



WARRENVILLE

Climate Action Initiatives Annual Report

PUBLIC WORKS DEPARTMENT

YOUNGMEYER, KRISTIN

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Introduction

The City has taken action on climate change through various efforts aimed at minimizing carbon emissions, sustaining the environment, and protecting natural resources, so that residents have a beautiful and safe community to live in, for generations to come.

This status report provides an update on the actions taken within the Warrenville community. It aims to provide a comprehensive list of efforts, although is not an exhaustive list. The goal with producing this report is to get a better understanding of efforts, and longer term, gain a better understanding of the impact for the community.

2007 and 2019 City Emissions Profiles

Before reviewing efforts in Warrenville, it is important to understand key emission sources within the community in order to help decision makers know where to invest efforts, and guide development of climate action planning.

In 2007, the City received a profile of energy consumption and greenhouse gas (GHG) data specific to the Warrenville community (*full report in Appendix A*). In 2019, the Chicago Metropolitan Agency for Planning (CMAP), inventoried GHG for northeastern Illinois, and shared a regional GHG summary specific to Warrenville (*full report in Appendix B*). Emission profiles from 2007 and 2019, are summarized in Table 1. **For both 2007 and 2019, the majority of the City's emissions, or GHG, came from use of electricity and natural gas, and fuel emissions.**

Table 1. Summary of 2007¹ and 2019² Warrenville Emissions

Category of Emission Source Unit	Residential ⁱ		Non-Residential		Total		Metric Tons of Carbon Dioxide Equivalent (MTCO ₂ e)	
	2007	2019	2007	2019	2007	2019	2007	2019
Electricity Kilowatt-hours (kWh)	43,857,364 (9,143 per household)	39,324,226 (7,637 per household)	113,917,275	111,408,562	157,774,640	150,732,788	111,000	58,640
Transportation Vehicle Miles Traveled (VMT) ⁱⁱ	99,741,069 (20,792 per household)	110,286,431 (21,419 per household)	Unknown	Unknown	Unknown	125,500,000	63,000	71,321
Electric vehicles	Unknown	40 (0.3% of passenger vehicles)	Unknown	Unknown	Unknown	40		
Public Charging Stations	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown		
Share of residents with at least moderate walkability	Unknown	6%	Unknown	Unknown	Unknown	6%		
Share of residents with at least moderate transit access	Unknown	66%	Unknown	Unknown	Unknown	Unknown		
Natural gas MMBtu (million British thermal unit)	490,600 (102.3 per household)	606,590 (117.8 per household)		431,819		1,038,409	46,000	55,155
Renewable Energy Solar Potential Megawatts						66		
Waste Sector Methane emitted during decomposition							9,000 ⁱⁱⁱ	5,883
Wastewater							2,000	

ⁱ In 2007, Warrenville had 4,797 households, and an estimated population of 13,083 people. In 2019, Warrenville had 5,149 households, and an estimated population of 13,157 people (US Census Data).

ⁱⁱ Captures trips only within municipal boundaries. Vehicle Miles Traveled (VMT) was tabulated from travel statistics provided by the Illinois Department of Transportation and scaled to City of Warrenville based on Illinois Environmental Protection Agency odometer and population data.

ⁱⁱⁱ Based on regional totals analyzed for a profile developed for the Chicago Metropolitan Agency for Planning.

¹ Data gathered through the *Municipal Energy Profile Project* (funded by the Illinois Clean Energy Community Foundation).

² For details on the methods and data sources used to prepare the summary, refer to CMAP's Greenhouse gas emissions in northeastern Illinois, found at cmap.illinois.gov.

Updates on Emerging Initiatives within the Past Year

Community Survey

In March 2023, Polco | National Research Center conducted the Warrentville 2023 National Community Survey. The survey launched via a mailing to a representative sample of residents, and was followed by a survey link shared with the community through the City's print newsletter Hometown Happenings, e-newsletter, website, and Facebook page. The survey was live from March 2 until April 13, 2023. The survey looks for trends in resident opinion, measures government performance to inform budget and land use decisions, and provides benchmarking comparisons to other communities. Survey topics included economy, safety, and utilities as well as inclusivity and engagement, mobility, and natural environment.

A few themes in the responses related to the natural environment were as follows:

- Nearly 9 in 10 residents placed high importance on protecting natural habitats, open spaces, and marsh lands.
- About 8 in 10 prioritized waste reduction via composting or recycling, and three-quarters of residents considered it essential or very important for the City to emphasize water conservation efforts and upgrade infrastructure to be more resistant.
- Additionally, about 8 in 10 felt that implementing new environmental sustainability initiatives should be a high or medium priority for Warrentville.
- Despite these evaluations, fewer than 4 in 10 residents gave high importance ratings to the City considering increased taxes, fees, or other funding sources to help mitigate future climate-related risks.

Solar

Solar Energy Assessments

The Public Works Department Fiscal Year 2023 Work Program included staff starting research on solar opportunities for City buildings and facilities, to gain a better understanding of feasibility, costs and benefits. The Public Works Garage, City Hall, and three of the four existing City well sites (Well Houses 9, 11, and 12) are being considered.

In the summer of 2022, staff met with BA Solutions to get an estimate of costs and energy savings to install solar panels on the Public Works Garage. Staff received a proposal in April of 2023, which is based on preliminary information to provide an initial suggested system configuration, size, and budgetary estimate. Staff is in the process of reviewing the proposals. **Factors to consider regarding solar installation:**

1. Physically constructing solar on a building would need to be coordinated with installation of a new roof, and would be dependent on available funding at the time.

Building / Facility	Estimated Age of Roof
City Hall	23 years (built in 2000)
Police Department	4 years (built in 1997, the flat part of roof replaced around 2019)
Public Works Garage	22 years (built in 2001, scheduled to replace in 4 years)
Well # 11 River Road	30 years (due for replacement)
Well # 10 Batavia Road	20 years (lot of tree cover at this location, not a practical site)
Well # 12 Timber Drive,	12 years (estimate at least 10 years before replacement is needed)
Well # 9 Warrentville Road	25 years (due for replacement)

Updates on Emerging Initiatives within the Past Year - *Continued*

2. Structural integrity of each roof would need to be evaluated to determine if it can handle additional weight, without expensive reinforcement.
3. While there would be an environmental benefit through solar energy, there may not be a significant financial benefit as the City does not pay for power at City Hall, the Police Department, and the Public Works Garage. The City would likely need to find and acquire grants, incentives, and/or rebates related to solar installation to offset costs.
4. Costs for long term maintenance and replacement of the solar array.
5. Solar panels would likely produce enough energy to cover the majority, if not all, of the power needs at the Public Works Garage. City Hall and the Police Department have not be reviewed in more detail, at this time.

Solar Project at Well Site #13

Another solar project the City has planned is at the proposed Well No. 13 in TIF District 4. **Solar will be constructed as part of the iron filtration building**, which will be the last component of that site to be constructed. Tentatively, staff anticipates the building to be constructed in calendar year 2025.

Trailhead Project

The **Trailhead building was constructed solar ready**, with solar to be added as a separate project, because staff and the design team believe it will be more cost effective that way. With the Trailhead Project construction wrapping up in the summer of 2023, a separate project to add solar is scheduled to start in 2023.

Another component of the trailhead project is the **addition of a public solar bench with charging capability**. Installation of the solar panel for the bench is anticipated to be completed by the fall of 2023.



Noteworthy: ComEd Powering Communities Grant Program Award

In July of 2022, staff received an award from the ComEd Powering Communities Grant Program that **included a \$10,000 grant** to the City for the Trailhead project. The grant helped fund the local costs associated with the pollinator habitat garden, interpretive signage, native planting, council ring, and walkway components of the project.

No-Cost Energy Efficiency Assessment Report for Water Treatment Sites

In October 2022, the University Illinois’ Smart Energy Design Assistance Center (SEDAC) conducted energy efficiency assessments at the Warrenville Water Treatment Plant (Well Houses 9, 10, 11, and 12) and at the largest wastewater treatment lift stations (located at Cantera, Cerny, Emerald Green, and Fox Hollow) to identify electrical and natural gas savings measures. Staff received an Energy Assessment Report at the end of December 2022. **Along with the recommendation to install programmable thermostats, SEDAC recommended the following measures for implementation, based on its simple payback period of less than 7 years:**

Recommended Measure 1	Cost Considerations	Benefits
Install variable frequency drives (VFDs) on wastewater treatment lift pumps located at Cantera and Fox Hollow.	Ideally, each motor would have its own VFD, but SEDAC’s analysis shows that this type of installation may make the project cost prohibitive. Instead, consider installing a VFD on one motor per lift station and running the VFD equipped pump as the lead at all times.	This measure will decrease the facility’s overall energy consumption and costs.

Updates on Emerging Initiatives within the Past Year - *Continued*

Recommended Measure 2	Cost Considerations	Benefits
Install VFDs on wastewater treatment Lift Pumps located at Cerny and Emerald Green.	Ideally, each motor would have its own VFD, but SEDAC's analysis shows this type of installation may make the project cost prohibitive. Instead, consider installing a VFD on one motor per lift station and running the VFD equipped pump as the lead at all times.	Other considerations, such as resiliency and reduced maintenance may provide enough benefits to justify implementation.

Recommended Measure 3	Cost Considerations	Benefits
Upgrade Interior Lighting to LEDs at Pump Houses	<p>When switching to LEDs there is an option to use retrofit kits, or new fixtures. Retrofit kits are lower cost and have reduced installation labor since they reuse existing fixtures.</p> <p>Based on energy savings alone, this measure is not recommended due to poor economics. Other considerations, such as reduced maintenance burden, safety, and reduced waste hauling fees, may make this project more attractive for implementation.</p>	LED lamps have a much longer life span than fluorescent lights, produce light immediately, and are not cold-sensitive.

Recommended Measure 4	Cost Considerations	Benefits
When the existing heaters reach the end of their life, install cold climate air-source heat pumps at water treatment plant pump houses.	<p>Natural gas consumption for heating the well houses would be eliminated but electrical usage would increase.</p> <p>This measure is not recommended at this time due to the high implementation cost relative to the estimated cost savings. Warrenville may want to consider making the switch when the existing units need to be replaced.</p>	<p>Air-source heat pumps can provide heating at much higher efficiencies than the existing equipment and can eliminate reliance on fossil fuels.</p> <p>The net effect of the upgrade is a reduction of total energy usage and energy cost due to the much higher efficiency of the proposed equipment.</p>

Recommended Measure 5	Cost Considerations	Benefits
Install networked leakage detection system on the fire hydrants.	Analysis assumes that the leakage rate can be reduced to 10% with this system. The cost savings presented here only considers energy costs.	A networked leakage detection system continuously monitors for leaks and can send alerts to relevant individuals. The advantage of this type of system is that leaks are identified immediately and can be repaired shortly after they occur. Inspecting the hydrants manually could allow leaks to go undetected for several years.

Public Works staff is in the process of considering next steps in regards to the recommended measures from the SEDAC report.

Fleet

Efforts to Lower Fuel Emissions

Staff is continuing to explore alternative fuel options to enhance fleet performance and lower emissions, while also being fiscally responsible with City resources. **An ongoing effort to purchase hybrid vehicles for the police fleet has continued to be met with supply chain challenges, particularly in being able to find a hybrid vehicle** in the market that meets patrol needs. Since 2020, there has been a nationwide shortage of new vehicles, increase in pricing, and delays in placing orders.

Attending Events on Electrical Vehicle Readiness (Community Development)

In December of 2022, the Assistant Community Development Director and Planner/GIS Technician attended an electric vehicle (EV) readiness forum, *Powering Forward and Charging Ahead: The Demand for Electric Vehicle Infrastructure* hosted by PowerForward DuPage. The event took place at the IBEW Local 701 facility in Warrenville and was well attended by local municipalities, commercial property owners and managers, and community business leaders. Discussion included the growing demand and needs for EV infrastructure. Speakers included Edith Makra, Director of Environmental Initiatives from the Metropolitan Mayors Caucus, Tim Milburn, Managing Partner from Green Ways 2Go, and Philip Roy, Director of External Affairs at ComEd.

New Parkway Tree Management and Planting Plan

In December 2022, City Council approved the following tree management plan (*full memo of staff recommendations and description of new and past management plan can be found in Appendix C*):

- Annually, staff **plant 125, 1" to 2" diameter parkway trees**. Planting estimated to take 350 staff hours, which includes coordination with property owners, order, pick up, and planting. Purchase cost per tree is estimated to be \$200, based on current pricing from local nurseries.
- Add **an additional \$30,000 in the General Fund**.
- Continue to **prune 20% of the non-Route 56 trees each year**, while the City's landscape contractor continues to prune the Route 56 trees. This means **staff will prune approximately 660 trees each year**, initially. This is estimated to take approximately 1,000 staff hours per year, which should remain fairly consistent for the first ten years of the program, even with adding 1,000 trees during that time.

