



Naperville FY16 Sustainability Report

April
2016



Naperville adds LED Streetlights

Leadership &
Education

Route 59 &
Rescue Vehicles

Resources &
Energy

Leak Detection &
Energy Grants

Transportation &
Mobility

Sidewalks &
Public Transit

Waste Management &
Recycling

Diversion Rate &
Electronics
Recycling

Development &
Infrastructure

EAB & LEDs

ACKNOWLEDGMENTS

Mayor Steve Chirico

Naperville City Council

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Councilwoman Rebecca Boyd-Obarski

Councilwoman Judy Brodhead

Councilman Kevin Coyne

Councilman Kevin Gallaher

Councilwoman Patty Gustin

Councilman Paul Hinterlong

Councilman John Krummen



enviroteam

Since 2010, the City of Naperville has had a group of staff with representatives from every department work together on sustainability initiatives.

Current members include:

- Amy Emery, Transportation, Engineering & Development Business Group
- Kasey Evans, Transportation, Engineering & Development Business Group
- Jim Holzapfel, Department of Public Utilities-Water
- Beth Lang, Department of Public Works
- Pat Lord, Legal/HR/Safety Departments
- Kyle Moss, City Manager's Office
- Shebnem Ozkaptan, City Clerk's Office
- Ron Ritter, Department of Public Utilities-Electric
- Rick Sander, Fire Department
- Kate Schultz, Communications Division
- Tom Urbas, Information Technology

WHY SUSTAINABILITY?

- **The Changing Landscape of Society** – Organizations today face heightened expectations around their wider role in society.
- **The Role of Government** – Cities have a civic responsibility to properly manage public goods, resources and facilities in a way that supports sustainable development objectives and promotes the public interest.

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Goal Review

Each year the EnviroTeam identifies three goals to pursue.

During FY16, the EnviroTeam committed to the following: **(1) establish a program for recognition of businesses and residents who employ “green” practices; (2) more efficiently use natural resources in operating the city facilities; and (3) develop cost effective options for waste hauling and recycling.**

Recognition efforts are being provided through a partnership with the Conservation Foundation. Naperville is supporting their “Conservation at Work” Program and is encouraging expansion between the Conservation Foundation and Naperville Area Chamber of Commerce to increase the program’s impact.

Naperville is also pushing to reduce fuel consumption through development of a fuel-efficient, green fleet. The Department of Public Works’ Fleet Management Division now considers alternative fuel options with all vehicle replacements.

The City also began a new contract with Waste Management for waste-hauling during FY16. The new contract aligns the City with an industry leader in compressed natural gas (CNG) development. The City also continues to provide high capacity recycling through its recycling cart program. Carts helped Naperville record the City’s highest diversion rate in more than five years.

INTRODUCTION

The Naperville EnviroTeam is a group of City employees committed to identifying opportunities and measuring the City’s progress as an environmentally sustainable community.

This report provides an update on the various projects and progress the City has made during the truncated 2016 fiscal year, which ran from May 1, 2015, to December 31, 2015. The City shifted to a calendar year reporting period at the start of 2016. The shift in schedule had no impact on data presented in this report. The measurable data provided supports the work City staff has put into building a cleaner and more efficient community.

The EnviroTeam includes representatives from all City departments and divisions who

are focused on achieving objectives from the *2010 City of Naperville Sustainability Plan*. The plan initially included nearly 50 objectives directed toward promoting sustainability. Annual release of this report represents one of the objectives.

In the following pages you will read detailed information on various projects and ongoing endeavors, all focused on reducing Naperville’s environmental footprint.

We hope the report is educational and encouraging toward a brighter, greener Naperville.

Sincerely,
*The Naperville
EnviroTeam*

BENEFITS OF SUSTAINABLE REPORTING

- Operational efficiency
- Reputation management
- Employee satisfaction
- Potential access to capital
- Minimized environmental and societal impacts

STRATEGIC PLAN CONNECTIONS TO SUSTAINABILITY

In November 2013, the Naperville City Council adopted a new strategic plan. All three goals contained in that plan inspire sustainability.

Strategic Plan Goal	2010 Sustainability Plan Relationship
Embrace E-Government	In an effort to make the City more accessible, Naperville placed a focus on implementing online services. The newly-elected City Council uses a paperless agenda process which previously required approximately 70,000 pages of paper a year. The transition to a paperless process will save the City 140 reams of paper or approximately one tree per elected official
Reduce Traffic Congestion	The major accomplishment related to transit and mobility in FY16 was completion of the Route 59 expansion. The multi-year project created a safer path for Route 59 commuters traveling between Aurora Avenue/New York Street and Ferry Road. The project is expected to alleviate traffic congestion, which will reduce emissions and air pollution.
Set the Standard for Community Education & Involvement	In spring 2016, Naperville will launch a redesigned website, which is focused on reactive technology. The new website will be mobile-friendly and more accessible for residents. In addition to the design, Naperville is also working toward a new enterprise resource planning (ERP) system to enhance the City’s online opportunities.

SUSTAINABLE CATEGORIES

LEADERSHIP & EDUCATION

Environmental stewardship is a value reflected in the Naperville community. When it comes to the more efficient and effective use of our natural resources, the City of Naperville not only encourages residents and businesses to respect and protect the environment but also is an active participant in doing the same. By embracing its role as a municipal leader in environmental sustainability, the City of Naperville becomes more marketable to businesses. These efforts will further advance the City of Naperville into the global economy and protect the environment for future residents.

RESOURCES & ENERGY

Resources and energy represent a critical intersection between the City of Naperville as a consumer and the City of Naperville as a provider of such commodities. As a good consumer, the City strives to conserve resources in a fiscally responsible manner. As a provider of energy, the City facilitates informed decision-making by its consumers. As a provider of water, the City recognizes the finite availability of this resource and supports fiscally responsible conservation efforts.

TRANSPORTATION & MOBILITY

A sustainable transportation system is accessible, affordable, operates efficiently and offers a variety of easily navigable transportation modes which support a vibrant and successful community.

WASTE MANAGEMENT & RECYCLING

Waste management and recycling programs provide consumers with a variety of options to responsibly dispose of their waste while benefitting the environment in a number of ways.

SUSTAINABLE DEVELOPMENT & INFRASTRUCTURE

Sustainable development encourages economic growth and development while conserving resources in the long-term interest of individuals, the community and our ecosystem. Key elements of sustainable development include:

- Thoughtful land planning
- Protecting land and ecosystems
- Using natural resources wisely

Naperville's sustainable infrastructure includes sanitary sewer lining, storm sewer maintenance, flood and storm water improvements and tree preservation and protection measures.

DID YOU KNOW?

Naperville began its curbside recycling program in 1986, making it the first community in Illinois to offer the service to residents.



More lanes, less idling: The new Route 59 diverging diamond

Route 59 is no longer gridlocked by construction, thanks to the conclusion of the \$90 million, multiyear expansion between Aurora Avenue and Ferry Road in November 2015.

The project featured several key items, including additional lanes, intersection improvements, realigned roadways, coordination of traffic signals, access restrictions, new bicycle and pedestrian facilities and improvements to the I-88 interchange. It also was a key action in accordance with the City's Strategic Plan goal to improve traffic flow and congestion.

