The City of Saint John

Request for Proposals

for

2021-094001P – Consulting Services – City of Saint John Public Transit and Fleet Low Carbon Migration Strategy Saint John, New Brunswick

Request for Proposals No.: 2021-094001P

Issued: Tuesday, August 17th, 2021

Submission Deadline**:** Thursday, September 9th, 2021 at 4:00 p.m. (Saint John time)

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PART 1 – INTRODUCTION

1.1 Invitation to Proponents

(1) This Request for Proposals ("**RFP**") is an invitation by The City of Saint John (the "**City**") to prospective proponents to submit proposals for the provision of consulting services for the City of Saint John Public Transit and Fleet Low Carbon Migration Strategy**,** as further described in Part 2 – The Deliverables (the "**Deliverables**").

1.2 RFP Contact Person

(1) For the purposes of this procurement process, the "**City Contact**" shall be:

Monic MacVicar, CCLP, CPPB
Procurement Specialist
The City of Saint John
Email: supplychainmanagement@saintjohn.ca

1.3 Type of Contract for Deliverables

(1) The City will issue a Purchase Order to the successful proponent for the scope of services detailed in this request for proposal.

1.4 No Guarantee of Volume of Work or Exclusivity of Contract

(1) The City makes no guarantee as to the value or volume of the Deliverables. The contract to be entered with the selected proponent will not be an exclusive contract for the provision of the described Deliverables. The City may contract with others for same or similar to the Deliverables or may obtain the same or similar to the Deliverables internally.

1.5 Agreement on Internal Trade

(1) Proponents should note that procurements falling within the scope of Chapter 5 of the Agreement on Internal Trade are subject to that chapter but that the rights and obligations of the parties shall be governed by the specific terms of this RFP. For further reference, please see the Internal Trade Secretariat website at http://www.ait-aci.ca/index_en.htm.

[End of Part 1]

PART 2 – THE DELIVERABLES

2.1 Description of Deliverables

(1) This RFP is an invitation to submit offers for the provision of consulting services for the City of Saint John Public Transit and Fleet Low Carbon Migration Strategy**,** as further described in Appendix D – RFP Particulars – Section A - The Deliverables.

[End of Part 2]

PART 3 – EVALUATION OF PROPOSALS

3.1 Timetable

(1) The RFP timetable is tentative only and may be changed by the City at any time.

Issue Date of RFP	Tuesday, August 17th, 2021
Deadline for Questions	Monday, August 30th, 2021 at 4:00PM Atlantic Time
Deadline for Issuing Addenda	Wednesday, September 1st, 2021 at 4:00PM Atlantic Time
Submission Deadline	Thursday, September 9th, 2021 at 4:00PM Atlantic Time
Rectification Period	3 Days After Submission Deadline
Anticipated Deadline for Selection of Highest Ranked Proponent	TBD

3.2 Submission Instructions

(A) Proposals Should Be Submitted at Prescribed Location

(1) Proposals should be submitted at:

The City of Saint John
Supply Chain Management
175 Rothesay Avenue, 1st Floor
Saint John, New Brunswick, E2J 2B4 (the "**Prescribed Location**")

Attention: Monic MacVicar, CCLP, CPPB

(B) Proposals Should Be Submitted in Prescribed Manner

(1) Proponents should submit one signed original and three bound copies of the technical proposal and supporting information, and one signed original copy and three bound copies of the financial proposal and supporting information.

(2) The technical proposal should be sealed in an envelope, clearly indicating the proponent's name and address and marked: "**Technical Proposal: 2021-094001P – Consulting Services - City of Saint John Public Transit and Fleet Low Carbon Migration Strategy"**.

(3) The financial proposal should be sealed in a separate envelope, clearly indicating the proponent's name and address and marked: "**Financial Proposal: 2021-094001P – Consulting Services - City of Saint John Public Transit and Fleet Low Carbon Migration Strategy**".

(4) Proposals sent by fax or email will be rejected.

(C) Proposals Should Be Submitted on Time

(1) Proposals shall be submitted at the Prescribed Location on or before the Submission Deadline. Proposals submitted after the Submission Deadline will be rejected.

(2) Immediately following the Submission Deadline, proposals will be publicly opened in the office of the City Contact, at the Prescribed Location. Only the names and addresses of the proponents will be made public.

(D) Amendment of Proposals

(1) Proponents may amend their proposals prior to the Submission Deadline by submitting the amendment in a sealed package to the Prescribed Location. The sealed package shall be prominently marked with the RFP title and number and the full legal name and return address of the proponent. Any amendment should clearly indicate which part of the proposal the amendment is intended to affect.

(E) Withdrawal of Proposals

(1) At any time throughout the RFP process, a proponent may withdraw a submitted proposal. To effect a withdrawal, a notice of withdrawal must be sent to the City Contact and must be signed by an authorized representative. The City is under no obligation to return withdrawn proposals.

3.3 Stages of Proposal Evaluation

(1) The City will conduct the evaluation of proposals and selection of the highest ranked proponent in the following three stages described in further detail below:

(a) Stage I – Mandatory Requirements and Rectification
(b) Stage II – Evaluation of Rated Criteria and Pricing
(c) Stage III –Selection and Final Negotiation

(A) Stage I – Mandatory Requirements and Rectification

Submission and Rectification Period

Stage I will consist of a review to determine which proposals comply with all of the mandatory requirements. Proposals failing to satisfy the mandatory requirements as of the Submission Deadline will be provided an opportunity to rectify any deficiencies. Proposals satisfying the mandatory requirements during the Rectification Period, as described in Part 3 – Section 3.1 – Timetable will proceed to Stage II. Proposals failing to satisfy the mandatory requirements within the Rectification Period will be excluded from further consideration. The Rectification Period will begin to run from the date and time that the City issues its rectification notice to the proponents.

Mandatory Submission Forms

Other than inserting the information requested on the mandatory submission forms set out in this RFP, a proponent may not make any changes to any of the forms.

Submission Form (Appendix A)

Each proponent must complete the Submission Form and include it with their technical proposal. The Submission Form must be signed by an authorized representative of the proponent.

Pricing Form (Appendix B)

Each proponent must complete the Pricing Form and include it with their financial proposal. The Pricing Form must be completed according to the instructions contained in the form. Fees must be provided in Canadian funds, inclusive of all costs, applicable duties, overhead, and insurance costs, except for HST/GST.

Reference Form (Appendix C)

Each proponent must complete the Reference Form and include it with its technical proposal.

Other Mandatory Requirements

Each proposal must:

(a) Be in English.
(b) Be for the entire scope of work as described in Appendix D – Section A - The Deliverables. Incomplete proposals or proposals for only part of the Deliverables described in Appendix D may be disqualified.

(B) Stage II – Evaluation of Rated Criteria and Pricing

Stage II will consist of a scoring by the City of each qualified proposal on the basis of the rated criteria and the pricing in accordance Appendix D – Section B – Evaluation Criteria.

(C) Stage III – Selection and Final Negotiation

Once the proposals have been evaluated as per Stage II, the top-ranked proponent will be selected to enter into direct negotiations.

During the negotiation, the City will provide the top-ranked proponent with any additional information and will seek further information and proposal improvements. After the negotiation, the top-ranked proponent will be invited to revise its initial proposal and submit its BAFO to the City.

[End of Part 3]

PART 4 – TERMS AND CONDITIONS OF THE RFP PROCESS

4.1 General Information and Instructions

(A) Proponents to Follow Instructions

(1) Proponents should structure their proposals in accordance with the instructions in this RFP. Where information is requested in this RFP, any response made in a proposal should reference the applicable part, section, subsection, or paragraph numbers of this RFP.

(B) Information in RFP Only an Estimate

(1) The City and its representatives shall not be liable for any information or advice or any discrepancies or errors or omissions that may be contained in this RFP or an Addenda, appendices, data, materials, or documents (electronic or otherwise) attached or provided to the proponents pursuant to this RFP.

(2) The City and its advisors make no representation, warranty, or guarantee as to the accuracy of the information contained in this RFP or issued by way of addenda. Any quantities shown or data contained in this RFP or provided by way of addenda are estimates only and are for the sole purpose of indicating to proponents the general scale and scope of the work. It is the proponent's responsibility to obtain all the information necessary to prepare a proposal in response to this RFP.

(C) Proponents Shall Bear Their Own Costs

(1) The proponent shall bear all costs associated with or incurred in the preparation and presentation of its proposal, including, if applicable, costs incurred for interviews, and/or presentations.

4.2 Communication after Issuance of RFP

(A) Proponents to Review RFP

(1) Proponents shall promptly examine all of the documents comprising this RFP, and

(a) Shall report any errors, omissions, or ambiguities; and

(b) May direct questions or seek additional information in writing by email to the City Contact on or before the Deadline for Questions. All questions submitted by proponents by email to the City Contact shall be deemed to be received once the email has entered into the City Contact's email inbox. No such communications are to be directed to anyone other than the City Contact. The City is under no obligation to provide additional information, and the City shall not be responsible for any information provided by or obtained from any source other than the City Contact.

(2) It is the responsibility of the proponent to seek clarification from the City Contact on any matter it considers to be unclear. The City shall not be responsible for any misunderstanding on the part of the proponent concerning this RFP or its process.

(B) All New Information to Proponents by Way of Addenda

(1) This RFP may be amended only by an addendum in accordance with this subsection. If the City, for any reason, determines that it is necessary to provide additional information relating to this RFP, such information will be communicated to all proponents by addenda. Each addendum forms an integral part of this RFP.

(2) Such addenda may contain important information, including significant changes to this RFP. Proponents are responsible for obtaining all addenda issued by the City. Addenda may be obtained from the City's website (www.saintjohn.ca) under the menu option "Tender and Proposals". In Appendix A, proponents should confirm their receipt of all addenda by setting out the number of each addendum in the space provided.

(C) Post-Deadline Addenda and Extension of Submission Deadline

(1) If any addendum is issued after the Deadline for Issuing Addenda, the City may at its discretion extend the Submission Deadline for a reasonable period of time.

(D) Verify, Clarify and Supplement

(1) When evaluating responses, the City may request further information from the proponent or third parties in order to verify, clarify, or supplement the information provided in the proponent's proposal. The City may revisit and re-evaluate the proponent's response or ranking on the basis of any such information.

(E) No Incorporation by Reference

(1) The entire content of the proponent's proposal should be submitted in a fixed form, and the content of websites or other external documents referred to in the proponent's proposal will not be considered to form part of its proposal.

(F) Proposal to Be Retained by the City

(1) The City will not return the proposal, or any accompanying documentation submitted by a proponent.

4.3 <u>Debriefing</u>

(A) Debriefing

(1) Upon written request from any proponent, the City may provide a more detailed oral debriefing either by phone or in person, as required by the proponent. The written request shall be submitted to the City Contact no later than 15 calendar days after such notification.

(2) The acceptance of the successful proposal shall not be discussed during a debriefing.

(B) Procurement Protest Procedure

(1) The parties shall attempt to negotiate all disputes in good faith.

(2) In the event the parties are unable through good faith negotiations to mutually resolve any dispute, controversy or claim arising out of, in connection with, or in relation to the interpretation, performance or breach of this RFP, such dispute, controversy or claim shall be referred to the dispute resolution procedure in accordance to Part 4 – Section 4.8 – Dispute Resolution Procedure.

4.4 <u>Prohibited Conduct</u>

(A) Proponent Not to Communicate with Media

(1) A proponent may not at any time directly or indirectly communicate with the media in relation to this RFP or any agreement entered into pursuant to this RFP without first obtaining the written permission of the City Contact.

(B) No Lobbying

(1) A proponent may not, in relation to this RFP or the evaluation and selection process, engage directly or indirectly in any form of political or other lobbying whatsoever to influence the selection of the successful proponent.

(C) Illegal or Unethical Conduct

(1) Proponents shall not engage in any illegal business practices, including activities such as bid-rigging, price-fixing, bribery, fraud, or collusion. Proponents shall not engage in any unethical conduct, including other inappropriate communications, offering gifts to members of Common Council, employees, officers or other representatives of the City, deceitfulness, submitting proposals containing misrepresentations or other misleading or inaccurate information, or any other conduct that compromises or may be seen to compromise the competitive process provided for in this RFP.

(F) Past Performance or Inappropriate Conduct

(1) The City may prohibit a proponent from participating in the procurement process based on past performance or based on inappropriate conduct in a prior procurement process.

(2) Such inappropriate conduct shall include, but not be limited to the following:

(a) All the conducts as described in Part 4 – Section 4.4.

(b) The refusal of the proponent to honour its pricing or other commitments made in its proposal; or

(c) Any other conduct, situation or circumstance determined by the City, in its sole and absolute discretion, to constitute a Conflict of Interest.

4.5 Confidential Information

(A) Confidential Information of City

(1) All information provided by or obtained from the City in any form in connection with this RFP either before or after the issuance of this RFP:

(a) Is the sole property of the City and must be treated as confidential;

(b) Is not to be used for any purpose other than replying to this RFP and the performance of any subsequent Contract;

(c) Must not be disclosed by the proponent to any person, other than persons involved in the preparation of the proponent's proposal or the performance of any subsequent contract, without prior written authorization from the City; and

(d) Shall be returned by the proponents to the City immediately upon the request of the City.

(B) Confidential Information of Proponent

(1) A proponent should identify any information in its proposal or any accompanying documentation supplied in confidence for which confidentiality is to be maintained by the City. The confidentiality of such information will be maintained by the City, except as otherwise required by law or by order of a court or tribunal. Proponents are advised that their proposals will, as necessary, be disclosed, on a confidential basis, to the City's advisors retained for the purpose of evaluating or participating in the evaluation of their proposals. If a proponent has any questions about the collection and use of personal information pursuant to this RFP, questions are to be submitted to the City Contact.

4.6 Procurement Process Non-Binding

(A) No Contract A and No Claims

(1) The procurement process is not intended to create and shall not create a formal legally binding bidding process and shall instead be governed by the law applicable to direct commercial negotiations.

(2) For greater certainty and without limitation:

(a) This RFP shall not give rise to any Contract A based tendering law duties or any other legal obligations arising out of any process contract or collateral contract; and

(b) Neither the proponent nor the City shall have the right to make any claims (in contract, tort, equity or otherwise) against the other with respect to the award of a contract, failure to award a contract or failure to honour a response to this RFP.

(B) No Contract until Execution of Written Contract

(1) The RFP process is intended to identify the highest ranked proponent for the purposes of entering into a contract. No legal relationship or obligation regarding the procurement of any good or service shall be created between the proponent and the City by the RFP process until the issuance of a purchase order for the acquisition of such goods and/or services.

(C) Non-Binding Price Estimates

(1) While the pricing information provided in responses will be non-binding prior to the issuance of a purchase order, such information will be assessed during the evaluation of the responses and the ranking of the proponents. Any inaccurate, misleading, or incomplete information, including withdrawn or altered pricing, could adversely impact any such evaluation, ranking or contract award.

(D) Disqualification for Misrepresentation

(1) The City may disqualify the proponent or rescind a contract subsequently entered into if the proponent's response contains misrepresentations, omissions, or any other inaccurate, misleading, or incomplete information.

(E) Cancellation

(1) The City may cancel or amend the RFP process without liability at any time.

4.7 <u>Governing Law and Interpretation</u>

A. Governing Law

(1) The terms and conditions in this Part 4:

(a) Are included for greater certainty and are intended to be interpreted broadly and separately (with no particular provision intended to limit the scope of any other provision);

(b) Are non-exhaustive (and shall not be construed as intending to limit the pre-existing rights of the parties to engage in pre-contractual discussions in accordance with the common law governing direct commercial negotiations); and

(c) Are to be governed by and construed in accordance with the laws of the province of New Brunswick and the federal laws of Canada applicable therein.

