ **No** ☐ **From** **To**

Casing Type Step down **Joint**
Drive Shoe? **Yes** ☐ **No** ☐ **Above/Below** 0 ft.

Casing Diameter	Weight	Hole Diameter
24 in. To 70 ft.	lbs./ft.	19 in. To 472 ft.
16 in. To 387 ft.	lbs./ft.	
20 in. To 110 ft.	lbs./ft.	

Open Hole From 387 ft. To 472 ft.

Screen? ☐ **Type** **Make**

Static Water Level
130 ft. Land surface Measure 04/00/1961

Pumping Level (below land surface)
191 ft. hrs. Pumping at 1300 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☐ Yes ☐ No ☐ Not Specified

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed
Manufacturer's name
Model Number HP 0 Volt
Length of drop pipe ft Capacity g.p. Typ

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Platteville Formation Aquifer Jordan
Last Strat St.Lawrence Formation Depth to Bedrock 63 ft
Located by Minnesota Department of Health
Locate Method GPS Differentially Corrected
System UTM - Mad83, Zone 15, Meters X 482767 Y 4987709
Unique Number Verification Inpute Date 10/25/1995

Angled Drill Hole

Well Contractor
Keys Well Co. 62012 JOHNSON, R.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

200803

County Hennepin
Quad New
Quad ID 119C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 08/24/1991
Update Date 04/04/2016
Received Date

Well Name	Township	Range	Dir	Section	Subsection
ST. ANTHONY 4	29	23	W	6	BDAADB

Elevation 1013 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Contact ST ANTHONY MN 55418
Well ST ANTHONY MN 55418

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND, GRAVEL &	0	33		
SAND & GRAVEL	33	46		
BOULDERS, GRAVEL &	46	53		
BOULDERS, SOME	53	59		
SAND & LARGE	59	70		
SAND	70	105		
SAND W/SOME SHALE	105	110		
SANDY SHALE	110	142		
PLATTEVILLE	142	160		
ST. PETER	160	331		
ONEOTA-SHAKOPEE	331	450		
JORDAN SANDSTONE	450	541		

Remarks

PRESSURE GROUTED BETWEEN 16" LINER & 24"ROCK HOLE.

Well Depth 541 ft. **Depth Completed** 541 ft. **Date Well Completed** 11/11/1959

Drill Method Cable Tool **Drill Fluid**

Use community supply(municipal) **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Step down **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below** 2 ft.

Casing Diameter	Weight	Hole Diameter
16 in. To 465 ft.	lbs./ft.	23 in. To 395 ft.
24 in. To 145 ft.	lbs./ft.	

Open Hole From 465 ft. To 541 ft.

Screen? ☐ **Type** **Make**

Static Water Level
216 ft. Land surface Measure 11/11/1959

Pumping Level (below land surface)
260 ft. hrs. Pumping at 1020 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
Well grouted, type unknown		ft.	ft.

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed
Manufacturer's name
Model Number HP 0 Volt
Length of drop pipe ft Capacity g.p. Typ

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Platteville Formation Aquifer Jordan
Last Strat Jordan Sandstone Depth to Bedrock 142 ft
Located by Minnesota Department of Health
Locate Method GPS SA Off (averaged)
System UTM - Mad83, Zone 15, Meters X 482842 Y 4986435
Unique Number Verification Inpute Date 05/29/2003

Angled Drill Hole

Well Contractor
Renner Max Well Co. 27246
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

200804

County Hennepin
Quad New
Quad ID 119C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 08/24/1991
Update Date 12/16/2015
Received Date

Well Name	Township	Range	Dir	Section	Subsection
ST. ANTHONY 3	29	23	W	6	ACCACA

Elevation 1012 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Contact ST ANTHONY MN 55418
Well ST ANTHONY MN 55418

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	25	YELLOW	
SANDY CLAY	25	32		
DIRTY SAND	32	50		
SAND	50	63		
HARDPAN	63	93		
SAND	93	134		
HARDPAN	134	140		
LIMEROCK	140	159		
SOAP & SANDROCK	159	163		
ST. PETER SANDROCK	163	201		
SHALE & SANDROCK	201	299		
SHALE & SHAKOPEE	299	309		
SHAKOPEE	309	450		
JORDAN	450	530		
JORDAN & SHALE	530	539		

Remarks

Well Depth	Depth Completed	Date Well Completed
539 ft.	539 ft.	05/20/1967

Drill Method Cable Tool **Drill Fluid**

Use community supply(municipal) **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Step down **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
24 in. To 321 ft.	lbs./ft.	23 in. To 539 ft.
30 in. To 142 ft.	lbs./ft.	

Open Hole From 321 ft. To 539 ft.

Screen? ☐ **Type** **Make**

Static Water Level
200 ft. Land surface Measure 05/20/1967

Pumping Level (below land surface)
239 ft. hrs. Pumping at 2005 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
Neat Cement	325 Sacks	ft.	ft.

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed
Manufacturer's name
Model Number HP 0 Volt
Length of drop pipe ft Capacity g.p. Typ

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Platteville Formation Aquifer Prairie Du Chien-
Last Strat Jordan Sandstone Depth to Bedrock 140 ft
Located by Minnesota Department of Health
Locate Method GPS Differentially Corrected
System UTM - Mad83, Zone 15, Meters X 483005 Y 4986233
Unique Number Verification Inpute Date 10/25/1995

Angled Drill Hole

Well Contractor
Keys Well Co. 62012 KEMPER, R.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

225652

County Ramsey
Quad New
Quad ID 119C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 08/14/1991
Update Date 03/10/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
JOHANNA LAKE	30	23	W	33	ABDBDA

Elevation 885 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	40	RED	
CLAY & GRAVEL	40	70		
SAND & CLAY &	70	85		
SAND & GRAVEL	85	110		
LOOSE SAND &	110	125		
ROCKS & GRAVEL &	125	132		
SHALE & SAND	132	148		
SHALE & SAND	148	165		
SANDSTONE & SHALE	165	180		
HARD SANDSTONE	180	206		
HARD SANDSTONE	206	207		
SHAKOPEE LIMESTONE	207	328		
SHAKOPEE LIMESTONE	328	330		
JORDAN SANDSTONE	330	403		
JORDAN SANDSTONE	403	405		
ST. LAWRENCE	405	408		

Remarks

GAMMA LOGGED 5-7-1992.

PREVIOUSLY KNOWN AS DNR OBWELL 62026 UNTIL WATER MEASUREMENTS STOPPED IN 1971.
WATER MEASUREMENTS RESTARTED IN 1992 AND WELL RENAMED DNR OBWELL 62037.

Well Depth 408 ft. **Depth Completed** 408 ft. **Date Well Completed** 08/08/1958

Drill Method Cable Tool **Drill Fluid**

Use public supply/non-community **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below** 0 ft.

Casing Diameter **Weight**
16 in. To 199 ft. lbs./ft.

Open Hole From 199 ft. To 408 ft.

Screen? ☐ **Type** **Make**

Static Water Level
46 ft. land surface Measure 08/08/1958

Pumping Level (below land surface)
98 ft. hrs. Pumping at 1000 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☐ Yes ☐ No ☒ Not Specified

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed
Manufacturer's name
Model Number HP 0 Volt
Length of drop pipe ft Capacity g.p. Typ

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock St.Peter Sandstone Aquifer Multiple
Last Strat St.Lawrence Formation Depth to Bedrock 165 ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - Mad83, Zone 15, Meters X 486330 Y 4988272
Unique Number Verification Information from Inpute Date 01/01/1990

Angled Drill Hole

Well Contractor
Layne Well Co. 27010 SHUEY, P.
Licensee Business Lic. or Reg. No. Name of Driller

VIDEO INSPECTION LOG

CITY OF ST. ANTHONY – MUNICIPAL WELL NO. 4 **Date Video Logged** - December 13, 2006
MN UNIQUE WELL NO. – 00200803 **Address** – 3435 Silver Lake Road **Elevation** – 1013 +/- 5 feet
County – Hennepin **TRS** – 29N, 23W, 6 **Quarter Section** – BDAA
G.P.S. – 45 deg. 01.865 min. W093 deg. 13.078 min. **Quad** – 119-C **Drilling Method** – Not Specified (Cable Tool)
Purpose – General Maintenance Inspection **Date Drilled** – Nov. 11,1959 **Formation** – Prairie du Chien / Jordan
Drilling Co. – Renner Max Well Co. **Driller** – Mr. Max Renner **Depth Ref.** – Grade **Pump Setting** – 280 feet
Reported 24 inch Casing – to 145 feet **Reported 16 inch Casing** – to 465 feet
Reported ? inch Open Hole – 465 to 541 feet
Original Drilled Depth – 541 feet **Original Completed Depth** – 541 feet **Reported Depth** – Not Reported
Depth Ref. – Top of Base Plate **Stickup** – 21.5 inches above Well House Floor **Static Water Level** – 200.0 feet
16 inch Casing – 0 to 467.2 feet **? inch Open Hole** – 467.2 to 526.5 feet **Depth Video Logged** – 526.5 feet
Client – E.H. Renner & Sons, Inc. **Representative** – Mr. Jerry Aljets
City of St. Anthony Public Works Superintendent – Mr. Robert Paschke **Inspected By** – Jim H. Traen
City of St. Anthony Public Works Director – Mr. Jay Hartman

Centering Guides @ 15 inches

Recording Time	Depths(in feet)		Remarks/Observations
10:05	0:00:00	005.8	Start Inspection – 16 inch Casing
10:09	0:03:36	018.4	Casing Joint - Welded
10:12	0:06:42	040.3	Casing Joint – Welded
10:16	0:10:13	062.5	Casing Joint – Welded
10:19	0:13:25	084.7	Casing Joint – Welded
10:22	0:16:06	106.4	Casing Joint – Welded
10:30	0:24:24	150.2	Casing Joint - Welded
10:33	0:27:11	172.9	Casing Joint - Welded
10:36	0:30:21	194.1	Casing Joint - Welded
10:38	0:31:59	200.0	Static Water Level
10:40	0:33:57	214.3	Casing Joint - Welded
10:43	0:37:06	235.9	Casing Joint - Welded
10:45	0:39:35	257.0	Casing Joint - Welded
10:48	0:42:21	277.8	Casing Joint - Welded
10:50	0:44:21	283.5	Pump Rubs
		283	Top Rub
10:53	0:47:18	279.4	Discharge Flange Rub
10:56	0:50:43	296.6	Suction Intake Rub
10:58	0:51:55	285.8	Rub ***
10:59	0:53:43	299.0	Casing Joint – Welded
11:02	0:56:13	321.1	Casing Joint – Welded
11:04	0:58:59	342.9	Casing Joint – Welded
11:07	1:01:28	365.4	Casing Joint – Welded
11:12	1:05:52	384.0	Casing Joint – Welded
			Grout above this Depth
11:16	1:10:07	405.3	Casing Joint – Welded
11:18	1:12:40	426.5	Casing Joint – Welded
11:21	1:15:11	446.5	Casing Joint – Welded
11:24	1:18:06	467.2	End of 16 inch Casing – 2 Small Splits
11:27	1:21:29	482.5	Top of Cavity
11:32	1:26:06	525.4	Current Bottom of Cavity / Well
11:36	1:30:44	467.5	End of 16 inch Casing
11:49	1:43:41	008.0	End of Inspection

fax: (763) 784-2244 · phone: (651) 238-1198 · residence: (763) 785-1876 · e-mail: marsabitt@aol.com
web site: www.downholewellservices.com · address: 8145 long lake road, mounds view, mn 55112-6033