The much-needed expansion promotes a safer roadway and relieves congestion along the City's primary corridor. Route 59 draws more than 50,000 vehicles a day, so traffic congestion reduction helps minimize economic and environmental impacts.

The project was led by the Illinois Department of Transportation (IDOT), following almost a decade of public input compiled by the City and IDOT. Analysis of Route 59 showed the corridor experienced heavy congestion seven days a week, 14 hours a day, including delays approaching 30 minutes during peak travel times. The area also experienced nearly 400 traffic accidents a year. Construction on the expansion began in 2013 and was primarily funded by the

State. The City shared costs on certain components, including street lighting, traffic signals, sidewalks and bikeway improvements.

One of the more innovative aspects of the project is the diverging diamond interchange (DDI) between Route 59 and I-88. Construction of the DDI included two dual bridges over I-88 and reconstruction and rehabilitation of interchange ramps, along with traffic signals and signage to direct motorists into appropriate lanes. The DDI requires motorists to temporarily cross to the opposite side of the road, eliminating conflict points and allowing efficient and safe entries and exits.

The interchange opened September 21, 2015, and was modeled after designs developed in Missouri. That state saw a 53 percent reduction in crashes after implementing DDIs in several areas of the state. Reduced collisions are due to several designed safety features, which require reduced speeds and essentially eliminate wrong-way entry to ramps. Each ramp between Route 59 and I-88 represents a conflict point or area where two vehicles can meet at the same time. The new interchange eliminated 12 of these conflict points and eight crossing conflicts. The DDI also eliminated left turns in front of oncoming traffic and allowed for a multi-use pedestrian path.



Fire Department Wins Award for Sustainable Response Program

In September 2015, the Fire Department won the DuPage Mayors and Managers Conference Municipal Innovation Award for its Rescue Vehicle Program, which repurposed two department vehicles for non-emergency calls.

Rescue 1 and Rescue 2, a truck with towing capacity and an SUV, have been housed at Fire Stations 9 and Station 10 since May 2015. The vehicles are specifically designated for non-emergency calls such as false alarms, carbon monoxide alarms with no reported illness, elevator alarms with no entrapments, malfunctioning fire alarms and open burning complaints.

Rescue vehicles allow the department to more efficiently use staff, fuel and other resources without impacting service quality. Prior to the Rescue Vehicle Program, the

Fire Department would respond to all calls, including approximately 1,000 non-emergency calls a year, with a large engine or ladder truck staffed with three personnel.

These new rescue units, which are staffed by one firefighter or firefighter/paramedic trained in non-emergency calls, provide several benefits in safety, costs and environmental impact. The primary benefit is reduced maintenance and fuel costs that are associated with use of larger equipment. By reducing the number of calls responded to by fire engines and ladder trucks, the Department will spend less on fuel and associated wear and tear on these vehicles, while also cutting back on emissions. Additionally, rescue vehicles are able to keep suppression equipment and appropriate staff more readily available in the event

of an emergency situation.

Since being deployed, the rescue units have responded to 1,305 calls that previously would have been handled by a larger engine or truck. The program is one of the first in Illinois, and the department plans to eventually purchase two pickup trucks for use as permanent rescue units, which will be capable of running on compressed natural gas.

In other efforts, the Fire Department also purchased an Emergency Medical Services electric golf cart for use at special events such as Ribfest, Last Fling and marathons. The zero-emission cart is the City's first completely electric golf cart, running on six rechargeable, recyclable batteries. Prior to the purchase, Naperville exclusively used gas-powered carts to serve special events.

City Waste Hauler is Earth Friendly

Naperville contracted with an ally in the push for more fuel-efficient service vehicles in 2015. On May 1, 2015, the City began a four-year contract with Waste Management for residential refuse and landscape waste collection. The \$22 million contract was approved by the City Council in January 2015 and aligned Naperville with one of the most environmentally conscious companies in Illinois.

Within the past four years, Waste Management of Illinois has been very active in the development of clean burning fuels. In 2012, the company opened a compressed natural gas (CNG) fueling station in Wheeling, the first CNG station in the Chicago area. Two years later, Waste Management turned the Mi-

lam Landfill in Fairmont City into a renewable natural gas facility, which filters and compresses gas captured from the landfill into fuel. The facility was designed to capture enough natural gas to fuel about 200 of its collection trucks a day.

According to its website, by 2020, Waste Management has a sustainability goal to lower overall emissions of its fleet by 15 percent and increase fuel efficiency by 15 percent. Like Naperville, Waste Management is committed to developing its fleet with an eye toward alternative fuels. According to Waste Management, its trucks carry approximately 50 gallons of CNG, allowing them to run 10 to 12 hours before refueling. CNG-fueled vehicles have a smaller carbon footprint and deliver nearly

zero air particulates with 23 percent fewer greenhouse gas emissions. These engines also run quieter than traditional diesel engines, reducing noise during garbage collection.

Waste Management won a bidding process with two other providers. The annual cost of services was bid at \$6.022 million, more than \$300,000 less than the next closest bid. Annual costs were further reduced to \$5.2 million after Waste Management factored out costs associated with unnecessary services.

Approximately 41,000 residents receive weekly refuse collection through the City of Naperville. The Waste Management contract does not include recycling collection, which is provided by Republic Services.

Municipal Center Adds Pollination Station

For years the Naperville Municipal Center had an unsightly plot of dirt located on the east side of the building above the parking deck. After a failed garden plot initiative in the 21- by 42-foot space was left a patch of weeds. All that changed in October 2015, when the area was transformed into a natively landscaped pollination station.

A pollination station is a sustainable garden filled with flowering native plant species that support butterflies and other native insects. The City took the initiative to sup-

port recommendations in the *2010 Environmental Sustainability Plan* – promoting awareness about native species plants – to hopefully inspire residents and businesses to consider similar landscape improvements.

Once the pollination station is established, the City plans to use the area as an educational tool and example for residents interested in native landscaping.

The landscaping effort was made possible through collaboration between the City of Naperville, the Conservation Foundation and the Naperville Gar-



den Club. The Naperville Garden Club installed 12 varieties of native plants into the 882 square-foot garden, which will be maintained by the Conservation Foundation, which planned, designed and selected the native plants.

Plant species included in

the pollination station are Shooting Star, Foxglove, Purple Coneflower, Prairie Coreopsis, Butterfly Weed, Purple Prairie Coneflower, Prairie Dropseed, Wild Blue Indigo, Mountain Mint, Rough Blazing Star, Wild Bergamot and Black Eyed Susan.

Leak Detection Saves 230M Gallons of Public Water

The Department of Public Utilities-Water and Wastewater (DPU-W) reported a 7.1 percent loss of water in its annual water audit for 2015. The system loss increased from last year, but remained well below the average of other communities, which typically range between 10 and 20 percent.

