Agenda

Royal Oak Environmental Advisory Board Meeting

Wednesday, November 20, 2024, 7:00 p.m.
City Hall, Room 122
203 S. Troy Street
Royal Oak, Michigan 48067

Anyone planning to attend the meeting who has need of special assistance under the Americans with Disabilities Act (ADA) is asked to contact the city clerk's office at 248-246-3050 at least two (2) business days prior to the meeting.

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e. SOCWA Water & Precipitation Report

8. General Announcements
9. Adjournment

Minutes

Royal Oak Environmental Advisory Board

October 23, 2024, 7:00 p.m.
M/M Senior Center
3500 Marais Avenue, Royal Oak, MI 48073

Present:	Amanda Herzog Tessa Benziger Brock Bosack Frank Komola Julie Lyons Bricker Nicholas Marcelletti Paul Vial Jill Robinson
Absent:	Woody Gontina Zoe Chase Ed Slesak

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1. Call to Order

The meeting was called to order at 7:03 pm.

2. Approval of Agenda

Moved by: Julie Lyons Bricker
Seconded by: Nicholas Marcelletti

Motion to approve the agenda.

Motion Adopted

3. Approval of Minutes

Moved by: Brock Bosack
Seconded by: Julie Lyons Bricker

Motion to approve the minutes.

Motion Adopted

4. Public Comment

Nancy Poprovski commented on the DTE/City of Royal Oak project to convert lights to LED and its impact on wildlife and encouraged the board to collaborate on exploring other options that are dimmer and less impactful.

5. New Business

5.a Parks and Rec Comments

Member Vial led a discussion on neighborhood berms and an adopt-a-berm program. Commissioner Herzog addressed concerns about city staff capacity to handle the program. Susan Barkman elaborated on the administrative challenges with such programs. Members Robinson and Bosack volunteered to explore the feasibility.

5.b Policy Work Discussion

Member Vial led a discussion on policy work related to various policies and how the board can assist in policy development efforts. Members indicated their interest in various issues and their willingness to volunteer to explore the issues in greater depth.

5.b.1 Community Benefits List

5.b.2 Sustainable Event Policy

5.b.3 Deconstruction Policy

5.c Leave the Leaves @ Public Comment

Member Vial led a discussion on whether there was interest from any members to speak in favor of leave the leaves at the Oct 28, 2024 City Commission meeting. Student members Milligan and Worthington volunteered.

5.d Earth Day Planning

Member Vial led a discussion on Earth Day planning, indicating that Andrew Sarpolis can no longer lead the effort due to other obligations. The group discussed a smaller-scale event for 2025 and brainstormed on possible partners. The group agreed to consider ideas and discuss at the November meeting.

6. Old Business

6.a Review of Amended Draft By-Laws and Ordinance

Susan Barkman led a discussion on the bylaws review and clarified issues related to membership, appointments, and quorums when student members are permitted.

Ms. Barkman also highlighted proposed changes to the EAB ordinance.

Moved by: Frank Komola
Seconded by: Brock Bosack

Motion to approve the bylaw revisions as proposed and recommend to the city commission the ordinance revisions as proposed.

Motion Adopted

7. Receive and File

7.a City Commission Report

Commissioner Herzog responded to several questions related to her city commission report.

7.b Staff Report

Susan Barkman provided an overview of Sustainability Manager Fox's report.

7.c Subcommittee/Other Reports

7.d SOCRRA Tonnage Report

7.e SOCWA Water & Precipitation Report

8. General Announcements

8.a MISCON

Member Lyons-Bricker provided a brief update on MISCON.

8.b November EAB Meeting @ City Hall

Meeting will include the annual Water Systems Advisory Council meeting.

9. Adjournment

The meeting was adjourned at (time).

Moved by: Jill Robinson
Seconded by: Julie Lyons Bricker

Motion to adjourn the meeting.

Motion Adopted

Agenda
Water System Advisory Council
Meeting

Wednesday, November 20, 2024, 7:00 p.m.

City Hall, Room 122

203 S. Troy Street

Royal Oak, Michigan 48067

Anyone planning to attend the meeting who has need of special assistance under the Americans with Disabilities Act (ADA) is asked to contact the city clerk's office at 248-246-3050 at least two (2) business days prior to the meeting.

Royal Oak
ENVIRONMENTAL
ADVISORY BOARD

Minutes

Royal Oak Environmental Advisory Board Meeting
and
Water System Advisory Council Meeting

Royal Oak Farmers Market
316 E. 11 Mile Road
Royal Oak, MI 48067

Wednesday, November 29, 2023
7:00pm

1. Meeting of the Water System Advisory Council (WSAC) was called to order at 7:10 pm.
    - Director Filipski provided an update of DPS' water service line inventory work, lead service line replacement work, and the annual lead and copper monitoring and addressed general questions about the work.
    - WSAC meeting concluded at approximately 7:40 pm.
2. Royal Oak Environmental Advisory Board Meeting called to order at 7:40 pm.
3. The agenda was approved unanimously.
4. October 2023 meeting minutes were approved unanimously.
5. Public Comment
    - Chuck Altman discussed S-CAP metrics and noted difficulties finding related information on the website.
    - Mike Bunch inquired about service on the EAB as a board member; noted interest in pursuing native planting projects.
    - Janice Wagman noted that WSAC summary was not included as a link in the agenda; would like agenda updated and reports included moving forward.
    - Frank Komola inquired about how visitors to EAB meetings have learned about the meetings; questioned whether and how city development projects require or encourage the inclusion of sustainable features.
6. No items were discussed in the New Business portion of the meeting.
7. Director Filipski briefly reported on staff efforts toward implementation of EVs for city fleet vehicles.
8. Sustainability Manager Fox provided additional detail on staff efforts to implement EVs for city staff and discussed use of grant funds for that purpose.
9. City Commissioner Amanda Herzog her new role as commissioner, her various board assignments, and her commitment to supporting the board's efforts.
10. Unfinished Business

- Updates/Discussion
    - Member Julie Lyons-Bricker discussed Oakland County's "Oakland Saves" program
    - Member Jennifer Acevedo commented on State of Michigan Climate Pollution Reduction Grants and recent Michigan climate-related legislation.
    - Member Julie Lyons-Bricker mentioned Alchemy's "Make Food not Waste" program and noted that the restaurant would be interested in potentially hosting the EAB.
    - Member Tessa Benzinger discussed community composting initiatives.
    - Member Tom Regan engaged the public attendees about how they learned of the EAB group/meetings.

11. Non-Action Items
    - SOCRRA Refuse/Recycling Tonnage Report
12. The chair noted that the next meeting would take place on January 24, 2024 at the Royal Oak Farmer's Market and would include the election of board officers.
13. Motion to adjourn was adopted unanimously at 8:20 pm.

Royal Oak
PUBLIC SERVICES

City of Royal Oak
Department of Public Services
1600 North Campbell Road
Royal Oak, MI 48067

Water System Advisory Council – 2024 Update
11.14.2024

Per the revised Michigan Safe Drinking Water Act (MSDWA), water distribution system operators are required to meet at least once annually for the purpose of providing public updates to its operations and address public concerns and inquiries. Because of their focus on environmental health concerns, members of Royal Oak Environmental Advisory board are designated to perform this function.

This report provides an update on the number of lead and/or galvanized water line replacements to date, detail on the water system materials inventory, sample public communications, and annual reports.

Complete Distribution System Material Inventory (CDSMI)

The purpose of the CDSMI is to characterize, record, and maintain a comprehensive inventory of distribution system materials, including service line materials on both public and private property. Maintenance of an accurate inventory of distribution materials supports effective asset management planning, lead service line replacement efforts, and notification of those served by a lead service line.

The MSDWA rule update required municipalities to produce a CDSMI by October 15, 2024; Royal Oak has submitted its data set and has made it publicly accessible at: https://romi.gov/1873/Comprehensive-Water-Distribution-System-, which will be updated annually in October.

Staff will sustain efforts to verify, revise, and update this data set through online self-reporting, annual mailings to all locations where materials are not known, and visual verification by staff during water main work and meter service appointments. Attached are several examples of the communication methods used to alert residents of unknown materials and provide guidance on how to reduce potential exposure to lead from drinking water.

Figure 1 illustrates the current total inventory of service lines by material type.

Lead Service Line Replacements

As lead lines are discovered during the inventory process homeowners are promptly notified, advised on how to reduce exposure to lead, provided the requisite access agreements and instructions to facilitate replacement, and added to the replacement queue. Currently, DPS schedules 3 replacement programs annually, with an average of 90 replacements each. This pace exceeds the state mandate of 100 replacements per year.

In 2024, 267 lead and/or galvanized water lines were replaced, as indicated in figure 2.

The work of replacing water lines also complements inventory work. For example, records may indicate that a particular address is known to have a lead line on the ‘private side’, but the

'public side' may be unknown. During the course of replacement, we will learn the composition of the unknown materials and update our records accordingly.

Based on the updated inventory summary in figure 1 below, known lead and/or galvanized services total 1101. The increase from 1,086 in 2023 reflects additional known lead and/or galvanized services lines identified during inventory and verification work. Among the 1222 locations of unknown materials, staff estimates the proportion of lead and galvanized services could total as many as 648. Thus, the total estimated number of future replacements is 1,734 – a reduction of approximately 297 from the 2023 estimate.

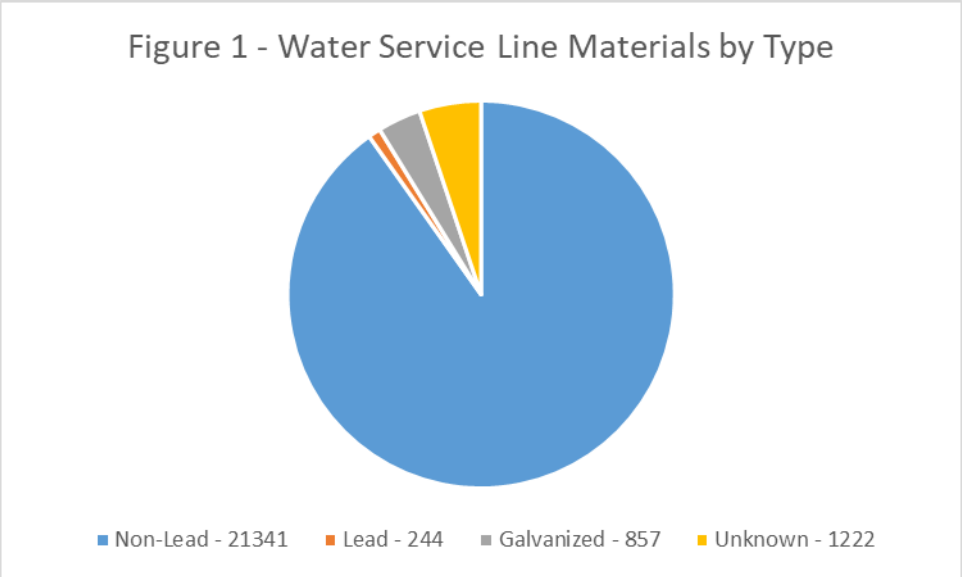
Each replacement costs an average of $4500, resulting in an estimated expenditure of approximately $7.8M between now and the mandated completion date of 2040. At the current pace, the goal is to complete this work by 2033. As the inventory is further refined, the city may be able to achieve this sooner. Funding for this work is projected to remain stable.

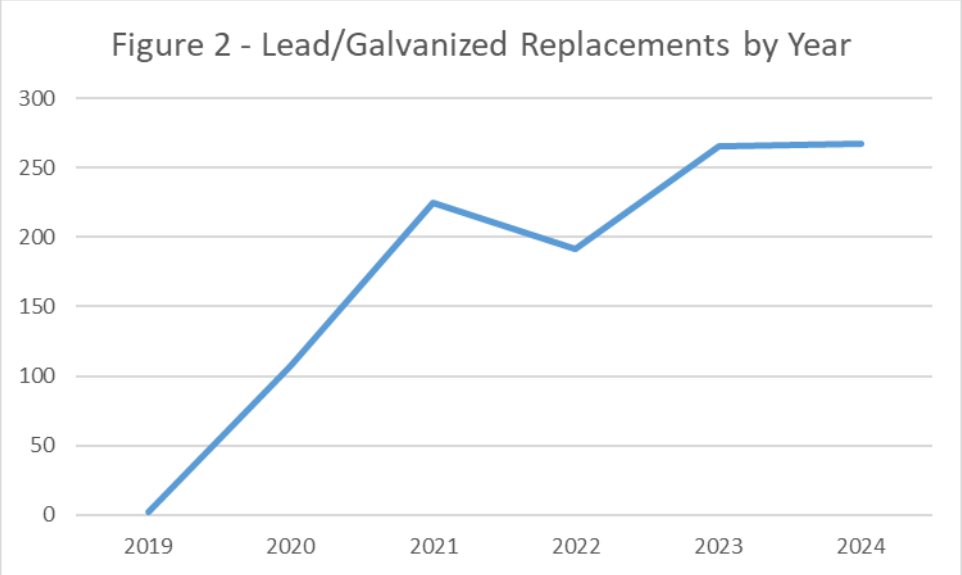
2024 Lead and Copper Sampling Results

DPS staff conducted annual testing for lead and copper at 30 targeted sample sites throughout the city, and based on a preliminary assessment and calculation by staff, did not result in an 'action level exceedance' for either lead or copper. The Department of Public Services submitted the results to EGLE (attached) which has not yet provided its official analysis/results letter.

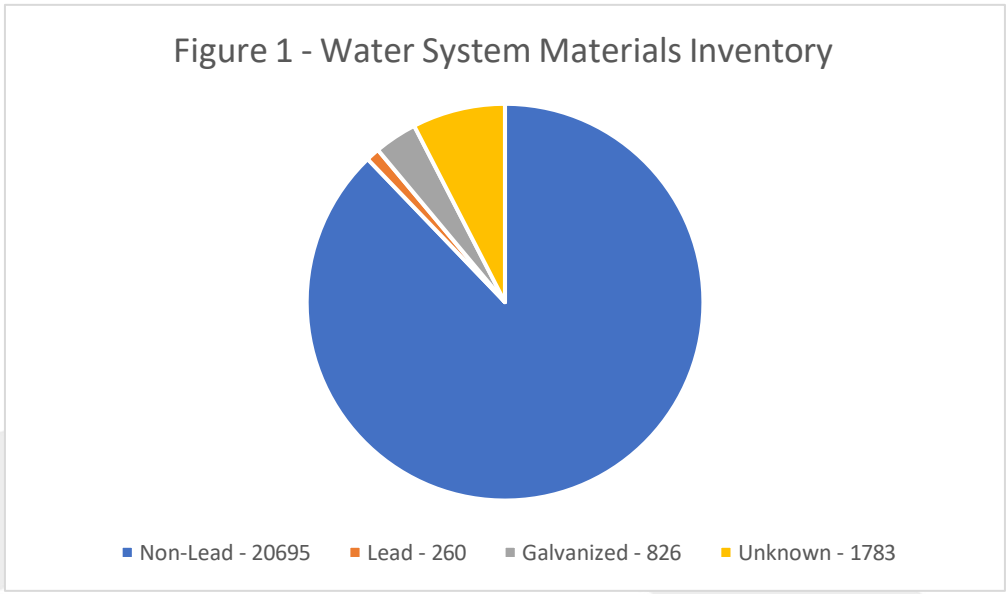
All participants in the testing program were advised of their results.

2024 Material Type and Replacement Figures





2023 Material Type Figures



CITY OF ROYAL OAK

2023 CONSUMERS ANNUAL REPORT
ON WATER QUALITY

ATTENTION: THIS IS AN IMPORTANT REPORT ON WATER QUALITY AND SAFETY

The City of Royal Oak, The Southeastern Oakland County Water Authority (SOCWA) and the Great Lakes Water Authority (GLWA) are proud of the fine drinking water they supply and are honored to provide this report to you. The 2023 Consumers Annual Report on Water Quality shows the sources of our water, lists the results of our tests, and contains important information about water and health. We will notify you immediately if there is ever any reason for concern about our water. We are pleased to show you how we have surpassed water quality standards as mandated by the Environmental Protection Agency (EPA) and the Michigan Department of Environment, Great Lakes, and Energy (EGLE).

About the System
The City of Royal Oak purchases water from the Southeastern Oakland County Water Authority (SOCWA) at thirteen locations. SOCWA provides GLWA water through its member distribution systems to a population of 210,000 within a 56 square mile area. Current members are Berkley, Beverly Hills, Bingham Farms, Birmingham, Clawson, Huntington Woods, Lathrup Village, Pleasant Ridge, Royal Oak, Southfield, and Southfield Township.

