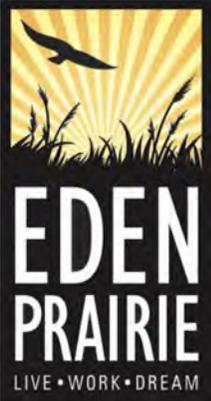


# CITY OF EDEN PRAIRIE

## PUBLIC WORKS DEPARTMENT

### 2015 ANNUAL REPORT



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# City of Eden Prairie

## Public Works Department

### Director's Report



Citizens of Eden Prairie, Mayor Nancy Tyra-Lukens and Honorable City Council,

This past year was an exceptionally memorable year filled with many achievements, recognition from our peers, and new additions to our team. I always enjoy taking a moment to reflect on all the great things that happened over the past years' hard work. It is a reminder of how much we can accomplish together, and more importantly, how our achievements keep Eden Prairie consistently in the conversation as one of the best places to live in America.

Some of the highlights from 2015 include the City of Excellence Award from the League of Minnesota Cities for our snow and ice removal program. This award recognized the innovation of our snow removal team and how they implemented emerging technology to assist in decision making and service delivery. The outcome has resulted in a noticeable improvement to roadway conditions during and after snow events.

Another achievement included the successful completion of the 20-40-15 initiative. This initiative called for a 40% fuel economy improvement in the City's fleet by the end of 2015. Over the course of the past ten years the City was able to not only meet that challenge, but surpass it by achieving a 44.4% improvement in fuel economy.

And finally, I strongly believe that the best investment we can make is in the people who represent our organization. We have 64 highly engaged employees who make up the Public Works Department. Several of them were recognized in 2015 for their years of service, some said goodbye as they entered into retirement or moved on to new opportunities, and more were welcomed into our team as new hires. Without the hard work, talent and dedication of these individuals we would not be able to accomplish all the great things we did in 2015.

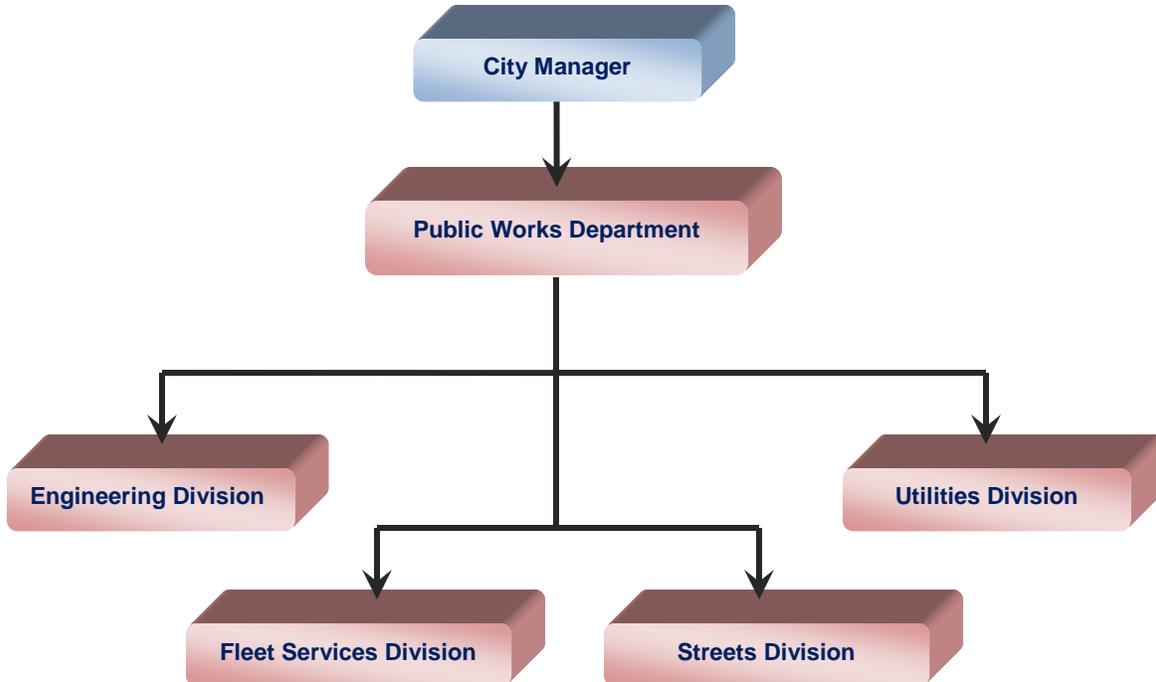
Respectfully,

Robert B. Ellis, PE, PTOE  
Director of Public Works

## General Public Works Department Information

The Public Works Department is comprised of the Engineering, Streets, Fleet Services and Utilities Divisions as shown in Figure 1. Each division plays a distinctly different role within the department. However, the nature of their work coupled with the fact that most of their efforts are concentrated within the public right-of-way ties them closely together.

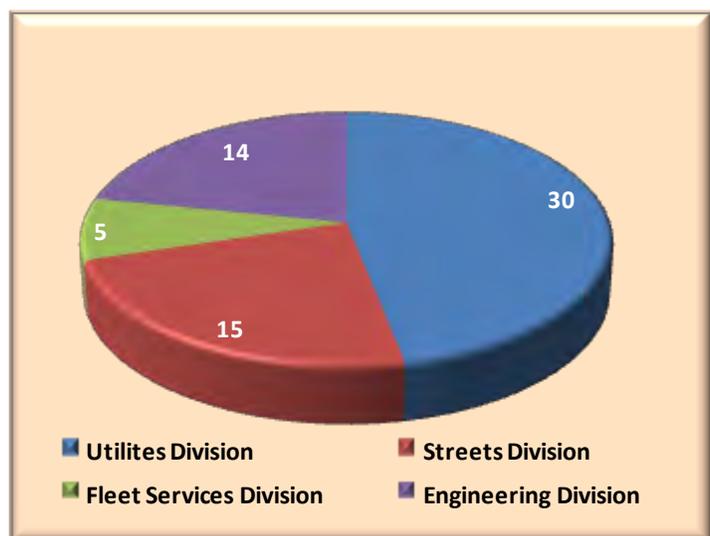
Figure 1: Public Works Department Organization Chart



There are a total of 64 full time employees (FTE) within the Public Works Department. The Utilities Division is the largest, followed by Streets, Engineering and then Fleet Services. Figure 2 shows the FTE divisional makeup of the department.

Full time employee numbers within the Public Works Department steadily grew until 2007. This was a period of significant growth in Eden Prairie. In 2009, development slowed and FTE numbers began

Figure 2: 2015 Divisional FTE Count



decreasing. They have remained relatively constant since that time. Figure 3 illustrates the historical FTE count of the department.

In 2015, the Public Works Department had a budget of approximately \$27,500,000. Of this total, 71% was attributed to the Utilities Division, 17% to the Streets Division, 7% to the Fleet Services Division and the final 5% to the Engineering Division. Figure 4 details the budget breakdown between the three divisions.

As with all organizations, the Public Works Department is defined by the knowledge, skill and character of its personnel. Eden Prairie is consistently named by Money Magazine as one of the best places to live in America. Undoubtedly, the employees of the Public Works Department play a large role in securing that designation.

To carry out the duties of public works, the department announced the hiring of three talented employees during our Spring and Fall employee recognition events in 2015. These new hires filled vacancies created through position transfers or retirements. An additional 11 employees celebrated their 5, 10, 15, 20, 25, 30 or 35 year hiring anniversaries.

Figure 3: Historical Public Works FTE Count

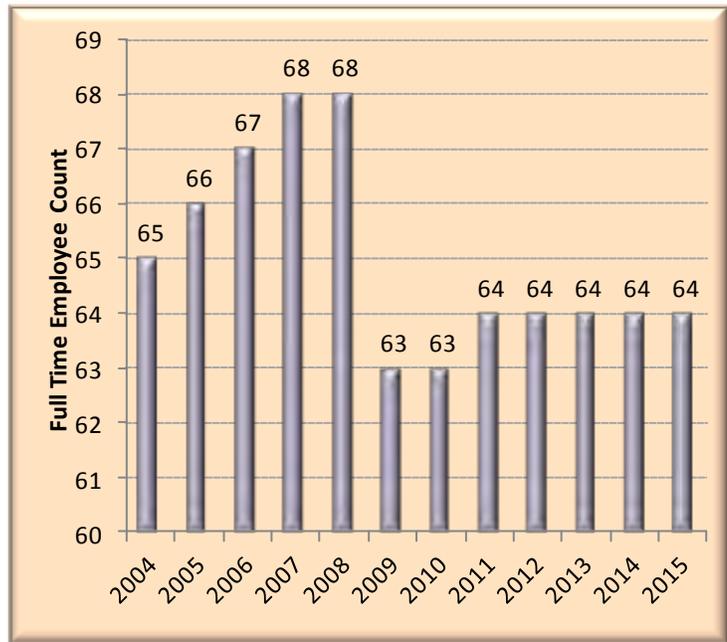
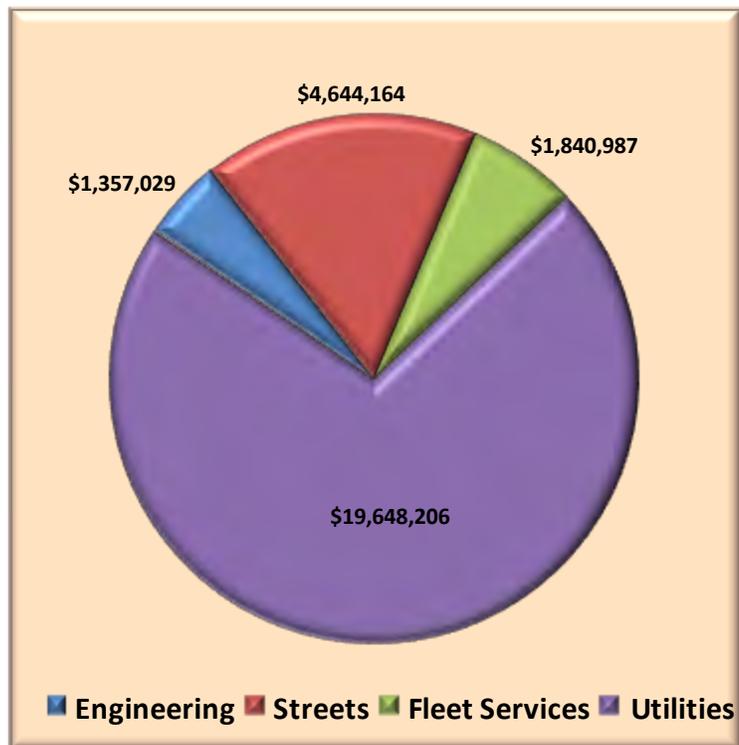


Figure 4: 2015 Public Works Department Budget



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**New Employees**

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Nate Bruch  
Streets Division



Gavin Giles  
Streets Division



Dave Modrow  
Engineering Division

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**Five Year Service Award Recipient**

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Isaac Raser  
Utilities Division

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**10 Year Service Award Recipients**

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Tony Paron  
Utilities Division

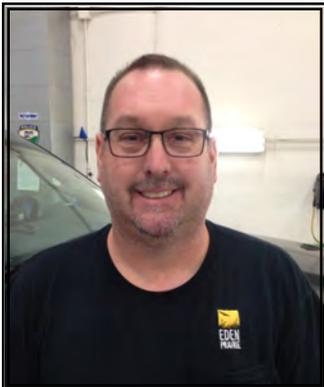


Kevin Snyder  
Streets Division

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**15 Year Service Award Recipients**

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Scott Demko  
Fleet Services Division



Scott Schram  
Utilities Division



Randy Newton  
Engineering Division

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**Twenty Year Service Award Recipient**

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Andy Allmann  
Utilities Division

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**Twenty Five Year Service Award Recipient**

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Mary Krause  
Engineering Division

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**Thirty-Five Year Service Award Recipients**

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John Hobbs  
Streets Division



