



SHAKER HEIGHTS

**Sustainability Committee Meeting Agenda
Via Zoom pursuant to Chapters 113 and 115 of the Codified
Ordinances
(as amended in Ordinance No. 22-28), and Resolution No. 22-29,
enacted by City Council on March 22, 2022.
Thursday, March 9, 2023 at 8:00 a.m.**

Join the Zoom meeting online as a viewer or listener from a PC, Mac, iPad, iPhone or Android device at <https://zoom.us/j/95689437182?pwd=SUKyVjMvTWxBNDd6cWdKcG1QVI9VUT09>. Password: 33553400: Description: Sustainability Committee; or join by phone at 833-548-0282 (toll free); Webinar ID: 956 8943 7182, Password: 33553400. International numbers available at <https://zoom.us/u/ahwKbeuA>.

1. Approval of the February 9, 2023 meeting minutes.

Documents:

[SUSTAINABILITY MIN 20230209.PDF](#)

2. Presentation and Discussion on 2022 EV Charging Costs.

Documents:

[230309 2022 EV CHARGING COST ANALYSIS.PDF](#)

3. Subcommittee Reports

- a. Stormwater and Greenspace (Julia Larouche)
 - i. Pesticide Statement Recommendation

Documents:

[230309 DRAFT OF PESTICIDE STATEMENT FOR CITY OF SHAKER HEIGHTS, OHIO.PDF](#)

- b. Renewable Energy (Norman Robbins)
- c. High School Advisory Group (Shanna Keown)

4. Committee Chairperson's Remarks.

5. Old Business/New Business.

To request an accommodation for a person with a disability, call the City's ADA Coordinator at 216-491-1440, or Ohio Relay Service at 711 for TTY users.



SHAKER HEIGHTS

Sustainability Committee Minutes

Thursday, February 9, 2023

8:00 A.M.

VIA ZOOM PURSUANT TO CHAPTERS 113 AND 115 OF THE CODIFIED ORDINANCES (AS AMENDED IN ORDINANCE 22-28), AND RESOLUTION 22-29, ENACTED ON MARCH 22, 2022

Members Present: Nancy Moore, Council Member
Sean P. Malone, Council Member
Shanna Keown, Citizen Member
Norman Robbins, Citizen Member

Others Present: David Weiss, Mayor
Jeff Isaacs, Shaker Heights School District Board Member
Michael Peters, Sustainability Coordinator

The meeting was called to order by Committee Chair Nancy Moore at 8:04 A.M.

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Approval of the January 12, 2023 Meeting Minutes

It was moved by Sean Malone and seconded by Shanna Keown that the minutes of the January 12, 2023 meeting be approved as recorded; unanimously passed.

* * * *

Recommendation on Contract with Coventry Land Co for Sustainability Consulting Services

The current contract for sustainability consulting services with Coventry Land Company LLC (Coventry) is expiring at the end of February. This role assists the City in prioritizing its sustainability efforts and supports the work of the Sustainability Committee. The Administration is recommending a renewal of the contract, for a fifth term, from March 1, 2023 through February 28, 2024 for a not to exceed amount of \$52,658.

In 2019, City Council allocated funds to support the sustainability efforts of the City. Coventry was selected through a competitive request for proposals in 2018 to manage the agenda and meetings of the Sustainability Committee and support the City’s sustainability efforts.

Recent accomplishments in which Coventry has played a part include the promotion of sustainability initiatives through social media and *Shaker Life* magazine, maintaining LEED for Cities certification, working with the Administration and Law Department on the creation of the Community Choice Aggregation program for 100 percent renewable electricity, a review of the Cuyahoga County Toolkit over multiple sessions, supporting the work and managing the budgets for the three subcommittees of the Sustainability Committee and various ad hoc working groups, coordinating activities for the Grow Not Mow sites, working with the subcommittees and Shaker Heights City Schools District on

CITY OF SHAKER HEIGHTS

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composting efforts, assisting in the design and implementation of the Electric Lawn Mower Rebate program, and promoting rooftop solar installations.

The initial contract with Coventry in 2018 was for \$50,000. This was increased in the last renewal to \$51,500, and the renewal is proposed at a 2.24 percent increase, in line with the non-bargaining increase for City staff. Based on the accomplishments and leadership provided by Coventry, the Administration is recommending an extension to the contract.