Staff estimates that **after the first ten years of the planting program, the new trees will be large enough to start contributing to the City's tree canopy**, and the hours of staff time will increase. The management and planting plan will help increase the City's tree canopy, and the diversity of the tree species throughout the City.



After evaluating information from maps on the Chicago Regional Tree Initiative (CRTI) and Tree Equity Score websites, and the City's tree inventory, **staff is planning to start the first year of the program by planting 100 new parkway trees along both sides of Continental Drive, between Route 59 and Johnson School**. There are very few trees along this stretch of road. Staff plans to plant these trees in the fall of 2023, and utilize summer help to fill gator bags, as necessary in the summer of 2024.

Awards and Recognitions

Bike Friendly Community Recertification

In **December of 2022, City staff was notified that the City of Warrentville had been recertified as a bronze level community by the Bicycle Friendly Community program.**

This is the second time the City has been recertified with the bronze designation. This recognition will be valid for four years, until 2026, when the City would need to reapply again for renewal. Bicycle Friendly America is a program run by the League of American Bicyclists that provides communities with a road map, hands-on assistance and recognition for their work on behalf of bicyclists, and advancing related infrastructure and programming.



Tree City Growth Award

In **February of 2023, the Illinois Department of Natural Resources approved the City's 2022 Tree City USA Growth Award application** and forwarded it on to the Arbor Day Foundation, who gave final approval. The award goes to agencies who demonstrate higher levels of tree care. It reflects the City staff time and resources spent on protecting and developing this Community asset and efforts to prioritize care in a manner that is supported by an industry expert, the Arbor Day Foundation.



There are five categories in which the city can earn points. Efforts to recycle trees and brush, as well as the planning efforts to develop the tree management plan approved by City Council in December 2022, contributed to earning the growth award. For more information visit:

<https://www.arborday.org/programs/treecityusa/growth-award/>.

Water Ambassador Program: City Achieves Gold Level Status

In **February of 2023, the Illinois Section American Water Works Association (ISAWWA) confirmed that Warrentville had achieved Gold Level status as a Water Ambassador.** ISAWWA annual awards and program certifications are determined by the frequency and method of communications. For more information, visit:

<https://www.isawwa.org/page/waterambassador>.



Initiatives to minimize energy consumption and maximize efficiency

The following summarizes efforts the City has made to minimize energy consumption related to energy from electricity, natural gas, and transportation. The following gives an update on efforts related reducing emissions, increasing efficiency of resources, and decreasing waste production.

Environmental Advisory Commission (EAC) Efforts

Encouragement to Change Behavior

Arbor Day

EAC annually plans an Arbor Day event on the last Saturday of April. The event has offered door prizes to impact behavior change. **Door prizes have included: LED light bulbs, nature books, and science kits for kids.**

Home Energy Audits

In 2015, two EAC Commissioners had Elevate Energy (<https://www.elevatenp.org/>) perform energy audits on their homes. Later, one of the Commissioners attended a Tourism and Arts Commission meeting to speak on the importance of energy audits and encourage others to have an audit performed on their home.

The Resource

EAC routinely published *The Resource* newsletter (2015-'22), that is inserted in the City's Hometown Happenings in once the spring and fall, and continues to do so in 2023. The newsletter provides information on an environmental topic and action residents can do at home to reduce impact on the environment, and have included:

Energy star and LEED Buildings	Tips to foster an Energy Efficient Home	Earth Hours
Conducting a Home Energy Audit	Kilowatt Meters to monitor energy usage	Solar Power
Illinois Energy Jobs Act	Sustainability Tips to implement at Home	

Facilities

Energy Audits of City Buildings

In 2017, energy audits were conducted for City Hall, Police Department, and the Public Works Garage by the University of Illinois' Smart Energy Design Assistance Center (SEDAC). The audits identified possible energy reduction measures and provided cost estimates to implement the reduction measures. **According to the audit results, all three of the City's buildings were more energy efficient than other municipal buildings of comparable design. The majority of the audit recommendations, for all three buildings, involved continued lighting upgrades. Other recommendations included the following:**

- Interior and exterior LED lighting upgrade
- Energy efficient appliances and equipment
- Programmable thermostats
- High-efficiency water heaters
- Energy efficient insulation
- Cool (white membrane) roof
- Makeup air system
- HVAC systems

Energy Efficient Appliances and Equipment

As a policy, the City prioritizes purchase of items bearing the Energy Star certification, which indicates that the equipment reduces greenhouse gas emissions through efficient energy usage.

In addition, the City has been moving away from purchasing equipment powered by two-stroke, high emission, gasoline engines, including snow throwers, mowers, and weed trimmers.

Initiatives to Minimize Energy Consumption and Maximize Energy Efficiency - *Continued*

Year	Energy Efficient Appliances and Equipment that the City has Purchased									
Since 2007	<p>The City has prioritized retrofitting high-wattage lighting to energy efficient LED lighting. Interior lighting projects completed to date include:</p> <ul style="list-style-type: none"> • upgrades of the vehicle storage and salt shed areas at the Public Works Garage • Records Office and the sergeant/detective areas at the Police Department • Warrenville City Museum • Gallery Conference Room at City Hall <p>Exterior lighting projects to reduce energy usage include upgrades at:</p> <table border="0" style="width: 100%;"> <tr> <td>• Bob Walters Commons</td> <td>• City Hall</td> <td>• Veterans Memorial</td> </tr> <tr> <td>• Cerny Park</td> <td>• Public Works Garage</td> <td>• Warrenville City Museum</td> </tr> <tr> <td>• City Gazebo</td> <td></td> <td></td> </tr> </table>	• Bob Walters Commons	• City Hall	• Veterans Memorial	• Cerny Park	• Public Works Garage	• Warrenville City Museum	• City Gazebo		
• Bob Walters Commons	• City Hall	• Veterans Memorial								
• Cerny Park	• Public Works Garage	• Warrenville City Museum								
• City Gazebo										
2010	Grant funding was received to retrofit approximately 144 florescent lights to T-8 lights at the Public Works Garage and Community Development Department at City Hall. T-8 lights use approximately 35% less energy than standard fluorescent lights. The same grant funding also paid for the upgrading of 39 high-bay light fixtures in the Public Works Garage area to more efficient fluorescent fixtures.									
2010	Occupancy sensors were installed in City Hall, Police Department, and Public Works Garage. The sensors save electricity by turning off lighting in unoccupied areas of the building. In 2010, grant funding was received for the installation of the sensors in the Public Works Garage and Community Development Department (City Hall).									
2017	<p>A white membrane roof was installed at the Police Department. A cool roof is designed to reflect more sunlight and absorb less heat than a standard roof (The US Department of Energy).</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Before</p> </div> <div style="text-align: center;">  <p>After</p> </div> </div>									
2017	Energy-efficient insulation installed at Cerny Park and the Police Department.									
2018	Energy efficient copiers purchased for City Hall.									
2018	Programmable thermostats installed in the City Hall, Police Department, and Public Works Garage. This allows the City to reduce energy usage during non-work hours.									
2018	High-efficiency water heaters installed at Cerny Park, City Hall, Public Works Garage, and Police Department.									
2020	A makeup air system was installed in the Public Works Garage. Installation of this system was covered by Coronavirus Aid, Relief, and Economic Security (CARES) Act money.									
2021	A high efficiency HVAC system was installed at the Police Department, replacing a 20 year old system, and in the fall, an HVAC installation for the City Hall A/V room was completed. The new units circulate fresh air needed to control the room temperature and prevent equipment from overheating, and in general improve climate control for staff work environments. Updating and maintaining an HVAC system minimizes energy usage, and reduces the building’s overall carbon footprint.									

Additional Resources:

Information on cool roofs: (<https://www.energy.gov/energysaver/energy-efficient-home-design/cool-roofs>).

How products earn an *Energy Star* label: (<https://www.energystar.gov/products/how-product-earns-energy-star-label>).

Emissions from handheld two-stroke engines: (<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100GDP7.TXT>).

Municipal (Electrical) Aggregation

Since August 2012, the City has implemented an electrical aggregation program. The program allows the City to buy electricity from suppliers other than ComEd by soliciting competitive bids from suppliers on behalf of the entire community. **From 2012 through October 2022, the City has received 100% renewable energy from a supplier, for the entire community, and all Warrenville residents and small business are automatically enrolled into the program, unless they opt-out.**

Recent City Action Related to Municipal Aggregation
<p>July 6, 2020</p> <p>City Council meeting: Council approved a one-year agreement with renewable energy supplier Eligo, for electric aggregation while staff evaluate an alternative energy program. The alternative program included a rate match with ComEd, the option to elect 100% green energy, and an option to receive an annual civic contribution during the term of the agreement. This alternative energy program did not offer a savings on the rate to the consumer, but it removes the risk of paying more than the ComEd rate for supply.</p>
<p>October 2021</p> <p>City Council decided to continue its electric aggregation program with Eligo Energy, for a 12 month term, which ends in October 2022. With the program renewal, residents and small business owners were assured a rate match with ComEd and continued to receive the benefit of 100% Green Renewable Energy. The program used renewable energy certificates. This means, some participants were supplied by Eligo, and others were supplied by ComEd, but all customers receive billing and service through ComEd and the net effect is identical for all: same rate, no added fees, and 100% Renewable Energy Credits representing all power consumed within the program.</p>
<p>October 2022</p> <p>Due to the volatility of the power market, the City did not receive favorable bids for power supply and temporarily suspended the municipal aggregation program for up to 18 months. The suspension began in October when the City's contract with Eligo expired. City staff continue to look for better rates in the coming year. To the suspension, Eligo customers returned to ComEd for their supply. Residents without their own private supplier continued paying the ComEd rate.</p>

Updates and further information on the aggregate program are provided on the city website under Utility information: (<https://il-warrenville2.civicplus.com/528/Municipal-Electrical-Aggregation>).

Solar Initiatives and Projects

Building Code Updates

In 2017, the City of Warrenville adopted the 2015 International Building Codes published by the International Code Council (ICC), which includes updated provisions for renewable energy, including solar photo voltaic (SPV) and solar thermal systems (STS) which reduce overall energy consumption. The codes streamline and encourage the adoption of alternative energy usage. The 2015 codes also includes the Energy Conservation Code with Illinois amendments.

Private Solar Permit and Development Prioritization

In 2018, the City Council endorsed the prioritized review and processing of development applications that include solar installations. The policy statement is as follows, "In support of the goals of its 2015 Strategic Plan and 2016 Climate Action Plan, the City Council hereby directs the Community Development Department staff to allocate their time and direct their efforts in a manner whereby they prioritize the review and processing of those

Initiatives to Minimize Energy Consumption and Maximize Energy Efficiency - *Continued*

building permits and development applications that are most likely to result in the construction of solar installations in the City of Warrentville.”

Solar Growth in the Community

- Since 2019, **Illinois Shines**, a state-administered program to encourage the growth of solar and renewable energy production in Illinois, **had three applicants approved from the Warrentville community (Target, Galusha Farms, and All Pro Air Duct Cleaning).**



Target



Galusha Farms



All Pro Air Duct Cleaning

Solar Energy Assessments

See *Updates on Emerging Initiatives* (page 7).

Solar Powered Light for Signs

Starting in 2017, Public Works Department staff installed solar-powered lighting for specific signage, and will continue to do so, when applicable. **Some examples include the City entrance signs (north and south Illinois Route 59), the Batavia Road and Williams Road pedestrian crossing signs, and the various school speed limit signs around the community. The Warrentville Police Department purchased solar-powered speed trailers, equipped with solar panels to supplement its energy usage.**

Solar Project at Well Site No.13

See *Updates on Emerging Initiatives* (page 7).

SolSmart Gold Designation

In **2019, Community Development staff participated in a SolSmart permitting and inspection webinar** designed to help local municipalities make solar energy production more affordable and accessible. Participation in the webinar earned the City 10 credits toward a Gold, Silver, or Bronze designation in the SolSmart Certification. Staff also participated in a SolSmart planning and zoning training session that also earned the City 10 credits towards a designation in the SolSmart Certification. Warrentville received the Gold level designation.

Trailhead Project

See *Updates on Emerging Initiatives* (page 7).

