Town of Arnprior
Environmental Advisory Committee Meeting
Date: Monday, June 17th, 2024
Time: 6:30 PM
Location: Council Chambers – 105 Elgin Street West, Arnprior

1. **Call to Order**
2. **Roll Call**
3. **Land Acknowledgement**
4. **Adoption of Agenda**
5. **Disclosures of Pecuniary Interest**
6. **Adoption of Previous Minutes**
   a) **Committee Minutes – May 21st, 2024** (Page 1-4)
7. **Presentations / Delegations**
   a) **Proposed Priority Setting and Overarching Goals**, Natalie Deveau and Alexis Young (Page 5-14)
   b) **Draft EAC Survey**, Natalie Deveau and Alexis Young (Page 15-17)
8. **Matters Tabled / Deferred / Unfinished Business**
   a) **Review Action Items Summary Table** (Page 18-20)
9. **Staff Reports (by Department)**
   a) **FoodCycler Pilot Program Results**, Amy Dean, Environmental Engineering Officer (Page 21-26)
   b) **Energy Conservation and Demand Management Plan Update**, Amy Dean, Environmental Engineering Officer (Page 27-63)
10. **New Business**
    a) Roundtable Discussion
11. **Adjournment**

The agenda is made available in the Clerk's Office at the Town Hall, 105 Elgin Street West, Arnprior and on the Town's website. Persons wishing to receive a print item on the agenda by email, fax, or picked up by hand may request a copy by contacting the Clerk's Office at 613-623-4231 ext. 1840. The Agenda and Agenda items will be prepared in an accessible format upon request.

Full Distribution: Council, CAO, Town Staff, Committee Members

E-mail to: Metroland Media; Oldies 107.7 / My Broadcasting Corporation; Valley Heritage Radio

Minutes of the Environmental Advisory Committee Meeting
May 21st, 2024
6:30 PM
Council Chambers – Town Hall

Committee and Staff Attendance

Committee Members Present:

Natalie Deveau, Chair
Chris Toner, Vice Chair
Billy Denault, Councillor
Barry Goodman, Committee Member
Ted Strike, Committee Member
Alexis Young, Committee Member

Town Staff Present:

John Steckly, GM, Operations
Amy Dean, Environmental Engineering Officer
Kaila Zamojski, Town Clerk
Oliver Jacob, Deputy Clerk

Committee Members Absent:

Ben Shearer, Committee Member

1. **Call to Order**
   Natalie Deveau, Chair, called the meeting to order at 6:30 PM and welcomed those present.

2. **Roll Call**
   The roll was called, with all Members of the Committee being present except Ben Shearer.

3. **Land Acknowledgment**
   Natalie Deveau, Chair, asked everyone to take a moment to acknowledge and show respect for the Indigenous Peoples as traditional stewards of the land we operate on, by stating:

   > "I would like to begin by acknowledging that the land on which we work and gather is the traditional unceded territory of the Anishinaabe People. This Algonquin Nation have lived on this land for thousands of years, long before the arrival of the European settlers, and we are grateful to have the opportunity to be present in this territory."

4. Adoption of Agenda

Resolution Number 008-24
Moved by Ted Strike
Seconded by Alexis Young

Be It Resolved That the agenda for the Environmental Advisory Committee Meeting dated Monday, May 21st, 2024 be adopted.

Resolution Carried

5. Disclosure of Pecuniary Interest

Billy Denault declared the following pecuniary interest on Item No. 7(b) on the May 21st, 2024 Environmental Advisory Committee agenda and stated the following:

> "I am making this declaration because I engage in business activities related to lawn maintenance."

6. Adoption of Minutes of Previous Meeting(s)

Resolution Number 009-24
Moved by Billy Denault
Seconded by Barry Goodman

Be It Resolved That the minutes for the April 15th, 2024 Environmental Advisory Committee meeting be adopted.

Resolution Carried

7. Presentations/ Delegations

a) Delegation from the Carleton Place Environmental Advisory Committee

Colin MacDuff, Chair of the Carleton Place Environmental Advisory Committee, provided a PowerPoint Presentation, attached as Appendix A and forming a part of these minutes, and responded to questions.

Billy Denault left the Committee Table at 7:39 PM.

b) No Mow May Discussion

Amy Dean, Environmental Engineering Officer, and Kaila Zamojski, Town Clerk, provided a PowerPoint Presentation and responded to questions.

Discussion ensued amongst Committee Members with the following being a summary of the comments noted:

- Public safety considerations are an important aspect to consider (i.e. ticks) and long grass does not provide the best food source for pollinators in the spring months when compared with native plantings.

- Support was shared for the consideration of alternatives to No Mow May, including pollinator gardens and native plantings. Additional consideration should be given to the installation of pollinator gardens on public property (i.e. Town Hall gardens or median at Elgin Street West / Madawaska Street intersection). These installations should include public education signage with explanations about the benefits of the project(s) and with links to appropriate resources on the Town's website (i.e. via QR code).
- It is also important that public education be provided on pollinators and attending to noxious weeds on private property. Should pollinator-friendly policies be implemented, education materials on types of plants/flowers recommended and those prohibited would be beneficial.

Resolution Number 010-24
Moved by Alexis Young
Seconded by Ted Strike

That the Environmental Advisory Committee does not support the implementation of No Mow May in the Town of Arnprior; and

Further That alternate options to support pollinators be brought forward and considered by committee members in advance of Spring 2025.

Resolution Carried

Billy Denault returned to the Committee Table at 8:22 PM.

c) Proposed Climate Change Art Partnership

Emily Stovel, Manager of Culture / Curator, provided a PowerPoint Presentation and responded to questions.

Discussion ensued amongst Committee Members with the following being a summary of the comments noted:

- Committee members shared that they support the project proposal and look forward to engaging further in the project as it rolls out through the Arnprior and District Museum.

8. Matters Tabled/ Deferred/ Unfinished Business

a) Review Action Items Summary Table

Natalie Deveau, Chair, asked that the committee proceed through each item as listed on the Action Items Summary Table. Discussion ensued amongst Committee Members with the following being a summary of the updates received:

Item	Comment / Update
1	Completed: The by-laws and policies were provided to committee members by email as requested on May 16th, 2024.
3	Completed: The Great Arnprior Trash Hunt was a successful community event with over 70 participants and three (3) trailers of garbage materials collected and deposited at the Arnprior Waste Disposal Site. More findings will be shared as they become available and a revised list of areas of need will be developed accordingly.
7	Committee members should reach out to Oliver Jacob, Deputy Clerk, if they are planning to attend the Arnprior Sunday Market.
8	Completed: Barry Goodman will provide the final display to Town staff in advance of the first market of the season.
9	Completed

9. Staff Reports

None

10. New Business

a) Roundtable Discussion

Natalie Deveau, Chair, shared that this item on the agenda is an opportunity to share any questions, comments, thoughts and perspectives.

- There may be opportunities to encourage active transportation alongside the Ottawa Valley Cycling and Active Transportation Alliance (OVCATA) which could include courses for children on bicycle safety on active roadways.
- As the FoodCycler pilot project results come forward, further discussions around composting would be beneficial to see if there are community needs and opportunities to divert organic waste from the landfill.
- Priority setting should be added to the committee's agenda to create a plan for the coming year.

11. Adjournment

Resolution Number 010-24
Moved by Alexis Young
Seconded by Billy Denault

That the Environmental Advisory Committee adjourn at 8:48 PM.

Resolution Carried

Arnpriors Environmental Advisory Committee (EAC)

Proposal

Objective	Proposal	Approach	Desired Outcome
Streamline committee's efforts into four overarching categories actionable based on expressed areas of priority.	Creation of four subcommittees so each member can focus efforts while also working collaboratively	Break our committee into subcommittees with one or two members focusing on each category. Subcommittee organization to be discussed with the committee	Short term - come back after summer break with data related to each area. Survey to provide direction Long term - breaking up efforts allows for dedicated work to be completed

Agenda

June 17th
Committee members pick desired focus area

Start June 23rd
Survey to all residences to use. Survey will address all focus areas and be presented by committee members volunteering

Summer Leave
Committee members meet through the summer to gain metrics and brainstorm on approach

Sept 15th
Survey is presented to prioritize objectives and approaches. Each member present work completed

Going Forward
Create subcommittee structure, leverage goals into funding opportunities, creation actionable steps

Overarching Goals

Reduce Carbon Footprint	Waste Reduction	Support local flora, fauna	Maintaining healthy waterways
Involves minimizing the amount of greenhouse gases emitted into the atmosphere as a result of human activities, particularly those associated with burning fossil fuels for energy, transportation, and industrial processes.	Reducing waste generation, improving recycling process, and properly managing organic waste through composting	Supporting local flora and fauna by implementing various initiatives and policies aimed at conservation and biodiversity preservation	Protecting, supporting and restoring waterways

Reduce Carbon Footprint

Mission: Reducing carbon footprint involves minimizing the amount of greenhouse gases emitted into the atmosphere as a result of human activities, particularly those associated with burning fossil fuels for energy, transportation, and industrial processes. The goal is to mitigate climate change by decreasing the overall level of carbon dioxide and other greenhouse gas emissions.