Comments included Sean Malone expressing that in his opinion this is the best value the City receives from a vendor or consultant, Norman Robbins shared how he is aware of other cities' efforts and how having a paid consultant makes a big difference in the success of these efforts and furthermore he felt we couldn't get one-third as much accomplished otherwise, and Jeff Isaacs indicated that from the Shaker Heights City Schools perspective he believes there has been a real benefit from the collaboration and having Coventry as a resource. Nancy Moore finished the comments by saying that it has been a privilege to work with Coventry and so many projects would not be achievable without this work and the energetic community of Shaker Heights. She also shared how many other communities have commented on the Sustainability Committee meetings and actions and look to them as a model.

The motion to recommend the contract extension to City Council was made by Sean Malone and seconded by Norman Robbins and passed unanimously.

* * * *

Recap of 2022 Committee Goals and 2023

A short presentation was made recapping the goals the Sustainability Committee and subcommittees made in 2022 along with an update of progress and plans to continue this work in 2023. It was presented for the Sustainability Committee and each of the three subcommittees.

Highlights for the Sustainability Committee include completing the 2022 goal of creating a Community Choice Aggregation program for renewable electricity. Ongoing goals include rooftop solar on City buildings, transitioning to electric vehicles, continuing the internal green team, investigating LED streetlights, tracking waste diversion, converting to electric landscape equipment, and encouraging non-car mobility options.

For the Stormwater & Green Space subcommittee, the revisions to the stormwater code were completed while ongoing initiatives include the Grow Not Mow sites, the Certified Yard Habitat program, continued positive education and messaging, and composting.

The Energy subcommittee completed its goal of promoting energy conservation through the Dominion energy audit program and continues this work while promoting energy conservation, suggesting social media posts on these topics, increasing solar education and awareness, and promoting electric vehicle charging.

The Shaker Youth LEEDs subcommittee successfully completed the 2022 EcoChallenge and its review and suggestions on Horseshoe Lake Park. Ongoing goals include the 2023 EcoChallenge, supporting the Sustainability Committee, and recruiting new members.

Comments included Sean Malone’s reminder on the waste goal of emphasizing reduce, reuse, and recycle with the prospect of having a subcommittee focus on waste reduction. Norman Robbins suggested a new goal for the Energy subcommittee is to maximize the provisions of the Inflation Reduction Act to encourage the electrification of homes. Shanna Keown suggested that the students are interested in waste diversion and may expand their scope especially if there is additional faculty guidance available beyond Hathaway Brown. Jeff Isaacs offered to pick up on this conversation with Shanna Keown to engage the Shaker Heights City Schools and also suggested outreach to Ruffing School where many Shaker Heights residents attend high school.

* * * *

Presentation and Discussion on Natural Gas

Over the past several weeks there have been resident communications to City Council members regarding their concerns over the use of natural gas for cooking in homes and the impacts to public health. A presentation was provided that provided background and context to this topic.

Several recent news articles and academic studies elevated this issue with the public. This included articles in local and national news outlets, and highlighted the health impacts of using and combusting natural gas inside of a home. Academic studies have shown that exposure to natural gas increases the likelihood of asthma, and lower income residents are more likely to be impacted by asthma.

Some efforts have been made to increase awareness around this topic and some states have taken actions related to it. At one end are states that have allowed local municipalities to restrict the installation of new natural gas lines in residential settings, while others have pre-emptively prohibited municipalities from doing this.

The presentation also highlighted the accepted science around this topic. This includes that gas stoves emit nitrogen dioxide, carbon monoxide, and fine particulate matter when burning gas. They also emit methane even when off and methane is a potent greenhouse gas. It was also noted that electric induction cooktops and ranges are priced competitively with gas stoves and can be operated with renewably-sourced electricity.

Finally it was noted that Ohio, which has one of the highest uses of natural gas in the nation, is one of the states that pre-emptively prohibited municipalities from restricting gas service (HB 201). However, the City can create programming and education around the issue, publicize the incentives in the Inflation Reduction Act that lower the cost to electrify, and encourage (but not require) electrification in development agreements.