Your source water comes from the Detroit River, situated within the Lake St. Clair, Clinton River, Detroit River, Rouge River, Ecorse River, watersheds in the U.S. and parts of the Thames River, Little River, Turkey Creek and Sydenham watersheds in Canada. The Michigan Department of Environmental Quality in partnership with the U.S. Geological Survey, the Detroit Water and Sewerage Department, and the Michigan Public Health Institute performed a source water assessment in 2004 to determine the susceptibility of GLWA's Detroit River source water for potential contamination. The susceptibility rating is based on a seven-tiered scale and ranges from very low to very high determined primarily using geologic sensitivity, water chemistry, and potential contaminant sources. The report described GLWA's Detroit River intakes as highly susceptible to potential contamination. GLWA's water treatment plants Northeast and Springwells that draw water from the Detroit River has historically provided satisfactory treatment and meets drinking water standards.

And/or

Your source water comes from the lower Lake Huron watershed. The watershed includes numerous short, seasonal streams that drain to Lake Huron. The Michigan Department of Environmental Quality in partnership with the U.S. Geological Survey, the Detroit Water and Sewerage Department, and the Michigan Public Health Institute performed a source water assessment in 2004 to determine the susceptibility of potential contamination. The susceptibility rating is a seven-tiered scale ranging from "very low" to "very high" based primarily on geologic sensitivity, water chemistry, and contaminant sources. The Lake Huron source water intake is categorized as having a moderately low susceptibility to potential contaminant sources. The Lake Huron water treatment plant has historically provided satisfactory treatment of this source water to meet drinking water standards.

GLWA has initiated source-water protection activities that include chemical containment, spill response, and a mercury reduction program. GLWA participates in the National Pollutant Discharge Elimination System permit discharge program and has an emergency response management plan. GLWA has an updated Surface Water Intake Protection plan for the Lake Huron water intake. The plan has seven elements that include: roles and duties of government units and water supply agencies, delineation of a source water protection areas, identification of potential sources of contamination, management approaches for protection, contingency plans, siting of new water sources, public participation, and public education activities. If you would like to know more

information about the Source Water Assessment Report, please, contact GLWA at (313 926-8127).

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it can dissolve naturally occurring minerals and, in some cases, radioactive materials, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharge, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.

Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations, which limit the amount of certain contaminants in the water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Key to the Detected Contaminants Table

Symbol	Abbreviation	Definition/Explanation
AL	Action Level	The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.
°C	Celsius	A scale of temperature in which water freezes at 0° and boils at 100° under standard conditions.
>	Greater than	
HAA5	Haloacetic Acids	HAA5 is the total of bromoacetic, chloroacetic, Dibromoacetic, dichloroacetic, and trichloroacetic acids. Compliance is based on the total.
Level 1	Level 1 Assessment	A study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in the water system.
LRAA	Locational Running Annual Average	The average of analytical results for samples at a particular monitoring location during the previous four quarters.
MCL	Maximum Contaminant Level	The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
MCLG	Maximum Contaminant Level Goal	The level of contaminant in drinking water below which there is no known or expected risk to health.
MRDL	Maximum Residual Disinfectant Level	The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MRDLG	Maximum Residual Disinfectant Level Goal	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRLDG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.
n/a	not applicable	
ND	Not Detected	Below the detection limit of the method
NTU	Nephelometric Turbidity Units	Measures the cloudiness of water.
pCi/L	Picocuries Per Liter	A measure of radioactivity
ppb	Parts Per Billion (one in one billion)	The ppb is equivalent to micrograms per liter. A microgram = 1/1000 milligram.
ppm	Parts Per Million (one in one million)	The ppm is equivalent to milligrams per liter. A milligram = 1/1000 gram.
RAA	Running Annual Average	The average of analytical results for all samples during the previous four quarters.
SMCL	Secondary Maximum Contaminant Level	An MCL which involves a biological, chemical or physical characteristic of water that may adversely affect the taste, odor, color or appearance (aesthetics), which may thereby affect public confidence or acceptance of the drinking water.
TT	Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water.
TTHM	Total Trihalomethanes	Total Trihalomethanes is the sum of chloroform, bromodichloromethane, dibromochloromethane and bromoform. Compliance is based on the total.
µmhos	Micromhos	Measure of electrical conductance of water

2023 Springwells Regulated Detected Contaminants Table

2023 Inorganic Chemicals - Annual Monitoring at Plant Finished Tap								
Regulated Contaminant	**Test Date**	**Unit**	**Health Goal MCLG**	**Allowed Level MCL**	**Highest Level Detected**	**Range of Detection**	**Violation**	**Major Sources in Drinking Water**
Fluoride	04-11-2023	ppm	4	4	**0.86**	**n/a**	**no**	Erosion of natural deposit; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	04-11-2023	ppm	10	10	**0.63**	**n/a**	**no**	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

2023 Disinfection Residual - Monitoring in the Distribution System								
Regulated Contaminant	**Test Date**	**Unit**	**Health Goal MRDLG**	**Allowed Level MRDL**	**Highest Level RAA**	**Range of Quarterly Results**	**Violation**	**Major Sources in Drinking Water**
Chlorine Residual	2023	ppm	4	4	**0.74**	**0.67-0.81**	**no**	Water additive used to control microbes

2023 Turbidity - Monitored Every 4 Hours at the Plant Finished Water Tap			
Highest Single Measurement Cannot Exceed 1 NTU	**Lowest Monthly % of Samples Meeting Turbidity Limit of 0.3 NTU (minimum 95%)**	**Violation**	**Major Sources in Drinking Water**
0.09 NTU	**100%**	**no**	Soil Runoff

Regulated Contaminant	**Treatment Technique**	**Typical Source of Contaminant**
Total Organic Carbon ppm	The Total Organic Carbon (TOC) removal ratio is calculated as the ratio between the actual TOC removal and the TOC removal requirements. The TOC is measured each quarter and because the level is low, there is no requirement for TOC removal.	Erosion of natural deposits

2023 Special Monitoring						
Contaminant	**Test Date**	**Unit**	**MCLG**	**MCL**	**Highest Level Detected**	**Source of Contaminant**
Sodium	04-11-2023	ppm	n/a	n/a	**7.0**	Erosion of natural deposits

These tables are based on tests conducted by GLWA in the year 2023 or the most recent testing done within the last five calendar years. GLWA conducts tests throughout the year only tests that show the presence of a substance or require special monitoring are presented in these tables. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. The data is representative of the water quality, but some are more than one year old.

2023 Springwells Tap Water Mineral Analysis

Parameter	Units	Max.	Min.	Avg.		Parameter	Units	Max.	Min.	Avg.
Turbidity	NTU	1.08	0.03	0.14		Phosphorus	ppm	0.61	0.37	0.49
Total Solids	ppm	153	115	138		Free Carbon Dioxide	ppm	11.6	4.4	8.4
Total Dissolved Solids	ppm	156	102	129		Total Hardness	ppm	146	90	116
Aluminum	ppm	0.077	0.018	0.038		Total Alkalinity	ppm	94	70	77
Iron	ppm	0.4	0.2	0.3		Carbonate Alkalinity	ppm	ND	ND	ND
Copper	ppm	0.003	ND	0.001		Bi-Carbonate Alkalinity	ppm	94	70	77
Magnesium	ppm	8.4	7.2	7.9		Non-Carbonate Hardness	ppm	66	10	39
Calcium	ppm	28.5	25.3	26.9		Chemical Oxygen Demand	ppm	11.1	ND	4.5
Sodium	ppm	7.0	4.6	5.3		Dissolved Oxygen	ppm	20.0	7.2	11.4
Potassium	ppm	1.3	1.0	1.0		Nitrite Nitrogen	ppm	ND	ND	0.0
Manganese	ppm	0.001	ND	ND		Nitrate Nitrogen	ppm	0.63	0.32	0.38
Lead	ppm	ND	ND	ND		Fluoride	ppm	0.86	0.10	0.59
Zinc	ppm	0.003	ND	0.001		pH		7.52	7.09	7.28
Silica	ppm	2.9	1.1	2.1		Specific Conductance @ 25 °C	µmhos	219	180	191
Sulfate	ppm	32.3	22.5	25.0		Temperature	°C	23.4	3.4	13.2
Chloride	ppm	11.5	9.5	10.4						

2023 Northeast Regulated Detected Contaminants Table

2023 Inorganic Chemicals - Annual Monitoring at Plant Finished Tap								
Regulated Contaminant	**Test Date**	**Unit**	**Health Goal MCLG**	**Allowed Level MCL**	**Highest Level Detected**	**Range of Detection**	**Violation**	**Major Sources in Drinking Water**
Fluoride	04-11-2023	ppm	4	4	**0.65**	**n/a**	**no**	Erosion of natural deposit; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	04-11-2023	ppm	10	10	**0.64**	**n/a**	**no**	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

2023 Disinfection Residual - Monitoring in the Distribution System								
Regulated Contaminant	**Test Date**	**Unit**	**Health Goal MRDLG**	**Allowed Level MRDL**	**Highest Level RAA**	**Range of Quarterly Results**	**Violation**	**Major Sources in Drinking Water**
Chlorine Residual	2023	ppm	4	4	**0.69**	**0.55-0.76**	**no**	Water additive used to control microbes

2023 Turbidity - Monitored Every 4 Hours at the Plant Finished Water Tap			
Highest Single Measurement Cannot Exceed 1 NTU	**Lowest Monthly % of Samples Meeting Turbidity Limit of 0.3 NTU (minimum 95%)**	**Violation**	**Major Sources in Drinking Water**
0.11 NTU	**100%**	**no**	Soil Runoff
Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system			

Regulated Contaminant	**Treatment Technique**	**Typical Source of Contaminant**
Total Organic Carbon ppm	The Total Organic Carbon (TOC) removal ratio is calculated as the ratio between the actual TOC removal and the TOC removal requirements. The TOC is measured each quarter and because the level is low, there is no requirement for TOC removal.	Erosion of natural deposits

2023 Special Monitoring						
Contaminant	**Test Date**	**Unit**	**MCLG**	**MCL**	**Highest Level Detected**	**Source of Contaminant**
Sodium	04-11-2023	ppm	n/a	n/a	**7.3**	Erosion of natural deposits

These tables are based on tests conducted by GLWA in the year 2023 or the most recent testing done within the last five calendar years. GLWA conducts tests throughout the year only tests that show the presence of a substance or require special monitoring are presented in these tables. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. The data is representative of the water quality, but some are more than one year old.

2023 Northeast Tap Water Mineral Analysis

Parameter	Units	Max.	Min.	Avg.		Parameter	Units	Max.	Min.	Avg.
Turbidity	NTU	3.00	0.03	0.30		Phosphorus	ppm	0.66	0.36	0.47
Total Solids	ppm	157	113	133		Free Carbon Dioxide	ppm	16.4	6.7	10.0
Total Dissolved Solids	ppm	159	101	129		Total Hardness	ppm	138	98	113
Aluminum	ppm	0.071	0.018	0.038		Total Alkalinity	ppm	94	68	81
Iron	ppm	0.4	0.2	0.3		Carbonate Alkalinity	ppm	ND	ND	ND
Copper	ppm	0.003	0.001	0.001		Bi-Carbonate Alkalinity	ppm	94	68	80
Magnesium	ppm	8.3	6.7	7.7		Non-Carbonate Hardness	ppm	48	8	32
Calcium	ppm	28.6	24.9	26.6		Chemical Oxygen Demand	ppm	9.2	ND	4.6
Sodium	ppm	7.3	4.6	5.4		Dissolved Oxygen	ppm	13.5	7.3	10.2
Potassium	ppm	1.3	0.9	1.0		Nitrite Nitrogen	ppm	ND	ND	0.0
Manganese	ppm	ND	ND	ND		Nitrate Nitrogen	ppm	0.64	0.30	0.38
Lead	ppm	ND	ND	ND		Fluoride	ppm	0.86	0.50	0.63
Zinc	ppm	0.003	ND	ND		pH		7.35	7.03	7.21
Silica	ppm	2.8	1.6	2.1		Specific Conductance @ 25 °C.	µmhos	262	177	213
Sulfate	ppm	34.9	22.3	25.8		Temperature	°C	23.2	6.7	15.0
Chloride	ppm	14.0	7.5	10.4						

2023 Lake Huron Regulated Detected Contaminants Table

2023 Inorganic Chemicals - Annual Monitoring at Plant Finished Tap								
Regulated Contaminant	**Test Date**	**Unit**	**Health Goal MCLG**	**Allowed Level MCL**	**Highest Level Detected**	**Range of Detection**	**Violation**	**Major Sources in Drinking Water**
Fluoride	04-11-2023	ppm	4	4	**0.70**	**n/a**	**no**	Erosion of natural deposit; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	04-11-2023	ppm	10	10	**0.38**	**n/a**	**no**	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

2023 Disinfection Residual - Monitoring in the Distribution System								
Regulated Contaminant	**Test Date**	**Unit**	**Health Goal MRDLG**	**Allowed Level MRDL**	**Highest Level RAA**	**Range of Quarterly Results**	**Violation**	**Major Sources in Drinking Water**
Total Chlorine Residual	2023	ppm	4	4	**0.76**	**0.68 – 0.84**	**no**	Water additive used to control microbes

2023 Turbidity - Monitored Every 4 Hours at the Plant Finished Water Tap			
Highest Single Measurement Cannot Exceed 1 NTU	**Lowest Monthly % of Samples Meeting Turbidity Limit of 0.3 NTU (minimum 95%)**	**Violation**	**Major Sources in Drinking Water**
0.14 NTU	**100 %**	**no**	Soil Runoff
Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.			

Regulated Contaminant	Treatment Technique	Typical Source of Contaminant
Total Organic Carbon ppm	The Total Organic Carbon (TOC) removal ratio is calculated as the ratio between the actual TOC removal and the TOC removal requirements. The TOC is measured each quarter and because the level is low, there is no requirement for TOC removal.	Erosion of natural deposits

2023 Special Monitoring						
Contaminant	**Test Date**	**Unit**	**MCLG**	**MCL**	**Highest Level Detected**	**Source of Contaminant**
Sodium	04-11-2023	ppm	n/a	n/a	**4.8**	Erosion of natural deposits

These tables are based on tests conducted by GLWA in the year 2023 or the most recent testing done within the last five calendar years. GLWA conducts tests throughout the year only tests that show the presence of a substance or require special monitoring are presented in these tables. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. The data is representative of the water quality, but some are more than one ye

2023 Lake Huron Tap Water Mineral Analysis										
Parameter	**Units**	**Max.**	**Min.**	**Avg.**		**Parameter**	**Units**	**Max.**	**Min.**	**Avg.**
Turbidity	N.T.U.	0.09	0.05	0.07		Phosphorus	mg/L	0.56	0.40	0.45
Total Solids	mg/L	146	61	122		Free Carbon Dioxide	mg/L	8.4	4.4	6.2
Total Dissolved Solids	mg/L	153	103	123		Total Hardness (3), (4), (5)	mg/L	140	96	113
Aluminum	mg/L	0.071	0.018	0.042		Total Alkalinity (3)	mg/L	92	74	81
Iron	mg/L	0.4	0.2	0.3		Carbonate Alkalinity (3)	mg/L	ND	ND	ND
Copper	mg/L	0.001	ND	ND		Bi-Carbonate Alkalinity (3)	mg/L	92	74	81
Magnesium	mg/L	7.9	7.0	7.7		Non-Carbonate Hardness (3)	mg/L	58	16	31
Calcium	mg/L	27.2	25.0	25.9		Chemical Oxygen Demand	mg/L	12.8	ND	4.7
Sodium	mg/L	5.5	4.5	4.9		Dissolved Oxygen	mg/L	13.3	8.5	10.8
Potassium	mg/L	1.1	0.9	1.0		Nitrite Nitrogen	mg/L	ND	ND	ND
Manganese	mg/L	ND	ND	ND		Nitrate Nitrogen	mg/L	0.55	0.33	0.38
Lead	mg/L	ND	ND	ND		Fluoride	mg/L	0.79	0.59	0.73
Zinc	mg/L	0.008	ND	0.002		pH		7.56	7.34	7.43
Silica	mg/L	2.5	2.0	2.2		Specific Conductance @ 25 °C.	µmhos	210	166	197
Sulfate	mg/L	21.0	17.9	19.2		Temperature	°C	23.7	2.7	15.1
Chloride	mg/L	10.0	8.5	9.3						

2023 Microbiological Contaminants – Monthly Monitoring in Distribution System					
Regulated Contaminant	**MCLG**	**MCL**	**Highest Number Detected**	**Violation yes/no**	**Major Sources in Drinking Water**
Total Coliform Bacteria	0	Presence of Coliform bacteria > 5% of monthly samples	0	no	Naturally present in the environment
***E. coli* Bacteria**	0	A routine sample and a repeat sample are total coliform positive, and one is also E.coli positive.	0	no	Sanitary defects

2023 Disinfection By-Products - Stage 2 Disinfection By-Products Monitoring in the Distribution System								
Regulated Contaminant	**Test Date**	**Unit**	**Health Goal MCLG**	**Allowed Level MCL**	**Highest Level LRAA**	**Range of Quarterly Results**	**Violation**	**Major Sources in Drinking Water**
(TTHM) Total Trihalomethanes	2023	ppb	n/a	80	32	15 - 54	**no**	By-product of drinking water chlorination
(HAA5) Haloacetic Acids	2023	ppb	n/a	60	19	11 - 21	**no**	By-product of drinking water chlorination

Lead and Copper Monitoring at the Customer's Tap in 2023								
Regulated Contaminant	**Unit**	**Year Sampled**	**Health Goal MCLG**	**Action Level AL**	**90th Percentile Value***	**Range of Individual Samples Results**	**Number of Samples Over AL**	**Major Sources in Drinking Water**
Lead	ppb	2023	0	15	12	0 - 30	2	Lead services lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits.
Copper	ppm	2023	1.3	1.3	0.1	0.0 - 0.2	0	Corrosion of household plumbing systems; Erosion of natural deposits

* The 90th percentile value means 90 percent of the homes tested have lead and copper levels below the given 90th percentile value. If the 90th percentile value is above the AL additional requirements must be met.