Approach:

1. Review current By-laws
2. Review Retrofitting Information for Both Commercial, Town and residents
3. Encourage Active Transportation
4. Review Small Machinery (Lawn Care Equipment) and successions plan
5. Data recording, monitoring and Evaluation

Waste Reduction

Mission: Foster a culture of sustainability and waste reduction within our municipality by implementing innovative strategies, fostering community engagement, and promoting responsible stewardship of resources. Strive to minimize waste generation, maximize recycling and composting efforts, and create a cleaner, healthier environment for current and future generations

Approach:

1. Comprehensive assessment of current waste management practices
2. Engage residents, businesses, schools, and community organizations
3. Improving current approaches and investigate new ones as needed
4. Infrastructure and resources to support waste reduction and recycling efforts
5. Implement policies and regulations
6. Data recording, monitoring and evaluation

Support local flora, fauna

Mission: Through proactive initiatives, education, and collaboration, we aim to cultivate thriving ecosystems, preserve biodiversity, and foster a deeper appreciation for our natural heritage

Approach:

1. Green Spaces and Parks review
2. Native Planting Programs
3. Habitat Restoration
4. Education
5. Regulation measures as needed
6. Data recording, monitoring and Evaluation

Maintaining healthy waterways

Mission: Empowering community to safeguard our waterways through education, advocacy, and sustainable practices. Our mission is to preserve the health and integrity of our aquatic ecosystems, ensuring clean water for future generations while fostering a deep appreciation for the invaluable role water plays in our lives

Approach:

1. Water Quality Monitoring
2. Pollution Prevention and Removal
3. Bank Restoration
4. Community Engagement

Information Gathering

1. A full review of all town communication received that speaks to “Environment”, “Sustainability”, “Waste”, “Pollution”, “Carbon”, “Water Quality”.

2. Survey presented to residents to gain insight on their perceptions and wishes. This will guide our approach.

- To have a Margin of error of 5% based on population 9,625 residents and a Confidence Level of 95% we need a sample size of 400 residents.
    - Presented on website
    - Available on market days
    - Shared on Facebook

Survey consists of 10 questions, estimated to take 4 minutes to complete (included in package)

Next Steps

June 17th
Committee members pick desired focus area

Start June 23rd
Survey to all residences to use. Survey will address all focus areas and be presented by committee members volunteering

Summer Leave
Committee members meet through the summer to gain metrics and brainstorm on approach

Sept 15th
Survey is presented to prioritize objectives and approaches. Each member present work completed

Going Forward
Create subcommittee structure, leverage goals into funding opportunities, creation actionable steps

Greening Arnprior - Environmental Advisory Committee (EAC)

As a valued member of our community, your opinion matters to us. We are reaching out to gather feedback on important environmental initiatives aimed at making our town greener and more sustainable.
Please take a few moments to complete the below survey. Your responses will help us understand your priorities and guide our efforts in reducing carbon emissions, waste reduction, supporting local flora and fauna, and protecting our waterways.

1. Do the following focus areas meet your environmental concerns for Arnprior?

1. Reduce Carbon Footprint
2. Waste Reduction
3. Support local flora, fauna
4. Maintaining healthy waterways

- ◯ Yes, I feel these focus areas will address my concerns
- ◯ No, I do not feel these focus areas will address my concerns
- ◯ Other:

2. How would you prioritize these focus areas? (Top answer is most important)

- ≣ ☐ Reduce Carbon Footprint
- ≣ ☐ Waste Reduction
- ≣ ☐ Support local flora, fauna
- ≣ ☐ Maintaining healthy waterways

3. Which of the following measures do you think would be most effective in reducing **carbon emissions** in our town? (Select all that apply)

- ☐ Encouraging and supporting active transportation within town limits
- ☐ Increasing energy efficiency in town buildings
- ☐ Reviewing current by-laws
- ☐ Encouraging the retrofitting infrastructure for Commercial, Town and residents
- ☐ Reviewing current town machinery and vehicles
- ☐ Other (please specify)

4. Which of the following measures do you think would be most effective in acheiving **waste reduction** in our town? (Select all that apply)

- [ ] Comprehensive assessment of current waste management practices
- [ ] Engage residents, businesses, schools, and community organizations on how to address waste and recycling
- [ ] Education to improve recycling rates
- [ ] Implement organic waste program
- [ ] Other (please specify)

5. Which of the following measures do you think would be most effective in **supporting local flora, fauna, and the environment** in our town? (Select all that apply)

- [ ] Creating a database of green spaces, flora and fauna
- [ ] Create Native Planting Program for residents and businesses
- [ ] Focus on habitat restoration in town
- [ ] Allocate town greenspace and gardens for potential pollinator garden use
- [ ] Community gardens
- [ ] Review current town property standards by-laws
- [ ] Other (please specify)

6. Which of the following measures do you think would be most effective methods of **maintaining healthy waterways** in our town? (Select all that apply)

- [ ] Establishing water quality monitoring programs
- [ ] Implementing measures to prevent and remove pollution in waterways
- [ ] Restoring bank areas along waterways by planting native vegetation, stabilizing streambanks, and removing invasive species
- [ ] Collaborating with neighboring municipalities, government agencies, nonprofit organizations, and other stakeholders
- [ ] Implementing policies and regulations to protect waterways, such as watershed management plans, zoning ordinances to protect riparian areas
- [ ] Other (please specify)

7. How would you prefer to receive communication on our initatives and results?

- ◯ Email
- ◯ Physical Mail
- ◯ On Social Media
- ◯ Town Website - I will find it myself
- ◯ I do not care to receive information or updates
- ◯ Other (please specify)

8. Do you feel a dedicated page for the Environmental Committee on the Arnprior Town Website be helpful for residents to find information and education?

- ◯ Yes
- ◯ No
- ◯ Other (please specify)

9. If any of these initiatives were started would you be interested in supporting them?

- ☐ Yes
- ☐ No

10. Further Comments?

Appendix A
Action Item Summary (Updated)

Ref. No.	Item	Date Assigned	Responsible Party
1	Provide results of the FoodCycler pilot project when compiled / available	2024-03-18	Amy Dean
2	Obtain a copy of the Community Action Arnprior presentation on Greening Business	2024-03-18	Billy Denault
3	Implement webpage content for Environmental Initiatives through identification of resources, events, etc.	2024-03-18	All
4	Identify priorities for potential data collection activities (i.e. survey).	2024-03-18	Alexis Young
5	Identify priorities for potential public engagement activities (i.e. Arnprior Sunday Market, public events, etc.).	2024-03-18	All
6	Prepare messaging for how to safely collect garbage materials through clean-up efforts (i.e. Pitch-In Canada poster, animal waste, hazardous materials, etc.).	2024-03-18	Amy Dean
7	Add garbage bins into the passive park in the Marshall's Bay Meadows Subdivision until the park construction is completed with permanent benches and waste receptacles.	2024-03-18	Graeme Ivory
8	Create education materials and information regarding how to reduce yard waste.	2024-03-18	
9	Create education materials and information regarding how to create native pollinator gardens and support seasonal plantings that are supportive of native species.	2024-03-18	

Legend: Yellow = New Addition to Action Item List
Green = Completed Items on Action List

10	Create education materials and information regarding how to recycle appropriately (what can be recycled, how should it be separated, impacts of recycling, etc.).	2024-03-18	
11	Create education materials and information regarding how to deal with invasive species and how to report invasive species on Town property.	2024-03-18	Barry Goodman
12	Review available tree planting grants and other opportunities to support the growth of the tree canopy across the community (on public and private properties).	2024-03-18	
13	Work with the Ottawa Valley Cycling and Active Transportation Alliance (OVCATA) on active transportation and bike safety education opportunities.	2024-05-21	
14	Bring forward more information on pollinator-friendly policies and how they could be implemented through Town by-laws and policies.	2024-05-21	Amy Dean Oliver Jacob

Legend: Yellow = New Addition to Action Item List
Green = Completed Items on Action List

Completed Items:

Item	Status	Responsible Party
Invite the Carleton Place Environmental Advisory Committee to be a delegation at a future meeting.	Completed	Amy Dean
Provide more information about the MacNamara Field Naturalists Club and its 40th anniversary plans.	Completed	Barry Goodman
Organize Earth Day activities and participation in National Earth Day workshop.	Completed	Amy Dean
Organize Pitch-In Week (April 29th, 2024 to May 5th, 2024) activities.	Completed	Lucas Power Amy Dean
Provide more information about the Great Arnprior Trash Hunt and how the EAC can get involved.	Completed	Alexis Young
Provide electronic copies of Town by-laws and policies with regard to environmental issues (as listed in the March 18th, 2024 Environmental Advisory Committees PowerPoint Presentation).	Completed	Oliver Jacob
Provide an update regarding The Great Arnprior Trash Hunt and its impact at the next EAC meeting.	Completed	Alexis Young
Create a sorting guide tool for use at public events.	Completed	Barry Goodman
Coordinate with the organizers of The Great Arnprior Trash Hunt to determine locations that are completed and in need of additional clean-up.	Completed	Amy Dean

Legend: Yellow = New Addition to Action Item List
Green = Completed Items on Action List

Town of Arnprior Staff Report

Subject: FoodCycler Pilot Program Results

Report Number: 24-06-17-01

Report Author and Position Title: Amy Dean, Environmental Engineering Officer

Department: Operations

Meeting Date: June 17, 2024

Recommendations:

That the Environmental Advisory Committee supports a future recommendation to Council to direct staff to work with Food Cycle Science to implement a secondary pilot program for food waste recycling units for 100 residences in the Town of Arnprior and purchase carbon filter refills for resale to the public on a cost recovery basis, with an additional net impact of $11,200 to be funded from the Waste Management Reserve Fund.

Background:

Following a recommendation made to Council on November 14, 2023 to participate in a pilot program with FoodCycler Science, the Town of Arnprior implemented the first pilot program to offer an alternative option for food waste for 100 residents.

The purpose of this report is to present the results of the pilot program which ran for 12 weeks (approx. February 7th to May 8th, 2024).

Residents purchased a FoodCycler unit for a reduced price (subsidized by the Town and AAFC/Impact Canada), tracked their usage for 12 weeks and provided data and feedback through an on-line survey. This report discusses those findings.

Discussion:

This data was submitted and compiled by FoodCycler Science who then presented to and shared with staff.

There was a 93% response rate out of our 100 participants.

The survey asked the following questions and yielded the following average responses:

How important is greenhouse gas reduction to you? 9/10
How important is waste reduction to you? 9/10
Where does your food waste currently go?

- 68.82% said in the garbage
- 12.90% said garbage in the winter and outdoor compost in the summer
- 10.75% said compost year round
- 6.45% said other (bokashi, worm farm, etc.)