Questions and comments included Nancy Moore suggesting this information be included in social media posts and Norman Robbins sharing that the American Public Health Association, in a November 2022 report, included ideas for replacing gas stoves and increasing kitchen ventilation. He also noted that induction cooktops can be reasonably priced and that a future (income-related?) rebate program for them may be considered. Prioritization should be directed at families where childhood asthma is present, including by public health officials. He also suggested that this should be addressed aggressively and soon especially for those most impacted, noting that the Environmental Protection Agency does not have the authority to set indoor air quality standards.

Jeff Isaacs suggested that school nurses would be a good collaborator on public education efforts and Sean Malone agreed that this could be a great educational opportunity. He also suggested in the future

considering how we heat our homes, as the vast majority of the City uses natural gas for heating. Resident Peter Chengelis added that his family recently updated their kitchen and used an inexpensive air quality monitor to measure the affects of a gas stove and it convinced them to go with electric induction. The conversation wrapped up with a suggestion that perhaps the Library could loan out air quality monitors to residents.

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Subcommittee Updates

Stormwater & Greenspace (presented by Nancy Moore and Michael Peters)

- The composting programs at Onaway School and Fernway School have been well received and successful, with Onaway diverting 2,324.5 pounds and Fernway 2,019 pounds of food waste from September 30, 2022 through February 1, 2024. Discussions continue on expanding and institutionalizing the programs.
- A proposed pesticide/herbicide policy is on the agenda for the subcommittee at its next meeting on February 21st. This is planned to be a suggested and updated public lands policy that would be presented to the Sustainability Committee and then routed through the Administration. A final version would be presented to the Committee and City Council.
- The electric lawn mower rebate program is progressing with a target date of April 29th and 30th to coincide with the hazardous waste roundup weekend. There are 40 rebates for \$100 each available when residents bring in a working gasoline-powered mower and provides proof of purchase of a new electric lawn mower (including the serial number). Discussions with Burgers Ace Hardware have been very productive and an expected memorandum of understanding would assist with this economic development effort.
- It was also noted that the City of Cleveland has also announced its electric lawn mower rebate program. Residents could apply for either, but the recycling arrangement for the Shaker Heights program is not one of the approved scrapyards for the Cleveland program, so residents could not get both.
- The Cuyahoga Water and Sewer District “nuts” program encourages schoolchildren to raise seedlings from tree nuts. Students at Hathaway Brown will be donating their seedlings to the Grown Not Mow sites for planting. Work days are scheduled for April 15th and May 13th, from 10am until 1pm and more information is available through the Doan Brook Watershed Partnership.
- The Tree Advisory Board and Neighborhood and Economic Development committees will look at ordinances related to private property tree removal.

Renewable Energy (Norman Robbins)

- The subcommittee continues to monitor progress in the City on the installation of rooftop solar and at the next meeting will begin to discuss parking lot solar programs.
- A discussion is continuing on a brief introduction to the Inflation Reduction Act to make residents aware of the programs and tax credits available. Outreach to other organizations has begun and the subcommittee is looking for partners. One area of focus will be how to include low and moderate income residents, who may not have the tax liability to take advantage of federal tax credits, and it was noted that the rebates through the state are not yet ready. The group is also discussing how to identify good contractors.

Shaker Youth LEEDs / High School Advisory Group (Shanna Keown)

- The group is finalizing events for the 2023 EcoChallenge; please send Shanna Keown any items you think would be a good inclusion in the program.

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Chair's Remarks/Old Business/New Business

- No additional remarks or business.

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There being no further business, the meeting was adjourned at 9:12 A.M. The next meeting is scheduled for March 9, 2023 at 8:00am.



Michael Peters
Sustainability Coordinator



SHAKER
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Shaker Heights EV Charging

Analysis of 2022 Costs

March 9, 2023

2022 EV Charger

Use of the chargers

- City's EV chargers delivered 4,321.25 kWh of electricity to EVs or roughly 13,000 miles of driving - this is equivalent to 520 gallons of gas
- The average was approximately 42 miles of range; the maximum was roughly 190 miles of range
- In total the chargers were in use for 809 hours, with an average use of 2.6 hours and a maximum of 12 hours.
- This represents a utilization rate, on average, of 1.3%.
- The City's EV used 87.8 kWh or approximately 2% of the electricity delivered.

