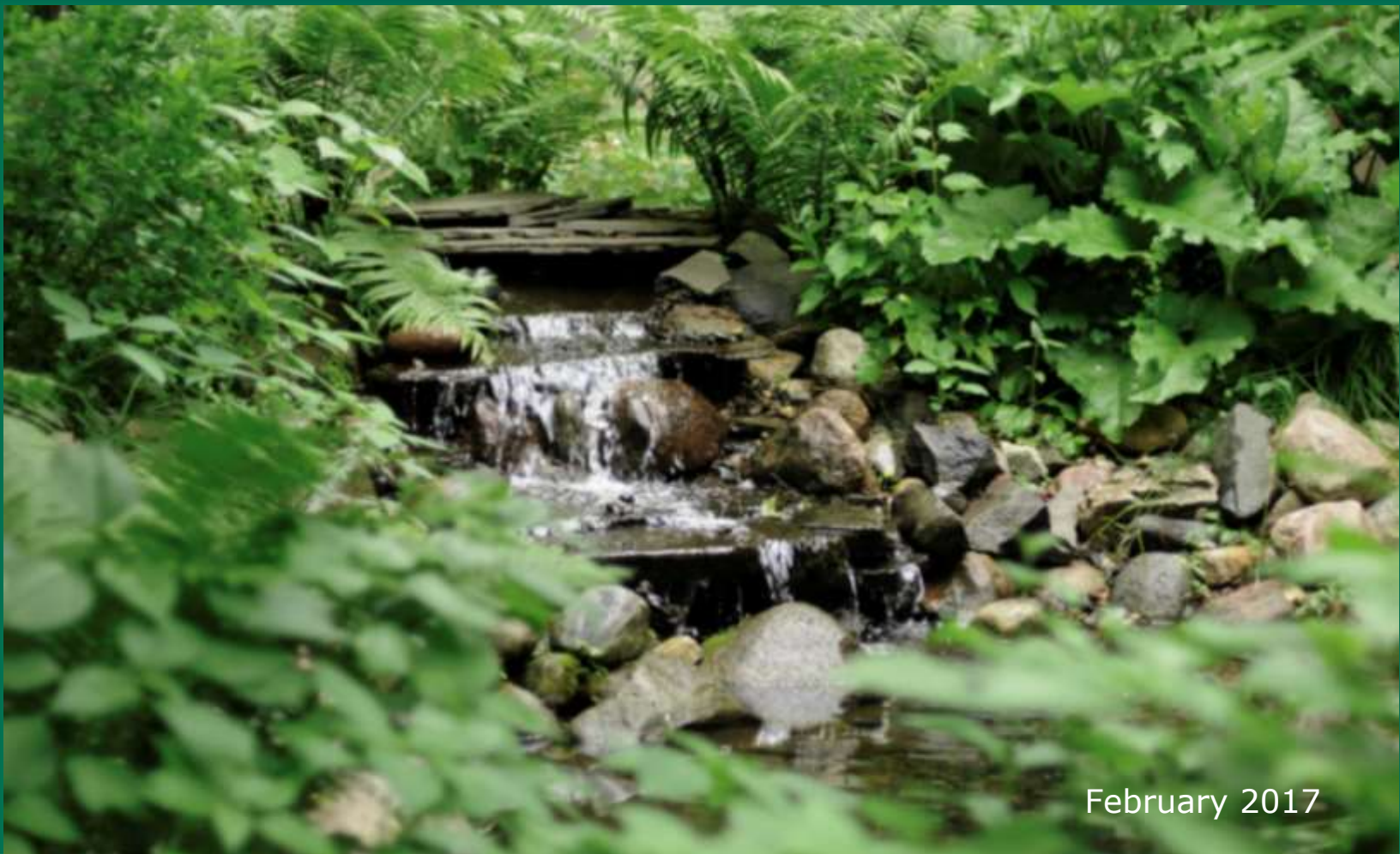




ThreeRivers
PARK DISTRICT

**2013-2015 Sustainability
Program Update and
Actions Report**



February 2017

Table of Contents

Introduction	2
Greenhouse Gas Emissions	3
Facility Systems	4
Vehicles and Equipment Fuel Use	5
Waste Management	8
Water Conservation	10
Education and Advocacy	14
System Planning and Development	14
Asset Management	15
Recommendations	15
Appendix: 2013-2015 Completed Actions	17

Introduction

Environmental stewardship is a long-standing hallmark of the Three Rivers Park District's (TRPD) mission. Late in 2008, the Park District launched a focused sustainability initiative that incorporated economic, environmental, and social elements aimed at reducing the organization's environmental footprint. In 2009, the Board of Commissioners approved sustainability targets for reductions in greenhouse gas emissions (GHG), waste generation, and groundwater use. These targets were based on 2008 as the baseline year from which to measure future changes. The term "targets" was carefully chosen, representing the intent to hit or come as close as possible to the "mark" through implementing innovative strategies and best practices.

In 2012, the Board approved the Sustainability Plan and a program was established to direct action towards the adopted targets. Measuring annual progress and realizing continuous improvements are key elements of the Sustainability Plan. The Sustainability Plan and subsequent work plans are getting rejuvenated District-wide in 2017. The current Board is asked to approve a revised Sustainability Plan and review this updated report. Staff continues to measure progress and offer recommendations for new management and operational practices to meet our 2025 sustainability targets.

This report provides an assessment of the Park District's sustainability program, evaluates metrics relative to the 2008 baseline, recommends strategies to meet future sustainability targets, and provides a synopsis of completed program actions from 2013-2015. It quantifies greenhouse gas (GHG) emissions, waste production, and water consumption, which provides the most accurate metrics for progress analysis. It also discusses achievements and opportunities in asset management, education and advocacy, and system planning and development. As a whole, the TRPD sustainability efforts have reduced or slowed potential negative environmental, economic and social impacts.

Greenhouse Gas (GHG) Emissions

Total GHG Emissions

While the Park District's visitation has increased from 6.7 million visitors in 2008 to over 10 million in 2015, the actions outlined in the Sustainability Plan and implemented during the past several years, have served to slow overall carbon dioxide emissions (CO₂e) by source (*Figure 1*). Without a proactive tracking and awareness program, CO₂e by facility system inputs (electricity, natural gas, and propane) could feasibly have gone off charts. Even with the sustainability program, facility systems is the largest contributor to CO₂e throughout this tracking period.