2022 Number of Water Service Connections by Service Line Material		
Number of Lead Service Lines	Number of Service Lines of Unknown Material	Total Number of Service Lines
1184	1294	23561

About Unregulated Contaminant Monitoring

Unregulated contaminants are those for which EPA has not established drinking water standards. Monitoring helps EPA to determine where these contaminants occur and whether it needs to regulate those contaminants.

In 2023 The city of Royal Oak participated in the Fifth Unregulated Contaminant Monitoring Rule. During this monitoring period 29 per – and polyfluoroalkyl substances and lithium were analyzed. For the four quarters of monitoring all 29 per – and polyfluoroalkyl substances and lithium sampling results reported as non-detect. All systems are required to report their data to the EPA. The analytical results from the UCMR are stored in the National Contaminant Occurrence Database for drinking water. For a summary of the UCMR results, please refer to the UCMR Occurrence Data webpage.

Important Health Information

Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Royal Oak is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using the water for drinking or cooking. If you have a service that is lead, galvanized previously connected to lead, or unknown but likely to be lead, it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and lead service line. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline 1-800-462-4791 or at http://www.epa.gov/safewater/lead.

Infants and children who drink water containing lead could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

People with Special Health Concerns

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

IMPORTANT ADDENDUM - 6.10.2024 – Re: Springwells Water Treatment Plant

Great Lakes Water Authority (GLWA) is required to notify water users of any unresolved significant deficiencies identified by the Michigan Department of Environment, Great Lakes, and Energy, Drinking Water and Environment Health Division (EGLE). Below is the status of significant deficiencies in the GLWA water system identified by EGLE:

Date Identified by EGLE	Description	Compliance Agreement Deadline	Status
05-25-2022	Inoperable rapid mixing equipment at the Springwells 1930's water plant	12-31-2023	Completed in December 2023.
05-25-2022	Inoperable flocculation equipment at the 1958 Springwells water plant	11-11-2027	Phase I - Construction phase in progress and is scheduled to be completed in 2025

Questions:

- Local Distribution: City of Royal Oak (248) 246-3300
- Southeastern Oakland County Water Supply System – Water Authority offices: (248) 288-5150. Visit our web site at www.socwa.org
- Great Lakes Water Authority – www.glwater.org
- Michigan Department of Environment, Great Lakes, and Energy (EGLE) - (586) 753-3755 – www.michigan.gov/egle
- U.S. Environmental Protection Agency – Safe Drinking Water Hotline: (800) 426-4791.
- Water quality data for community water systems throughout the United States is available at https://www.epa.gov/wqs-tech

Royal Oak
PUBLIC SERVICES

City of Royal Oak
Department of Public Services
1600 North Campbell Road
Royal Oak, MI 48067

November 1, 2024

SUBJECT: Notification that your water service line is made of galvanized previously connected to lead materials.

Dear Water Customer:

It has been determined that some or all of your water service line is made of galvanized previously connected to lead materials. People living in homes with a galvanized previously connected to lead service line have an increased risk of exposure to lead from their drinking water. This letter serves to notify you of this risk and provides information to help you reduce your risk of lead exposure. Please share this information with anyone who drinks and/or cooks using water at this property.

Health effects of lead.

Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of persons who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risks of heart disease, high blood pressure, kidney or nervous system problems.

Steps you can take to reduce your exposure to lead in your water.

Below are recommended actions you may take, separately or in combination, to reduce your exposure to lead in your drinking water. The list also includes where you may find more information and is not intended to be a complete list or to imply that all actions equally reduce lead in drinking water.

- ***Consider using a lead-reducing filter***. The Michigan Department of Health and Human Services (MDHHS) recommends Michigan households use a certified lead-reducing drinking water filter if your home has or if you are uncertain if it has a source of lead, such as one of the following:
    - A lead service line, or galvanized previously connected to lead service line, carrying water from the street to your residence.
    - Lead or galvanized plumbing.
    - Copper plumbing with lead solder before 1988 (EGLE recommendation).
    - Old faucets and fittings that were sold before 2014.
  - Use the filter until you are able to remove sources of household lead plumbing, such as:
    - Replace pre-2014 faucets.
    - Get a lead inspection and replace needed plumbing.
  - Look for filters that are tested and certified to NSF/ANSI Standard 53 for lead reduction and NSF/ANSI Standard 42 for particulate reduction (Class I).
  - For filters to work properly, follow the manufacturer's instructions.

- ***Run your water to flush out lead-containing water***. The more time water has been sitting in your home's pipes, the more lead it may contain. Therefore, if your water has not been used for several hours, run the water before using it for drinking or cooking. This flushes lead-containing water from the pipes. Because your home has a galvanized service line that was previously connected to lead, run the water for at least five minutes to flush water from your home or building's plumbing and the lead service line.

- ***Use cold water for drinking and cooking.*** Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water.

- **Boiling water does not remove lead from water.** Filter cold water, then boil the filtered water as necessary.

- ***Clean your aerator.*** The aerator on the end of your faucet is a screen that will catch debris. This debris could include particulate lead. The aerator should be removed at least every six months to rinse out any debris.

- ***Check for other sources of lead.*** In addition to your service line, other plumbing in your home may contain lead and could increase the levels of lead in your drinking water. These may include faucets, valves, and soldered joints. It is recommended that homeowners contact a licensed plumber and have a plumbing assessment done to determine if your in-home plumbing is a source of lead in your drinking water.

- ***Test your water for lead.*** If you wish to get your drinking water tested, call your water supply or use a certified lab. To find a certified lab, go to Michigan.gov/EGLElab and click on "Certifications."

- ***Learn about construction in your neighborhood***. Construction may cause more lead to be released from a lead service line or galvanized service line if present. Contact us to find out about any construction or maintenance work that may disturb your service line.

- ***Learn about your drinking water.*** Read your water supply's Annual Water Quality Report (Consumer Confidence Report) that is mailed to you each year or find it at your local water utility's website.

Get your child tested to determine lead levels in their blood.

A family doctor or pediatrician can perform a blood test for lead and provide information about the health effects of lead. State, city, or county departments of health can also provide information about how you can have your child's blood tested for lead. The Centers for Disease Control (CDC) and Prevention recommends public health actions when the level of lead in a child's blood is 3.5 micrograms per deciliter (ug/dL) or more. For more information and links to CDC's website, please visit https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water.

Replacing lead service lines.

All water supplies in Michigan are actively identifying and replacing service lines that contain lead and galvanized previously connected to lead. All portions of the service line that contain lead and galvanized previously connected to lead that the water system owns, as well as the

homeowner's portion, must be replaced at the water supply's expense. Contact us to learn about our service line replacement plan and timeline.

Partial replacement of service lines, where there is still lead or galvanized previously connected to lead materials remaining when service is restored, are banned due to increased lead exposure and potential health risks, except in the case of emergencies like a leak or loss of pressure.

If you have an issue with your side of the service line (generally, from the curb stop to the inside of your home), contact your water supply **first** to coordinate efforts and fully replace the service line. If an emergency repair is necessary, take additional precautionary measures to reduce potential exposure to lead during replacement or construction.

Contact us.

Please contact our water system materials analyst at 248.246.3331 if you have questions regarding this letter or disagree with the material determination.

For additional information about your water system contact the Public Services office at 248.246.3300.

For a copy of Royal Oak's's Annual Water Quality Report, please visit https://www.romi.gov/1500/Water-Quality.

Sincerely,

Drew Gellasch
Water Maintenance Division Supervisor
248.246.3300

Royal Oak
PUBLIC SERVICES

City of Royal Oak
Department of Public Services
1600 North Campbell Road
Royal Oak, MI 48067

November 1, 2024

SUBJECT: Notification that your water service line is made of lead.

Dear Water Customer:

It has been determined that some or all of your water service line is made of lead. People living in homes with a lead service line have an increased risk of exposure to lead from their drinking water. This letter serves to notify you of this risk and provides information to help you reduce your risk of lead exposure. Please share this information with anyone who drinks and/or cooks using water at this property.

Health effects of lead.

Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of persons who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risks of heart disease, high blood pressure, kidney or nervous system problems.

Steps you can take to reduce your exposure to lead in your water.

Below are recommended actions you may take, separately or in combination, to reduce your exposure to lead in your drinking water. The list also includes where you may find more information and is not intended to be a complete list or to imply that all actions equally reduce lead in drinking water.

- Consider using a lead-reducing filter. The Michigan Department of Health and Human Services (MDHHS) recommends Michigan households use a certified lead-reducing drinking water filter if your home has or if you are uncertain if it has a source of lead, such as one of the following:
  - A lead service line carrying water from the street to your residence.
  - Lead or galvanized plumbing.
  - Copper plumbing with lead solder before 1988 (EGLE recommendation).
  - Old faucets and fittings that were sold before 2014.
- Use the filter until you are able to remove sources of household lead plumbing, such as:
  - pre-2014 faucets.
  - Lead-based interior plumbing
- Look for filters that are tested and certified to NSF/ANSI Standard 53 for lead reduction and NSF/ANSI Standard 42 for particulate reduction (Class I).
- For filters to work properly, follow the manufacturer's instructions.
- Run your water to flush out lead-containing water. The more time water has been sitting in your home's pipes, the more lead it may contain. Therefore, if your water has not been used for several hours, run the water before using it for drinking or cooking. This flushes lead-containing water from the pipes. Because your home has a lead service line, run

the water for at least five minutes to flush water from your home or building's plumbing and the lead service line.

- Use cold water for drinking and cooking. Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water.
- Boiling water does not remove lead from water. Filter cold water, then boil the filtered water as necessary.
- Clean your aerator. The aerator on the end of your faucet is a screen that will catch debris. This debris could include particulate lead. The aerator should be removed at least every six months to rinse out any debris.
- Check for other sources of lead. In addition to your service line, other plumbing in your home may contain lead and could increase the levels of lead in your drinking water. These may include faucets, valves, and soldered joints. It is recommended that homeowners contact a licensed plumber and have a plumbing assessment done to determine if your in-home plumbing is a source of lead in your drinking water.
- Test your water for lead. If you wish to get your drinking water tested, call your water supply or use a certified lab. To find a certified lab, go to Michigan.gov/EGLElab and click on "Certifications."
- Learn about construction in your neighborhood. Construction may cause more lead to be released from a lead service line or galvanized service line if present. Contact us to find out about any construction or maintenance work that may disturb your service line.
- Learn about your drinking water. Read your water supply's Annual Water Quality Report (Consumer Confidence Report) that is mailed to you each year or find it at your local water utility's website.

Get your child tested to determine lead levels in their blood.

A family doctor or pediatrician can perform a blood test for lead and provide information about the health effects of lead. The Oakland County Health Division can also provide information about how you can have your child's blood tested for lead.

The Centers for Disease Control (CDC) and Prevention recommends public health actions when the level of lead in a child's blood is 3.5 micrograms per deciliter (µg/dL) or more. For more information and links to CDC's website, please visit https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water.

Replacing lead service lines.

All water supplies in Michigan are actively identifying and replacing service lines that contain lead and galvanized previously connected to lead. All portions of the service line that contain lead and galvanized previously connected to lead that the water system owns, as well as the homeowner's portion, must be replaced at the water supply's expense. Contact us to learn about our service line replacement plan and timeline.

Partial replacement of service lines, where there is still lead or galvanized previously connected to lead materials remaining when service is restored, are banned due to increased lead exposure and potential health risks, except in the case of emergencies like a leak or loss of pressure.

If you have an issue with your side of the service line (generally, from the curb stop to the inside of your home), contact your water supply first to coordinate efforts and fully replace the service

line. If an emergency repair is necessary, take additional precautionary measures to reduce potential exposure to lead during replacement or construction.

Contact us.

Please contact our water system materials analyst at 248.246.3331 if you have questions regarding this letter or disagree with the material determination.

For additional information about your water system contact the Public Services office at 248.246.3300.

For a copy of Royal Oak's Annual Water Quality Report, please visit https://www.romi.gov/1500/Water-Quality.

Sincerely,

Drew Gellasch
Water Maintenance Division Supervisor
City of Royal Oak
248.246.3300

Royal Oak
PUBLIC SERVICES

City of Royal Oak
Department of Public Services
1600 North Campbell Road
Royal Oak, MI 48067

November 1, 2024

SUBJECT: Notification that your water service line material is unknown and may contain lead.

Dear Water Customer:

Your drinking water service line material is unknown, but we are working toward identifying service line materials throughout the water supply. Because your service line material is unknown, there is the potential that some or all of the line could be made of lead or galvanized pipe that was previously connected to lead. People living in homes with a lead, or galvanized pipe previously connected to lead, service line have an increased risk of exposure to lead from their drinking water. This letter serves to notify you of this risk and provides information to help you reduce your risk of lead exposure. Please share this information with anyone who drinks and/or cooks using water at this property.

Health effects of lead.

Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of persons who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risks of heart disease, high blood pressure, kidney or nervous system problems.

Steps you can take to reduce your exposure to lead in your water.

Below are recommended actions you may take, separately or in combination, to reduce your exposure to lead in your drinking water. The list also includes where you may find more information and is not intended to be a complete list or to imply that all actions equally reduce lead in drinking water.

- ***Consider using a lead-reducing filter***. The Michigan Department of Health and Human Services (MDHHS) recommends Michigan households use a certified lead-reducing drinking water filter if your home has or if you are uncertain if it has a source of lead, such as one of the following:
    - A lead service line, or galvanized service line previously connected to lead, carrying water from the street to your residence.
    - Lead or galvanized plumbing.
    - Copper plumbing with lead solder before 1988 (EGLE recommendation).
    - Old faucets and fittings that were sold before 2014.
  - Use the filter until you are able to remove sources of household lead plumbing, such as:
    - Replace pre-2014 faucets.
    - Get a lead inspection and replace needed plumbing.
  - Look for filters that are tested and certified to NSF/ANSI Standard 53 for lead reduction and NSF/ANSI Standard 42 for particulate reduction (Class I).

- For filters to work properly, follow the manufacturer's instructions.

- ***Run your water to flush out lead-containing water***. The more time water has been sitting in your home's pipes, the more lead it may contain. Therefore, if your water has not been used for several hours, run the water before using it for drinking or cooking. This flushes lead-containing water from the pipes. Because it is not known whether your home has a lead service line or galvanized service line that was previously connected to lead, run the water for at least five minutes to flush water from your home or building's plumbing and the lead service line.

- ***Use cold water for drinking and cooking.*** Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water.

- **Boiling water does not remove lead from water.** Filter cold water, then boil the filtered water as necessary.

- ***Clean your aerator.*** The aerator on the end of your faucet is a screen that will catch debris. This debris could include particulate lead. The aerator should be removed at least every six months to rinse out any debris.

- ***Check for other sources of lead.*** In addition to your service line, other plumbing in your home may contain lead and could increase the levels of lead in your drinking water. These may include faucets, valves, and soldered joints. It is recommended that homeowners contact a licensed plumber and have a plumbing assessment done to determine if your in-home plumbing is a source of lead in your drinking water.

- ***Test your water for lead.*** If you wish to get your drinking water tested, call your water supply or use a certified lab. To find a certified lab, go to Michigan.gov/EGLElab and click on "Certifications."

- ***Learn about construction in your neighborhood***. Construction may cause more lead to be released from a lead service line or galvanized service line if present. Contact us to find out about any construction or maintenance work that may disturb your service line.

- ***Learn about your drinking water.*** Read your water supply's Annual Water Quality Report (Consumer Confidence Report) that is mailed to you each year or find it at your local water utility's website.

Get your child tested to determine lead levels in their blood.

A family doctor or pediatrician can perform a blood test for lead and provide information about the health effects of lead. State, city, or county departments of health can also provide information about how you can have your child's blood tested for lead. The Centers for Disease Control (CDC) and Prevention recommends public health actions when the level of lead in a child's blood is 3.5 micrograms per deciliter (µg/dL) or more. For more information and links to CDC's website, please visit https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water.

Contact us.

For information about getting your service line material identified please contact our water system materials analyst at 248.246.3331.

For additional information about your water system contact the Public Services office at 248.246.3300.

For a copy of Royal Oak's Annual Water Quality Report, please contact visit https://www.romi.gov/1500/Water-Quality.