VIDEO INSPECTION LOG

CITY OF ST. ANTHONY – MUNICIPAL WELL NO. 4 **Date Video Logged** - December 13, 2006
MN UNIQUE WELL NO. – 00200803 **Address** – 3435 Silver Lake Road **Elevation** – 1013 +/- 5 feet
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fax: (763) 784-2244 · phone: (651) 238-1198 · residence: (763) 785-1876 · e-mail: marsabitt@aol.com
web site: www.downholewellservices.com · address: 8145 long lake road, mounds view, mn 55112-6033

WATER PRODUCERS

Telephones: (612) 646-7871
Fax: (612) 641-0216

413 North Lexington Parkway
Saint Paul, Minnesota 55104-4696

November 26, 1997

Mr. Jay Hartman, Dir. Pub. Wks.
St. Anthony Village
3301 Silver Lake Rd.
St. Anthony, MN 55418

Dear Mr. Hartman:

Thank you for recently speaking with me about repairs to your #4 well pump. Looking through our files, I noticed that we drilled two wells for St. Anthony. We constructed a well located at Silver Lake Road & "Lakeview Drive" in 1961. At the time, this well was labelled as #5. We also drilled a well at Silver Lake Road & 33rd. Ave. N.E. in 1967. This is a 30" x 24" x 541' deep well that was called #3 back then. Is this now your #4 well?

We offer the following quotation for repairs to your #4 pump:

Basic inspection

1. Pull the pump from the well.	$1,600.00
2. Set the motor on your motor repair truck.	no charge
3. Measure the well depth.	no charge
4. Haul the pump to our shop; clean, inspect and go over repair recommendations with you.	200.00
5. Reinstall the pump after repairs are complete; start up and test run.	1,800.00
Basic inspection -	**$3,600.00**

Repair parts

1. New stainless steel headshaft.	$350.00
2. New discharge head bearing and packing.	95.00
3. New 8" x 10' schedule 40, thread and coupled (T&C) column pipe, each.	210.00
4. New 8" x 5' schedule 40, T&C column pipe, each.	138.00
5. New 1 1/2" x 10' carbon steel lineshaft, T&C with stainless steel sleeve, each.	110.00
6. New 1 1/2" x 5' carbon steel lineshaft, T&C with stainless steel sleeve, each.	90.00
7. New 8" x 3/4" bronze drop in bearing retainer, each.	50.00
8. New rubber insert for bearing retainers, each.	20.00
9. New stainless steel bowl shaft.	325.00
10. New bowl bearing, each.	85.00

11. New impeller ring (impellers are enclosed and will likely require new rings), each.	130.00
12. New carbon steel impeller lock collet, each.	45.00
13. Two part epoxy paint for column pipes, per gallon.	35.00
14. Shop time for steam cleaning, sand blasting, painting, assembly, loading, per hour.	42.00

Care shall be taken to protect the pumphouse floor and walls. Our truck shall enter the site so as to avoid the underground sump.

Thank you for the opportunity to quote this work. Please call if you have any questions.

Sincerely,

Carl L. Hirt

Carl L. Hirt
Sales Engineer

McCarthy Well Company

SINCE 1860

MAIN OFFICES, SHOPS, YARDS & WAREHOUSES — 2700 EAST 80TH STREET, MINNEAPOLIS, MINN. 55420

(CODE 612) 888-9464

SYMBOLS

A –

B – CAUTION

C –

Date: 11-1-71

Report No.: 1

"PUMPCHEK" DEEP WELL PUMP PERFORMANCE INSPECTION REPORT
LINE SHAFT TURBINE PUMP

Name: VILLAGE OF ST. ANTHONY, MINN.

Address:

Well No.: 4

Location:

[redacted]

Detecting irregularities in the early stages is your best possible insurance against costly breakdowns of your Deep Well Pump. The following 18 points have been checked, recorded and reported where possible, as shown below.

ITEM NO.			B ✓	
1.	Check condition of exposed wiring and connections			
2.	Check motor fuses – size	amps, condition		
3.	Check voltage at pump (not operating) L1 to L2 242	L2 to L3 245	L1 to L3 245	
4.	Check voltage at pump (when operating) L1 to L2 238	L2 to L3 240	L1 to L3 240	
5.	Check motor load amps. L1 228	L2 225	L3 222	
6.	Check air sonic inspection a) upper brgs. ✓	b) lower brgs. ✓	c) below base ✓	
7.	Check condition of motor oil and level			
8.	Check motor temperature °F.	Room temperature °F.		
9.	Check condition of packing and packing box			
10.	Check operating conditions and size of prelub line			
11.	Check operating condition of vacuum breaker and/or air release (ft. valve)			
12.	Check operating condition of well vent			
13.	Check vibration analysis .001" – .0015"			
14.	Check pump capacity if metered 1180 GPM	35 PSI or	ft.	
15.	Check operating conditions of discharge check valve			
16.	Check condition of water slinger			
17.	Check operating RPM of pump			
18.	Check start and stop requirements of pump			

PUMP AND MOTOR ITEMS (Noted But Not Listed)

WELL DATA ITEMS (Noted But Not Listed)

a. Condition of water sample: Cloudy Clear ✓ Sand Scale Other

b. Static water level 215.5 feet. Permanent air line: Yes ✓ No (INOPERATIVE)

c. Pump capacity throttled? Yes No ✓ d. Pumping water level 246.5 feet @ 1180 GPM (10-MIN. RUN)

e. Pump break suction when not throttled? Yes No ✓

f. Supply of special formula turbine motor oil on hand? No Yes

Inspector's comments: NO. 3 PUMP SHUT OFF DURING CHECK.

UNIT APPEARS TO BE OPERATING SATISFACTORILY AT THIS TIME.

HAROLD BOOM

By PUMP INSPECTOR

E. H. Renner & Sons

INCORPORATED

WELL DRILLING FOR FIVE GENERATIONS

15688 JARVIS STREET N.W. • ELK RIVER, MN 55330
PHONE: (763) 427-6100 • FAX: (763) 427-0533
www.ehrenner.com

INVOICE

INVOICE NO.:000086270000
CUSTOMER NO.:08541
DATE: 12/06/06

SOLD TO:
City of Saint Anthony
Jay Hartman
3301 Silver Lake Road
St. Anthony, MN 55418

SHIP TO:
Well No. 04
Rehabilitation

SHIP DATE	SHIPPED VIA	F.O.B.	TERMS	SALES-PERSON	ORDER DATE	P.O. NUMBER
/ /			DUE ON RECEIPT	02	10/03/06	Verbal JH

QUANTITY	DESCRIPTION		UNIT PRICE	AMOUNT
10	OPERATOR	/HR.	96.00	960.00
10	HELPER	/HR.	86.00	860.00
10	PUMP RIG		125.00	1,250.00
1	FLAT BED TRUCK	/DAY	250.00	250.00
5	Shop Time to Tear Down & Clean		70.00	350.00
1	Wire Brush Well Casing		1,600.00	1,600.00
1	Televise Well		1,500.00	1,500.00
	MATERIALS IN STORAGE			
1	Motor Repairs		1,660.00	1,660.00
2	Headshaft Sleeve		35.00	70.00
1	Step coupling 1-1/2 x 1-7/16		175.00	175.00
1	Packing		30.00	30.00
1	COLUMN .322 WALL 8 X 59 1/4 T.B.E		314.00	314.00
10	COLUMN .322 WALL 8 X 119 1/4 T&C		492.00	4,920.00
1	COLUMN .322 WALL 8 X 59 1/4 T&C		343.00	343.00
1	COLUMN .322 WALL 8 T.B.E. SUCTION		462.00	462.00
21	SHAFTING .416 S.S. 1-1/2 X 10' T&C		305.00	6,405.00
1	SHAFTING .416 S.S. 1-1/2 X 5' T&C		238.00	238.00
28	RUBBER BRG 1 1/2 X 2 1/2		20.00	560.00

This invoice payable upon
Completion

Well # 4 Total Rebuild 2007
Completed and Running 1-22-07

Thank You

	SUB-TOTAL	21,947.00	SHIPPING CHARGES	0.00
* THANK YOU *	SALES TAX	0.00	TOTAL	21,947.00

WHITE - CUSTOMER YELLOW - OFFICE PINK - REMITTANCE

ALBERG WATER SERVICES, LLC.

PUMP SERVICE
PUMP SALES
WELL DRILLING
WELL REHABILITATION
WELL ABANDONMENT

Toll Free 1-800-644-3531
Main Line 612-263-1800
Fax 612-263-1799

16200 Hwy. 10 NW • Elk River, MN 55330-7825

February 9, 1998

City of St. Anthony
3301 Silver Lake Road
St. Anthony, MN 55418

Attn: Jay Hartman – Director of Public Works

Ref: Repair on Well Pump # 4

Repair parts required:

1.) 8" column pipe - The entire column pipe (275') less top 5' section needs replacement. All pipe sections are pitted and eroded on butt ends and inside areas of most all pipes.

Furnish 27 each 8" x 10' (118-3/4" exact) T. & C column pipe, Sch 40	$325.00 Each	$8775.00
Furnish 1 each 8" x 5' (60-1/4" exact) T & C column pipe, Sch 40		$200.00
Furnish 1 each 8" x 10' section pipe, TOE, Sch 40		$277.00

2.) 8" bronze spiders – We recommend replacement of all the pump spiders (28 each) and rubber bearings. The spiders and rubber bearings are obsolete and no longer manufactured. Our records show the spiders were installed in this well in 1960.