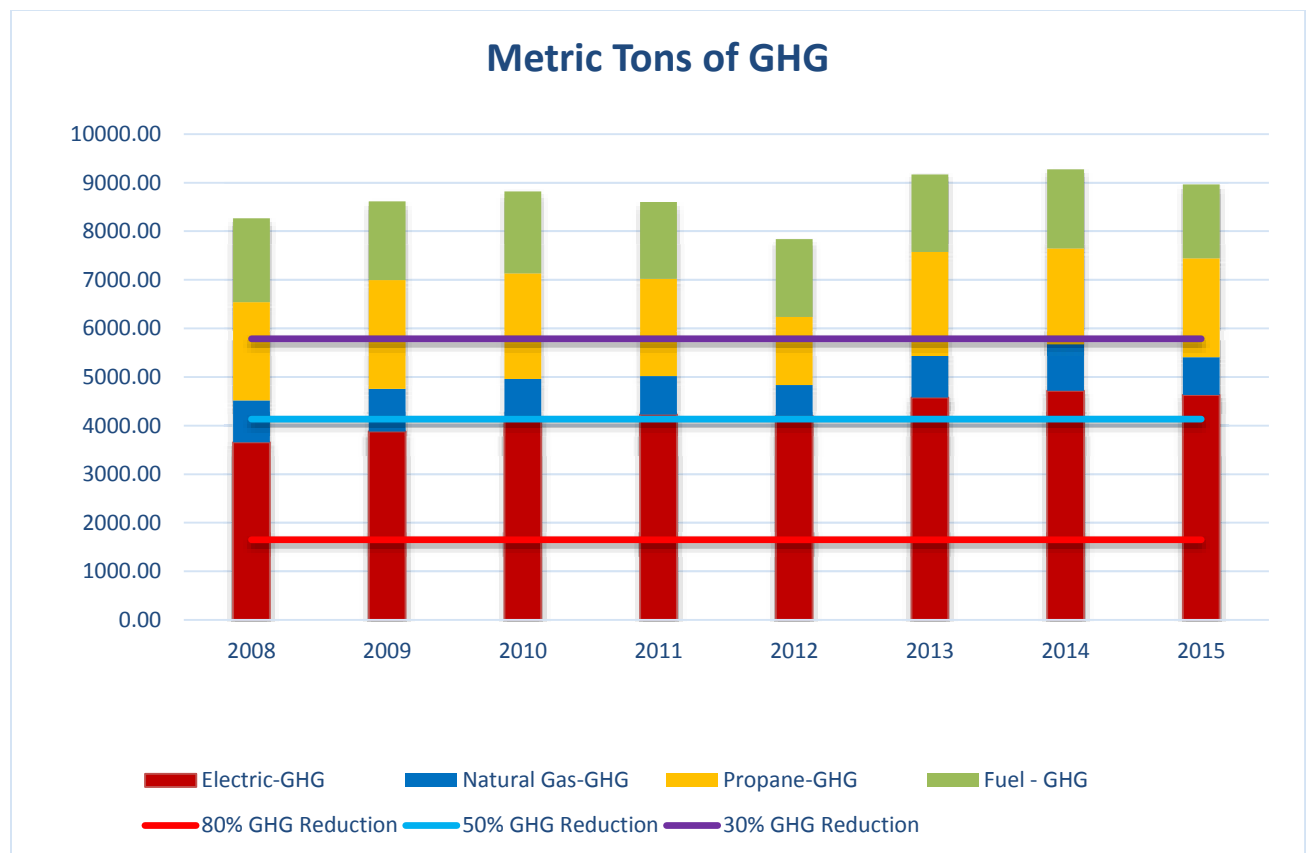


Figure 1

As in previous years, electricity remains the largest contributor of CO₂e emissions at 51.6% (*Figure 2*). Fuel use contributes 16.9% of CO₂e. Continued emphasis on energy improvements in facility systems and fuel efficiency present the greatest opportunities to lower GHG emissions and utility expenditures. Therefore, these two areas remain the primary targets for the sustainability work program.

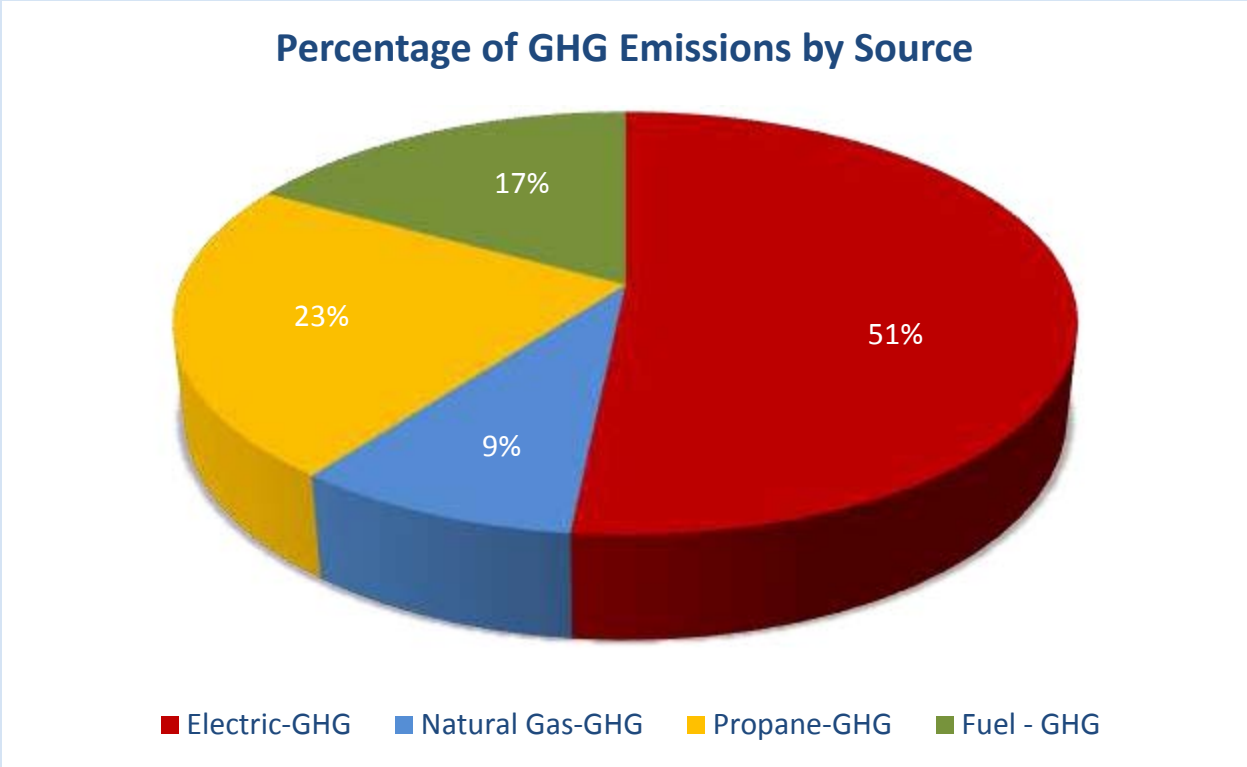


Figure 2

Facility Systems

The Park District’s facility systems (primarily consisting of buildings) are the largest producers of CO₂e emissions. Facilities contributed 7575.6 tons of greenhouse gas emissions in 2013 (*Figure 3*), a 21.4% increase from 2012. Three Rivers has seen an increase in emissions from the 2008 baseline, in part to due to an increase in the total number and area of facilities.

Much of the potential emissions have been kept in check by strategic implementation of improved building technologies and replacing outdated systems with energy efficient systems (e.g., geothermal, daylighting, LED lighting, HVAC equipment and control upgrades, etc.). Behavioral adjustments are also a factor in reducing overall energy consumption rates.