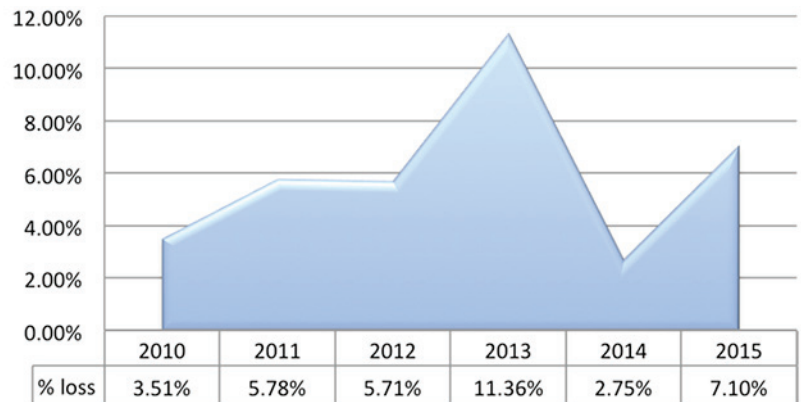
Also in 2015, DPU-W conducted an annual Water Distribution System Leak Detection survey. The survey used acoustical listening equipment to identify leaks, which make a hissing noise as water escapes the system.

The program discovered 43

leaks in 2015 and saved an estimated 629,000 gallons of water per day after repairs. Total savings from the survey was estimated at nearly 230 million

gallons for the year, equaling an estimated \$1.1 million in cost avoidance. The 2015 survey cost \$70,441 and was conducted by ADS Environmental Services.

Water Loss



Water Demand



The average daily demand for water in Naperville was 14.10 million gallons, a slight increase of 0.18 percent from last year. Water use remained consistent with previous years, likely indicating increased water conservation practices.



WaterSense Added To City Code

Residents and businesses need to look for the WaterSense logo when shopping for new plumbing fixtures. In 2015, Naperville implemented a new plumbing code incorporating WaterSense plumbing fixtures. WaterSense is an initiative of the U.S. Environmental Protection Agency, promoting water conservation.

Have You Considered NREP?

The Naperville Renewable Energy Program (NREP) dipped in participation for the second consecutive year, dropping 1.36 percent. However, this decline was not as pronounced as years past. Total enrollment in 2015 was 3,560 electric utility customers who purchased 13,060 mega-watt hours of energy.

NREP supports development of renewable energy projects in Illinois and allows residents to re-

	2010	2011	2012	2013	2014	2015
Number of Participants	4,446	4,534	4,392	4,049	3,609	3,560
% Change	N/A	1.98%	-3.13%	-7.81%	-10.87%	-1.36%
Amount of Energy (MWh)	16,741	17,555	17,014	14,299	13,401	13,060
% of Energy Purchased	1.15%	1.26%	1.23%	1.05%	0.94%	0.97%
Total Energy Consumed	1,452,379	1,397,985	1,387,621	1,361,753	1,432,671	1,342,515

duce their environmental impact. The program supports the state's economy by sourcing all energy purchases from wind farms and solar energy providers in Illinois. A primary supplier of wind comes from the Geneseo Wind Project

in western Illinois. Solar power is provided through an agreement with the Illinois Solar Energy Association, providing an additional revenue stream to business and residential solar installations.

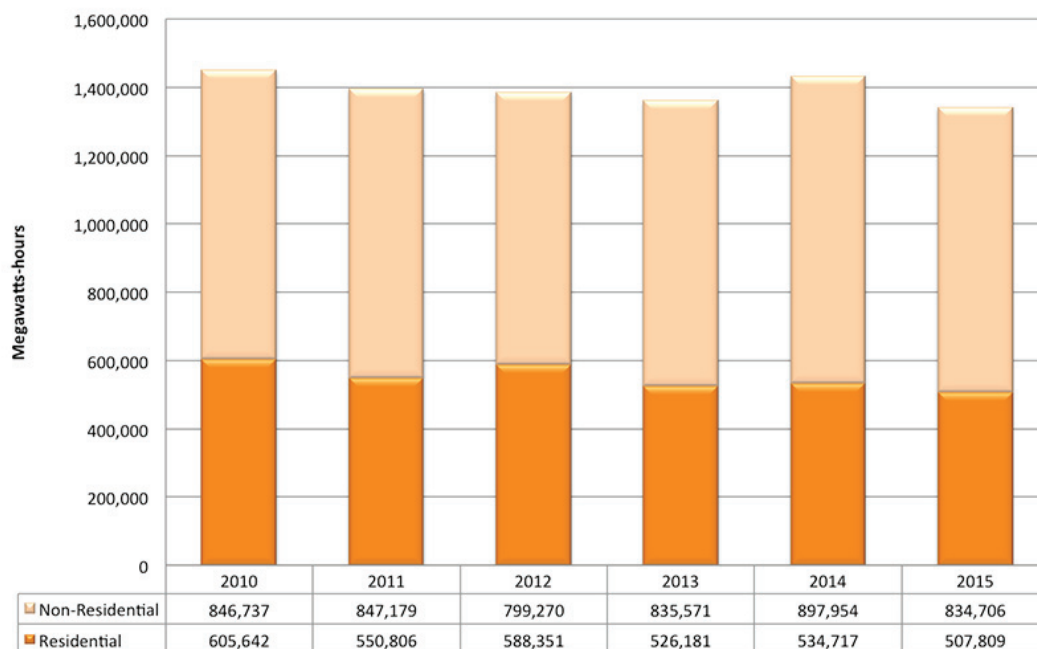
The program began in

2004 with the City taking over program management in 2012. NREP is one of the easiest and most effective methods for Naperville residents to support the environment for only a few extra dollars a month on their electric bill.

Energy Consumption

	2010	2011	2012	2013	2014	2015
Total Consumed (MWh)	1,452,379	1,397,985	1,387,621	1,361,752	1,432,671	1,342,515
Consumption Change	n/a	-3.75%	-0.74%	-1.86%	5.21%	-6.29%
Total Customers	56,470	56,784	57,300	57,482	58,693	59,022
Customer Change	n/a	314	516	182	1,211	329
MWh Per Customer	25.72	24.62	24.22	23.69	24.41	22.75

Total Energy Consumption



Residential		
Year	Customers	MWh per Customer
2010	50,622	11.96
2011	50,825	10.84
2012	51,278	11.47
2013	51,440	10.23
2014	52,411	10.20
2015	52,627	9.65
Non-Residential		
Year	Customers	MWh per Customer
2010	5,848	144.79
2011	5,959	142.17
2012	6,022	132.73
2013	6,042	138.29
2014	6,282	142.94
2015	6,395	130.52

City Prepares For Chloride Standards

The City of Naperville is preparing for pending chloride standard changes, which the Illinois Pollution Control Board (IPCB) has placed a focus on for 2016.

Naperville is among a group of communities seeking a variance through the Illinois Environmental Protection Agency (IEPA), which suggested a variance to achieve meaningful chloride reduction without applying numerical limits.

Naperville's inclusion in the variance process stems through membership in the DuPage River Salt Creek Workgroup (DRSCW). The DRSCW was formed in 2005 in response to concerns about Total Maximum Daily Loads (TMDL) being set for the east and west branches of the DuPage River and Salt Creek. The DRSCW seeks to implement targeted watershed

activities that resolve priority waterway problems efficiently and cost effectively.