Sincerely,

Drew Gellasch
Water Maintenance Division Supervisor
City of Royal Oak
248.246.3300

Royal Oak

Celebrating 100 Years

Your Home May Qualify for a Free Water Service Line Replacement

Under the Michigan Safe Drinking Water Act "Lead and Copper Rule," the city is obligated to replace all lead and galvanized water services on private property, at no cost to the property owner.

The State of Michigan requires The City to maintain an accurate inventory of all water service lines. Please help us update our records for your home. We need to know if the pipe is galvanized, lead, copper or plastic where it first enters the house.

The program covers the water service pipe entering the home through the floor or wall, before the first valve.

Please take a moment to TEXT your address along with a picture of the water pipe where it first enters the home, to City of Royal Oak cell # 248-459-8187

Or, if you prefer, e-mail your information and picture to jeffp@romi.gov.

We are also happy to stop by to check the pipe if that is preferred. Text request to 248-459-8187.

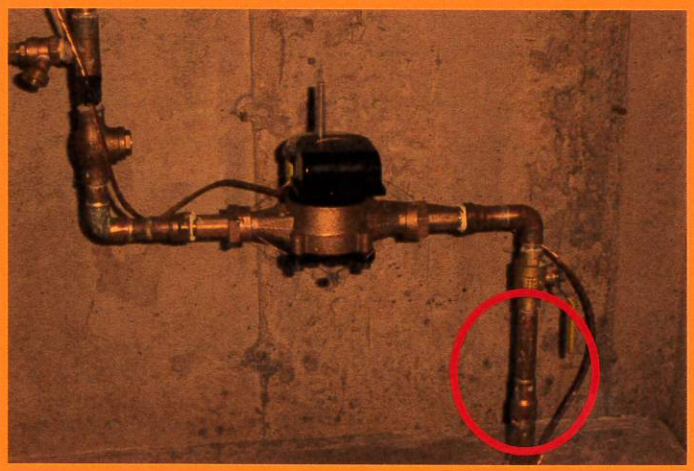
If your private water service was determined to be galvanized or lead, you will be contacted with information about future pipe replacement.

If you have any questions or need help with the process, please contact R.O. Public Service at 248-246-3331.

Below is a picture of a typical water meter installation.

The material of the pipe coming up from the bottom of the picture is what we need to know.

Thank you for your help.



Royal Oak
PUBLIC SERVICES

Private Water Service Replacement - Access Agreement

1. Where investigation indicates that water services with lead piping, galvanized piping, or copper piping with soldered joints are present, they will be replaced with new copper water service materials. Replacement of this piping will take place up to the first shut-off valve inside the building or to 18 inches inside the building, whichever is shorter.
2. All lawn areas disturbed by the service line replacement will be restored with topsoil and seed that must be watered and maintained by the property owner. If any specialty landscaping, trees, pavers, stones, etc. must be removed to allow for this work, the homeowner will be responsible for its replacement.
3. Piping inside buildings beyond the repair limits is the responsibility of the property owner and will not be replaced. The property owner or an authorized representative who is 18 years or older must be present while the service replacement is taking place.
4. The property owners shall provide 10 feet of open space around the water meter to allow the contractor work access. New piping will be brought in through the floor of the basement. Floor penetrations will be restored with concrete. No specialty flooring, tile, carpet, etc. will be replaced by the contractor.
5. The property owner will continue to be the owner of the water service line on private property after replacement.
6. The cost of replacing water service materials will be the City's responsibility.
7. The permissive rights set forth herein shall start as of the date the property owner signs this release and shall terminate on the date that the contractor completes the work described. The work shall be free from defects in material and workmanship for a period of one year from the final date of installation.

Authorization:

In accordance with the Michigan Lead and Copper Rule, the undersigned hereby **gives permission** to the City of Royal Oak and/or its employees, agents and/or contractors to excavate, investigate, and replace water service(s) with lead piping, galvanized piping, or copper piping with soldered joints on the following property:

Tax Parcel: _____ Street Address: _____

This instrument contains the entire permit agreement. No other promises have been made except as shown herein.

_____ _____ _____
Name/Property Owner (print) Signature Date

_____ _____
Phone number (for scheduling) E-Mail Address (for scheduling)

OR

Access Denied:

In accordance with the Michigan Lead and Copper Rule, the undersigned **does not give permission** to the City of Royal Oak to replace water service(s) with lead piping, galvanized piping, or copper piping with soldered joints on the following property.

Tax Parcel: _____ Street Address: _____

_____ _____ _____
Name/Property Owner (print) Signature Date

Your water will be shut off for a period of approximately 4 to 12 hours while the line is being replaced. The contractor will make every effort to have your water restored the same day that installation begins.

If you have any questions, contact the Department of Public Services – Water Service Division at **248.246.3300.**

City of Royal Oak
Department of Public Services
1600 North Campbell Road
Royal Oak, MI 48067

Environmental Advisory Board
Proposed 2025 Meeting Calendar

Jan	22-Jan
Feb	26-Feb
Mar	26-Mar
Apr	23-Apr
May	28-May
Jun	25-Jun
Jul	23-Jul
Aug	27-Aug
Sep	24-Sep
Oct	22-Oct
Nov	19-Nov

ROYAL OAK SUSTAINABILITY UPDATE

November 2024

Prepared by:
Angela Fox
Sustainability Manager
Royal Oak

website: romi.gov/sustainability

email: sustainability@romi.gov

Royal Oak SUSTAINABILITY

WELCOME LETTER

In 2022, Royal Oak's Sustainability Climate Action Plan was adopted. This plan sets the foundation for how, collectively, Royal Oak will achieve a just transition to community-wide carbon neutrality by the year 2050. The goals set by the commission are ambitious but possible when we work collaboratively and strategically toward the established action items.

During the last couple of years, significant progress has been made towards our Climate Action goals. The city commission prioritized sustainability by turning one full-time grants/sustainability position into two new full-time positions in the City Manager's Office. The city is better positioned to fund and implement climate action initiatives by hiring a grants coordinator and sustainability manager.

The community has also come together in impactful ways to make significant progress in addressing climate change. The following pages highlight the work accomplished over the last year or so, drawing attention to the new initiatives, strengthened collaborations, and demonstrative progress made on our shared climate journey. We also point out areas where more work is needed, inviting members of the public to join us on this worthwhile path.

The Royal Oak Sustainability Climate Action Plan is a living plan, meaning it is important to reflect, pivot, add, and prioritize regularly. This update is one such reflection where we celebrate accomplishments, recognize shortcomings, and outline future actions.

If you haven't already, sign up for the sustainability newsletter to learn more about ways to get involved. Regardless of how you get involved, please do get involved – because achieving a goal as ambitious as community-wide carbon neutrality requires each of us to participate in the movement. And we look forward to working alongside you!

Sincerely,

Angela Fox

Angela Fox
Sustainability Manager
City of Royal Oak

CONTENTS

Photo credit: Susan Barkman

Photo credit: Royal Oak

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Please consider the environment by not printing.

INTRODUCTION

In January 2021, the Royal Oak City Commission adopted a resolution that set greenhouse gas (GHG) emissions reduction goals for 2030 and 2050 and tasked staff to develop a city-wide sustainability plan through a collaborative process with essential stakeholders.

The resulting 2022 Royal Oak Sustainability and Climate Action Plan (hereafter referred to as 'the S-CAP' or 'the plan') is a three-year action strategy that outlines projects and programs to support the city's sustainability and climate goals. This plan represents the first formal sustainability planning effort for Royal Oak, with objectives and action steps identified through a community-wide survey and 24 community stakeholder workgroup meetings.

The S-CAP action implementation is divided into six focus topics: energy and buildings, mobility, water, waste, green space, and quality of life. Critical components for successful implementation of the S-CAP's actions include partnerships, funding and financing, resources to support tracking and progress monitoring, and tools for education, communication, and outreach. The S-CAP objectives and actions are expected to educate and empower municipal staff, businesses, institutions, and residents to implement energy and water waste reduction techniques, consider alternative mobility options, and engage in other sustainability and resilience measures.

THE S-CAP WAS DEVELOPED BASED ON THE CITY COMMISSION'S TWO OVERARCHING GOALS

GOAL #1

Reduce GHG emissions by 40%* by 2030 and achieve net zero by 2050. (*from 2018 baseline)

GOAL #2

Operate the city in a way that supports the three pillars of sustainability: the community, the economy, and the environment.

The S-CAP can be accessed in full via the QR code on the right or by visiting romi.gov/sustainability

An S-CAP Timeline has been created to provide quarterly updates on action items. Use the QR Code on the right to view progress or visit romi.gov/sustainability.

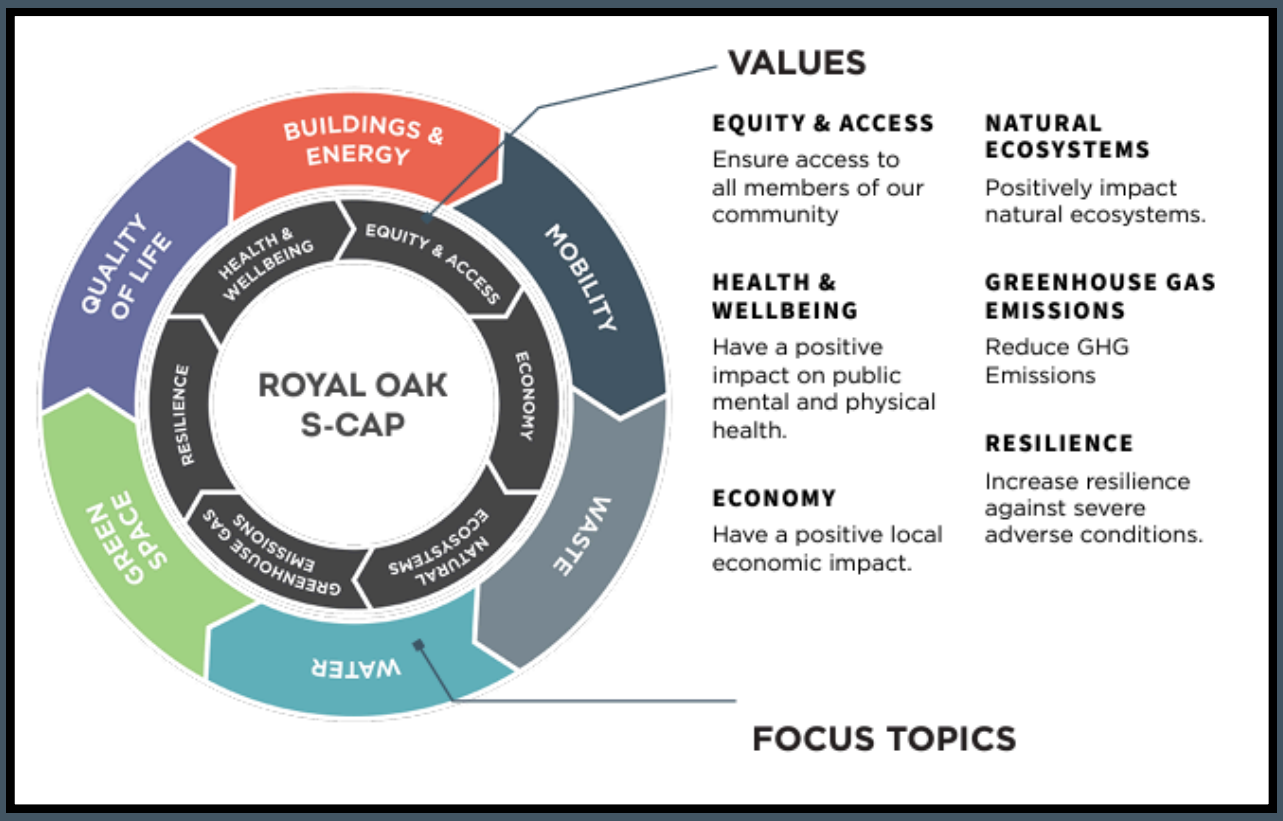
INTRODUCTION

SUSTAINABILITY VISION

The City of Royal Oak, as a community, is recognized as a leader in sustainable practices to combat climate change and provide an exceptional quality of life to residents, visitors, and institutions while improving natural ecosystems and the built environment, preserving and building on the past, to prepare for a greener, better future.

VALUES

While developing the framework for the Climate Action Plan, the task force prioritized a set of values based on the overarching goals of reducing GHG emissions and implementing the environmental, economic, and social aspects of sustainability. The intent of these values is to supplement the sustainability vision as measurable evaluation criteria. Combined, the sustainability vision and values serve as long-term targets to guide the plan's direction and prioritize the actions. It is important to reflect on these values as we reflect on the past couple of years of progress.



INTRODUCTION

MICHIGAN GREEN COMMUNITIES

Michigan Green Communities is a statewide network of local government staff and officials who collaborate through peer learning and information sharing to promote innovative sustainability solutions at the local, regional, and state levels. The annual Michigan Green Communities Challenge is a key part of the program and allows participants to track and benchmark their sustainability progress.

The Michigan Green Communities Challenge is an annual assessment that serves as a guide to help communities measure their progress toward sustainability. The Challenge includes several categories, each comprising several action items. Royal Oak is one of more than 60 Michigan communities participating in the annual assessment. In 2021, Royal Oak took the Green Communities Challenge and ranked Silver. In 2022, Royal Oak was awarded a Gold ranking and maintained that ranking in 2023.

Photo credit: Fatimah Bolhassan, Michigan Green Communities

GREENHOUSE GAS INVENTORY

Royal Oak's last Greenhouse Gas Inventory was conducted in 2018 and serves as the baseline for future inventory comparisons. The GHG inventory measures the city's current emissions and progress in future emission reduction. The standard unit for measuring GHG emissions is metric tons of carbon dioxide equivalents, also shown as MTCO2e. The inventory also provides the framework for future review of the city's GHG reduction goals and associated metrics for any necessary updates.

Royal Oak Sustainability has recently started a 2023 and 2024 GHG inventory with plans to conduct annual inventories moving forward.

ENERGY & BUILDINGS

The Energy & Buildings focus topic considers all building sectors, including commercial, residential, and industrial buildings. This section focuses on efficiency, the reduction of energy waste, the implementation of renewable energy, and the incorporation of green building techniques. These strategies lead to a healthy, safe, and resilient community.

S-CAP ACTION ITEMS WORKED ON THIS YEAR

S-CAP Action Item	Complete
1.1.1 Collect and report annual, community-wide energy consumption	✓
1.1.2 Improve municipal building energy efficiency through facility retrofits, behavioral changes, and employee engagement	Ongoing
1.1.3 Convert streetlights to LED technology throughout the city	80%
1.1.4 Develop energy waste reduction and other green building practices education programs for the residential, commercial, and multi-family sectors	Ongoing
1.1.5 Evaluate joining a 2030 District (green and efficient building) program	✓
1.1.6 Create an energy reduction competition initiative	Coming Soon
1.2.2 Promote and support Solarize-Royal Oak program	Ongoing
1.2.3 Install a municipal solar and battery storage demonstration project	Coming Soon
1.2.4 Increase the EV charging network city-wide	Coming Soon
1.3.1 Develop an ordinance to mitigate fugitive dust from residential building demolitions and major renovations	✓

ENERGY & BUILDINGS

S-CAP ACTION ITEMS WORKED ON THIS YEAR

S-CAP Action Item	Complete
1.3.3 Conduct a feasibility study of all municipal buildings' ability to achieve sustainable certifications	Ongoing
1.4.1 Collaborate with local utilities to ensure physical lines/vulnerabilities in the grid are upgraded	Ongoing
1.5.1 Create a city-wide emergency/hazard mitigation committee	✓
1.5.2 Develop a municipal facility as an emergency resilience hub with solar and storage to ensure 100% reliable energy	Ongoing
1.5.4 Evaluate access to the Salter Center as the current emergency hub	✓

LEED FOR CITIES

LEED for Cities and Communities helps local leaders create and operationalize responsible, sustainable and specific plans for natural systems, energy, water, waste, transportation and many other factors that contribute to quality of life—revolutionizing the way cities and communities are planned, developed and operated to improve their overall sustainability and quality of life.

The LEED framework encompasses social, economic, and environmental performance indicators and strategies, providing a clear, data-driven means of benchmarking and communicating progress.

In 2020, Royal Oak was recognized for implementing practical and measurable strategies to improve sustainability, resilience, and the standard of living for all residents. Royal Oak is the first city in Michigan and the third in the nation to certify under LEED v4.1, the latest version of the rating system.

SOLAR

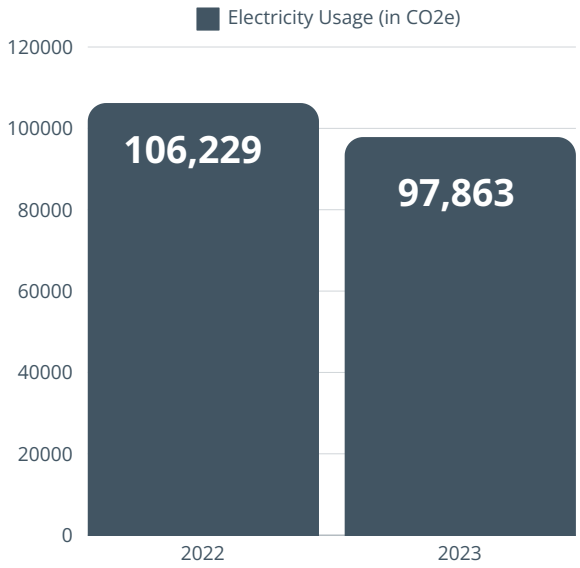
The City of Royal Oak has two solar projects in the works: a solar array at the Royal Oak Library and a Solar Array with battery storage at the Jack and Patti Salter Community Center. Both projects are in the preliminary stages and plan to be installed in FY 2025.