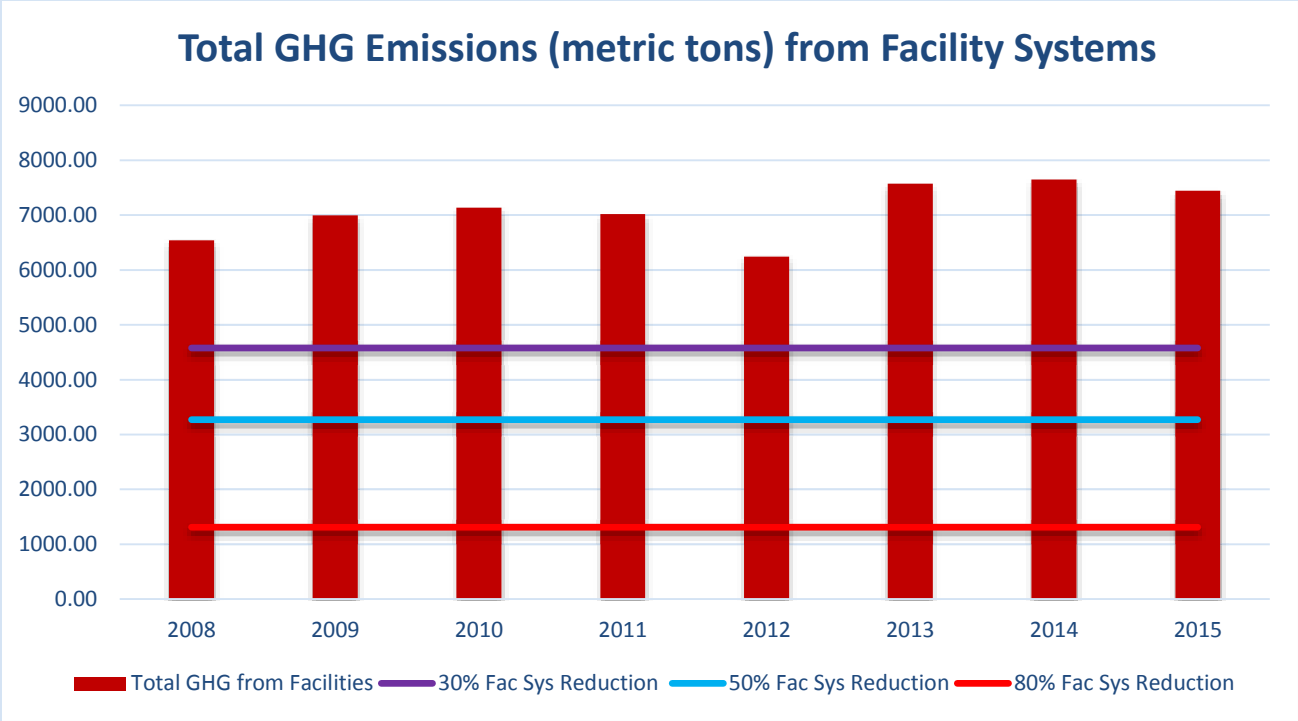


Figure 3

Electricity is mainly purchased from Xcel Energy, which at this time produces most of its power from coal. This directly impacts the Park District sustainability efforts because burning coal is a leading producer of CO₂e. Future changes in Xcel Energy use of renewable energy sources, through either voluntary or state mandated programs, may help lower the Park District’s carbon footprint.

Facility Systems remains the most critical area for improvements. These must be addressed with more direct and purposeful energy and efficiency improvements, to include renewable or clean energy upgrades.

Vehicles and Equipment Fuel Use

CO₂e emissions from vehicle and fuel usage declined from 1,724.2 tons in 2008 to 1,519.5 tons produced in 2015, a 12% reduction. With continued efforts in this area, the Park District can expect a continued decrease of CO₂e with the expectation of meeting the 30% reduction target by 2025 (Figure 4).

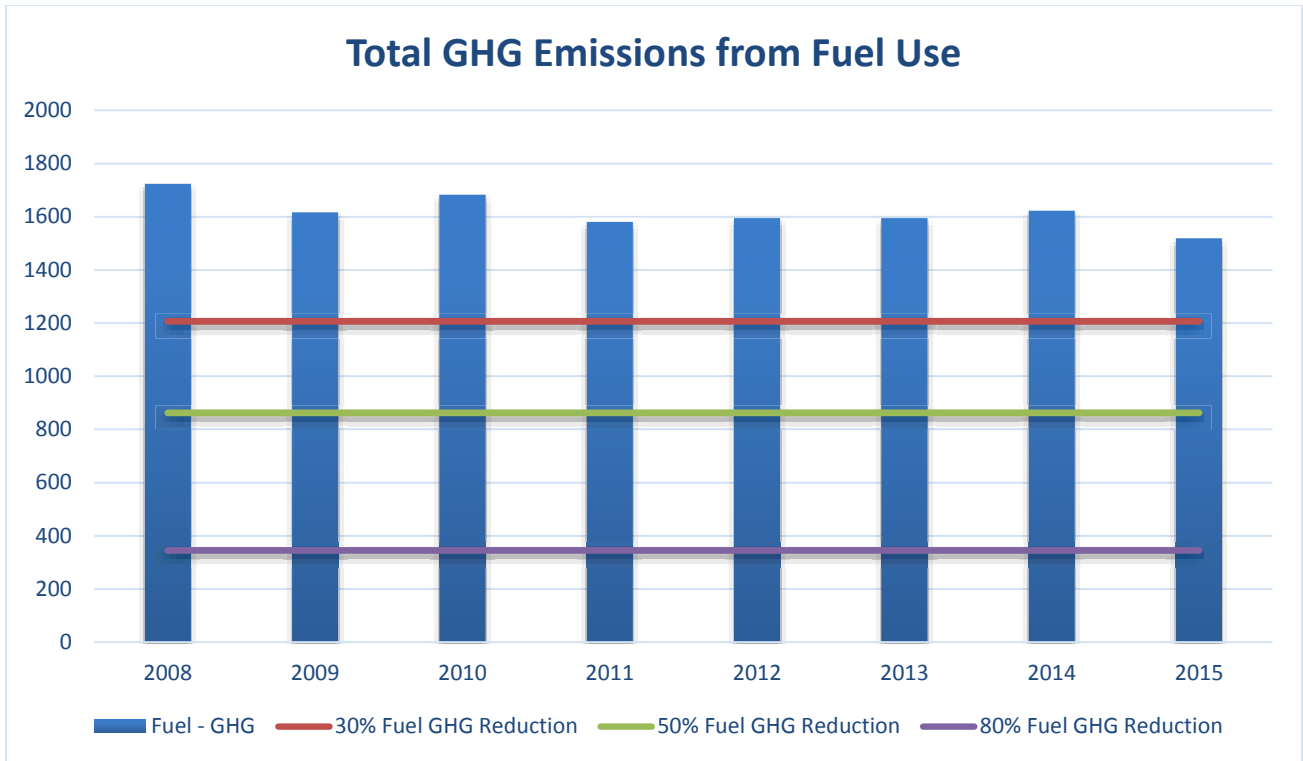


Figure 4

A comparison of total gallons of fuel used is shown in *Figure 5*. While diesel has held relatively steady, unleaded gas use has significantly decreased from 2008.