Rod Rue  
Engineering Division



Fred Ziebol  
Engineering Division



# City of Eden Prairie

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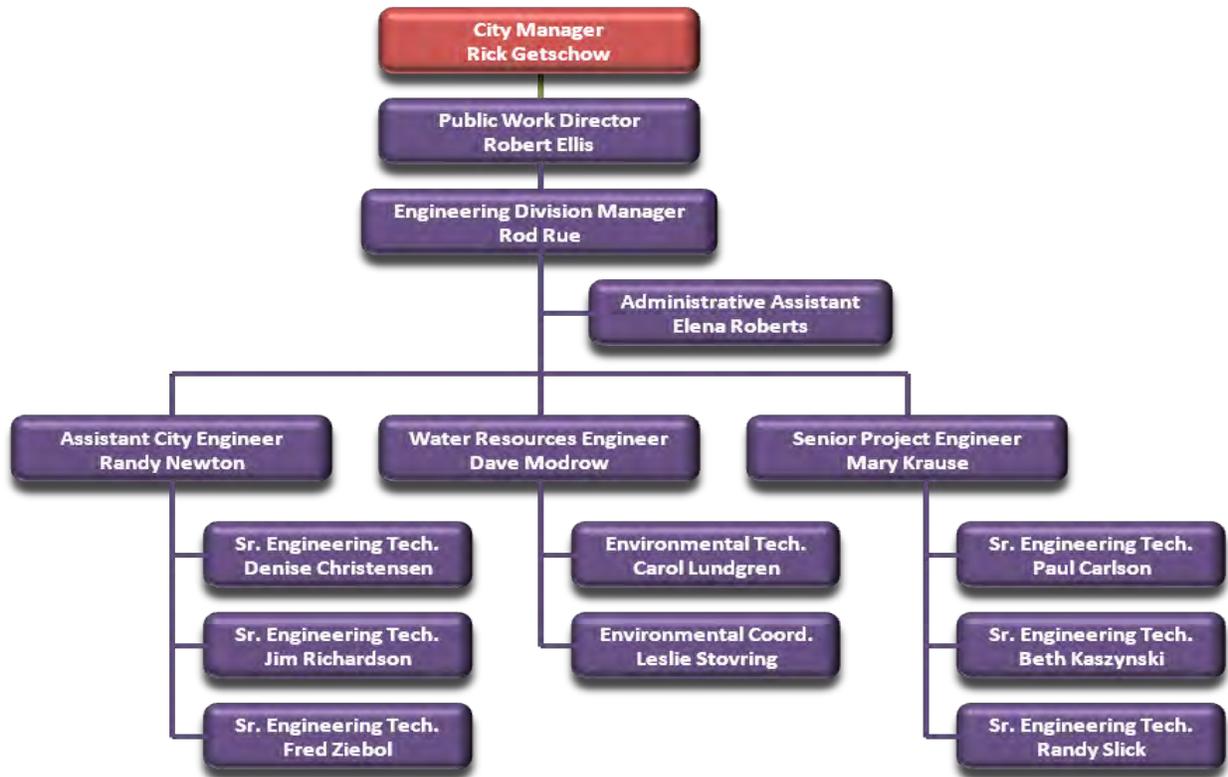
Public Works Department

Engineering Division

2015 Annual Report

The Engineering Division is responsible for all work related to the mapping, planning, design and construction of city streets, drainage systems, water systems and sanitary sewer systems. This includes infrastructure installed by the city as well as that installed through private development projects. The Engineering Division is also responsible for managing and protecting our city’s environmental and water resources. To accomplish this the Engineering Division employs 13 fulltime equivalents. The Engineering Division organization chart is detailed in Figure 5.

Figure 5: Engineering Division Organization Chart



In executing its tasks, the Engineering Division is guided by four goals that were established by the City Council. They include community well being and safety, high quality and efficient

services, innovative and sustainable practices and sense of community. In 2014, the Public Works Department embarked on a strategic planning initiative to tie objectives and measures to each of the City Council's goals. These have become the foundation of the Engineering Division’s annual work plan. Table 1 details these objectives and their status.



SWLRT Bridge at Valley View Road

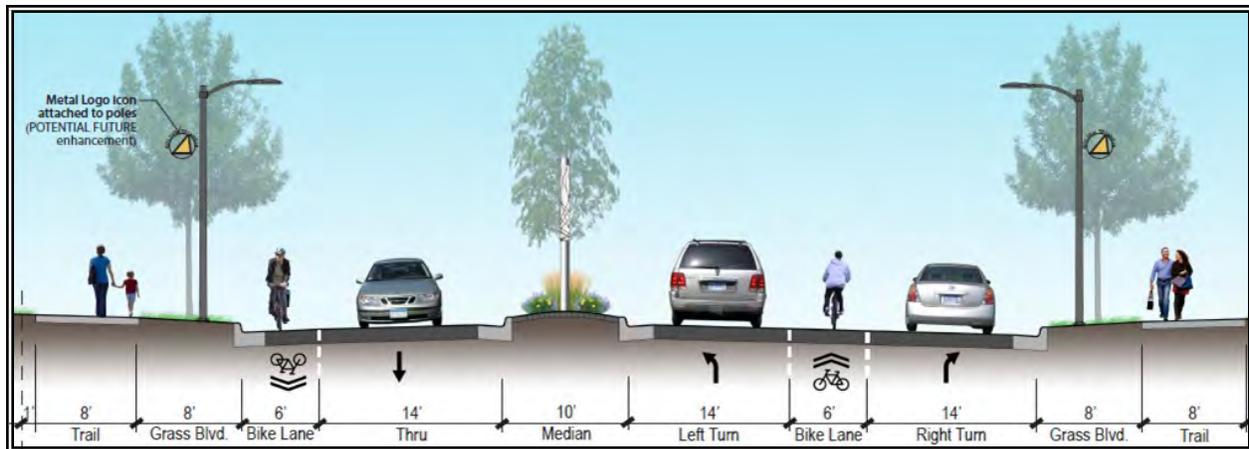
**Table 1: Engineering Division Objectives and Measures**

OBJECTIVE	MEASURE
Provide and maintain a storm drainage and natural waterway system that protects property and people.	<ul style="list-style-type: none"> <li>• No property damage from an event less than a 100 year storm (complete).</li> <li>• Explore implementing Atlas 14 (complete).</li> <li>• Implement 10 year Capital Improvement Program (complete).</li> </ul>
Provide and maintain a storm drainage and natural waterway system that protects the environment.	<ul style="list-style-type: none"> <li>• Ensure new construction complies with NPDES requirements (complete).</li> <li>• Annually assess 20% of channels, inlets, and NURP ponds and prepare a plan for needed improvements (complete).</li> <li>• Maintain compliance with MS4 permit (complete).</li> <li>• Work with other jurisdictional agencies to prioritize and fund projects (complete).</li> <li>• Report relevant water quality data for lakes on website (complete).</li> <li>• Update local water management plan (progressing).</li> </ul>
Provide a safe transportation system.	<ul style="list-style-type: none"> <li>• All bridges inspected according to state requirements and repaired as necessary (complete).</li> <li>• Begin implementing recommendations from Bicycle and Pedestrian Plan (progressing).</li> <li>• Update ADA Transition Plan for ROW (progressing).</li> <li>• Develop living streets policy (progressing)</li> </ul>
Provide a high quality and efficient transportation system.	<ul style="list-style-type: none"> <li>• Maintain a citywide average pavement condition index rating higher than 70 or “very good” (complete).</li> <li>• Receive a citizen’s survey rating on quality of streets with at least 90% at or above “good” (progressing).</li> <li>• Plan for converting Xcel owned street lights to LED (progressing).</li> </ul>
Ensure new and existing infrastructure and development meets established standards for quality.	<ul style="list-style-type: none"> <li>• Provide timely and cost effective project management and plan review (complete).</li> <li>• Complete CIP projects within established budgets (complete).</li> <li>• Inspect all construction and new infrastructure to ensure it is built according to plans and standards (complete).</li> <li>• Identify, prioritize and verify GIS record needs (complete).</li> <li>• Inventory all retaining walls, their condition, ownership, and cost to repair and develop a funding plan with prioritization (complete).</li> <li>• Identify roles/responsibilities for maintaining records and keeping them current (complete).</li> <li>• Review and update standard details and specifications (complete).</li> <li>• Develop CIP bi-annually (progressing).</li> <li>• Support updating of comprehensive guide plan (progressing).</li> <li>• Work to finalize SWLRT plans and city companion projects (progressing).</li> <li>• Develop construction communication plan with SWLRT (progressing).</li> <li>• Develop capital improvement plan for installation of sump pump collection system (progressing).</li> <li>• Develop warrantee inspection and tracking program (progressing).</li> </ul>
Provide for an inclusive and collaborative community engagement process when planning for projects.	<ul style="list-style-type: none"> <li>• Disseminate information and solicit public input about projects in the early stages through construction (complete).</li> </ul>

In 2015, the Engineering Division was also responsible for the design and construction of 14 city projects totaling over \$4.4 million in construction awards. The type of projects managed by the division generally include utility line installation, street construction, drainage improvements and water resource enhancement projects. Table 2 illustrates the various projects managed by the Engineering Division and awarded in 2015.

**Table 2: 2015 Engineering Division Projects**

Project	Award Amount
Bridge Fascia Painting	\$54,276.00
Pioneer Trail Lane Installation	\$122,273.00
W. 70th Street Extension	\$1,277,800.80
Valley View Road Railroad Crossing Replacement	\$59,449.96
Purgatory Creek Stabilization	\$45,985.00
Antlers Ridge Trail Drainage	\$81,555.00
Purgatory Creek Bank Stabilization	\$80,968.00
Annual Seal Coating	\$540,416.00
Annual Bituminous Overlay and Reclamation	\$1,874,868.00
Red Rock and Mitchell Lake Weed Harvesting	\$39,500.00
Annual Crack Sealing	\$37,440.00
Annual Street Striping	\$90,355.00
Pioneer Trail Landscaping	\$140,052.00
Annual Street sweeping	\$32,000.00
<b>Total</b>	<b>\$4,476,938.76</b>



West 70th Street

The Engineering Division also reviewed the design and inspected construction of several significant private development projects. These projects included residential subdivisions as well as large scale commercial and office developments. Table 3 details most of the private development projects that were approved in 2015.

**Table 3: 2015 Private Development Projects**

Project
Eden Prairie Plaza/Salon Concepts
Eden Prairie Retail
Townplace Suites
Burger King
WAND Corporation
Glen Lake Children’s Camp
Comfort Inn
Crossroads Center
Shops at Southwest Station
Blossom Hill
O’Reilly Auto Parts



SWLRT - City West Station



GIS Data

To assist with the management of all new and existing infrastructure, the Engineering Division maps and tracks the various components of our water, wastewater, stormwater and roadway assets through a Geographical Information System (GIS) . The GIS system allows the city to track each asset by its location, condition, material type, age, size, and depth. Having this wealth of information available at our fingertips greatly assists with the proper planning and design of our system needs.

In cooperation with the Streets Division, the Engineering Division administers the pavement management program. Through this program, all roads are inspected and given a Pavement Condition Index (PCI) rating. The rating is based on a scale of zero to 100 with zero describing a failed roadway and 100 a newly constructed road. In 2015, the average road PCI rating in Eden Prairie was 81, which is characterized as being “very good.” Figures 6 and 7 show a summary of the city’s roadway PCI rating.