ENERGY & BUILDINGS

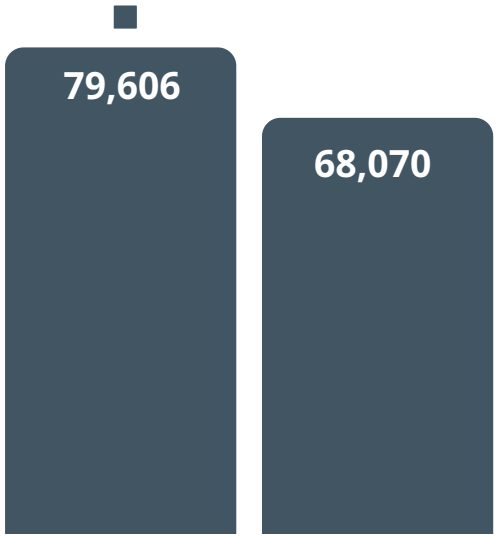
DTE and Consumers Energy provide a report on community-generated annual utility usage for electricity and gas. The report includes information on both residential and commercial data. We then enter that data into our Greenhouse Gas Emissions Calculator to produce the emissions generated from that usage. The measurement used to calculate Greenhouse Gas emissions is called carbon dioxide equivalent CO2e, which compares the global warming potential of various sources. Our next steps are to compare our usage now to the last Greenhouse Gas Emissions inventory in 2018.

> In 2022, the average annual amount of electricity purchased by a U.S. residential electric-utility customer was 10,791 kilowatt hours (kwh) - EIA.gov

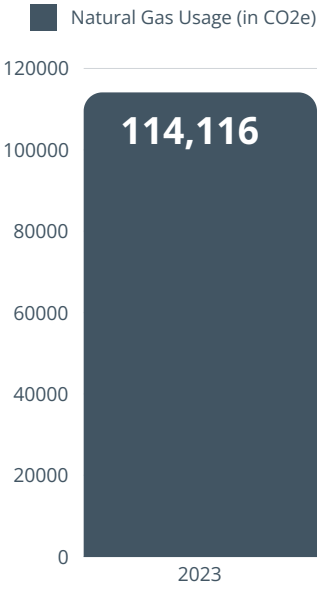
RESIDENTIAL ELECTRICTY



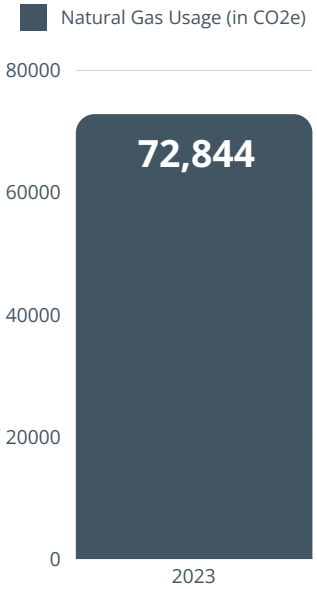
COMMERCIAL ELECTRICITY



RESIDENTIAL NATURAL GAS



COMMERCIAL NATURAL GAS



ENERGY & BUILDINGS

BENCHMARKING AND AUDITING

Royal Oak has been benchmarking city buildings using Energy Star Portfolio Manager since 2017. Energy benchmarking is the process of measuring and comparing a building's energy use to that of similar buildings or a standard. The data collected can help determine needed efficiency upgrades, behavior changes to reduce consumption, and the overall health of the buildings in preparation for solar projects.

This fall, the City of Royal Oak has started conducting energy audits on all city-owned buildings. When you combine benchmarking with the auditing process, a comprehensive plan can be developed to prioritize and budget the necessary upgrades and retrofits.

UPGRADING LED LIGHTING

In 2019, the City of Royal Oak began upgrading incandescent and fluorescent lighting with LED lighting. One of the first buildings to undergo lighting upgrades was the 44th District Courthouse. The lighting project was completed in 2021 to reduce energy consumption, operating costs, and GHG emissions.

The City of Royal Oak began tracking energy consumption in 2017, our baseline year. The LED conversion project at the 44th District Courthouse reduced GHG Emissions by 24.8% or 60.8 CO2e. This energy reduction is equivalent to 155,500 miles driven by an average gasoline-powered passenger vehicle.

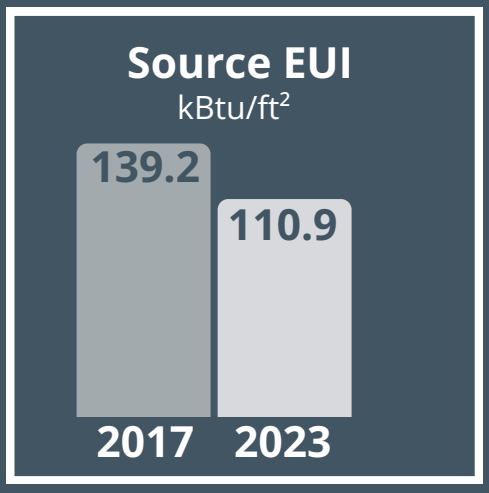
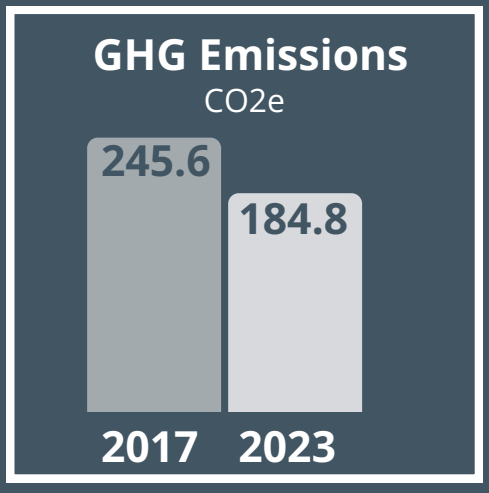


Photo Credit: Royal Oak



CO2e Reduction

↓ 24.8%

ENERGY & BUILDINGS

STREET LIGHT CONVERSION

In 2023, The City of Royal Oak started a Street Light Conversion Initiative. To date, we have converted over 90% of the city's street lights to LED, saving the city significant energy expenses. Street light conversion will wrap up in 2025.

BATTLE OF THE BUILDINGS

The State of Michigan's Department of Environment, Great Lakes, and Energy awarded the City of Royal Oak a Community Energy Grant to implement an energy competition for local businesses, organizations, multi-residential schools, and churches. Michigan Battle of the Buildings has facilitated this yearly competition for over a decade.

Over fifteen hundred buildings representing 272 million square feet of Michigan commercial real estate competed against each other in 2023 in this biggest-loser-styled energy competition. The competitors tracked energy consumption and worked to reduce their energy in various ways ranging from the education of building occupants to employing high efficient technology.

Royal Oak will launch its first competition in December 2024. It is free for buildings to enter. All buildings who enter will receive a free energy audit, and up to fifty businesses will receive free benchmarking services. All data is kept confidential and collected and analyzed by third-party vendors.

Businesses and organizations participating in the competition's benchmarking and energy audit process can compete for rebates on energy efficiency upgrades and retrofits courtesy of the City of Royal Oak through grant funding.

Photo Credit: Michigan Battle of the Buildings

Last year, Beaumont Hospital in Royal Oak won the Health/Hospital Category with a 16.76% reduction in electricity and gas consumption. The 2023 Michigan Battle of the Buildings competitors saved $7.4 million in energy costs and avoided 47,178 metric tons of CO2e, which is equivalent to the carbon sequestered by 55,514 acres of US forests in one year!

MOBILITY

The Mobility focus topic encompasses all motorized and non-motorized transportation systems. It includes bicycling, walking, internal combustion engine and electric vehicles, the municipal fleet, carpooling, public transit, and the infrastructure required for each of these systems to operate safely and reliably. It also considers wheelchair accessibility for those with mobility challenges and micro-mobility users.

S-CAP ACTION ITEMS WORKED ON THIS YEAR

S-CAP Action Item	Complete
2.1.2 Continue to evaluate road surface conditions, including bicycling lanes and routes, and upgrade sections as necessary	Ongoing
2.1.3 Continue to implement the sidewalk improvement program	Ongoing
2.1.5 Maintain bicycle lanes as part of road cleaning (removal of debris, leaves, and snow)	Ongoing
2.2.5 Allow flexible scheduling and telecommuting for city employees, where feasible	
2.2.6 Actively inform Royal Oak residents and city staff about available SMART service in Royal Oak	Ongoing
2.3.1 Install EV chargers at appropriate municipal facilities	Coming Soon
2.3.2 Convert municipal fleet to EVs or other alternative fuel vehicles, as appropriate (also consider right-sizing the fleet vehicles)	Coming Soon
2.4.2 Continue engaging in Safe Routes to Schools projects	Ongoing
2.4.4 Enforce speed limits to ensure driver compliance and install speed-minimizing infrastructure where warranted	Ongoing

MOBILITY

In 2024, the Environmental Advisory Board committed to hosting meetings only at locations easily accessible via public transit, ensuring equitable access to monthly meetings for all Royal Oak residents.

EV CHARGING AND FLEET CONVERSION

The city of Royal Oak is currently replacing EV Chargers in Royal Oak Parking garages, with installation expected in early 2025. The city is also working with DTE planners and various stakeholders on electrical grid improvements and upgrades to install chargers throughout the city. All chargers slated for installation in 2025 will be for public and fleet use.

The City of Royal Oak is currently in the process of purchasing its first electric vehicle. Using awarded EECGB funding from the Department of Energy, the city will purchase a 2024 Ford E transit van and convert it into an electric shuttle with wheelchair access for the Royal Oak Senior Center. The city hopes to have the shuttle in operation in early 2025.

MOGO BICYCLE RIDESHARE UPDATE

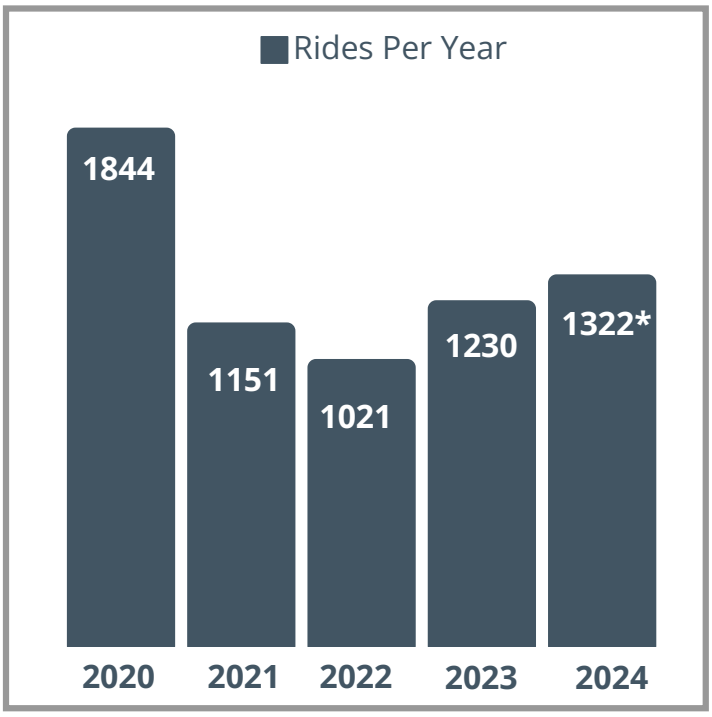


Photo Credit: MOGO

Royal Oak has six MOGO stations throughout the city. MOGO is a Detroit-based nonprofit that offers a bicycle ride-share program. Through the MOGO app, riders can pick up a bicycle at a MOGO location, ride it, and return it to a MOGO station when finished. It is the perfect way to get around town or explore a nearby community. MOGO offers pay-as-you-go options, monthly passes, and annual passes.

MOGO shares ride data with the city, and while rides decreased during the pandemic, they are steadily moving up to post-pandemic levels.

*2024 rides are projected based on estimations from MOGO.

MOBILITY

SMART UPDATE

JAN-APRIL 2024

Day of The Week	Number of Days	Total Stop Boardings	Total Stop Alightings	Total Stop Activity
Weekday	77	50161	53280	103441
Saturday	15	6352	6680	13032
Sunday	15	3076	3320	6396
Totals		59588	63281	122869

APRIL-JUNE 2024

Day of The Week	Number of Days	Total Stop Boardings	Total Stop Alightings	Total Stop Activity
Weekday	44	33591	36309	69899
Saturday	9	4006	4209	8215
Sunday	10	2220	2395	4615
Totals		39817	42912	82729

MOBILITY

SMART UPDATE

JUNE-SEPT 2024

Day of The Week	Number of Days	Total Stop Boardings	Total Stop Alightings	Total Stop Activity
Weekday	49	38115	41846	79961
Saturday	10	5086	5682	10767
Sunday	11	2764	3070	5834
Totals		45965	50598	96562

SEPT- NOV 10, 2024

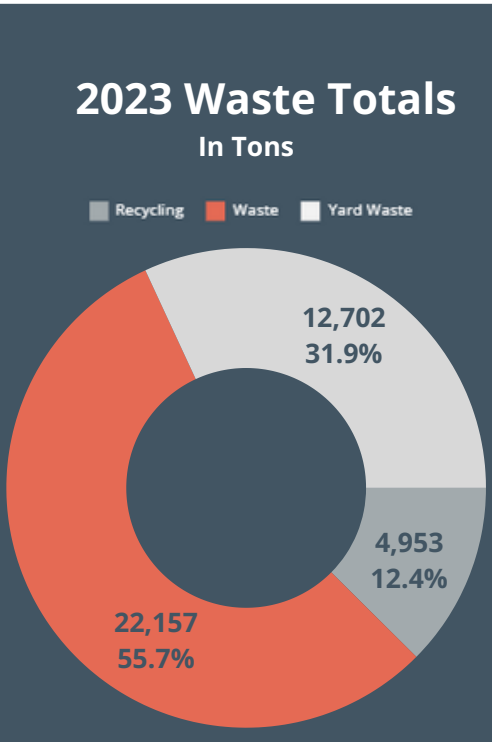
Day of The Week	Number of Days	Total Stop Boardings	Total Stop Alightings	Total Stop Activity
Weekday	49	29782	50205	79988
Saturday	10	3542	6232	9774
Sunday	11	1604	3793	5397
Totals		34928	60230	95158

WASTE

The Waste focus topic addresses solid waste, recycling, and composting streams, as well as initiatives and practices related to product life cycles and waste reduction.

S-CAP ACTION ITEMS WORKED ON THIS YEAR

S-CAP Action Item	Complete
3.1.1 Develop educational recycling & composting programs for the residential and commercial sectors	Ongoing
3.1.2 Create a multimedia campaign for recycling and composting community-wide.	Ongoing
3.1.5 Develop and implement municipal waste reduction policies	Ongoing
3.3.1 Research viability of residential food composting programs	✓
3.3.2 Develop a program to work with restaurants and grocery stores on composting options	Ongoing
3.4.1 Create a community-wide education campaign to manage rat population without the use of rodenticides.	Ongoing



25%

Royal Oak makes up 25% of recyclables taken to SOCRRA

In 2023, The City of Royal Oak waste makeup totals consisted of 22,157 tons (55.7%) of landfilled waste, 12,702 tons (31.9%) of yard waste, and 4,953 tons (12.4%) of recycling. These totals are on par with previous years.

WASTE & RECYCLING

Landfill, yard waste, and recycling totals have remained relatively consistent. FIGURE X.X shows a stacked view of waste streams. Landfill averages around 22,600 tons of landfill, 12,400 tons of yard waste, and 5,400 tons of recycling each year over the past five years. While we work to increase education and programming around recycling and composting, we hope to shift these numbers considerably in the coming years.