The top responses for “why don’t you compost” were:

- 51.47% said concerned about animals and pests
- 33.82% said not enough space
- 27.94% said concerns about odor
- Other answers included: involved too much work, don’t know how, don’t want to invest and other.

There was approximately a 60-40 split of the size of units purchased (64.52% had the FC-30 – 2.5L and 35.48% had the Maestro/ Eco 5 – 5L). There was an average of 3.21 cycles per week ran for the smaller unit and 3.52 cycles per week ran for the larger unit. If this use continued throughout the year, it is estimated that ~237kg/year/household and a total of 23.7 metric tons of food waste could be diverted from the landfill/ year from the 100 FoodCyclers in use.

One hundred (100) FoodCyclers in Arnprior have the ability to divert 30.8MT of C02 equivalents per year.

Residents reported generating about a half bag less of garbage per week, this could lead to a potential reduction of 28 bags per household per year trucked to the landfill. 75.82% claimed the increased awareness of food waste motivated them to waste less food. 91.21% agreed that their friends/ neighbours in the community would participate in the waste diversion program if the municipality continued to offer FoodCycler units at no or low cost. 93.41% would recommend the unit to others and 97.80% will continue using their FoodCycler. The participants gave a rating of 4.8/5 stars for the overall pilot project experience.

Options:

The committee may determine whether they support the decision to run a secondary proposed pilot program or not, however, there is a large interest in the Town to run another program. The first pilot program sold out within a few weeks, and a waitlist was started. There are currently a total of 89 residents on the waitlist, 37 for the 5L unit and 52 for the 2.5L unit. Based on the excitement of the residents and success of the program, staff recommends implementing a secondary pilot program, with the same rates honored

by FoodCycler and the Town.

This will continue to provide a convenient and quick way to reduce and reuse organic waste to additional residents, produce valuable information to the Town on potential ways to mitigate costs associated with waste collection, and help the Town to reduce the amount of waste that is collected at curbside and transported to the landfill.

There are currently discussions underway to create drop off centers at the Nick Smith Centre and Library for the Foodilizer by-product for residents that do not have a use for the by-product but are interested in diverting their food waste.

Further options to consider include purchasing additional filters and other accessories to have available to residents at Town Hall and/or the Nick Smith Centre or the Town to purchase from FoodCycler™ at wholesale rates for resale to residents under the pilot program with no additional freight cost if they are included with the FoodCycler re-order.

Larger orders (500 units) have the option for further discounts, extended warranties, payment plan, etc. There will also be a new model available in 2024.

Possible options are listed in the table below. The cost to the Town would be determined by quantity of units ordered (at $100 subsidy / unit regardless of the size), plus standard shipping and the cost of any accessories, if ordered.

Number of Units	**Subsidy Per Unit ($100/unit)**	**Shipping ($1,200.00)**	**Total**
100	$10,000.00	$1,200.00	**$11,200.00**
150	$15,000.00	$1,200.00	**$16,200.00**
200	$20,000.00	$1,200.00	**$21,200.00**

Please see the table below for wholesale cost of accessories (such as filter re-fills and buckets) compared to the individual online order price currently offered to residents.

Accessories	**Wholesale Price**		**Online Order Price (resident)**
	Accessory Pricing	**Cost to Municipality**	
Replacement Filter Pack *includes refillable carbon filters (1 filter change)*	$ 22.12 (Plus HST) **Ordered in increments of 18*	$398.16	$ 30.00 (Plus HST)
Replacement Filter Pack (disposable) (1 filter change)	$ 22.12 (Plus HST) **Ordered in increments of 20*	$442.40	$ 30.00 (Plus HST)

Carbon Refills (4 filter changes) (for 2.5L units)	$ 50.00 (Plus HST) **Ordered in increments of 9*	$450.00	$75.00 (Plus HST)
Carbon Refills (4 filter changes) (for 5L units)	$ 50.00 (Plus HST) **Ordered in increments of 9*	$450.00	$75.00 (Plus HST)
Spare Bucket for FC-30 (2.5L)	$ 50.00 (Plus HST) **Ordered in increments of 6*	$300.00	$60.00 (Plus HST)
Spare Bucket for Eco 5 (5L)	$ 80.00 (Plus HST) **Ordered in increments of 4*	$320.00	$125.00 (Plus HST)

Policy Considerations:

At the November 14, 2023, Council meeting, Council passed Resolution Number 374-23:

> "That Council directs staff to work with Food Cycle Science to implement a pilot program for food waste recycling for up to 100 residences in the Town of Arnprior.
>
> Further That Council direct staff to include within the 2024 Waste Management Operating Budget, an additional $11,200 net impact to subsidize the pilot program.
>
> Further That Council directs staff to report back to Council by the end of 2024 on the status of the pilot program."

The Town of Arnprior is always working towards ways to reduce the amount of waste that is collected at curbsides and transported to landfill. Furthering the participation with a secondary pilot program whereby residents can purchase a FoodCycler™ countertop composter for kitchen and food wastes, will continue to provide a convenient and quick way to reduce and reuse organic waste for more residents. In addition, it will provide valuable information to the Town on potential ways to mitigate costs associated with waste collection.

Financial Considerations:

As mentioned in the previous report, rates will be honored by Food Cycler Science on any subsequent orders of 100 units or more, placed within the 2023 and 2024 calendar years.

The cost subsidy would remain in place for the re-order, supported by stacked funding:

- FoodCycler™, offering a **$200 - $250** per unit discount,
- Impact Canada (Federal innovation funds) with a **$50 - $150** grant per unit, and
- **$100** per unit Town subsidy, regardless of the unit size.

Residents ultimately pay $150 for a smaller FC-30 FoodCycler™ (*retails at $500*) or $300 for a larger FoodCycler™ Eco 5 (*retails at $800*).

Shipping is estimated to cost $1,200.00 based on today's shipping rates.

Staff recommends the following order for the secondary pilot program:

Units

# of Units	Subsidy ($100/unit)	Shipping
100	$10,000.00	$1,200.00

Total Net Cost to Town for 100 Units	**$11,200.00**

Accessories

Item	Bulk Order	Cost	Order #	Total	Resale Price
Carbon Refills (4 pack) for 2.5L unit	In increments of 9	$450.00	2	$900.00	$50.00 for 4 refills or $22.12 for 1 refill
Carbon Refills (4 pack) for 5L unit	In increments of 9	$450.00	2	$900.00	$50.00 for 4 refills or $22.12 for 1 refill

Total Cost of Accessories	**$1,800.00**

As accessories will be sold to residents at cost recovery in order to break even, there would be no overall net financial impact.

Staff are recommending that the Phase 2 of the Pilot Program be funded from the 2024 Waste Management - Operating Supplies budget following a transfer from the Waste Management Reserve in the net amount of $11,200 ($35,500 expense less $24,300 revenue).

Total Invoice Amount

Item	Pilot Phase 1	Pilot Phase 2	Total
Total Invoice Amount	$33,700	$33,700 + $1,800 (accessories) = $35,500	$69,200
Revenue	-$22,500	-$22,500 + $1,800 (accessories) = $24,300	$46,800
Net Impact	**$11,200**	**$11,200**	**$22,400**

The Town's financial contribution total towards the program would be $35,500, less the revenue from the units and cost recovery from the accessories, leaving a net impact of $11,200 for the Phase 2 Pilot Program, a total net impact of $22,400 for both phase 1 and phase 2.

Meeting Dates:

1. May 29th, 2024 Food Cycle Science – Results Presentation to staff

Consultation:

- Farah Sheriffdeen, Municipal Program Coordinator – Food Cycle Science

Documents:

N/A

Signatures

Reviewed by Department Head: John Steckly

Reviewed by General Manager, Client Services/Treasurer: Jennifer Morawiec

CAO Concurrence: Robin Paquette

Workflow Certified by Town Clerk: Kaila Zamojski

2024 Energy Conservation and Demand Management Plan

O.Reg. 507/18

Town of Arnprior

June 2024

2024 Energy Conservation and Demand Management Plan

The Corporation of the Town of Arnprior

I hereby certify and endorse the Town of Arnprior's Energy Conservation and Demand Management Plan as required under O.Reg. 507/18 *"Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans",* filed under the Electricity Act, 1998

Signed this ___ day of June 2024.

_____ Mayor, Lisa McGee

_____ Town Clerk, Kaila Zamojski

Executive Summary

The Town of Arnprior has developed an Energy Conservation and Demand Management Plan aligning with the requirements outlined in Ontario Regulation 507/18 "*Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans*", filed under the Electricity Act, 1998. Under this regulation, municipalities are required to annually report energy consumption from all municipally owned facilities, including, but not limited to, administrative offices, council chambers, public libraries, cultural facilities, sports facilities, buildings or facilities related to the treatment of water, etc. Municipalities are also required to update their Energy Conservation and Demand Management Plans every five years, on or before July 1st.

Arnprior's plan outlines targets of reducing energy consumption, GHG emissions and overall energy related costs from the 2023 baseline. The plan discusses various goals and objectives that should be considered throughout the next five years in order to meet these targets.

Over the course of the 2024-2029 term, the municipality has outlined four strategic goals that will be the focal points of its efforts.

List of Acronyms

AMP – Asset Management Plan

BAS – Building Automation System

BPS – Broader Public Sector

CFL – Compact Fluorescent Light

EPT – Energy Planning Tool

GHG – Greenhouse Gas

HVAC – Heating, Ventilation, and Air Conditioning

LAS – Local Authority Service

LED – Light Emitting Diode

LRCF – Long Range Capital Forecast

MEP - Mechanical, electrical, and plumbing

VFD – Variable Frequency Drive

WFP – Water Filtration Plant

WPCC – Water Pollution Control Center

List of Units

btu – British Thermal Units

ekWh – Equivalent Kilowatt Hours

kWh – Kilowatt hours

m^2 – Cubic Meters

sqft – Square feet

Definitions

Building Envelope – Thermal and moisture protections of a structure including components such as roofing, exterior cladding, interior insulation, air/moisture barriers, doors and windows.