[End of Part 4]

APPENDIX A– SUBMISSION FORM

(A) Proponent Information

Please fill out the following form, and name one person to be the contact for your response to this RFP response and for any clarifications or amendments that might be necessary.	
Full Legal Name of Proponent:	
Any Other Relevant Name under Which the Proponent Carries on Business:	
Street Address:	
City, Province/State:	
Postal Code:	
Phone Number:	
Fax Number:	
Company Website (If Any):	
RFP Contact Person and Title:	
RFP Contact Phone:	
RFP Contact Facsimile:	
RFP Contact E-mail:	

(B) Acknowledgment of Non-Binding Procurement Process

The proponent acknowledges that the RFP process will be governed by the terms and conditions of this RFP, and that, among other things, such terms and conditions confirm that this procurement process does not constitute a formal legally binding bidding process, and that there will be no legal relationship or obligations created until the City and the selected proponent have executed a purchase order.

(C) Ability to Provide Deliverables

The proponent has carefully examined this RFP documents and has a clear and comprehensive knowledge of the Deliverables required under this RFP. The proponent represents and warrants its ability to provide the Deliverables required under this RFP in accordance with the requirements of this RFP for the fees set out in the Pricing Form and has provided a list of any subcontractors to be used to complete the proposed contract.

(D) Mandatory Forms

The proponent encloses as part of the proposal the mandatory forms set out below:

FORM	INITIAL TO ACKNOWLEDGE
Submission Form	
Pricing Form	
Reference Form	

Notice to proponents: There may be forms required in this RFP other than those set out above. See the Mandatory Requirements section of this RFP for a complete listing of mandatory forms.

(E) Non-Binding Price Estimates

The proponent has submitted its fees in accordance with the instructions in this RFP and in the Pricing, Form set out in Appendix B. The proponent confirms that the pricing information provided is accurate. The proponent acknowledges that any inaccurate, misleading, or incomplete information, including withdrawn or altered pricing, could adversely impact the acceptance of its quotation or its eligibility for future work.

(F) Addenda

The proponent is deemed to have read and accepted all addenda issued by the City prior to the Deadline for Issuing Addenda. The onus remains on proponents to make any necessary amendments to their proposal based on the addenda. The proponent confirms that it has received all addenda by listing the addenda numbers or, if no addenda were issued, by writing the word "None" on the following line: _____. Proponents who fail to complete this section will be deemed to have received all posted addenda.

(G) No Prohibited Conduct

The proponent declares that it has not engaged in any conduct prohibited by this RFP.

(H) Disclosure of Information

The proponent hereby agrees that any information provided in this proposal, even if it is identified as being supplied in confidence, may be disclosed where required by law or if required by order of a court or tribunal. The proponent hereby consents to the disclosure, on a confidential basis, of this proposal by the City to the City's advisers retained for the purpose of evaluating or participating in the evaluation of this proposal.

_____	_____
Signature of Witness	Signature of Proponent Representative
_____	_____
Name of Witness	Name
	_____
	Title
	_____
	Date
	I have the authority to bind the proponent.

APPENDIX B – PRICING FORM

(A) Pricing Form

(1) Complete the following table to provide the costs of the required consulting services based on the RFP document, and exclusive of HST/GST. Proponents are free to add additional information as required.

ITEM	COST	Number of Hours	Number of Hours per individual Team Member	Number of presentations & Workshops	City Estimated Number of Hours
Total Cost					
Phase 1					
Phase 2					

HOURLY RATES	
Team Member/Responsibilities	**Rate**

APPENDIX C – REFERENCE FORM

Each proponent is requested to provide three references from clients who have obtained similar goods or services to those requested in this RFP from the proponent in the last two years.

Reference #1

Company Name:	
Company Address:	
Contact Name:	
Contact Telephone Number:	
Date Work Undertaken:	
Nature of Assignment:	

Reference #2

Company Name:	
Company Address:	
Contact Name:	
Contact Telephone Number:	
Date Work Undertaken:	
Nature of Assignment:	

Reference #3

Company Name:	
Company Address:	
Contact Name:	
Contact Telephone Number:	
Date Work Undertaken:	
Nature of Assignment:	

APPENDIX D – RFP PARTICULARS

(A) The Deliverables

GENERAL

The City has prepared this Request for Proposal (RFP) for Proponents interested in providing consulting services to the City of Saint John Public Transit and Fleet Low Carbon Migration Strategy.

The requirements stated in this RFP are anticipated by the City at the time of writing this document but may change or be refined during the evaluation and award process.

1.0 BACKGROUND

The City of Saint John has been an early adopter of implementing innovative measures, policies, strategies, plans, etc. to address climate change adaptation and mitigation on the City infrastructures, community as well as the transportation sector.

In 2019, Common Council has approved the City of Saint John Climate Change Action Plan as follow:

"It is recommended that Common Council approve the following Climate Change Action Items, subject to the City's Long-Term Financial Plan and required community energy partnerships:

1) City of Saint John Corporate GHG and Energy Action Plan attached at Appendix A and,
2) City of Saint John Community GHG and Energy Action Plan attached at Appendix B and,
3) Corporate GHG Emission Target of 30% by 2025 below 2015 levels and,
4) Community GHG Emission Target of 9% by 2025 and 18% by 2035, below 2015 levels and,
5) City of Saint John Corporate Operation to be Carbon Neutral by 2040 and,
6) City staff to establish a governance structure to manage/monitor the implementation of the community and corporate energy action plan and,
7) City of Saint John shall consider climate change impacts and mitigation measures in all future decision to ensure that residents, the built environment, and infrastructure are protected and,
8) Approve the Declaration on Climate Change."

The corporate GHG and Energy Action Plan has identified high-level strategies to reduce GHG emissions in the transportation sector, as the transportation sector represents over 35% of total GHG emissions.

Additionally, the City fleet management division (See attached Fleet Inventory) has implemented the following strategies and policy:

Optimum Replacement Procedure (Se attached document for ORP Explanation)

The City of Saint John has a fleet replacement policy that aims to optimize fleet size and usage Vehicles are replaced based on a formula that considers:
-Age of Vehicle Rating
-General Overall Condition Rating
-Fuel Consumption Rating
-Maintenance Cost Rating

-Odometer Reading Rating

Once a vehicle has reached the end of its useful life, the City assesses whether better management of the remaining fleet could prevent its replacement or it could be replaced by a smaller vehicle

Idling Policy (See Attachment)

The policy was adopted by Council in 2019 and applies to all City of Saint Vehicles.

Fleet Monitoring System

The majority of the City of Saint John Fleet, except for the Police, is currently equipped with GeoTab telematic devices. These devices are used to collect rich, accurate data on vehicle location, speed, trip distance and time, engine idling and more.

Transit

The City of Saint John Transit Fleet consists of the following:

- 46 of the standard buses. 6 of these are not getting used today (All are diesel)
- 8 handi buses (2 gasoline, 6 diesel)
- 2 service trucks (F350) (1 is gasoline)
- 2 supervisor vehicles (Chey equinox) (Both are gasoline)

2.0 EXECUTIVE SUMMARY

The objective of this RFP is to engage a consulting firm specializing in public and Fleet Transportation, to help the City of Saint John implement a Public Transit and Fleet Low Carbon Migration Strategy and achieve the City Climate Change Action items as approved by Council on May 6, 2019.

The successful proponent shall identify and evaluate potential reductions in greenhouse gas (GHG) emissions from the City public transit and fleet operations and prepare a strategy for the migration towards a lower carbon footprint for these operations. The strategy will be developed in two steps.

The first step will perform a review of existing and expected future operations, assess available policies, measures, and technologies, and identify preferred options that align with the City's policies, plans and fiscal capacity.

The second step will perform a detailed analyses of the preferred options and will develop a technical and financial strategy to migrate to a lower carbon footprint for City public transit and fleet operations.

This two-step approach will ensure all City of Saint John stakeholders will have adequate opportunity to provide informed input and consent.

The deliverable for the first step will consist of a document (Road Map) presenting: a review of the City of Saint John public transit and fleet operations and future plans, the associated GHG emissions, the identification and evaluation of policies, measures and technologies to reduce GHG emissions, the

policies, measures and technologies not appropriate to local conditions (topography and climate) or aligned with City plans and to be eliminated from further consideration, and the steps to be incorporated into the detailed study of preferred policies, measures and technologies during the next step.

The deliverable for the second step will define the desired future state of City of Saint John public transit and fleet operations, develop a migration strategy and schedule (including changes in operating and maintenance infrastructure), assess the detailed financial requirements, and develop a financing strategy (including timing of transition with regards to expected changes in market prices).

3.0 PROJECT OBJECTIVES

The objective of the project is to develop a strategy to migrate City of Saint John public transit and fleet operations towards a lower carbon footprint. This project aligns with the City of Saint John Climate Change Action Plan, adopted by Saint John City Council on May 06, 2019. The plan includes the Corporate and Community GHG and Energy Action Plans and commits the City to a 30% reduction in Corporate GHG emissions by 2025 and carbon neutrality by 2040. Additionally, the plan has identified high-level strategies to reduce GHG emissions in the transportation sector, as the transportation sector represents over 35% of total GHG emissions.

The migration strategy will be based on transportation best practices in New Brunswick and Canada, as well as innovative energy management approaches and synergies with existing/future energy infrastructure. It will consider lifecycle costs, social benefits, anticipated regulatory requirements, policy objectives, advantages/disadvantages, and limitations of various potential technologies (based on topography and local climate), synergies between existing/future energy infrastructure and potential transportation technologies, population density and expected public transit and fleet usage. It will present a migration strategy, detailed financial analyses, a financing strategy, and a recommended timetable for the migration towards a lower carbon footprint for the City of Saint John public transit and fleet operations.

Additionally, the project should investigate the possibility of installing a data collection system ~~for~~ on ~~the~~ transit buses to track their positions using Automatic Vehicle Location systems. It should record how many people get on and off the bus at each stopp~~ed~~. ~~Etc.~~ The purpose of the data collection system is to help the City ~~to~~ make better service planning decisions, optimize the size of the transit buses, etc. in order to reduce GHG emissions and operating costs.

The final deliverables will consist of the following two documents:

1. Phase 1 Deliverable

A public transit and fleet road map for detailed analyses of preferred policies, methods and technologies and the development of a migration strategy with action items during Phase 2.

Additionally, the road map should include recommendations on the possibility of installing a data collection system for the transit buses to help the City make informed decisions and increase operating efficiency as well as reduce GHG emissions.
This document will present the current and desired future state of City of Saint John public transit and fleet operations, identify, and evaluate potential policies, measures, and technologies to reduce the

carbon footprint of public transit and municipal fleet operations (diesel, electric, hybrid-electric, compressed natural gas, hydrogen, and biodiesel), and recommend a preferred technology or technologies for further detailed study during Phase 2. road map will ensure the preferred measures, approach and technologies will be appropriate for the local conditions and financially sustainable and will focus the detailed analyses of Phase 2.

2. Phase 2 Deliverable

A detailed migration strategy and implementation plan. This document will present the results of detailed analyses of the financial, operational, and technical aspects of changing to lower carbon footprint technologies. It will identify and evaluate the issues to be addresses during the transition to lower carbon footprint technologies (i.e., operating and maintenance infrastructure) and present a migration strategy, financing strategy and implementation schedule. The two-phased approach to the project will maximize budget and schedule control and focus the detailed analyses to be performed during Phase 2. It will ensure all City of Saint John stakeholders will have adequate opportunity to provide informed input and consent, which in-turn will minimize risks to project success and allow the Phase 2 scope of work to be refined.

4.0 SCOPE OF WORK

The City is seeking a consultant team to help implement Phase 1& 2 of City of Saint John Public Transit and Fleet Low Carbon Migration Strategy.

Phase 1

1. Project initiation to confirm the Phase 1 project scope, objectives, deliverables, budget, and schedule.

2. Literature review of available information on greenhouse gas (GHG) emissions, current infrastructure, efficiency, operation and maintenance data, policies, etc. from City of Saint John public transit and fleet operations. This will ensure subsequent tasks will be based on the latest and best-practice GHG assessment methods and techniques.

3. Asses the current GHG emissions from Saint John Transit and Fleet, along with current lifecycle costs and social benefits.

4. Review the latest City of Saint John Public Transit, Fleet, Move SJ and other related plans to define the expected future demand, level of service, GHG emissions, lifecycle cost and social benefits.

5. Investigate the possibility of installing a data collection system for the transit buses to help the City make inform decision and increase operating efficiency as well as reduce GHG emissions.

6. Perform a landscape scan of public transit and municipal fleet operations in New Brunswick (Fredericton and Greater Moncton) and Canada (Halifax, Hamilton, Edmonton, Vancouver and a city in the Greater Toronto Area) to determine the current public transit and municipal fleet best practices and expected future changes. Current and expected future regulations, policy

objectives and GHG targets will be reviewed to identify regulatory and policy changes potentially affecting public transit operations.

7. Perform an options analysis of current public transit and municipal fleet technologies (diesel, electric, hybrid-electric, compressed natural gas and other (biodiesel, hydrogen). The GHG emissions, lifecycle costs, operating requirements (fueling and charging infrastructure, storage, maintenance, and staffing requirements) and operating limitations (maximum grades, minimum temperatures) will be quantified, including any new or upgrade infrastructure required on the fleet and transit buildings.

8. Eliminate policies, methods and technologies that do not align with City plans from further consideration and identify the preferred policies, methods, and technologies for detailed study during Phase 2.

9. Confirm the proposed recommendations with all City of Saint John stakeholders and obtain informed consent to proceed to Phase 2.

10. Prepare a report (Road Map) outlining the tasks to be performed during Phase 2 of the project by a specialty consultant with specialty expertise in the preferred technology.

11. Presentation to Senior Leadership Team and Council.

Phase 2

The following tasks will be performed by specialty consultant with experience in the preferred technology or technologies. The specialty consultant will solicit input from City Departments and staff and perform the tasks listed below.

1. Identify operating and infrastructure requirements of the preferred technologies.

2. Perform detailed analyses of the GHG reductions, life cycle costs and social benefits of the preferred polices, methods and technologies. The analysis should include potential provincial and federal funding. Proponent is to review potential federal and provincial agreement or other funding agreement available to the City Fleet and Public Transit Low Carbon Strategy.

3. Develop a migration strategy with an implementation schedule to transition the existing public transit and municipal fleet operations to a lower carbon footprint. The strategy will include indicators (regulator, policy, economic, social, and environmental) to allow the City to track the process of implementing the recommended changes.

4. Final Presentation to Senior Leadership Team and Council.

(B) Evaluation Criteria

(1) The following is an overview of the categories and weighting for the rated criteria relevant to the evaluation of proposals under this RFP.