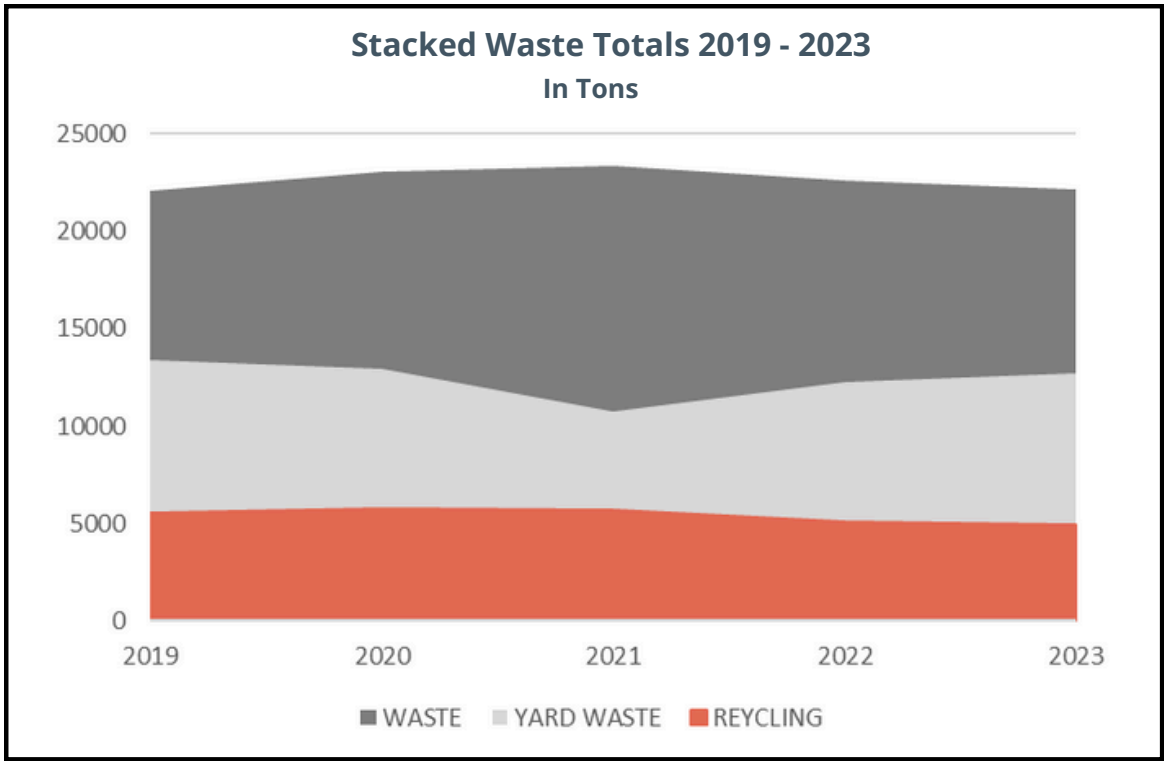
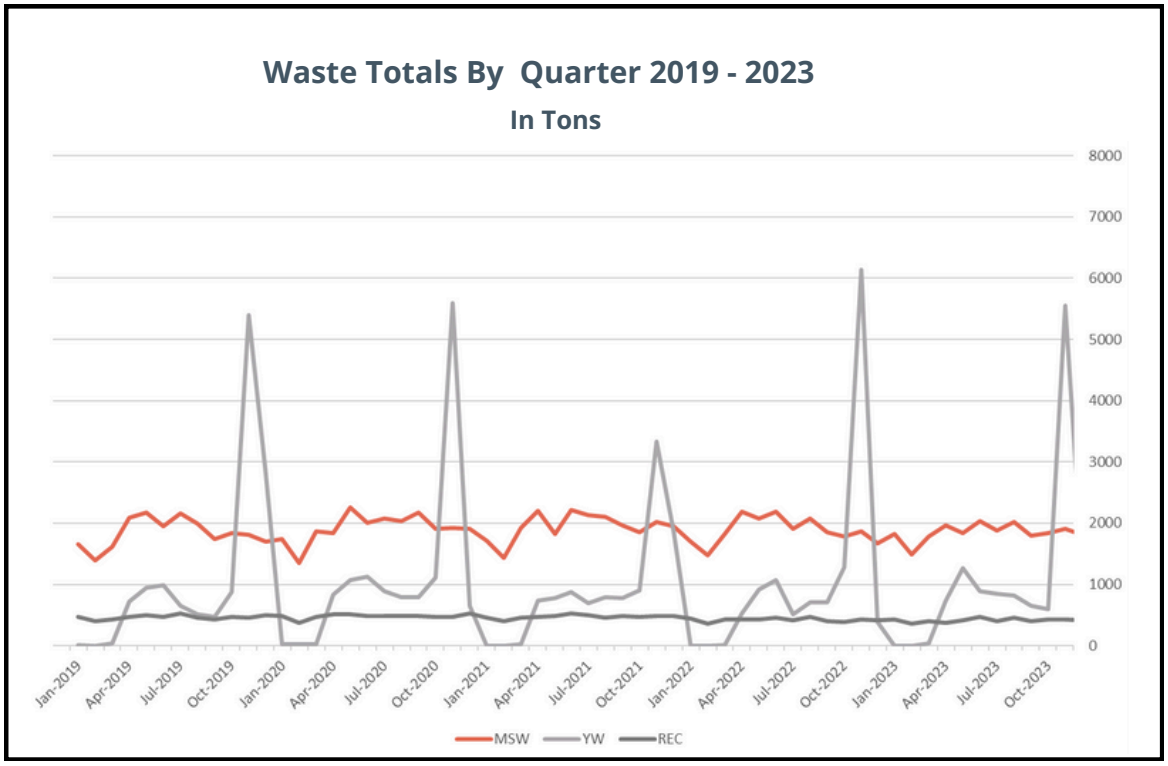


FIGURE X.X shows waste totals by quarter for the past five years. Notice the spikes in yard waste collection each fall.

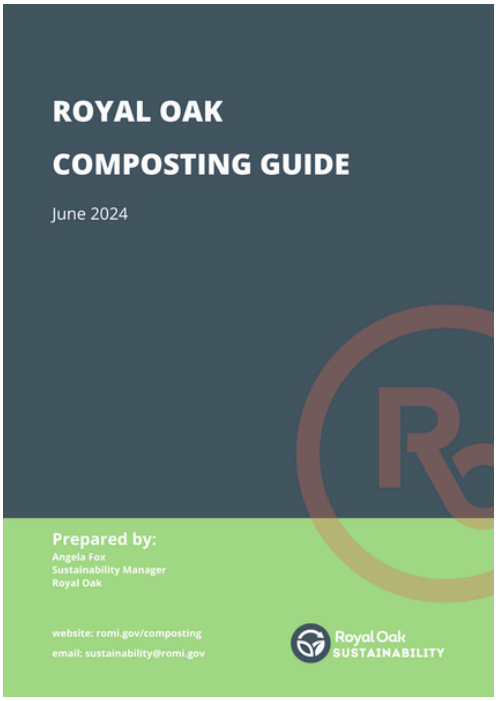


WASTE & RECYCLING

UPGRADING MARKETING MATERIALS

In 2024, recycling, composting, and yard waste posters were redesigned. These new posters use images instead of graphics and words. Pictures are proven to decrease contamination, as they are easier for people to understand and universal.

COMPOSTING ORDINANCE & GUIDE



In July 2024, the Royal Oak City Commission approved revising an outdated and prohibitive composting ordinance. The revised ordinance makes it easier for residents to compost at home through the following amendments and additions.

- Increasing the size of compost piles.
- Adding wood as an acceptable material for compost bins.
- Clarifying language to encourage the composting of food scraps.
- Clarifying acceptable and unacceptable materials.

Royal Oak Sustainability created a comprehensive Composting Guide to support the ordinance changes. The guide includes best practices for at-home composting, recommendations on containers, and a page dedicated to pest mitigation, which is top of mind for many residents.

The revised ordinance and Composting Guide will further efforts to reduce landfilled food waste in Royal Oak.

WASTE & RECYCLING

COMPOSTING PILOT AT ROYAL OAK SCHOOLS

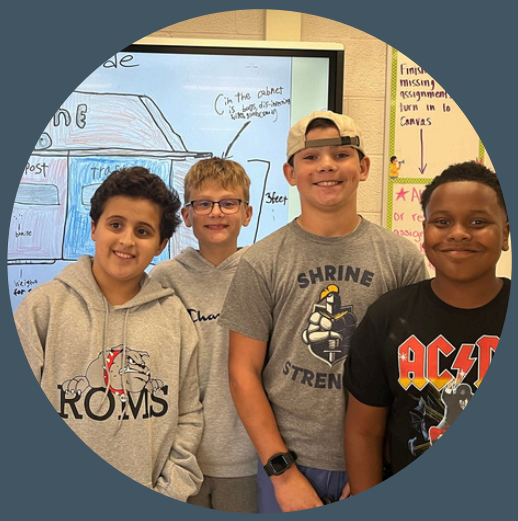


Photo Credit: Royal Oak Schools

This fall, all Royal Oak Schools started composting and have increased recycling on campus. With Royal Oak School District support, Green Teams were formed at each school to ensure consistency throughout the launch. Some schools have been composting and recycling successfully for some time now, while others are just getting started. The formed Green Teams are an inclusive group comprising staff, parents, students, and community members. Composting and recycling rollouts have looked different at each school and will continue launching into the new year.

Royal Oak Schools has taken great strides to reduce single-use plastics at lunchtime, including replacing styrofoam trays with compostable ones. Royal Oak Middle School principal, Mrs. Meldrum, recruited incoming sixth graders to research and design the layout of the lunchroom to support composting and recycling. Many of the sixth graders were familiar with composting at their elementary school. In October, the students presented their "Shark Tank" style pitches to school leadership.

ROYAL OAK'S FIRST REDUCED WASTE EVENT

In June 2024, Royal Oak Sustainability launched the first-ever reduced waste event during Royal Oak Pride. With the help of event planners, waste consultants, and dozens of volunteers, we were able to divert over 60% of the generated waste out of the landfill through composting and recycling.

Royal Oak Pride had over 10,000 attendees over two days of festivities. A trial of this magnitude will better prepare us for larger events that take place here in the city.

Photo Credit: Royal Oak Sustainability

Photo Credit: Royal Oak Pride

WASTE & RECYCLING

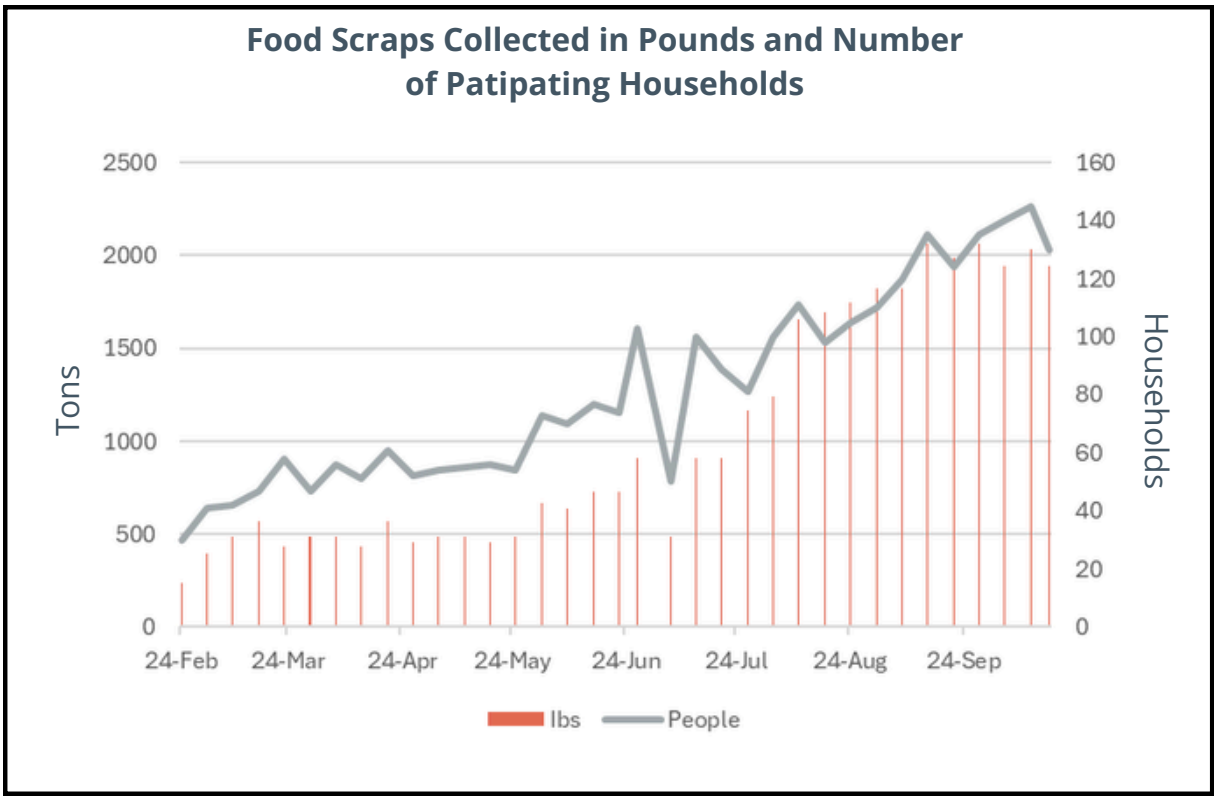
COMPOSTING PILOT AT THE FARMERS MARKET

In February 2024, Royal Oak Sustainability launched a three-month trial collecting food scrapes at the Royal Oak Farmers Market. Residents can drop off various materials at no charge for composting at a nearby commercial composting facility. Items unsuitable for home composting, like meat, dairy, and bones, are among the items accepted.

The pilot was widely successful and is now a permanent booth at the Farmers Market. You can find the Sustainability Manager and community volunteers every Saturday from 7 AM until 1 PM.

Efforts at the Farmers Market have expanded beyond the drop-off program. Farmers market staff have introduced composting and recycling at hosted events, and half of the farmers/vendors compost their unsellable produce, scraps, coffee grounds, and compostable to-go ware.

COMPOSTING PILOT DATA



Royal Oak Sustainability and volunteers collect food scraps at the Royal Oak Farmers Market each week. To date, we have diverted over 20 tons of food scraps from the landfill to a local composting facility. Household participation and the pounds collected are growing each week. We are collecting over a ton a week, filling between nine and ten 64-gallon rolling carts. In September 2024, an average of 130 households participated.

20

Over 20 Tons have been diverted since the start of the pilot.

WATER

The Water focus topic concentrates on protecting Royal Oak's water quality, encouraging water conservation, proactively managing water infrastructure, including green stormwater infrastructure, and working to mitigate flood risk.

S-CAP ACTION ITEMS WORKED ON THIS YEAR

S-CAP Action Item	Complete
4.1.1 Replace lead service lines	Ongoing
4.1.2 Provide regular water quality testing analysis access	Ongoing
4.1.2 Provide regular water quality testing analysis access	Ongoing
4.2.1 Develop an education campaign(s) to encourage water conservation for residential, commercial, institutional, industrial, and municipal sectors	Ongoing
4.4.4 Develop education programming that introduces and encourages stormwater management practices	Ongoing
4.5.1 Build relationships and partnerships with universities, non-profits, utilities, watershed councils, and regional communities (counties, cities, villages, and townships)	Ongoing
4.5.2 City staff attend workshops, conferences, training for innovative approaches	Ongoing
4.5.3 Facilitate education about alternatives to standard lawn and garden chemicals to reduce the use of commercial pesticides	Ongoing
4.5.4 Facilitate education about reducing food waste/oils down the drain	Ongoing
4.5.5 Facilitate prescription drop-off and education programs	Ongoing

WATER

LEAD SERVICE LINE UPDATE

The City of Royal Oak has implemented a lead service line replacement program through which homeowners can replace their lead or galvanized steel service line at no cost. Homeowners can submit a picture of their water pipe, where it first enters the home, to the Royal Oak Department of Public Services to determine the material of the pipe. If the pipe is determined to be lead or galvanized steel, the Royal Oak Department of Public Services will schedule replacement. Replacement projects are completed quarterly and typically include 20-30 homes per project.

Most water service lines in Royal Oak are made from safe materials. However, there are service lines in Royal Oak that need replacing or may need replacing. The Royal Oak Department of Public Services website has a spreadsheet where residents can look up by address the information the city has on file.

Service Line Replacement Update
Service lines replaced in 2024 - 267
Service lines replaced in the last five years (including 2024) - 1059
Known service lines in need of replacement - 1101
Service lines with unknown materials that may need to be replaced - 1222
Total number of water service lines in Royal Oak - 23,664
Service lines that do not need to be replaced - 21,341

OIL DOWN THE DRAIN

Royal Oak Sustainability will pilot a Cooking Oil Collection at the Farmers Market this November. Residents and nonresidents can bring filtered liquid cooking oil to recycle free of charge the weekend after Thanksgiving. All plant-based oils, including olive, vegetable, corn, peanut, and more, are accepted. Animal-based oils like duck fat and bacon grease cannot be recycled but can be composted through the Farmers Market Composting Program.

This collection is to educate and offer alternatives to pouring oils down sink drains, which can clog pipes and create problems for our wastewater treatment facility. If the pilot is successful, additional dates will be added.

PRESCRIPTION DRUG TAKE BACK PROGRAM

Royal Oak residents can return expired or no longer-needed prescription drugs to the Royal Oak Police Department. The prescription drug depository is located in the lobby and is available 24 hours a day, year-round.

The Royal Oak Police Department also participates in the Drug Enforcement Administration (DEA) National Prescription Drug Take Back Day, which takes place each October. Many local pharmacies also offer free prescription drug take-back programs.