Figure 6: PCI Rating Breakdown

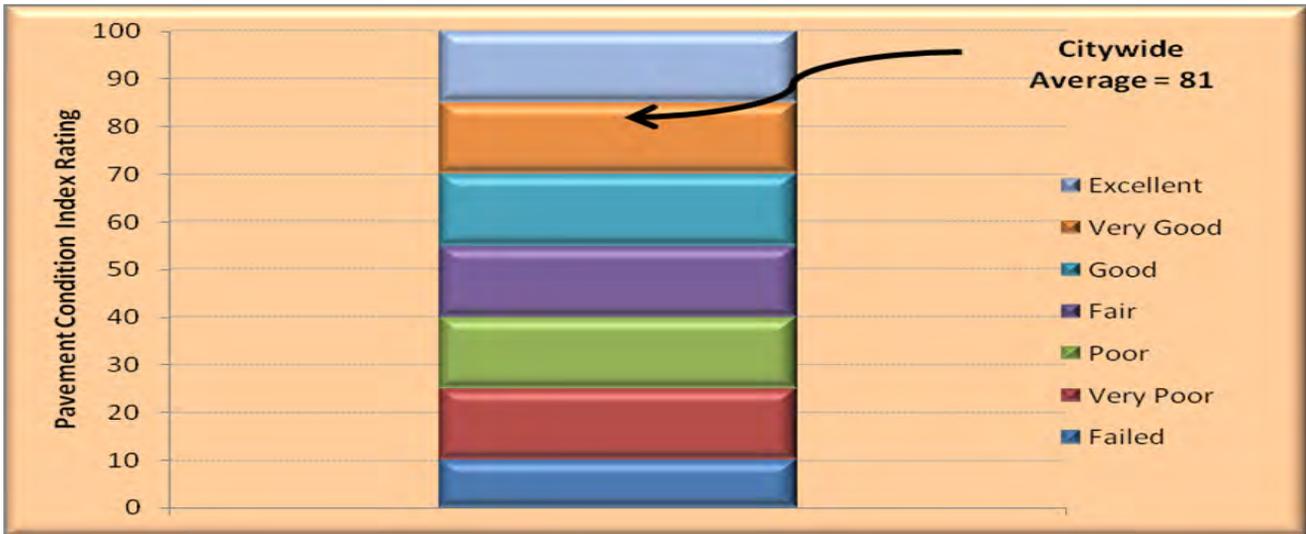
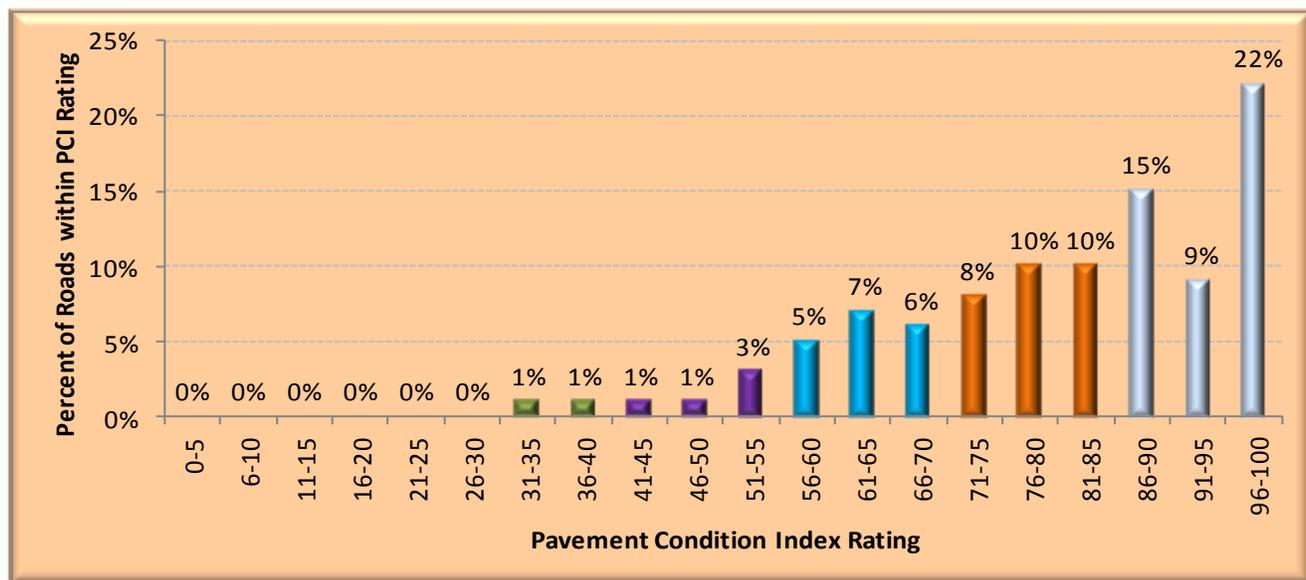


Figure 7: 2015 Road PCI Ratings



In 2012, the city approved gas and electric franchise fees as the primary long term funding source for the pavement management program. Franchise fee rates were established with the goal of keeping our existing roads in the “very good” category. In order to maintain that rating, an annual investment of \$2.5 million was required in 2012. In 2017, that amount will be closer to \$4.0 million.

The Engineering Division also manages the water conservation rebate program. This program reimburses residents who purchase and install water saving devices in their homes. Typical devices include washing machines, low flow toilets, low flow faucets, low flow shower heads and irrigation controllers. Figures 8 and 9 provide a summary of total rebates issued as well as types of rebates issued.

In June, the Engineering Division hosted the annual Clean Up Day event. Clean Up Day is held every spring as an opportunity for residents to discard various types of waste. This event collected over 137 tons of material in 2015. Figure 10 provides a summary of materials collected during the Clean Up Day event.

The Engineering Division is also responsible for protecting our wetlands, lakes and streams from the damage caused by development and pollution. Polluted stormwater runoff is commonly transported through storm drainage systems, where it can ultimately find its way into local water bodies. To prevent harmful pollutants from being washed into our streams and lakes, the Engineering Division has developed a stormwater management program in compliance with the National Pollution Discharge Elimination System (NPDES) Program.

Figure 8: Historical Water Conservation Rebate Total

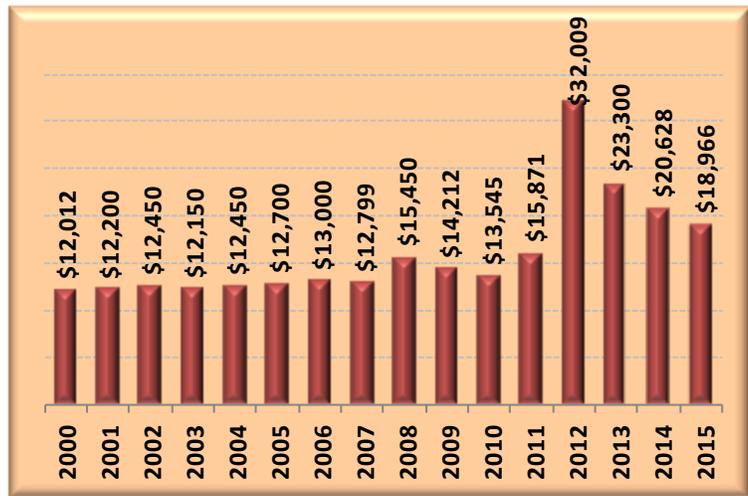


Figure 9: 2015 Water Conservation Rebates by Type

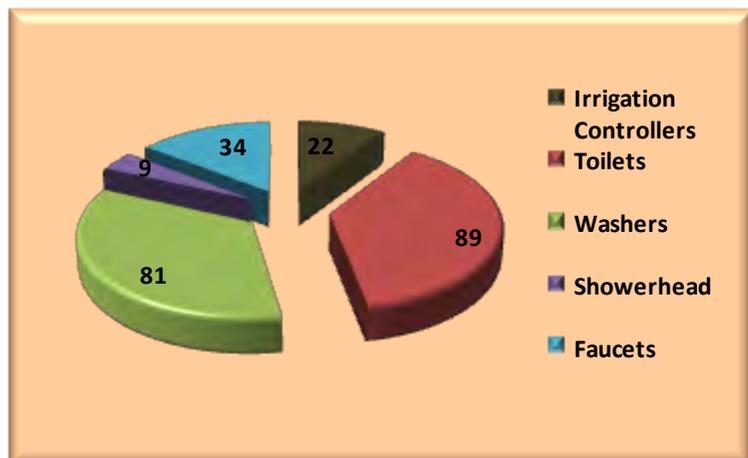
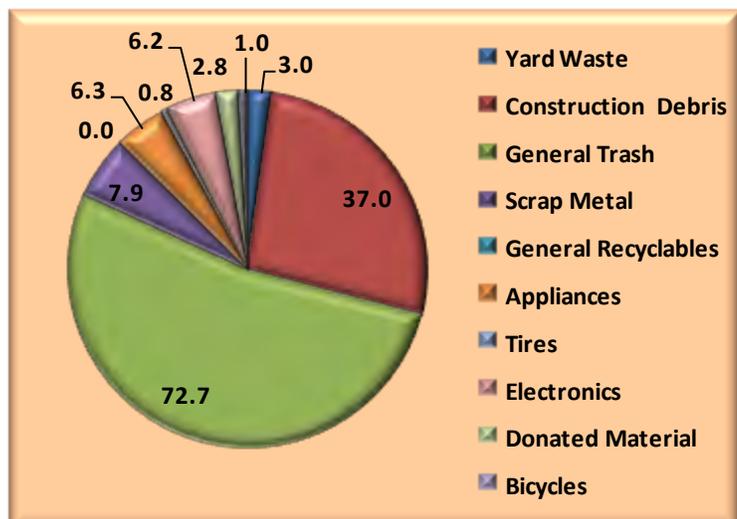


Figure 10: 2015 Clean Up Day Summary in Tons



The NPDES program has several key components such as public education and outreach, public participation and involvement, illicit discharge detection and elimination, construction site runoff control, post construction runoff control and pollution prevention good housekeeping measures.

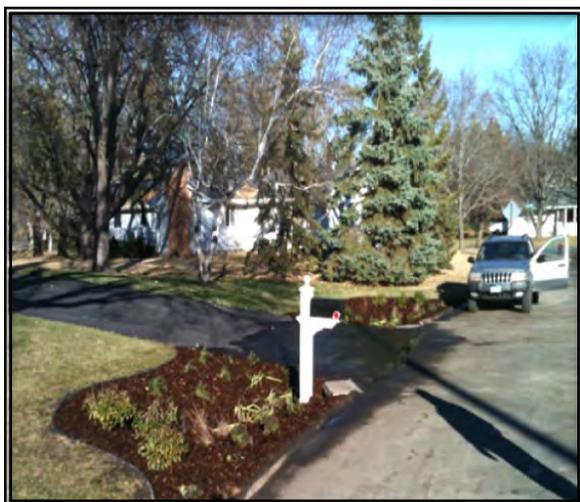
Another focus area for the Engineering Division in 2015 was combating invasive species. During heavy lake use months in the summer the Engineering Division, in cooperation with the Parks and Recreation Department, conducted watercraft inspections to help prevent the spread of aquatic invasive species. This was a partnership effort with the Riley Purgatory Bluff Creek Watershed District. The Engineering Division also worked with the Riley Purgatory Bluff Creek Watershed District to harvest aquatic invasive species such as curly

leaf pondweed and Eurasian water milfoil from Red Rock and Mitchell Lakes. Finally, an aquatic invasive species assessment was initiated on several area lakes to determine their susceptibility to aquatic invasive species.

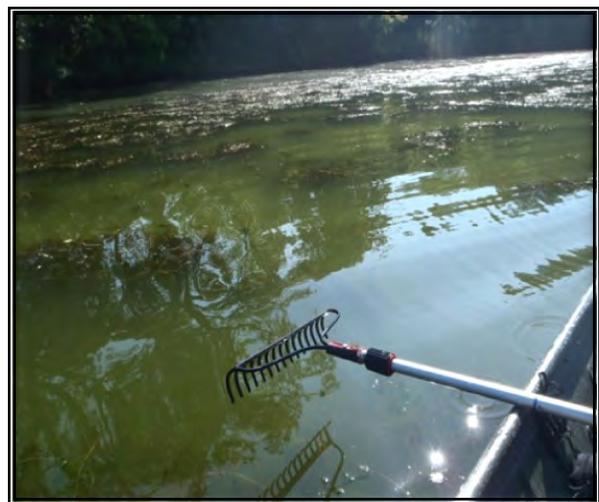
These efforts combined with many other City initiatives helped Eden Prairie become one of 21 cities in Minnesota to achieve Step 3 of the Green Step Cities Program which recognizes cities that have implemented best practices in the areas of sustainability. Eden Prairie will be working to achieve Step 4 in 2016 and assisting with the development of Step 5.