Furnish 28 each 8" bronze spiders, drop-in type, (new style) 3/4" ring with rubber bearings for existing sleeve rings.	$59.60 Each	$1668.80

3.) 1-7/16" and 1-1/2" line shafts – We can re-use the existing line shafts and couplings. The lower 65' of shafts are stainless steel and the upper line shafts are carbon steel materials. Two 10' shafts must be replaced, as the shafts are 2" short of the standard length.

Furnish 2 each 1-1/2" x 10' shafts	$143.00 Each	$286.00
Furnish 2 each 1-1/2" couplings	$15.00 Each	$30.00

ALBERG WATER SERVICES, LLC.

4.) Existing 11BMH-6 stage Layne bowl assembly only needs minor repairs. This unit was installed new in 1986.

Furnish 1 each 1-1/2" S.S. impeller shaft		$368.00
Furnish 1 each set of bowl bushings		$175.00

5.) Furnish miscellaneous repair parts.

2 Each 1-1/2" S.S. sleeves (Existing Shafts)		$144.00
2 Each 1-7/16" S.S. sleeves (Headshaft)		$120.00
1 Each 8" Cone strainer		$183.00
1 Each stuffing box bushing		$35.00
1 Each box pump packaging		$65.00

6.) Shop Labor

Estimated Labor	$40.00 Hour	$500.00
Total repairs including est. $500.00 shop		$12,826.80

I have ordered all the repair parts from the factory and anticipate shipment on February 9, 1998.

If you haye any questions, please call me

Sincerely,
Alberg Water Services

Chuck Alberg
President

ALBERG WATER SERVICES, LLC.

PUMP SERVICE
PUMP SALES
WELL DRILLING
WELL REHABILITATION
WELL ABANDONMENT

Toll Free 1-800-644-3531
Main Line 612-263-1800
Fax 612-263-1799

16200 Hwy. 10 NW • Elk River, MN 55330-7825

March 18, 1999

City of St. Anthony, MN – Well Pump Service Records

Recommended 5-year maintenance cycles on well pumps.

WELL #3

Maintenance Record: Prior service – 1988
~~VOC air stripper systems – 1988-89~~
New 150 H.P. Motor - 1990
Recommended next service - ?

Well Data: Well depth – 532'; original depth 541'
Static level – 213'
Casing size – 24"
Formation – Shakopee dolomite/Jordan sandstone

WELL #4

Maintenance Record: Prior service – 1986
Last service – 1998
Recommended next service – 2003

Well Data: Well depth – ~~527'~~; original depth ~~540'~~ 1165
Static level – ~~206'~~
Casing size – 16"
Formation – Hinckley sandstone

WELL #5

Maintenance Record: Prior service – 1989
Last service – 1994
Recommended next service – 1999

Well Data: Well depth – 464'; original depth 470'
Static level – 136'
Casing size – 16"
Formation – Jordan sandstone

Prepared By:

Chuck Alberg
Alberg Water Services, LLC.

ALBERG WATER SERVICES, LLC.

PUMP SERVICE
PUMP SALES
WELL DRILLING
WELL REHABILITATION
WELL ABANDONMENT

Toll Free 1-800-644-3531
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Maintenance Record: Prior service – 1989
Last service – 1994
Recommended next service – 1999

Well Data: Well depth – 464'; original depth 470'
Static level – 136'
Casing size – 16"
Formation – Jordan sandstone

Prepared By:

Chuck Alberg
Alberg Water Services, LLC.

5250 West 74th Street
Minneapolis, Man 55439-2226

Phone: 952-831-4340
Fax 952-831-2357
E-mail jgallagher@wwgoetsch.com

W.W. GOETSCH ASSOCIATES INC.

To:	Jay Hartman	**From:**	John Gallagher
Company:	City of St. Anthony		
Fax:	612-781-9323	**Pages:**	1
Phone:	612-706-1322	**Date:**	2/8/2005
Re:	SOFT STARTERS	**CC:**	

We respectfully submit our **REVISED** quotation on the following motor soft starts:

WELL HOUSE #4

1 – SAFTRONIC model 32F4125 (CSX-090) Soft Start Controller (125HP, 460V) without cabinet

Your cost, F.O.B. origin $ 3,812.00

WELL HOUSE #5

1 – SAFTRONIC model 32F4150 (CSX-110) Soft Start Controller (150HP, 460V) without cabinet

Your cost, F.O.B. origin $ 4,398.00

The starter for Well #4 has been delivered. We have placed an order for the starter for Well #5

We have not included any applicable taxes or installation.

Prices are firm for 60 days

Unit can ship one week after receipt of your order.

Thanks for the orders Jay

Sincerely,

John Gallagher

Jay Hartman

From: John Gallagher [JGallagher@wwgoetsch.com]
Sent: Friday, January 21, 2005 5:05 PM
To: jhartman@ci.saint-anthony.mn.us
Subject: Soft Starts

5250 West 74th Street
Minneapolis, Man 55439-2226

Phone: 952-831-4340
Fax 952-831-2357
E-mail jgallagher@wwgoetsch.com

W.W. GOETSCH ASSOCIATES INC.

Ordered for Well 4

To:	Jay Hartman	**From:**	John Gallagher
Company:	City of St. Anthony		
Fax:	612-781-9323	**Pages:**	2
Phone:	612-706-1322	**Date:**	01/21/2005
Re:	**SOFT STARTERS**	**CC:**	

We respectfully submit our quotation on the following motor soft starts:

WELL HOUSE #4

1 – SAFTRONIC model 32F41252 (CSX-090) Soft Start Controller (125HP, 460V)

Your cost, F.O.B. origin $ 4,162.00

WELL HOUSE #5

1 – SAFTRONIC model 32F41502 (CSX-110) Soft Start Controller (150HP, 460V)

Your cost, F.O.B. origin $ 5,351.00

We have the starter for Well House #4 on order.

We have not included any applicable taxes or installation.

Prices are firm for 60 days

1987 - NEW MOTOR 125 HP NEW CONTROLES 480 V

1986 - MAINT + REPAIR

1998 - PUMP PULLED / MAINTENANCE AND REPAIR / HUBBS WATER SERVICES

NOV 2006 - PUMP PULLED / MAINTENANCE AND REPAIR / EH RENNER + SONS

2007 CAPACITOR - EH RENNER

E.H. Renner & Sons

Incorporated

WELL DRILLING FOR FIVE GENERATIONS
15688 Jarvis Street NW * Elk River, Minnesota 55330
Phone (763) 427-6100 * Fax (763) 427-0533 * Toll Free (800) - 409-WELL

December 19, 2007

City of Saint Anthony
Jay Hartman
3301 Silver Lake Road
Saint Anthony, MN 55418

Subject: Well No. 05

Re: Maintenance

Dear Jay

As you requested the following is the estimated cost to rehabilitate well No. 5

Description	*Qty*	*Units*		*Price*		*Extension*
Item 1 - Pump Removal and Reinstallation						
Remove Motor, RA Drive and Pump and Measure Depth of Well	1	L.S.	$	3,400.00	$	3,400.00
Install Pump, RA Drive and Motor	1	L.S.	$	3,400.00	$	3,400.00
Total Cost Item 1 - Pump Removal and Reinstallation					**$**	**6,800.00**
Item 2 - Wire Brush Casing and Televise Well - *Optional*						
Wire Brush Casing	1	L.S.	$	1,600.00	$	1,600.00
Televise Well	1	L.S.	$	1,380.00	$	1,380.00
Total Cost Item 2 - Wire Brush Casing and Televise Well					**$**	**2,980.00**
Item 3 - Motor Repairs						
Motor Repairs (Does Not Include Rewind) 150 Hp US, Includes Two Top Bearing and One Bottom Bearing	1	Ea.	$	3,994.00	$	3,994.00
Pump and Motor Balance		Ea.	$	450.00	$	-
Total Cost Item 3 - Motor Repairs					**$**	**3,994.00**
Item 4 - Pump Repair Parts - *As Required and Approved*						
Packing	1	Ea.	$	30.00	$	30.00
Packing Box Bushing	1	Ea.	$	80.00	$	80.00
Sandblast and paint head		Ea.	$	125.00		
Layne Column 10" x 4' 9-5/8" TBE .365		Ea.	$	312.00		
Layne Column 10" x 9' 9-5/8" TBE .365		Ea.	$	462.00		
Layne Column Coupling 10" Cast Style		Ea.	$	346.00		
Suction Pipe 8" x 10' TOE .365		Ea.	$	350.00		
Headshaft - Stainless Steel 1-11/16" x 64" T&C		Ea.	$	750.00		
Combination Drive Shaft 1-11/16" x 114-1/2" .416 SS	0	Ea.	$	156.00		
Lineshaft - Carbon Steel 1-11/16" x 120" T&C		Ea.	$	156.00		
Lineshaft - Carbon Steel 1-11/16" x 60" T&C		Ea.	$	125.00		
Shaft Coupling 1-11/16 - 8 TPI Carbon Steel		Ea.	$	20.00		
Shaft Sleeve Stainless Steel		Ea.	$	37.00		
1-11/16" x 3" Rubber Layne Pop In Bearing - Old Style	21	Ea.	$	155.00	$	3,255.00
Layne Snap Rings To Hold bearings - *Not Available*		Ea.				

ALBERG WATER SERVICES, LLC.

PUMP SERVICE
PUMP SALES
WELL DRILLING
WELL REHABILITATION
WELL ABANDONMENT

Toll Free 1-800-644-3531
Main Line 612-263-1800
Fax 612-263-1799

16200 Hwy. 10 NW • Elk River, MN 55330-7825

FAX PROPOSAL

Date: April 15, 1999

To: Jay Hartman / Director of Public Works

Company: City of St. Anthony
3301 Silver Lake Road
St. Anthony, MN 55418

From: Chuck Alberg

Subject: Deep Well #5 Maintenance Repair

# of Pages: 2

Comments:

Alberg Water Services, LLC proposes to furnish equipment, labor and materials to repair subject pump as outlined below:

1) Mobilization of pump rig and two-man crew, pull pump for inspection, measure well depth and static level, return to job site, install pump, disinfect well and pump, connect into system, pump to waste until clear and provide all necessary check tests into system.
Lump Sum: $2,950.00

2) Furnish flatbed truck to deliver pump and motor into our shop, dismantle bowls, sandblast and clean parts, provide shop inspection report, sandblast complete column pipe and bowls, apply coating to all new and re-used pump assemblies. Furnish shop labor to install new parts, re-assemble pump bowls, sandblast and re-paint pump head, load pump and return pump to job site.
Lump Sum $2,000.00

3) Furnish repairs on 150 HP G.E. Motor including all necessary delivery and pick-up charges. Dismantle motor, clean windings and re-varnish, install new thrust bearing (1 each), install new guide bearing (1 each), re-assemble motor, paint frame and test.
Lump Sum: $1,800.00

ALBERG WATER SERVICES, LLC.