The IPCB is discussing a year-round in-stream chloride limit of 500 milligrams per liter (mg/l). The DuPage River seasonally ranges

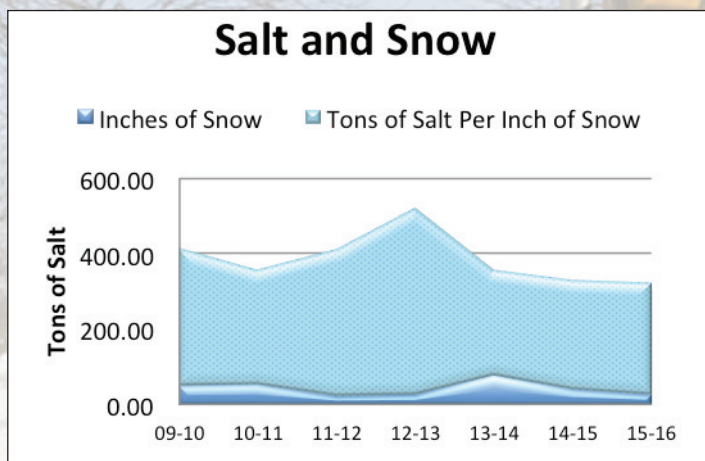
from 100 mg/l in the summer to 990 mg/l during the winter. The chloride limit, which is roughly two years from implementation, would be enforced through permits.

The variance is a relief mechanism granted by the IPCB, allowing petitioners to address high chloride problems without being subject to chloride water quality standards for a specified period of time. The variance would require a number of chloride reduction practices, including tracking and reduction of salt application for snow and deicing events, salt storage facilities that prevent runoff during wet weather events, calibration of salting equipment, use of alternative deicing agents and modification of deicing policies that reduce the frequency and amount of salt applied.

Chlorides are chemicals commonly found in roadway deicers such as road salt.

If a variance is not received, under new regulations, if chlorides impair a body of water, a permittee is strictly prohibited from additional chloride loading, meaning road salt use cannot increase from the previous year. The limit would apply to both public and private facilities, including roadways and parking lots. The IEPA will also require an anti-degradation report for all new developments, meaning new developments will not be allowed unless a decrease in salt application elsewhere can be proven.

Salt and Snow



Naperville experienced a mild winter in total snowfall. The City responded to 14 winter events and spread 7,707 tons of salt. Snowfall for the season was 26.21 inches, the lowest Naperville has seen in four years and nearly half what the City experienced last year in 21 winter events.

The application ratio for the winter was 294.05 tons of salt per inch of snow, slightly higher than the previous year due to icy weather conditions. Despite the increase, the City maintained a relatively steady application ratio below 300 after averaging 387.84 tons between 2009-2010 and 2012-2013. The application ratio reflects a salt conservation effort implemented in the winter of 2013 to 2014. By reducing salt application, the City can minimize budget costs and environmental strains, as road salt can alter the chemistry of water and erode infrastructure and vegetation.

Winter	2010	2011	2012	2013	2014	2015	2016
Snow (Inches)	49.20	52.73	21.76	27.90	79.14	40.09	26.21
Tons of Salt	18,000	16,046	8,501	13,686	21,964	11,768	7,707
Ratio	365.85	304.30	390.67	490.54	277.53	287.73	294.05

CVR Fully Deployed

The Conservation Voltage Reduction (CVR) program is fully operational and early returns show a reduction in voltage use.

The CVR program was fully deployed in May 2015 one year after the Department of Public Utilities-Electric (DPU-E) launched a CVR pilot project at Meadows Substation. Output reductions from the CVR program have met the City's expectations. Voltage at CVR substations declined two volts on average throughout the City. DPU-E continues to gather data on improvements created by CVR.

The program is designed to use data gathered from the smart grid to better understand how power travels from substations to homes and businesses. Data from the smart grid will allow DPU-E to reduce line loss (wasted power), which reduces bulk power purchases and cuts electric bills for residents.

CVR is one of the biggest saving components of the Naperville Smart Grid Initiative (NSGI), accounting for 42 percent of the project's estimated savings. DPU-E estimates the program will save between \$1 and \$2 million annually in purchased energy.

Naperville Provides Two Renewable Energy Grants

The Naperville Renewable Energy Grant Program awarded \$50,000 grants to the Naperville Park District and North Central College in 2015.

The Naperville Park District received a grant to purchase and install a 33.35-kilowatt 117-panel photovoltaic solar array on the roof of the Fort Hill Activity Center at 20 Fort Hill Drive. The solar system has an estimated annual production of 39,962 kilowatt-hours, approximately 5.36 percent of the facility's estimated total electricity need. The system will reduce 75,993 pounds of carbon dioxide and save up to \$4,800 a year for the Park District. The Park District will also promote the benefits of photovoltaic panels through signage and its website.

North Central College was awarded a grant for a roof-mounted 30-panel solar thermal system on a new residence hall at 451 South Brainard Street. Thirty panels of evacuated tubes were installed on the roof of the hall along with two 1,000-gallon water storage tanks. A packaged heat exchanger/pump package was also installed in the mechanical room. NCC placed the panels in a highly visible area to display a successful example of a solar thermal system to the public. The solar heating system is projected to save 3,810 therms per year, which will save the college an estimated \$3,200 per year. The system will handle approximately 32 percent of the total domestic water-heating load for the building.

In 2013, the City Council endorsed the Renewable Energy Grant Program to provide resources for projects related to renewable energy development. The City budgets \$150,000 each year for the

NREP Grant Update

Applications for grants are available through the Naperville website and are accepted between April 1 and December 31 of each year.

The City will be reviewing the NREP program in 2016 to consider additional opportunities to expand its use beyond educational, non-profit and institutional uses.

program, which is awarded to organizations supporting the Renewable Energy Program through monthly utility bills. Grants are provided through rebates and will cover half of the total project cost to a cap of \$50,000. Projects eligible for grants include solar, wind, photovoltaic, biomass and fuel cell technologies.

Naperville uses three programs to assist utility customers interested in energy efficiency, renewable energy and green technologies:

- The Renewable Energy Grant Program
- IMEA Electric Efficiency Incentive Program
- Nicor Gas high-energy efficiency upgrade rebate program.

The IMEA program was used for the City's LED streetlight conversion in 2015. The Nicor Gas high-energy efficiency rebate is provided for upgrades to products such as furnaces, boilers, programmable thermostats and water storage heaters.

Pace Reorganizing Service

Pace Suburban Bus made changes to its services in 2015 following a market analysis study of Fox Valley to identify potential public transit improvements.

The market analysis study began in May 2014 and included several public meetings throughout 2015. The study helped Pace define four goals for restructuring services, including:

- Extending service to new destinations with high travel demand;
- Providing more frequent service during more hours of the day;
- Replacing routes that perform poorly while maintaining service to key destinations; and
- Simplifying the transit network.

The study provided the foundation for Pace to construct a two-phase plan on improvements throughout Fox Valley. The first phase changed times on Route 530 in October 2015. The second phase proposed a new route along Route 59 and

a Call-n-Ride service for a portion of northwest Naperville.

Pace also proposed service modifications to existing bus routes within Naperville, Lisle, Downers Grove, Lombard and Woodridge. Proposed changes in Naperville include combining Routes 684-Maplebrook and 686-Old Farm into one route and Routes 688-Huntington and 689-Hobson Village into one route. The four routes currently provide commuter service to the Naperville Metra Station. The combined routes will continue to serve the same neighborhoods and provide additional trips that meet more Metra trains. Additionally, Route 714, an all-day, weekday only route connecting the Naperville Metra Station with College of DuPage, may be realigned. Currently, the route travels along Ogden Avenue and will overlap the new proposed route 722. Pace is considering re-routing 714 to travel along Diehl Road instead of Ogden Avenue.