Public Agency – Per O.Reg. 507/18, public agencies are described as every municipality, municipal service board, post-secondary educational institution, public hospital and school board.

Reportable Buildings – O.Reg. 507/18 outlines all operation types that public agencies are required to report on, including the following:

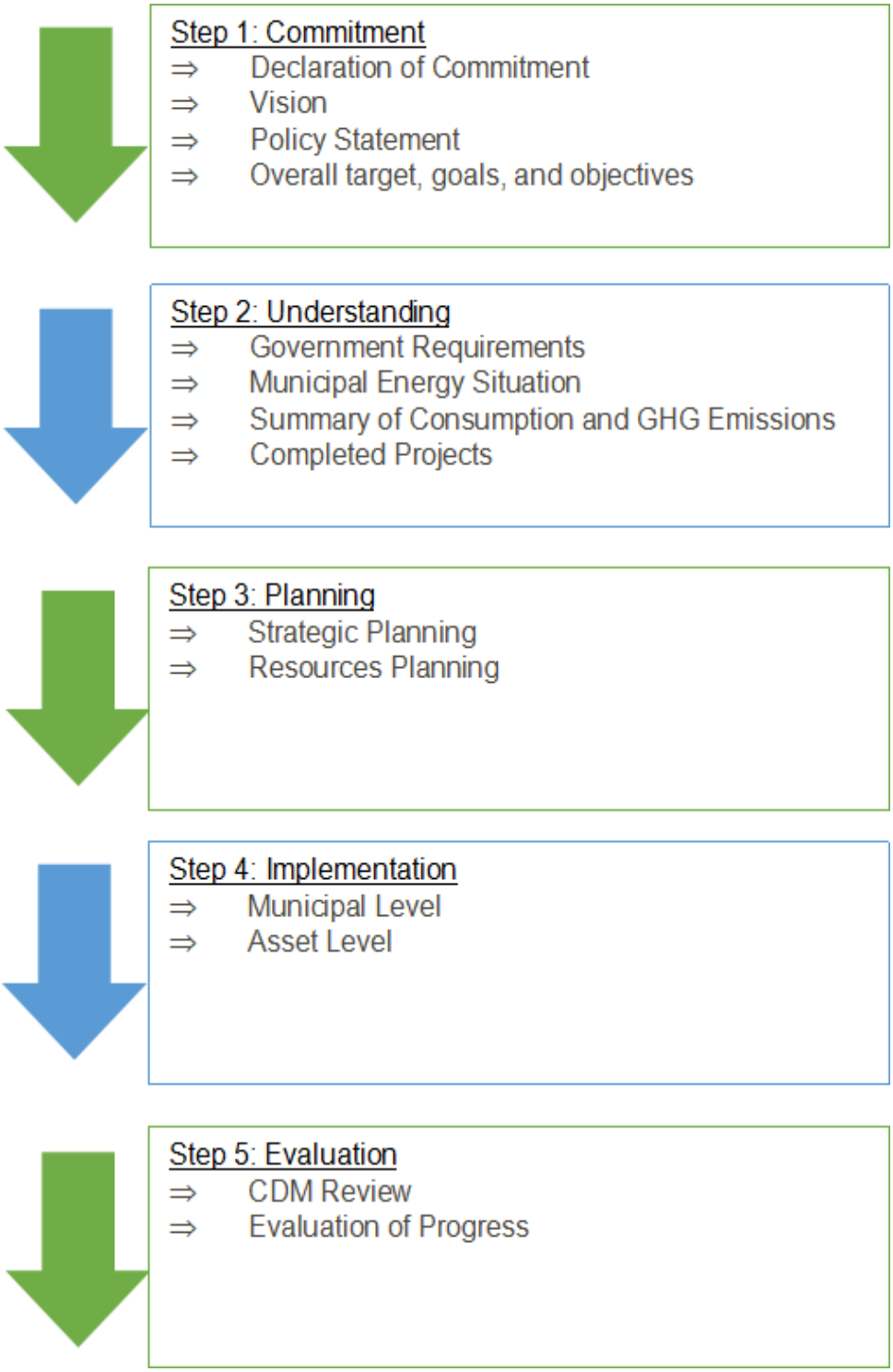
- All administrative offices, municipal council chambers, cultural facilities, indoor recreational facilities and community centers, including art galleries, performing arts facilities, auditoriums, indoor sports arenas, indoor ice rinks, indoor swimming pools, gyms and indoor courts for playing tennis, basketball or other sports.
- Fire stations and associated offices and facilities.
- Police stations and associated offices and facilities.
- Storage facilities where equipment or vehicles are maintained, repaired or stored.
- Buildings or facilities related to the treatment of water or sewage.

O.Reg. 507/18 – Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans.

Greenhouse Gas (GHG) Emissions – compound in the atmosphere that is capable of absorbing infrared radiation, thereby trapping and holding heat in the atmosphere. Greenhouse gases are responsible for the greenhouse effect.

Contents

Energy Conservation and Demand Management Plan Flow Diagram



Introduction

The Corporation of the Town of Arnprior (the "Town") has developed an Energy Conservation and Demand Management Plan (the "Plan", CDM) aligning with the requirements outlined in O.Reg. 507/18 "*Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans*", filed under the Electricity Act, 1998 [1]. The objective of this Plan is to summarize the Town's current energy consumption compared to the previous CDM Plan, to analyze all energy management accomplishments over the last five years and develop a new plan for 2024 – 2029.

Commitment

Declaration of Commitment

Resolution: That Council shall direct Staff to allocate the necessary resources to implement a strategic energy management plan aimed at reducing Arnprior's energy consumption and overall environmental impact.

Vision

The Town of Arnprior's vision is to reduce overall energy consumption, emissions and to mitigate energy associated costs.

Policy Statement

In January of 2019, the Province of Ontario enacted O.Reg. 507/18: "*Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans*", filed under the Electricity Act, 1998. The regulation states that all public agencies (Municipalities, Hospitals, and School Boards) must prepare a CDM. Further, Section 4 (2) the O.Reg. 507/18 specifies that CDM Plans must be composed of the following two components:

"1. A summary of the public agency's annual energy consumption and greenhouse gas emissions for its operations.
2. *A description of previous, current and proposed measures for conserving and otherwise reducing the amount of energy consumed by the public agency's operations and for managing the public agency's demand for energy, including a forecast of the expected results of current and proposed measures."*

Overall Target and Goals

The Town of Arnprior has developed a CDM focused on reducing energy consumption. The overall target is to reduce consumption and GHG emissions to below 2023 baseline levels, at all Town owned properties. In order to achieve this target, the following goals have been set fourth:

1. Improve energy efficiencies at all facilities via active or passive means.

2. Reduce GHG emissions at all facilities.
3. Meet the requirements of Ontario Regulation 507/18 under the Electricity Act, 1998.
4. Improve Energy Management processes at the Town of Arnprior.

Objectives

In order to meet the above goals, the following objectives have been set forth. The ability to meet each specific objective will be largely dependent on available staffing, budget, grant opportunities, etc.

1. Explore the feasibility of implementing renewable energy technologies, including fleet electrification,
2. Continual improvement to behavioural change efforts,
3. Upgrade infrastructure including, but not limited to HVAC, lighting, building envelope, etc.,
4. Streamline the energy management process into everyday work,
5. Develop an energy policy,
6. Perform in depth benchmarking of energy consumption patterns,
7. Align the Energy Conservation and Demand Management Plan with existing plans, and
8. Continue to investigate energy saving opportunities within all facilities.

Understanding

Government Requirements

The Town's 2024 - 2029 CDM was created under Reg. 507/18 "*Broader Public Sector: Reporting and Conservation and Demand Management Plans",* filed under the Electricity Act, 1998.This regulation replaces Ontario Regulation 397/11, titled Energy Conservation and Demand Management Plans, was enacted under the now repealed Green Energy Act, 2009 (repealed January 1, 2019). The requirements for broader public sector energy planning and reporting by Ontario agencies are identical to those under the former Regulation 397/11.

Under O.Reg. 507/18, municipalities are required to report energy consumption for all public facilities. The Town reports on the following buildings:

- Arnprior Public Library
- Arnprior Water Pollution Control Center
- Arnprior Water Filtration Plant
- Fire Hall/OPP Station
- Arnprior & District Museum
- Sanitary Pump Stations 1-5
- Robert Simpson Park Concession/ Washroom
- Nick Smith Centre
- Town Hall
- Water Tower

Under Section 5 of O.Reg. 507/18, municipalities must report the following criteria for each of its reportable buildings. Appendix A – Building Information, outlines the address, operation type, floor area, hours of operation and type of energy used for each reportable building.

Stakeholder Needs

The Town recognizes internal stakeholders as Council, various Committees, the CAO and Staff. Internal Stakeholder needs are as follows:

- An up-to-date and relevant CDM plan with vision, goals and targets in order to communicate the Town's commitment to energy efficiency.
- Annual reporting requirements of yearly energy consumption and regular updates to the CDM plan.
- Support to develop the skills and knowledge required to implement energy management practices and measures.

The Town recognizes external stakeholders as residents, various community organizations, and the Provincial and Federal Governments. External stakeholder needs are as follows:

- Minimizing energy costs through reductions in both electricity and natural gas consumption
- Minimizing the municipality's carbon footprint and overall impact on the environment.

Municipal Energy Situation

Energy Data Management

The Town of Arnprior tracks energy costs through the Finance department. The Energy Leaders (the Environmental Engineering Officer and the Engineering Officer, Facilities & Assets) are responsible for tracking all energy data and reporting annually prior to July 1.

The Town has incorporated Local Authority Service's (LAS) Energy Planning Tool (EPT), Hydro One's 'My Account' login, and Enbridge's "My Account" login to track energy usage and costs.

Energy Supply Management

The Town of Arnprior has been proactive in ensuring that it receives the best possible rates for electricity and natural gas. The Town is currently enrolled in a group purchasing program through LAS's Electricity Procurement Program.