PUMP SERVICE
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WELL DRILLING
WELL REHABILITATION
WELL ABANDONMENT

Toll Free 1-800-644-3531
Main Line 612-263-1800
Fax 612-263-1799

16200 Hwy. 10 NW • Elk River, MN 55330-7825

PROJECT SUMMARY

FAXED 2/17/00 12:04pm

9 pages total

Date: February 17, 2000

To: Jay Hartman

Customer: City of St. Anthony
3301 Silver Lake Road
St. Anthony, MN 55418

From: Chuck Alberg

Subject: Deep Well #5 Maintenance Repair

Summary of Costs:

Item #1: Pull and reinstall pump
Lump Sum: $2,950.00
Additional: $800.00 TOTAL: $3,750.00

Item #2: Shop Labor (no additions)
Lump Sum: $2,000.00
TOTAL: $2,000.00

Item #3: Motor Repairs
Lump Sum: $1,800.00
Extra Bearing: $994.00
TOTAL: $2,794.00

Item #4: Pump repair estimate
Estimated Parts: $9,850.00
Actual Parts Required: $8,455.00 TOTAL: $8,455.00

Total Items 1-4: $16,999.00

Bailing and Well Fill Material:

2/7/00:	8 hours at $135.00/hr:	$1,080.00
	#27 flatbed truck, LS:	$350.00

April 6, 1976

SUBJECT WELL#5 REPAIRS TO PUMP

Bids were taken January 16, 1976 for the purpose of maintenance and repair program on our wells. I have scheduled to pull this type of maintenance every six years. This might deviate if we pump sand or something unforseeable comes up. The normal maintenance is to pull the pump and column pipe, inspect and replace necessary parts or pipe. The second stage is to measure the depth of the well to see if there is any fill accumulation and to develop the well if necessary. The third stage is to install pump and column pipe and test pump to make sure that we are sand free. The fourth and final stage is to chlorinate and flush out after 24 hours.

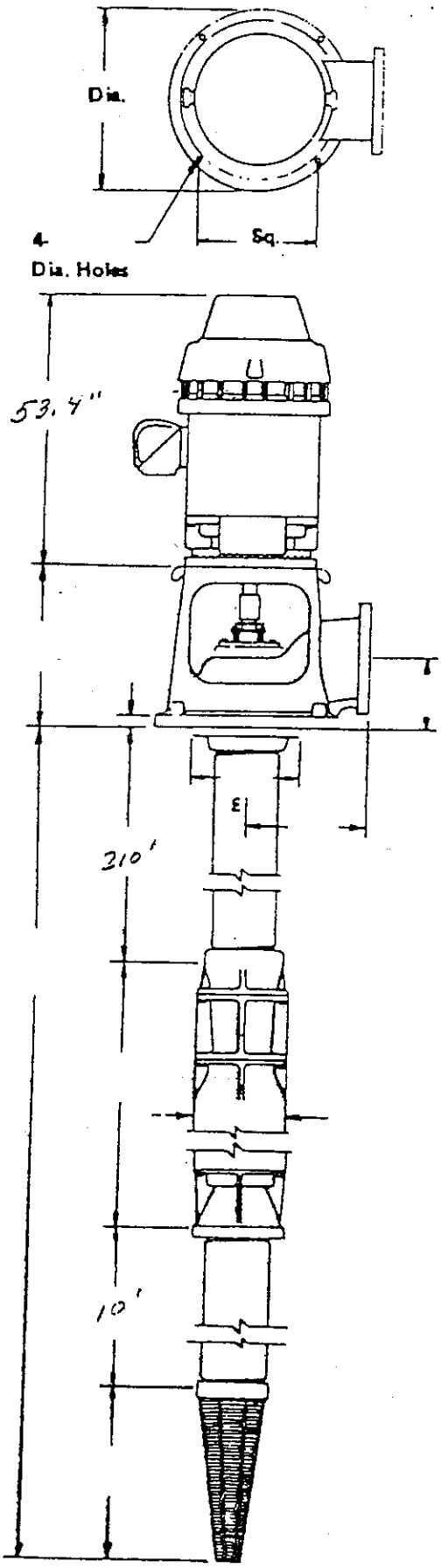
The pulling of Well #5 went according to schedule. There was very little pump wear and column pipe wear. Total parts were $1,141.50.

The well was at 436'. The original depth was 471'. I had the well baled. There was 6½ yards of sand removed. The total labor and equipment cost is $4,847.38. The total for the complete job is $5,988.88. I have looked the bill over and found everything accurate.

Larry Hamer, Supt. of Public Works

E. H. Remer & Sons
INCORPORATED

WELL DRILLING FOR FOUR GENERATIONS
15688 JARVIS STREET N.W. / ELK RIVER, MN 55330 / (612) 427-6100



CUSTOMER ST. ANTHONY
ADDRESS SILVER LAKE RD + SILVER LANE
DATE 5/8/89 WELL # 5

MOTOR

150 H.P. 3 PHASE 60 CYCLE 480 VOLTS 1790 RPM
MFG GE CPLG MIN BX 1 11/16 "
CD CPLG HGT 47.3 " FRAME L444TP AMPS 167
COMBINATION DRIVE

DISCHARGE HEAD

16½ 10 DISCHARGE HEAD BY LAYNE
MOTOR BASE DIA. 16½ " DISCH SIZE 10 "
COLUMN SIZE 10 " DISCHARGE HGT " "
BASE PLATE

COLUMN & SHAFT

(2) 10 " X 4ft-11 " COLUMN PIPE .365 "wall
(20) 10 " X 9ft-11 " COLUMN PIPE .365 "wall
(1) 1 11/16 " X 5ft SHAFTING 8 TPI
(20) 1 11/16 " X 10ft SHAFTING 8 TPI
1 11/16 " DIA. HEADSHAFT "LONG (RH)(LH) 8 TPI

PUMP

8 STAGE 12MC BOWL ASSEMBLY, MFG LAYNE
USGPM @ FT. T.D.H. "STICKUP
SUCTION PIPE: X YES NO 8 " DIA 10 FT
STRAINER: X YES NO CONE TYPE

MATERIALS

BOWLS Enamel C.I. COLUMN PIPE STEEL
IMPELLERS BRONZE ENCLSG TUBE -
BOWL SHAFT Stainless BRG RETAINER C.I.
BOWL BRGS BRONZE LINESHAFT BRGS Rubber
STRAINER - LINESHAFT Steel
SLEEVES Stainless HEASHAFT Stainless
PACKING graphite SIZE 3/8 "

WELL

CASING DIA 16 " to 387 ft OPENHOLE FT
WELL DEPTH 475 ft SCREEN ft "
STATIC WATER LEVEL DATE
PUMPING LEVEL OF GPM at TDH

VERTICAL TURBINE PUMP

Alberg Water Services, LLC.

16200 Highway 10 NW
Elk River, MN 55330-7825

Voice: 763-263-1800
Fax: 763-263-1799

Invoice

11267

Inv. Date	Due Date
3/3/00	4/2/00

Attn: Jay Hartman

Sold To: City of St. Anthony
3301 Silver Lake Rd
St. Anthony, MN 55418

Mail To:

Customer ID	Customer PO	Sales Rep ID	Payment Terms
COSTAN01		EXSHCPA	Net 30 Days

Qty	Description	Unit Price	Extension
	Final billing for maintenance repairs on deep well #5.		
1.00	Item #1: Furnish equipment and labor to pull and reinstall pump. Revised total $3,750.00. Previously invoiced at 60% complete at $2,250.00. Balance Due:	1,500.00	1,500.00
1.00	Item #2: Furnish shop labor to make repairs to pump, sand blasting and painting of pump, loading and return to job site. Lump Sum:	2,000.00	2,000.00
1.00	Item #3: Furnish repairs on 150 HP GE electric motor complete with 2 thrust bearings and 1 guide bearing. Lump Sum:	2,794.00	2,794.00
1.00	Item #4: Furnish pump repair parts in accordance to our detailed parts list dated 2/17/00. Total Repair Parts:	8,455.00	8,455.00
1.00	Item #5: Furnish and install new steady bearing in Amarillo Gear Drive. Lump Sum:	270.00	270.00

Taxable Invoice Amount	0.00
Subtotal	15,019.00
Freight Amount	
Sales Tax	
Total Invoice Amount	15,019.00
Payment Received	0.00
TOTAL	15,019.00

Check No:

Alberg Water Services, LLC.

16200 Highway 10 NW
Elk River, MN 55330-7825

Voice: 612-263-1800
Fax: 612-263-1799

Invoice
11258

Inv. Date	Due Date
2/17/00	3/18/00

Attn: Jay Hartman

Sold To: City of St. Anthony
3301 Silver Lake Rd
St. Anthony, MN 55418

Mail To:

Customer ID	Customer PO	Sales Rep ID	Payment Terms
COSTAN01		EXSHCPA	Net 30 Days

Qty	Description	Unit Price	Extension
	PARTIAL BILLING FOR DEEP WELL #5 Removed well fill material:		
8.00	2/7/00: Mobilized bailing equipment, removed well fill. 8 hours at $135.00/hr:	135.00	1,080.00
1.00	#27 flatbed truck and support equipment. Lump Sum:	350.00	350.00
8.00	2/8/00: Bailed well fill material. 8 hours at $135.00/hr:	135.00	1,080.00
1.00	#95 pickup truck. Lump Sum:	150.00	150.00
8.00	2/9/00: Bailed well fill material. 8 hours at $135.00/hr:	135.00	1,080.00
1.00	#95 pickup truck. Lump Sum:	150.00	150.00
8.00	2/10/00: Bailed well fill material. 8 hours at $135.00/hr:	135.00	1,080.00
1.00	#95 pickup truck. Lump Sum:	150.00	150.00
8.00	2/11/00: Finished cleaning out well to depth of 473'. Moved equipment out. 8 hours at $135.00/hr:	135.00	1,080.00
1.00	#27 flatbed truck and support equipment. Lump Sum:	350.00	350.00

Taxable Invoice Amount	0.00
Subtotal	6,550.00
Freight Amount	
Sales Tax	
Total Invoice Amount	6,550.00
Payment Received	0.00
TOTAL	6,550.00

Check No:

Alberg Water Services, LLC.