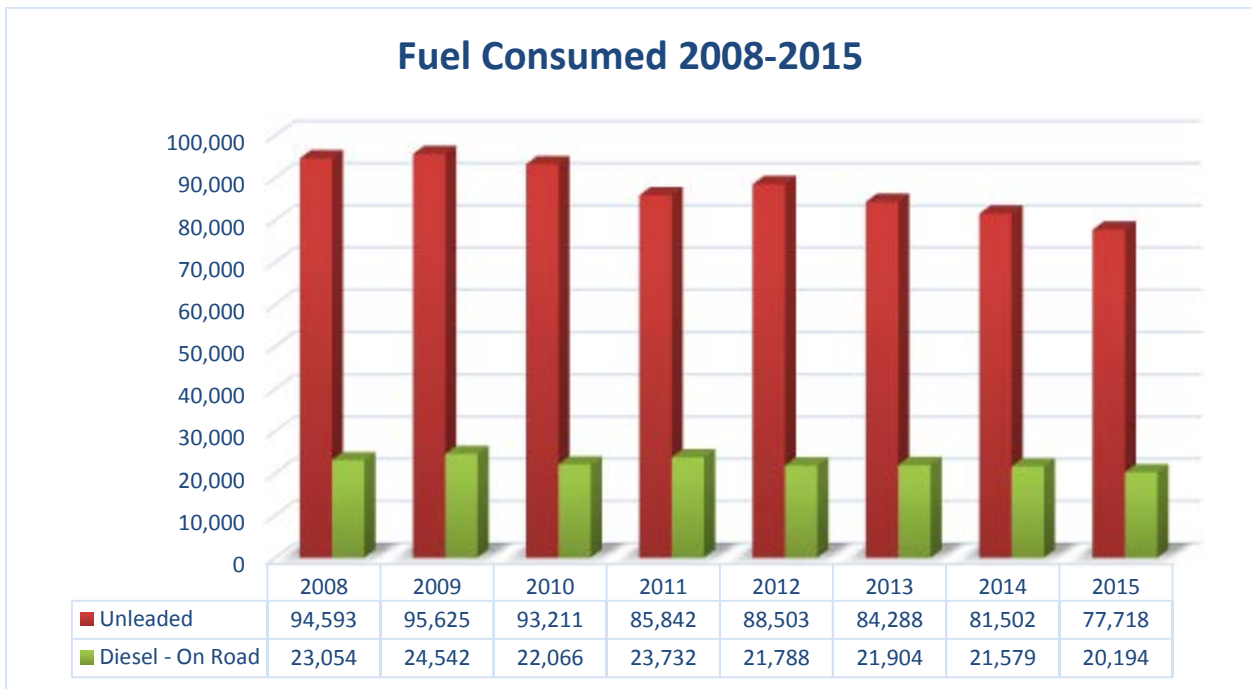


Figure 5

The total vehicle miles traveled using unleaded fuel has also decreased from 2012, due in part to more efficient work practices and diligence in carpooling and multi-task trips. Fuel prices have also decreased since 2012, so the District is seeing decreased costs and impacts associated with vehicles and equipment use.

A significant advancement is the addition of more efficient vehicles to the fleet, including hybrids, continued diligence on limiting idling, and ongoing service maintenance has reduced fuel expenses and decreased the approximate cost per mile (*Table 1*). Additionally, ethanol blends and biodiesel have helped to decrease CO₂e, while minimally impacting fuel expenses and maintenance costs

**Table 1
Comparison of Fuel Cost per Mile Driven**

Unleaded

Year	Miles Run	Gallons of Gas Used	MPG	Fuel Cost	Cost Per Mile	Average Cost Per Gallon
2008	1,234,369	94,593	13.05	\$294,018	\$ 0.24	\$3.11
2009	1,291,140	95,625	13.50	\$322,256	\$ 0.25	\$3.37
2010	1,261,060	93,211	13.53	\$284,050	\$ 0.23	\$3.05
2011	1,208,459	85,842	14.08	\$259,919	\$ 0.22	\$3.03
2012	1,264,977	88,503	14.29	\$298,928	\$ 0.24	\$3.38
2013	1,213,009	84,288	14.39	\$286,451	\$ 0.24	\$3.40
2014	1,085,073	81,502	13.31	\$255,105	\$ 0.24	\$3.13
2015	1,085,513	77,718	13.97	\$188,756	\$ 0.17	\$2.43

Diesel - On Road

Year	Miles Run	Gallons of Gas Used	MPG	Fuel Cost	Cost Per Mile	Average Cost Per Gallon
2008	167,808	23,054	7.28	\$86,889	\$0.52	\$3.77
2009	170,132	24,542	6.93	\$97,432	\$0.57	\$3.97
2010	144,014	22,066	6.53	\$71,857	\$0.50	\$3.26
2011	158,761	23,732	6.69	\$77,731	\$0.49	\$3.28
2012	151,708	21,788	6.96	\$74,119	\$0.49	\$3.40
2013	148,836	21,904	6.8	\$77,537	\$0.52	\$3.54
2014	152,371	21,579	7.06	\$71,566	\$0.47	\$3.32
2015	152,287	20,194	7.54	\$46,977	\$0.31	\$2.33

Continued vehicle and equipment research and improved technological advances will assist with fuel-savings and carbon emissions reductions and may expedite reaching the 2030 CO₂e target while stabilizing operating expenses.

GHG Emissions Summary

2015 Target: Reduce GHG emissions by Park District operations 15% by 2015.

2025 Target: Reduce GHG emissions by Park District operations 25% by 2025.

Status: GHG emissions increased 8.4% from 8267.8 metric tons CO₂e (carbon dioxide equivalent) in 2008 to 8964.5 metric tons CO₂e in 2015.

Discussion: Despite increases in total facilities, amenities and visitation, sustainability efforts have helped to hold total Park District GHG emissions close from elevating too high. TRPD has lots of room for improvement to meet the 2025 reduction target.

The greatest GHG producer in the park system is facility systems. The total electrical, natural gas, and propane use for facility systems is 83.1% of total Park District CO₂e production. Vehicle and equipment fuel usage produced 16.9% of CO₂e for the Park District in 2015.

Energy use has been mitigated through improved building design, energy efficient technologies, behavioral adjustments, district policies, and alternative fuel sources. While it is also important to note that energy usage for building heating and cooling are highly weather dependent, there are ways to mitigate future emissions through clean and renewable energy sources.

Waste Management

The Park District has been able to limit the amount of trash produced even though park visitation has increased (*Figure 6*). This has been achieved through expanding recycling efforts and introducing organics/compost collection systems. An increased focus on recycling and composting collection programs will ultimately result in reduced operating expenses, reduced greenhouse gas contributions, and sustainability plan target achievement.