Evaluation Criteria	Content	Weight
Quality	• Quality and completeness of submission	2.5%
Introduction and Project Appreciation	• Understanding of the Development and Implementation of the City of Saint John Public Transit and Fleet Low Carbon Migration Strategy • Set out team's approach Understanding of assignment • Understanding the role of the Proponent	15%
Proponent Profile	• Name, business address, telephone, website address of the firm(s); • Headquarters and regional business offices; • Date that the business was established and history of the firm(s); • Description of business structure (corporation, partnership, LLC); • Organization chart of the firm(s) or team assembled.	10%
Proponent Roles and Qualifications	• Key Personnel qualifications and experience, including a short biography of Key Personnel • Key Personnel roles and responsibilities • Two (2) references for Key Personnel • Resumes for Key Personnel • Demonstrated success and specialized experience in providing similar services of the type described in this RFP for at least three (3) projects of comparable size and scope. Provide references complete with addresses, contact person name, phone number, and e-mail address. • Evidence that the key management/personnel/staff/ support staffs assigned to this project have the qualifications and experience to successfully provides the requisite services. Provide resumes of all proposed staff assigned to the Project.	15%
Availability	• Discuss availability of Key Personnel	7.5%
Approach and Methodology	• Approach to work • Proposals must provide a detailed work plan and proposed schedule consisting of a flowchart or narrative description of the required tasks and estimated durations of these tasks under normal circumstances. The Proponent must clearly describe the methods proposed for carrying out the Public Transit and Fleet Low Carbon Migration Strategy	25%
Value Added	• Additional information, specialized knowledge, and options	5%
Proponent Costs	• Total fixed fee for Phases 1& 2 including the number of hours	20%

Evaluation Criteria	Content	Weight
and Remuneration	and team member involved • Cost for each task/activity of Phases 1& 2 including the number of hours and personnel involved • Disbursement cost estimate • Terms and conditions under which the Proponent might request a variation in the fixed fee • Fee schedule for Proponent including titles and hourly rates for additional services	

APPENDIX E – SUPPORTING DOCUMENTS

1. **City of Saint John Climate Change Action Plan**
2. **Corporate GHG Emissions and Energy Action Plan and Inventory**
3. **Green Our Fleet Policy**
4. **Fleet Rolling Stock**
5. **ORP Explanation**
6. **MoveSJ and Saint John Transit Operational Audit (Available on the City Website)**

SAINT JOHN

COUNCIL REPORT

M&C No.	2019-107
Report Date	May 02, 2019
Meeting Date	May 06, 2019
Service Area	Finance and Administrative Services

Approved by Council May 6, 2019

His Worship Mayor Don Darling and Members of Common Council

SUBJECT: City of Saint John Climate Change Action Plan

OPEN OR CLOSED SESSION

This matter is to be discussed in open session of Common Council.

AUTHORIZATION

Primary Author	Commissioner/Dept. Head	City Manager
Chair – Finance Committee	***Samir Yammine*** ***Ian Fogan*** ***Neil Jacobsen*** ***Kevin Fudge***	***John Collin***

RECOMMENDATION

It is recommended that Common Council approve the following Climate Change Action Items, subject to the City's Long-Term Financial Plan and required community energy partnerships:

1) City of Saint John Corporate GHG and Energy Action Plan attached at Appendix A and,
2) City of Saint John Community GHG and Energy Action Plan attached at Appendix B and,
3) Corporate GHG Emission Target of 30% by 2025 below 2015 levels and,
4) Community GHG Emission Target of 9% by 2025 and 18% by 2035, below 2015 levels and,
5) City of Saint John Corporate Operation to be Carbon Neutral by 2040 and,
6) City staff to establish a governance structure to manage/monitor the implementation of the community and corporate energy action plan and,
7) City of Saint John shall consider climate change impacts and mitigation measures in all future decision to ensure that residents, the built environment and infrastructure are protected and,
8) Approve the Declaration on Climate Change.

EXECUTIVE SUMMARY

The purpose of this report is to provide Council with an overall description of the City of Saint John vision, strategy and approach to address climate change across the organization and community at large. Additionally, this report is to seek Council approval to adopt the Community & Corporate GHG Action Plan and GHG emission targets that address Climate change impacts on the City Corporate operation and infrastructure as well as on residents and natural environment. The goal of the City Climate Change Action Plan is to position the City to address climate change impacts while pursuing economic development opportunities and transitioning to low carbon economy.

PREVIOUS RESOLUTION

In May 2016, Common Council (M&C 2016-121) requested staff develop a Community and Corporate GHG action plan to position the City to meet the goal of reducing GHG emissions while pursuing economic development goals

REPORT

The City's location on the Bay of Fundy, the St. John River, and the Kennebecasis River makes the community particularly susceptible to the effects of climate change and rising water levels. Additionally, the rising cost of energy and its impact on the City operating budget and community at large, as well as Canada, along with the commitment to reduce GHG emissions, has prompted many municipalities across Canada, including the City of Saint John, to take the necessary actions to adapt to climate change impacts.

Current Climate Change Actions and Initiatives

The following are a list of initiatives and actions that the City is taking to address climate change:

Municipal Energy Efficiency Program (MEEP)

The City of Saint John has been an early adopter of implementing energy efficiency measures in relation to municipal and water facilities. The City was one of the first, and one of the few, Canadian municipalities in Atlantic Canada to embark on creating a Municipal Energy Efficiency Program (MEEP). The program has been recognized regionally and nationally as best practice. The following are a list of environmental and economic benefits as of 2017:

- Reduced energy cost by over $2.3 Million
- Reduced Greenhouse Gas Emissions by over 9400 tons of CO2 or 24%
- Reduce Energy consumption by approximately 8.6 Million KWH and 35,000 GJ of Natural Gas and oil/propane or 30 %

- Received over $22 Million in Grants & Loans
- Implemented over 100 environmental initiatives

The City of Saint John shall capitalize on the success of the MEEP to transition the Corporate and Community to a low carbon economy as well as address climate change impacts.

Asset Management Policy

In March 2018, Common Council approved the Asset Management Policy that integrates climate change into decision-making on City's infrastructure assets such as roads, buildings, and water and wastewater systems.

The benefits of this policy are as follow:

- Increase the City's opportunity to obtain infrastructure funding from various level of governments and the Federation of Canadian Municipalities (FCM);
- Improve decision-making and risk management processes by considering the vulnerability of City assets to the effects of climate change; and
- Include asset management considerations in the City's capital and operating budget processes to better define and improve the City infrastructure's financial sustainability.

Climate Change Vulnerability Assessment Methodology and Analysis

The City of Saint John will be conducting vulnerabilities assessment on the City's critical assets such as roads, stormwater, buildings, etc. The vulnerabilities of municipal assets to climate events (both historic as well as expected future climate events) will be identified and quantified, and options to mitigate these vulnerabilities will be developed. This will increase the resiliency of municipal infrastructure during climate driven disasters, and will assist the planning and coordination of emergency response measures by the City of Saint John.

Climate Change Adaptation Plan

ACAP Saint John, with support from the Federation of Canadian Municipalities, has spent the past year working to develop a design-focused Climate Change Adaptation Study for three central neighborhoods in Saint John: the Central Peninsula, the Lower-West Side and the North End. This study included identifying three small neighborhood projects that will demonstrate climate adaptation in practice. The recently approved Rain Garden Project in Queen Square West is an example of one of these projects.

In collaboration with the City of Saint John, and through support from New Brunswick's Climate Change Secretariat, ACAP Saint John will also be developing

a Climate Change Adaptation Plan for the City. ACAP has recently initiated the second year of this project. The first year of this project saw the development of a steering committee consisting of stakeholders and city staff, identification of risks and vulnerabilities, and community engagement. The adaptation plan will incorporate Climate Change adaptation strategies for Stormwater management while identifying, assessing and mapping risks and vulnerabilities in the City, and developing adaptation methods to increase resiliency throughout Saint John. The project will provide a robust understanding of climate change related issues for adapting our region and direct both the City of Saint John and ACAP Saint John in on-the-ground adaptation actions and capital investments.

Project findings will be included in revised editions of the Municipal Plan and will influence the future growth and development of City neighborhoods and neighborhood dialogue. In-person discussions and community sessions hosted by both ACAP and the City of Saint John will be the primary means of community engagement and consultation, while ACAP will continue to engage citizens with best practices for Stormwater management and community placemaking projects through its well-established social media networks and local media outlets. Guides to building retrofits, rain-gardens and the value of green infrastructure will also be made available via printed and online materials.

ACAP will present its final Adaptation Plan to Council for adoption by March 2020.

Community Resilience Action Plan

The City of Saint John will work with six municipalities across Canada to develop a climate risk and vulnerability assessment, using a variety of tools/methods. The process will result in recommendations for improving resilience and adapting to climate change, **with a specific focus on the impacts of prolonged outages of energy supply on essential community services.** This project is part of the "Municipalities and Utilities Partnering for Community Resilience" led by QUEST.

QUEST is national organization, best known for its work to advance Smart Energy Communities in Canada, which not only reduce greenhouse gas emissions (GHGs) but also help improve resilience at a local level.

Deliverables:

- Climate risk and vulnerability assessment, with a particular view on the role of energy (Completed).
- Recommendations to improve resilience / reduce risk, with a focus on reducing the impact of climate change on energy / municipal services that depend on energy.
- Strategy to integrate recommendations with existing municipal processes and plans e.g. Climate Change Adaptation Plan, Asset Management Plan, Emergency Plan, etc.

- Access to a network of municipalities from across Canada that are actively working with their utilities to respond to the impacts of climate change.

What was accomplished to date:

- Conducted baseline survey
- Compiled climate data / projections
- Conducted 1st workshop in Saint John, to assess strengths and weaknesses (included presentations and 3 table-top exercises)
- Engaged energy utilities, Emergency Measures, Insurance Bureau, and Department of Environment to share lessons learned
- Conducted Detailed Hazard-Specific Analysis
- Prepared assessment report
- Monthly calls with all 6 participating municipalities

Next steps:

- Submit recommendations for consideration
- Hold workshop #2 to discuss recommendations, identify priorities (June 12, 2019)
- Produce report for each community (Fall 2019)
- Produce a guide for all Canadian Municipalities (December 2019)

Funding:

This project is supported through a grant provided by FCM's Municipalities for Climate innovation Program, Climate Adaptation Partner grants, and funded by the Government of Canada

CORPORATE & COMMUNITY GHG & ENERGY ACTION PLAN

General

In May 2016, Common Council (M&C 2016-121) requested staff to develop a Community and Corporate GHG action plan to position the City to meet the goal of reducing GHG emissions while pursuing economic development goals.

Both plans were completed in January 2019 by involving major community stakeholders in the planning, analysis and development of the action plan, strategy and GHG emission target.

The major stakeholders that were involved in the development of the community GHG plan are as follow:

- Saint John Energy
- Horizon Health
- Province of NB Department of Energy
- Sustainability SJ

- Quest
- Irving Oil
- Canaport LNG
- MCW Consultant
- Fundy Regional Solid Waste
- Commercial Properties
- Atlantica
- City of Saint John Various Departments
- NB Power Energy Efficiency Group
- Province of NB Environment and Local Government
- University of NB SJ Campus

The GHG Action Plan consists of the following:

- Goals
- Greenhouse Gas Emission Inventory
- Emission Reduction Target
- Action Plan and Strategy
- Benefits

Corporate GHG & Energy Action Plan

Goals

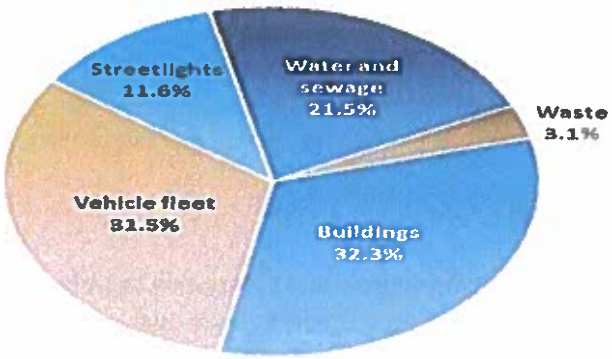
The following are the objectives and goals of the corporate GHG Action Plan:

- Reduce total energy use and GHG emissions
- Help community and business sectors with the lesson learned
- Advise Council and Senior Staff on Energy Policies, Standards, Guidelines and procurement of environmentally sound equipment
- Raise environmental efficiency awareness among staff
- Foster a shift towards low carbon technologies

Greenhouse Gas Emission Inventory

The following are the GHG emission inventory for the City of Saint John Corporate Operation including Fleet and Transit assets

GHG Emissions Breakdown by Sector Type (teCO2)



Energy Costs and eCO_2 Emission by Source

Energy Type	Total Use	Energy (GJ)	Total Cost ($)	Total eCO2 (t)
Electricity	48,111,540	173,202	4,089,481	13,471
Natural Gas	971,119	38,107	830,015	1,857
CNG	0	0	0	0
Diesel	2,037,035	78,018	2,193,854	5,466
District Energy	0	0	0	0
Ethanol Blend (10%)	0	0	0	0
Biodiesel (B5)	0	0	0	0
Biodiesel (B10)	0	0	0	0
Biodiesel (B20)	0	0	0	0
Fuel Oil	12,767	495	9,703	35
Gasoline	788,719	27,605	806,016	1,924
Propane	180,007	4,556	72,003	278
Waste	-	-	-	744
Total		**321,983**	**8,001,071**	**23,776**

Emission Reduction Target

City staff has established a GHG emission target of 30% by 2025 below 2015 levels. The target was established by conducting in house energy analysis and identifying energy saving opportunities for individual municipal and water facilities as well as for the corporate fleet.

	Tons of CO_2 equivalent	Year Base 2015	Forecast 2025
1	Current Emissions	23 776,2	
2	Reduction Target		30,0%
3	Forecast emissions (target) (line 1-line 4)		16 643,3
4	**Total reductions to be achieved** (line 1-line 3)		**7 132,9**

Action Plan and Strategy

City staff has identified various actions and strategies to help achieve the GHG emission target by 2025. Each action/strategy was evaluated in terms of economic and environmental benefits and required capital investment. Further analysis is still required to develop an implementation plan for each strategy. Furthermore, additional action or strategy might be added to help achieve the GHG emission target.

The following are high level actions and strategies for the corporate plan:

- Fleet & Transit Strategy
  - Optimal Vehicle Replacement
  - Idle-free strategy
  - Electric Vehicle
  - Training & Education
- Deep Buildings Energy Retrofit
  - Energy Efficiency Measures
  - Peak Load Shedding
  - Renewable Energy Measures
  - Energy Monitoring & Tracking
  - Training & Education

Benefits

The implementation of the proposed energy saving measures will result in the following environmental and economic benefits:

- Over $2.2 Million annual savings
- 7,132 Tonnes of CO2 annually
- Carbon saving $356,000 (Assuming $50 per Tonnes of CO2)
- Over $300,000 annually saving in maintenance
- Displace over 250,000 GJ of NG (25 Years) and 360,000 liter of gasoline & diesel annually
- Divert over $50 Million (lifetime of the project) in energy into the local economy

The City has already implemented some of these measures in 2016/2017 and have resulted in the following early benefits:

- 9.7% reduction in GHG emission
- 2,295.8 Tonnes of CO2
- $229,000 annually

Community GHG & Energy Action Plan

Goals

The following are the objectives and goals of the community GHG Action Plan:

- Foster a shift towards low carbon technologies
- Increase energy efficiency for new and existing buildings
- Build awareness about energy investment and create a culture of energy conservation among residents, business, institutions, and industry
- Build knowledge, skills and technical capacity through partnerships
- Develop collaboration between the various community stakeholders

GHG Emission Inventory

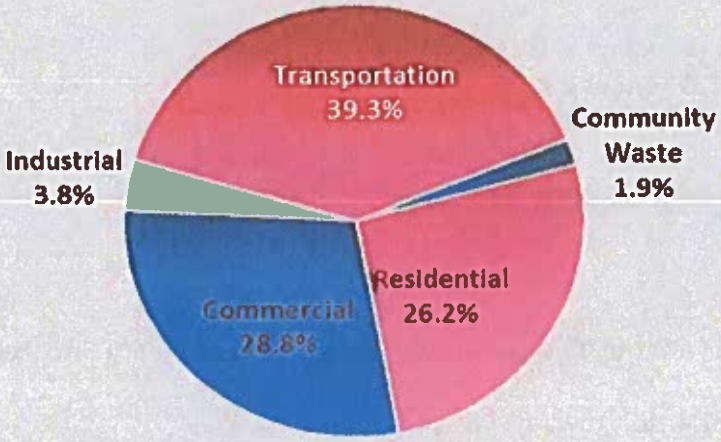
The following are the GHG emission for Saint John Community excluding large industries:

• Community Inventory Summary

Energy Usage and eCO2 Emission by Source

Energy type	Total Use	Cost	Energy (GJ)	Total eCO2 (t)
Electricity	955,491,860	$ 95,549,186.00	3,439,771	267,538
Fuel Oil	29,536,412	$ 23,629,129.90	1,146,013	80,787
Natural Gas	10,391,032	$ 238,993,733.33	407,744	19,770
Diesel - Buildings	0		0	0
Heavy fuel oil	2,958,875	$ 1,479,437.74	125,752	9,306
Propane - Buildings	4,420,006	$ 1,989,002.79	111,870	6,825
District Energy	0		0	0
Gasoline	68,613,182	$ 80,963,555.30	2,401,461	167,384
Diesel - transportation	32,599,587	$ 38,467,512.07	1,248,564	87,479
Ethanol Blend (10%)	686,446	$ 810,006.09	23,229	1,507
Biodiesel (B5)	0		0	0
Biodiesel (B10)	0		0	0
Biodiesel (B20)	0		0	0
Propane - transportation	12,441		315	19
CNG	1,266		48	4
Waste	-		-	12,534
Total	**1,104,711,108**	**$ 481,881,563.22**	**8,904,768**	**653,152.0**

GHG Emissions Breakdown by Sector Type (teCO2)



Emission Reduction Target

City staff, in cooperation with the various stakeholders, has established a GHG emission target of 9% by 2025 and 18% by 2035 below 2015 levels. The target was established by identifying energy saving opportunities for the various sectors: Transportation, Energy Efficiency, Renewal Energy Opportunities, along with others.