Street Lighting Upgrades

2019 LED Street lights Upgrade Project

In 2019, Street Division staff participated in the ComEd Energy Efficiency Program. This involved retrofitting 89 existing decorative streetlights with energy and cost efficient LED lamps. **The new retrofits use 78% less energy** and save the City money in electricity costs. The City received a reimbursement incentive from ComEd.

In addition to this project, **240 LED streetlight installations were completed** with ComEd incentives applied at point of sale. The energy savings were so significant that ComEd sent a crew to investigate why!

According to the City's Geographic Information System (GIS) inventory of city-owned street lights, **over 756 streetlights (or 79% of the city's 952 streetlights), are equipped with LED lights. Current practice when a City streetlight becomes inoperable, is to upgrade it to an LED fixture.** Also, new streetlights installed by the City and developers, are equipped with LED fixtures. As future grant funding becomes available, the City will determine if additional street lights can be upgraded to LED fixtures.

The new LED lights require less power to run, which overtime results in a savings to the City. For instance, the cost to buy and install the new light fixtures in Cantera Village was paid off in about two years. The new light bulbs cost about \$7 each in comparison to the old lights that were \$150 when purchased. Along with cost and energy savings, the new efficient light fixtures are more durable, and should last longer. The following three photos, from left to right, is an old street light taken into the Public Works Garage to be retrofitted. The structures are cleaned (second from left) and repainted, and then are retrofitted with an LED bulb (far right)



Transportation

Bicyclist and Pedestrian Advisory Commission (BPAC) Efforts

BPAC encourages, supports, and promotes a safe and enjoyable commuting environment for bicyclists and pedestrians throughout the community. One aspect of BPAC efforts goes toward promoting bicycle and walking in lieu of motorized transportation, which has included the promotion of bike and walk to school events, organization of an annual Bike Rodeo event in May, and disseminating safety related education.

Bikeway Implementation Plan

In 2009, a Bikeway Implementation Plan (BIP) was developed as a guide to direct development of pathways for bicyclists, and pedestrians, to increase the number of routes and safety to commute about and through the city using alternate means aside from vehicles, and to overall encourage recreation on the local trail system. Staff plan to provide a status update report in the fall of 2023.

Initiatives to Minimize Energy Consumption and Maximize Energy Efficiency - *Continued*

Bicycle Friendly Community (BFC) Designation

The City is designated a BFC by the League of American Bicyclists. The BFC certification provides a roadmap to promote and improve bicycling issues in the community. In December of 2022, the designation as a BFC community was renewed.

Complete Streets Implementation Policy

City Council adopted a Complete Streets Policy in November 2019. Complete Streets are defined as a safe, connected, comfortable, accessible, and inclusive network of transportation infrastructure that supports people walking, bicycling, driving, delivering goods, services, people using transit, emergency responders, and equestrians.

Implementation Steps for the Complete Streets Policy	
1.	Develop a methodology to review projects for the inclusion of Complete Streets elements, and use this information to inform existing or revised project scoping.
2.	Develop a methodology to receive and document resident requests for the inclusion of Complete Streets elements into future transportation projects where a project scope has not been defined.
3.	Develop methods and a policy for ranking of potential projects.
4.	The City will develop a Performance Measures process, including report template, to report progress on implementation of the policy.
5.	Prepare an annual report for the City Council and provide a copy to the Bicyclist and Pedestrian Advisory Commission on Performance Measures and the development or revision of Project Selection Criteria.
6.	Develop a long-term funding policy and funding source that supports the design and construction of new complete streets projects, and the long-term maintenance and replacement of the same improvements. The policy and funding levels will be based on the Warrenville Complete Streets Policy Cost Estimate Scenario Planning memo dated November 1, 2019. (Go to, https://www.warrenville.il.us/agendacenter ; view the Community Development Committee of the Whole Meeting agenda dated November 11, 2019).

Incorporating these elements into projects is often expensive. **A key to moving forward is identifying a source and amount of City funding for the implementation.** Even when grants are available, nearly all of them require a City contribution of at least 20% of the various phases of engineering and construction.

EAC Efforts: Article in The Resource

In the 2016 Fall/Winter edition of *The Resource*, an article encouraged drivers to not idle their car when dropping off/picking up family and friends, such as when a parent is picking up their child(ren) from school.

Fleet and Equipment

Alternative Fuel Options

Staff is dedicated to delivering quality, professional services to improve the community, and this includes exploring alternative fuel options to lower emissions, while also being fiscally responsible with City resources.

Developments in Alternative Fuel Options	
2014	A fleet pickup truck was retrofitted from unleaded gasoline to compressed natural gas (CNG). Natural gas is free of lead and sulphur, and produces less harmful emissions.

Developments in Alternative Fuel Options	
2018	City entered an intergovernmental agreement with the Forest Preserve District of DuPage County (FPDDC) to utilize the district's fueling facility, which supplies biodiesel fuel. The Public Works fleet currently has 15 vehicles that consume biodiesel.
2022	Staff aim to utilize the Capital Maintenance Replacement Fund to replace police vehicles with hybrid vehicles. Supply shortages has delayed vehicle replacements.
2023	Public Works Street Division purchased a new battery operated, Stihl RMA 510 self-propelled lawnmower. The walk behind lawn mower is built with a lithium-ion battery that eliminates fuel mixtures and exhaust emissions while aiding in low-maintenance lawn care. The motor features ECO Mode which automatically adjusts power use based on grass height. This conserves battery life and extends run times. The mower features a variable-speed setting which allows the operator to select the best speed for their needs and for battery conservation. This mower is recommended as an option for small to medium-sized yards under a half acre.
Ongoing	If a community does not keep up with advances in transportation, it can get left behind. City staff continue to explore opportunities to integrate electric vehicles (EV) into the community. Staff will continue to engage in opportunities to increase understanding of EV topics related to technology, costs and benefits, policy, market trends, and any incentives that may be available.

B20 (Biodiesel) Club

In January 2022, the City of Warrenville became a member of the B20 Club of Illinois, an American Lung Association and Illinois Soybean Association program. By using biodiesel, the City Fleet operation benefits human health and the environment, supports local businesses, and contributes to research in alternative energy sources. Biodiesel is efficient, reliable, and cost-effective.

Based on USEPA 2021 figures, and Warrenville fuel consumption data, it is estimated that by using B20 instead of standard ULSD fuel, every year the City fleet prevents the release of approximately:

2 pounds of particulate matter (PM)
 10 pounds of hydrocarbons (HC)
 2 pounds of carbon monoxide (CO), and
 138 pounds of carbon dioxide

Efforts provide an estimated \$780 in annual health savings benefits to residents

Being a B20 Club member also means that the City will receive several customizable benefits throughout the year, including complimentary fuel testing and analysis, technical training, and access to industry experts. The Club also strives to evolve benefits over time to best fit Warrenville's needs.

Equipment Retrofitting

In 2018, the City received an American Lung Association grant to install diesel particulate filters (DPFs), an emission control technology, on three of the oldest trucks in the Public Works Fleet, **which removes 80 to 90% of diesel emissions from these vehicles.** Newer vehicles are subject to stricter emissions requirements than older vehicles. Installation of the DPFs was completed in the fall of 2020.

Trees

Arbor Day - Tree Giveaway and Planting

Since 1988, the City has held an Arbor Day event, with EAC taking over planning and organization in 2006. The Arbor Day event is typically the last Saturday in April. During the event a community tree is planted and free tree saplings are given away, to encourage tree planting around the community.

8 Trees Planted on Arbor Day in the City from 2015 through 2023

- 2015 – Pagoda Dogwood on Warrenville Park District property
- 2016 – Red Maple on Warrenville Park District property
- 2017 – Kentucky Coffeetree planted on Warrenville Park District property
- 2018 – Linden tree planted in Bob Walters Commons between City Hall and Library
- 2019 – Oak tree planted in Lion’s Park
- 2020 – Cancelled due to COVID-19 pandemic
- 2021 – Due to the ongoing COVID-19 restrictions the event was limited to a drive thru tree giveaway
- 2022 – Eastern Redbud planted just west of the pavilion trellis at Cerny Park
- 2023 – Red Buckeye planted at City Hall

1,270 Tree Saplings Distributed at Arbor Day from 2015 through 2023

- 2015 – 100 Oaks from the Illinois Association of Park Districts and Friends of Illinois Parks Living Lands & Waters Million to Trees Project
- 2018
- 2019 – 400 (100 Red Oak, 100 Swamp White Oak, 50 American Plum, 50 Eastern White Pine, 50 River Birch, 50 Serviceberry)
- 2020 – Cancelled due to the pandemic
- 2021 – 200 (50 American Linden, 50 Redbud, 50 American Plum, 50 White Pine)
- 2022 – 300 (50 Highbush Cranberry, 100 Eastern Redbud, 50 Red Oak, 50 Serviceberry, 50 White Spruce)
- 2023 – 270 (50 American Elderberry, 50 Eastern Redbud, 50 Black Cherry, 50 Ninebark, 20 Weeping Willow, 50 Swamp White Spruce)

New Tree Management Plan

In 2020, Davey Resource Group completed a Tree Inventory and Management Plan for the City. The inventory is in the City’s GIS and staff is working to make a map of the inventory available on the City’s website. Staff evaluated the report from Davey, and recommended a new Tree Management Plan to City Council in December of 2022. See *Updates on Emerging Initiatives* (page 9), for more on the new tree management plan.

Past Parkway Tree Planting and Management

The City’s records on past tree management activity is limited, but the table below summarizes data from historical Tree City USA applications (*N/A = not available*). These numbers do not include Route 56 trees. The City’s landscape contractor has pruned the nearly 600 trees in the Route 56 right-of-way.

Year	Planted	Pruned	Removed
2012	122	N/A	75
2013	127	N/A	N/A
2014	61	425	82
2015	90	325	111
2016	54	198	45
2017	10	225	43
2018	2	400	25
2019	9	400	9
2020	111	350	75
2021	8	500	75
2022	20	500	40
Average	56	331	58

Also, in the past ash trees in the City’s right of way, which were damaged by the Emerald Ash Borer, were replaced, free of charge, for residents.

Review of the Chicago Region Trees Initiative - Warrenville Urban Forest Summary

The Chicago Regional Tree Initiative (CRTI), established by *The Morton Arboretum and Openlands*, is a partnership of communities, individuals, organizations, green industry, businesses, and governments working together to develop and implement strategies for a healthier, more diverse, more equitable urban forest by 2050. CRTI produced summary reports on canopy cover, plantable space, and relative proportion of land use types for municipalities in the Chicago area. Key data from the *Warrenville Urban Forest Summary* are as follows:

- **From 2010 to 2020, Warrenville canopy has increased from 30% to 36% with gains across all land types.**
- **Warrenville could potentially increase its canopy cover up to 81%.**
 - **The types of land with the highest percentage of canopy coverage is found in natural areas and vacant properties, and the lowest canopy cover is by utility and commercial properties.**
 - **Residential and commercial properties could have the greatest impact in expanding canopy.**
- Warrenville has more canopy cover than its neighbors.
- Warrenville has less gray infrastructure (i.e., buildings, roads, rails, paved surfaces) than most neighbors.
- Strategies to consider: Residents could be encouraged to plant more trees through giveaways, or ordinances to encourage preservation. Commercial property owners could be encouraged to plant more trees through tree adoptions, ordinances that encourage preservation, or storm water fee rebates for properties that have more canopy.

A full report for Warrenville can be found at <https://chicagorti.org/maps/municipal-canopy-summaries/>.

Local Planting Campaign Participation

In the fall of 2021, the City participated in Morton Arboretum’s “Plant Trees for Communities” campaign. The campaign asked all 340 communities in the seven county Chicago region to plant one tree in 2021. Warrenville’s tree was planted in the right of way on the west side of Warren Avenue in between the Police Department and Park District.

Tree City USA Designation

The City of Warrenville is designated as a Tree City USA by the Arbor Day Foundation and has **held that designation for the past 36 years, since 1986**. The certification provides recognition of the City’s efforts in promoting a healthy, sustainable urban forestry program.

Initiatives to mitigate consumption and waste production

The following summarize efforts the City has made to reduce pollution and emissions from the decomposition of waste. This includes management of water, waste water, and solid waste.

Enterprise Resource Planning (ERP) Update

In 2019, the City began the implementation of an ERP program. In 2022, the City terminated the contract due to the consultant's inability to meet deliverables, and provide a functional product. In the spring of 2023, the City began to work with Baecore Group, a consultant company that specializes in working with local governments to find tools that assist staff in serving the community, and to help select ERP software. Staff anticipate selecting ERP software by the beginning of calendar year 2024.