16200 Highway 10 NW
Elk River, MN 55330-7825

Voice: 612-263-1800
Fax: 612-263-1799

Invoice

11248

Inv. Date	Due Date
1/26/00	2/25/00

Attn: Jay Hartman

Sold To: City of St. Anthony
3301 Silver Lake Rd
St. Anthony, MN 55418

Mail To:

Customer ID	Customer PO	Sales Rep ID	Payment Terms
COSTAN01		EXSHCPA	Net 30 Days

Qty	Description	Unit Price	Extension
1.00	Partial billing for deep well #5 - maintenance repair. Mobilize equipment and labor to pull pump, measure well depth and static level, clean up and move out. Lump sum quote $2,950.00 plus additions on 12/29/99 of $800.00. Revised item #1 total $3,750.00. Work 60% completed to date.	2,250.00	2,250.00

Taxable Invoice Amount	0.00
Subtotal	2,250.00
Freight Amount	
Sales Tax	
Total Invoice Amount	2,250.00
Payment Received	0.00
TOTAL	2,250.00

Check No:

1988 - NEW 150 HP. GE MOTOR & STARTERS

1981 - MAINT & REPAIR

1989 - MAINT & REPAIR

1999 - WOW 5 Service Complete / Maintenance and Repair.

Appendix 2

Water Level Monitoring Plan

St. Anthony Water Level Monitoring Plan

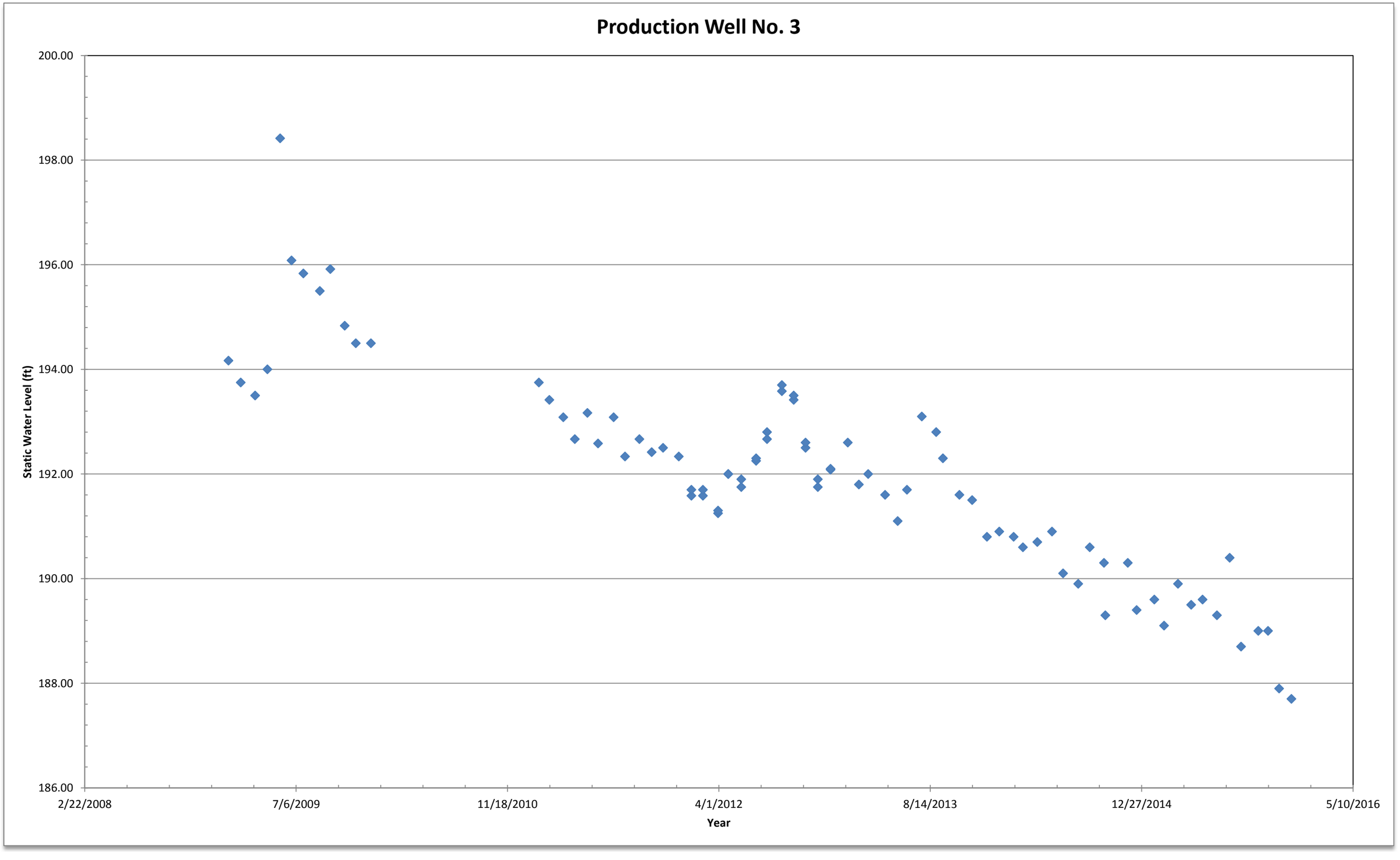
Source*	Monitoring Type	Frequency
Well 3	SCADA	Daily
Well 4	SCADA	Daily
Well 5	SCADA	Daily

*When the City exceeds annual appropriated water withdrawal and begins to amend their appropriations permit, a monitoring well will be required within the center of the City's well field. This monitoring well will utilize a data logger to take hourly readings and quarterly calibration readings. Monitoring data will be submitted to the Minnesota DNR groundwater level coordinator on a quarterly basis using the DNR's electronic data sheet.