Community Energy & GHG Action Plan

Baseline and Target

		Year		
		Base	Forecast	Forecast CGHGEP
	Tons of CO2 equivalent	2015	2025	2035
1	Current Emissions	653,152		
2	Community Emissions Forecast (BAU Scenario)		*650,906*	*648,660*
3	Reduction Target		9.0%	18.0%
4	Forecast emissions (target) (line 1 - line 5)		594,368	535,585
5	Total reductions to be achieved (line 1 - line 4)		58,784	117,567
6	Total reductions to be achieved (including BAU Scenario)		56,538	113,075

Action Plan and Strategy

City staff in cooperation with the various stakeholders such as Saint John Energy, Quest, NB Power Energy Group, Irving Oil, etc. has identified various actions and strategies to help achieve the GHG emission target by 2025. Each action/strategy was evaluated in terms of economic and environmental benefits and required capital investment. Further analysis is still required to develop an

implementation plan for the individual strategies. Furthermore, additional action and strategies might be added in order to achieve the GHG emission target.

The following are high level actions and strategies for the community plan:

- **Local Renewable Energy Production**
  - Renewable energy resources (Wind & Solar) of 6% of SJE's total energy by 2025
  - District Energy System
  - Improve SJE Load Factor from 71% to 75%
  - SJE System efficiency (2% by 2030)
- **Transportation**
  - Idle-free Strategy
  - Electric Vehicle Community Program (220 Vehicle by 2025)
  - Fuel Efficiency Driving
  - Efficient & Compact Vehicles
- **Energy Efficiency**
  - LED Lighting (60%)
  - Energy Efficiency Products (HP, DHW) for residential (25%/10%)
  - Energy Efficiency for commercial and residential (15%/10%)
  - Clean Energy Conversion (15%/10%)
- **Clothesline Program**

Benefits

The implementation of the proposed energy saving measures will result in the following environmental and economic benefits to the community:

- Over $44 Million annual savings
- 56,000 Tonnes of CO2 annually
- Carbon saving $2.8 Million (Assuming $50 per Tonnes of CO2)
- Displace over 1 Million of NG annually and 7.5 Million liter of gasoline & diesel annually
- Divert over $1.1 Billion (25 years) in energy into the local economy
- Local Green Energy Jobs

NEXT STEPS

Following is a list of action items that must be completed prior to implementing the proposed strategies for the corporate and community GHG action plans:

- Present the Plan to the Community
- Develop an Implementation and Monitoring Plan
- Establish a Governance Structure
- Prioritize the list of the Corporate projects
- Solicit Federal and Provincial Funding

STRATEGIC ALIGNMENT

The current climate change action strategies to address climate change mitigation and adaptation are clearly aligned with the following City plans, policies, Council Priorities, and provincial and federal government's strategy:

Plan SJ

- Reduces the City's ecological footprint and strives toward greater long term environmental sustainability for future generations
- Conserves energy and reduces energy use through sustainable building design, alternative energy systems and reduced auto dependence
- Develops effective policy on climate change and integrates mitigation and adaptation actions that can be influenced through land use policy
- Working with the Government of New Brunswick, the Government of Canada and relevant agencies to reduce local emissions of greenhouse gases

Integrated Community Sustainability Plan (ICSP)

- Saint John leads the nation as an example of a sustainable community
- Sustainability Themes on the Environment: We have an inherent responsibility and are dedicated to living in balance with our natural settings and decreasing our demands on finite natural resources

Council Priorities

Value Service Delivery: Saint John invests in sustainable City Services and municipal infrastructure. Our community is engaged and understands what is expected from service delivery.

Saint John Energy, Energy Efficiency and Renewal Initiatives

Paris Climate Change Agreement

As part of the Paris Climate Change Canada Agreement, the Federal Government has committed to reduce GHG emission by 30% by 2030 from 2005 levels

Province of New Brunswick's Climate Change Action Plan

Transitioning to a Low-Carbon Economy

SERVICE AND FINANCIAL OUTCOMES

The total costs of the current Climate Change Action Plan activities and initiatives are provided by the Federation of Canadian Municipalities, Province of NB Environmental Trust Fund, NB Power Energy Programs, Green Infrastructure Funding Programs and City of Saint John General Fund. Furthermore, the City of Saint will be seeking funds for future projects and initiatives from the following sources:

- Green Infrastructure Funding Program
- Integrated Bilateral Program
- NB Power Energy Efficiency Program
- Green Municipal Fund (GMF)
- Low Carbon Economy Fund Program
- ACOA Funding Programs
- Others such as industries, utilities, etc.

INPUT FROM OTHER SERVICE AREAS AND STAKEHOLDERS

The current climate change action plans and programs have been reviewed by City of Saint John Growth and Community Development and Corporate Planning Departments, Saint John Energy and Quest. Additionally, community stakeholders were engaged in the development of the community GHG and Energy Action Plan. The City of Saint John will continue working with Saint John Energy and other stakeholders to establish a governance structure to manage and monitor the successful implementation of the action items and strategies.

ATTACHMENTS

Appendix A- Corporate GHG and Energy Action Plan
Appendix B- Community GHG and Energy Action Plan

Approve by Council May 6, 2019

Climate Change Declaration

WHEREAS, it is well established that climate warming is causing significant disruptions to the world's climatic systems, increasing the frequency of extreme weather events and posing other significant risks such as drought, forest fires, floods and rising sea levels, and that these disruptions in our climate pose threats to our natural environment, our health, our jobs and economy, and,

WHEREAS, Local governments are essential to the successful implementation of the urgent measures required to limit the global climate impact, and,

WHEREAS, Local governments around the world are taking new actions to avoid the worst impacts of climate breakdown and calling on senior levels of government for a more urgent response, and,

WHEREAS, the City of Saint John's Asset Management Policy requires Climate Change to be considered in all capital investment decisions

WHEREAS, the City of Saint John has been taking action on sustainability and has as a Corporate Plan to reduce greenhouse gas emissions, and

WHEREAS, the City of Saint John is also a participant in the Community Greenhouse Gas Action Plan.

THEREFORE BE IT RESOLVED;

That Common Council of the City of Saint John endorse the Climate Change Action Plan as presented to Council on May 6, 2019.

That Council call upon our Federal and Provincial governments to support the City of Saint John in its efforts to deal with Climate Change and to do what is necessary and required now to create a safe and liveable future for our generation and those who follow.

That the City Manager provides regular updates to Common Council on the City's Climate Change Action Plan including new initiatives, challenges and successes.

City of Saint John Corporate GHG & Energy Action Plan

January 2019

Realised with the Union of the Municipalities of New Brunswick

Consulting team YHC ENVIRONNEMENT

Financed by FCM

New Nouveau Brunswick
Your Environmental Trust Fund at Work
Votre Fonds en fiducie pour l'Environnement au travail

The preparation of this plan was carried out with assistance from the Green Municipal Fund, a Fund financed by the Government of Canada and administered by the Federation of Canadian Municipalities. Notwithstanding this support, the views expressed are the personal views of the authors, and the Federation of Canadian Municipalities and the Government of Canada accept no responsibility for them.

SAINT JOHN

CONTENTS

Corporative GHG Inventory & Action Plan

I. Introduction

A. Context

The simple fact of having asked for a greenhouse gas inventory and an action plan to reduce it already demonstrates the willingness of Saint John's elected officials and municipal leaders to do their part in the protection of air quality and the environment!

Communities across Canada are facing the effects of climate change. Some have to deal with greater droughts, others with more violent storms. For example, shorter and warmer winters accentuate coastal erosion and damage to infrastructure, which is less well protected due to loss of coastal ice. Such repercussions will cost municipalities and their communities millions of dollars and the implementation of adaptation and mitigation measures in and for communities seems inevitable today. Municipal governments have a leading role to play in climate protection. They have direct or indirect control over nearly half of Canada's greenhouse gas (GHG) emissions (350 million tons).

Canada's goal is to reduce its GHG emissions by 30% below 2005 levels under the Paris Agreement.

I. INTRODUCTION

B. UMNB CCEI & PPC

CLIMATE CHANGE AND ENERGY INITIATIVE (CCEI) - Municipalities in New Brunswick are increasingly aware of environmental challenges they face, and are particularly concerned with actual and future impacts of climate change. The City of Saint John joined the Climate Change and Energy Initiative of the Union of Municipalities of New Brunswick, to reinforce its efforts to advance in the Partners for Climate Protection program (PCP). The UMNB initiative fits perfectly in the global and national context of addressing climate change, following the Paris Agreement (COP 21).

The UMNB CCEI aims to offer support to members to realize their corporate and community GHG inventories and Local Action Plan, as well as integrate the QUEST Community Energy Planning approach.

THE PARTNERS FOR CLIMATE PROTECTION (PCP) PROGRAM is a network of Canadian municipal governments that have committed to reducing greenhouse gases (GHG) and to acting on climate change. Since the program's inception in 1994, over 300 municipalities have joined PCP, making a public commitment to reduce emissions. PCP membership covers all provinces and territories and accounts for more than 65 per cent of the Canadian population**.** PCP is the Canadian component of ICLEI's Cities for Climate Protection (CCP) network, which involves more than 1,100 communities worldwide. PCP is a partnership between the **Federation of Canadian Municipalities (FCM) and ICLEI** — Local Governments for Sustainability.

As a member of UMNB, the City of Saint John has agreed to participate in CCEI.

Link to: ACTION-GHG Saint John

I. Introduction

C. Partners for Climate Protection Program (PCP) - Method

UMNB CCEI allows participating municipalities to complete the first 3 steps of the Partners for Climate Protection (PCP) program. Steps 4 and 5 consist of the implementation of action plans and the monitoring and reporting of results.

MILESTONE 1 CREATING A GREENHOUSE GAS EMISSIONS INVENTORY AND FORECAST

A greenhouse gas inventory brings together data on community and municipal energy use and solid waste generation in order to estimate greenhouse gas (GHG) emissions in a given year. The forecast projects future emissions based on assumptions about population, economic growth and fuel mix.

MILESTONE 2 SETTING AN EMISSIONS REDUCTIONS TARGET

An emissions reduction target can be established at any time. The target is normally set, however, following the development of an emissions inventory and forecast or after the quantification of existing emissions reduction measures.

MILESTONE 3 DEVELOPING A LOCAL ACTION PLAN

A Local Action Plan (LAP) is a strategic document that outlines how your municipality will achieve its greenhouse gas (GHG) emissions reduction target. The LAP covers municipal operations and the community.

II. Strategy

A. City of Saint John - CCEI Objective and Strategy

City of Saint John CCEI aims to design and implement projects:

- ✓ Which will be examples and role models for New Brunswick and other communities in Canada;
- ✓ Which will improve the quality of life of communities and can guarantee a better environment and economic benefits (energy savings, income, job creation);
- ✓ Which will develop expertise for UMNB members and for New Brunswick.

The strategy is based on the following principles:

1. Build an action plan and portfolio of environmentally and economically successful projects;
2. Design model and innovative projects;
3. Set ambitious and achievable reduction targets;
4. Build on existing programs and funds: for example, FCM and GMF programs, Environmental Trust Fund, NB Power programs, etc. ;
5. Maximize benefits for participating municipalities, their region.

II. Strategy

B. Plan SJ policies that would support the Community and Corporate Energy Plan

1. NE-4 Encourage reduced automobile emissions by promoting a more compact, mixed-use development pattern and making walking, cycling and transit use viable transportation choices.

2. NE-5 Work with the Government of New Brunswick, industry and other agencies to develop and implement clean air initiatives, including emission reduction strategies.

3. NE-7 Reduce emissions from City Infrastructure, including buildings and fleets, through corporate purchasing and operating policies that support the Municipal Energy Efficiency Program.

4. NE-37 Continue to improve the energy efficiency of municipal service delivery, including facilities, equipment, fleet, street-lights, and procurement through the Municipal Energy Efficiency Program.

5. NE-38 Explore and encourage the development and use of alternative energy sources, such as solar, wind, geothermal, biomass and energy recovery.

6. NE-39 Encourage excellence in energy efficiency in new development in retrofitting of existing development.

7. NE-40 Support public education and action on the use of alternative energy sources and energy efficiency measures.

8. NE-41 Work with relevant agencies to develop and implement an Energy and Greenhouse Gas Emissions plan for the City.

9. TM-12 Encourage and promote the use of the active transportation network by residents as a healthy transportation choice by undertaking such initiatives as public education campaigns, mapping of the network and way-finding signage.

10. TM-22 Recognize and promote public transit as an important component of a sustainable urban transportation system which contributes to economic development and helps the City achieve its environmental goals and objectives.

11. TM-23 Provide effective fiscal support for efficient, affordable, safe and convenient transit services linking major employment, commercial, residential and recreational areas.

12. NE-42 Work with the Government of New Brunswick, the Government of Canada and relevant agencies to support research efforts that better quantify the predicted impacts of climate change.

13. NE-43 Proactively plan for climate change by taking action to manage the effects of climate change and minimizing adverse impacts through the development of a Climate Change Plan in partnership with other levels of government.

(continued)

B. PLAN SJ POLICIES THAT WOULD SUPPORT THE COMMUNITY AND CORPORATE ENERGY PLAN

14. NE-44 Mitigate local contributions to climate change by:

a. Working with the Government of New Brunswick, the Government of Canada and relevant agencies to reduce local emissions of greenhouse gases;

b. Working with the Government of New Brunswick and Saint John Energy to explore renewable sources of energy;

c. Supporting initiatives to increase public awareness and action on the reduction of greenhouse gas emissions;

d. Encouraging excellence in emissions reduction and green building standards for all development; and

e. Recognizing that a variety of initiatives, such as the development of complete communities, increasing economic diversification, offering a range of transportation choices and encouraging local food production all contribute to mitigation of greenhouse gas emissions.

15. MS-1 Ensure the first priority for the City is to maintain and upgrade existing municipal servicing systems.

16. MS-7 Develop an asset management system that will inventory and manage the replacement of infrastructure in an effort to optimize service delivery over the life of an asset.