Solid Waste and Recycling

The City of Warrenville is responsible for residential garbage, recycling, and landscape removal. **Part of the service contract with Groot, Inc. includes offering food scrap hauling, which started in 2021.** In Dupage County's 2022 *Solid Waste & Recycling Annual Report*, it was noted that recycling contamination is an ongoing issue countywide, and it was recommended that agencies provide consumer education on proper disposal of items, in particular of the following: wires, lithium batteries, and helium tanks.

The table below provides a summary of the volume of solid waste and recyclables collected by Warrenville's refuse hauler. It is noted that there is a significant decrease in volume amounts collected in calendar years 2018 and 2019. The cause of that difference from the previous and post years could not be determined. Without any evidence or means to confirm, a factor that may contribute to residents disposing of less could have been due to increased sticker pricing.

Waste and Recycling Totals for the City of Warrenville (Data received from waste hauler and reported to DuPage County)								
Calendar Year	Refuse (Tons)	Recycling & Landscape (Tons)	Total Waste (Tons)	Recycling Rate	Number of Households	Total Waste (lb) per Household	Population	Total Waste (lb) per Capita
2022	3,461	1,918	5,379	36%	Not available	Not available	14,841	362
2021	3,593	1,532	5,125	30%	5,214	983	13,738	373
2020	2,881	1,440	4,321	33%	5,068	853	13,137	329
2019	1,258	727	1,985	37%	4,931	403	13,158	151
2018	1,339	797	2,136	37%	4,872	438	13,311	160
2017	2,191	1,271	3,462	37%	4,852	714	13,373	259
2016	2,039	1,116	3,155	35%	4,915	642	13,415	235
2015	2,000	1,600	3,600	44%	4,904	734	13,373	269

Source of refuse and recycling data: DuPage County Solid Waste and Recycling Annual Report (2015 to 2022).

Source of Household and Population data: US Census Bureau (2015 to 2022).

Public Recycling Events

Since 2009, the Police Department holds a yearly shredding event every May. In **2018, electronics recycling was added as an additional service.** The event gives residents the opportunity to recycle items such as computers,

Initiatives to Mitigate Consumption and Waste Production - *Continued*

modems, routers and office equipment, among other things. A summary of the amount of paper shredded is provided in the following table.

Event Date	Amount Shredded and Recycled
05/08/2021	8,920 lbs
09/18/2021	95 Gal containers x3 (no pounds provided)
05/07/2022	6,920 lbs
05/06/2023	7,680 lbs

Water Conservation and Management

Arbor Day Rain Barrel Giveaway

The Arbor Day event has **typically offered rain barrel giveaways as well as sold rain barrels** (decorated by local Wheaton Warrenville South High School art students).

Efforts to Reduce Usage in City Buildings

The City has continued to reduce water usage across the entire organization. In 2018, **Public Works staff installed low-flow plumbing fixtures and faucet sensors in restrooms** in Public Works, City Hall, and the Police Department. The City has also **installed a water bottle filling station**, at the Public Works Garage, to help reduce water usage and waste from discarded plastic bottles.

Inflow and Infiltration (I/I) Reduction

Stormwater can enter the sanitary sewer system directly via connections from sump pumps, downspouts, and area drains (inflow), and indirectly through cracks and failures of the sewer pipes (infiltration). Stormwater entering the sanitary sewer system increases the rate of water flow, and could cause sewer backups, especially during heavy rainstorms. In addition, stormwater entering the sanitary sewer system that should be going to the storm sewer system ends up costing residents more money for the treatment of that water that would otherwise be untreated.

In 2019, the City started an investigation program to help identify the sources of rainwater inflow and infiltration (I/I), and in turn make repairs. Methods staff use to identify locations of I/I include smoke testing of the sanitary sewer system, video camera inspections, and flow meters.

Utility Maintenance Task	2022	2021	2020	2019	2018
Manholes repaired	100	87	51	31	13
Sewers-cleaned (feet)	1,700	4,500	39,441	35,299	84,287
Sewers- Mainline Televised (feet)	30,229	24,570	20,305	59,871	90,012
Average Monthly Water Pumpage (gallons)	35,473,000	36,311,750	36,740,750	35,891,583	37,284,500
Maximum Daily Water Production (gallons)	1,862,000	1,940,000	2,161,000	2,172,000	2,662,000

Permeable Pavers

In 2007, the City installed permeable pavers along a one mile section of Warrenville Road, between Butterfield and Batavia Roads in order to direct rainfall away from storm sewer systems and back into the natural ecosystem. Unfortunately, the Warrenville Road permeable paver system did not function as originally presented due to the

Initiatives to Mitigate Consumption and Waste Production - *Continued*

compaction of the underlying supporting layers beneath the pavers, causing drainage and ponding issues, and was resurfaced in 2019.

The project also included permeable paver parking along Warrenville Road. Utilizing permeable pavers for parking, has been an effective utilization of the permeable paver system for the City. In summer of 2018, the City completed the conversion of parking along Warren Avenue, in proximity of the Police Department, from asphalt to permeable paver parking.

Utilization of Natural Plantings

The City has promoted the use of natural plantings (plant species), along with rain gardens and bioswales, to help improve water quality, reduce runoff, beautify the community, and help local wildlife. The City's 2016 Climate Action Plan promoted the planting of native trees, prairie plants, and grasses to support biodiversity. **Three rain gardens are maintained and located along 2nd Street, near Leone Schmidt Park and the Warrenville Historical Society City Museum.**

Water Ambassador Program

The ISAWWA Water Ambassador Program is an initiative created to elevate public perception, knowledge, and consumer education of the water industry. The program aims to accomplish these goals through presenting educational content in a manner that is relevant, engaging, and consistent among participants.

As mentioned in emerging projects, at the beginning of 2023, the Illinois Section American Water Works Association (ISAWWA) confirmed that Warrenville had achieved a Gold Level status as a Water Ambassador. ISAWWA annual awards is determined by the frequency and method of communications.

2022 was the first year the Utility Division participated in the program. It is staff's intent to continue to disseminate information on a regular basis, to provide City decision makers and residents with information on the local water system and best practices to protect, and maintain it.

More on the program can be found at: <https://www.isawwa.org/page/waterambassador>.

Other Important Climate Action Initiatives

The following summarize other important efforts the City has made to protect the environment and take action on climate change.

Battery Recycling

In 2011, the City’s Environmental Advisory Commission began a battery recycling program, allowing the public to recycle dry-cell type batteries at drop-off boxes located at City Hall. The batteries are disposed of in an environmentally friendly manner, preventing harmful chemicals contained in batteries from polluting the areas around garbage and landfill sites.

As of December 31, 2021, the program had collected and recycled 7,570 pounds of batteries. Over the course of 11-years, this is an average of 688 pounds of batteries recycled per year.



TOTALS POUNDS OF BATTERIES RECYCLED									
YEAR	Battery Type								Total Lbs
	Alkaline	Ni Cd	Ni MH	Lead	Li Ion	Lithium	eScrap	Other	
2021	630	28	18	9	23	44	1	1	754
2020	507	24	15	29	21	38	2	0	636
2019	964	42	30	39	43	72	4	1	1195
2018	752	27	25	6	24	46	2	2	884
2017	742	23	18	2	23	34	4	0	846
2016	352	29	15	83	33	30	4	1	547
2015	Data not available								630
2014	Data not available								338
2013	Data not available								850
2012	Data not available								450
2011	Data not available								440
Note: At the time of this report (5/31/2023), data for calendar year 2022 was not available.								Total	7,570
								Average	688

Beekeeping Zoning Ordinance Approval

At the April 6, 2015 City Council meeting, Council accepted the Plan Commission recommendation to pass the zoning ordinance 2916 approving text amendments to the Zoning Ordinance regarding beekeeping along with the sale of honey and related by-products as a permitted home occupation, under specific conditions. The amendment was brought forward by the EAC. Along with honey production, general benefits of backyard beekeeping include pollination of gardens and local flora, and positive impacts on local ecosystem and health of bee population.

Other Important Climate Action Initiatives - *Continued*

Prescription Drug Recycling Drop Box

In 2017, the Police Department installed a prescription drug recycling box in the lobby. Items recycled are picked up every two weeks. The box was provided by a grant from the DuPage Foundation and residents may place unwanted medications in the drop box during regular lobby hours.

Year	Total Pounds Recycled	Notes
2018	321	Total is from first pickup 11/30/17 through 2018.
2019	395	
2020	289	Program closed from 4/3 to 6/8, due to COVID-19.
2021	505	
2022	547	
2023	212	Total - as of 5/11/2023.

City Advisory Commissions

In 2006, the City Council established two advisory commissions that address issues related to climate change; the Bicycle and Pedestrian Advisory Commission (BPAC), and the Environmental Advisory Commission (EAC). Both organizations hold various events, programs, and initiatives throughout the year that reflect the City’s commitment to act against climate change.

As previously mentioned, BPAC encourages bicycle commuting and walking in lieu of motorized transportation. BPAC has been involved the development of the Bikeway Implementation Plan, designation of being a Bike Friendly Community, promotion of bike and walk to school events, has routinely organized an annual Bike Rodeo, and provides education on bicycle safety and encourage bicycling for commuting as well as recreation.



EAC promotes programs and initiatives geared towards enhancing environmental awareness and conservation within the city. EAC holds an Arbor Day event in late April, at which free tree saplings are given away to encourage tree planting around the community. EAC has been involved with numerous initiatives, such as river clean-ups, battery recycling programs, storm drain markers, and education campaigns.



Other Important Climate Action Initiatives - *Continued*

Citgo Remediation and Old Town Redevelopment Plan

In July of 2020, the City Council acquired the property formerly known as Pride/Phillips 66/Citgo gas station at 28W244 Warrenville Road. Professional services provided included site investigation, delivering a scope of hazardous materials and subsurface contamination on the property, and an estimate of cost and timeline to “clean up” the Property so it can support private mixed-use redevelopment and public open space/park use.

The City’s ultimate goal is to replace the contaminated and dilapidated gas station with uses that would enhance, rather than detract from, the character of the Old Town historical heart of the community and attract desirable private investment into the area. The contamination that has existed on the Site for more than 30 years must be properly remediated before it can be redeveloped.



Leaking Underground Storage Tank (LUST) Related Remediation and Building Demolition

In January of 2021, the City removed all remaining underground petroleum storage tanks and gas pumping equipment on the property, which included proper disposal of hazardous materials such as asbestos. The City continues to work with the IEPA to perform additional soil and groundwater investigation activities on the property. Results of these investigations will dictate what additional remediation work will be required. The majority of the LUST-related investigation, reporting, and remediation costs will be paid by the IEPA LUST Program.

In December 2021, all asbestos-containing materials (ACM) and other regulated building materials were abated and properly disposed.

ComEd Energy Efficiency Program

Since the start of the ComEd Energy Efficiency Program in 2008, ComEd’s business and residential customers have saved more than \$6.4 billion on their electric bills and 59.4 million megawatt hours of energy (that’s enough to power 6.8 million homes for a year). While this not a City program, it is worth noting the ComEd program has offered consumers free energy assessments, rebates and discounts on items like energy efficient appliances and smart thermostats, and education on ways to save energy at home. ComEd’s energy efficiency offerings are structured to ensure that all communities in their service territory, including Warrenville, benefit from participation (*program overview in Appendix D*).

Energy Efficiency Results for the Warrenville community (from 2018 through 2021)						
Residential Customers			Public Sector Customers (the City of Warrenville)			
600 Smart Thermostats Installed			100 LED Streetlights Installed			
77 Home Assessments Conducted			Business Customers			
300 Refrigerators Recycled			100 Business Projects Complete			
Energy savings from participation in the ComEd Energy Efficiency Program is the equivalent of						
700		4,200		600		7,149,300
homes powered	OR	Acres of trees	OR	cars removed from	OR	Pounds of CO ₂
for one year		planted annually		the road annually		reduced annually

Other Important Climate Action Initiatives - *Continued*

Herbicide Application Reduction

In 2003, the City decided to stop using herbicide (weed killers) on City-owned properties. An exception is made when specific applications are needed to kill invasive weeds prior to the installation of new natural plants, rain gardens, or other natural features. The reduction in herbicide usage creates cleaner air, reduces water pollution and benefits wildlife. It also creates child safe parks and public grounds for the community to enjoy.

Monarch Resolution and DuPage Monarch Project

In the fall of 2016, the Warrenville Monarch Resolution was adopted, resulting in two city-owned gardens getting registered on the MonarchWatch.org website, and the purchase and installation of a Monarch Waystation 9" x 12" aluminum sign for each garden. One garden is located on Police Department property along Batavia Road and the second is located at Cerny Park along River Road. The signs provide education to residents about the importance of creating native landscapes, native plants maintenance needs, and how native gardens provide wildlife habitat and enhance biodiversity.