Motivations for these programs are often safety-related but also benefit the environment. Prescription drugs should never be flushed down the toilet or disposed of down a drain as they can contaminate water supplies. When drugs are no longer needed, they should be taken to a collection for incineration to destroy the chemicals within them and prevent them from entering the water resources we use for drinking water.

WATER

RAINSMART PROGRAM

In January, we hosted two RainSmart Informational Sessions with Oakland County Water Resources and The Clinton River Watershed Council. RainSmart Rebates is a two-year residential pilot program geared towards homeowners in the George W. Kuhn Drain Drainage District. The pilot offers homeowners up to $2,000 for implementing sustainable stormwater practices such as tree planting, rain barrel installation, or creating a rain garden on their property. The program's primary goals include fostering awareness about stormwater management and promoting environmental stewardship.

Royal Oak Residents applied in record numbers, accounting for 24% of applications. To date, the RainSmart Program has helped Royal Oak residents complete the following projects.

Rain gardens installed: 11
Rain barrels installed: 43
Trees planted: 19

Of the 34 standard applicants, the individual rebates ranged from $68 to $1,210, totaling 13,972.28 benefiting Royal Oak residents. We expect this number to increase as the deadline for reimbursement ends. Seeing residents using their yards as a force for good is encouraging.

Photo Credit: William Asher

Royal Oak Resident William Asher had this to say.

"Thanks" to Oakland County's Rain Smart program (and the R.O. sustainability manager for spreading the word about that program), our rain garden is now complete. It catches all the rain from half our roof (310 square feet) and mostly prevents that water from entering the combined sewer. A grass-roots - so to speak - effort to help prevent basement flooding and other side effects of excess water in the sewer."

GREEN SPACE

The Green Space focus topic includes Royal Oak's parks, natural habitats, tree canopy, and the landscaping practices to maintain these spaces in a way that is simultaneously sustainable and considerate of human, wildlife, and environmental health.

S-CAP ACTION ITEMS WORKED ON THIS YEAR

S-CAP Action Item	Complete
5.1.1 Expand and enhance municipal sponsored tree-planting programs	Ongoing
5.2.1 Integrate native plantings and sustainability into municipal landscaping practices	Ongoing
5.2.2 Develop and implement community-wide native plant and biodiversity promotion programs	Ongoing
5.3.2 Create opportunities for the community to engage in green space stewardship and volunteerism in city parks	Ongoing
5.2.3 Support rollout of Community Garden(s) pilot program in Spring 2022	✓

CY 2023 TREE PLANTINGS & REMOVALS

919
Trees Planted

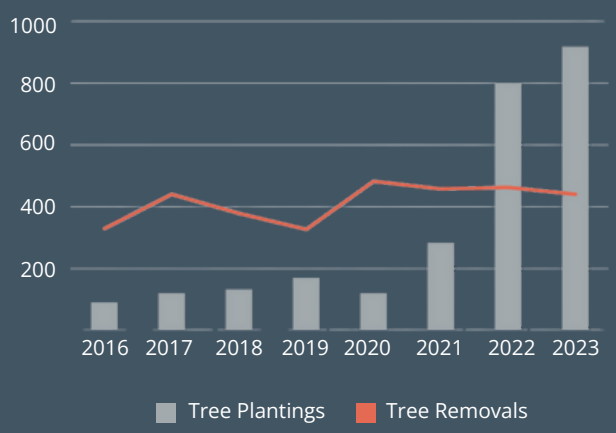
440
Trees Removed

For more than 30 years, Royal Oak has provided a tree-planting program for residents. The objective is to replace trees lost to disease and increase our city-wide tree canopy. In accordance with S-CAP Action item 5.1.1, Royal Oak has expanded this program to offer free trees in residential right-of-ways yearly in the spring and fall. View the list of available trees and sign up on the Royal Oak website.

GREEN SPACE

TREE PLANTINGS & REMOVALS OVER TIME

Figure 4.2 Tree Plantings and Removals Over Time



The Tree Planting numbers include trees paid for by the city and grant funding and Memorial Trees, which are paid for by residents and planted in city parks.

The City of Royal Oak uses Treekeeper to track street tree removal. The removal numbers do not reflect trees removed in parks, circles & triangles, blvds, or from storm damage. These numbers also do not reflect trees that have died under warranty.

POLLINATOR PARK

This year, 13 Mile and Main Park received a remodel to become a pollinator pocket park.

Thanks to a grant from America in Bloom, this little green space will bloom with beauty and purpose.

As part of our commitment to being a Bee City USA, Royal Oak is enhancing the diversity and abundance of native plants while raising awareness of native pollinators.
The park's new features include more seating, a bike rack and repair station, and educational signage.
This small park is designed for walkers and cyclists and is the perfect spot to 'bee' inspired.


Photo Credit: Royal Oak

GREEN SPACE

TREE CITY USA

Did you know that Royal Oak was one of the first communities in the country to sign up as a Tree City USA? The Arbor Day Foundation launched the first Tree City USA cohort in 1976, comprised of only 42 communities in 16 states. Today, the program includes over 3,600 communities from all 50 states, Washington D.C., and Puerto Rico.

The Tree City USA program provides communities a framework for maintaining and growing their tree cover. It also gives them an avenue to celebrate their work, showing residents, visitors, and the entire country that they're committed to the mission of environmental change.

BEE CITY USA

In 2022, Royal Oak became a Bee City USA. Bee City USA unites people to improve their communities for pollinators, particularly native bees, by adding high-quality habitat and reducing pesticides. Bee City USA is an initiative of the Xerces Society for Invertebrate Conservation.

The Royal Oak City Commission voted in May 2022 and again in 2023 and 2024 to support No Mow May. The No Mow Mat movement aims to allow grass (and dandelions) to grow to help pollinators with habitats and increase the number of bees!

The commission was encouraged by a group of young residents who live in Royal Oak and are passionate about protecting the environment and taking action to help our pollinators.

In addition to No Mow May, this year, Royal Oak launched an educational campaign to Leave the Leaves, furthering the efforts of the young residents.

Leave the Leaves encourages residents to use leaves as ground cover and protect pollinators who lay eggs on the foliage.

Yard signs for No Mow May and Leave the Leaves are available at the Treasury Office.

Photo Credit: Royal Oak

QUALITY OF LIFE

The Quality of Life focus topic embraces and advances the characteristics of a community in which residents have the ability to live healthy, safe, and fulfilling lives. These characteristics include community connectivity (neighborhood associations, volunteerism), public safety resiliency (the ability to successfully handle shocks and stressors) like severe weather emergencies, robust civic participation, and access to amenities such as life-long learning, arts, and culture.

S-CAP ACTION ITEMS WORKED ON THIS YEAR

S-CAP Action Item	Complete
6.1.1 Facilitate healthy food events	Coming Soon
6.1.2 Promote the Farmers' Market	Ongoing
6.1.4 Create a Human Rights Commission	
6.1.5 Create a mechanism for reporting civil & human rights violations	
6.1.6 Encourage participation in local MLK Day "Day On" events	Ongoing
6.2.1 Facilitate more community engagement activities with the DPS, PD & FD	Ongoing
6.2.2 Promote and support neighborhood associations	Ongoing
6.2.3 Create a mass text list for emergency communications	
6.3.2 Encourage registration in weekly eblast database list	Ongoing
6.3.4 Encourage the community to vote in all elections	Ongoing
6.5.1 Enhance and expand partnership with Royal Oak Schools and higher education organizations.	Ongoing

QUALITY OF LIFE

S-CAP ACTION ITEMS WORKED ON THIS YEAR

S-CAP Action Item	Complete
6.6.1 Support and encourage participation in buy-local campaigns	Ongoing
6.6.2 Evaluate options for funding resources and partners to clean up Royal Oak's portion of the Woodward corridor	Coming Soon
6.6.3 Research viability of partnership programs with commercial institutions and the chamber of commerce to benefit the community	Ongoing

HEALTHY FOODS

The Royal Oak Library, Farmers Market, and Senior Center have hosted several healthy food classes, including gardening, vegan cooking, sushi making, foraging, and the community wellness expo.

The Royal Oak Restaurant Association is working with Royal Oak Sustainability to promote Vegan Restaurant Week in January.

Photo Credit: Royal Oak

PARTNERSHIPS

Royal Oak Sustainability is strengthening partnerships with Royal Oak Schools, Baker College, and the newly under-construction Oakland Community College Culinary School.

These partnerships have resulted in food waste diversion programs, recycling and waste management, curriculum building, energy efficiency guidance, and community engagement.

Photo Credit: Royal Oak

QUALITY OF LIFE

SUPPORTING LOCAL

Over 1,100 small businesses call Royal Oak home. Many of those businesses are owned and operated locally and pride themselves on locally-owned supply chains.

According to People First, a Michigan-based nonprofit, a higher percentage of locally owned businesses means communities are healthier in nearly every social, environmental, and economic indicator.

The Royal Oak Downtown Development Authority (D.D.A). and several community organizations host events throughout the year to promote locally-owned small businesses. Some of our favorite events include Shop Royal Shopping Weekend, Royal Oak Restaurant Week, and Small Business Saturday.

RAILROAD CLEANUP

On June 22, 2024, over 60 volunteers of all ages, including members of the Canadian National (CN) Railroad and the CN Police, joined Royal Oak Sustainability and The Cleanup Club, a local non-profit, to remove trash from and around the railway in Royal Oak.

CN Railroad worked with The Cleanup Club to ensure that the clean-up could be a fun community event for all while taking strong steps to ensure participants' safety.

The clean-up recovered over 611 lbs of trash from in and around the tracks, and everyone had a great time building community and working together to make Royal Oak shine.

Photo Credit: The Cleanup Club

CONCLUSION

Addressing sustainability implementation and the associated climate change impacts in Royal Oak is a substantial undertaking that is complex and urgent. Successful implementation needs to include all local community partners, as well as support from the regional, state, and national levels. Everyone has a role, and everyone must do their part, both at the personal level and at the community level.

As a living plan, the S-CAP will evolve with the community over time to effectively support Royal Oak in achieving positive equity, resilience, and climate outcomes, including the community GHG reduction goal by 2050. The success of this initial three-year plan, as outlined in this update, and the broader plan's overarching goals depends on the involvement of all Royal Oak community stakeholders.

As the S-CAP plan has conveyed, it is important to continue to recognize that not everyone is affected equally by the impacts of climate change or the implementation of sustainability and climate action strategies. We must build community resilience and ensure an equitable approach to the plan's implementation strategies so that everyone in our community can thrive and Royal Oak is preserved and enhanced for current and future community members.

Photo Credit: Susan Barkman

Sustainability Manager's Update

Date: 11/20/2024

Upcoming Community Events

- I will be presenting on Royal Oak's composting efforts at the next Oakland County Community Conversations: Dec. 3, 2024 | 8:30 a.m. – 1 p.m.
  Waterford Oaks Activity Center
  2800 Watkins Lake Road, Waterford, MI

  Register Today at: OakGov.info/ConvoES24
  Cost: FREE | Lunch Included | Registration Required
  Register by Nov. 25, 2024

- I was invited to panel at the Resource Recycling Convention this week in Lousiville, KY. Recycling and composting experts from across the country attended. My presentation was on Royal Oak's participation in the Nextcycle Michigan accelerator program and our work around waste innovation. We were joined by Emmet County, Nextcycle Michigan, RRS, and others. The Michigan Recycling and Composting Council was also in attendance.

Battle of the Buildings

Update:

- Finalizing contract with Michigan Battle of the Buildings for community buildings participating in Battle. Final edits between grants and finance are being worked out.
- Benchmarking updates are being added to Energy Star Portfolio Manager for city-owned buildings
- Audits have started on City-owned buildings
- A flyer for Battle of The Buildings has been created - LINK
- The competition is slated to launch in December

Next steps:

- Approve contract for Michigan Battle of the Buildings
- Meet with EGLE to adjust grant budget to include a Green Fund for participants
- Bring contact and entering city buildings to commission for approval
- Meet with stakeholders to help promote the competition
- Follow the necessary pathway for the inclusion of city buildings
- Host Informational Session (October)

- Build out the website on the city page and Michigan Battle of the Building page
- Finish benchmarking city buildings

Relevant Data:

- Electrical and gas data for all city buildings
- Potential to gather electrical and gas Data for competitions
- Benchmarking against other buildings with similar use
- Future – Waste and water data

S-CAP Goal Alignment:

- 1.1.1. Collect and report annual, community-wide energy consumption
- 1.1.6. Create an energy reduction competition initiative
- 1.1.8. **Engage the industrial sector in utility-sponsored energy efficiency programs
- 1.3.3. Conduct a feasibility study of all municipal buildings' ability to achieve sustainable certifications

GHG Emissions and End-of-Year Sustainability Report

Update:

- The first draft of the Sustainability Report Update is available for comments, thoughts and edits. I am dyslexic, so any comments on typos or errors would be helpful. It can be accessed through Canva via **THIS LINK.** If you prefer a pdf, please let me know. I figure this can be updated in real time and comments can be applied right to the area that needs consideration.
- Please let me know if you think an update or initiative should be added or was missed
- Mobility data was just given to me on 11/13. I will need to add a page explaining the data and walking readers through the story.
- Please let me know if you think and initiative should be removed
- Does included data make sense and is easy to understand

Next steps:

- Once revisions are finalized, a final draft will be created for the commission. The Royal Oak website will also be updated for all action items
- A dashboard will be created with some of the usable data
- Focus will shift to the GHG Emission Inventory.

- Survey city employees for mileage
- Determine pathways for sources that remain - Currently have City utilities, DTE community data, waste tonnage reports. Sources needed include gas data for community, city fleet gasoline and diesel, work-related travel emissions from finance, streetlight data,
- Enter data into ClearPath
- Build on draft of Sustainability Report.

Relevant Data:

- Electrical and gas data for all city buildings
- Electrical and gas data for all community
- Waste Data
- Scope 1 Fuel Data for city and community

S-CAP Goal Alignment:

- 1.1.1. Collect and report annual, community-wide energy consumption
- 1.3.3. Conduct a feasibility study of all municipal buildings' ability to achieve sustainable certifications

Solar

Update:

- We have hired Five Lakes Energy to assist in RFP finalization. Received a draft and making final edits.
- The library and Salter Center had energy audits last week. We are waiting on reports that outline opportunities to reduce energy
- The Library Roof needs to be rebid to factor in the Responsible Contractor Ordinance. We will be issuing the roof at the Salter Center at the same time
- Finalizing the RFP to hire a solar contractor to assist in the planning of each project and to help with the D.O.E. grant funding paperwork.

Next steps:

- RFP for Library Roof
- RFP for Salter Center Roof
- RFP for Solar Consultants and Solar Projects
- Finish D.O.E. Paperwork

Relevant Data:

- No data at this time

S-CAP Goal Alignment:

- 1.2.3. Install a municipal solar and battery storage demonstration project
- 1.5.2. Develop a municipal facility as an emergency resilience hub with solar and storage to ensure 100% reliable energy
- 1.5.4. Evaluate access to the Salter Center as the current emergency hub

EV Charging

Update:

- We have received quotes on the Senior Center and City Hall for EV charging installations.
- Planner has approved plans for EV charging at City Hall and the Senior Center
- Red E contract for the Rip and Replace is currently with the city attorney's office undergoing final negotiations.

Next steps:

- Determine if fleet is better suited at 11 Mile Garage or city hall
- Get site plans approved by DTE
- Start EV Charging Project at the Senior Center
- Order the Senior Center Shuttle once grant funding is finalized
- Finalize Red E contract for Commission Meeting
- Determine upgrades needed for Senior Center.

Relevant Data:

- No data at this time

S-CAP Goal Alignment:

- 2.3.1. Install EV chargers at appropriate municipal locations
- 2.3.2. **Convert municipal fleet to EVs or other alternative fuel vehicles as appropriate facilities

Composting/waste

Update:

- High School Launched composting last week
- Composting at Farmers Market is filling between nine and ten 64-gallon bins weekly. To date we have diverted over 25 tons.
- We have been piloting a self serve station outside on Saturdays due to the smell of food scraps and the cold temperatures. Contamination has been minimal.

- Next Green Teams Meeting is in January

Next steps:

- Royal Oak will be sharing our composting journey at the next Oakland County Community Conversation meeting.
- Finalize Green Teams at all nine schools
- Roll out composting and assist Green Teams in finding a permanent pathway for a student-led program at each school.
-

S-CAP Goal Alignment:

- 3.1.1. **Develop educational recycling & composting programs for the residential and commercial sectors
- 3.1.2. Create a multimedia campaign for recycling & composting
- 3.1.5. **Develop and implement municipal waste reduction policies
- 3.3.1. **Research viability of residential food composting programs
- 3.3.2. **Develop a program to work with restaurants and grocery stores on composting options
- 3.3.2. **Develop a program to work with restaurants and grocery stores on composting options
- 3.4.1. Create a community-wide education campaign to manage rat population without the use of rodenticides

Marketing

Update:

- Leave the Leaves campaign has been a success. Judy did a great job rolling the educational program into current marketing
- No idling marketing has been created to post in city vehicles and advertise internally.