C. GHG EMISSION REDUCTION TARGET

For PCP and GMF, the GHG emission reduction targets of participating municipalities are set on a voluntary and non-binding basis. It is important that the targets are ambitious while being realistic both in their importance (projected reductions) and in their duration (year of maturity).

Before setting the reduction targets and the action plan timeline, we took into account:

- PCP and GMF recommendations.
- The objectives of the Government of New Brunswick.
- The GHG reduction potential of the municipality and its community.

The PCP and GMF make the following recommendations:

- For **the Corporate component**, that is, the municipality itself, the recommended target is -20% over the reference year, within 10 years. Thus, if the reference year is 2015, the year of maturity will be 2025.
- For the **Community component,** that is to say citizens, businesses, etc., the recommended target is -6% over the base year, within 10 years.

**** The New Brunswick's Climate Change Action Plan "Transitioning to a Low-Carbon Economy" (2017) - The provincial government will:*** *31 - Establish specific GHG emission targets for 2020, 2030 and 2050 that reflect a total output of:*
a - 14.8 Mt by 2020;
b - 10.7 Mt by 2030; and
c - 5 Mt by 2050.

III. City Profile

Profile of the municipality and its geographical context

The City of Saint John is located in southern New Brunswick, in the County of Saint John, of which it is the chief City. Saint John is 415 kilometers west-northwest of Halifax, 915 kilometers east of Montreal and 650 kilometers northeast of Boston. Located at the mouth of the Saint John River on the edge of the Bay of Fundy, the City, with its port, occupies an important place in the economy of the Maritimes. Saint John is the oldest incorporated municipality in Canada and the second largest City in New Brunswick after Moncton.

Municipal composition

- 1 mayor, 2 general councillors and 8 neighborhood councilors
- 682 full time employees and seasonal staff and 203 police employees

Municipal infrastructures

- 183 buildings, lighting, water and sewage
- 429 vehicles and motorized equipment

Profile of the community

The population of Saint John in 2016 was 67,575 inhabitants spread over an area of 315.96 km^2, a density of 213.9 hab./km^2. It experienced a population decrease of 3,6% from 2011 to 2016. The City had 33,801 private dwellings in 2016, of which 30,208 were occupied by full time residents. 81% of dwellings were built before 1991.

The official languages spoken by the Saint John population are 86% English, 0,15% French, and 13% both French and English.

In Saint John:

- Public library
- University
- Elementary School
- Middle School
- High School
- Harbor
- Airport
- Ferry
- City Transit
- Bus Rapid Transit
- Taxi Service
- Camping
- Marina
- Outlets
- Shopping Centers
- Market Square
- Parks
- Beaches
- Ice Rinks

Skateboarding Parks
Play Parks
Sporting Facilities
Golf Courses
Aquatic Facilities
Trails

III. City Profile

CLIMATE CHANGE AND ENERGY INITIATIVE (CCEI)

Municipalities in New Brunswick are increasingly aware of environmental challenges they face, and are particularly concerned with actual and future impacts of climate change. The City of Saint John joined the Climate Change and Energy Initiative of the Union of Municipalities of New Brunswick, to reinforce its efforts to advance in the Partners for Climate Protection Program (PCP).

The UMNB initiative fits perfectly in the global and national context of addressing climate change, following the Paris Agreement (COP 21).

The UMNB CCEI aims to offer support to members to realize their corporate and community GHG inventories and Local Action Plan, as well as integrate the QUEST Community Energy Planning approach.

- Climate Change and Energy Initiative (CCEI) of the Union of Municipalities of New Brunswick, 2017
- City of Saint John, NB, Saint John City Market energy upgrades, 2018
- Asset Management Policy and Strategy, 2017
- Municipal Energy Efficiency Program (MEEP), 2014
- Our Saint John, Integrated Community Sustainability Plan, 2009
- Member – Partners for Climate Protection program, FCM, 2006

The City of Saint John has eight public electric charging stations* on its territory.

*Listed by PlugShare (July 2018)

Municipal Energy Efficiency Program (MEEP)

Goals and Objectives:

- ✓ Reduce total energy use and GHG emissions by 35%
- ✓ Assist other municipalities, communities and business sectors using lessons learned
- ✓ Advise Council and Senior Staff on energy policies, standards, guidelines and procurement of environmentally sound equipment
- ✓ Raise energy awareness amongst staff

Provincial, National and International Awards

- Premier's Award - Energy Efficiency 2011- Commercial Energy Efficiency Champion
- Top 13 in North America for Best Energy Management Practices
- Milton F. Gregg Conservation Award
- FCM-CH2M Hill Sustainable Community Award 2008: Energy
- Canadian Association of Municipal Administrators (CAMA) 2004: Environmental Award
- Government of New Brunswick Community Recognition Award
- Premier's Award - Energy Efficiency for New Construction of Police Headquarters and Transit Operations Building
- 2017 Smart Community Award Presented by QUEST

Environmental, Social and Economic Benefits

The City of Saint John has been early adopter of new advances, technologies, and approaches and a strong promoter of efficiency awareness amongst staff and management. The MEEP has proven to be successful in reducing energy costs and GHG emissions, and this success has showcased the City as a leader in Sustainable Energy Management. Following are some of the accomplishment and benefits of the MEEP as of 2015:

- Energy savings of over $2.3M
- Reduced energy consumption by approximately 8.6M KWH and 49,000 GJ of natural gas and oil/propane, or 30%, from baseline
- Greenhouse gas emissions reduced by 9400 tons of CO_2, or 24%, from baseline, with emission reductions expected to meet and exceed the 35% reduction target by 2020 as indicated in the MEEP objectives
- Help other NB municipalities such as Moncton and Fredericton to undertake their own climate change and energy efficiency initiatives
- Capital Investment of over $5 million in energy efficiencies measures to reduce GHG emissions

Corporate GHG Inventory

IV. Inventory

The City of Saint John has joined the Climate Change and Energy Initiatives Program by commissioning UMNB and YHC Environnement to develop an inventory of its GHG emissions that will be used to develop an action plan that includes a suite of measures. to control and reduce GHG emissions from their sources.

Saint John's emissions inventory consists of two separate components. The first is emissions from the activities of the municipal administration (the Corporate) and the second covers the entire territory of the Municipality (the Community).

This document covers the Greenhouse Gas Emission Inventory for the 2015 reference year of the Corporate Component of the City of Saint John. The relevant additional elements are detailed in the appendices.

IV. Inventory

A. Summary

The corporate component consists of five emission sectors which, in Saint John's case, are responsible for approximately 23 776 tons of CO_2 equivalent. The two largest corporate GHG emission sectors are buildings and vehicle fleet. The former produce 32.5% of corporate GHGs, the latter generate 31.1%. Water and sewage is responsible for 21.6% of the Municipality's emissions, streetlights 11.7% and finally 3.1% of emissions are attributed to municipal waste.

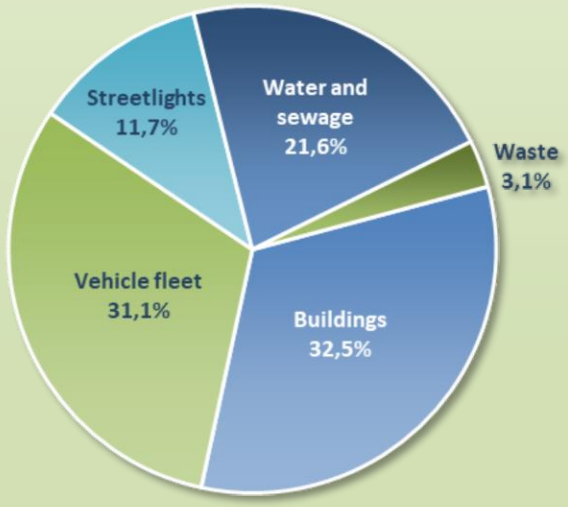
Table 1 :

Corporate GHG Emissions for the base year

GHG (tons eCO2)	2015
Buildings	7 737
Vehicle fleet	7 390
Streetlights	2 771
Water and sewage	5 134
Waste	744
Total	23 776
Population	67 575
GHG per capita (teCO2)	0,4

Graph 1 :

Corporate GHG Emissions Breakdown by Sector ($teCO_2$)



IV. INVENTORY

A. SUMMARY (continued)

In 2015, the energy consumption of the various corporate activities of the Municipality was the source of 23 031.8 tons of emissions (CO_2 equivalent). For its energy needs, Saint John uses electricity, natural gas, fuel oil and propane for heating and two types of fuels for vehicles. Electricity, natural gas, fuel oil and propane are devoted to the energy demand of buildings and other infrastructure. Gasoline and diesel are used by the fleet of vehicles and various equipment and tools of the municipal administration.

TABLE 2 : CORPORATE GHG EMISSIONS AND ENERGY CONSUMPTION BY TYPE

Energy	2015					
	Volume	Units	($teCO_2$)	%	(Gj)	%
Electricity	48 111 540	kWh	13 471,2	58,5%	173 201,5	53,8%
Natural Gas	971 119	m3	1 857	8%	38 107	12%
CNG	0	Liters	0	0%	0	0%
Diesel	2 037 035	Liters	5 466,2	23,7%	78 018,4	24,2%
Gasoline	788 719	Liters	1 924,1	8,4%	27 605,2	8,6%
District Energy	0	Gj	0	0%	0	0%
Ethanol Blend (10%)	0	Liters	0	0%	0	0%
Biodiesel	0	Liters	0	0%	0	0%
Fuel Oil	12 767	Liters	34,9	0%	495,4	0%
Propane	180 007	Liters	277,9	1,2%	4 556,0	1,4%
Waste	-		-		-	
Total			**23 031,8**		**321 983,2**	

IV. Inventory

B. Corporate Emissions Forecast

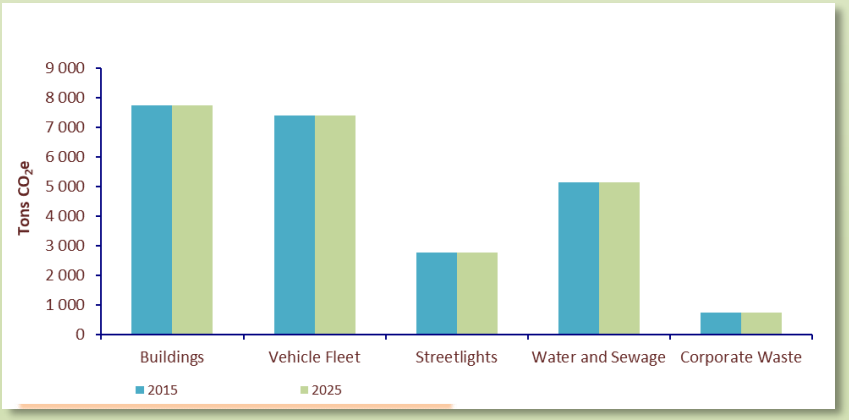
The corporate inventory of GHG emissions is only valid for the reference year. The forecast emissions seek to show how inventory emissions will evolve at the end of the action plan (2025), based on a business as usual scenario (BAU), i.e. without any direct intervention from the decision makers. Factors such as demographic change or economic conditions are taken into account in determining future levels of current emissions.

For Saint John, the business as usual scenario anticipates that, apart from the present action plan reduction, the level of the corporate GHG emissions will remain stable.

Table 3 :

Corporate Emissions Forecast by Sector

	Current emissions	% Change Expected**	Emissions in Forecast year
Buildings	7 736,8	0,0	7 736,8
Vehicle Fleet	7 390,3	0,0	7 390,3
Streetlights	2 770,6	0,0	2 770,6
Water and Sewage	5 134,1	0,0	5 134,1
Corporate Waste	744,4	0,0	744,4
Émissions total (t CO_2e)	**23 776,2**		**23 776,2**



IV. Inventory

B. Corporate Emissions Forecast (continued)

The portrait of the corporate inventory of GHG emissions is only valid for the reference year. The projected emissions, seek to present how inventory emissions will evolve at the end of the action plan (2025), based on a business as usual scenario, ie without any direct intervention of the decision-makers. Factors such as demographic change or economic conditions are taken into account in determining future levels of current emissions.

For Saint John, the business as usual scenario anticipates that, apart from the present action plan reduction, the level of the corporate GHG emissions will remain stable. This action plan is expected to bring them down by 30% (Graph 2).

Table 4 :

Corporate Information

Base Year	**2015**
Forecast Year*	**2025**
Reduction Target by Forecast Year* (%)	**30,0%**

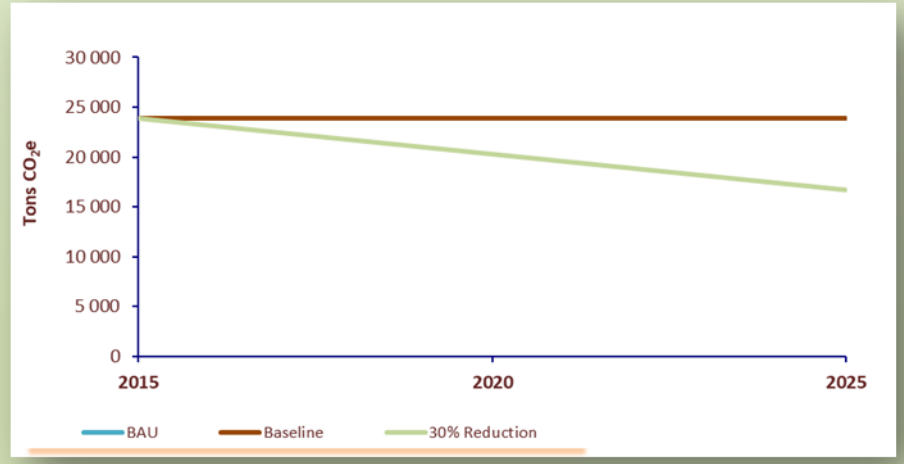
Baseline: 2015 (Base year)

BAU: Business as usual scenario forecast (when BAU scenario predicts no change in GHG emissions, it equals to Baseline)

2025: Action Plan deadline

Graph 2 :

Forecast of corporate GHG emissions until 2025



V. Action Plan

GHG & Energy Action Plan

V. Action Plan

A. Strategy for GHG Reduction and Project Selection

Corporate Action Plan

As noted in Section II - Strategy, for PCP and GMF, the GHG emission reduction targets of participating municipalities are set on a voluntary and non-binding basis.

Taking into account the context of the Municipality, the corporate plan proposes the achievement of a target of 30% reductions in GHG emissions for 2025 according to the reference year 2015.

Table 5 :

Objectives and Year

Objectives and year set by Saint John:		
Corporate Action plan :		
		• Reduction Target : 30%
		• Base year : 2015
		• Forecast year : 2025

V. Action Plan

A. Strategy for GHG Reduction and Project Selection

Guiding Principles

The approach behind the development of the City of Saint John's Action Plan as part of UMNB's CCEI is to develop an action plan that includes projects which :

1) **Improve the quality of life of communities (better environment and savings)**
   - ✓ Generate GHG emission reductions that meet the goals and needs of the community ;
   - ✓ Allow as much as possible to generate energy savings that guarantee the sustainability of the actions of the Municipality and its community.
2) **Use community resources to develop the expertise of UMNB and New Brunswick members**
   - ✓ Optimize the use of community resources and know-how to maximize socio-economic benefits;
   - ✓ Help develop local and regional expertise to increase the knowledge of communities and New Brunswick..
3) **Will become examples and models for New Brunswick and other communities in Canada**
   - ✓ The projects must enable UMNB member municipalities to stand out/take leadership, to respond to challenges of climate change for New Brunswick communities, to protect the environment, improve the quality of life, and become role models for action and resilience.