Metra and Pace Ridership

Metra ridership data is updated every two years. According to data collected in 2015, the Route 59 and Naperville Metra stations averaged weekday boarding ridership of 9,876 riders. Based upon 2015 data, the Route 59 and Naperville Metra stations are, on average, the most highly used on the BNSF Railway. The BNSF is one route with a total of 94 trains.

Pace updates its ridership data on an annual basis. CY15 shows a 7.01% decrease in ridership.

Pace Ridership						
	2010	2011	2012	2013	2014	2015
Routes	21	21	21	21	21	21
% Change	0	0	0	0	0	0
Riders	1,234	1,276	1,167	1,315	1,277	1,188
% Change	-4.50%	3.40%	-8.60%	12.70%	-2.90%	-7.01%

* Ridership data does not include routes 820, 827, 829 and 888.

Sidewalk Program Returns

The Naperville Sidewalk Program returned in 2015. The City added 4,277 feet, or 0.81 miles, of sidewalk during the year and closed 17 gaps in the sidewalk network.

A large portion of work was due to the Illinois Safe Routes to School (SRTS) Program administered through the Illinois Department of Transportation (IDOT). SRTS is a federally funded program supporting pedestrian projects and programs that enable walking and bicycling to and from school.

In January 2014, Naperville submitted an application for SRTS funding and was approved for an 80/20 grant to install sidewalks along school walk routes in Naperville Heights, East Highlands and Laird Woods, which were neighborhoods with the highest concentration of sidewalk gaps. Installations were completed in the summer of

Sidewalk Program						
	2010	2011	2012	2013	2014*	2015
Feet added	4,128	5,084	6,823	5,372	0	4,277
Miles	0.8	1.0	1.3	1.0	0.0	0.8

* Program was suspended due to a lack of funds

2015 at a cost of \$277,000, with the SRTS grant covering \$160,000.

The sidewalk additions came a year after the City had to place the annual Sidewalk Program on temporary hiatus due to lack of funding. Prior to 2014, Naperville closed 69 sidewalk gaps in three years with 3.1 miles of new pavement.

In 2016, the City plans to address segments along the west side of Webster Street, east sides of Main and Wright streets, south side of Villa Avenue and between Willow Road and Golden Larch Court.



Electric Vehicle Charging Stations

The City of Naperville offers four electric vehicle charging stations. The Van Buren Surface Lot has a dual charging station and an additional dual charging station is located on the first level of the Van Buren Parking Deck. The current cost is \$1.50 an hour to charge. Vehicles are permitted to charge up to three hours.

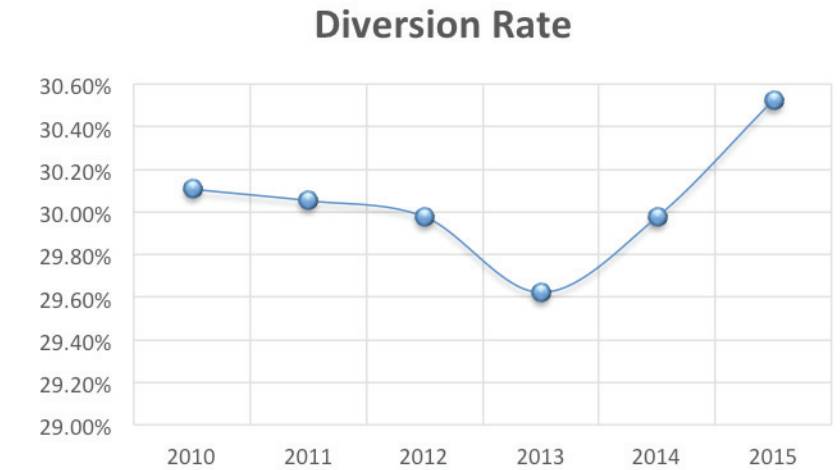
All charging stations are level-2 charging stations employing 220-240 volts and require a shorter charging time than a wall-plug residential unit.

Electric Vehicle Charging Stations	2010 & 2011	2012	2013	2014	2015
# Stations	program not initiated until 2012	1	1	4	4
# Plug Ins		161	707	579	670
Plug Ins % Change		N/A	32%	-18%	16%
Consumption (kWh)		842	4,783	2,329	3,740
kWh % Change		N/A	100%	-51.30%	61%

Diversion Rate Hits Six Year High with New Carts

A popular measure of sustainability is a community's diversion rate, which expresses how much waste a community diverts from landfills. In 2015, Naperville generated 52,209 tons of waste with 15,936 tons collected as recycling. The recycling total resulted in a diversion rate of 30.52 percent, the highest rate the City has experienced in six years.

The latest results extended the City's run of increased diversion rates to three years and moved Naperville closer to its 40 percent goal. The City also experienced further reduction in total refuse collection, which declined by more than 2,500 tons since 2010. In that same span, total collections have declined 3,275 tons, indicating residents may be consuming less.

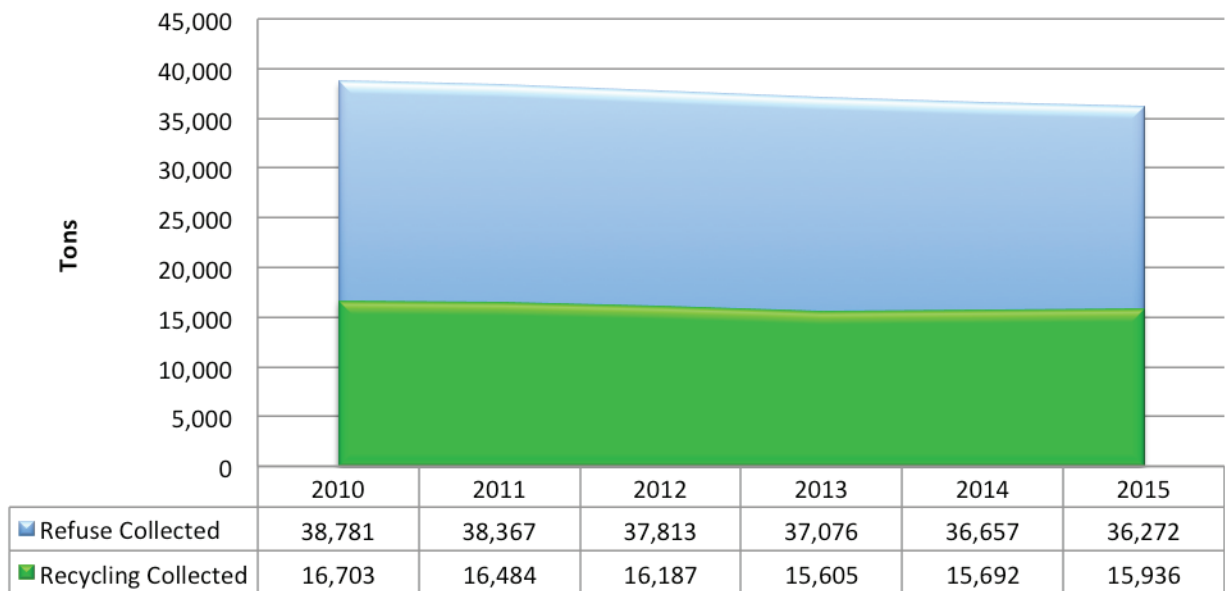


	2010	2011	2012	2013	2014	2015
Diversion Rate	30.10	30.05	29.98	29.62	29.98	30.52

The latest data correlates with the City's September 2014 launch of a new recycling cart program, which provided more than 40,000 carts to residents in an effort to ease the recycling process. The program increased

recycling capacity by replacing 22-gallon totes with 32-, 64- and 96-gallon covered carts. The new carts have reduced spillage and loose materials complaints, both of which contribute to making Naperville a cleaner city.