The LAS Program was created by municipalities, for municipalities and provides the Town a means to ensure predictable electricity costs through a professionally managed program that leverages aggregated purchasing (i.e., group purchasing power) and "spot market" exposure. The primary goals of the program are to help municipalities realize predictable prices for electricity and to provide municipalities with cost savings through purchase of this required commodity.

In 2022, the market was very unstable due to many factors which led to hedge pricing that was extremely elevated and unpredictable. The early estimate for 2024 is positive so far as energy markets have stabilized significantly since 2022. The projection for 2024 falls in line with the program average at an expected 2-3% savings in comparison to typical market rates.

Energy Management Today

The management of the Town's energy data has typically been the responsibility of the Finance department in relation to paying invoices. By increasing the flow of information (such as consumption data) and the ability to access consumption amounts tracked through the LAS Energy Planning Tool, the Operations department staff (who control the processes that utilize energy) will be able to monitor consumption more practically.

Summary of 2018 – 2024 Energy Consumption, and GHG Emissions

As per Section 6 of O.Reg. 507/18 the Town of Arnprior is required to report on all energy consumption for which complete information is available for a full year. It should be noted that per Section 5 of the Regulation, for the 2024 reporting year, the Town is required by the Ministry of Energy to report the energy consumption for 2022 and 2023.

Electricity Consumption

Combined electricity consumption at all Town facilities in 2018 was 4,062,215.00 kWh. Electricity consumption in 2023 was 3,681,711.00 kWh. This is a decrease of 380,504.00 kWh, approximately 9.37%.

The below figure displays 2018 versus 2023 electricity usage profiles, with the largest users being the Water Filtration Plant (WFP), Water Pollution Control Centre (WPCC) and the Nick Smith Centre. The water treatment section includes the WFP, WPCC, pump stations 1-5 and the water tower. Other recreation facilities include the library, museum, as well as Robert Simpson Park concession and washrooms.

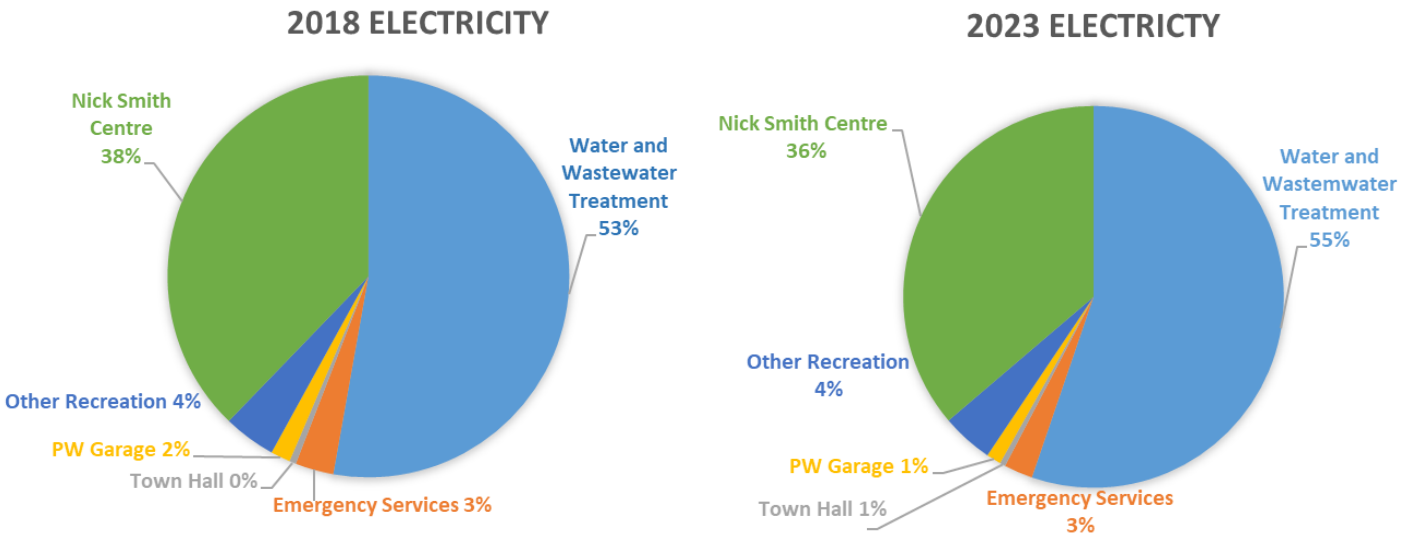


Figure 1: 2018 vs. 2023 Electricity Consumption

Natural Gas

Combined natural gas consumption at all Town facilities in 2018 was 490,954 m3. Natural gas consumption in 2023 was 402,366 m3. This is a decrease of 88,588 m3, approximately 18%.

The below figure displays 2018 versus 2023 natural gas usage profiles, with the largest users being the WFP and WPCC and the Nick Smith Centre.

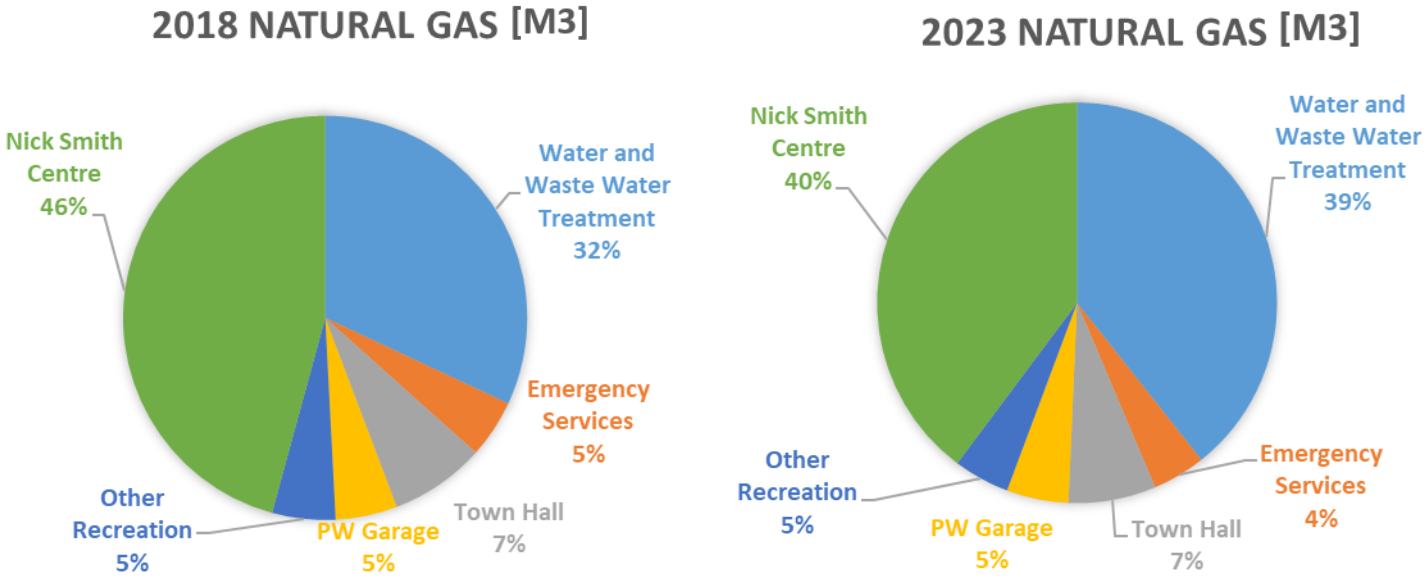


Figure 2: 2018 vs. 2023 Natural Gas Consumption

Green House Gas Emissions

Combined GHG emissions from all Town facilities in 2018 was 1,048,241.25 kg. GHG emissions in 2023 was 877,027.04 kg. This is a decrease of 171,220.21 kg, approximately 16%.

The following two plots display GHG emission trends comparing facilities between 2018 and 2023. The blue bar shows 2018 data, the orange bar shows 2023 data, and the grey line shows a 6-year average of 2018 to 2023.

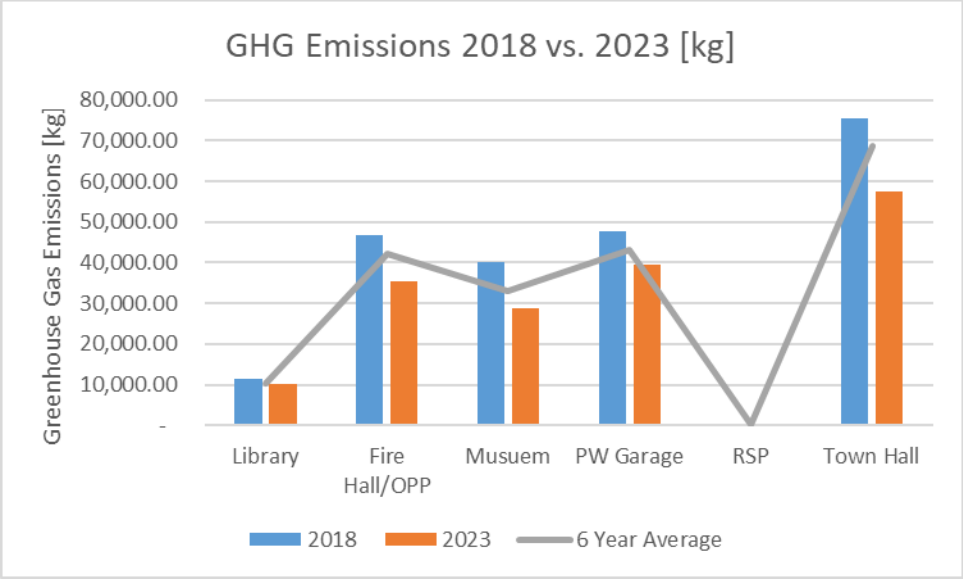


Figure 3: 2018 vs. 2023 GHG Emissions, including a tread line representing a 6-year average.