V. Action Plan

A. Strategy for GHG Reduction and Project Selection

Global Approach

«Good practice» projects

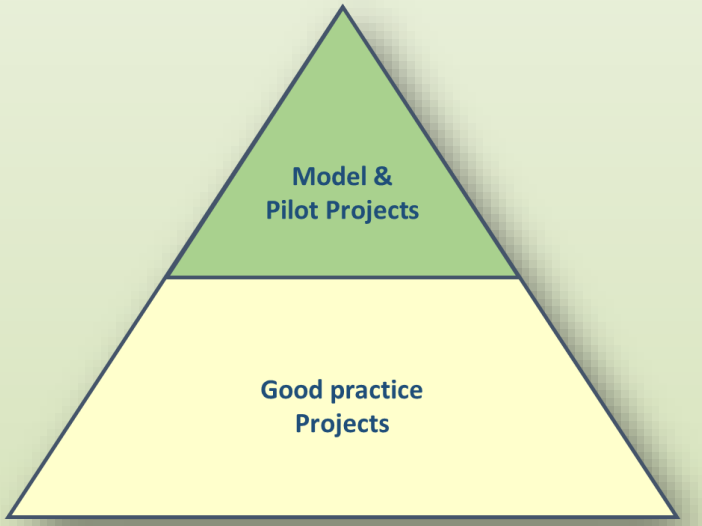
The action plan prioritises projects considered as "good practices". These projects correspond to the application of, for example, measures and technologies supported by the programs of New Brunswick Power, the Government of New Brunswick or Canada.

✓ These "Good Practice" projects form the basis of the Action Plan.

Model projects & UMNB pilot projects

As part of UMNB's CCEI, the action plan also proposes to municipalities two types of model projects & pilot projects :

- **Transport electrification & EV integration in the community**



V. Action Plan

B. Reference Level and Target

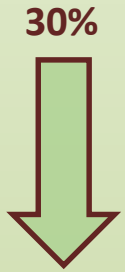
The goal of the City of Saint John's Corporate Action Plan is to reduce greenhouse gas emissions by 30% by 2025 from their 2015 baseline.

For Saint John, the emissions calculated for the year 2015 allow us to estimate the reductions required to reach the target set by the Municipality's action plan to approximately 7 132.9 tons or 30%.

Table 6 :

Baseline and Target

	Tons of CO_2 equivalent	Year Base 2015	Year Forecast 2025
1	Current Emissions	23 776,2	
2	Reduction Target		30,0%
3	Forecast emissions (target) (line 1- line 4)		16 643,3
4	**Total reductions to be achieved** (line 1- line 3)		**7 132,9**



V. Action Plan

C. Analysis of the Projected Results of the Action Plan

Achieving the objective of Saint John's Action Plan would mean that the level of corporate GHG emissions for the year 2025 be at 16 501.7 tons of eq. CO_2. This is a decrease of 7 274.5 tons from the 2015 emissions level of 23 776.2 tons of eq. CO_2. This represents a potential reduction of 30.6%, which is 0.6 percentage points above the target of 30% and 141.6 tons more than the targeted reduction of 7 132.9 tons (see Table 6).

Table 7 :

Analysis of the Outcome of the Action Plan

		Total reductions	
		$eCO_2(t)$	%
1	Current Emissions (Base year)	23 776,2	100,0%
2	Early action results	2 295,8	9,7%
3	Expected reductions in the Action Plan	4 978,7	20,9%
4	**total Reductions** (line 2 +line 3)	**7 274,5**	**30,6%**
5	**Level of anticipated emissions** (forecast year) (line 1- line 4)	**16 501,7**	**69,4%**
6	**Gap with the target**	**141,6**	**0,6%**

V. Action Plan

D. Project Portfolio – Early Actions

Some projects have been completed or initiated by the City of Saint John between the reference year of the inventory (2015) and the year of adoption of the action plan presented (2019). These early actions have contributed to the municipality's effort to reduce corporate GHG emissions. The action plan identified the completion of seven (7) projects whose estimated reductions were estimated at 2 295.8 tons of CO_2 equivalent.

Table 8 :

Project Projects completed prior to the adoption of the Action Plan (Early Actions)

	Projects (Measures, Actions, Technologies)		Total GHG reductions (tons)
	Buildings ; Water & Sewage		312,2
1	*EA 1* Energy Efficiency (Natural gas)	Multiple buildings	129,2
2	*EA 2* Energy Efficiency (Propane)	Buildings (West Garage)	8,8
3	*EA 3* Energy Efficiency (Electricity)	Multiple buildings	159,2
4	*EA 4* Energy Efficiency (heating oil)	Buildings (Public Garden)	15,0
	Vehicle Fleet		73,2
5	*EA 5* Optimal Replacement Policy	Number of units 143	57,4
6	*EA 6* Saint John Transit - Fleet renewal	Number of units 3	15,8
	Streetlights		1 910,4
7	*EA 7* Streetlight replacement	Number : 8100	1 910,4
	TOTAL		2 295,8

D. Project Portfolio – Early Actions

1. Description - Early Actions (2016-2019)

The City of Saint John has carried out several measures, actions and realizations. The action plan we are currently working on cannot integrate them all because their positive impact is already pointed out in the 2015 inventory. "Early actions" are those initiated or carried out between the base year of the inventory (2015) and the year of adoption of the action plan (2019).

	Buildings (multiple buildings)	Base year : 2015	
1	Natural gas use	432 261	m3
2	Cost of natural gas	369 454	$
3	GHG emissions from natural gas use	826,75	eCO_2 (t)
4	**Savings**	**15,62**	**%**
5	Natural gas use reduction	67 533	m3
6	**GHG emissions reduction**	**129,17**	**eCO_2 (t)**
7	Annual savings	57 721	$

	Buildings (West Garage)	Base year : 2015	
1	Propane use	17 437	Liters
2	Cost of propane	6 975	$
3	GHG emissions from propane use	26,92	eCO_2 (t)
4	**Savings**	**32,69**	**%**
5	Propane use reduction	5 700	Liters
6	**GHG emissions reduction**	**8,80**	**eCO_2 (t)**
7	Annual savings	2 280	$

V. Action Plan

D. Project Portfolio – Early Actions

2. Description - Early Actions (2016-2019) (continued)

The City of Saint John has carried out several measures, actions and realizations. The action plan we are currently working on cannot integrate them all because their positive impact is already pointed out in the 2015 inventory, "Early actions" are those initiated or carried out between the base year of the inventory (2015) and the year of adoption of the action plan (2019).

	Buildings (multiple buildings)	Base year : 2015	
1	Electricity use	5 495 123	kWh
2	Cost of electricity	467 085	$
3	GHG emissions from electricity use	1 538,63	eCO_2 (t)
4	**Savings**	**10,34**	**%**
5	electricity use reduction	568 454	kWh
6	**GHG emissions reduction**	**159,17**	**eCO_2 (t)**
7	Annual savings	48 319	$

	Buildings (Public Garden)	Base year : 2015	
1	Heating oil use	12 767	Liters
2	Cost of heating oil	9 703	$
3	GHG emissions from heating oil use	34,92	eCO_2 (t)
4	**Savings**	**43,08**	**%**
5	Heating oil use reduction	5 500	Liters
6	**GHG emissions reduction**	**15,04**	**eCO_2 (t)**
7	Annual savings	4 180	$

V. Action Plan

D. Project Portfolio – Early Actions

3. Description - Early Actions (2016-2019) (continued)

The City of Saint John has carried out several measures, actions and realizations. The action plan we are currently working on cannot integrate them all because their positive impact is already pointed out in the 2015 inventory, "Early actions" are those initiated or carried out between the base year of the inventory (2015) and the year of adoption of the action plan (2019).

	Saint John Transit - Fleet renewal	Base year : 2015	
1	Number de vehicles	3	
2	Fuel consumption	33 577	litres
3	Fuel cost	36 169,06	$
4	**GHG emissions**	**90,10**	**eCO_2 (t)**
5	Average efficiency gains due to renewal of fleet	0	
6	**Total Reductions in GHG Emissions**	**15,77**	**eCO2 (t)**

		Base year : 2015			
	Optimal Replacement Policy	Gasoline		Diesel	
1	Number de vehicles	109		34	
2	Fuel consumption	305 953	litres	149 691	litres
3	Fuel cost	313 842	$	165 789	$
4	GHG emissions	746,38	eCO_2 (t)	401,69	eCO_2 (t)
5	Number of vehicles to be replaced	109		34	
6	Average efficiency gains due to renewal of fleet	5,0%		5,0%	
7	Reduction of GHG emissions after conversion	37,3	eCO2 (t)	20,1	eCO2 (t)
8	**Total Reductions in GHG Emissions**	**57,40**	**eCO2 (t)**		

D. Project Portfolio – Early Actions

4. Description - Early Actions (2016-2019) (continued)

The City of Saint John has carried out several measures, actions and realizations. The action plan we are currently working on cannot integrate them all because their positive impact is already pointed out in the 2015 inventory, "Early actions" are those initiated or carried out between the base year of the inventory (2015) and the year of adoption of the action plan (2019).

	Streetlights	Base year : 2015	
1	Total lighting consumption	9 685 380	kWh
2	Cost of electricity for lighting	823 257	$
3	GHG emissions from lighting electric consumption	2 712	eCO_2 (t)
4	**Efficiency gains after conversion**	**70,4%**	
5	Annual consumption after conversion	2 862 346	kWh
6	Annual energy savings due to conversion	6 823 034	kWh
7	Annual savings due to conversion (for City of Saint John)	116 500	$
8	**Reduction of GHG emissions after conversion**	**1910,4**	**eCO2 (t)**
	Note : The capital investment of the conversion is provided by Saint John Energy		

V. Action Plan

D. Project Portfolio

The most recent measures, technologies and programs have been analyzed and evaluated. They form the basis of the action plans produced by YHC Environnement. Then, based on the 2015 inventory data, as well as the characteristics and needs of the City of Saint John, the development of the Project Portfolio was completed.

The action plan contains thirteen (13) projects whose potential reductions are estimated at 4 978.7 tons of CO_2 equivalent (see Table 9).

V. Action Plan

D. Project Portfolio

Project Portfolio Summary

Table 9 : Corporate Project portfolio

		Projects (Measures, Actions, Technologies)		Total GHG reductions (tons)
	Buildings			2 835,2
1	*B1*	Buildings (Municipal Garages)	Energy Efficiency (Elec. Natural gas & propane) & Renewable Energy	349,4
2	*B2*	Buildings (Sport & Leisure Buildings)	Energy Efficiency (Electricity & Natural Gas) & Renewable Energy	420,3
3	*B3*	Buildings (Management & Commissions)	Energy Efficiency (Electricity & Natural Gas) & Renewable Energy	1 969,8
4	*B4*	Buildings (Fire stations)	Energy Efficiency (Electricity & Natural Gas) & Renewable Energy	95,7
	Vehicle Fleet			806,9
5	*VF 1*	Optimal Replacement Policy - rental vehicles	Number of vehicles : 27	4,3
6	*VF 2*	Optimal Replacement Policy	Number of vehicles : 175	97,3
7	*VF 3*	Optimal replacement policy (SJT)	Number of vehicles : 31	442,0
8	*VF 4*	Corporate Idle-free Policy	Number of vehicles : 268	114,5
9	*VF 5*	Telemetry & Idle-free Policy	Number of vehicles : 87	63,0
10	*VF 6*	Electric Vehicle	Number of vehicles : 2	1,5
11	*VF 7*	Electric Vehicle (Saint John Transit)	Number of vehicles : 2	86,7
12	*VF 8*	Hybrid Vehicle	Number of vehicles : 4	2,0
	Water and Sewage			1 336,6
13	*WS1*	Water & Sewage	Energy Efficiency (Electricity)	1 336,6
	TOTAL			4 978,7

V. Action Plan

D. Project Portfolio

1. Buildings (Municipal Garages) - Energy Efficiency (Elec. Natural gas & propane)

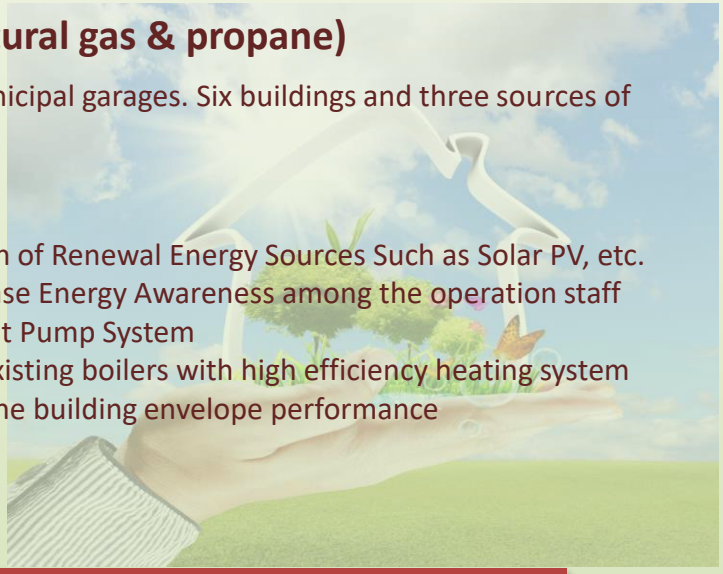
City of St John plans to implement several energy conservation measures at its municipal garages. Six buildings and three sources of energy are targeted.

Among planned actions, there are:

- Upgrade the lighting System to LED
- Upgrade the Energy Management Control System (ECMS)
- Energy Optimization

Overall estimated GHG reductions: 55%

- Installation of Renewal Energy Sources Such as Solar PV, etc. and Increase Energy Awareness among the operation staff
- Install Heat Pump System
- Replace existing boilers with high efficiency heating system
- Increase the building envelope performance



	Buildings (Municipal Garages)	Base year : 2015 Electricity		Natural Gas		Propane	
1	Energy Use (Consumption)	1 397 644	kWh	114 627	m3	17 437	Liters
2	Energy Costs	118 800	$	97 972	$	6 975	$
3	GHG emissions	391	eCO_2 (t)	219	eCO_2 (t)	27	eCO_2 (t)
4	Average efficiency gains	68	%	34	%	32	%
5	Energy Use reduction	950 500	kWh	38 991	m3	5 500	Liters
6	**Total Reductions in GHG Emissions**			**349**	**eCO2 (t)**		
7	Annual savings (2025)			129 380	$		
8	Capital investment			699 500	$		
9	Projects' benefits (2019-2025)			322 450	$		
10	**Net Capital investment (Investment - cost reductions)**			**377 050**	**$**		
	Further technical and financial feasibility study may be required to validate numbers						

V. Action Plan

D. Project Portfolio

2. Buildings (Sport & Leisure Buildings) - Energy Efficiency (Electricity & Natural Gas)

City of St John plans to implement several energy conservation measures at its sports an leisure buildings. Multiple buildings, such as arenas, parks, ball fields, etc., and two sources of energy are targeted.