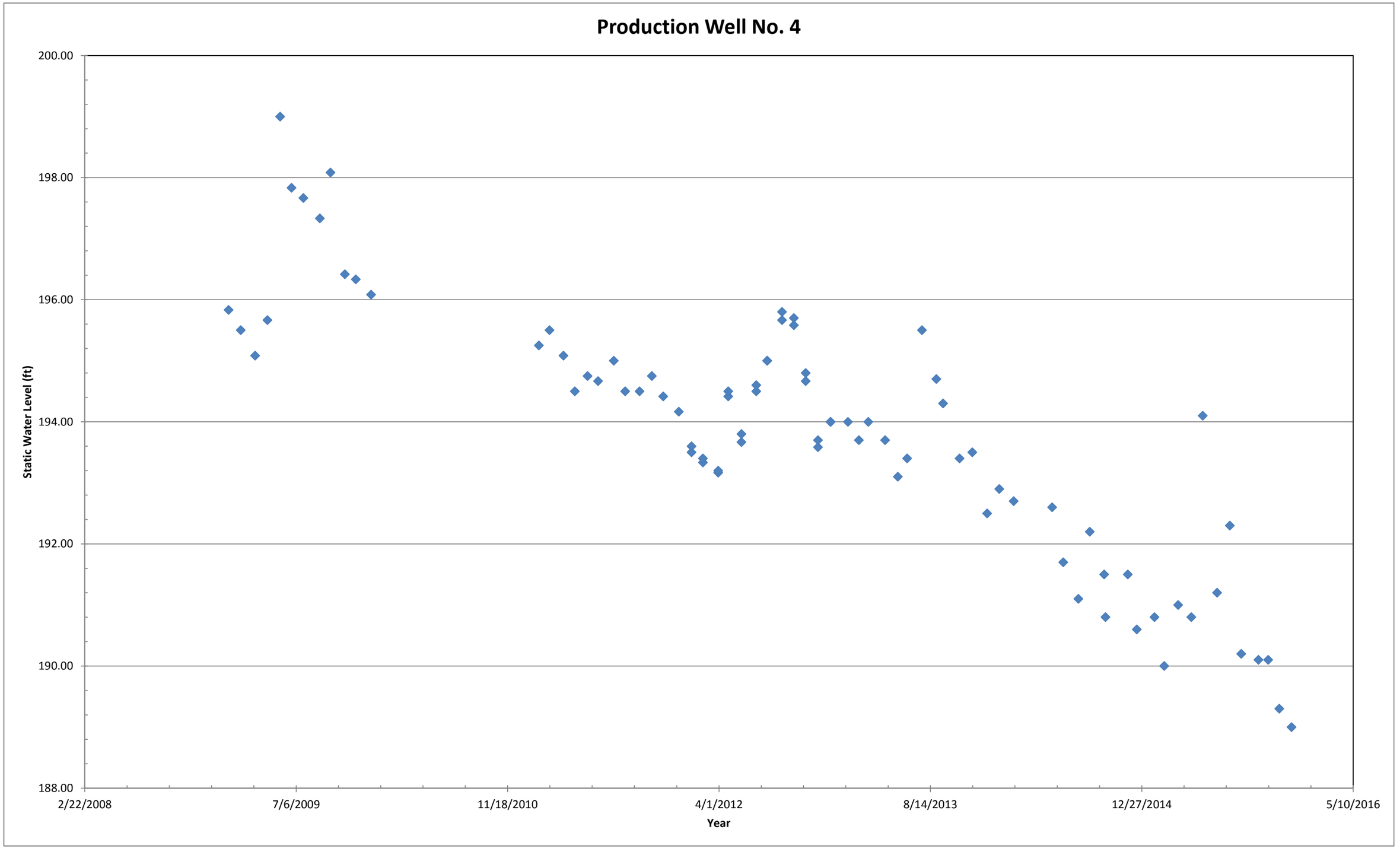
Appendix 3

Water Levels for Production and Observation Wells

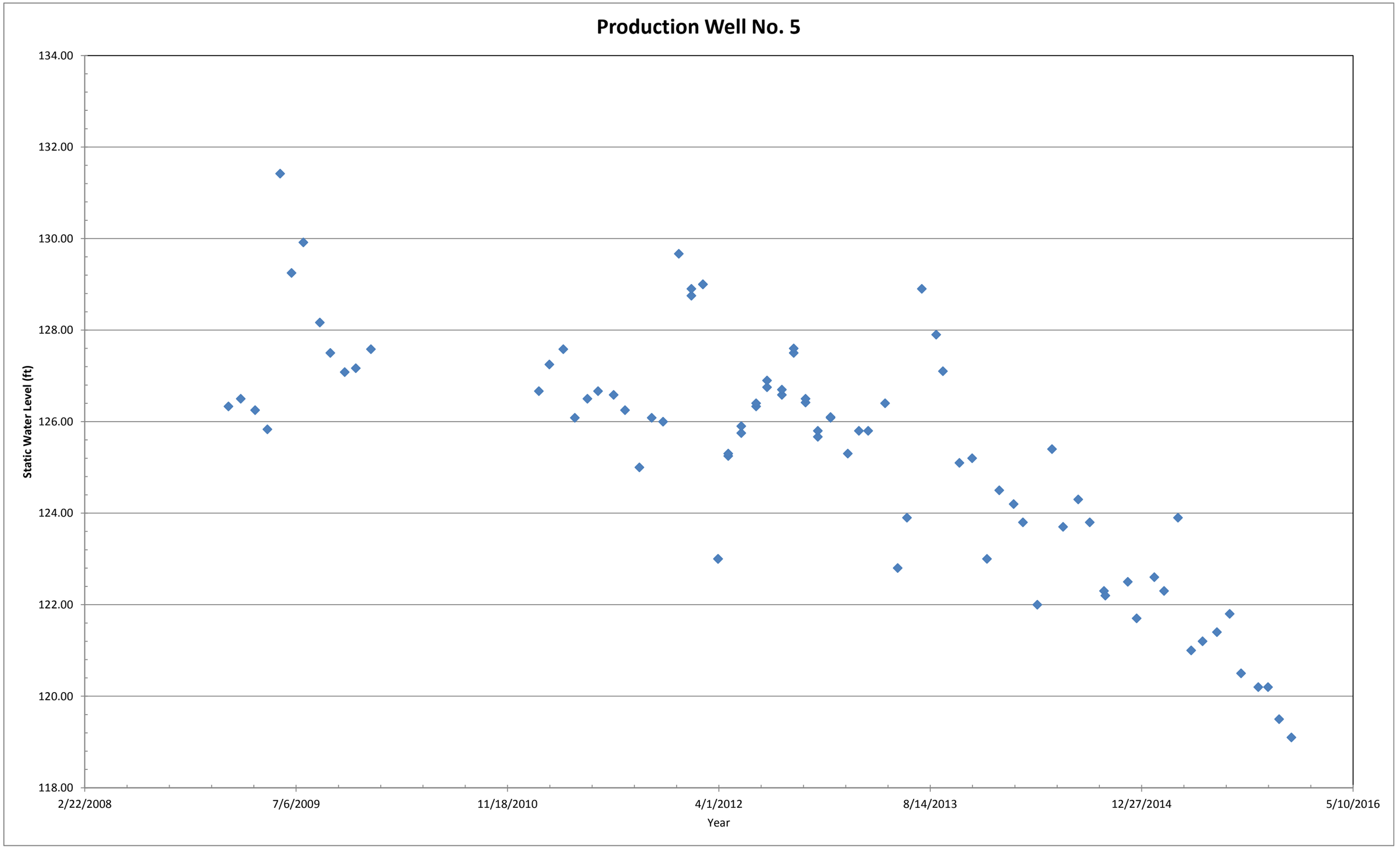
Production Well No. 3



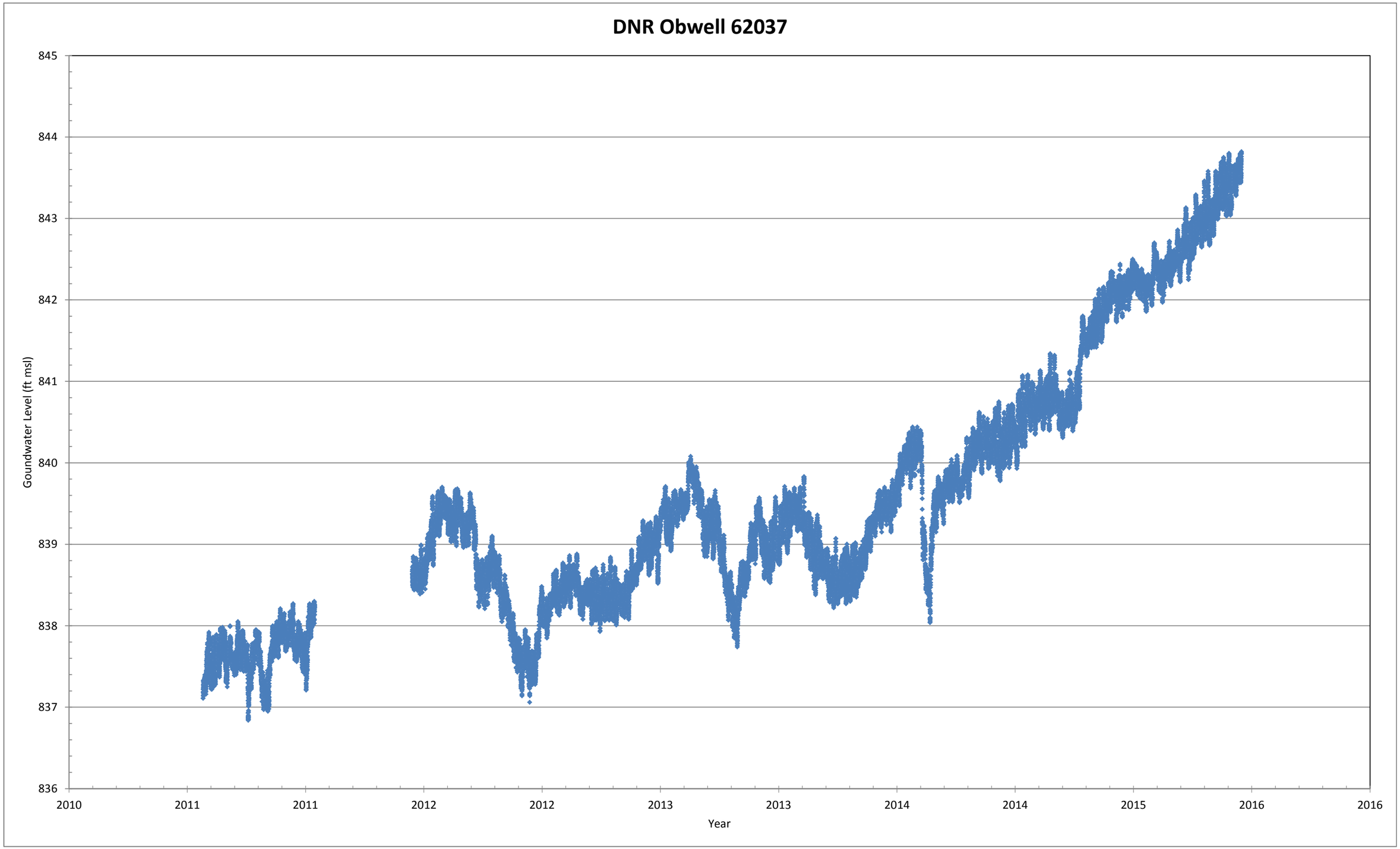
Production Well No. 4



Production Well No. 5



DNR Obwell 62037



Appendix 4

Capital Improvement Plan

PUBLIC UTILITES INFRASTRUCTURE

DEPT	PURPOSE	DESCRIPTION	2015	Est. Actual 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
WATER UTILITY																					
	Production																				
		Carbon Media replacement	-	-	85,000	-	90,000	-	95,000	-	100,000	-	105,000	-	110,000	-	115,000	-	120,000	-	125,000
		Plant SCADA system (1)	-	-	-	45,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Well No. 3, 4, & 5 SCADA system	-	-	-	75,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		High Service Pump Upgrades and Piping (1,2, 3 & 4)	-	-	-	-	-	-	341,000	-	-	-	-	-	-	-	-	-	-	-	-
		Cla Valve Replacement (Replacement by 2040)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Well No. 3 Well casing	-	-	-	-	-	-	-	37,500	-	-	-	-	-	-	-	-	-	-	-
		Well No. 4 Pump restoration	-	-	-	-	-	-	-	75,000	-	-	-	-	-	-	-	-	-	-	-
		Well No. 5 Pump restoration	-	-	-	-	-	-	-	-	75,000	-	-	-	-	-	-	-	-	-	-
		Replace Well No. 5 Standby Power Generator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300,000	-
		Add permanent generator Well No. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	275,000	-	-	-	-
	Storage																				
		Ground Storage Repair/Re-roof Feasibility	-	-	10,000	-	-	325,000	-	-	-	-	-	-	-	-	-	-	-	-	-
		Ground Storage and Tower Cleaning & Inspection	-	-	10,000	-	-	-	-	11,000	-	-	-	12,000	-	-	-	-	13,500	-	-
		Tower Painting (last painted in 2000)	-	-	-	-	-	-	-	-	-	-	-	275,000	-	-	-	-	-	-	-
	Distribution System																				
		Watermains (included in streets reconstruction)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Fire Hydrants	-	-	-	-	15,000	-	-	-	-	-	-	-	-	15,000	-	-	-	-	-
	Mandates																				
		Wellhead Protection Plan Documentation (MDHS)	20,000	7,861	5,000	-	-	-	20,000	-	-	-	-	20,000	-	-	-	-	20,000	-	-
		Update Water System Plan	-	-	-	20,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Wellhead Protection Plan Components:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Education/Public Awareness	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,001
		Update Inventory of Potential Contamination Sources	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,001
		Annual Well Sampling	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	501	502
		TOTAL WATER UTILITY	**22,500**	**10,361**	**112,500**	**142,500**	**107,500**	**327,500**	**458,500**	**126,000**	**177,500**	**2,500**	**107,500**	**309,500**	**112,500**	**17,500**	**392,500**	**2,500**	**156,001**		
SEWER UTILITY																					
	Lift Stations																				
		Lift Stations - SCADA system	-	-	-	-	40,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Foss Road Lift Station Pump Replacement/re-hab	-	-	15,000	-	-	-	-	-	-	-	10,000	-	-	-	-	-	-	-	-
		Harding Lift Station Pump Replacement/re-hab	-	-	-	7,500	-	-	-	-	-	-	-	-	5,000	-	-	-	-	-	-
	Collection System																				
		Collection System (Included in streets reconstruction)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TOTAL SEWER UTILITY	**-**	**-**	**15,000**	**7,500**	**40,000**	**-**	**-**	**-**	**-**	**-**	**10,000**	**-**	**5,000**	**-**	**-**	**-**	**-**		
FIBER LAN UTILITY																					
	Backbone																				
		Initial Underground cable installation (2)	60,000	57,657	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TOTAL FIBER LAN UTILITY	**60,000**	**57,657**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		
TOTAL PUBLIC UTILITES INFRASTRUTURE PLAN			**$ 82,500**	**$ 68,018**	**$ 127,500**	**$ 150,000**	**$ 147,500**	**$ 327,500**	**$ 458,500**	**$ 126,000**	**$ 177,500**	**$ 2,500**	**$ 117,500**	**$ 309,500**	**$ 117,500**	**$ 17,500**	**$ 392,500**	**$ 2,500**	**$ 156,001**		

1. Supervision Control and Data Acquisition
Eliminates phone line system of alarms and triggers, allows for desktop/tablet monitoring of operating performance vs site vists to determine same
2. Project completed in 2015, total project cost was $229,811