2022 EV Charger

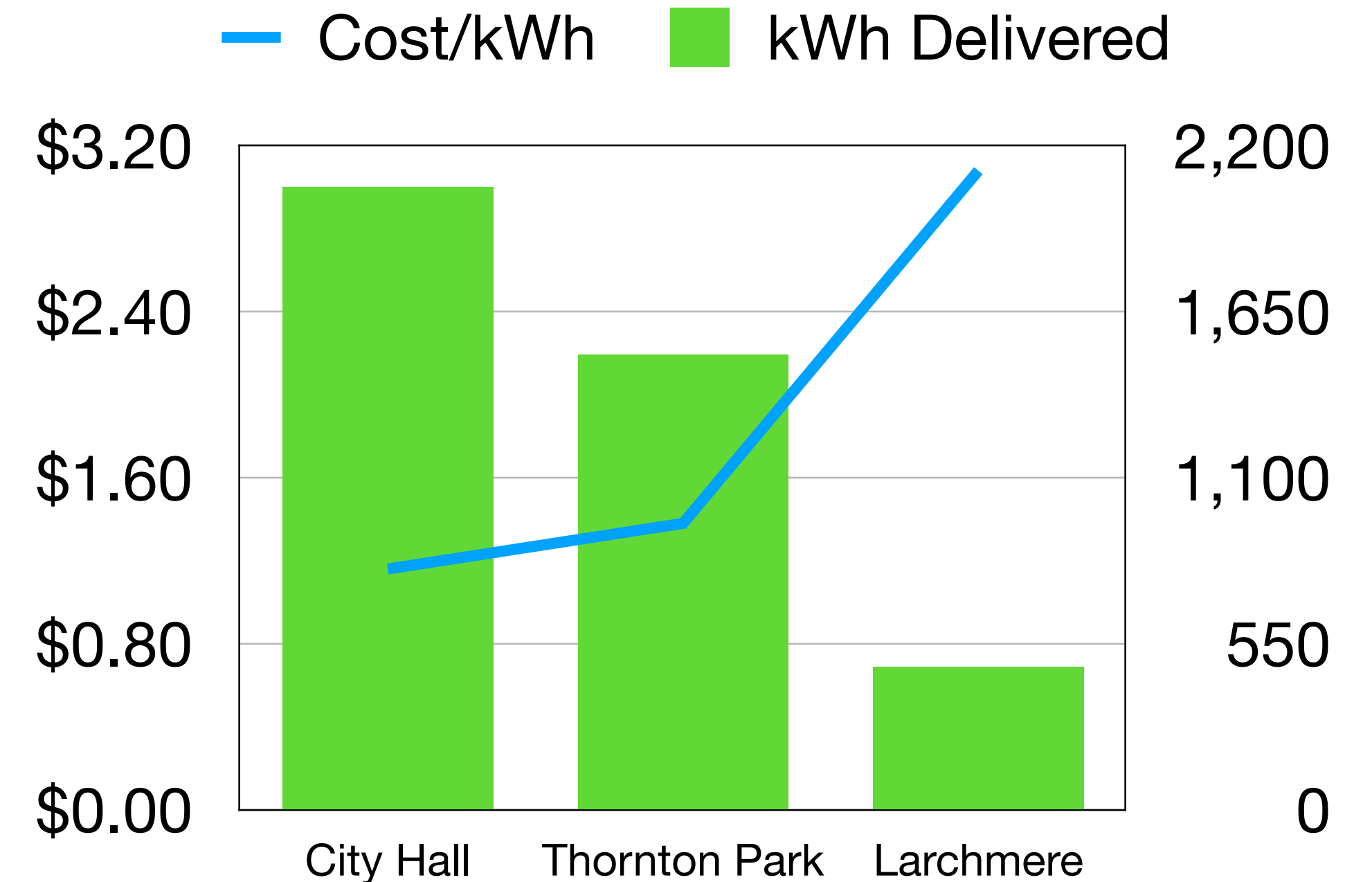
Cost per kWh Analysis

- The cost of operating the chargers consists of two main elements:
 - the **supplier charge** (the cost per kWh delivered) and
 - the **transmission and distribution charges** (the cost to bring that power to the chargers).
- Total costs for City Hall, Thornton Park, and Larchmere Public Parking were \$5,948.64 (The Dealership charger is not separately metered and City Hall costs include all use in the Annex building).
- The average cost per kWh was \$1.38
\$1.16 for City Hall Annex, \$1.38 for Thornton Park, and \$3.08 for Larchmere.