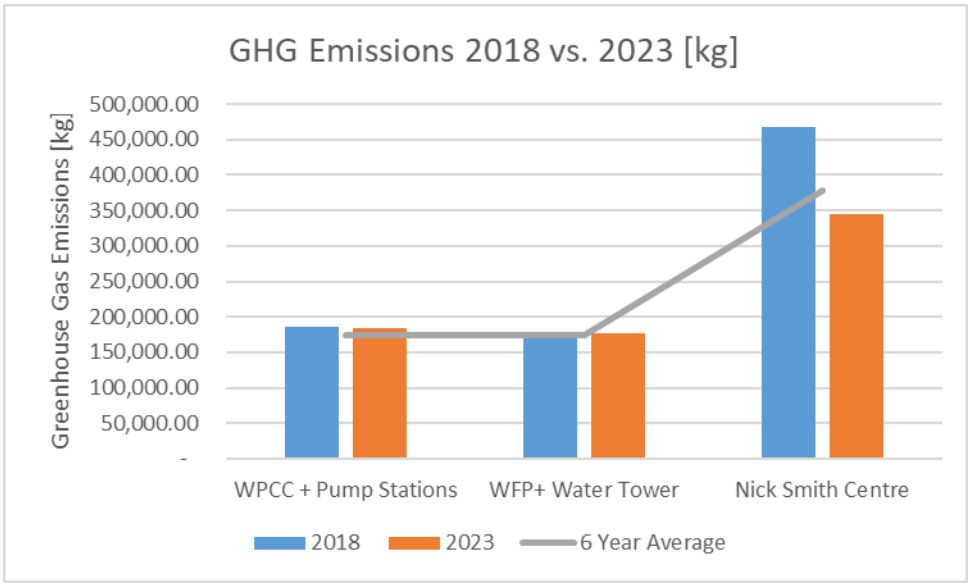


Figure 4: 2018 vs. 2023 GHG Emissions, including a tread line representing a 6-year average.

Summary of Completed Projects

The following section includes a summary of all energy reduction related projects completed since implementation of the 2018-2024 CDM. The below table summarizes the location, a brief description of the project, the year of implementation, the motivation for the change and the expected effect on energy consumption.

Table 1: Summary of completed projects

Building	Project	Year	Motivation	Expected Effect on Energy Usage
Fire Hall/ OPP	Lighting Upgrades – 2 Pack lights - Canopy lights converted from LED Bulb to low energy fixture	2021 2023	AMP, LRCF	Reduction in electricity usage is expected
	Garage Heater Replacement	2021	AMP, LRCF	Reduction in electricity usage is expected
	Heating/ Cooling unit upgrade	2024	AMP, LRCF	Appliances are energy star rated, reduction in energy usage and GHG emissions is expected
Water Filtration Plant	Power Factor Investigation	2024	2018-2024 CDM Plan	Minor efficiency / repair was made, improved efficiencies are expected
Nick Smith Centre	Replacement of rooftop HVAC unit	2019 2021	AMP, LRCF	Appliances are energy star rated, reduction in energy usage and GHG emissions is expected
	Arena A and B insulated panels installation.	2020	AMP, LRCF	Improved building envelope to retain cooling in arenas and reduce electricity usage in refrigeration system.
	Replaced two (2) and repaired two (2) Dehumidifiers	2022	AMP, LRCF	Appliances are energy star rated, reduction in energy usage and GHG emissions is expected

	Replacement of One HVAC Rooftop Units	2024	AMP, LRCF	Appliances are energy star rated, reduction in energy usage and GHG emissions and electricity usage is expected
	Power Factor Investigation	2024	2018-2024 CDM Plan	No findings were discovered following investigation. Power factor is sufficient
	Rink Slab Replacements	2025 *(upcoming)*	AMP, LRCF	Change from brine to glycol for cooling fluid. Energy savings are anticipated.
	Replacement of Pool Dectron (Dehumidifier)	2024	AMP, LRCF	Unit is energy star rated and efficiencies relating to the exhaust system were implemented prior to installation. Reduction in energy usage and GHG emissions and electricity usage is expected
Water Tower	Lighting Upgrades – 2 Pack lights	2024	AMP, LRCF	Reduction in electricity usage is expected
PW Garage	On-Demand Water Heater (tankless)	2022	2018-2024 CDM Plan	Reduction in energy usage and GHG emissions is expected
	Lighting Upgrades T12 light tubes to T8	2023	2018-2024 CDM Plan	Reduction in electricity usage is expected
	Solar Speed radar Sign	2022	2018-2024 CDM Plan	Use of implementing renewable energy
All Facilities	Behavioural change reminders in meeting settings	Ongoing	2018-2024 CDM Plan	Reduction in energy usage and GHG emissions is expected
	Night Watch Program (Last person to leave turns off lights)	Ongoing	2018-2024 CDM Plan	Reduction in energy usage and GHG emissions is expected
	Behavioural change reminders in new employee orientation	Ongoing	2018-2024 CDM Plan	Reduction in energy usage and GHG emissions is expected

Renewable Energy Utilized

Arnprior is situated below the Arnprior Generating Station (owned by Ontario Power Generation)

which produces power through harnessing moving water to produce electricity. This is a renewable energy source that supplies electricity to many businesses and homes.

The Arnprior Water Pollution Control Centre uses a combination of methane (produced from the sewage) and natural gas to heat the building through a boiler. This reduces the total amount of natural gas consumed.

A solar powered speed radar sign has been purchased, which is a durable and easy to install solution for monitoring vehicle speeds without the limitation of needing to replace or recharge batteries manually. Currently the Town does not utilize any other renewable energy technologies but will continue to investigate opportunities in future projects.

Planning

Strategic Planning

To increase the effectiveness of the CDM plan, the Town should consider integrating the plan into existing Town documents, such as the Asset Management Plan (AMP) and Long Range Capital Forecast (LRCF). The AMP, LRCF and the CDM could act hand-in-hand, as both plans discuss municipal infrastructure and operations.

Resources Planning

Energy Leaders

The Town of Arnprior has unofficially appointed two energy leaders, including the Environmental Engineering Officer and the Engineering Officer, Facilities & Assets. The energy leaders are responsible for annual energy reporting, development of the five-year energy management plan and ensuring commitment to the plan.

Energy Team

The energy team will consist of the two Energy Leaders, along with the General Manager, Operations. The team will discuss energy conservation initiatives and will ensure environmentally friendly options are considered throughout all operations.

Implementation Plan

Municipal Level

The administration and implementation of this plan will be the responsibility of the Energy Team, which consists of the Environmental Engineering Officer the Engineering Officer, Facilities & Assets and the General Manager, Operations. The Finance department is responsible for energy cost tracking and bill payments. All town staff and facility users are responsible for the day-to-day improvements resulting from behavioural change.

Asset Level

In order for the Town to meet the target of reducing energy consumption to below 2024 levels, the following objectives have been set forth.

1. Explore the feasibility of implementing renewable energy technologies, including fleet electrification
2. Continual improvement to behavioural change efforts,
3. Upgrade infrastructure including, but not limited to HVAC, lighting, building envelope, etc.,
4. Streamline the energy management process into everyday work,
5. Develop an energy policy,
6. Perform in depth benchmarking of energy consumption patterns,
7. Align the Energy Conservation and Demand Management Plan with existing plans, and
8. Continue to investigate energy saving opportunities within facilities.

The following table breaks down each of the eight objectives and outlines specific projects that can be implemented in order to achieve the objectives. The ability to achieve the seven objectives is limited by available staffing, available budget, and grant opportunities.

Table 2: Implementation, Responsibility and Cost Range of Objectives

Objective	Description	Responsibility	Cost Range
1. Renewable Energy	Solar Panel Installations This project idea has been discussed in the past, however, due to high initial costs and long return on investment periods, the project is not yet feasible in any planned Town projects however, staff will continue to investigate the application of this technology to future projects.	Operations	High
2. Behavioural Change	Day to day activities: Staff should continue to turn lights off when leaving a room, turn computers off at night, ensure that electronic devices with physical switches are turned off at night to avoid unnecessary power draw, turn thermostats down in offices during heating season overnight, turn on power saving features on printers, computers, etc.	All Staff	Low
	New Employee Orientation: HR should continue to communicate the day to day expectations to new staff	All Staff	Low

	Addition of stickers/ posters: Town staff should investigate the feasibility and potential effectiveness of adding stickers and posters to educate staff and regular users of town facilities of the importance of turning off lights/ computers/ etc.	All Staff	Low
3. **Equipment and Building Upgrades**	Continuing LED lighting and fixture replacements.	Operations	Medium - High
	Upgrade HVAC equipment to energy efficient products when replaced at end of lifecycle.	Operations	Medium - High
	Purchase energy efficient replacements for white goods.	Operations	Medium - High
	Install variable frequency drives where applicable in new installations.	Operations	Low-Medium
	Implement building automation systems in new construction	Operations	Medium - High
	Lighting controls	Operations	Medium - High
	Fleet monitoring/ Fleet and Equipment Electrification	Operations	Low
	Building envelope improvements (such as insulated panels, window replacement, etc.)	Operations	Medium - High
4. **Energy Management Processes**	Continue to monitor LAS metered data using the Energy Planning Tool	Operations	Low
5. **Energy Policy**	The development of a commitment policy and Staff education.	Operations/ Senior Management	Low
6. **Benchmarking**	Once all the new plans are out, benchmark the Town of Arnprior to others government entities.	Energy Leaders	Low
7. **Alignment**	Align to CDM to existing plans such as the Drinking Water Quality Management System (DWQMS), AMP, and LRCF.	All Staff	Low
8. **Investigate Energy Saving Opportunities**	Continue to review and consider all energy efficient options during future construction/ rehabilitation jobs.	Operations	Low - High

Variable Frequency Drive Installations:
Variable frequency drives (VFDs) are devices that can be selected as an option in new

equipment that contain a motor. The VFD works by optimizing motor speeds, ensuring the piece of equipment is operating at an ideal frequency [2]. For example, adding a VFD to an exhaust fan will allow the motor to only rotate the fan at the speed that is required to adequately meet air flow needs at the time. An exhaust fan in a public pool needs to move more air during a busy public swim than during a quieter lane swim time. This ensures that the fan has the ability to only use the amount of energy that is needed to meet the objective. which ultimately reduces energy consumption [2].