Lake Management



Rain Garden Installation



Red Rock Lake Vegetation Monitoring

The Engineering Division also plays a role in promoting and educating the public about recycling. Recent data has shown a decrease in the volume of recyclables collected by private haulers in Eden Prairie over the past three years. It is unclear if this is a result of less participation, better product packaging or changes in consumer habits.

More data may be needed to better understand this issue. Figure 11 provides a summary of historical tonnage of recycling material collected by haulers in Eden Prairie since 2011, Figure 12 details a material breakdown of the 2015 recyclables collected, and Figure 13 shows the historical recycling tonnage by material.

Figure 11: Historical Total Recycling Tonnage

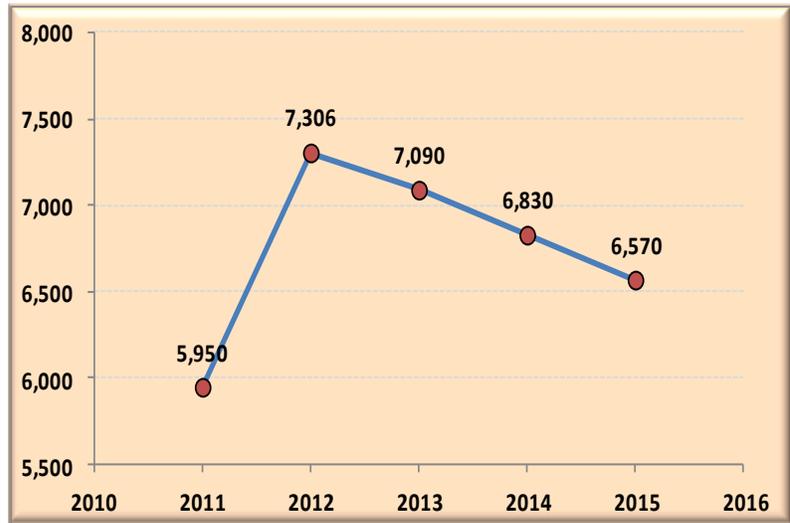


Figure 12: 2015 Recycling Tonnage by Material

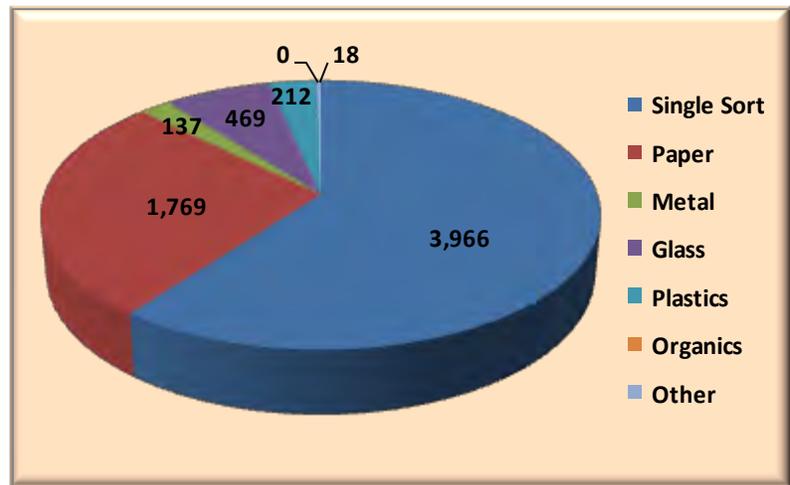
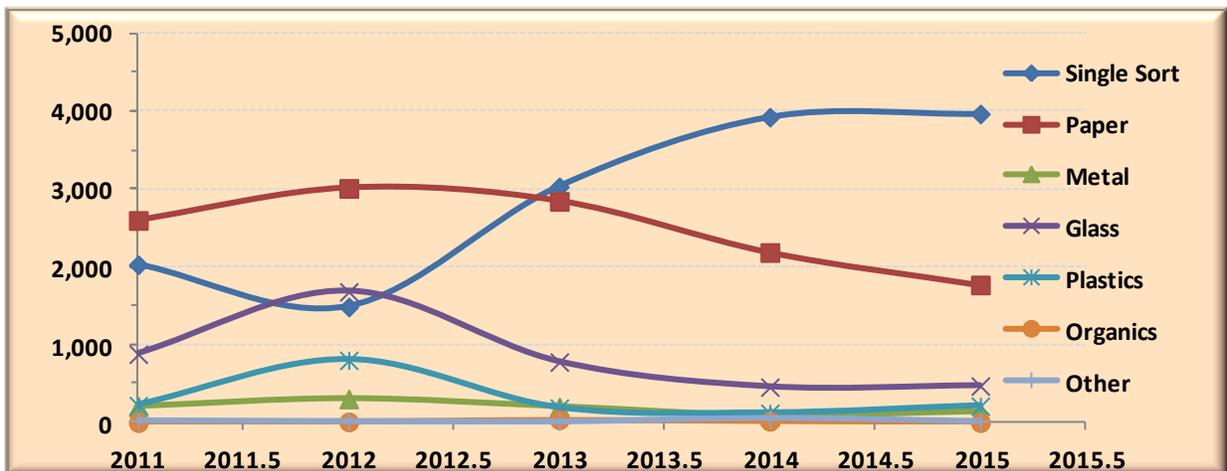


Figure 13: Historical Recycling Tonnage by Material





## City of Eden Prairie

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Public Works Department

Streets Division

2015 Annual Report

The Streets Division is charged with maintaining our vast network of roads and the green areas immediately adjacent to them. Currently, there are 580 lane miles of roads in Eden Prairie.

Maintenance of this system includes snow removal, deicing, signal operation, pavement marking management, sign management, street sweeping, curb and gutter replacement, vegetation management and pavement rehabilitation.

In order to carry out these duties, the Streets Division employs 15 full time equivalents as is shown in Figure 14. In executing its tasks, the Streets Division is guided by four goals that were established by the City Council. They include community well being and safety, high quality and efficient services, innovative and sustainable practices and sense of community. In 2014, the Public Works Department embarked on a strategic planning initiative to tie objectives and measures to each of the City Council's goals. These have become the foundation of the Streets Division's annual work plan. Table 1 details these objectives and their status.

Figure 14: Streets and Fleet Division Organization Chart



**Table 4: Streets Division Objectives and Measures**

OBJECTIVE	MEASURE
Provide a safe transportation system.	<ul style="list-style-type: none"> <li>• Remove snow from streets within nine hours from the end of a typical snow fall event (complete).</li> <li>• Ensure traffic signs are in compliance with retroreflectivity policy (complete).</li> <li>• Receive a citizen’s survey rating on snow removal of at least 90% at or above “good” (progressing).</li> <li>• Receive a citizen’s survey rating on sidewalks and trails of at least 90% at or above “good” (progressing).</li> </ul>
Provide a high quality and efficient transportation system.	<ul style="list-style-type: none"> <li>• Maintain a citywide average pavement condition index rating higher than 70 or “very good” (complete).</li> <li>• Inspect street lights annually for proper operation (complete).</li> <li>• Sweep entire city once in the spring and again in the fall (progressing).</li> <li>• Receive a citizen’s survey rating on quality of streets of at least 90% at or above “good” (progressing).</li> <li>• Receive a citizen’s survey rating on street sweeping of at least 90% at or above “good” (progressing).</li> <li>• Establish a policy on maintenance of vegetation in the ROW (progressing).</li> <li>• Receive a citizen’s survey rating on street lighting of at least 90% at or above “good” (progressing).</li> </ul>
Provide and maintain a high quality, reliable and efficient fleet of vehicles and equipment.	<ul style="list-style-type: none"> <li>• Have all snow removal equipment operational by October 31<sup>st</sup> (complete).</li> </ul>

Removing snow and ice from roads, trails and sidewalks is one of the core services provided by the City. These duties are carried out by a dedicated team of employees from the Streets, Fleet Services and Utilities Divisions as well as members from the Parks Department.

In 2015, the City of Eden Prairie received the City of Excellence Award from the League of Minnesota Cities for our snow and ice removal program. This award recognized the innovation of our snow removal team and how they implemented emerging technology to assist in decision making and service delivery. The outcome has resulted in a noticeable improvement to roadway conditions during and after snow events.

The Streets Division operates under an incident command system when performing snow and ice removal. All activities are coordinated out of the incident command room at the Maintenance Facility. At this location the Incident Commander has access to real time road, weather, vehicle and material usage data. This provides for a more coordinated response that efficiently manages City resources during snow removal operations.

Winter weather for the 2014-2015 snow season saw fewer than normal inches of total accumulation, but a higher than average number of events that were responded to. Figures 15 and 16 provide an historic summary of winter weather in Eden Prairie.

January and February of 2015 were particularly cold months where the snow team battled persistent ice on roads. Overall, the 2014-2015 snow season saw a reduction in the amount of material used per storm at 54.9 tons as compared to the previous six years of 59.9 tons. Figure 17 tallies historical sand and salt usage dating back to the 2003-2004 season.

Figure 15: Historical Number of Snow Events

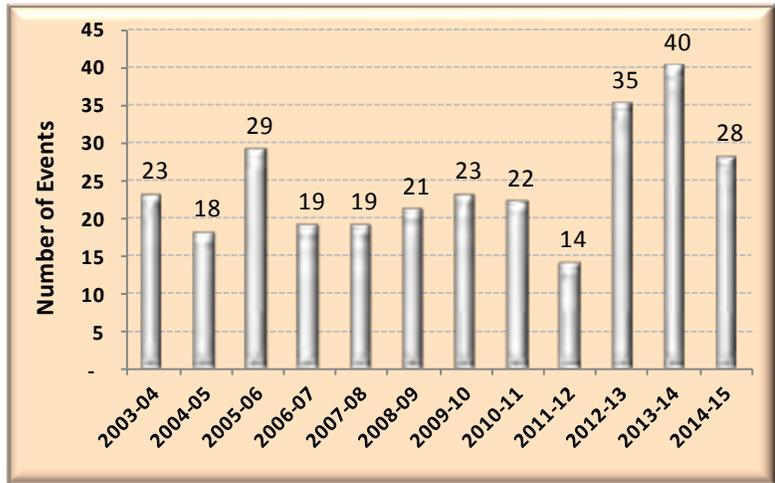


Figure 16: Historical Winter Snow Accumulation

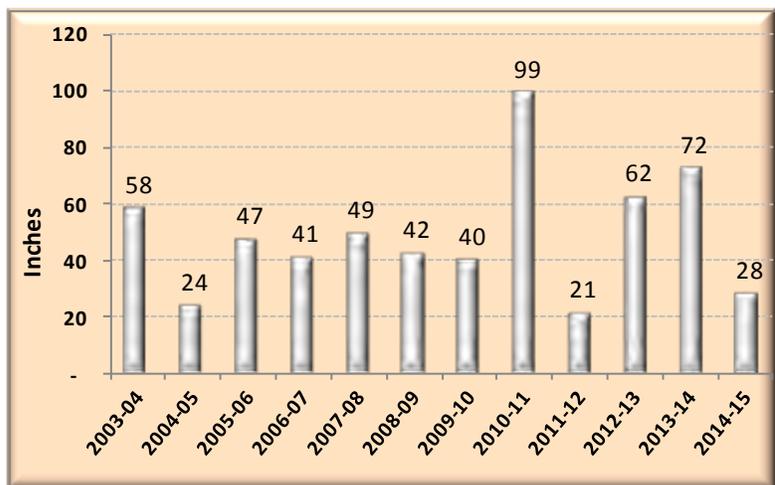
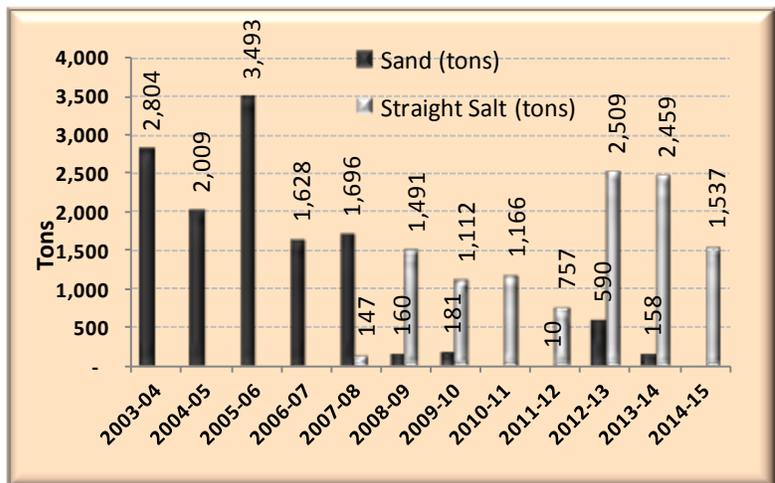


Figure 17: Historical Volume of Deicing Material Used





Maintaining our street system requires the placement of a significant amount of concrete cement, bituminous asphalt and seal coat material. Figures 18, 19 and 20 detail the annual amount of material placed on our roads in an effort to maintain the “very good” pavement condition rating that is seen today. These efforts are largely funded through the electric and gas franchise fees that were established in 2012.