Overall Recycling



HHW Facility Shows Efficiency in First Year

The newly relocated and expanded Household Hazardous Waste (HHW) Facility produced positive results in its first year. The new facility at 156 Fort Hill Drive served more vehicles than any previous year and average wait times dropped to less than 10 minutes compared to waits up to three hours before the facility was constructed.

Since opening, 17,586 cars, from more than 11 counties, have passed through the facility. The majority of visitors came from DuPage County (10,619), followed by Will (3,026) and Kane (2,586) counties. Increased traffic helped push collection totals up 8 percent.

More than 539,000 pounds of hazardous material was collected in 2015. The

most common materials collected were flammable liquids (gasoline, mineral spirits, kerosene); oil-based paint; toxic liquids (medication, weed killer, pesticides); adhesives or paint-related materials; and toxic solids (medication, weed killer, pesticides). The facility also accepts numerous other items, including aerosol cans, automotive fluids, asbestos materials, batteries, fire extinguishers, fluorescent bulbs, household cleaners, peanut oil, poison, fertilizers, propane tanks, solvents and strippers and thermostats.

Naperville's HHW Facility is one of only four in Illinois and is open Saturdays and Sundays from 9 a.m. to 2 p.m., excluding holidays.

	2010	2011	2012	2013	2014	2015
HHW (Pounds)	432,250	440,700	515,950	531,600	570,050	539,619
Cars	15,187	14,670	15,890	15,988	16,107	17,586
Avg. per Car	28.46	30.04	32.47	33.25	35.39	30.68

Prescription Drug Collection

The Prescription Drug Drop Box Program continues to generate positive results. The City provides 24-hour drop boxes at all 10 fire stations and an additional drop box in the main lobby of the police station from 7 a.m. to 8 p.m., Monday through Friday. The police station drop box also provides a disposal area for medications containing controlled substances.

The program offers free and easy proper disposal of expired or unneeded prescription drugs and over-the-counter medications, reducing the chance of drugs contaminating water sources or being ingested by minors and animals.

	2014	2015
NPD	440.00	319.20
NFD	1,752.75	1,653.12
Total (lbs.)	2,192.75	1,972.32

Recycle My Fridge is Not Cooling Down

In 2015, Naperville recycled 152 units, including 125 refrigerators and 27 freezers. Since 2011, the City has recycled 490 refrigerators and freezers, saving an estimated 4,688 tons of carbon dioxide.

Recycle My Fridge is a program coordinated through the Illinois Municipal Electric Agency (IMEA) that aims to properly dispose and recycle secondary refrigerators and freezers. IMEA administers the program in conjunction with Appli-

	2010	2011	2012	2013	2014	2015
Units Recycled	N/A	120	63	53	102	152
CO ₂ Savings (tons)	N/A	1,148	603	507	976	1,454

ance Recycling Centers of America (ARCA) Inc. Residents served by an IMEA-member utility can get rid of an old refrigerator or freezer and receive a \$50 prepaid gift card.

Only secondary refrigerators and

freezers between 10 and 30 cubic feet are eligible. Units must be working and cooling with a maximum of two units allowed per household.

For more information visit www.RecycleMyFridge.org.



Electronics Recycling Halts

Naperville’s popular Electronics Recycling Program remains in limbo as of early 2016. In September 2015, Naperville suspended the program due to a lack of pickups by contractor New Life Electronics Recycling (NLER). The suspension came nine months after the City worked out an agreement with NLER to become the program’s third vendor in two years.

Cathode ray tube (CRT) items continue to be a major issue in electronics recycling. CRT items, which include older televisions and computer monitors, are costly to recycle due to the processing required to dispose of hazardous glass and mercury. Naperville acknowledged the issue with CRT disposal, agreeing to impose a two CRT maximum per vehicle with an understanding NLER could alter or rescind the limit if needed.

Four months into the agreement,

	2010	2011	2012	2013	2014	2015
Electronics	N/A	434,950	485,801	825,800	985,341	N/A*

* Total was unavailable due to unavailable statistics from NLER

Naperville collected more than 629,000 pounds of electronics, approximately 45 percent of which were CRTs. To manage the overwhelming volume and continue service, NLER placed a hold on CRT, projection screen and console television drop-offs in June. In an effort to assist NLER, Naperville also limited the number of CRT computer monitors and flat screen televisions to one per vehicle.

In September, the City suspended all electronics recycling collection after NLER failed to provide a pick-up and the storage area for collection items and the Public Works Service Center became stressed to a point where storage of additional items

would interfere with core services like leaf collection and snow removal.

Since the suspension, the City has monitored alternative methods to dispose of electronics, including the return of one-day recycling events. With limited funding options, staff anticipates a long-term solution will depend heavily on state assistance. The City is working closely with area legislators to arrive at a long-term solution to this issue.

Residents in need of electronics disposal should explore options through participating retailers and one-day events periodically sponsored by counties or directly through an area electronics recycler.

LEDs Light Naperville

In 2015, Naperville began a three-year project to convert all City streetlights from high-pressure sodium (HPS) to light emitting diode (LED) fixtures. The first phase of conversions focused on the 1,550 arterial road lights Naperville maintains and was completed in April 2015.

LED lights are projected to save the City \$4.56 million in 10 years through reduced energy usage, re-lamping fees and maintenance costs. LEDs are rated for 50,000 hours, or approximately 15 years, which far exceeds the previously used HPS lights that ranged from 70 to 400 watts with a life expectancy of 10,000 hours, or three to four years. In total, the LED project will cost an estimated \$1.65 million.

The LED project began with a pilot program replacing seven fixtures on Diehl Road in 2009. Fixtures were observed for light levels and energy consumption in com-

parison to existing HPS lights. In 2011, a five-year LED replacement project was added to the FY14 Capital Improvement Program budget. A decline in prices and improvements in LED technology expedited the project to three years and increased estimated savings.

The second phase focused on residential lights, which includes 6,700 fixtures accounting for nearly 75 percent of the City's streetlights. Residential light conversions began in January 2016, with installation contracted through Meade Electric.

The third and final phase of replacements is budgeted

for 2017 and will replace 2,700 specialty streetlights including downtown lighting and parking lot lights.

Staff is monitoring all concerns regarding these lights and will look at methods to remedy any complaints or disruptions, such as affixing light shields.



Arbor Day Sale

The Department of Public Works hosted the 25th annual Arbor Day Tree Sale on April 26, 2015. The event resulted in the sale of 352 trees for a total of \$13,405.