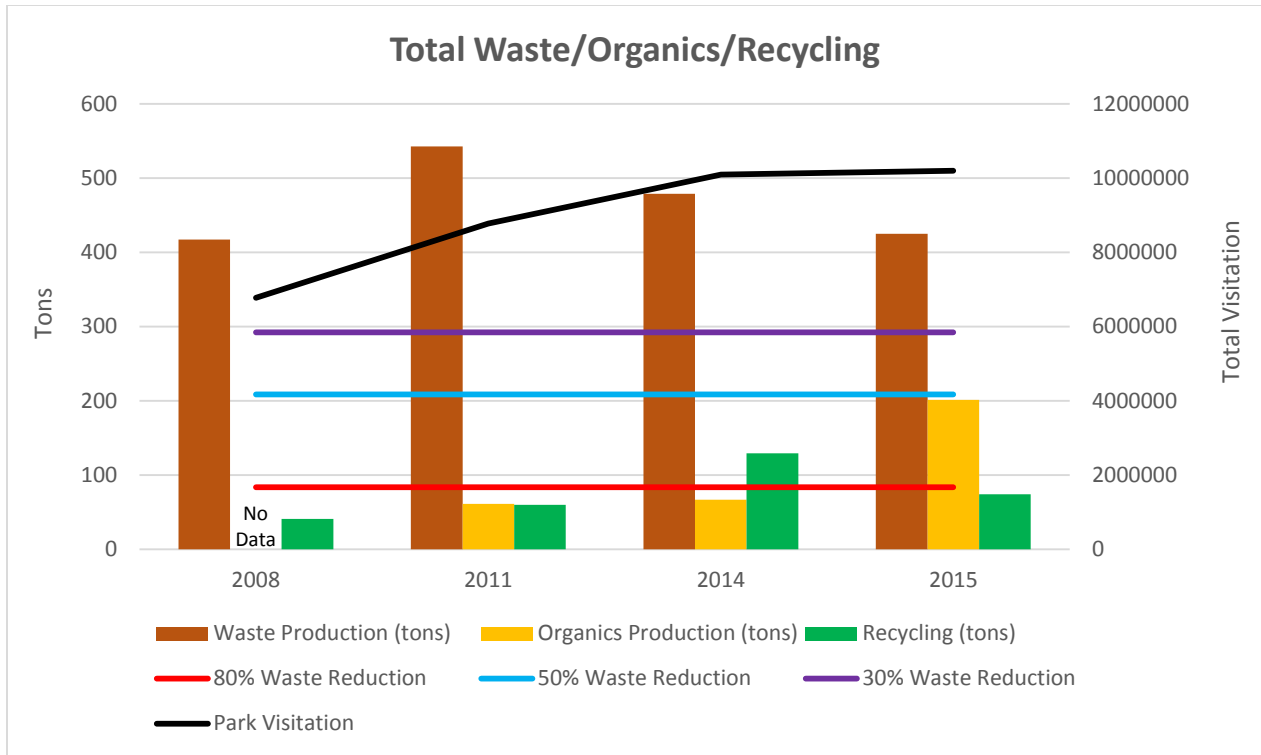


Figure 6

In 2015, the Park District produced 425.1 tons trash, 74.11 tons recycling, and 201.3 tons compost as compared to 417.2 tons trash and 40.6 tons recycling in 2008. Compost was not collected in 2008. The Park District has reduced the percentage of trash in the waste stream from 91.3% in 2008 to 60.6% in 2016 (Figure 7).

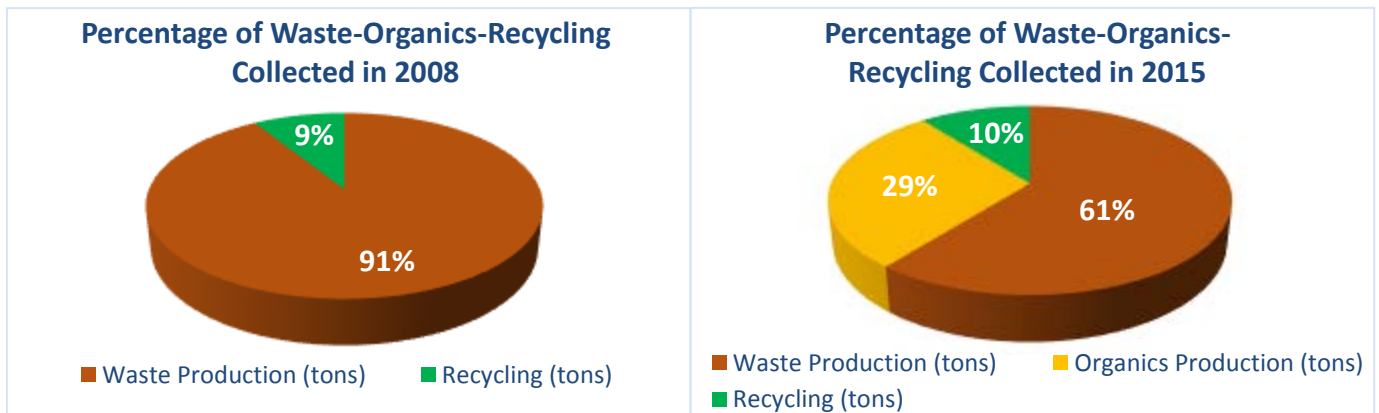


Figure 7

While the Park District has been able to control trash, recycling, and composting for internal operations, the primary producers of waste are park guests. Implementing a robust waste collection system with integrated recycling and organics collection, paired with ongoing education is the primary path forward to reduce waste. Currently, all major

Park District facilities have recycling and organics collection. To reach the 2025 goal organics collection will need to be successfully implemented in public outdoor spaces such as picnic shelters, public picnic areas, play areas and swim beaches.

Waste Management Summary

2015 Target: Reduce the amount of waste materials generated 15% by 2015.

2025 Target: Reduce the amount of waste materials generated 25% by 2025.

Status: Trash increased 1.9% from 417.2 tons in 2008 to 425.1 tons in 2015.

Discussion: Trash production has increased 2% since 2008 and missed the 15% trash reduction target set in the Sustainability Plan. This is primarily due to a 50% increase in park usage since 2008. With the implementation of recycling and organics collection over the past seven years, there has been a significant increase in the amount of organics and recycling collected.

Currently, organics collection costs are slightly lower than trash collection costs. For this reason, there has been a savings in overall waste collection as compared to the relative costs without organics collection. As organics collection becomes more widely adopted, it is reasonable to expect costs to decrease. The Park District is well positioned to reduce overall waste disposal fees and meet the 2025 target of a 30% waste reduction.

Water Conservation

Water use has the greatest annual variability of all sustainability metrics, as it is greatly weather dependent. The previous Sustainability Plan monitored only groundwater use and the current plan and report tracks both groundwater and surface water use (*Figure 8*). While groundwater is of greater concern due to slow recharge rates, accurately monitoring all water use gives a true indication of Park District operations and water needs. The following graph shows the total amounts of both groundwater and surface water withdrawn from 2008-2015 to support the primary uses of irrigation, snow-making, and swim pond management. The purple line indicates the target use to meet the District's 2025 sustainability target of 109,525,380 gallons. The light blue line indicates annual precipitation monitored in Hennepin County during the 2008-2015 period. As expected, years of higher precipitation resulted in lower overall water withdrawals.