There were also 338 street name signs upgraded to a higher quality sheeting material for better nighttime visibility in 2015.



Figure 18: Historical Volume of Concrete Cement Placed

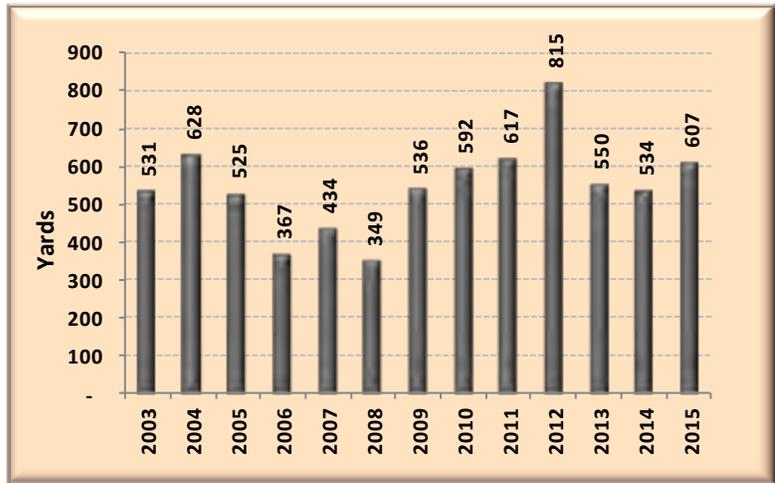


Figure 19: Historical Volume of Bituminous Asphalt Overlays

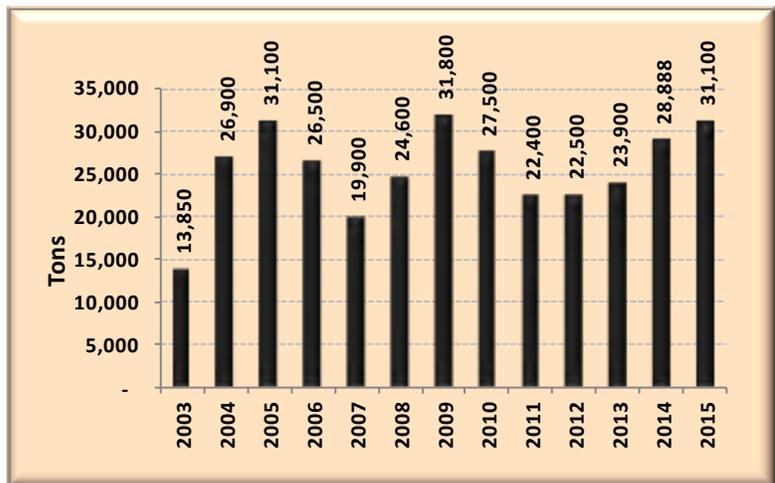
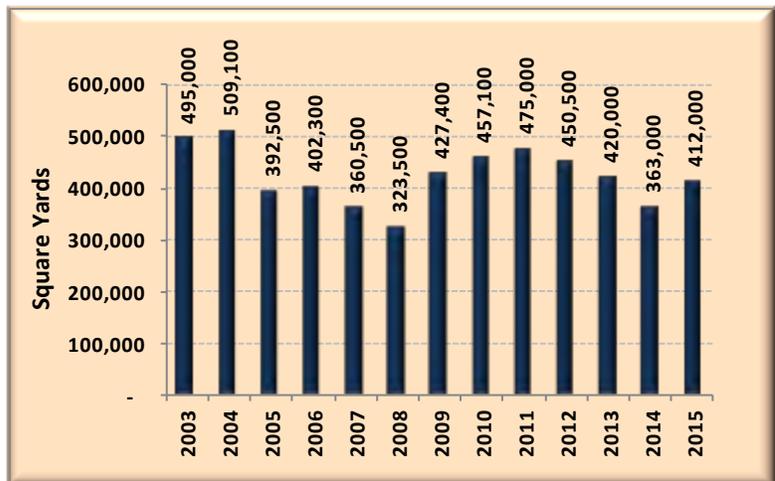


Figure 20: Historical Volume of Seal Coat Placed





## City of Eden Prairie

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Public Works Department

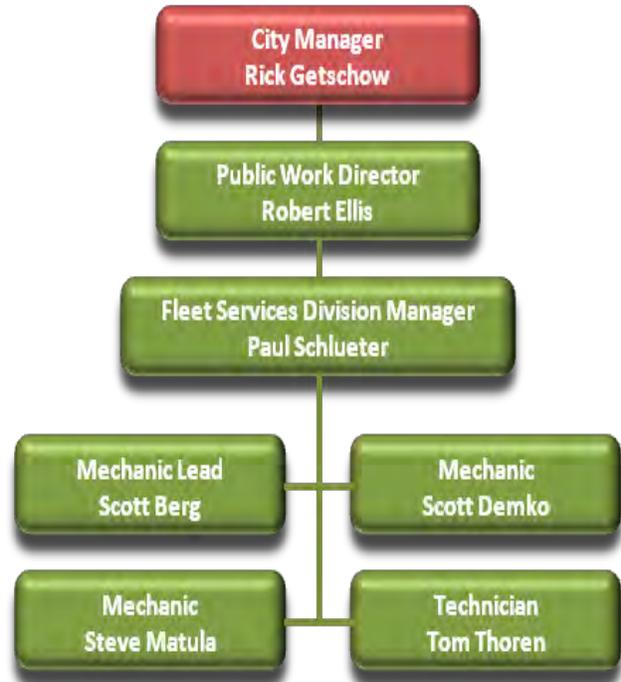
Fleet Services Division

2015 Annual Report

The Fleet Services Division is charged with maintaining over 293 pieces of equipment owned by the City of Eden Prairie. This includes police squad cars, heavy duty dump trucks, wheel loaders, electric vehicles, lawn mowers, trailers and large snow plow attachments.

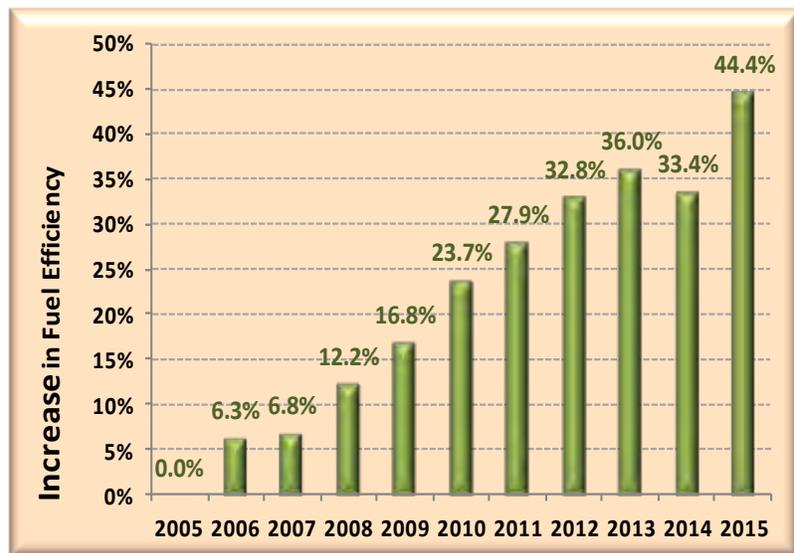
In order to carry out these duties, the Fleet Services Division employs 5 full time equivalents as is shown in organization chart in Figure 21. In executing its tasks, the division is guided by four goals that were established by the City Council. They include community well being and safety, high quality and efficient services, innovative and sustainable practices and sense of community. In 2014, the Public Works Department embarked on a strategic planning initiative to tie objectives and measures to each of the City Council's goals. These have become the foundation of the Fleet Services Division's annual work plan. Table 5 details these objectives and their status.

Figure 21: Fleet Services Division Organization Chart



One of the more significant achievements in the City in 2015 was completing the 20-40-15 initiative. A part of the 20-40-15 initiative was to improve fuel efficiency in the City's fleet 40% by the end of 2015. To accomplish this the Fleet Services Division began tracking fuel economy and instituting practices to help achieve this goal. Through the end of 2015 fuel efficiency had improved to 44.4% thereby exceeding the 20-40-15 initiative's goal. When the program began the average fuel economy of the entire fleet was 7.93 mpg. By the end of 2015 that had increased to 11.45 mpg. This resulted in approximately \$760,000 in fuel cost savings over the ten year period. Figure 22 shows the historical progress made in the 20-40-15 initiative.

Figure 22: Historical Progress on 20-40-15



**Table 5: Fleet Services Division Objectives and Measures**

OBJECTIVE	MEASURE
<p>Provide and maintain a safe fleet of vehicles and equipment.</p>	<ul style="list-style-type: none"> <li>• Periodically review preventative maintenance and safety procedures and update as needed (complete).</li> <li>• Perform annual DOT inspections in-house with certified DOT inspectors (complete).</li> <li>• Selected fleet mechanics maintain certification as DOT inspectors (complete).</li> <li>• Provide annual commercial vehicle daily inspection training to all commercial vehicle operators (complete).</li> <li>• Provide training focused on safety procedures for servicing hybrid and electric vehicles (progressing).</li> </ul>
<p>Provide and maintain a high quality, reliable and efficient fleet of vehicles and equipment.</p>	<ul style="list-style-type: none"> <li>• Successfully complete the 20-40-15 initiative (complete)</li> <li>• Track annual number of preventive maintenance and service requests performed (complete).</li> <li>• Track annual maintenance cost per mile/hour by vehicle classification (complete).</li> <li>• Have snow removal equipment operational by October 31<sup>st</sup> (complete).</li> <li>• Involve users of equipment in replacement of vehicles (complete).</li> <li>• Investigate additional options for pooling/sharing vehicles and equipment between departments (complete).</li> <li>• Investigate installing underbody wash for vehicles (complete).</li> <li>• Repair and refinish equipment as needed (complete).</li> <li>• Investigate additional low cost options for sandblasting and refinishing heavy duty truck bodies and equipment (complete).</li> <li>• Assist in the development of the 20-40-15 successor program (progressing).</li> </ul>

The Fleet Services Division manages the city’s fleet of 293 pieces of equipment. The Public Works Department operates the largest portion of fleet with 116 pieces of equipment. The Police, Fire and Parks Departments utilize the bulk of the remaining fleet. Figure 23 illustrates the fleet makeup by department.

Although the Public Works Department operates the largest number of vehicles in the fleet, the Police Department uses the greatest volume of fuel. This is because the majority of a police officers time is spent in a squad car patrolling the City. Figure 24 summarizes citywide fuel use by department.