Appendix 5

Emergency Telephone List

City of St. Anthony
Water Emergency Telephone List

Emergency Response Team	Name	Work Telephone	Alternate Telephone
Emergency Response Lead	Jay Hartman	612-782-3314	
Alternate Emergency Response Lead	Jeremy Gumke	612-782-3441	
Water Operator			
Alternate Water Operator			
Public Communications			

State and Local Emergency Response Contacts	Name	Work Telephone	Alternate Telephone
State Incident Duty Officer	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
County Emergency Director	Ramsey County – Judson Freed	651-266-1014	651-325-5760
National Guard	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
Mayor/Board Chair	Jerry Faust	612-789-7684	
Fire Chief	Mark Sitarz	612-782-3400	
Police Chief	Jon Mangseth	612-782-3350	
Ambulance		911	
Hospital	Hennepin County Med Center	612-873-3000	911
Doctor or Medical Facility	St. Anthony Village Clinic	612-873-6963	

State and Local Agencies	Name	Work Telephone	Alternate Telephone
MDH District Engineer	Chad Kolstad	651-643-2103	
MDH	Drinking Water Protection	651-201-4700	
State Testing Laboratory	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
MPCA		651-296-6300	
DNR Area Hydrologist	Kate Drewry	651-259-5753	
County Water Planner			

Utilities	Name	Work Telephone	Alternate Telephone
Electric Company	Xcel Energy		
Gas Company	CenterPoint Energy	612-372-4727	
Telephone Company	Century Link		
Gopher State One Call	Utility Locations	800-252-1166	651-454-0002
Highway Department			

Mutual Aid Agreements	Name	Work Telephone	Alternate Telephone
Neighboring Water System	Roseville –Marc Culver	651-792-7041	
Emergency Water Connection	Roseville –Marc Culver	651-792-7041	
Materials			

Technical/Contracted Services/Supplies	Name	Work Telephone	Alternate Telephone
MRWA Technical Services	MN Rural Water Association	800-367-6792	
Well Driller/Repair	E.H. Renner	763-427-6100	
Pump Repair	Alberg Water Services, LLC.	612-263-1800	
Electrician			
Plumber			
Backhoe	Valley Rich	952-448-3002	
Chemical Feed			
Meter Repair			
Generator			

Valves			
Pipe & Fittings	Valley Rich	952-448-3002	
Water Storage			
Laboratory			
Engineering firm	WSB & Associates – Todd Hubmer	763-287-7182	612-360-1282

Communications	Name	Work Telephone	Alternate Telephone
News Paper			
Radio Station			
School Superintendent	Robert Laney	612-706-1000	
Property & Casualty Insurance			

Critical Water Users	Name	Work Telephone	Alternate Telephone
Hospital Critical Use:			
Nursing Home Critical Use:			
Public Shelter Critical Use:			

Appendix 6

Cooperative Agreements for Emergency Services

CITY OF ST. PAUL No. 3457

OFFICE OF THE BOARD OF WATER COMMISSIONERS

RESOLUTION — GENERAL FORM

PRESENTED BY COMMISSIONER Langevin DATE June 20, 1984

WHEREAS, The City of St. Anthony is experiencing water supply problems and has requested that the City of Roseville sell water to the City of St. Anthony on a temporary basis; and

WHEREAS, The City of Roseville purchases water from the City of Saint Paul under terms of a certain contract for water services dated May 24, 1974; and

WHEREAS, The terms of said contract require Board authorization for the City of Roseville to permit the sale of water by the City of Roseville to another City; and

WHEREAS, It is the City of Roseville's intention to sell water to the City of St. Anthony; and

WHEREAS, The Water Utility staff has reviewed the proposed sale of water by the City of Roseville to the City of St. Anthony on a temporary basis and finds that such sale of water will help the City of St. Anthony through their current problem and the Board has the plant capacity to provide such water; and

WHEREAS, The Water Utility staff recommends a rider to that contract with the City of Roseville be prepared and executed providing for the sale of water by the City of Roseville to the City of St. Anthony with said rider providing for conditions as follows:

(1) The volume of water sold to the City of St. Anthony by the City of Roseville shall be metered.

(2) All water sold to the City of St. Anthony will be billed to the City of Roseville at the first step rate provided in that certain contract with the City of Roseville.

(3) This water supply will be for the summers of 1984 and 1985 with this rider to the contract expiring October 31, 1985.

now, therefore, be it

Water Commissioners

Adopted by the Board of Water Commissioners

Yeas Nays

_____ 196__

In favor_____ Opposed_____

_____
SECY.

1M 10-60

CITY OF ST. PAUL

No

OFFICE OF THE BOARD OF WATER COMMISSIONERS

RESOLUTION — GENERAL FORM

PRESENTED BY COMMISSIONER

DATE

RESOLVED, That the Water Utility staff is hereby directed to prepare a rider to that certain contract with the City of Roseville dated May 24, 1974 providing for the sale of water to the City of St. Anthony under the conditions stipulated above; and, be it

FURTHER RESOLVED, That the proper officers of the Board be authorized and hereby directed to execute said agreement on behalf of the Board.

Water Commissioners

Yeas	Nays
	Drew
	Langevin
	Masanz
Vice President Bachrach	
President Nicosia	

In favor 5 Opposed 0

Adopted by the Board of Water Commissioners

196

SECY.

1M 10 - 60

Appendix 7

Municipal Critical Water Deficiency Ordinance

CHAPTER 52: WATER SYSTEM

Section

52.01 Separate connections
52.02 Account name and liability
52.03 Rates and charges
52.04 Meters
52.05 Water reading and billing
52.06 Right to discontinue service
52.07 Taking water without authority
52.08 Water restrictions
52.09 Sprinkling regulations
52.10 Violations
52.11 Responsibility for repairs and maintenance

§ 52.01 SEPARATE CONNECTIONS.

Every building other than an accessory building must have a separate water service connection which meets the requirements of state law, this code and the city's Water Department. A hook-up charge in the amount as set forth in Chapter 33 must be paid before water service is connected.
(1993 Code, § 410.01) Penalty, see § 10.99

§ 52.02 ACCOUNT NAME AND LIABILITY.

Applications for water service are to be made on forms provided by the City Manager. All accounts will be carried in the name of the owner of the property served or the owner's lessee who personally, or by an authorized agent, applies for the service. In all cases, including those where application for water service is made by a lessee, the property owner will be liable for water service.
(1993 Code, § 410.02)

§ 52.03 RATES AND CHARGES.

Rates, charges, and prepayments for water use and service will be in the amounts set forth in Chapter 33.
(1993 Code, § 410.03)

§ 52.04 METERS.

For properties in all zoning districts other than R-1, R-1A, R-2, and R-3, meters meeting city specifications shall be purchased and maintained by the property owner at the owner's expense. The city will determine where the water meter will be installed. City employees have the authority to enter upon premises served by city water at any reasonable hour for the purposes of inspection or repair of meter and for turning service on or off. Tampering with meters is prohibited. Once a meter for a property in an R-1, R-1A, R-2, or R-3 district has been paid for by the owner, the city will repair and maintain the meter at city's expense.
(1993 Code, § 410.04) Penalty, see § 10.99

§ 52.05 WATER READING AND BILLING.

(A) *Meter reading.* All water meters will be read quarterly on or before the third day of the months of January, April, July, and October.

(B) *Billing and payment.* Quarterly water statements will be sent out on or around the twentieth day of the months of January, April, July, and October and are payable on or before the twentieth day of the following month. If payment is made by U.S. mail, a bill will be considered paid as of the date of postmark. If the payment date deadline falls on a Saturday, Sunday, or legal holiday, payment may be made on or prior to the first day thereafter on which city offices are open. If payment is not timely made, a late fee in the amount set forth in Chapter 33 is due. If payment on a quarterly statement is not made on or prior to the fifth day of March, June, September, or December respectively, the city retains the right to send a final notice of payment overdue to the customer by certified mail, notifying the customer that: payment must be received at the City Hall within 5 days; failure to make the payment in full within the 5-day period will result in the discontinuance of water service; and the customer has the right to a hearing before the Public Works Director before water service is discontinued, provided the customer has made a request for a hearing within the 5-day period. If a request for a hearing is timely, made by the customer, a hearing will be held in accordance with the provisions of § 52.06. If a payment is not received and a hearing request is not timely made, the city may discontinue service to the customer. A charge will be made to the customer in the case of discontinuance of service for nonpayment of a water bill, and a charge will also be made to the customer for turning on the water service after it has been shut off for nonpayment, each in the amounts set forth in Chapter 33. Payments of any bill must be made at the City Hall, and employees of the Water Department are not authorized to accept payment of any bill.
(1993 Code, § 410.05)

§ 52.06 RIGHT TO DISCONTINUE SERVICE.

No water service will be shut off for nonpayment until the customer has been afforded an opportunity for an impartial hearing pursuant to § 52.05(B). If no hearing is requested within the required time, service will be shut off. If a hearing is requested, service will be shut off unless a valid

reason for nonpayment is demonstrated at the hearing. If a hearing is so requested, it will be held by the City Manager or the Manager's designee within 6 working days of the request. If, as a result of the hearing, the City Manager or the Manager's designee finds that the amount claimed to be owing is actually due and unpaid and that there is no legal reason why the water service may not be discontinued, then the city may discontinue water service.
(1993 Code, § 410.06)

§ 52.07 TAKING WATER WITHOUT AUTHORITY.

It is unlawful for any person to use city water service without proper authority.
(1993 Code, § 410.07) Penalty, see § 10.99

§ 52.08 WATER RESTRICTIONS.

To promote and protect the public health, safety, and welfare of the city and its residents, it may be necessary during periods of drought or unusual water use for the City Council to declare the existence of an emergency with respect to the use of city water and to provide for restricted use. The City Council will sit as an Emergency Water Supply Board, which may declare the existence of the emergencies as, and when, it may be necessary to impose and enforce water use restrictions.
(1993 Code, § 410.08)

§ 52.09 SPRINKLING REGULATIONS.

No person may draw or use the city water system for the purpose of watering lawns or gardens during any period of emergency as declared under § 52.08, except during the days and hours permitted. Notice of the emergency and any permitted watering will be given by publication and posting. At no time may a hose larger than 1 inch in diameter be used from any service pipe without special permission of the City Council, and upon payment of a fee set forth in Chapter 33 for the water to be used from the special connection.
(1993 Code, § 410.09)

§ 52.10 VIOLATIONS.