2022 EV Charger

Cost Components

- The cost varied due to total use: the more kWh delivered the lower the cost per kWh
- Some costs are not linked to kWh delivered but by the “speed” of delivery or “demand charges” (kW).
- Think of kW as the rate of electricity being consumed and kWh as the total amount consumed
- One charger max = 7.2kW (32 amps x 240 volts max)



2022 EV Charger Thornton Park Example

- On a typical bill, **supplier charges** were only 10-12% of the total with roughly 60% being distribution charges and 25% cost recovery charges.
- In this example, the demand or load is **13.8 kW**. Under the FirstEnergy tariff, load over 5kW (in any 15-minute increment) is billed at a flat rate per kW $13.8 - 5 = 8.8\text{kW}$ demand excess
- This means both charger ports were used at the same time ($7.2\text{kW} \times 2 = 14.4\text{kW}$ max)

August 04, 2022
 Account Number: 110 149 449 826
 Amount Due: \$267.50
 Due Date: August 25, 2022

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1-544-4877. For Customer Service, call 1-800-589-3101. For Payment Options, call your bill online at www.firstenergycorp.com
 g Company, PO Box 3687, Akron OH 44309-3687

Account Summary		Amount Due		
Previous Balance		159.67		
Payments/Adjustments		-159.67		
Balance at Billing on Aug 04, 2022		0.00		
The Illuminating Company		241.22		
NOPEC - NextEra Energy Services Ohio - Consumption		26.28		
Total Current Charges		267.50		
Amount Due by Aug 25, 2022		\$267.50		
Usage Information for Meter Number 5002897428				
Aug 01, 2022 KWH Reading (Actual)		791		
Jul 01, 2022 KWH Reading (Actual)		572		
KWH used		219		
Billed Load in KW/KVA		13.8		
Charges From The Illuminating Company				
Customer Number: 0800569834 5001579353				
Rate: General Service Secondary CE-GSD				
Customer Charge		7.00		
Distribution Related Component		169.17		
Cost Recovery Charges		65.28		
Consumer Rate Credit		-0.23		
Current Consumption Bill Charges		241.22		
Charges From NOPEC - NextEra Energy Services Ohio				
NOPEC	31360 Solon Road, Suite 33, Solon, OH 44139			
NEXtera	Customer Service: 1-855-667-3201			
ENERGY SERVICES	Account Number: 1010827962 Rate: GEN-F1200			
Billing Period: Jul 01, 2022 to Aug 01, 2022				
Basic Charge	219 KWH 0.120000	26.28		
Total NOPEC - NextEra Energy Services Ohio Charges		26.28		
Detail Payment and Adjustment Information				
07/25/22 Payment		159.67		
Account Balances by Company				
	Previous Balance	Payments/ Adjustments	Current Charges	Amount Due
The Illuminating Company	133.43	-133.43	241.22	241.22
NOPEC - NextEra Energy Services Ohio	26.24	-26.24	26.28	26.28
Total	159.67	-159.67	267.50	267.50

“Demand” = 13.8kW

Meter Fee = \$0.03/kWh

Distribution = \$0.77/kWh
63%

Cost Recovery = \$0.30/kWh
24%

Supplier Charges = \$0.12/kWh
10%

kWh = 219

Distribution Charges

Distribution Related	Fee	Flat Fees	Example of 13.8 kW	Example of 219 kWh
(AMI) Advanced Meter Infrastructure	\$11.25 flat fee	\$11.25		
(CSR) Conservation Support Rider	\$0.6725 over 5kW		\$5.93	
(CSR) Conservation Support Rider 2	\$0.000862/kWh			\$0.19
(DCR) Delivery Capital Recovery	\$5.0485/kW		\$69.67	
(DIS) Distribution	\$13.68 flat fee	\$13.68		
(DIS) Distribution	\$7.479 over 5Kw		\$65.82	
(DSE1) Demand Side and Energy Efficiency	\$0.000377/kWh			\$0.08
(DUN) Distribution Uncollectibles	\$0.001621/kWh			\$0.35
(PUR) PIPP Uncollectible	(\$0.000051/kWh)			(\$0.01)
(SKT) State kWh Tax	\$0.00465/kWh			\$1.02
(USR) Universal Service Charge	\$0.0008122/kWh			\$0.18
CAT Tax	\$0.03 flat fee	\$0.03		
Tax Savings Adjustment	(\$0.001330/kWh)			(\$0.29)
Total	\$167.90	\$24.96	\$141.41	\$1.53
Per kWh	\$0.76	\$0.11	\$0.65	< \$0.01