Next steps:

Relevant Data:

- No relevant Data

S-CAP Goal Alignment:

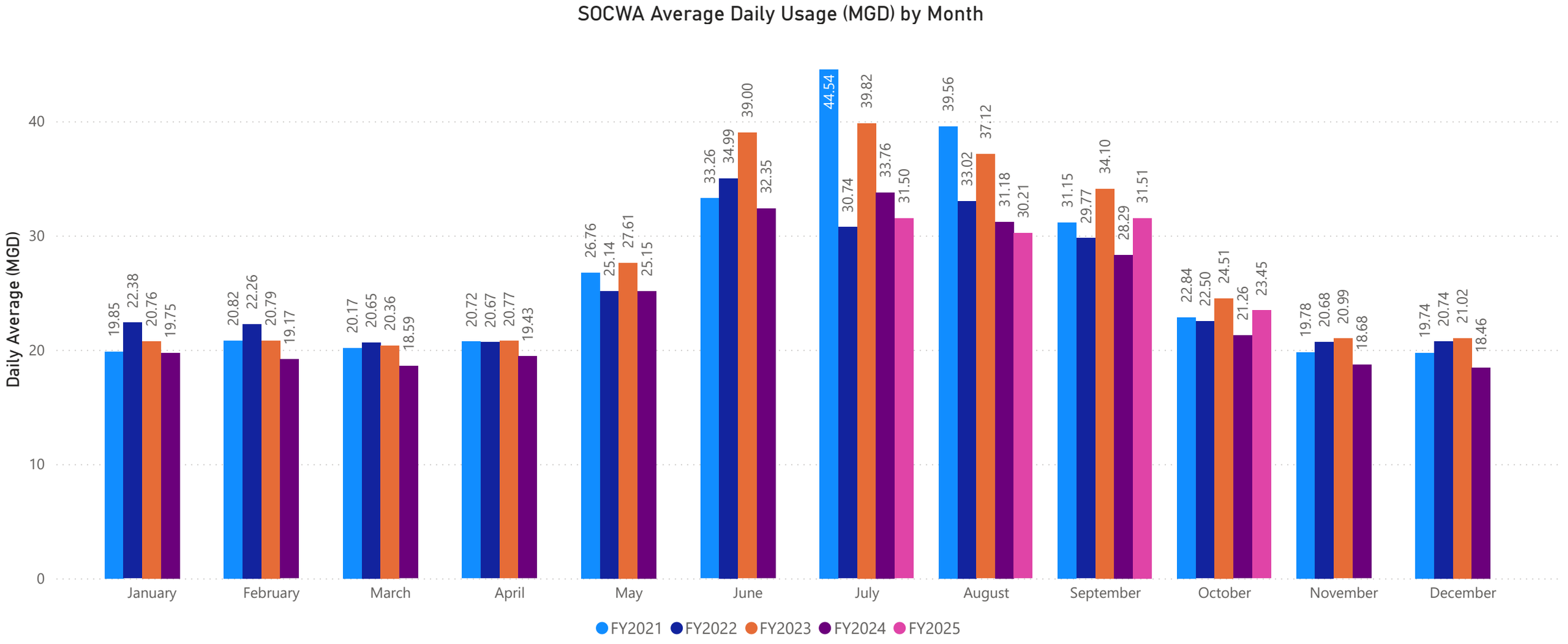
- No S-Cap Alignment

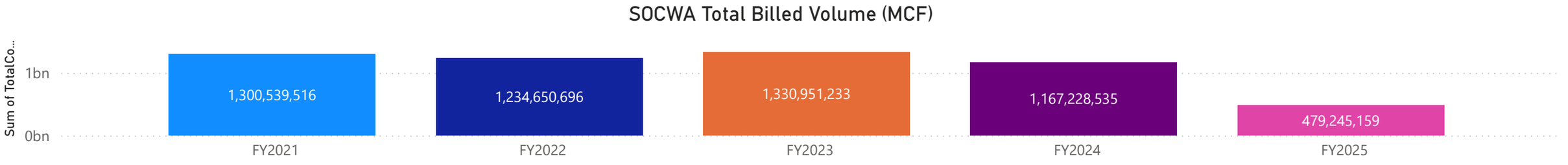
SOCRRA TONNAGE ANALYSIS
October 2024

	MSW			Compost			Recyclables			Total		
	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024
Municipality												
Berkley	446.0	514.4	498.5	218.4	98.8	168.8	131.1	104.6	117.9	795.4	717.7	785.1
Beverly Hills	323.1	340.1	317.0	130.0	203.8	158.8	94.3	99.6	85.0	547.4	643.5	560.8
Birmingham	693.3	706.8	764.6	140.0	189.6	188.3	215.0	178.9	197.5	1,048.2	1,075.3	1,150.5
Clawson	386.4	356.3	467.9	199.3	105.0	151.3	59.8	73.4	77.1	645.5	534.7	696.2
Ferndale	802.9	822.5	858.7	165.1	182.5	151.3	143.5	134.6	118.8	1,111.5	1,139.6	1,128.8
Hazel Park	538.5	630.3	572.9	116.0	116.5	155.0	80.4	67.3	81.9	734.8	814.1	809.9
Huntington Woods	171.1	192.0	195.1	76.1	76.3	72.5	62.9	63.8	58.8	310.1	332.1	326.4
Lathrup Village	158.8	157.4	122.6	62.9	50.0	28.8	27.9	26.7	22.7	249.6	234.1	174.0
Oak Park	831.8	876.7	895.7	152.3	170.0	167.5	122.0	80.8	86.2	1,106.1	1,127.5	1,149.4
Pleasant Ridge	99.7	87.5	71.3	59.4	43.8	28.8	28.6	33.4	21.8	187.8	164.7	121.9
Royal Oak	1,777.8	1,834.4	1,938.4	1,276.0	600.7	634.2	469.5	388.7	442.2	3,523.3	2,823.8	3,014.8
Troy	2,217.6	2,359.0	2,421.3	1,381.3	1,286.3	1,578.8	450.8	459.5	505.2	4,049.6	4,104.7	4,505.2
	8,447.0	8,877.5	9,124.1	3,976.5	3,123.0	3,483.7	1,885.7	1,711.2	1,815.1	14,309.2	13,711.6	14,423.0
Other Customers	4,173.1	3,385.1	4,211.4	12.5	12.5	-	558.5	566.5	943.4	4,744.0	3,964.1	5,154.8
Authority	12,620.0	12,262.5	13,335.5	3,989.0	3,135.5	3,483.7	2,444.2	2,277.7	2,758.5	19,053.2	17,675.7	19,577.8

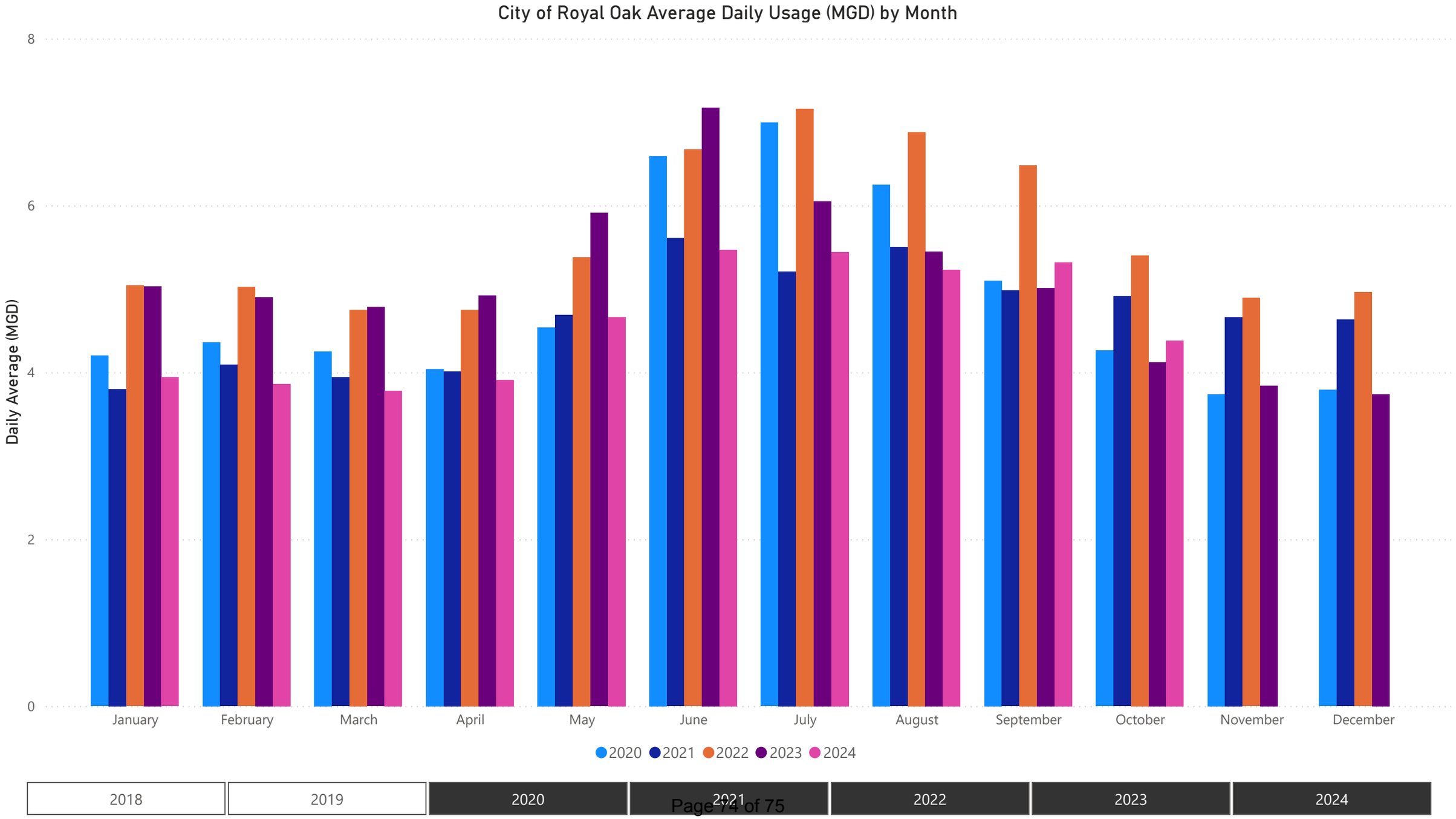
SOCRRA TONNAGE PERCENTAGES
October 2024

Municipality	MSW Percent of Cities Total Waste Stream	Compost Percent of Cities Total Waste Stream	Recyclables Percent of Cities Total Waste Stream
Berkley	63.5%	21.5%	15.0%
Beverly Hills	56.5%	28.3%	15.2%
Birmingham	66.5%	16.4%	17.2%
Clawson	67.2%	21.7%	11.1%
Ferndale	76.1%	13.4%	10.5%
Hazel Park	70.7%	19.1%	10.1%
Huntington Woods	59.8%	22.2%	18.0%
Lathrup Village	70.4%	16.5%	13.0%
Oak Park	77.9%	14.6%	7.5%
Pleasant Ridge	58.5%	23.6%	17.9%
Royal Oak	64.3%	21.0%	14.7%
Troy	53.7%	35.0%	11.2%





FY2019 | FY2020 | FY2021 | FY2022 | FY2023 | FY2024 | FY2025


City of Royal Oak Average Daily Usage (MGD) by Month
Daily Average (MGD)
8
6
4
2
0
January
February
March
April
May
June
July
August
September
October
November
December
2020
2021
2022
2023
2024
2018
2019
2020
2021
2022
2023
2024

SOUTHEASTERN OAKLAND COUNTY WATER AUTHORITY

PRECIPITATION - INCHES (WEBSTER PUMPING STATION)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1986	1.68	2.73	1.74	1.91	2.10	4.62	2.79	3.10	5.48	2.48	0.95	1.95	31.53
1987	1.55	0.58	1.90	2.03	1.61	3.18	4.30	5.31	2.30	2.00	2.80	2.80	30.36
1988	0.60	1.53	0.40	1.40	1.00	0.55	2.80	2.05	3.25	3.43	2.61	0.80	20.42
1989	0.71	0.35	1.30	1.25	2.22	3.85	2.15	1.39	5.53	1.45	2.80	0.50	23.50
1990	1.52	4.18	1.40	1.95	3.00	2.25	2.03	4.30	3.90	3.70	2.35	3.40	33.98
1991	0.90	0.45	1.37	1.65	5.46	1.79	1.92	3.36	0.72	3.64	2.65	2.05	25.96
1992	1.35	1.24	2.98	2.75	0.85	2.05	6.40	2.30	3.10	1.95	4.20	1.80	30.97
1993	3.64	0.82	1.15	2.80	1.20	4.91	2.05	2.85	5.85	1.75	1.50	0.45	28.97
1994	2.15	0.55	2.20	2.70	0.70	5.21	1.30	2.77	1.20	2.33	3.02	2.20	26.33
1995	1.32	0.85	1.15	2.05	2.80	2.25	4.45	4.15	1.00	3.25	3.05	0.95	27.27
1996	1.45	1.30	1.00	3.75	3.30	4.20	1.85	0.40	4.45	2.20	2.15	1.30	27.35
1997	1.45	2.75	3.15	0.85	4.55	1.55	2.20	1.90	3.45	2.15	0.50	1.30	25.80
1998	2.80	2.85	4.60	2.86	1.65	1.75	2.80	6.85	1.00	2.05	1.00	1.45	31.66
1999	3.75	1.30	0.55	3.85	2.80	4.55	2.65	1.40	2.60	0.60	1.45	2.70	28.20
2000	1.30	0.50	1.05	3.20	4.25	5.00	4.10	2.55	4.35	2.00	1.05	2.70	32.05
2001	0.12	2.70	0.30	2.98	4.50	2.30	2.10	1.65	4.00	6.65	1.70	1.55	30.55
2002	1.55	1.45	1.10	0.65	1.90	1.05	4.35	0.70	2.85	0.96	2.00	0.90	19.46
2003	0.25	0.20	1.25	2.05	4.70	4.65	0.50	2.40	3.20	2.10	3.60	2.30	27.20
2004	2.60	0.40	2.40	0.05	6.80	2.30	2.70	3.70	0.80	1.65	2.45	3.00	28.85
2005	2.50	3.10	0.55	1.70	0.70	1.50	3.20	0.65	2.95	0.30	3.95	1.60	22.70
2006	2.50	0.95	2.95	2.05	5.20	3.30	1.60	1.90	2.56	2.90	3.00	3.40	32.31
2007	3.30	0.65	4.90	2.25	2.60	2.75	1.00	4.55	1.20	2.35	1.90	4.75	32.20
2008	2.40	3.90	1.90	0.40	1.95	3.85	3.05	0.27	6.55	1.80	3.15	4.05	33.27
2009	2.85	1.95	6.31	6.85	3.35	3.20	1.55	4.00	1.56	2.85	0.20	2.80	37.47
2010	0.80	1.65	0.67	1.80	4.30	3.40	4.95	0.25	2.70	2.20	4.30	0.70	27.72
2011	2.20	5.75	3.20	5.20	5.40	2.40	3.40	3.30	7.80	3.20	5.60	3.10	50.55
2012	2.60	0.40	2.10	0.50	1.10	0.90	3.80	4.30	2.00	1.70	0.72	0.00	20.12
2013	1.90	2.10	1.00	5.10	2.10	4.60	3.00	3.30	2.00	3.10	2.40	3.60	34.20
2014	1.30	0.70	0.80	2.60	2.40	3.10	2.70	7.20	2.20	1.70	2.40	1.20	28.30
2015	2.60	1.20	0.40	0.70	3.00	3.40	1.30	2.10	1.30	1.80	1.30	1.50	20.60
2016	0.93	0.70	2.54	0.98	1.59	0.50	2.85	2.80	4.49	1.80	1.35	1.70	29.28
2017	2.30	2.00	2.80	2.40	2.90	0.70	1.10	2.30	0.70	5.70	4.30	1.50	28.70
2018	1.43	3.25	2.01	2.20	5.25	1.14	1.08	1.36	4.34	5.37	2.71	1.60	31.74
2019	1.52	2.03	1.96	3.73	3.59	4.11	7.15	3.04	4.84	4.97	1.52	2.60	41.06
2020	4.21	1.21	3.41	1.44	3.25	2.22	2.46	7.31	2.72	3.27	2.49	5.30	39.29
2021	0.89	0.42	2.34	1.18	3.63	8.06	7.15	5.64	6.00	6.20	2.39	4.30	48.20
2022	2.43	1.69	2.52	2.66	3.69	2.71	3.06	4.93	1.89	0.53	1.28	2.60	29.99
2023	1.48	1.76	1.63	3.92	1.07	4.77	4.25	5.47	1.42	3.14	1.19	3.40	33.50
AVG.	1.87	1.63	1.98	2.28	3.01	2.97	2.91	3.04	3.16	2.65	2.35	2.17	30.22
2024	6.34	1.63	1.74	2.5	1.37	7.84	7.45	6.47	0.66	1.89			37.89