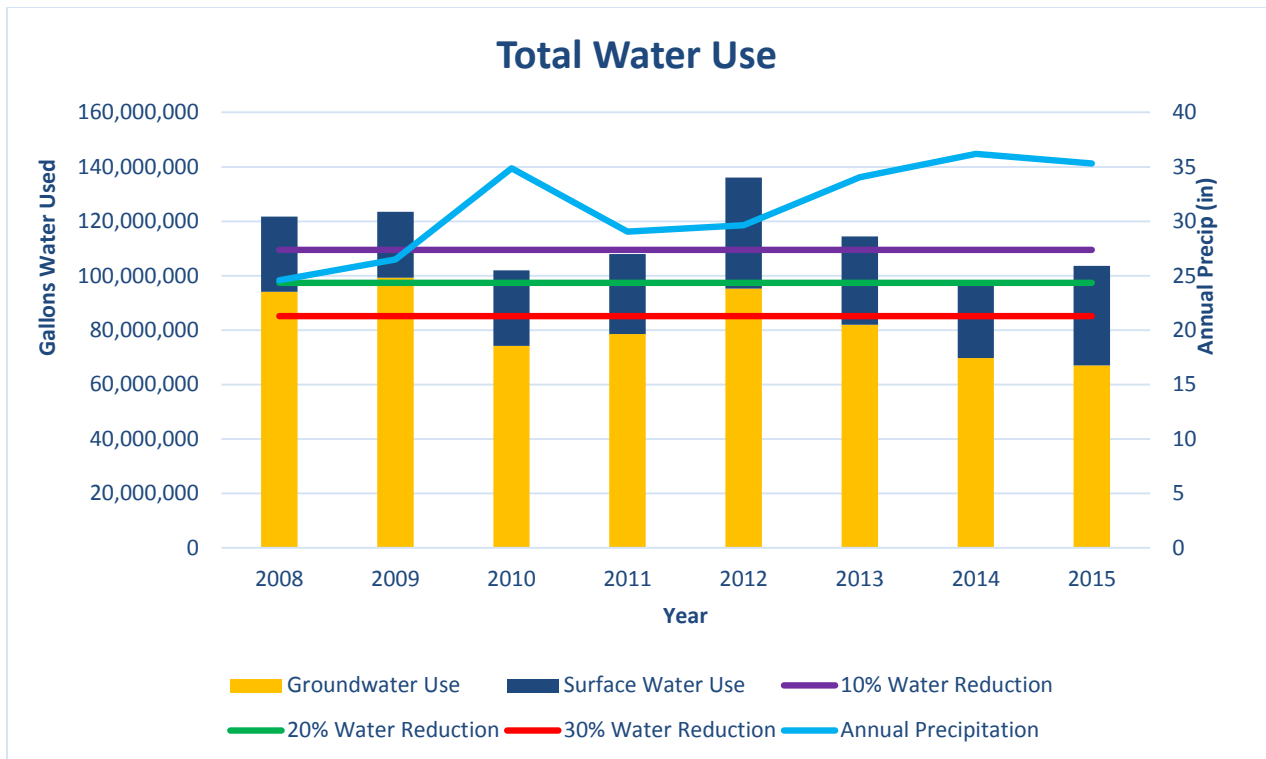


Figure 8

Since 2014, the District has already met the 2025 goal for reduced annual water use. This is due in primarily to three factors:

- The reduction target was set using 2008 to establish the “baseline” withdrawal rate against which future changes in withdrawal were to be measured. Precipitation for 2008 was significantly below normal compared to the long-term average (just over 24 inches for the year compared to a long-term average of 30 inches), and contributed to a relative high “baseline” withdrawal being set.
- Precipitation in 2013, 2014, and 2015 have been above the long-term average of 30 inches.
- Groundwater withdrawals to support Cleary Lake golf course irrigation did not occur in 2014 or 2015. Those irrigation needs were supplied entirely by withdrawals from Cleary Lake (surface water).

It is unclear what challenges would stem from a return to near-normal precipitation conditions will pose to meet future water use reduction goals. Continued above normal and well-timed precipitation events will certainly help decrease water demands, but this cannot be relied upon over the long term. In the immediate future, a transition to

additional surface water withdrawals and improved landscaping throughout the Park District would be beneficial.

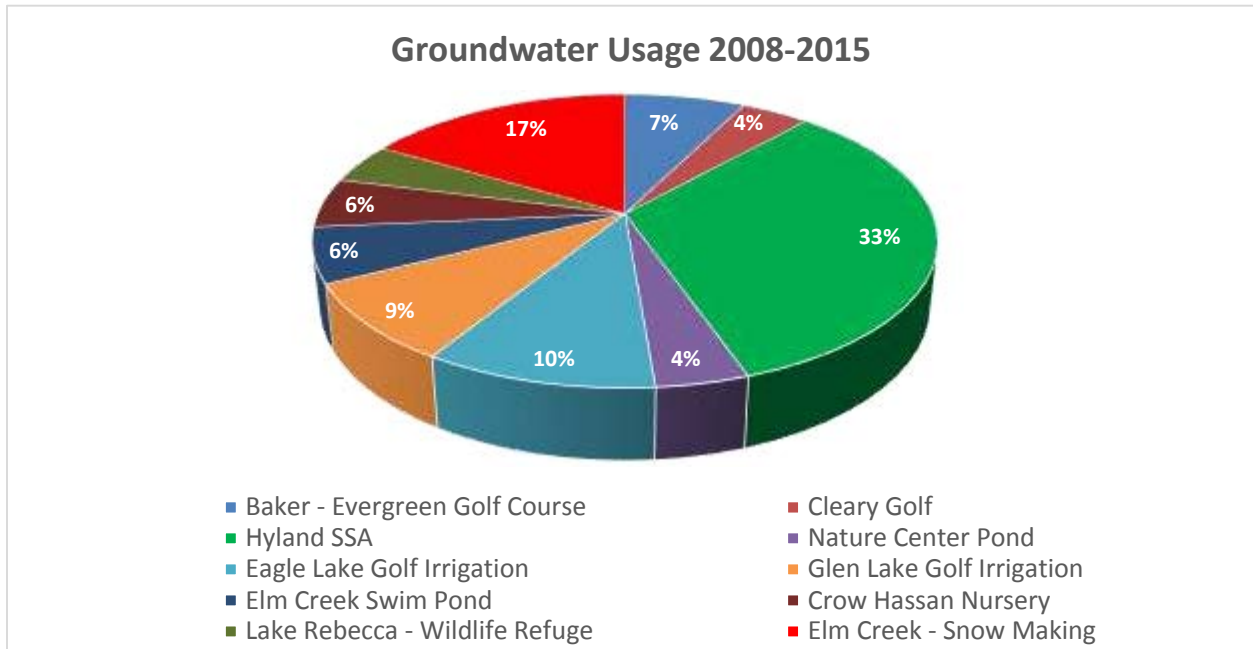


Figure 8

The largest consumers of groundwater are those parks that offer golf and/or snowmaking (*Figure 8*). Strategies such as reduced watering and high-efficient snow guns have helped to curtail excessive groundwater usage; however, amenities, such as golf and ski hills, are dependent upon groundwater to provide quality conditions for park guests. In light of possible future groundwater appropriation restrictions for non-essential uses, the Park District will need to continue to develop alternate water sources, such as increased surface water use and improved landscape design. In addition, improving the efficiency of existing systems to reduce groundwater use will minimize future impacts to recreational facilities.