Among planned actions, are:

- Upgrade the lighting System to LED
- Upgrade the Energy Management Control System (ECMS)
- Energy Optimization
- Install Solar Hot Water System

Overall estimated GHG reductions: 49%

- Installation of Renewal Energy Sources Such as Solar PV, etc. and Increase Energy Awareness among the operation staff
- Install High Efficiency Motors for the Compressors
- Replace existing boilers with high efficiency heating system
- Increase the building envelope performance
- Install Air to Air Heat pump system in some areas

	Buildings (Sport & Leisure Buildings)	Base year : 2015 Electricity		Natural Gas	
1	Energy Use (Consumption)	2 751 899	kWh	45 428	m3
2	Energy Costs	233 911	$	38 827	$
3	GHG emissions	771	eCO_2 (t)	87	eCO_2 (t)
4	Average efficiency gains	49	%	48	%
5	Energy Use reduction	1 352 000	kWh	21 916	m3
6	**Total Reductions in GHG Emissions**	**420,26**	**eCO2 (t)**		
7	Annual savings (2025)	153 260	$		
8	Capital investment	1 406 400	$		
9	Projects' benefits (2019-2025)	**340 430**	$		
10	**Projects' savings (2019-2025)**	**1 065 970**	**$**		
	Further technical and financial feasibility study may be required to validate numbers				

V. Action Plan

D. Project Portfolio

3. Buildings (Management & Commissions) - Energy Efficiency (Electricity & Natural Gas)

City of St John plans to implement several energy conservation measures at its management buildings. Multiple buildings, such as Tourists information Centre, City Hall, Transit Buildings, etc., and two sources of energy are targeted.

Among planned actions, are:

- Upgrade the lighting System to LED
- Install Solar Lights
- Upgrade the Energy Management Control System (ECMS)
- Installation of Renewal Energy Sources Such as Solar PV, etc. and Increase Energy Awareness among the operation staff
- Install Heat Pump System
- Increase the building envelope performance
- Energy Optimization

Overall estimated GHG reductions: 34%

	Buildings (Management & Commissions	Base year : 2015 Electricity		Natural Gas	
1	Energy Use (Consumption)	15 623 969	kWh	745 610	m3
2	Energy Costs	1 328 037	$	637 273	$
3	GHG emissions	4 375	eCO_2 (t)	1 426	eCO_2 (t)
4	Average efficiency gains	37	%	26	%
5	Energy Use reduction	5 722 770	kWh	193 272	m3
6	**Total Reductions in GHG Emissions**	**1 969,82**	**eCO2 (t)**		
7	Annual savings (2025)	730 341	$		
8	Capital investment	3 088 400	$		
9	Projects' benefits (2019-2025)	**3 147 899**	$		
10	**Net Capital investment (Investment - cost reductions)**	**-59 499**	**$**		
	Further technical and financial feasibility study may be required to validate numbers				

V. Action Plan

D. Project Portfolio

4. Buildings (Fire Stations) - Energy Efficiency (Electricity & Natural Gas)

City of St John plans to implement several energy conservation measures at its fire station stations. All eight buildings and two sources of energy are targeted.

Among planned actions, are:

- Install LED lighting and Lighting Control
- Install Heat Pump System at Fire Station #1, #5 and #7
- Install Heat Pump DHW Tanks at Fire Station #1,#8
- Upgrade the ECMS & Energy Optimization
- Install High Efficiency Motors for the Compressors
- Replace Existing Boilers at fire #4,#8 with Biomass or Heat Pump Technology
- Install 40 KW Solar PV system
- Upgrade building envelope
- Install Heat recovery system

Overall estimated GHG reductions: 24%

	Buildings (Fire stations)	Base year : 2015 Electricity		Natural Gas	
1	Energy Use (Consumption)	965 707	kWh	65 453	m3
2	Energy Costs	82 085	$	55 943	$
3	GHG emissions	270	eCO_2 (t)	125	eCO_2 (t)
4	Average efficiency gains	22	%	29	%
5	Energy Use reduction	211 000	kWh	18 986	m3
6	**Total Reductions in GHG Emissions**	**95,68**	**eCO2 (t)**		
7	Annual savings (2025)	36 745	$		
8	Capital investment	273 000	$		
9	Projects' benefits (2019-2025)	**60 825**	$		
10	**Net Capital investment (Investment - cost reductions)**	**212 175**	**$**		
	Further technical and financial feasibility study may be required to validate numbers				

D. Project Portfolio

5. Transportation - Optimal Replacement Policy - rental vehicles

The City of Saint John, each year, rents some vehicles for seasonal needs.

This rental fleet is regularly renewed with recent models.
The City prioritizes the smallest models that meet his needs.

	Base year : 2015			
Optimal Replacement Policy - rental vehicles	**Gasoline**		**Diesel**	
1 Number de vehicles	23		4	
2 Fuel consumption	27 469	litres	6 912	litres
3 Fuel cost	29 198	$	7 198	$
4 GHG emissions	67,01	eCO_2 (t)	18,55	eCO_2 (t)
5 Number of vehicles to be replaced	23		4	
6 Average efficiency gains due to renewal of fleet	5,0%		5,0%	
7 Reduction of GHG emissions after conversion	3,4	eCO2 (t)	0,9	eCO2 (t)
8 Total Reductions in GHG Emissions	**4,28**	**eCO2 (t)**		

D. Project Portfolio

6. Transportation - Optimal Replacement Policy

The City of Saint John has a fleet replacement policy that aims to optimize fleet size and usage. Vehicles are replaced based on a formula that takes into account:

- Their age
- Their general state
- Their usage (mileage)

In addition, once a vehicle has reached its useful life, the City assesses whether better management of the remaining fleet could prevent its replacement or it could be replaced by a smaller vehicle.

As a result, this project includes a cleaner vehicle purchase policy component.

		Base year : 2015			
	Optimal Replacement Policy	Gasoline		Diesel	
1	Number de vehicles	121		54	
2	Fuel consumption	387 979	litres	372 840	litres
3	Fuel cost	390 823	$	397 246	$
4	GHG emissions	946,49	eCO_2 (t)	1000,49	eCO_2 (t)
5	Number of vehicles to be replaced	121		54	
6	Average efficiency gains due to renewal of fleet	5,0%		5,0%	
7	Reduction of GHG emissions after conversion	47,3	eCO2 (t)	50,0	eCO2 (t)
8	**Total Reductions in GHG Emissions**		**97,35 eCO2 (t)**		

V. Action Plan

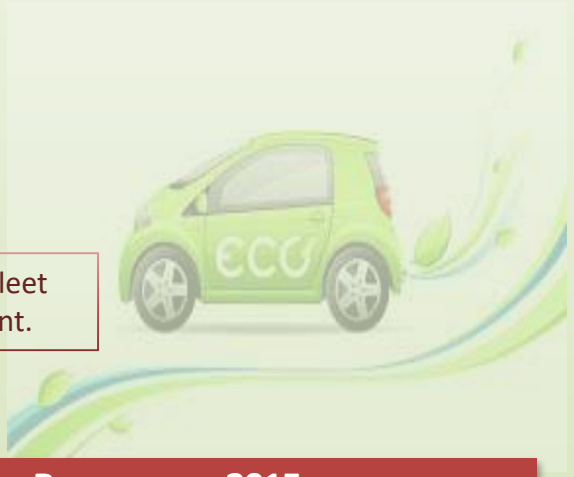
D. Project Portfolio

7. Transportation - Optimal Replacement Policy (Saint John Transit)

The vehicle replacement policy of the municipality is as follows:

- Trucks and light vehicles: after 10 years
- Transit buses : after 17 years

Thus, at the end of this action plan (2015-2025), a large number of the vehicles of the bus fleet will be replaced. In addition, the City plans to optimize the fleet size to make it more efficient.



Optimal replacement policy (SJT)	Base year : 2015	
1 Number de vehicles	47	
2 Number of vehicles to be replaced	31	
3 Fuel consumption	941 145	litres
4 Fuel cost	1 013 799	$
5 GHG emissions	2525,50	eCO_2 (t)
6 Average efficiency gains due to renewal of fleet	17,5%	
7 **Total Reductions in GHG Emissions**	**441,96**	**eCO2 (t)**

V. Action Plan

D. Project Portfolio

8. Transportation - Idle-free Policy

Idling refers to running a vehicle's engine when the vehicle is not in motion. Idling occurs when car owner is warming up or cooling down a vehicle, drivers are stopped at a red light, waiting while parked outside a business or residence, or otherwise stationary with the engine running. For the average vehicle with a 3-litre engine, every 10 minutes of idling costs 300 milliliters (over 1 cup) in wasted fuel – and one half of a liter (over 2 cups) if your vehicle has a 5-liters engine.

For a successful anti-idling campaign includes
- the adoption of a speed reduction regulation
- carrying out an awareness-raising campaign
- the acquisition and installation of permanent signs

	Corporate Idle-free Policy	Base year : 2015 Gasoline		Diesel	
1	Number of units	173		95	
2	Fuel consumption *	491 215	litres	681 259	litres
3	Fuel cost *	506 876	$	734 112	$
4	GHG emissions *	1198,33	eCO_2 (t)	1828,11	eCO_2 (t)
5	Average fuel wasted idling	25 189	litres	19 760	litres
6	Average fuel economy	5,1%		2,9%	
7	GHG emissions reduction	61,45	eCO2 (t)	53,02	eCO2 (t)
8	Fuel savings ($)	25 992	$	37 644	$
9	**Total GHG Emissions reduction**		**114,47**	**eCO2 (t)**	
10	Total fuel savings ($)		63 636	$	
11	Saving per tonne of GHG reduced		556	/ t eCO2	

*** Cumulative effects of replacement policy are roughly taken into account**

D. Project Portfolio

9. Transportation – Telemetry & Idle-free Policy Telemetry

Telemetry is a particularly effective measure to improve energy efficiency and the GHG emissions related to vehicle use. This is a management measure that makes it possible to optimize the use of vehicles.

An information gathering module retrieves the electronic data from the vehicle in order to optimize the efficiency of its use by changes in behavior. The management of this information is carried out by means of computer software and enables the vehicle manager to obtain reports according to the parameters he has previously established.

Telemetry combined with idle-free policy allows fuel savings exceeding 10%

	Telemetry & Idle-free Policy	Base year : 2015 Gasoline		Diesel	
1	Number of units	70		17	
2	Fuel consumption *	198 858	litres	53 963	litres
3	Fuel cost *	198 094	$	56 728	$
4	GHG emissions *	485,12	eCO_2 (t)	144,81	eCO_2 (t)
5	Average fuel economy		**10,0%**		
6	GHG emissions reduction	48,51	eCO2 (t)	14,48	eCO2 (t)
7	Fuel savings ($)	19 809	$	5 673	$
8	**Total GHG Emissions reduction**		**62,99**	**eCO2 (t)**	
9	Total fuel savings ($)		25 482	$	
10	Saving per tonne of GHG reduced		404,53	/ t eCO2	
	*** Cumulative effects of replacement policy are roughly taken into account**				

V. Action Plan

D. Project Portfolio

10. Technical Sheet - Electric Vehicle

Electric cars

Use electrical energy to power an electric motor, they also reduce society's dependence on environmentally damaging fossil fuels while lowering greenhouse gas emissions and air pollution. Electric cars are cost effective, good for the environment and deliver great performance.

Fully Electric Cars are powered 100% by electricity and have zero tailpipe emissions.

City of Saint John plans to replace two of its cars by full electric models.

Nissan Leaf (2018) versus Chevrolet Aveo (2010)	Base year : 2015	
1 Total kilometers travelled	13 317 km	
2 Number of targeted units	2	
3 Energy saved per year (Gj and $)	22,26	680 $
4 GHG emissions reduction (tonnes and %)	1,48	68,1%

V. Action Plan

D. Project Portfolio

11. Technical Sheet - Electric Vehicle (Saint John Transit)

Electric cars

Use electrical energy to power an electric motor, they also reduce society's dependence on environmentally damaging fossil fuels while lowering greenhouse gas emissions and air pollution. Electric cars are cost effective, good for the environment and deliver great performance.

Fully Electric Cars are powered 100% by electricity and have zero tailpipe emissions.

Saint John Transit plans to buy two full electric buses for 2020 in replacement of two diesel buses.

	Disel vs electric bus	Base year : 2015	
1	Total kilometers travelled	64 805	km
2	Number of targeted units	2	
3	Diesel use (GJ and $)	1 613	45 375 $
4	GHG emissions from diesel use (tons)	113	eCO_2 (t)
5	Electricity use of replacement buses (GJ and $)	338	7 987 $
6	GHG emissions from electricity use (tons)	26	eCO_2 (t)
7	GHG emissions reduction (tonnes and %)	86,72	76,7%

D. Project Portfolio

12. Technical Sheet - Hybrid Vehicle (Saint John Transit)

Electric cars

Use electrical energy to power an electric motor, they also reduce society's dependence on environmentally damaging fossil fuels while lowering greenhouse gas emissions and air pollution. Electric cars are cost effective, good for the environment and deliver great performance.

Hybrid Electric Cars have small battery packs for short all-electric driving distances before a gasoline engine or generator turns on for longer trips.

City of Saint John already has two hybrid cars and plans to add four more hybrid models at its fleet.

Daimler Smart versus Chevrolet Volt (2018)	Base year : 2015	
1 Total kilometers travelled	31 302 km	
2 Number of targeted units	4	
3 Energy saved per year (Gj and $)	29,32	893 $
4 GHG emissions reduction (tonnes and %)	1,95	39,4%

D. Project Portfolio

13. Water and Sewage - Energy Efficiency (Electricity)

City of St John plans to implement several conservation measures to its Water and sewage facilities some of which are :

- Upgrade the lighting System to LED
- Upgrade the Energy Management Control System (ECMS)
- Energy Optimization
- Investigate new water treatment technology
- Installation of Renewal Energy Sources Such as Solar PV, etc. and Increase Energy Awareness among the operation staff
- Install variable-frequency drive (VFD) where applicable
- Install High Efficiency Motors & Pumps where applicable
- Install Energy Meters
- Develop and Implement a demand response strategies through load shifting, shedding or on site generation

Overall estimated GHG reductions: 27%

	Water & Sewage	Base year : 2015	
1	Electricity use	17 477 448	kWh
2	Electricity cost	1 485 583	$
3	GHG emissions from electric consumption	4 894	eCO_2 (t)
4	Efficiency gains	27,3	%
5	Electricity use reduction (kWh)	4 782 000	kWh
6	**GHG emissions reduction (tons)**	**1 336,57**	**eCO_2 (t)**
7	Annual savings (2025)	478 200	$
8	Capital investment	3 331 000	$
9	Projects' benefits (2019-2025)	1 335 000	$
10	**Net Capital investment (Investment - cost reductions)**	**1 996 000**	**$**
	Further technical and financial feasibility study may be required to validate numbers		

VI. APPENDIX

The methodology and references are available on request.