Figure 23: 2015 Fleet Breakdown by Department

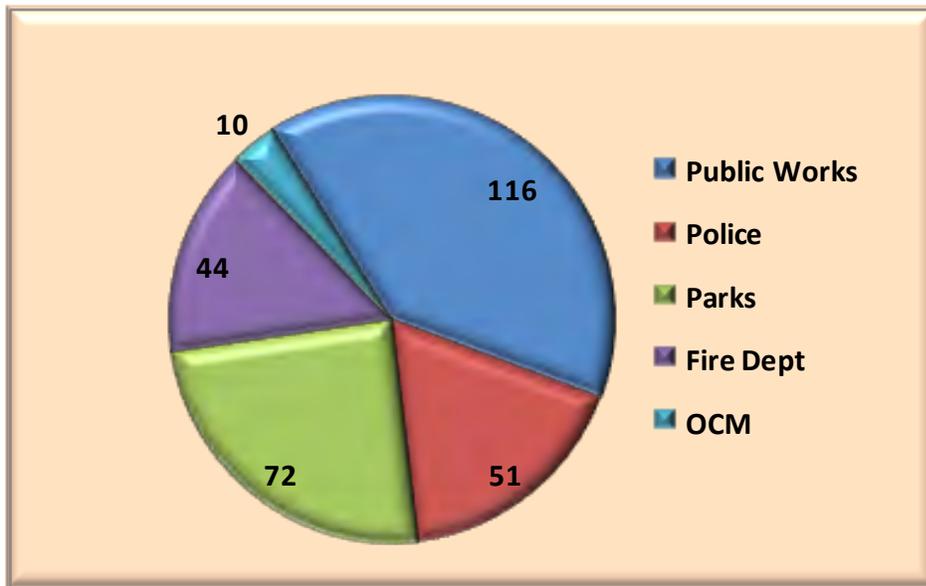
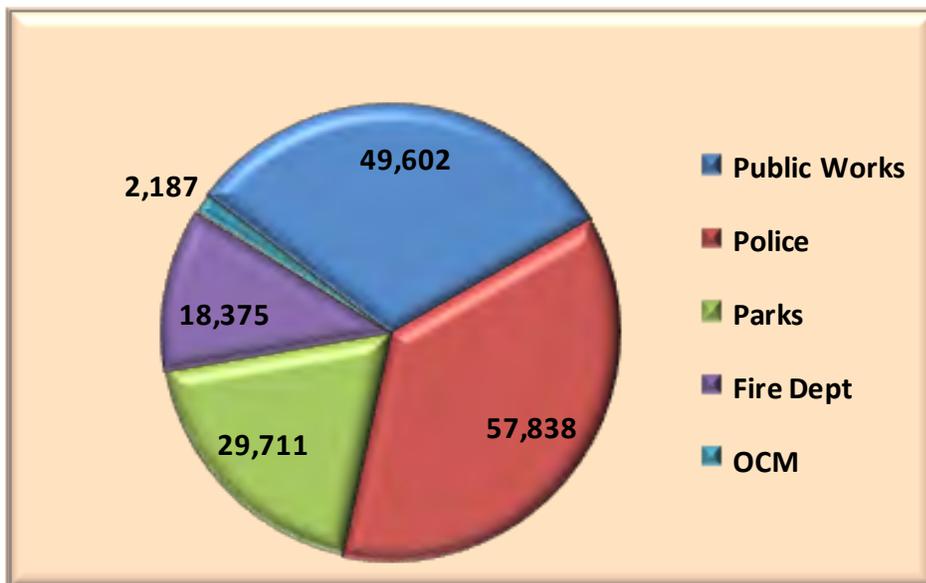


Figure 24: 2015 Gallons of Fuel Used by Department



Through the course of maintaining these vehicles, the Fleet Services Division completed 1,605 separate service orders in 2015. This number is lower than it has been in past years, and is largely the result of fewer miles driven, fewer winter-time accidents, and changing the interval for oil changes from 6,000 miles to 10,000 with use of synthetic oils. Figures 25 and 26 show the annual number of service orders and the total annual equivalent miles driven.

When all Fleet Services costs are combine (including, fuel, parts, labor, equipment, etc.) and divided by total equivalent miles driven the Division reports an operating cost per mile of \$0.76 which is down from previous years.

Figure 25: Fleet Services Repair Orders

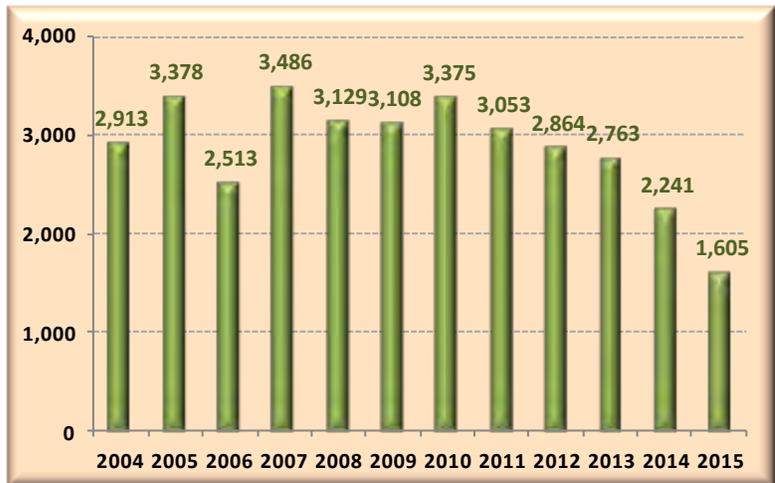


Figure 26: Total Equivalent Fleet Miles Driven

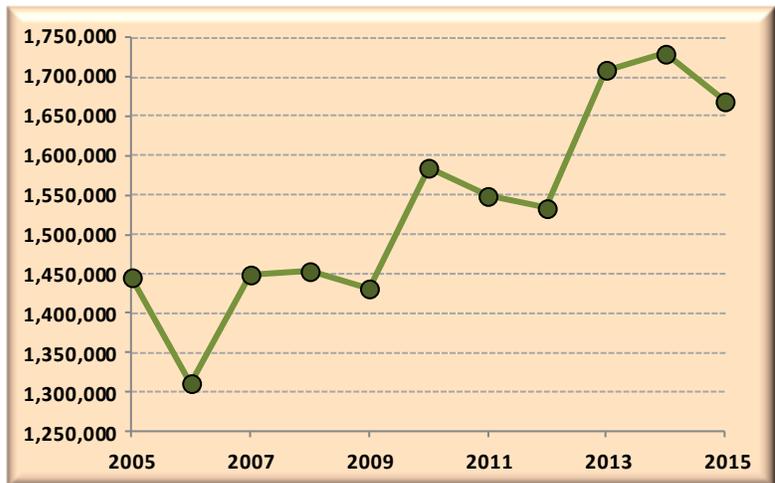
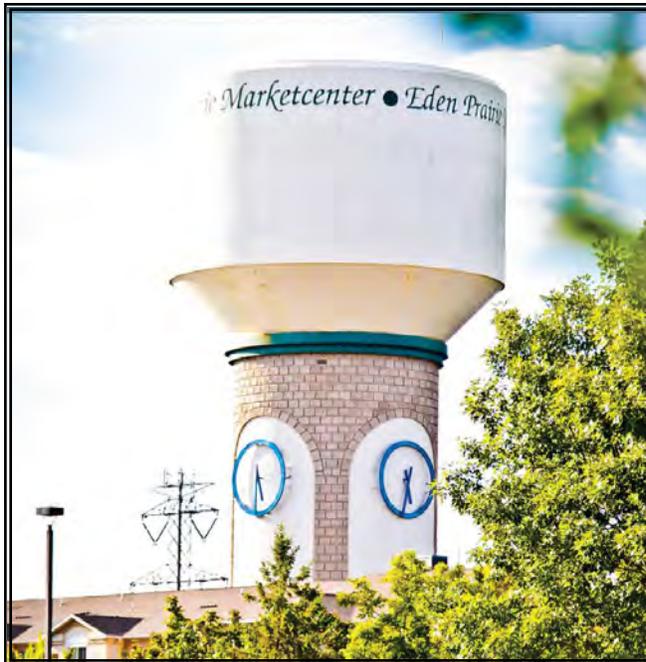


Figure 27: Fleet Services Operating Cost per Mile Driven





# City of Eden Prairie

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Public Works Department

Utilities Division

2015 Annual Report

The Utilities Division is charged with managing the city’s water, wastewater and stormwater systems. To do this, the Utilities Division has a staff of 30 full time employees as is shown in the Figure 28 organizational chart. In executing its tasks, the division is guided by four goals that were established by the City Council. They include community well being and safety, high quality and efficient services, innovative and sustainable practices and sense of community. In 2014, the Public Works Department embarked on a strategic planning initiative to tie objectives and measures to each of the City Council's goals. These have become the foundation of the Utilities Division’s annual work plan. Table 5 details these objectives and their status.

**Figure 28: Utilities Division Organization Chart**



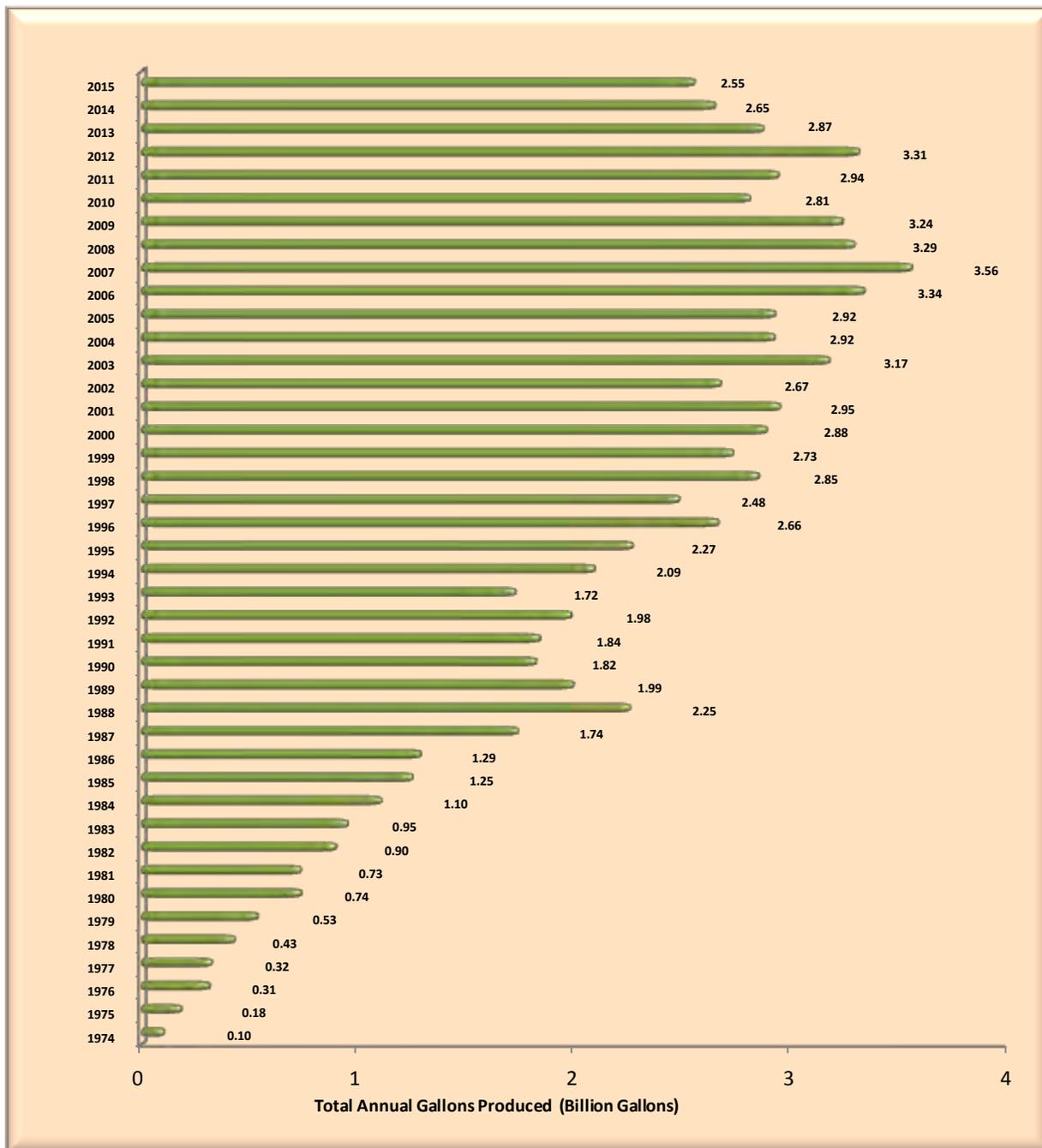
**Table 6: Utilities Division Objectives and Measures**