Cost Recovery and Bypassable Charges

Cost Recovery & Bypassable	Fee	Flat Fees	Example of 13.8 kW	Example of 219 kWh
(EDR) Economic Development E	\$0.002672/kWh			\$0.59
(EDR) Economic Development I	\$0.000056/kWh			\$0.01
(LGR) Legacy Generation Resource Rider	\$0.001801/kWh			\$0.39
(NMB) Non-Market Based Services	\$5.66810/kW		\$78.22	
PIR Phase-In Recovery Rider	\$0.001147/kWh			\$0.25
(AER) Alternative Energy Resource	\$0.000777/kWh			\$0.17
(GCR1) Generation Cost Reconciliation 1	\$0.000738/kWh			\$0.16
(GENc) Generation Capacity Charges	\$0.008292/kWh			\$1.82
(GENe) Generation Energy Charges	\$0.038598/kWh			\$8.45
(NDU) Non-Distribution Uncollectible	\$0.000629/kWh			\$0.14
Total	\$90.20		\$78.22	\$11.98
Per kWh	\$0.41		\$0.36	\$0.05

2022 EV Charger

Minimum Cost for a 13.8kW Dual Port Charger

- The cost of operating the chargers, with as little as 1 kWh delivered, would be:
 - Flat Fees of \$31.96 (the \$7 meter fee plus Distribution fees)
 - Demand Charges of \$219.63 (although actual fees have been lower)
 - The per kWh fees, but these will be \$0.06 per kWh plus supplier charges
- Total of roughly \$250 per month regardless of use

Results and Recommendations

Minimizing costs while increasing access

- The net cost to the City in 2022 was \$5,166.91 when expenses were offset with charger revenue.
- The current driver cost is \$0.20/kWh plus a 10% transaction fee = roughly \$1.83 per gallon equivalent (54% of gas price).
- Preferred scenario: add chargers to a meter that already has demand charges (e.g., on Thornton Park meter when electric is upgraded).
- Also applies to commercial landlords where the demand costs are not the result of providing charging.

Draft of Pesticide Use on Public Lands Policy for City of Shaker Heights, Ohio

Prepared by Julia Larouche, with input from members of the Greenspace and Stormwater Sustainability Subcommittee

27 February 2023

1. Background

In 1995 Cleveland Heights became the first city in the nation to pass [legislation](#) banning the use of lawn pesticides on all public turf including city, school, library and daycare center grounds, including an exception review process. Cleveland Heights repealed this legislation in 2019 and has not replaced it. In 2012 Cuyahoga County passed its landmark [ordinance](#) banning lawn pesticides from all county-owned land. Our county and our neighboring city went to these lengths to safeguard public health and to also encourage greater Cleveland communities to use this as a model. These ordinances have been used as a model throughout the state and the nation. Most recently Philadelphia's Toxic Free Philly Campaign resulted in their Healthy Outdoor Public Spaces [legislation](#) banning pesticides on all public grounds. There are now ~100 cities in the nation that have banned pesticides on all public grounds. There are at least ten school districts in Ohio that currently have their own Integrated Pest Management (IPM) policies in place, one of which is [Worthington, Ohio](#). Shaker Heights Schools appears to have a [draft IPM](#) (pages 25-31).

Toxic chemicals classified as pesticides are focused on deterring, incapacitating, killing, or discouraging pests and may include, but not limited to any of the following substances: insecticides; herbicides; rodenticides; fungicides; algicides; insect and animal repellents; avicides; piscicides; and bactericides. Banning the use of all “pesticides”, if strictly interpreted, would have severe consequences for public swimming pools, bathhouses, rat control efforts, etc. ***The intent of this policy is to recommend appropriate Best Management Practices (BMPs) of our community’s landscaped and green spaces, including limited use of herbicides on public property, with the exception of appropriate usage of herbicides in controlling invasive species and maintaining biodiversity.***