The resolution aligns with the *Natural Landscaping Strategies* outlined in Warrenville's Climate Action Plan and supports the DuPage Monarch Project (DMP), which is comprised of a partnership of the Forest Preserve District of DuPage County, Sierra Club's River Prairie Group, The Conservation Foundation, and Wild Ones Greater DuPage Chapter to support county-wide efforts for creating and restoring monarch butterfly friendly places.

The *2022 DuPage Monarch Project: Protecting Pollinators Annual Report* recognized a project of Warrenville in Bloom (a community organization and community partner to the City), where volunteers planted a butterfly garden along the Illinois Prairie Path in Warrenville, adding 10,000 square feet of new habitat for pollinators.

Mosquito Abatement and Larvicide Program

The City ceased a mosquito abatement program in 2000, following an advisory referendum on raising property taxes to pay for the spraying. City also was responding to some residential concerns about the potential health risks posed by the chemicals that are used during the spraying process. Further, the effectiveness of spraying pesticides is limited since Warrenville is surrounded by open spaces, forest preserves and Fermilab.

Public Works staff continue to stay informed on mosquito abatement best practices recommended by industry professionals, as well as provide education on what residents can do to reduce breeding sites on personal property through articles in Hometown Happenings, as well as posting resources on the City website.

Promotion and Volunteering on Habitat Restoration Projects

EAC has participated in the Ferry Creek Clean Up (hosted by the Conservation Foundation) from 2015 to 2019, and 2021 to 2023.

Due to COVID, the traditional event for 2020 was cancelled. To adapt, the Conservation declared the month of May as DuPage River Sweep Month and encouraged people to go out by themselves, or with people in their households, to clean up trash on trails or waterways.

Water Protection

Coal Tar Ban

In 2022, **City Council passed ordinance O2022-05, Title 3, Chapter 28, which bans the use of coal-tar products.** The ordinance took effect starting January 1, 2023. The **purpose of the ban is to protect people and waterways.** Coal tar is a known human carcinogen (USGS 2015) and toxic to aquatic life. Coal tar is the single greatest source

Other Important Climate Action Initiatives - *Continued*

of polycyclic aromatic hydrocarbon (PAH) contamination in the West Branch of the DuPage, which runs through Warrenville. 322 letters were sent out information regarding the ban, going to a combination of homeowner associations, commercial property owners and sealant contractors. To date, no violations have been reported, and there have not been any complaints from contractors.

Hydrant Flushing

Twice a year, in the spring and fall, Utility Division staff flush city fire hydrants, as a part of their routine maintenance, to ensure quality of water.

Hydrant Maintenance	2022
Hydrants Flushed	1,352
Hydrants Replaced	0
Hydrants Repaired	7



Salt Usage Monitoring

The Warrenville Public Works Department staff is dedicated to delivering high quality, timely, and equitable services to internal and external customers, which includes snow removal on public roads and sidewalks for safe commuting during inclement weather. In turn, community members have come to expect and rely on this service to keep up with their daily responsibilities.

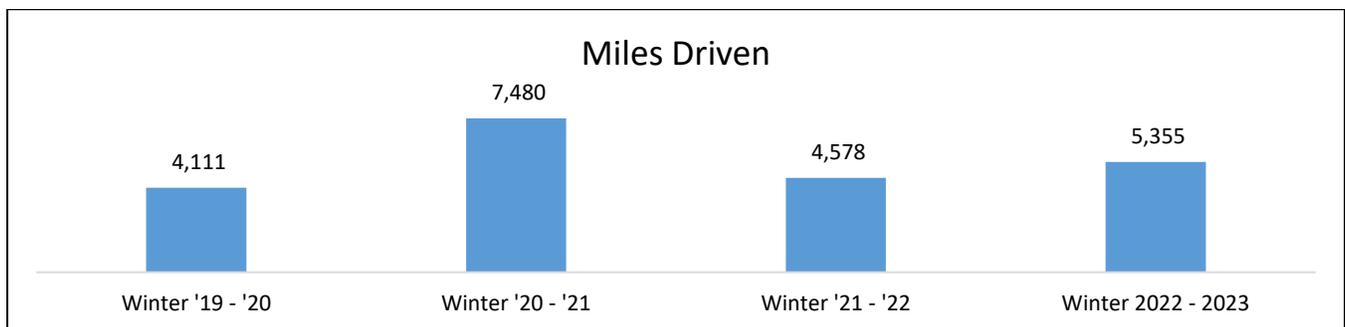
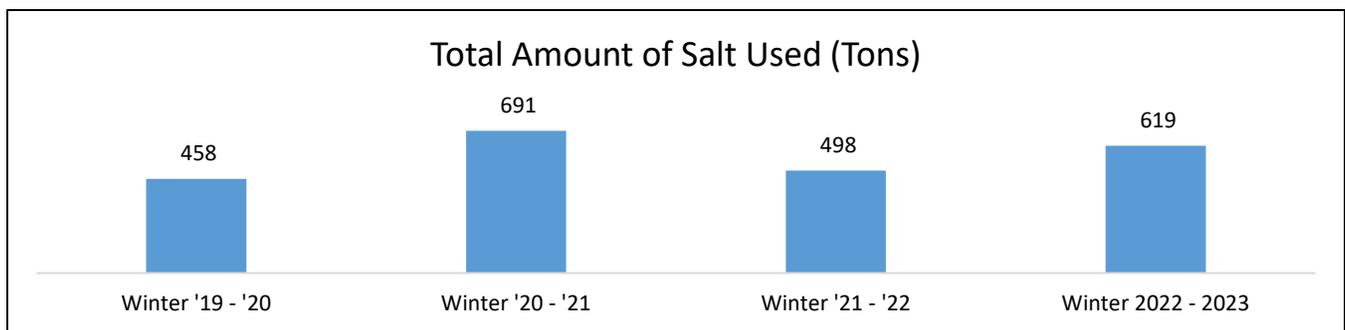
Since the 2019-20 winter season, Public Works staff have tracked the amount salt applied on city roads, along with mileage of each snow plow trip. The purpose of collecting this data is to provide a better understanding of the City's salt usage on winter roads, which helps inform the budgeting process, and provide context on potential environmental and community impact.

There was a direct correlation in the amount of salt used with distance covered on Warrenville roads, as summarized in the follow table and graphs. While there is not a record, staff estimated using at least 1,000 tons of salt, for winters prior to 2019-'20. From winter 2019-2020 to 2022-2023, an estimated 458 to 691 tons of salt was used over the course of a season.

Other Important Climate Action Initiatives - *Continued*

Many factors go into the amount of salt used on winter roads, such as when a storm starts, storm severity, duration of storm, frequency and number of storms each season, traffic conditions, etc. These factors cannot be controlled by staff and at this time are not tracked, but could explain variation in the data.

Salt Usage Estimate Summary				
Estimates Salt Usage	Winter '19 -'20	Winter '20 -'21	Winter '21 -'22	Winter '22 -'23
Total Amount of Salt Used (Tons)	458	691	498	619
Miles Driven	4,111	7,480	4,578	5,355
Total Number of Trips	73	109	60	94
Average Amount of Salt Used Per Trip (Tons)	7.06	7.84	8.31	6.89
Tons of Salt Dispersed per Miles Driven	0.11	0.09	0.11	0.12



Community members who live, work, play and/or commute through Warrenville, have an expectation on snow removal service levels to be efficient and effective on deicing public roads and sidewalks. This expectation plays a significant role on practices implemented (see *Recommendations*, page 29, for current practices), and as long as this level of service expectation remains the same, it is unlikely to see any significant reductions in salt use.



Other Important Climate Action Initiatives - *Continued*

Recommendations to Manage Salt Usage
<p>Recommendation #1. In an effort to use the right amount of salt to keep roads safe, while also working to reduce its impact on the environment, Public Works staff should continue to implement the following practices:</p> <ul style="list-style-type: none">• Utilize a mix of beet juice and salt brine, to pre-wet the road salt, which helps reduce the volume of salt required; and,• Attend annual deicing workshop (hosted by DuPage County), that covers approaches and methods for deicing and snow removal on public roads, with the intent to reduce the amount of salt that makes it into area streams and rivers, to improve water quality.
<p>Recommendation #2. With data available, compare Warrenville’s salt usage per miles driven with other agencies. This may help give further insight in the efficiency of Warrenville’s practices.</p>
<p>Recommendation #3. Continue to track salt usage, with the purpose to have a more accurate understanding of how much salt is used each season. Further, the DuPage River Salt Creek Workgroup performs an annual survey of communities, seeking this information. Given the attention to chloride levels in the surface waters (rivers, creeks, lakes) and groundwater, gathering data on Warrenville’s usage will be important if any state or federal regulations are implemented in the future, and there is a need to adapt to them.</p>
<p>Recommendation #4. With the development of residential and commercial areas in the community, it may be worth reviewing how routes are divided among staff, and make any adjustments that would promote efficiency in deicing.</p>
<p>Recommendation #5. In consideration of the increasing chloride levels in northeastern Illinois rivers, lakes and wetlands, which causes damage to vehicles, infrastructure and the environment, particularly the health of local waterways (Salt Smart Collaborative, https://saltsmart.org/), it is recommended for staff to stay informed on best practices and information related to deicing, snow removal, and salting alternatives, and to engage in discussion with other agencies on the challenges in snow removal and deicing practices, and how mitigate potential environmental and community impacts of road salt.</p>

Stormwater Management

2022 Stormwater Grant

Staff worked with a consultant to apply for the DuPage County Stormwater Management Municipal ARPA Grant Program in April of 2022. DuPage Stormwater Committee approved the grant to upgrade existing City storm sewer on Virginia Avenue and Central Avenue during calendar year 2023. This project will complete the City’s upgrade of storm sewer that drains an area generally north of Warrenville Road, east of Virginia Avenue, west of West Avenue, and south of Galusha Avenue.

Quarterly Facility Inspections

In 2022, Public Works staff began to conduct quarterly facility inspections at municipal facilities, with the goal to minimize pollution from stormwater runoff and ensure compliance with IEPA requirements.

Storm Drain Marker Project

In 2015 and 2016, EAC received SCARCE grants to purchase and apply “No Dumping – Drains to River” markers to City storm drains. Storm drain markers were applied, in collaboration with Brennan McGowan, a Boy Scout with Troop 514, as a part of his Eagle Scout project, and by a local 4-H Club throughout the City.



Conclusion

From the past year, Warrentville has continued to research alternative fuel and energy sources that would bring efficiency to energy consumption, and look for opportunities to implement climate friendly policy, programming, and service. These efforts are met with challenges related to supply, cost, and time, but will continue to be pursued.

For the summer of 2023, staff look forward to implementing the new tree management program, as well as ribbon cutting to mark the completion of the Trailhead Project. Response themes identified from the Warrentville 2023 National Community Survey can be used in discussion, as staff and local decision makers consider how to improve services provided to residents and other community stakeholders.

This Climate Action Report is to serve as a living document. It will continue to be developed overtime to help provide a better understanding of ongoing efforts in the Warrentville community. Longer term, this update will strive to track data, look for patterns, and develop benchmarks to assess progress, particularly to:

- Get a better understanding of Warrentville's emission sources, and effectiveness at minimizing them; and,
- Get a better understanding of the costs and benefits to provide services related to climate action what and steps have improved efficiency and effectiveness.

Appendix A. 2007 Energy Emission Profile

Warrenville Energy and Emissions Profile

This profile provides energy consumption and greenhouse gas emissions data analyzed specifically for Warrenville. It is designed to give you information about how energy is consumed by your entire community. Use this report to prioritize strategies for energy efficiency and conservation and measure their progress.

The Value of Your Profile

Your profile includes annual citywide electricity and natural gas consumption, vehicle miles traveled, and a greenhouse gas emissions profile. Having this aggregate baseline data at the local level is important because it makes it possible to accurately benchmark energy use. Simply put, you cannot measure energy savings without first knowing your actual energy consumption. Further, pinpointing your community's energy trends will help you target the most effective programs to reduce energy use and costs.

About the Project

Your community's profile is part of a larger project called the Municipal Energy Profile Project (MEPP). The goal of MEPP is to provide all municipalities in the seven-county Chicago metropolitan region¹ with an energy and emissions profile and corresponding tools and resources to help each community best utilize the information presented in the profile.²

At the regional level, MEPP helps municipalities obtain a crucial starting point to discuss energy issues within their community. The communities in the Chicago metropolitan region will be better equipped to tap into existing regional and state resources while positioning the region for ongoing funding towards building a sustainable future.