OBJECTIVE	MEASURE
Provide and deliver a safe supply of water to our customers.	<ul style="list-style-type: none"> <li>• No unauthorized access gained into public water supply system (complete).</li> <li>• Stay in compliance with state and federal water quality standards (complete).</li> <li>• Investigate the inclusion of a wellhead protection overlay into local zoning (complete).</li> <li>• Receive no water violations or fines (complete).</li> <li>• Investigate need and cost of surveillance camera and alarm system at wells and towers (progressing).</li> <li>• Complete the city’s wellhead protection plan update (progressing).</li> </ul>
Provide and deliver an efficient and reliable supply of water to our customers.	<ul style="list-style-type: none"> <li>• Investigate need for fixed network telemetry system for meter reading (complete).</li> <li>• Net water loss in system of less than 8% (complete).</li> <li>• All fire hydrants inspected annually and are operational (complete).</li> <li>• Follow a three year cycle for citywide leak detection (complete).</li> <li>• All necessary water system upgrades included in 10-year CIP program (complete).</li> <li>• Investigate technology/program for identifying corrosion issues (progressing).</li> <li>• Review need for backflow prevention program and develop program if warranted (progressing).</li> <li>• Develop policy establishing public and private responsibility of service lines (progressing).</li> <li>• Implement the use of Elements into daily work activities of all utility employees (progressing).</li> </ul>
Provide and deliver a sustainable supply of water to our customers	<ul style="list-style-type: none"> <li>• Achieve average residential per-capita per day water demand of 75 gallons (complete).</li> <li>• Evaluate data from observation wells for water use sustainability planning (complete).</li> <li>• Develop plan to install native drought tolerant plant species on city owned property (progressing).</li> </ul>
Protect the public’s health by providing for the safe collection and removal of wastewater.	<ul style="list-style-type: none"> <li>• No more than three preventable back-ups originating in the public system annually (complete).</li> <li>• No more than three preventable overflows (complete).</li> <li>• Assess Metropolitan Council Environmental Services data to evaluate needs (complete).</li> <li>• Ensure all customer visits include a spot check of the sump pump system (complete).</li> </ul>
Provide an efficient means of collecting and removing wastewater.	<ul style="list-style-type: none"> <li>• Acquire necessary equipment to perform off-road system maintenance (complete).</li> <li>• Upgrade lift station electrical power supplies to improve the reliability (complete).</li> <li>• Make necessary access and corridor improvements to cross country system (progressing).</li> <li>• Review need for fats/oil/grease program and develop program if warranted (progressing).</li> <li>• Develop policy establishing public and private responsibility of service lines (progressing).</li> <li>• Develop systematic televising program (progressing).</li> </ul>
Provide and maintain a storm drainage and natural waterway system that protects property and people.	<ul style="list-style-type: none"> <li>• No property damage as a result of public water flooding from an event less than a 100 year storm (complete).</li> <li>• Implement the necessary 10-year capital improvement program (complete).</li> <li>• Develop program for inspecting steep slopes where runoff could cause erosion (complete).</li> <li>• Document need for storm water lead position (complete).</li> <li>• Develop and implement systematic televising program (progressing).</li> <li>• Develop policy establishing public and private responsibility for storm drainage system and map in GIS (progressing).</li> </ul>
Ensure new and existing infrastructure and development meets established standards.	<ul style="list-style-type: none"> <li>• Support updating the comprehensive guide plan. (progressing).</li> </ul>
Provide high quality customer service.	<ul style="list-style-type: none"> <li>• Personnel hold appropriate water and/or wastewater licenses (complete).</li> </ul>

The Utilities Division draws its drinking water from the Prairie Du Chien and Jordan Aquifers through 15 different raw water wells located throughout the city. This raw water is pumped to the Eden Prairie Water Treatment Plant where it is purified. Next, the water is distributed to our customers through a vast network of water mains, valves and storage reservoirs.

In 2015, the Utilities Division treated and distributed approximately 2.55 billion gallons of water through our 19,597 water customer connections. This was the lowest volume of water since 1997. Figure 29 gives an historical perspective on annual water production.

**Figure 29: Historical Annual Water Production**



The highest maximum daily water production for 2015 was 14.5 MG, which was the lowest single day since 1994. Managing this number is important because our water system can only pump, treat, store and distribute a certain amount of water at one time before customer demand can no longer be met. The single highest maximum daily water use in Eden Prairie occurred during the summer of 2001 when production hit 22.7 million gallons in one day. The water treatment plant is capable of treating 28 MG per day, but the well field is only capable of supplying 24 MG in a single day. Figure 30 demonstrates historical highest maximum daily water production dating back to 1974.

**Figure 30: Highest Maximum Daily Water Production**

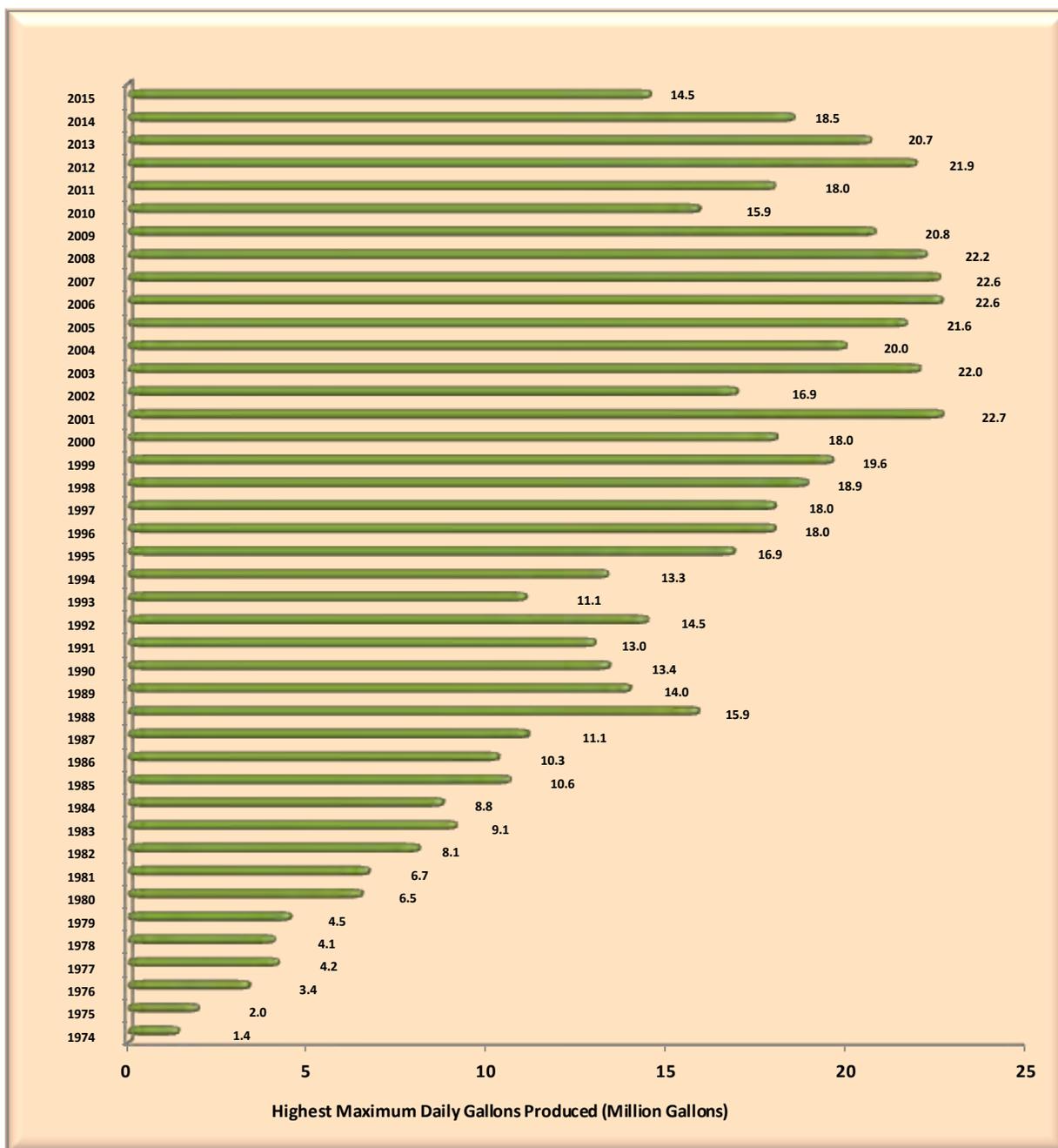


Figure 31: 2015 and Normal Monthly Precipitation

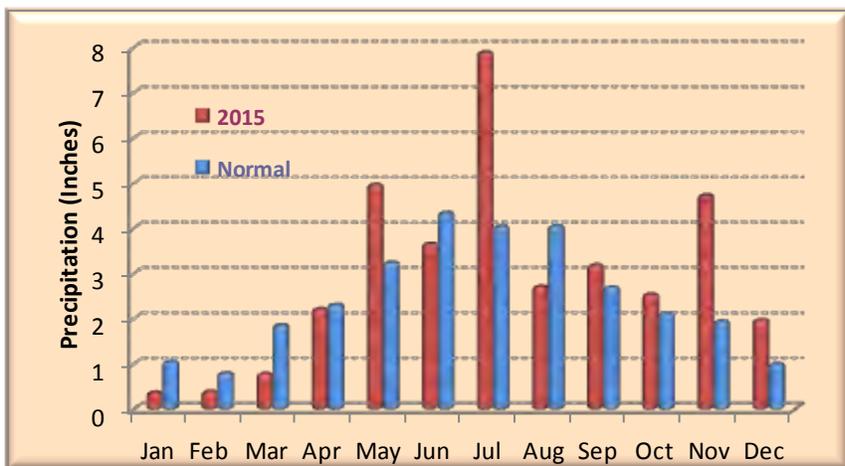
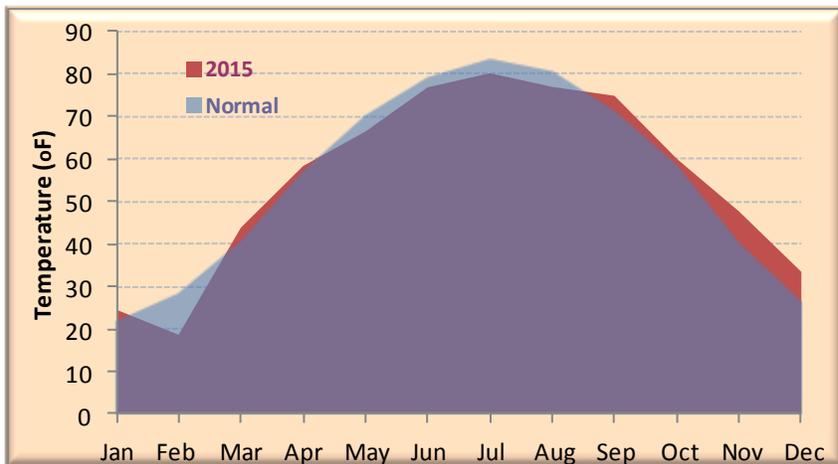


Figure 32: 2015 and Normal Cumulative Monthly Precipitation



Figure 33: 2015 and Normal Monthly Average Maximum Temperatures



Overall precipitation was higher than normal for 2015. Nearly a third of that precipitation occurred in the single month of July which is typically the highest irrigation month.

The summer of 2015 also had lower than normal average daily maximum temperatures during times of the year they are traditionally higher. Low temperatures coupled with high precipitation resulted in low overall water production for the year. As stated earlier, 2015 saw the lowest volume of water used since 1997.

Figures 31, 32, and 33 illustrate monthly precipitation and temperatures for the year.



Nearly 37% of our total annual water production was used during the summer season, and a significant portion of this water was used for irrigation purposes. Figures 34 and 35 illustrate monthly and seasonal water usage.

In 2015, the annual residential per capita per day water usage, was 75 gallons. This is the lowest value in recent memory and attains our goal of 75 gallons. While environmental factors like higher than average precipitation and lower than average summer temperatures had a significant influence on this statistic, so did water conservation efforts and changing attitudes on water sustainability. Figure 36 details average per capita per day residential water usage.