The sale featured 45 different species and sizes of container-grown trees with prices ranging from \$25 to \$60.

A total of 443 trees were available. The 91 unsold trees were made available for purchase to City employees and the Naperville Park District. An additional \$2,920 was collected from the sale of those trees.

The remaining 40 unsold trees were planted on City sites.

The total cost to the City for the purchase of the trees was \$16,191. The total collected through sales was \$16,325.

Storm Sewer Maintenance

The Department of Public Works provides ongoing and emergency stormwater management projects for the City. These projects are designed to control erosion, stormwater system failures and localized flooding. Projects include structure rebuilds and repairs, pipe-lining, reconstruction, patch work and open drainage repairs and cleaning.

In 2015, the City received approximately 1,337 requests from residents for stormwater-related repairs. The goal of the program is to reduce localized flooding issues and ensure the stormwater system functions properly. Here is a breakdown on the results of those requests.

JULIE Locates	35,801 tickets
Inlets/Catch Basin Cleaned/ Inspected	5,740
Sewer Lines Flushed	36,976 linear feet
Lines Televised	9,390 linear feet
Pipe Re-Lined	21,098 linear feet
Storm Sewer Reconstruction	181

Future of Parkway Trees Appears Strong

Naperville has managed to stymie the potential loss of 17,300 parkway ash trees to Emerald Ash Borer (EAB) through treatments, inspections and removals.

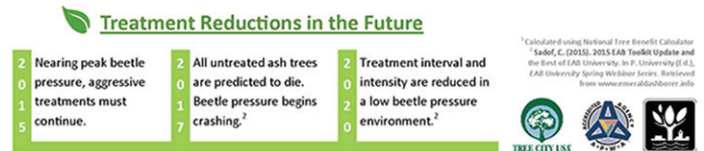
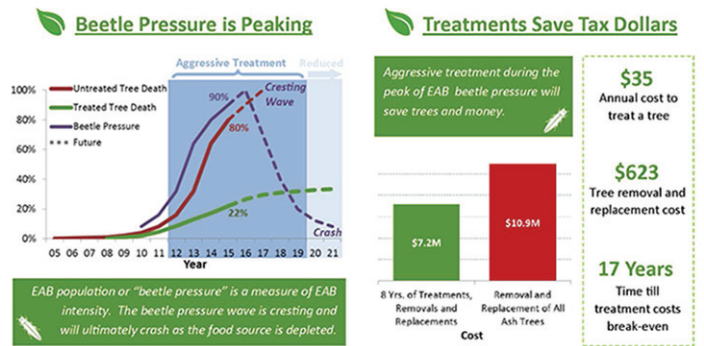
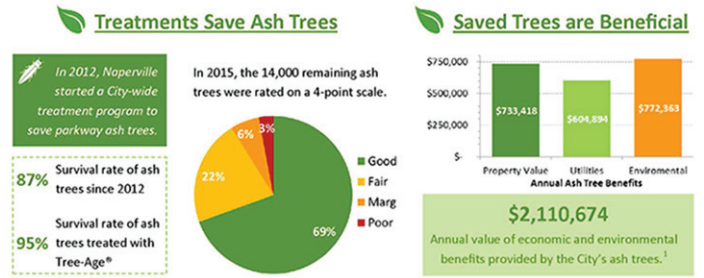
Naperville's parkway ash tree population stands at 14,000, accounting for 20 percent of all parkway trees. In 2015, the Department of Public Works-Forestry Division treated 10,768 trees at a total expense of approximately \$275,000. An inspection in late summer found 91 percent of parkway ash trees exhibited minor or no EAB damage and were recommended for continued treatment. Six percent exhibited moderate signs of EAB and were marked for reevaluation, and three percent required removal. Inspection results mirrors the findings from 2014, when Forestry treated 12,812 trees and found 91 percent of the City's ash trees in good condition, six percent with moderate EAB damage and three percent requiring removal.

Since beginning treatments, EAB-related tree removals have plateaued at approximately 700 trees a year. In 2015, the City removed 700 trees and anticipates 630 removals in 2016. Without treatment, staff estimated the City would lose all its ash trees within five years, resulting in several thousand tree removals a year at an estimated cost of \$13.7 million over six years, including removal and replacement of trees. By managing removals, Naperville is able to remove poor condition trees before serious hazards develop while maintaining other Forestry services.

Unlike communities who opted to remove ash trees, Naperville committed to fight EAB, believing a robust urban forest is essential for air quality and reducing the "heat island" effect. Beyond aesthetics, the City's 14,000 ash trees provide an environmental and economic benefit valued at more than \$2 million annually, according to the National Tree Benefit Calculator. The National Tree Benefit Calculator assigns a dollar value to benefits trees provide, including storm water interception, property value increases, energy reduction, air quality improvements and carbon sequestration.

In 2012, the City Council approved a six-year treatment and removal containment strategy through the Operating Budget and Capital Improvement Program. Naperville's treatment program includes three insecticides: Xytect (Imidacloprid), Safari (dinotefuran) and Tree-age (emamectin benzoate).

Naperville EAB Treatment Progress Report: YEAR 4



The treatment and removal program allows DPW to mitigate EAB by removing the most infected trees and managing healthier ash trees. Xytect and Safari treatments are applied as a soil drench and have a one-year effectiveness rate both rated above 90 percent. Tree-age is a trunk injection lasting two years with an effectiveness rate of 79 percent. Treatments have generated a citywide survival rate of 87 percent for ash trees.

Naperville focuses treatments during the peak of EAB beetle pressure, which estimates saving 11,000 trees and \$3.7 million over the cost of removing trees. Staff anticipates aggressive treatments need to continue beyond the originally recommended six-year span and through 2019 to avoid a new wave of infestation. Reducing or stopping treatment prematurely could allow EAB to rebound and risk loss of the entire tree population. By 2020, beetle pressure is expected to lower as untreated ash trees die and cost of EAB can significantly reduce by tapering treatment intervals and intensity.

City Water Efforts Get

National Attention



Naperville, Illinois, has been battling stormwater inflow and infiltration in the city's sanitary sewer collection system for years. But after a natural calamity a couple years ago, the staff of the city's Department of Public Utilities realized they needed to step up their game.

Bringing a new approach to the problem has made a huge difference in just two years, and officials expect to continue reaping the benefits.

That new approach includes some new techniques along with more tweaks to other methods they have long relied on. But if there's a breakthrough — a magic bullet — it's the realization that there is no magic bullet, and it's a willingness to go beyond relying on just one technology for I&I reduction.

The payoff for Naperville's efforts has been reduced flows to the city's sewer treatment plant so the city doesn't have to treat more volume than necessary. And utility ratepayers have felt the payoff in their pocketbooks. For two years running, the utility has actually canceled previously scheduled rate increases.

They simply weren't necessary, says Tony Conn, wastewater collections and pumping supervisor for the Naperville Department of Public Utilities. "One of the reasons why the flows are down at the treatment plant is due to our I&I program," he says. "It's knocked down maintenance costs."

Windy City suburb
With just under 150,000 residents, Naperville is Illinois' fifth-largest city, a mostly residential suburb 28 miles west of Chicago. The wastewater stream is typical for an American suburban community, with private homes and small commercial accounts generating most of the flow.