This project is funded by the Illinois Clean Energy Community Foundation and relies on support from ComEd, Nicor, Peoples Gas, North Shore Gas, and Illinois Department of Transportation.

What's in Your Energy and Emissions Profile?

Introduction sections have been included before each dataset to familiarize readers with a few key concepts.

Section 1: Using Your Profile

Section 2: Electricity Consumption in Warrenville

Section 3: Natural Gas Consumption in Warrenville

Section 4: Transportation - Vehicle Miles Traveled in Warrenville

Section 5: Emissions Profile for Warrenville

¹ The seven counties in the region include Cook, DuPage, Kane, DuPage, Lake, McHenry and Will.

² CNT Energy is providing a MEPP guidebook; workshops and free technical assistance.

Section 1: Using Your Profile

While many municipalities have begun to identify strategies that impact municipal operations, recent funding opportunities provide an unprecedented opportunity to adopt broader community-wide strategies that will help residents and business owners reduce energy use and costs. The aggregate data and information provided in this profile can help in strategy development in the following ways:

- 1) **Baseline Metrics**: Serves as a starting point from which to measure the progress of strategies and programs.
- 2) **Accurate Data and Measurements**: Provides a more accurate picture of your community's average energy consumption based on actual utility data instead of national or regional averages. This will help you better calculate the potential for strategy savings, both individually and at scale.
- 3) **Data Indicators**: May assist in identifying some areas for targeting strategies. For example, a municipality whose average household energy consumption is significantly higher than the county may want to investigate the reasons why and identify potential residential energy saving strategies. (e.g. Is our average higher due to larger houses? Is it because we have an older, less efficient housing stock?)

More detailed examples are provided in the Guidebook for the Municipal Energy Profile Project.

Guidebook for the Municipal Energy Profile Project

To further investigate how you might use this profile, CNT Energy invites you to review the Guidebook for the Municipal Energy Profile Project; available at www.cntenergy.org. The Guidebook includes the following topics:

- Understanding your profile
- Municipal energy strategies
- Community-wide energy strategies
- Funding resources and technical assistance
- Glossary of energy terms and acronyms

Technical Assistance

Through the early part of 2011, CNT Energy will continue to provide free technical assistance to help communities understand their profile and provide information and resources for specific energy-related issues in their communities. For more information, please contact us:

Lindy Wordlaw, Senior Planner
773-269-4012 ▪ lindy@cntenergy.org

Kimberly Loewen, Planner
773-269-4089 ▪ kloewen@cntenergy.org



Section 2: Electricity Consumption in Warrenville

Electricity

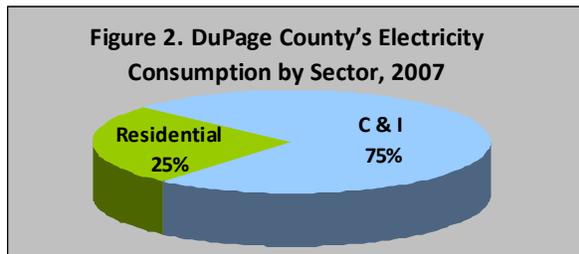
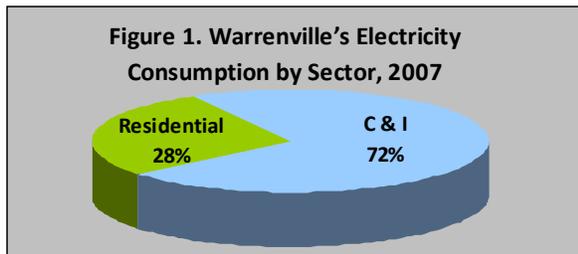
Electricity consumption in both the residential and commercial/industrial (C & I) sectors is currently increasing nationwide. Growth in consumer electronics and information technology equipment, as well as an increase in home size and air conditioning use are prominent reasons for consumption increases in the residential sector. In the commercial/industrial sector, increasing consumption is driven by telecommunication and network equipment along with specialized technologies such as medical imaging advancements.³ Electricity is measured in kilowatt (kWh) hours.

Total Consumption

In 2007, the amount of electricity consumed in Warrenville was 158 million kWh (Table 1). 28% of the city's electricity consumption occurred in the residential sector; the remaining 72% was consumed in the C & I sector. Figure 1 and Figure 2 compare electricity consumption by sector in Warrenville and DuPage County⁴.

Table 1. Total Electricity Consumption (kWh), 2007

	Warrenville	DuPage County
Residential	43,857,364	3,046,756,030
C & I	113,917,275	8,931,290,066
Total	157,774,640	11,978,046,096



Residential Consumption and Costs

In the residential sector, the city's average annual consumption per household is 9,143 kWh. Factors that affect electricity usage include square footage, presence and efficiency of air conditioning, efficiency of lighting, appliances and systems, and occupant behavior. Table 2 compares city's average annual consumption and cost per household to that of the county.

Table 2. Residential Electricity Consumption & Costs, 2007

	Warrenville	DuPage County
Number of Households	4,797	338,050
Average kWh per Household	9,143	9,013
Average Annual \$ per Household*	\$984	\$970

*Calculated using average residential sales per kWh (ICC Utility Sales Statistics 2007)

³ Energy Information Administration: "Miscellaneous Electricity Services in the Buildings Sector", AEO2007 <http://www.eia.doe.gov/oiaf/aeo/otheranalysis/mesbs.html>

⁴ For municipalities located within more than one county, the county that contains the largest area of the municipality was used for comparison purposes for this report.

Section 3: Natural Gas Consumption in Warrenville

Natural Gas

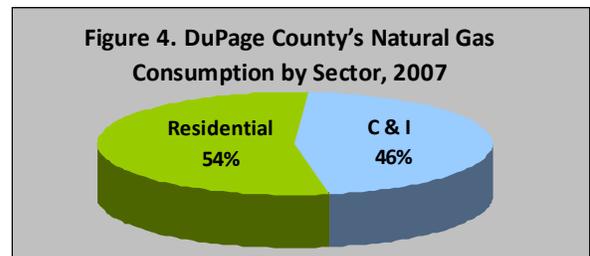
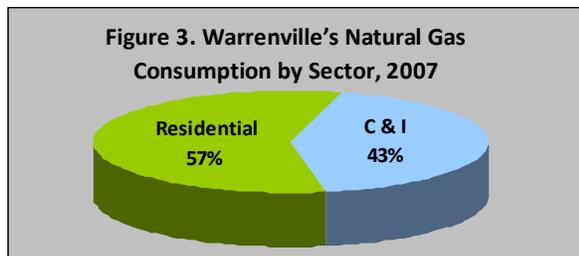
In Northern Illinois, natural gas is the primary space heating fuel. In addition to space heating, natural gas is commonly used for hot water heaters, clothes dryers, and cooking in the residential sector. However, natural gas consumption has been decreasing slightly over time in both the residential and commercial/industrial sectors as homes and buildings become more efficient and de-industrialization occurs. Natural gas is measured in therms.

Total Consumption

In 2007, the amount of natural gas consumed in Warrenville was 8.6 million therms (Table 3). 57% of the city's natural gas consumption occurred in the residential sector; the remaining 43% was consumed in the C & I sector. Figure 3 and Figure 4 compare natural gas consumption by sector in Warrenville and DuPage County.

Table 3. Total Natural Gas Consumption (Therms), 2007

	Warrenville	DuPage County
Residential	4,906,353	313,707,381
C & I	3,663,523	268,672,694
Total	8,569,876	582,380,076



Residential Consumption and Costs

In the residential sector, the city's average annual consumption per household is 1,023 therms. Factors that affect natural gas usage include building size, building age, building envelope efficiency, efficiency of the furnace, boiler and water heater, as well as occupant behavior and building operations and maintenance. Table 4 compares the city's average annual consumption and cost per household to that of the county.

Table 4. Residential Natural Gas Consumption & Costs, 2007

	Warrenville	DuPage County
Number of Households	4,797	338,050
Average Therms per Household	1,023	928
Average Annual \$ per Household*	\$908	\$824

*Calculated using average residential sales per therm (ICC Utility Sales Statistics 2007)

Section 4: Transportation – Vehicle Miles Traveled in Warrenville

Typically, transportation accounts for the second largest portion of energy usage after buildings. For this report, Vehicle Miles Traveled (VMT) was tabulated from travel statistics provided by the Illinois Department of Transportation (IDOT) and scaled to your municipality based on Illinois Environmental Protection Agency (IL EPA) odometer and population data.

Total Consumption

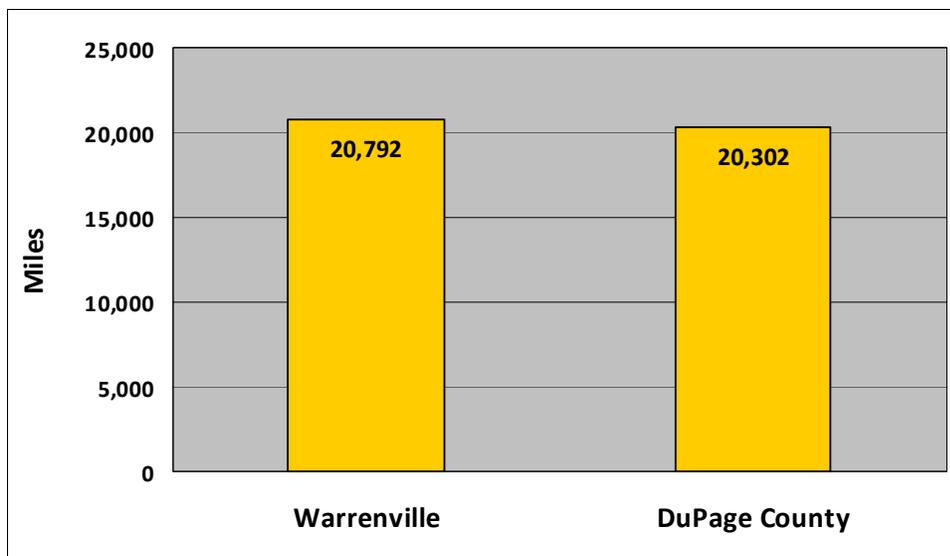
In 2007, total on-road travel on Warrenville roads accounted for 125 million miles (Table 5), which captures trips only within municipal boundaries. Further analysis shows that the average household in Warrenville drove 20,792 miles (Figure 5), totaling 99.7 million miles for all Warrenville households.

Table 5. Vehicle Miles Traveled (VMT), 2007

	Warrenville	DuPage County
Total On-Road VMT	125,473,896	8,633,562,650
Household VMT	99,741,069	6,862,947,547

Factors that affect VMT per household include access to jobs, proximity to businesses and amenities, availability of public transportation, and community walkability. Variations are also influenced by many different demographic factors including income, household size, and workers per household. For example, large households with higher incomes may own multiple cars and drive more. Households situated close to reliable public transit or major employment centers may experience decreased annual VMT because they are not as dependent on cars.

Figure 5. Average Vehicle Miles Traveled per Household, 2007



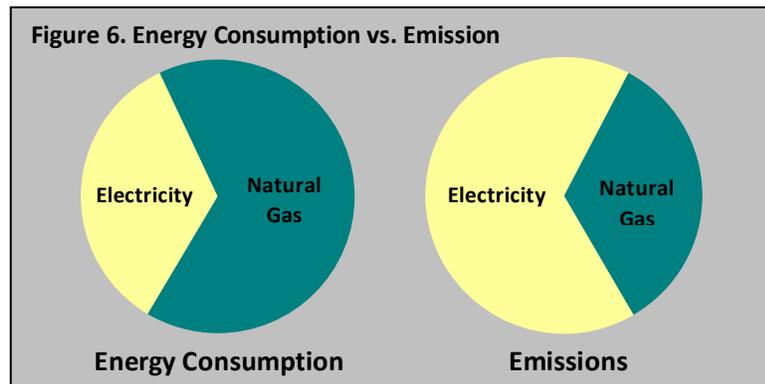
Section 5: Emissions Profile for Warrenville

The Connection between Energy and Emissions

In addition to understanding energy consumption, it is important to recognize the relationship between energy and greenhouse gas emissions. Emissions attributed to electricity consumption are different from those attributed to natural gas consumption because of differences in the production of energy from different sources.

Most of the world's energy originates from the burning of fossil fuels including coal, petroleum, and natural gas. Fossil fuels consist of hydrogen and carbon, and when burned, the carbon combines with oxygen to create carbon dioxide.