Building Automation Systems:
Most Town owned facilities currently have no or limited building automation implemented. Building automation may include mechanical, electrical, and plumbing (MEP) systems, and in many instances, retrofit options are available but costly. Building automation can improve building system controls resulting in increased energy efficiency from automated MEP components [3].

Lighting Controls/ Occupancy Sensors:
Occupancy sensors are low-cost installations that generally require very little investment; however, are proven to reduce energy consumption. Occupancy sensors are best used in buildings where certain rooms or areas are used at intermittent periods of the day, such as a meeting room in an office building. Occupancy sensors can be programmed to turn off lighting after certain period of time, which ultimately reduces electricity consumption and prolongs the life cycle of light fixture components, including the bulbs [4].

Fleet Monitoring/ Fleet Electrification:
The Town will improve processes related to tracking the efficiency of the fleet. The Town's fleet includes trucks, vans, ice resurfacers, ride on lawn mowers, utility vehicles, sidewalk vehicles, loaders, dump trucks, snowplows, street sweepers, etc. When purchasing new vehicles and equipment, the Town shall strive to choose energy efficient options for replacements and should consider purchasing electric or hybrid vehicles and equipment where appropriate as well as review the option for charging stations.

The Town is currently investigating the electrification of equipment such the ice resurfacing machine (Zamboni) and has recently purchased electric lawn maintenance equipment such a mowers and trimmers to trial practicality. There are further lifecycle costing that must be explored with electrification and the Town is working to ensure that energy considerations and considered alongside waste reduction considerations. Federal and Provincial legislation will also cause changes in the market availability of electric vehicles.

New Building Construction:
The replacement or retrofit of Town Hall is tentatively scheduled to begin in 2029. When planning activities for new building construction commence, renewable energy options such as solar, ground source thermal, and heat pump technology should be included in any option evaluated. The Town should also consider incorporating the Leadership in Energy and Environmental Design (LEED) building practices and investigate the possibility of LEED certification.

Though renovation as opposed to new construction, these factors were considered in the upcoming Nick Smith Centre Rink Revitalization project. Ultimately due to the current layout,

operational demands and facility footprint, renewable energy options were not feasible. The decision was made to change from brine to glycol which is a more environmentally friendly product that transfers energy more efficiently. Glycol is a salty liquid that is present in cooling pipes under the concrete slab of an arena. These cooling pipes allow the slab to remain a temperature favourable to maintaining ice surfaces.

Evaluation

CDM Review

As per O.Reg. 507/18, the Town is required to report annual energy usage by July 1 of each year. Further, the Town is required to update the CDM plan on each 5-year anniversary of July 1, 2029. The Town should review the plan annually to ensure its accuracy and should review the plan when beginning all new energy related projects (building retrofits, HVAC upgrades, vehicle/ equipment replacements, building construction).

Through a benchmarking exercise of assessing the energy goals of other governmental organizations, it is evident that a goal to reach total consumption and cost reductions of 2% is common. If the Town were to reach this goal, we would achieve the following:

- In 2023, Town facilities/assets consumed 4,439,588.12 kWh of electricity, resulting in a total cost of $ 210,304.56. With a 2% reduction, these values would drop to 4,350,796.36 kWh and $206,098.47.
- In 2023, Town facilities consumed 402,366 m3 of natural gas, resulting in a total cost of $56,365.51. With a 2% reduction, these values would drop to 394,318.68 m3 and $55,238.20.

Evaluation of Progress

The 2018 – 2024 CDM plan will be considered successful when there is a decrease in overall energy consumption from the 2023 levels displayed in this report and when the following goals are met:

1. Improve energy efficiencies at all facilities via active or passive means.
2. Reduce GHG emissions at all facilities.
3. Meet the requirements of Ontario Regulation 507/18 under the Electricity Act, 1998.
4. Improve Energy Management processes at the Town of Arnprior.

When developing the next CDM plan in 2029, the Energy Team should review the success of this plan and evaluate any achievements or shortcomings in order to achieve continual improvement.

References

[1] Government of Ontario, "O. Reg. 507/18: BROADER PUBLIC SECTOR: ENERGY REPORTING AND CONSERVATION AND DEMAND MANAGEMENT PLANS," 14 December 2018. [Online]. Available: https://www.ontario.ca/laws/regulation/r18507.

[2] N. R. Canada, "Variable frequency drives," 06 03 2019. [Online]. Available: https://www.nrcan.gc.ca/energy/products/categories/commercial/motors/14814.

[3] C. Services, "Building Automation," [Online]. Available: http://www.controlservices.com/learning_automation.htm.

[4] B. H. P. Smart, "Occupancy sensors help save energy in the workplace," 2012. [Online]. Available: https://www.bchydro.com/news/conservation/2012/occupancy-sensors.html.

Appendix A – Building Information

Table 3: Summary of Arnprior's Reported Buildings

Operation Name	Building Type as per O.Reg. 507/18	Address	Total Floor Area [m2]	Hours of Operation/ Week	Natural Gas	Electricity
Arnprior Public Library	Public libraries	21 Madawaska St	1,513.00	35	Yes	Yes
Arnprior Wastewater Treatment Plant	Facilities related to the treatment of sewage	233 Albert St.	3,813.00	168	Yes	Yes
Arnprior Water Filtration Plant	Facilities related to the treatment of water	74 James St	1,829.00	168	Yes	Yes
Fire Hall	Fire stations and associated offices and facilities	67 Meehan St.	895.00	42.15	Yes	Yes
Arnprior & District Museum	Cultural facilities	35 Madawaska St	1,263.00	30	Yes	Yes
Nick Smith Centre	Indoor recreational facilities	77 James St.	7,432.00	87	Yes	Yes
OPP Police Station	Police stations and associated offices and facilities	67 Meehan St.	383.00	168	Yes	Yes
Public Works Garage	Storage facilities where equipment or vehicles are maintained, repaired or stored	73 James St.	743.00	35	Yes	Yes
Pump Station 1	Other	50 Elgin St E	-	4.2	No	Yes
Pump Station 2	Other	251 McNab St	5.00	55.3	No	Yes
Pump Station 3	Other	68 Madawaska Blvd	150.00	114.8	No	Yes
Pump Station 4	Other	207 Riverview Dr.	5.00	31.5	No	Yes

Pump Station 5	Other	110 Wolff Cres	5.00	23.1	No	Yes
Robert Simpson Park - Concession	Other	400 John St	138.00	49	No	Yes
Robert Simpson Park - Washrooms	Other	400 John St	70.00	49	No	Yes
Town Hall	Administrative offices and related facilities, including municipal council chambers	105 Elgin St W	1,523.00	35	Yes	Yes
Water Tower	Other	435 Hartney St.	130.00	94.5	No	Yes

Appendix B – Annual Energy Reporting Submissions 2018 - 2023

2018 Reporting Submission

Operation	Address	Floor Space [m2]	Hrs/ Week	Annual Flow [ML]	Electricity [kwh]	Natural Gas [m3]	Calculated, Weather Normalized		
							GHG Emissions [KG]	Energy Intensity [ekWh/ m2]	Energy Intensity [ekWh/ ML]
Arnprior Public Library	21 Madawaska St	1,513.00	35.00		117,739	4,259.00	11,531.13	911.38	
Arnprior Water Pollution Control Centre	233 Albert St.	3,813.00	168.00	1856	1,076,400	79,397.00	181,915.58	284.53	
Arnprior Water Filtration Plant	74 James St	1,829.00	168.00	1460	842,937	77,531.00	171,489.30	203.82	
Fire Hall/ OPP	67 Meehan St.	895.00	42.15		121,162	22,814.00	46,712.86	520.71	
Museum	35 Madawaska St	1,263.00	30.00		38,567	20,593.00	40,073.26	430.72	
Nick Smith Centre	77 James St.	7,432.00	87.00		1,482,367	224,650.00	468,530.34	3,592.00	
Public Works Garage	73 James St.	743.00	35.00		17,960	24,264.00	47,710.55	8,483.60	
Pump Station 1	50 Elgin St E	-	4.20		42,418		530.68	386.12	
Pump Station 2	251 McNab St	5.00	55.30		57,918		1,253.37	664.40	
Pump Station 3	68 Madawaska Blvd	150.00	114.80		3,322		1,711.36	2,037.00	
Pump Station 4	207 Riverview Drive	5.00	31.50		10,185		98.16	911.38	
Pump Station 5	110 Wolff Cres	5.00	23.10		117,739		300.95	284.53	

Robert Simpson Park	400 John St	138.00	49.00		9,266		273.79	44.55	
Town Hall	105 Elgin St W	1,523.00	35.00		158,994	37,446.00	75,494.37	365.70	
Water Tower	435 Hartney St.	130.00	94.50		20,831		615.54	160.25	

2019 Reporting Submission

Operation	Address	Floor Space [m2]	Hrs/ Week	Annual Flow [ML]	Electricity [kwh]	Natural Gas [m3]	Calculated, Weather Normalized		
							GHG Emissions [KG]	Energy Intensity [ekWh/ m2]	Energy Intensity [ekWh/ ML]
Arnprior Public Library	21 Madawaska St	1,513.00	35.00		98,239	3,917.00	10,977.75	92.44	
Arnprior Water Pollution Control Centre	233 Albert St.	3,813.00	168.00	1885	1,031,400	64,902.00	157,656.79	481.70	
Arnprior Water Filtration Plant	74 James St	1,829.00	168.00	1394	726,449	81,175.00	178,062.79	912.88	
Fire Hall/ OPP	67 Meehan St.	895.00	42.15		97,621	23,289.00	47,353.28	278.98	
Museum	35 Madawaska St	1,263.00	30.00		39,857	19,729.00	38,353.28	198.10	
Nick Smith Centre	77 James St.	7,432.00	87.00		1,270,559	201,743.00	424,629.00	479.28	
Public Works Garage	73 James St.	743.00	35.00		66,134	23,132.00	45,992.83	430.64	
Pump Station 1	50 Elgin St E	5.00	4.20		16,245		45,992.83	3,667.20	
Pump Station 2	251 McNab St	5.00	55.30		32,984		558.75	7,718.20	
Pump Station 3	68 Madawaska Blvd	150.00	114.80		46,901		1,175.98	372.93	