The two largest commercial wastewater sources are a chemical research and testing facility and a snack cracker factory. Both have pretreatment equipment, so their output isn't significantly challenging, Conn says.

Most of the city's sewer lines are clay pipe. The oldest go back more than a century to the early 1900s. The I&I sources are typical: roots that penetrate and crack pipes along with rou-

tinge deterioration of the pipe materials. Many of the lines making up the system are past their life expectancy and long-term repair and replacement programs are underway.

I&I experience
Awareness of I&I problems is nothing new for Naperville. "We've been tackling I&I as long as I can remember," says Conn, who's worked for the city for 25 years.

But in the last decade Conn and his colleagues have amped up their attack. The first wakeup call came in February 2001, when heavy rains ran off frozen ground in the city causing floods that sent water pouring into the sewer system. After that, "we started getting heavily into all kinds of sewer rehabilitation."

Naperville's treatment of choice for sewer lines has been cured-in-place pipe for mainlines, circumference lining technology for laterals, and CIP or spray lining on manholes.

The city has taken an aggressive approach to lateral lining, especially since 2003. That's when

(continued)

The Collection and Pumping section of the Department of Public Utilities-Water and Wastewater (DPU-W) was highlighted in Municipal Sewer and Water magazine in November 2015. The national trade publication featured the City's reduction efforts on inflow and infiltration (I&I) in a feature story, "Making Inroads on I&I."

The article examined the effectiveness of grout injection to stop water flow into joints of sanitary sewer services, also referred to as laterals. Grouting prevents water leakage between the host pipe and liner. When there is a high water table, joints must be grouted prior to lining to stop water flow into the pipes, enabling the liner to be installed correctly. The article shows how City staff is constantly looking for ways to improve the effectiveness of the I&I reduction program.

Naperville has been actively engaged in aggressive I&I reduction for approximately 20 years with a goal to eliminate I&I into the sanitary sewer system during heavy rainfall and reduce basement backups and surcharges. The City managed I&I through asset management, maintenance, repair and rehabilitation.

In the past 20 years, Naperville has lined 513,518 feet of sanitary sewer, 2,412 sanitary service laterals and rehabilitated 1,289 manholes, representing an estimated reinvestment of more than \$55 million in the sanitary sewer system.

DPU-W plans additional work throughout the year and annually cleans approximately 1.2 million linear feet (227 miles) of sanitary sewer to maintain the system's quality, which has not had a wet-weather basement backup since April 2013. The I&I program has led to fewer surcharges and basement backups and decreased flow to the Springbrook Water Reclamation Center.



Plans Begin on CNG Station

Naperville-Illinois Clean Energy (NICE) is the project name for construction of a compressed natural gas (CNG) fueling station on the corner of Jefferson Avenue and Fort Hill Drive. The station aims to bring CNG to the forefront of Naperville's push to be an area leader in alternative fuels and is a key component in the Department of Public Works' (DPW) plan for a sustainable fleet utilizing electric, compressed natural gas, propane and traditional fueling sources.

NICE is estimated to cost \$2.1 million with projected construction set for FY17. The station will be designed like a traditional gas station with access available for both public and private use. The station could eventually accommodate thousands of fleet vehicles and save taxpayers millions each year.

DPW is working with the

City's Finance Department to formulate a business plan articulating the true cost and long-range savings of the project.

The City's fleet consists of 587 vehicles and equipment requiring approximately 460,000 gallons of gasoline and diesel fuel annually at a cost of \$1.67 million. NICE will help Naperville transition from traditional fuel to a cleaner, cost effective and eco-responsible fueling source. CNG is 90 percent more efficient than gasoline and reduces both greenhouse gas emissions and dependence on foreign oil.

In preparation for the station, DPW evaluated the City's fleet for opportunities to convert vehicles and purchase replacement vehicles with conversion options. DPW is currently purchasing vehicles that can be easily converted to run on CNG and other fueling sour-

ces including light-duty trucks, heavy-duty trucks, squad cars, buses, vans and other equipment.

DPW is narrowing the list of interested building and maintenance partners for the station. In June 2015, staff began developing a request for qualifications seeking a contractor to design, construct, maintain and operate a 24-hour fast-fill station. Naperville received interest in the project from numerous partners and continues to aggressively pursue public and private partnerships and grant opportunities. The contractor awarded the project will provide up to 100 percent of capital costs to construct, maintain and operate the facility for a minimum of 10 years.

Currently, Downers Grove and Mokena provide the only CNG options within 30 miles of Naperville.

Naperville is Optimizing Traffic Signal Management System

Naperville is upgrading its traffic management system with fiber optics and adaptive traffic signal controls, which will have benefits to the environment. The City ended 2015 ready to implement a new Central Traffic Management System (CTMS), which will synchronize and coordinate traffic signal operations throughout the City and provide a platform for real-time congestion mapping.

The new system is estimated to cost \$2.6 million, 80 percent of which will be covered by a federal grant acquired through the Illinois Department of Transportation (IDOT). The project will take place in 2016 and 2017.

Once the program is complete, Naperville's traffic management system will feature real-time, system-wide remote programming and operation of an unlimited number of traffic signals. CTMS will synchronize signals, streamline all traffic lights and open opportunities for Naperville to coordinate traffic operations with other regional transportation agencies such as DuPage County and the City of Aurora.

The system will

also provide automatic notices of equipment malfunctions, remote real-time traffic monitoring and archive transportation data and equipment performance.

The two-phase project began in January 2016 with upgrades to fiber optic lines along Washington Street. The first phase, estimated to cost \$1.2 million, includes installation of an advanced traffic management server at the Municipal Center and elimination of system gaps between three signals on Washington Street. Traffic signal connections will be added from Bauer Road to Fifth Avenue and Gartner

Road to Bailey Road, creating a direct link from the server to three traffic signal systems along Washington Street. The link will integrate 31 traffic signals and provide a communication artery across two major signal systems on Ogden Avenue and 75th Street.

The second phase is estimated at \$1.4 million and will add adaptive traffic signal control equipment, which adjusts signal opera-

tions to accommodate current traffic patterns, promotes smooth traffic flow and eases congestion. With adaptive technologies, the system continuously collects traffic data from vehicle sensors to change signal cycles and green lights in real-time. Adaptive signal control technology can automatically adapt to changes in traffic conditions; improve traffic flow and eliminate periodic signal system retiming; and reduce travel times, fuel consumption, emissions, delays and fuel costs to motorists.

City staff identified Washington Street as the type of road most benefited by adaptive technology, which can adjust timings to accommodate traffic shifts in heavily utilized corridors and allow signals to instantly adjust to real-time conditions, including special events in the downtown and unexpected changes in the commuter train schedule.

CTMS represents a much-needed upgrade to the City's traffic system. Currently, Naperville's software for signals can only be remotely accessed using a dial-up phone connection within the Municipal Center. The system can perform essential tasks, but is becoming obsolete and cannot accommodate newer functions. The City maintains 92 of 161 traffic signals located within Naperville, the majority of which were installed between 1980 and 2005. The remaining signals are maintained by IDOT and DuPage County.





Naperville

www.naperville.il.us

For up to date information on environmental initiatives, please visit the Naperville Sustainability webpage at

<http://www.naperville.il.us/enviroteam>.