If a person violates the water emergency provisions, the City Council may cause the person's water service to be shut off. Service will not be restored until payment of the fee set forth in Chapter 33.
(1993 Code, § 410.10) Penalty, see § 10.99

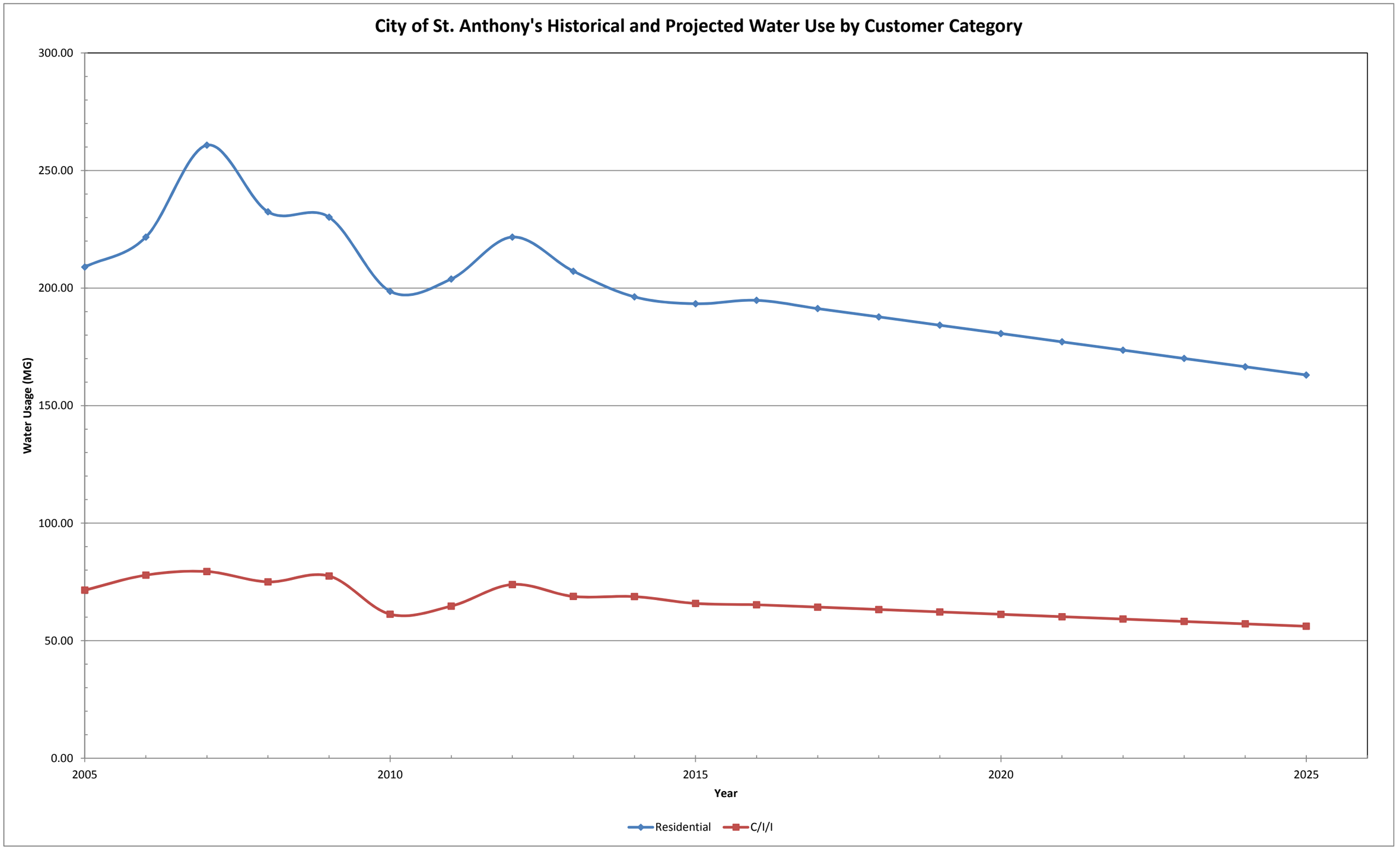
§ 52.11 RESPONSIBILITY FOR REPAIRS AND MAINTENANCE.

(A) *R-1, R-1A, and R-2 property owners.* Each owner of single-family residential (R-1), (R-1A), or 2-family residential (R-2) property having a building connected to the public water system is responsible for all repairs and maintenance of that portion of the system which runs from the building to the curb stop, including any connection at the curb stop.

(B) *Owners of property other than R-1, R-1A, and R-2.* The owners of properties other than single-family residential (R-1), (R-1A), and 2-family residential (R-2) having a building connected to the public water system are responsible for all repairs and maintenance of that portion of the system which runs from the building to its connection with a common water line, including the connection to the line. (1993 Code, § 410.11) Penalty, see § 10.99

Appendix 8

Graph showing annual per capita water demand
for each customer category during the last ten years


City of St. Anthony's Historical and Projected Water Use by Customer Category
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Water Usage (MG)
2005
2010
2015
2020
2025
Year
Residential
C/I/I

Appendix 9

Water Rate Structure

CITY OF SAINT ANTHONY VILLAGE
STATE OF MINNESOTA

ORDINANCE NO. 2014-06

AN ORDINANCE AMENDING SECTIONS §33.018 SEWER CHARGES TO OWNERS; 33.036 WATER CHARGES TO OWNERS AND §33.090 CHARGES FOR STORM WATER FACILITIES FOR ST. ANTHONY VILLAGE EFFECTIVE JANUARY 1, 2015

The City Council of the City of Saint Anthony Village ordains as follows:

33.018 SEWER RATES: $4.19 per 1,000 gallons

33.036 WATER RATES.

Water bills will be computed quarterly based on metered water used according to the tiered rates system.

RESIDENTIAL	Consumption (gallons)	Rate/per 1,000 gallons
TIER I	0-7,500	$2.98
TIER II	7,500-15,000	$3.14
TIER III	15,000-22,500	$3.45
TIER IV	22,500-30,000	$3.96
TIER V	Over 30,000	$4.97

COMMERCIAL	Consumption (gallons)	Rate/per 1,000 gallons
TIER I	0-7,500	$2.98
TIER II	7,500-53,500	$3.14
TIER III	53,500-175,000	$3.45
TIER IV	175,000-300,000	$3.96
TIER V	Over 300,000	$4.97

WILSHIRE	Consumption(gallons)	Rate/per 1,000 gallons
TIER I	0-7,500	$2.98
TIER II	7,500-510,000	$3.14
TIER III	510,000-610,000	$3.45
TIER IV	610,000-710,000	$3.96
TIER V	Over 710,000	$4.97

SAVHS	Consumption (gallons)	Rate/per 1,000 gallons
TIER I	0-7,500	$2.98
TIER II	7,500-850,000	$3.14
TIER III	850,000-1,150,000	$3.45
TIER IV	1,150,000-1,450,000	$3.96
TIER V	Over 1,450,000	$4.97

HAPPY'S	Consumption (gallons)	Rate/per 1,000 gallons
TIER I	0-7,500	$2.98
TIER II	7,500-3,650,000	$3.14
TIER III	3,650,000-4,650,000	$3.45
TIER IV	4,650,000-5,650,000	$3.96
TIER V	Over 5,650,000	$4.97

33.090 STORM WATER FACILITIES: *(billed quarterly)*

Classification	Charge (per acre)
1 - Cemeteries, parks, golf courses, parks, golf courses, railroads, vacant land	$59.75
2 - R-1, R-1a, and R-2 residential	$57.60
3 - R-3 Residential	$57.60
4 - Schools and institutional uses	$137.58
5 - R-4 Residential, churches & manufactured home parks	$175.48
6 - Commercial & Industrial	$219.23

Effective Date: This ordinance shall become effective for services after January 1, 2015

First Reading: November 10, 2014

Second Reading: November 25, 2014

Adopted: December 9, 2014

CITY OF SAINT ANTHONY VILLAGE

By: _____
Jerome O. Faust, Mayor

ATTEST:

By: _____
Barbara J. Sucic, City Clerk

Publish: St. Anthony Bulletin
Publication date: December 17, 2014

Appendix 10

Adopted or Proposed Regulations

Regulations adopted by the City of St. Anthony to reduce demand and improve water efficiencies:

2015 Minnesota Statues, 103G.298 Landscape Irrigation Systems

https://www.revisor.mn.gov/statutes/?id=103G.298

Odd-Even Sprinkling Ban – Link to City's web page

http://www.ci.saint-anthony.mn.us/vertical/Sites/%7B5ED4AFB9-D450-4F68-BA29-2600D3C2A620%7D/uploads/Water_Restrictions_CM_Article_Draft_4.pdf

Appendix 11

Implementation Checklist

City of St. Anthony
Implementation Spreadsheet

Action	Description	Timeframe				
		ongoing	annually	1-3 yrs	1-5 yrs	3-6 yrs
Review city ordinances/codes	To encourage or require water efficient landscaping.			✓		
Review city ordinance/codes	To permit water reuse options, especially for non-potable purposes like irrigation, groundwater recharge, and industrial use.		✓			
Review ordinances to limit irrigation	Review outdoor irrigation installations codes to require high efficiency systems (e.g. those with soil moisture sensors or programmable watering areas) in new installations or system replacements					✓
Make water system infrastructure improvements		✓				
Conduct audience-appropriate water conservation education and outreach		✓				
Conduct a facility water use audit	For both indoor and outdoor use, including system components		✓			
Install enhanced meters	Capable of automated readings to detect spikes in consumption	✓				
Install water conservation fixtures and appliances or change processes to conserve water	Toilets, facets, etc.	✓				
Repair leaking system components	(e.g., pipes, valves)	✓				
Investigate the reuse of reclaimed water	(e.g., stormwater, wastewater effluent, process wastewater, etc.)	✓				
Reduce outdoor water use	(e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	✓				
Train employees how to conserve water	Include for new employee training	✓				
Increasing block rates billing strategy	Rate structure for Residential, Commercial, Industrial, and Institutional customers	✓				
Continue to participate in the GreenStep Cities Program	Voluntary program to aid cities in achieving their sustainability and quality-of-life goals	✓				
Rainfall sensors required on landscape irrigation systems	Conserve water and reduce utility bill when there is a sufficient moisture for landscape area.	✓				
Watering restriction requirements	Odd/Even day watering	✓				
Billing inserts or tips printed on the actual bill	Educational information supplied as billing insert	✓				
Consumer Confidence Reports	Report of City's water quality		✓			
Direct mailings (water audit/retrofit kits, showerheads, brochures)	City is looking into using direct mailings to further educate residents on the benefits of water conservation.	✓				
K-12 Education programs (Project Wet, Drinking Water Institute, presentations)	Making programs to educate school age children on water resources.		✓			
Sustainability Report			✓			