As recently as school year 2022, Shaker Heights residents observed spraying on school grounds, directly around the foundation of the schools while children were playing and going outside to have lunch (weekdays and weekends) by the District’s contracted landscape company (Turfscap). The applicator was asked what was being sprayed to which they responded, Ranger Pro with 41% Glyphosate (same active ingredient as Roundup). Ranger Pro is a generic and equivalent form of Roundup Pro - a complete broad spectrum non-selective post-emergent professional herbicide. It should be noted that children are a particularly vulnerable portion of the community’s population (i.e. more hand to mouth contact) when it comes to pesticide exposure, thus making spraying herbicides on school grounds particularly concerning. Infants and children are especially at risk of pesticide toxicity due to their lowered ability to absorb, metabolize and excrete dangerous compounds. The immune systems of infants and young children are not fully formed and may make them less able to protect them from pesticide exposure. Exposure to toxins such as pesticides can permanently prevent normal maturation and can also have negative effects on behavioral development such as cognitive ability and fine motor skill.^{1,2} Endocrine disruption has been linked to reproductive issues such as infertility, low birth weight, low sperm count, birth defects and

¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4247335/>

² <https://www.ncbi.nlm.nih.gov/books/NBK236275/>

miscarriage, as well as certain types of hormone related cancers such as breast, testicular and prostate cancer.³ Additional information on pesticides hazards and safe pest management can be found [here](#).

Although pesticides are regulated loosely (i.e. no conveyance of unlimited affirmation of safety; no testing of cumulative exposure; label language is often in very small print) by the United States Environmental Protection Agency (EPA), relatively little is known about their long-term effects upon humans and the environment. Moreover, as of June 2022, a federal appeals court has directed the U.S. EPA to re-evaluate the safety of glyphosate, the active ingredient in the controversial weed killer Roundup, which many say is linked to an increased risk of cancer, including non-Hodgkin's lymphoma.⁴ The U.S. Court of Appeals for the Ninth Circuit issued a [ruling](#) on June 17, that found the EPA used "flawed" reasoning to determine that glyphosate is "unlikely" to cause cancer, and did not follow its own guidelines for making such a determination. The decision stems from a [lawsuit](#) filed by the Natural Resources Defense Council (NRDC) and other environmental groups in March 2020, which claimed the EPA did not adequately review the safety or environmental impacts of the ubiquitous herbicide before agreeing to re-approve use of the weed killer. Federal environmental officials are withdrawing this controversial 2020 risk assessment and a new risk assessment about the link between glyphosate and cancer will not be completed until 2026. In light of this uncertainty, the City of Shaker Heights *should* consider herbicides and pesticides applied in public areas detrimental to human health unless proven otherwise.

2. Recommendations

It is the recommendation of the City of Shaker Heights to notice and respond to the concerns about health effects from toxic chemicals in the environment and to preserve ecological function and biodiversity. Many communities are effectively controlling pests and weeds and maintaining attractive yard space, fields and landscaping by using BMPs to minimize the effects of toxins on the environment and human health. Integrated Pest Management (IPM) is considered to be the most environmentally preferable option when it comes to land management of green spaces. The Shaker Heights Sustainability Committee proposes the following BMPs in managing outdoor spaces owned by the City, Schools, Libraries and Private Landowners.

- a) **Pest Prevention** - Prevention works by eliminating conditions that attract pests, including standing water, cracks in walls, food crumbs and overgrown vegetation. Monitoring areas and being familiar with common pests and vulnerable areas are important steps in developing appropriate management actions.
 - Monitor the spaces for threshold levels on a routine basis and scout for potential pests. Monitoring is an integral part of an effective IPM program. A 'knock down' method of removing pest problems can be employed before biological controls are introduced. See more information on knock down solutions [here](#).
 - Prevent pests inside and around buildings by eliminating conditions that attract pests and removing unhealthy or infected plants.
- b) **Biological Control** - The use of beneficial insects or other microorganisms to manage pests is known as Biological Control and it can be highly effective for reducing the need for pesticides and supporting a healthy environment. Pest populations can be reduced by introducing natural predators into the environment to control populations of destructive or invasive insect pests or

³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3138025/>

⁴ <https://www.sciencedirect.com/science/article/pii/S2152265021001518>

weeds. Eliminating the use of pesticides can also support existing populations of beneficial insects.