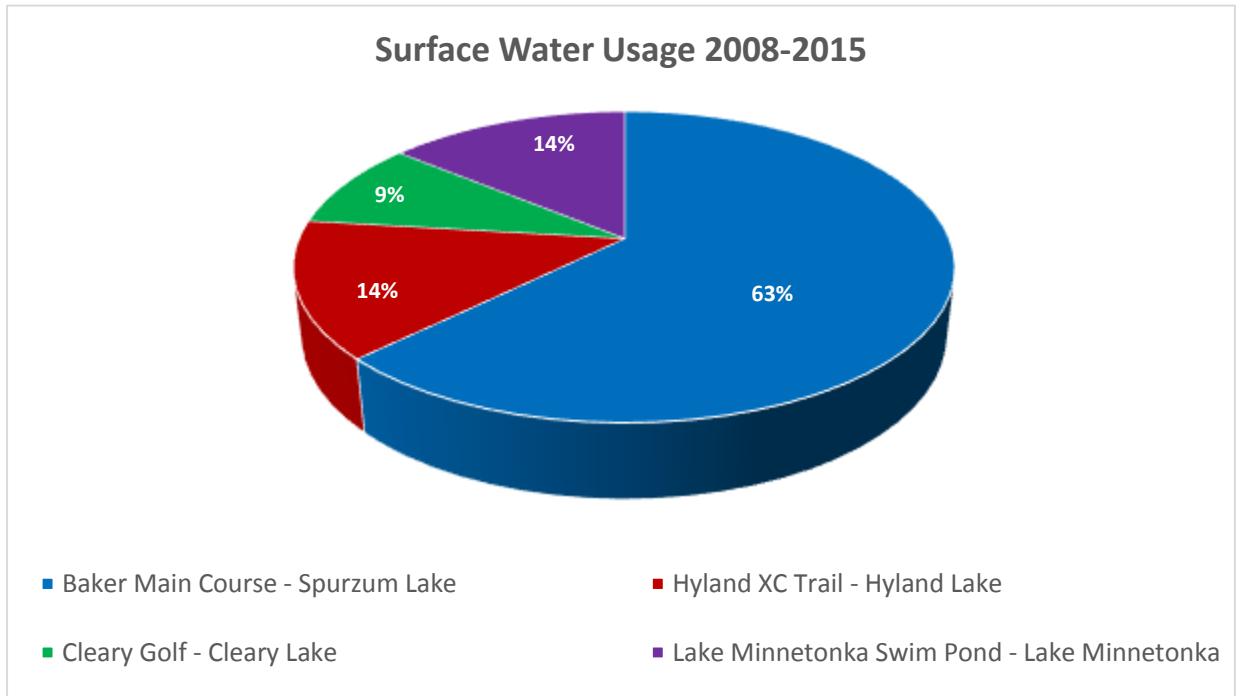


Figure 9

Surface water use (*Figure 9*) indicates only four current uses. The main withdrawal (63%) is for the Baker National Golf Course. The Hyland Park Reserve cross-country ski trail uses surface water from Hyland Lake for snow-making. Some of this snow is at times hauled to the Hyland Ski Jump when natural snow is inadequate. This is an added cost for the hauling as well as the snow-making itself. Additional studies will assess a shift from groundwater to surface water use for Baker Park Evergreen golf course and for Elm Creek’s snow-making activities.

Water Conservation Summary

2015 Target: Reduce groundwater use 5% by 2015.

2025 Target: Reduce water use 10% by 2025.

Status: Groundwater consumption has decreased 25% from 77,216,100 gallons in 2008 to 57,977,440 gallons in 2015. Overall water use has decreased 15% from 121,698,201 gallons in 2008 to 103,557,936 gallons in 2015.

Discussion: Simply put, groundwater use is weather dependent. Since snowmaking and golf course maintenance are the largest consumers of groundwater, periods of drought or lack of natural snow in early winter result in increased groundwater consumption. Meeting the 2015 target was facilitated by above normal precipitation,

which likely reduced irrigation water demand relative to 2008, a below average precipitation year. Water conservation technologies, such enhanced precision in new irrigation systems and advances in snowmaking systems, are continually being investigated and considered to reduce the Park District's future groundwater consumption. Since groundwater is considered a vital resource whose region-wide use is out of balance with its supply and is used to support recreational amenities, the Park District is starting conversations with other agencies for future collaborative actions to identify mitigation strategies.

Education and Advocacy

Reaching targets set for 2025, 2040 and 2050 requires full Park District employee engagement in sustainability initiatives. Examining internal operations and monitoring patterns helps mitigate excessive greenhouse gas production while continuing to identify improved efficiencies and operations best practices.

Connecting with park guests helps to communicate the Park District's sustainability initiatives and demonstrates how the organization's actions align with the District's mission, vision, and values. The outdoor education staff has ongoing opportunities to share and inform the public as well as contribute to the improvement of the Park District's operations.

Throughout the parks, waste reduction and facility systems are directly impacted by the visiting public. Educating guests in advance of their park visit as well as when they are on-site constitutes the primary area of focus to affect behaviors and avoid negative outcomes, such as poor recycling rates at facilities or excessive electrical use at group camps. Zero-waste events are marketed to guests providing compostable or reusable plates and utensils for large groups, and "Green Camping" encourages composting and recycling. These initiatives promotes both further education and waste reduction within the Park District.

As a forward-thinking regional park agency, it is up to staff to help lead the way, providing opportunities for internal efficiency improvements and educating the visiting public about these initiatives and how they can do more to assist in these efforts.

System Planning and Development

Park District long-term capital planning identifies the expansion of regional trails and additional park and regional trail access points to reduce regional carbon outputs. In

2008, the Park District operated 71.6 miles of regional trails. At the end of 2015, the Park District operated 140 miles of regional trails.

As the Park District rehabilitates or develops new infrastructure and buildings, energy conservation, passive energy design, and renewable energy technologies should be considered to lower GHG emissions, constrain utility expenditures, and maximize park guest experience. These strategies will be considered in project planning and appropriate sustainable elements will be recommended as part of project proposals.

Asset Management

The Park District's Board of Commissioners recognizes the need to apply financial resources to implement the Sustainability Plan. The Board has approved a line item for annual allocations in its five-year Asset Management Program (AMP). These allocations are used for facility and equipment efficiency improvements, fuel conservation projects, water conservation projects, and education initiatives. Below is a list of past and future annual allocations within the AMP:

- 2013 = \$140,305
- 2014 = \$150,060
- 2015 = \$150,000
- 2016 = \$102,194
- 2017 = \$96,700

Recommendations

The following list of recommendations is based on current information and proposed future conditions:

- Actively engage Park District employees to facilitate sustainability education and advocacy throughout planning, operations and maintenance.
- Conduct operations assessments to determine potential changes in irrigation needs, landscape design and maintenance, and winter recreational activity schedules to reduce Park District water use.
- Conduct alternative energy assessments to find alternative energy opportunities on current facilities.
- Continue to incorporate facility efficiency improvements, to include, but not limited to: insulation, siding and window treatments; HVAC upgrades; and lighting upgrades.

- Promote public education opportunities to increase park guest awareness on sustainability initiatives both while recreating within Park District areas and when they get home.
- Monitor and assess current Park District operations and maintenance activities and promote sustainability improvements when and where feasible.
- Increase annual asset management funding to enable sustainability assessments and projects.
- Promote zero-waste events and programs throughout the Park District.
- Ensure recycling and compost programs are at all facilities and enable both internal and external education opportunities to improve program compliance.
- Secure funding and hire a Sustainability Coordinator to assist with assessments, monitoring, and planning activities.