However, all energy is not created equal. The amount of carbon dioxide produced for a given unit of energy depends on the carbon content of the fuel source. For example, coal (used to produce electricity) emits nearly two times the carbon dioxide per unit of energy compared to natural gas. Understanding this off balanced relationship is important when calculating emissions and identifying strategies to reduce emissions. Figure 6 illustrates this off balanced relationship between energy consumption and emissions, using data from the Chicago metropolitan region. Understanding this off balanced relationship is important when calculating emissions and identifying strategies to reduce emissions.



Emissions Calculations

Your municipal greenhouse gas emissions profile was calculated for 2007 using United Nations Intergovernmental Panel on Climate Change (IPCC) methods and local data sources in combination with modeling of national data to local demographics. All data presented are measured in metric tons (MT) or million metric tons (MMT) CO₂e (carbon dioxide equivalent), to enable comparison internationally.

Emissions were calculated for the six major categories of greenhouse gases regulated under the Kyoto Protocol: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Emissions were converted into CO₂e using global warming potentials from the IPCC Fourth Annual Assessment Report. Activity data were translated into emissions using standard emissions factors and global warming potentials.

Emissions Profile for Warrenville

An energy profile in the community serves as the basis for conducting a community greenhouse gas emissions profile. In addition to energy and transportation, which are by far the biggest contributors to greenhouse gas emissions, this emissions profile includes estimates for solid waste, waste water, and product use based on regional totals previously analyzed for a regional profile developed for the Chicago Metropolitan Agency for Planning (CMAP).

Below is the breakdown of Warrenville’s emissions by sector (Table 6 and Figure 7).

Table 6. Warrenville’s Emissions by Sector, 2007

Sector	MMT CO ₂ e
Electricity	0.111
Natural Gas	0.046
Transportation	0.063
Solid Waste	0.002
Waste Water	0.002
Product Use	0.007
TOTAL	0.229

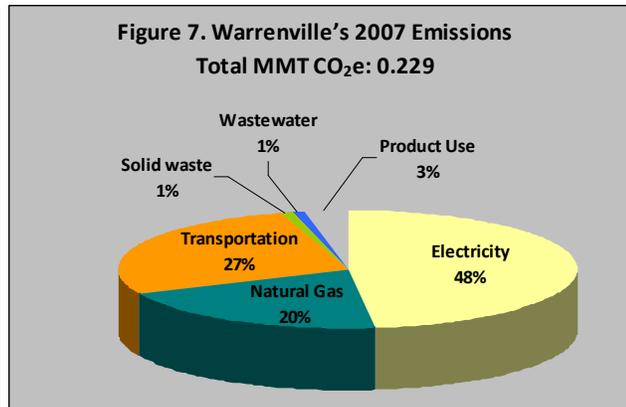
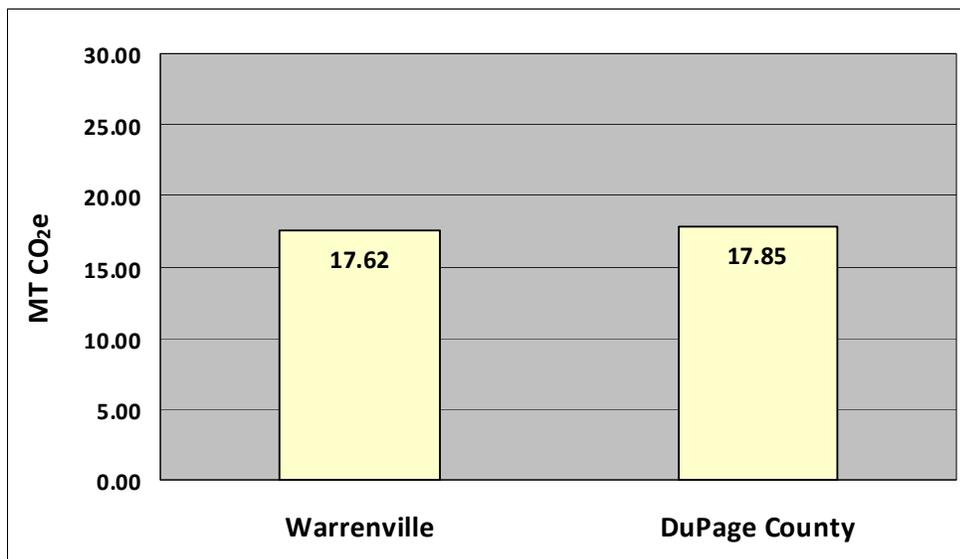


Figure 8 provides another context through comparison of Warrenville’s and DuPage County’s 2007 emissions per capita.

Figure 8. Per Capita Emissions, 2007



Appendix B. Warrenton 2019 Municipal Emissions Summary

Warrenville

2019 municipal emissions summary

This local emissions summary was developed as part of the 2019 greenhouse gas emissions inventory for northeastern Illinois. The summary is not an exhaustive inventory but captures greenhouse gas emissions from most major sources. It is intended to help decision makers understand key emissions sources and provide communities with the information needed to begin developing emissions reduction plans. For more details on the methods and data sources used to prepare the summary, please refer to the [local emissions summaries methodology](#).

Community characteristics

Population	13,553
Jobs (full- and part-time)	7,533
Median household income	\$87,871
Share of owner-occupied housing units	79%
Land area (acres)	3,570
Tree coverage*	36%
Impervious surfaces*	38%
Greenest region compact member	No

*percent of land area

Emissions summary

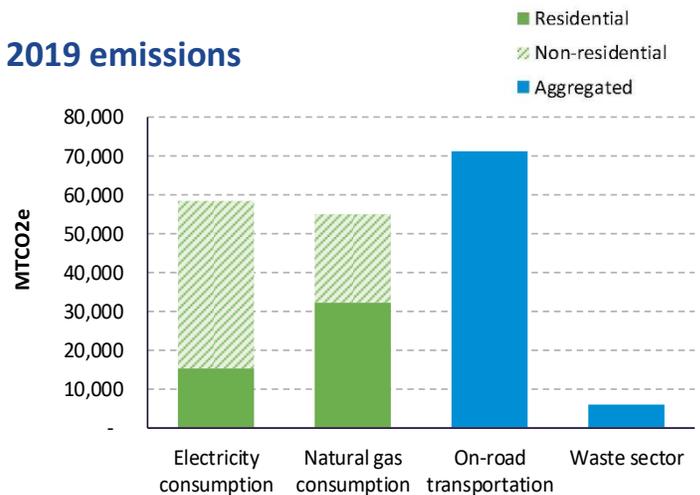


2019 emissions summary (MTCO₂e)

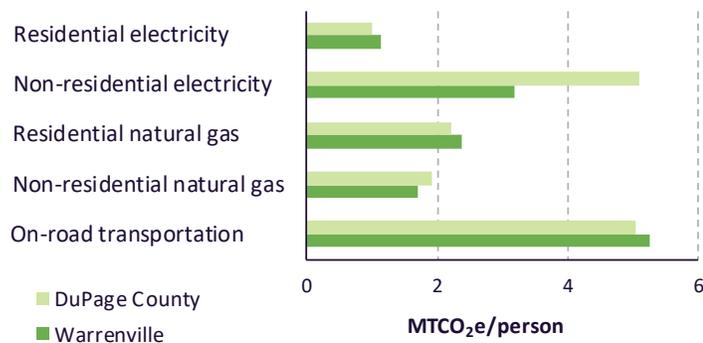
Residential electricity	15,298
Non-residential electricity	43,342
Residential natural gas	32,219
Non-residential natural gas	22,936
On-road transportation	71,321
Waste sector	5,883

MTCO₂e = metric tons of carbon dioxide equivalent

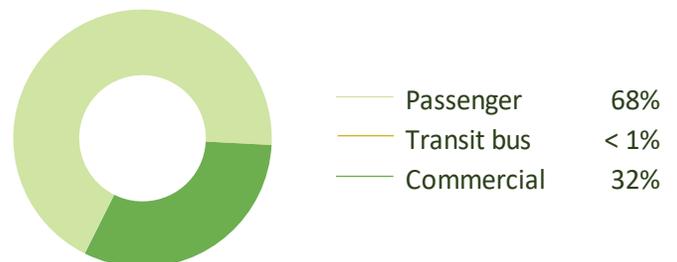
2019 emissions



2019 per capita emissions



On-road transportation emissions breakout



Energy characteristics



2019 energy consumption

Residential electricity (kWh)	39,324,226
Non-residential electricity (kWh)	111,408,562
Residential natural gas (MMBtu)	606,590
Non-residential natural gas (MMBtu)	431,819

kWh = kilowatt hours; MMBtu = million British thermal unit

Renewable energy information

Solar potential (megawatts)	66
SolSmart designation	Gold

Data not available for all municipalities

2019 per capita energy consumption

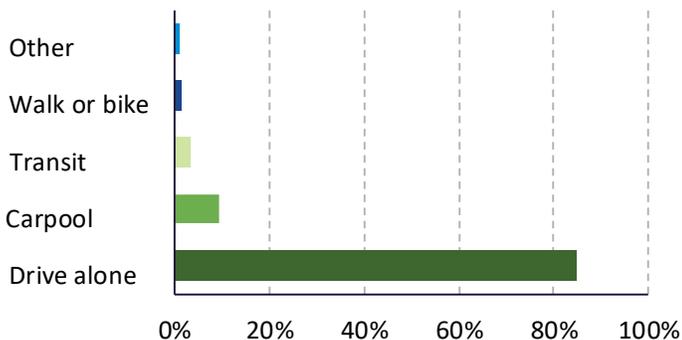
	Warrenville	DuPage County	CMAP Region
Residential electricity (kWh/person)	2,902	2,609	2,844
Non-residential electricity (kWh/person)	8,220	13,091	7,279
Residential natural gas (MMBtu/person)	45	42	38
Non-residential natural gas (MMBtu/person)	32	36	38

kWh = kilowatt hours; MMBtu = million British thermal unit

Transportation characteristics



Mode of travel to work



Electric vehicle information

Electric vehicles	40
Public charging stations: level 2	0
Public charging stations: DC fast	0
Public charging stations: total	0

Transportation details

	Warrenville	DuPage County	CMAP Region
Vehicles per household	2.0	2.7	2.0
Electric vehicles (% of passenger vehicles)	0.3%	0.4%	0.2%
Share of residents with at least moderate walkability	6%	40%	64%
Share of residents with at least moderate transit access	66%	66%	74%
Residential vehicle miles traveled (per household)	21,419	20,878	17,165

Data are not available for all municipalities

Appendix C. Tree Management and Planting Plan Memo

CITY OF WARRENVILLE

MEMO

To: Mayor, City Council, and City Administrator White
From: Public Works Director Kuchler 
Subject: PROPOSED TREE MANAGEMENT AND PLANTING PLAN
Date: December 7, 2022

The purpose of this memorandum is to summarize *i.*) the City's past tree planting and management policy; *ii.*) the staff recommendation for proactive maintenance of the City's parkway trees, and *iii.*) the staff recommendation for an increased annual parkway tree planting program.

Staff Recommendation

In order to increase the City's parkway tree canopy, staff was asked to evaluate the City's current parkway tree planting practices, and develop a recommendation for future parkway tree planting.

Staff is recommending the City budget an additional \$25,000 in the General Fund, for staff to plant 125, 1" to 2" diameter parkway trees, including 100 new trees and approximately 25 tree replacements each year. The number of trees removed each year varies, and staff is recommending that each one of those trees removed be replaced with a new parkway tree. The planting program will help increase the City's tree canopy, and the diversity of the tree species throughout the City.

Past Parkway Tree Planting and Management

The City's records on past tree management activity is limited, but the table below summarizes data from historical Tree City USA applications (*N/A = not available*). These numbers do not include Route 56 trees. The City's landscape contractor has pruned the nearly 600 trees in the Route 56 right-of-way.

Year	Planted	Pruned	Removed
2012	122	N/A	75
2013	127	N/A	N/A
2014	61	425	82
2015	90	325	111
2016	54	198	45
2017	10	225	43
2018	2	400	25
2019	9	400	9
2020	111	350	75
2021	8	500	75
2022	20	500	40
Average	56	331	58

When the Emerald Ash Borer (EAB) came to Warrenville, the City's policy on non-EAB tree replacement was changed to residents paying for the replacement tree the City staff installed. Residents were responsible for watering trees after installation. Prior to that, the City's practice was to pay for and install replacements of parkway trees that were removed each year.

Anecdotally, Public Works staff has reported that 660 ash trees were removed over a five year period, around 2010. When removing the ash trees, the City offered to pay for and plant new parkway trees for residents who wanted them. The City did not replace every single EAB removal, but staff estimates that 90% of the EAB removals were replaced with new parkway trees. The 90% estimate is based on staff's collective memory, and not actual data.