- Beneficial insects, nematodes and soil microfauna can be applied to control particular insect pest species.
- More information on Biological Control methods can be found [here](#).

c) **Cultural Control** - Cultural controls are physical actions taken to make the environment less desirable to pests thereby reducing their populations. Removing weeds, maintaining healthy plants and creating native habitat for beneficial plants and insects are all methods used to reduce pests without the use of chemical pesticides, while ensuring a healthy, balanced ecosystem that can thrive without the use of pesticide treatments.

- Mechanical controls such as hand pulling weeds to control invasive plant species.
- Maintaining thick ground cover of turf, landscape plants, or mulch for weed suppression. Mulch from the City's lower lake mulch pile could be used for this purpose.
- Grazing animals can be employed as weed control: [Rent A Goat](#) or [Haulin' Goats](#) in Medina, OH
- Maintain healthy plants: Healthy plants are less susceptible to disease and insect damage
- Good quality organic compost can help build communities of beneficial microorganisms in the soil.
- Leaving grass clippings in place will recycle nitrogen into the soil.
- Refer to the Nature Center's Native Yard Habitat Program [here!](#)
- Maintaining healthy soil reduces unnecessary use of fertilizers and pesticides and increases water retention
 - Testing soil for pH, nutrient levels and organic matter content.
 - Mechanical aeration can remedy compacted soil and increase grass and plant growth.
 - Organic fertilizers like alfalfa, bone, and blood meal, and seaweed benefit both the target plant and soil health as a whole.
- Planting of Native, Pollinator Friendly Species
 - Native species are *always* preferable over non-native plants
 - Planting the best native species with the optimal soil conditions for a given environment will help reduce the need for irrigation, fertilization and pesticides.

d) **Low-Toxicity Insecticides** - Good integrated pest management programs use preventative, biological and cultural controls whenever possible; however there may be circumstances when these methods fall short in controlling pests; in which case lowest toxicity treatment can be implemented. Low-toxicity insecticides are derived from botanical chemical compounds such as soaps and microbes. It is important to note that all pesticides, including those considered low-toxicity and/or organic can have negative impacts on beneficial insects.

- Insecticidal soaps work on soft bodied insects and can pose a threat to pollinators when being applied; however once dry they leave no harmful residue. Routine IPM can include a soap and water mixture that is sprayed on plants affected by pests - this type of mixture retains the insect control benefits while eliminating the risk of any additives that may pose a threat to beneficial insects and pollinators.
- Botanical insecticides are naturally occurring toxins derived from plants. Neem spray, which is a botanical insecticide derived from the neem tree (active ingredient neem oil - Azadirachtin), can be incorporated into IPM practices.
- Kaolin Clay is made up of finely ground clay particles that are mixed with water and applied to a plant's surface in a slurry. This natural insect repellent does not pose a health threat to bees but may disrupt movement and foraging of beneficial insects.

- More information on Low-Toxicity Insecticides can be found [here](#).
- e) **Conventional Pesticides** - Conventional synthetic pesticides - including insecticides, herbicides, fungicides, algicides, and rodenticides- are always a last resort option in IPM and special care should be taken to minimize impacts to the environment and health risks.
- Pesticides should not be used on Public Lands except to secure human health or environmental biodiversity and meet regulatory requirements.
 - Pesticides may be used in last case scenarios to preserve old, valuable and aesthetically important trees that are more susceptible to stress, disease and insect infestation.
 - The use of conventional pesticides should be limited to spot application in areas where a definite problem exists and only after other less ecologically detrimental solutions have been tried (i.e. those listed above in a-d).
 - More information on the use of pesticides in invasive species management can be found [here](#).

Note: A majority of the above recommendations are from excerpts compiled from the [City of Providence Parks Environmental Practices Report \(2021\)](#).

3. **Alternative Products to Glyphosate to Control Weeds**

- a. Please see [Products Compatible with Organic Landscape Management](#)

4. **Commercial Application of Pesticides and Notification Requirements**

- a. Please see Ohio Revised Codes of Law for the [Chapter 921 Pesticides](#) and refer to [Rule 901:5-11-09](#) for details on Notification Requirements.
- b. Our residents of all ages have the right to know where and when pesticides have been applied so they can respond according to their own determination of risk.
- c. Written notice could be notified via weekly Shaker Heights Schools eNews emails.