APPENDIX

Sustainability Program: 2013-2015 Completed Actions

I. Facility Systems

Administrative Center

- Replaced roof-top units with more efficient models
- Completed lighting retrofit in warehouse
- Upgraded parking lot and exterior lighting to LED
- Installed room occupancy sensors for HVAC in conference rooms

Baker Park Reserve

- Replaced furnace and A/C at Maintenance Building with more efficient models
- Replaced shower heads at Campground to reduce hot water consumption
- Added roof insulation to Maintenance Building

Carver Park Reserve

- Completed multi-year window replacement program at Lowry Nature Center

Cleary Regional Park

- Upgraded parking lot lighting to LED
- Replaced and upgraded golf irrigation system and pumps

Coon Rapids Dam Regional Park

- Replaced furnace and A/C at Visitor Center with more efficient models
- Upgraded Dam walkway and signage lighting to LED

District-Wide

- Upgraded various exterior building, flag pole, and signage lighting to LED

Elm Creek Park Reserve

- Converted Chalet refrigerator and freezer condenser loops to geo-loop
- Upgraded Bottineau House exterior lighting to LED

Fish Lake Regional Park

- Upgraded parking lot lighting to LED

French Regional Park

- Replaced furnaces and A/C units at Visitor Center with more efficient models

- Added roof insulation to Maintenance Building

Gale Woods Farm

- Replaced furnace and A/C units at Wickham House with more efficient models

Hyland Park Reserve

- Completed weatherization and added insulation at Jan's Place
- Completed lighting retrofit and added insulation at Ski Maintenance
- Replaced lighting and added new LED ski hill lights in terrain area
- Included the following features in the Hyland Hills Ski Area Chalet project:
 - Participated in Xcel Energy's Energy Design Assistance program to evaluate multiple potential energy conservation strategies
 - High-efficient lighting
 - Occupancy sensors/daylight harvesting lighting controls
 - Recycle or reuse of over 75% of construction waste materials
 - High-efficient windows
 - High-efficient HVAC systems and controls

The Landing

- Added roof insulation to the Town Hall and Church
- Added basement insulation to various structures

II. Vehicles/Equipment and Fuel Use

- Replaced three unleaded fuel all-terrain vehicles with electric vehicles;
- Installed idle limiters on six of the Park District's biggest trucks and on two snow groomers.

III. Waste Management

- Conduct all Park District signature events and large nature center events as zero-waste events ;
- Conducted ongoing staff training on waste prevention and recycling initiatives, projects and programs;
- Implemented compost/organics collection at all park district facilities;
- Collected propane canisters at Baker Campground;
- Implement zero-waste education program for program and reservation groups.

IV. Water Conservation

Baker Park Reserve

- Installed waterless urinals and low-flow plumbing fixtures at Baker National Golf Course.

Crow-Hassan Park Reserve

- Installed low-flow plumbing fixtures

Elm Creek Park Reserve

- Installed dual-flush toilets, low-flow plumbing fixtures and rainwater collection systems at Eastman Nature Center.

V. Education and Advocacy

Baker Near-Wilderness Settlement

- Placed recycling bins in each cabin in early 2012, increasing the recycling rate at this facility;
- Constructed a three-bin backyard composter that was used throughout the summer by camps, schools, and most weekend groups;
- Used “Leave No Trace” terminology with all groups.
- Implemented organics collection

Outreach

- The outreach program team was added in 2015 and they are taking the Park District’s mission out to additional communities.
- The mobile bike fleet has made efforts to teach bike safety and increase awareness and use of Park District trails for commuting.

Eastman Nature Center

- Converted to three-bin waste system throughout the building with the fall opening;
- Eliminated waste from pre-school programs by asking participants to bring a cup from home and composting all food waste and paper plates;
- Placed educational signs on the facility sustainability features;
- Conducted all reservations on-line.
- Implemented zero waste lunch policies through education during all summer camps.

Gale Woods Farm

- Worked with vendor to convert to compostable service ware and discontinue selling beverages in plastic bottles;

- Implemented “Celebrate the Harvest” as a zero waste event.
- All pavilion rental groups are now striving to be zero waste events through purchase of compostable service ware on-site and organics collection.
- Implemented zero waste lunch policies through education during all summer camps.

The Landing

- Placed three compost piles near select buildings;
- Incorporated sustainability-life messages into school and public programs;
- Increased the use of recycled items at staff events;
- Increased the amount of food scraps fed to farm animals.

Lowry Nature Center

- Conducted a brief introduction on composting to all groups eating a meal during their visit and asked them to compost their food waste;
- Conducted Valentine’s Dinner and Mother’s Day Brunch as zero waste events;
- Eliminated all hard copies of group confirmations and receipts by e-mailing the information.
- Implemented zero waste lunch policies through education during all summer camps.

North Mississippi/Coon Rapids Dam

- Worked with Minneapolis Park and Recreation Board (MPRB) to implement a co-mingled recycling system in the classroom;
- Conducted River Fest, Heritage Day and Volunteer Dinner events as zero-waste by composting all food and paper products.
- Implemented zero waste lunch policies through education during all summer camps

Richardson Nature Center

- Expanded solar programming expanded to new audiences;
- Conducted Candlelight and Chocolate and the Ice Harvest Festival as zero-waste events;
- Expanded zero-waste lunch efforts to summer campers and school groups.

Outdoor Recreation School

- Established satellite sites at Hyland and Bryant that resulted in vehicle and fuel use savings;
- Promoted recycling and waste reduction activities at lunches with a 50% success rate.

Silverwood

- Successfully requested that birthday party guests use compostable materials;

- Purchased art project supplies and equipment from thrift stores and reuse centers;
- Constructed a “Little Free Library” structure to encourage reuse of books;
- Instructed students in the process of sponging off tools rather than using running water and used a bucket of water for initial hand-washing station for camps and large school groups;
- Used cotton towels in the classrooms to discourage the use of paper towels.

Sustainable Work Practices

- Developed workforce survey to establish baseline workforce knowledge and define areas for further education;
- Renewed membership with the Responsible Purchasing Network;
- Offered numerous webinars to staff on green purchasing, waste management and product life-cycle issues
- Conducted waste-free employee events, including:
 - All-Employee Meeting – 0 lbs. waste
 - Elm Creek Holiday Lunch – 0 lbs. waste
 - Elm Creek Pancake Breakfast – 0 lbs. waste
- Established Park Council liaisons with the purpose to educate and share sustainable work practices resources and information with Park Council members;
- Developed sustainable work practices information to include in the Onboarding series for new employees.

VI. System Planning and Development

Regional Trail Additions (mileage)

- Crystal Lake Regional Trail, 3 miles, Robbinsdale
- Lake Independence Regional Trail, 1 mile, Hanover
- Medicine Lake Regional Trail, 1 mile, Plymouth
- Nokomis-MN River Regional Trail, 7 miles, Richfield and Bloomington

Local Connections to Regional Trail Additions (number)

- TBA (data unavailable at time of report)

Non-Motorized Park Access Point Additions

- Elm Creek Park Reserve, West Hayden Lake Rd, Champlin