Pump Station 4	207 Riverview Drive	5.00	31.50		2,791		1,704.66	605.20	
Pump Station 5	110 Wolff Cres	5.00	23.10		7,922		92.21	1,886.60	
Robert Simpson Park	400 John St	138.00	49.00	-	9,311		287.45	46.45	
Town Hall	105 Elgin St W	1,643.00	35.00	-	130,684	38,921.00	77,976.01	366.21	
Water Tower	435 Hartney St.	130.00	168.00		15,787		566.80	143.08	

2020 Reporting Submission

Operation	Address	Floor Space [m2]	Hrs/ Week	Annual Flow [ML]	Electricity [kwh]	Natural Gas [m3]	Calculated, Weather Normalized		
							GHG Emissions [KG]	Energy Intensity [ekWh/ m2]	Energy Intensity [ekWh/ ML]
Arnprior Public Library	21 Madawaska St	1,513.00	35.00	-	87,375	3,776.00	9,591.53	875.82	
Arnprior Water Pollution Control Centre	233 Albert St.	3813.00	40	1850	1,056,509	64,736.00	151,934.44	242.73	
Arnprior Water Filtration Plant	74 James St	1829.00	56	1458	764,354	71,441.00	156,511.20	192.97	
Fire Hall/ OPP	67 Meehan St.	1,278.00	168		99,168	18,797.00	38,348.52	373.86	
Museum	35 Madawaska St	1,263.00	30.00		40,841	18,515.00	36,199.67	385.46	
Nick Smith Centre	77 James St.	7,432.00	87.00		991,475	155,532.00	322,696.71	3,471.40	
Public Works Garage	73 James St.	743.00	50		50,251	21,273.00	41,754.13	6,075.80	
Pump Station 1	50 Elgin St E	5.00	168		15,281		441.70	343.29	
Pump Station 2	251 McNab St	5.00	168		26,529		773.08	193.00	
Pump Station 3	68 Madawaska Blvd	150.00	168		43,381		1,310.42	875.82	
Pump Station 4	207 Riverview Drive	5.00	168		865		24.56	242.73	
Pump Station 5	110 Wolff Cres	5.00	168		6,842		200.40	1,575.00	

Robert Simpson Park	400 John Street N	208.00	49.00	-	7,467		198.90	37.58	
Town Hall	105 Elgin St W	1,523.00	35		126,461	32,737.00	65,449.69	320.20	
Water Tower	435 Hartney St.	130.00	168		15,385		460.58	139.22	

2021 Reporting Submission

Operation	Address	Floor Space [m2]	Hrs/ Week	Annual Flow [ML]	Electricity [kwh]	Natural Gas [m3]	Calculated, Weather Normalized		
							GHG Emissions [KG]	Energ y Intensi ty [ekWh/ m2]	Energy Intensity [ekWh/ ML]
Arnprior Public Library	21 Madawaska St	1,513.00	35.00		84,956	4,065.00	10,104.35	939.66	
Arnprior Water Pollution Control Centre	233 Albert St.	3813.00	40	1736	1,052,852	72,709.00	170,931.05	232.36	
Arnprior Water Filtration Plant	74 James St	1829.00	56	1463	794,411	80,159.00	176,288.97	170.21	
Fire Hall/ OPP	67 Meehan St.	1,278.00	168		101,478	17,369.00	30.37.44	395.42	
Museum	35 Madawaska St	1,263.00	30.00		26,722	17,713.00	34,249.53	367.69	
Nick Smith Centre	77 James St.	7,432.00	87.00		1,145,196	156,241.00	331,789.75	3,580.00	
Public Works Garage	73 James St.	743.00	50		46,221	20,538.00	40,393.49	6,604.00	
Pump Station 1	50 Elgin St E	5.00	168		15,838		509.67	939.66	
Pump Station 2	251 McNab St	5.00	168		29,037		940.18	232.36	

Pump Station 3	68 Madawaska Blvd	150.00	114.80		51,126		1,651.09	386.59	
Pump Station 4	207 Riverview Drive	5.00	31.50		966		29.93	210.20	
Pump Station 5	110 Wolff Cres	5.00	23.10		7,035		232.08	1,630.20	
Robert Simpson Park	400 John Street N	208.00	49.00		9,616		283.36	47.85	
Town Hall	105 Elgin St W	1,643.00	35.00		130,634	31,925.00	64,429.88	316.67	
Water Tower	435 Hartney St.	130.00	168.00		15,552		514.56	139.02	

2022 Reporting Submission

Operation	Address	Floor Space [m2]	Hrs/ Week	Annual Flow [ML]	Electricity [kwh]	Natural Gas [m3]	Calculated, Weather Normalized		
							GHG Emissions [KG]	Energy Intensity [ekWh/ M2]	Energy Intensity [ekWh/ ML]
Arnprior Public Library	21 Madawaska St	1,513.00	35.00		75,243	4,004.00	10,143.06	977.3	
Arnprior Water Pollution Control Centre	233 Albert St.	3813.00	40	1875	951,275	54,562.00	136,433.53	265.0	
Arnprior Water Filtration Plant	74 James St	1829.00	56	1582	736,045	85,079.00	186,001.94	111.6	
Fire Hall/ OPP	67 Meehan St.	1,278.00	168		102,755	21,167.00	43,256.60	444.6	
Museum	35 Madawaska St	1,263.00	30.00		28,778	10,080.00	20,020.53	380.2	
Nick Smith Centre	77 James St.	7,432.00	87.00		1,167,537	175,581.00	372,911.24	3,759.4	
Public Works Garage	73 James St.	743.00	50		42,994	21,824.00	42,699.53	5,815.2	
Pump Station 1	50 Elgin St E	5.00	168		15,284		535.21	977.3	
Pump Station 2	251 McNab St	5.00	168		24,986		827.88	265.0	

Pump Station 3	68 Madawaska Blvd	150.00	114.80	-	53,916		1,774.92	415.6	
Pump Station 4	207 Riverview Drive	5.00	31.50	-	1,145		35.05	246.2	
Pump Station 5	110 Wolff Cres	5.00	23.10	-	7,197		263.09	1,848.0	
Robert Simpson Park	400 John Street N	208.00	49.00		10,612		316.71	53.5	
Town Hall	105 Elgin St W	1,643.00	35.00		106,492	35,575.00	70,529.72	323.67	
Water Tower	435 Hartney St.	130.00	168.00		16,764		579.51	156.56	

2023 Reporting Submission

Operation Name	Address	Floor Area [m]	Hrs/ Week	Annual Flow [ML]	Electricity Quantity [kWh]	Natural Gas [m3]	Calculated, Weather Normalized		
							GHG Emissions [Kg]	Energy Intensity [ekWh/m2]	Energy Intensity [ekWh/ML]
Arnprior Public Library	21 Madawaska St	1,513.00	35.00		114,787	3,536.00	10,241.16	923.64	
Arnprior Water Pollution Control Centre	233 Albert St.	3813.00	40	2008	1,095,344	77,632.00	181,174.46	219.96	
Arnprior Water Filtration Plant	74 James St	1829.00	56	1416	744,935	80,625.00	176,135.00	152.38	
Fire Hall/ OPP	67 Meehan St.	1,278.00	168		88,784	17,240.00	35,381.60	425.22	
Museum	35 Madawaska St	1,263.00	30.00		33,000	14,688.00	28,804.64	357.85	
Nick Smith Centre	77 James St.	7,432.00	87.00		1,315,117	160,019.00	344,094.49	3,693.60	
Public Works Garage	73 James St.	743.00	50		45,114	20,164.00	39,591.33	6,714.40	
Pump Station 1	50 Elgin St E	5.00	168		16,368	-	525.84	378.21	
Pump Station 2	251 McNab St	5.00	168		29,663	-	955.90	291.80	
Pump Station 3	68 Madawaska Blvd	-			49,284	-	1,615.30	1,768.80	
Pump Station 4	207 Riverview Drive	-			1,344	-	41.54	923.64	
Pump Station 5	110 Wolff Cres	-			7,619	-	251.82	219.96	

	Blvd								
Robert Simpson Park	400 John Street N	208.00	49.00		10,849	-	317.64	53.63	
Town Hall	105 Elgin St W	1,643.00	35.00	-	112,295	28,462.00	57,326.13	279.67	
Water Tower	435 Hartney St.	130.00	168.00	-	17,208	-	564.19	152.42	

Appendix C – Cost Information

Table 4: Electricity Costs and Annual Rates

	Total Electrical Consumption [kWh]	Annual Rate [$/kWh]	Total Cost
2018	4,734,869.63	0.02347	$111,143.87
2019	4,304,063.47	0.02299	$98,969.92
2020	4,053,510.50	0.02158	$87,489.17
2021	4,219,518.11	0.02643	$111,521.89
2022	4,043,009.64	0.04895	$197,912.51
2023	4,439,588.12	0.04737	$210,304.56

Table 5: Natural Gas Costs and Annual Rates

	Total Natural Consumption [m3]	Annual Rate [$/kWh]	Total Cost
2019	456,941.00	0.1022	$46,712.74
2020	386,807.00	0.0670	$34,713.77
2021	400,719.00	0.1099	$44,058.61
2022	407,872.00	0.1325	$54,053.74
2023	402,366.00	0.1401	$56,365.51