The City hired Davey Resource Group (DRG) to inventory City trees and develop a general Management Plan in late 2019. DRG completed the tree inventory and submitted its plan in May 2020. The tree survey counted 3,911 parkway trees, with 567 of those in the Route 56 right-of-way. The survey has been incorporated into the City's GIS and is available on the City's website with other GIS maps. Staff updates the tree information as it performs maintenance, removals, and plantings. The updated count is 3,860 trees.

DRG recommended the City perform proactive maintenance of all City parkway trees every 5 years. This means 20% of the trees will receive annual proactive maintenance, primarily pruning of branches to maintain a healthy tree canopy. Due in large part to the pandemic response, no action was taken in 2020 and most of 2021, on the DRG recommendations. Staff began increasing its efforts to prune trees during the 2021 – 2022 winter.

Proposed Parkway Tree Planting and Management

Staff proposes to continue to prune 20% of the non-Route 56 trees each year, while the City's landscape contractor continues to prune the Route 56 trees. This means staff will prune approximately 660 trees each year, initially. This is estimated to take approximately 1,000 staff hours per year, which should remain fairly consistent for the first ten years of the program, even with adding 1,000 trees during that time. The new trees will require very little pruning during that time, so the additional staff time will be minimal. Additionally, with more frequent pruning, the mature trees will take slightly less time after the first five year cycle of pruning. Staff estimates that after the first ten years of the planting program, the new trees will be large enough to start contributing to the City's tree canopy, and the hours of staff time will increase.

Staff evaluated parkway tree sizes and is proposing to focus on 1" to 2" diameter trees. The smaller diameter trees offer up several advantages over larger 2.5" to 3" diameter trees. Based on staff experience, the smaller trees adapt and become established in their new environment quicker than the larger trees. In fact, the smaller trees surpass the larger trees in size in the first few years, soon after being planted. Staff consulted with the Chicago Regional Tree Initiative (CRTI), who provided the following information:

“Essentially, establishment periods increase with tree size. It very much depends on proper site preparation and frequency of watering. Larger trees require larger amounts of water during establishment. Ed Gillman's research also points out that small nursery stock (2-

inch caliper) could grow to be as big as larger nursery stock (4-inch caliper) within a few years after planting (Gilman et al. 1998). This is generally because of the shorter establishment period.

For all the trees that the CRTI plant, we max out at about 1-2" caliper (we buy container trees, normally #15). I think this size works great for street trees because they're large enough to make a visual impact but the smaller trees do establish more quickly. Unless you have a history of serious vandalism of small trees, that's my general recommendation."

Criterion	Small-sized Nursery Stock	Large-sized Nursery Stock
establishment period	quick	slow
irrigation period after planting	brief	extended
susceptible to drought or flood	briefly after planting	for an extended period
number of trees planted per dollar	large	small
pruning needs	high	moderate
cost of nursery stock	inexpensive	more expensive
suitability for compacted/poorly drained soils	well-suited	could be poorly suited

CRTI staff provided a link to the University of Minnesota webpage for “Watering newly planted trees and shrubs”. The following table was pulled from that page:

Caliper of tree trunk	Root establishment time	Gallons of water at each irrigation
1 inch	1.5 years	1-1.5 gallons
2 inches	3 years	2-3 gallons
3 inches	4.5 years	3-4.5 gallons
4 inches	6 years	4-6 gallons
5 inches	7.5 years	5-7.5 gallons
6 inches	9 years	6-9 gallons

Therefore, staff proposes to plant smaller diameter parkway trees, which will adapt faster, start growing sooner, and require less watering from the residents, with a higher survival rate. Additionally, staff can handle planting the smaller trees with current equipment. Based on the recommendation on page one, this would take an estimated 350 staff hours to coordinate with property owners, order, pick up, and plant the parkway trees each year. The purchase cost per tree is estimated to be \$200, based on current pricing from local nurseries. The resulting annual budget increase would be approximately \$25,000.

Please note that Alderman Weidner submitted a Fiscal Year 2024 City Council / Elected Official Budget Consideration Request, which is attached as Attachment B. Staff met with Alderman Weidner on December 7, 2022, to discuss his proposal and staff’s parallel recommendation. While both proposals have the same goal of planting approximately 100 new parkway trees each year, there are some differences in the process to achieve that goal, and the associated costs.

After the discussion, there was agreement that staff's recommendation is a good place to start and that the program will evolve over time, as new opportunities and challenges present themselves. Staff will continue to evaluate the program annually, including the success of obtaining trees from local nurseries, cost efficiencies, and survivability rate of newly planted trees to determine if adjustments to the process are needed. Staff will also investigate and apply for grant funding opportunities, as appropriate.

Proposed Annual Planting Process

Each year, staff will hang door hangers throughout the targeted area by February 1st, soliciting interested residents to submit their requests for parkway trees by March 1st. The choices of species will be limited to the current tree list for parkway trees (Attachment A). The prices aren't applicable for the residents, since the City would be paying for the trees. Staff will coordinate with residents on their requests in the month of March, with plantings to be split into two groups, the first being planted in April, and the second being planted in October.

Staff will factor in the goal of tree diversity with the planting of new parkway trees, so the property owner's choices will be additionally restricted because of that factor. Staff will also need to confirm the feasibility of planting a tree at each requested location. Some basic spacing guidelines will be provided to the property owners with the door hanger.

After evaluating information from maps on the CRTI and Tree Equity Score websites, and the City's tree inventory, staff is proposing to plant 100 new parkway trees along both sides of Continental Drive, between Route 59 and Johnson School. There are very few trees along this stretch of road. Since there are very few homes with frontage along this stretch of Continental, the coordination with individual residents will be limited, and the City will need to make sure these trees get watered. Staff plans to plant these trees in the fall of 2023, and utilize summer help to fill gator bags, as necessary in the summer of 2024.

Certified Arborist Support

The City does not have a Certified Arborist on staff, however the Community Development Department utilizes a consulting Certified Arborist to review development plans. Public Works occasionally utilizes the same arborist, when questions arise, or staff needs advice. Staff is proposing to continue this practice.

Appendix D. ComEd Energy Efficiency Program

City of Warrenville

Program Overview

Since the start of the ComEd Energy Efficiency Program in 2008, our business and residential customers have saved more than \$6.4 billion on their electric bills and 59.4 million megawatt hours of energy - that's enough to power 6.8 million homes for a year. Our energy efficiency offerings are structured to ensure that all communities in our service territory benefit from participation. Here's how your community fared in 2018 - 2021.

Energy Efficiency Results for the City of Warrenville

1,300

Total
Participants

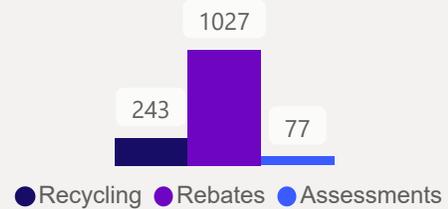
\$462,300

In Total
Savings

Residential Customers

-  **600** Smart Thermostats Installed
-  **1,000** Number of Rebates Given
-  **77** Home Assessments Conducted
-  **300** Refrigerators Recycled
-  **\$110,300** Total Bill Savings

1,200 Participating Residential Customers



Public Sector Customers

-  **100** LED Streetlights Installed
-  **\$38,300** Total Incentives Paid
-  **\$15,100** Total Bill Savings

Business Customers

-  **\$565,500** Total Incentives Paid
-  **100** Business Projects Completed
-  **\$336,900** Total Bill Savings

Total Energy Savings are the Equivalent of:



700

homes

powered for
one year

or



4,200

acres

of trees planted
annually

or



600

cars

removed from the
road annually

or



7,149,300

pounds

of CO2 reduced
annually

City of Warrenville

Program Overview

Since the start of the ComEd Energy Efficiency Program in 2008, our business and residential customers have saved more than \$6.4 billion on their electric bills and 59.4 million megawatt hours of energy - that's enough to power 6.8 million homes for a year. Our energy efficiency offerings are structured to ensure that all communities in our service territory benefit from participation.

Energy Efficiency Results for the Warrenville

21

Total
Participants

\$23,900

In Total
Savings

Residential Customers

-  **100** Smart Thermostats Installed
-  Number of Rebates Given
-  Home Assessments Conducted
-  Refrigerators Recycled
-  Total Bill Savings

Participating Residential Customers

● Recycling ● Rebates ● Assessments

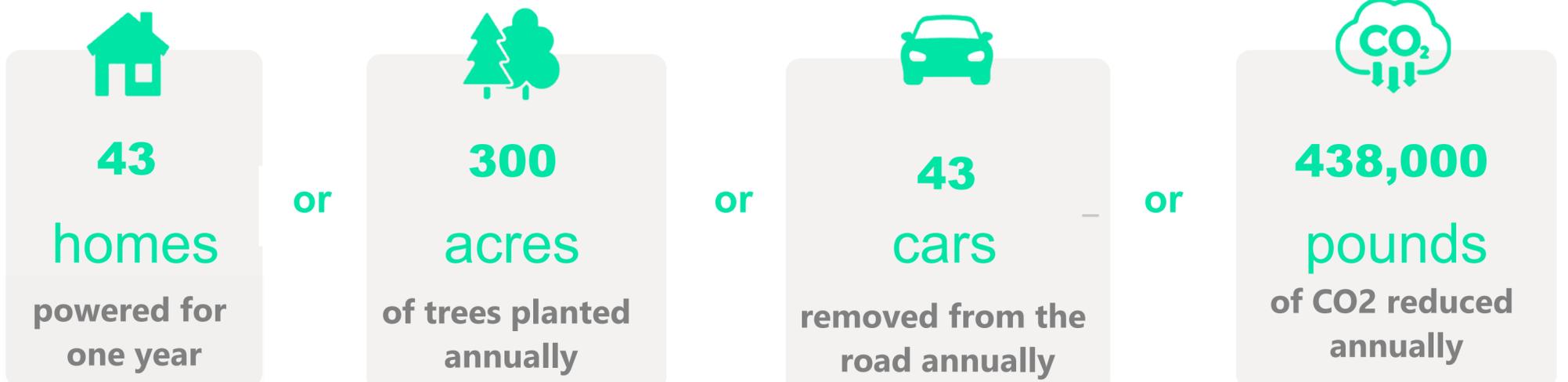
Public Sector Customers

-  LED Streetlights Installed
-  **\$5,000** Total Incentives Paid
-  \$ Total Bill Savings

Business Customers

-  **\$68,900** Total Incentives Paid
-  **22** Business Projects Completed
-  **\$23,900** Total Bill Savings

Total Energy Savings are the Equivalent of:



Terms and conditions apply. Offers are subject to change. Actual savings will vary by customers energy usage and rate.

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Appendix E. The Resource Newsletter Articles

Since 2015, EAC has routinely published *The Resource Spring/Summer* and *Fall/Winter* Newsletters (2015-'22), an insert in the City's Hometown Happenings. Topics included:

- 2015 – Honeybees verses Yellow Jackets; Rain Gardens, Electronics Recycling, Energy star and LEED Buildings, DuPage River Sweep, the Conservation Foundation, Home Energy Audits, Trees and Turf Compatibility
- 2016 – Arbor Day, Foam Recycling, Kilowatt Meters, Earth Hours, Climate Action Plan, Battery Recycling Program, Driveway Sealant Options, Keep Rivers And Streams Clean, Dupage County Stormwater Management, Anti-Idling Reminder, Battery Recycling Program, Foam Recycling
- 2017 – Battery Recycling Program, City Council Passes Monarch Butterfly Resolution, How To Be A Good Neighbor To Bees And Butterflies; Problem With Plastic Bags, Disposing Meds Safely, Tips For Energy Efficient Home, Sustainability At Home, Help Mark Storm Drains
- 2018 – Arbor Day, Healthy Lawns, IL Energy Jobs Act; Minimize Use Of Single Use Plastics, Styrofoam Recycling, Solar Power
- 2019 – Arbor Day, Dupage River Sweep, Kill-A-Watt Meters, Recycling Guide For Curbside, Battery Recycling,
- 2020 – Arbor Day, Composting At Home, Dupage River Sweep; Be Salt Smart This Winter, Styrofoam Recycling
- 2021 – Arbor Day, Recycling Evet At Environmental Collection Campus, Dupage River Sweep, Protect Self/Family from toxic chemicals; ways to enjoy an environmentally friendly fall and winter (environmentally friendly activity ideas), kill-o-watt meters, EAC webpage
- 2022 – Arbor Day, Kill-A-Watt Meters, River Sweep, EAC On Facebook

Updated June 2023