Figure 34: 2015 Monthly Water Production

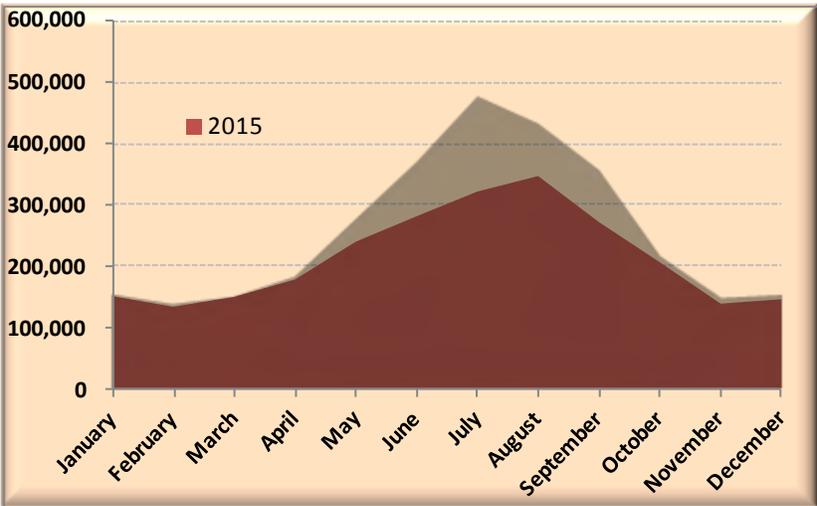


Figure 35: 2015 Seasonal Water Production

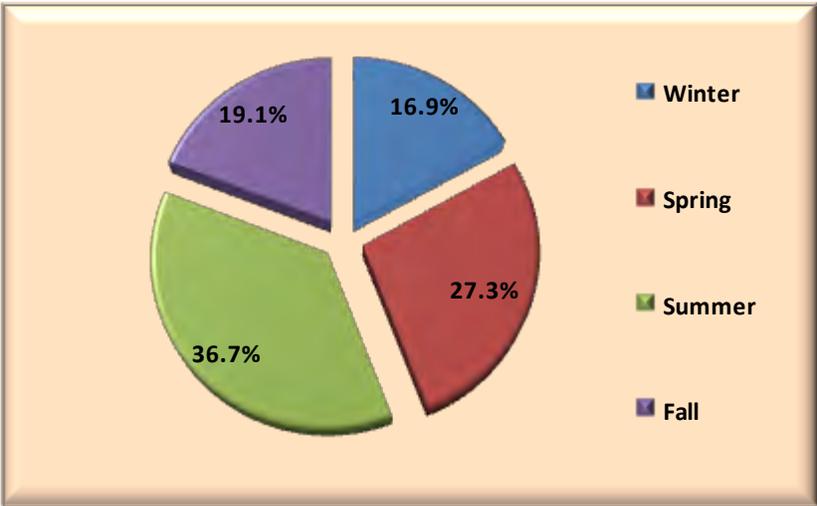


Figure 36: Average per Capital per Day Residential Water Usage



To help keep our water system operating efficiently and reliably our Utility Operators perform a battery of preventative maintenance based on standard operating guidelines. An actively managed system ensures there is adequate water available for our residential customer needs, hydrants are functional when fire emergencies arise, and businesses can flourish in a competitive market.



The types of activities involved in managing a water system include water treatment operation and maintenance, water main flushing, hydrant repair, hydrant painting and marking, meter repair, valve exercising and repair, air release valve repair, well system repair and water storage tower maintenance. Tables 7 and 8 detail some of the significant construction and maintenance activities performed on the water system over the past year.



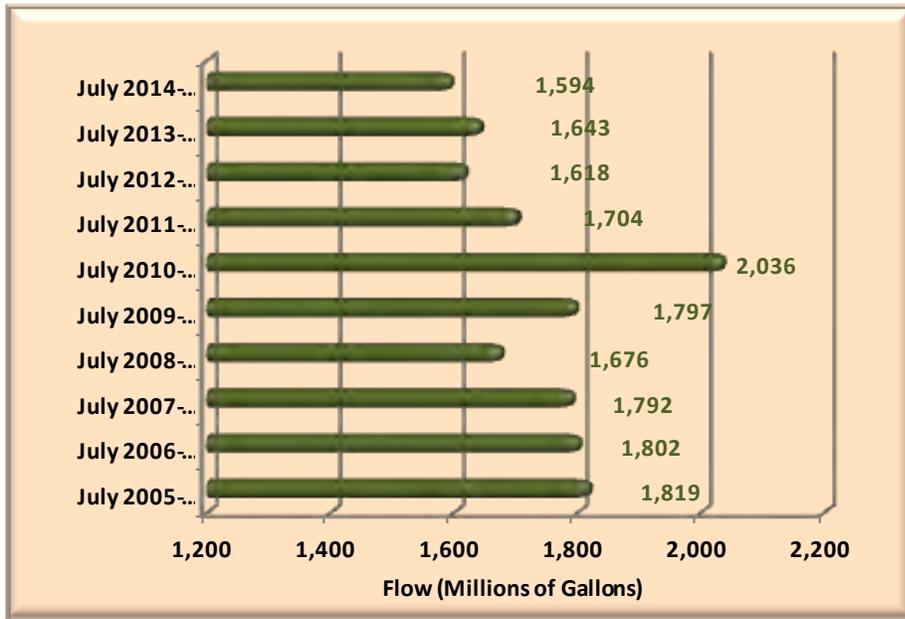
Another important maintenance program performed by the Utilities Division involves repair and replacement of water meters. As water meters age they are designed to under represent water usage versus over represent. The result can be a significant loss of revenue to the utility for water that was treated, delivered and used, but not properly accounted for. Eden Prairie began proactively addressing this issue several years ago by monitoring and managing water meter performance. On average, the city performs over 1,100 work orders annually to repair or replace aging meters. Meters have a life of approximately 20 years, and with nearly 20,000 meters in our system, this ensures they are serviced appropriately. These efforts have resulted in an ongoing meter reading success rate of 99.8 percent.



Initiatives such as this contribute to Eden Prairie having one of the lowest net water-loss values in the region. Our unaccounted water in 2015 was 7.8% of total production. This is well below the industry recommended target of 10% and a national utility average of 20%.

The Utilities Division also collects sanitary waste from our 18,644 wastewater customer connections. This is done through a system of wastewater mains and lift stations which are connected to the Metropolitan Council Environmental Services (MCES) wastewater interceptors. This sewage is then transported to the Blue Lake Wastewater Treatment Facility in Shakopee where it is treated and discharged into the Minnesota River.

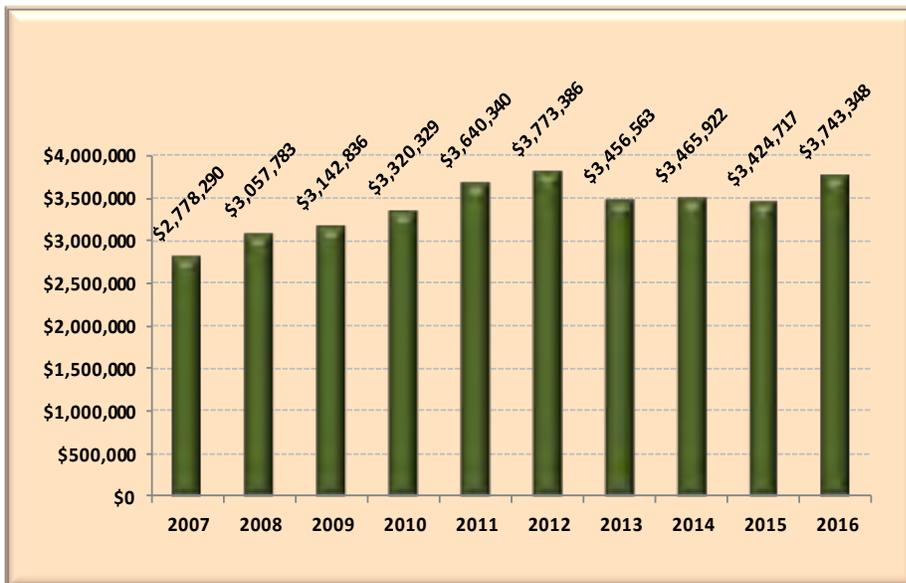
Figure 37: Historical Volume of Wastewater Collection



For the 12 month period beginning in July 2014 and ending in June 2015, the Utilities Division collected approximately 1.6 billion gallons of wastewater for treatment. Figure 37 illustrates historical volume of wastewater collected in Eden Prairie.

For this flow the MCES assessed a charge to Eden Prairie of \$3.7 million for services in 2016. Historical MCES wastewater charges are shown in Figure 38.

Figure 38: Annual MCES Wastewater Flow Charge



Historical MCES wastewater charges are shown in Figure 38.

Utility Operators perform regular maintenance on the wastewater system to prevent sewer backups or overflows. This includes activities such as jetting mains to remove buildup and other debris, lift station pump and control maintenance, and inflow and infiltration inspections. Through a diligent maintenance program Eden Prairie is able to minimize disruption in service and keep backup events below industry standards. Tables 7 and 8 summarize the wastewater system construction and maintenance activities performed in 2015.

The Utilities Division also maintains the stormwater system throughout Eden Prairie. This system is comprised of channels, ponds, lakes, streams, pipes, curb, gutter and catch basins. In 2015, the Utilities Division created a year round Lead Operator position to better manage the stormwater system. This has allowed the Division to complete more repairs with in-house expertise rather than relying on outside contractors. The result is a better managed system, more timely repairs and significant reduction in repair costs. Tables 7 and 8 summarize the major construction and maintenance activities performed while managing the stormwater system in 2015.

**Table 7: Utilities Division Capital Projects**

Project	Award Amount
<b>Baker Reservoir Recoating</b>	<b>\$959,076.00</b>
<b>Red Rock and Bluffs Lift Station Upgrades</b>	<b>\$260,077.00</b>
<b>Purdy Road Storm Repair</b>	<b>\$31,803.00</b>
<b>Inflow and Infiltration Repairs to Wastewater System</b>	<b>\$27,473.00</b>
<b>Well 11 Upgrade</b>	<b>\$79,550.00</b>
<b>Well 12 Upgrade</b>	<b>\$62,527.00</b>
<b>Well 13 Upgrade</b>	<b>\$83,974.00</b>
<b>High Service Pump Variable Frequency Drive Replacement</b>	<b>\$112,066.00</b>
<b>Total</b>	<b>\$1,616,546.00</b>



Table 8: Utilities Operator Maintenance Activities

	Maintenance Program	Total System Inventory	Historical Average	Performed In 2015
Wastewater	Wastewater Line Jetting	262 Miles	58 Miles	81 Miles
	Waste Water Manhole Inspections	6,976 Manholes	3,500 Manholes	4,206 Manholes
	Cross Country Sanitary Manhole Inspections		919 Manholes	525 Manholes
	Wastewater Hotspot Inspection & Correction		103 Manholes	103 Manholes
	I&I Sanitary Manhole Grouting		17 Manholes	21 Manholes
Water	Water Metering Operations	19,597 Accounts	1,142 Operations	1,400 Operations
	Water Main Flushing	4,394 Hydrants	4,141 Hydrants	4,394 Hydrants
	Hydrant Repairs		64 Hydrants	48 Hydrants
	Hydrant Painting		814 Hydrants	907 Hydrants
	Water Valve Inspections	5,722 Valves	1,238 Valves	842 Valves
	Commercial Service Line Inspection	850 Accounts	14 Properties	28 Properties
	Curb Stop Locating & Assessments	18,099 C.S.s	1,238 C.S.s	612 C.S.s
Storm	Major Storm Water Improvements	NA	35 Projects	38 Projects
	Storm Water Sump Maintenance	698 Sumps	700 Sumps	698 Sumps
Multi- Utility	Utility On-Call Call-Backs	NA	99 Call-Backs	97 Call-Backs
	Utility Structure Rehabilitation	16,883 Structures	332 Structures	377 Structures
	Major Water or Sanitary Break Repairs	NA	34 Projects	28 Projects
	City Utility Locate Request Processing	NA	3,493 Locates	5,097 Locates