Tableau 1 : Coefficients d'émissions de GES

Source	Unité	CO_2 (tonnes)	CH_4 (tonnes)	NO_2 (tonnes)	GES (tonnes)	MJ	Remarque	Référence
Biomasse	kg	0.00E+00	1.50E-05	1.60E-07	0.000365	19.800	GES Poêles & foyers conventionnels ; MJ moyenne bois dur et mou; émissions de CO_2 exclus car d'origine biogénique	NIR (2016)
Diesel	litres	2.66E-03	2.20E-07	5.10E-08	0.002683	38.300	Véh. lourds, dispositif perfectionné	ICLEI
Biodiesel (B5)	litres				0.002549	38.280		ICLEI
Biodiesel (B10)	litres				0.002415	38.250		ICLEI
Essence	litres	2.29E-03	2.30E-07	4.70E-07	0.002440	35.000		ICLEI
Essence à l'éthanol (10%)	litres				0.002196	33.840		ICLEI
GNC	kg	2.72E-03	1.29E-05	8.60E-08	0.003022	39.240		ICLEI
Gaz naturel	metre ^{3}	1.90E-03	3.70E-08	3.50E-08	0.001913	39.240	Résidentiel, construction, CI, agriculture	ICLEI
Mazout	litres	2.73E-03	2.60E-08	3.10E-08	0.002735	38.800		ICLEI
Mazout lourd	litres	3.12E-03	5.70E-08	6.40E-08	0.003145	42.500		ICLEI
Propane	litres	1.51E-03	2.70E-08	1.08E-07	0.001544	25.310	Résidentiel	ICLEI
Électricité	kWh				0.000280	3.600	Coefficients varient annuellement (2011); Intensité globale (production + consommation)	NIR (2016)

Potentiels de réchauffement planétaire (PRP)

GES	RPR
Dioxyde de carbone (CO_2)	1
Méthane (CH_4)	21
Oxyde nitreux (N_2O)	310

Facteurs de conversion énergétique

kWh	Equivalent Mj	Equivalent Btu
1	3.600	3,412.142

UMNB-CCEI - Saint John

Corporate Action Plan

Baseline and Target

	Tons of CO_2 equivalent	Year Base 2015	Year Forecast 2025
1	Current Emissions	23,776.2	
2	Reduction Target		30.0%
3	Forecast emissions (target) (line 1 - line 4)		16,643.3
4	**Total reductions to be achieved** (line 1 - line 3)		**7,132.9**

Analysis of the Outcome of the Action Plan

		Total reductions $eCO_2(t)$	Total reductions %
1	Current Emissions (Base year)	23,776.2	100.0%
2	Early action results	2,295.8	9.7%
3	Expected reductions in the Action Plan	5,113.2	21.5%
4	**total Reductions** (line 2 + line 3)	**7,409.0**	**31.2%**
5	**Level of anticipated emissions** (forecast year) (line 1 - line 4)	**16,367.2**	**68.8%**
6	**Gap with the target**	**276.2**	**1.2%**

Notes :
The early actions are those initiated or carried out between the base year of the inventory and the year of adoption of the action plan

Project portfolio

		Projects (Measures, Actions, Technologies)			Total GHG reductions (tons)
		Buildings			2,947.4
1	*B1*	Buildings (Municipal Garages)	Energy Efficiency (Elec. Natural gas & propane) & Renewable Energy		349.4
2	*B2*	Buildings (Sport & Leisure Buildings)	Energy Efficiency (Electricity & Natural Gas) & Renewable Energy		427.2
3	*B3*	Buildings (Management & Commissions)	Energy Efficiency (Electricity & Natural Gas) & Renewable Energy		2,075.0
4	*B4*	Buildings (Fire stations)	Energy Efficiency (Electricity & Natural Gas) & Renewable Energy		95.7
		Vehicle Fleet			806.9
5	*VF 1*	Optimal Replacement Policy - rental vehicles		Number of vehicles : 27	4.3
6	*VF 2*	Optimal Replacement Policy		Number of vehicles : 175	97.3
7	*VF 3*	Optimal replacement policy (SJT)		Number of vehicles : 31	442.0
8	*VF 4*	Corporate Idle-free Policy		Number of vehicles : 268	114.5
9	*VF 5*	Telemetry & Idle-free Policy		Number of vehicles : 87	63.0
10	*VF 6*	Electric Vehicle		Number of vehicles : 2	1.5
11	*VF 7*	Electric Vehicle (Saint John Transit)		Number of vehicles : 2	86.7
12	*VF 8*	Hybrid Vehicle		Number of vehicles : 4	2.0
		Streetlights			-
		Water and Sewage			1,358.9
13	*WS1*	Water & Sewage	Energy Efficiency (Electricity)		1,358.9

	Corporate Waste	-
	TOTAL	5,113.2

Projects completed prior to the adoption of the Action Plan (Early Actions)

	Projects (Measures, Actions, Technologies)		Total GHG reductions (tons)
	Buildings ; Water & Sewage		312.2
1	*EA 1* Energy Efficiency (Natural gas)	Multiple buildings	129.2
2	*EA 2* Energy Efficiency (Propane)	Buildings (West Garage)	8.8
3	*EA 3* Energy Efficiency (Electricity)	Multiple buildings	159.2
4	*EA 4* Energy Efficiency (heating oil)	Buildings (Public Garden)	15.0
	Vehicle Fleet		73.2
5	*EA 5* Optimal Replacement Policy	Number of units 143	57.4
6	*EA 6* Saint John Transit - Fleet renewal	Number of units 3	15.8
	Streetlights		1,910.4
7	*EA 7* Streetlight replacement	Number : 8100	1,910.4
	TOTAL		2,295.8

General information

Name of Municipal Government:	UMNB-CCEI - Saint John
Province/Territory:	New Brunswick
Corporate Inventory Year (Base year) :	2015
Community Inventory Year (Base year) :	2015

UMNB-CCEI - Saint John — Corporate - General considerations

Over the years, Saint John has carried out a large number of measures, actions and realizations.
The action plan we are currently working on cannot integrate them all because their positive impact is already pointed out in the 2015 inventory,
"Early actions" are those initiated or carried out between the base year of the inventory (2015) and the year of adoption of the action plan (2017).
In 1996, the City launched Saint John Municipal Energy Efficiency Program (MEEP) which has brought significant innovative energy conservation best practices

Energy Management Initiatives Implemented or to be completed Between 2015 and 2018

Facility Name	Energy Measures	Address	Year	Energy Savings				GHG reduction
				Electricity (kWh)	NG (GJ)	Propane (L)	Oil (L)	eCO2 (t)
Municipal Street Lighting	1) Replacing over 7000 street lighting fixtures with LED	City of Saint John	2015-2016	9,685,380				1910.4
Work West Garage	1) Install an Energy Management Control System	1954 Manawagonish Rd	2017			5,700		8.8
Public Garden	1) Install Heat Pump System in the Public Garden and Office area	45 Seely Street	2016	11,000				3.1
	2) Replace the lighting system with LED						5,500	15.0
	3) Convert Oil Boiler to Propane							
City Market Pedway	1) Replace the two existing Escalators with one energy efficiency escalator	36 Germain Street	2016	41,000				11.5
	2) Replace the Air Handling Unit for the lower level with fan force electric heater.							
	3) Replace the existing Metal Halide Fixtures with LED							
	4) Upgrade the Control System							
Harbour Passage Lights	1) Retrofit the exiting 94 Metal Halide Fixture (100 watts)with 24 watts LED	Harbour Passage	2018	28,000				7.8
Carnegie Building	1)Install an Energy Management Control System	20 Peel Plaza	2017	50,000				14.0
	2) Replace the lighting system with LED							
Canada Games Aquatic Center	1) Replace Air Handling Units serving the competition/leisure Pools with new dehumidification systems and Heat Recovery Units	50 Union Street	2017		1,200			58.5
	2) Replace the domestic hot water with more efficiency system and install a heat exchanger to lower the return temperature to increase the boiler efficiency.		2018		225			11.0
	3) Install a Solar Hot Water System				170			8.3
	4) Replace the domestic hot water mixing valve				50			2.4
Churchill waste water pumping station	1) Install Heat Pump Unit in the dry well	283 Samuel Davis Drive	2018	100,000				28.0
	2) Install Energy Management Control System to control HVAC units							
	3) Energy Awareness Program							
Thorne Avenue Lift Station #4	1) Install Heat Pump Unit in the dry well and electrical room	25 Edbert Street	2017	125,000				35.0
	2) Install Energy Management Control System to control HVAC units							
	3) Energy Awareness Program							
Fire Station #4	1)Install Heat Pump Units throughout the fire station	36 Courtenay Avenue	2017		150			7.3
	2) Install a guard on each of the thermostat to ensure that temperature for the hot water heating unit remain constant and below the set point of the heat pump		2018					
	3) Insulate the various windows to minimize infiltration	37 Courtenay Avenue						
	4) Energy Awareness program							
	5) Program the existing EMCS to disable the boiler when OAT is above 8 Celsius							
	6) Retrofit the existing Light with LED	37 Courtenay Avenue						
Fire Station # 8	1)Install Heat Pump Units throughout the fire station	608 Millidge Avenue	2017		150			7.3
	2) Install a guard on each of the thermostat to ensure that temperature for the hot water heating unit remain constant and below the set point of the heat pump							
	3) Energy Awareness program		2018					
	4) Program the existing EMCS to disable the boiler when OAT is above 8 Celsius							
	5) Retrofit the existing Light with LED							
Fire Station # 2	1)Install Heat Pump Units throughout the fire station	850 Loch Lomond Road	2017		80			3.9
	2) Install a guard on each of the thermostat to ensure that temperature for the hot water heating unit remain constant and below the set point of the heat pump							
	3) Energy Awareness program		2018					
	4) Retrofit the existing Light with LED							
Carleton Community Center	1) Install Heat Pump System and Energy Recovery Ventilator (ERV) throughout the building to replace the existing natural gas hot water system	120 Market Place	2018		120			5.8
	2) Retrofit the existing lighting system with LED							
	3) Conduct an Energy Audit							
LBR	Replace Ice Light with LED	536 Main Street	2017	80,000				22.4
East Public Library	Building was relocated to Transit Building	**Relocated**	2016	28,454	245			19.9
Gorman Arena	Install New High Efficiency Boilers	80 University Avenue	2016		60			2.9
Various Buildings (17)	1)Retrofit the existing lighting for approximately 17 buildings with LED	Various Buildings (5 Fire Stations, Shamrock park, TIC West, Public Library, Interpretation Center, Leisure Maintenance Garage)	2018	105,000				29.4
City Market	1) Install 44 Energy Efficiency windows in the City Market Hall	47 Charlotte Street	2017		200			9.7
	2) Install 44 Energy Efficiency Windows in the City Market Tower		2018					
Total reduction (per unit)				**10,253,834**	**2,650**	**5,700**	**5,500**	
Total GHG reduction - eCO2 (t)				**2,871**	**129**	**9**	**15**	**2222.6**

UMNB-CCEI - Saint John — Corporate - MAT Techni

Sector : Buildings (multiple buildings)

Description : Energy Efficiency (Natural gas)

Type : Technology

Description

Energy conservation measures have been made for using Natural gas Buildings and facilities

Realized energy savings : 15.62 %

Buildings (multiple buildings)	Base year : 2015	
1 Natural gas use	432,261	m3
2 Cost of natural gas	369,454	$
3 GHG emissions from natural gas use	826.75	eCO_2 (t)
4 **Savings**	**15.62**	**%**
5 Natural gas use reduction	67,533	m3
6 **GHG emissions reduction**	**129.17**	**eCO_2 (t)**
7 Annual savings	57,721	$

NB: Economic estimates only take into account energy costs

UMNB-CCEI - Saint John — Corporate - MAT Techni

Sector : Buildings (West Garage)

Description : Energy Efficiency (Propane)

Type : Technology

Description

In 2017, an Energy Management Control System is installed on the West Work Garage

Realized energy savings : 32.7 %

Buildings (West Garage)	Base year : 2015	
1 Propane use	17,437	Liters
2 Cost of propane	6,975	$
3 GHG emissions from propane use	26.92	eCO_2 (t)
4 **Savings**	**32.69**	**%**
5 Propane use reduction	5,700	Liters
6 **GHG emissions reduction**	**8.80**	**eCO_2 (t)**
7 Annual savings	2,280	$

NB: Economic estimates only take into account energy costs

UMNB-CCEI - Saint John — Corporate - MAT Techni

Sector : Buildings (multiple buildings)

Description : Energy Efficiency (Electricity)

Type : Technology

Description

Energy conservation measures have been made for using Natural gas Buildings and facilities

Realized energy savings : 10.34 %

	Buildings (multiple buildings)	Base year : 2015	
1	Electricity use	5,495,123	kWh
2	Cost of electricity	467,085	$
3	GHG emissions from electricity use	1,538.63	eCO_2 (t)
4	**Savings**	**10.34**	**%**
5	electricity use reduction	568,454	kWh
6	**GHG emissions reduction**	**159.17**	**eCO_2 (t)**
7	Annual savings	48,319	$

NB: Economic estimates only take into account energy costs

UMNB-CCEI - Saint John — Corporate - MAT Techni

Sector : Buildings (Public Garden)

Description : Energy Efficiency (heating oil)

Type : Technology

Description

In 2016 energy conservation measures are implemented

1) Installation of Heat Pump System in the Public Garden and Office area

2) Replacement of the lighting system with LED

3) Conversion of Oil Boiler to Propane

Realized energy savings : 43.1 %

Buildings (Public Garden)	Base year : 2015	
1 Heating oil use	12,767	Liters
2 Cost of heating oil	9,703	$
3 GHG emissions from heating oil use	34.92	eCO_2 (t)
4 **Savings**	**43.08**	**%**
5 Heating oil use reduction	5,500	Liters
6 **GHG emissions reduction**	**15.04**	**eCO_2 (t)**
7 Annual savings	4,180	$

NB: Economic estimates only take into account energy costs

UMNB-CCEI - Saint John — Corporate - MAT Technical Sheet

Sector : Transportation

Description : Optimal Replacement Policy

Type : Measure, Action and Technology

Early actions - Replaced (identified by M. Samir Yammine)

Early actions - Replaced (compared to 2017 fleet)

Early actions - Fleet optimization (vehicles removed)

Description

The City of Saint John has a fleet replacement policy that aims to optimize fleet size and usage. Vehicles are replaced based on a formula that takes into account
- Their age
- Their general state
- Their usage (mileage)

In addition, once a vehicle has reached its useful life, the City assesses whether better management of the remaining fleet could allow its disposal without replacement or with new but smaller vehicle.
As a result, this project includes a cleaner vehicle purchase policy component

Optimal Replacement Policy	Base year : 2015 Gasoline	Diesel
1 Number de vehicles	109	34
2 Fuel consumption	305,953 litres	149,691 litres
3 Fuel cost	313,842 $	165,789 $
4 GHG emissions	746.38 eCO_2 (t)	401.69 eCO_2 (t)
5 Number of vehicles to be replaced	109	34
6 Average efficiency gains due to renewal of fleet	5.0%	5.0%
7 Reduction of GHG emissions after conversion	37.3 eCO2 (t)	20.1 eCO2 (t)
8 Total Reductions in GHG Emissions	**57.40 eCO2 (t)**	

NB: Economic estimates only take into account energy costs

Notes

1 to 4 According to the corporate inventory

5 Based on corporate fleet information

5 It is assumed that vehicles are replaced by similar recent models

6 According to the OEE, between 2004 and 2014, in New Brunswick, the energy intensity of passenger road transportation has passed from 1.79 Mj / vehicle km to 1.75 Mj / vehicle km, a 5.1% decrease

It is assumed that, at a minimum, all vehicles in the City will experience similar efficiencies for 2025

Assumptions :

1. Some vehicles of the corporate fleet will be replaced based on their type and age

2. Vehicles will be replaced by recent equivalents

3. It is assumed that this policy has no impact on the total size of the corporate fleet thus, the same needs will be met through with more efficient vehicles

		Gasoline (L)		
		Total Use	Total Cost ($)	Total eCO2 (t)
	Replaced vehicles			
1	1998 Chev Blazer (Fire -Carmarthen)	3.71	0.30	0.01
2	2005 F150 4x4 (Mo-Snow Control Street)	3,049.00	2,993.81	7.44
3	2005 F150 4x4 (Mo-Surface Maintenance)	2,442.90	2,401.79	5.96
4	2005 Ford F450 (Pedestrian & Traffic Mgt)	2,601.10	2,839.94	6.35
5	2005 Hyundai Sonata (Police)	133.60	128.78	0.33
6	2006 Chev Impala (Police)	430.10	376.74	1.05
7	2006 Dodge Ram 2500 St (Other Fac.)	7,344.10	7,450.66	17.92
8	2006 Ford F550 (Mo-Street Cleaning)	1,885.50	2,195.68	4.60
9	2006 Ford Freestar (Police)	1,559.80	1,586.96	3.81
10	2006 Gmc Savana Cargo Van (Water Trans And Pump)	1,615.00	1,570.21	3.94
11	2006 Gmc Sierra 1/2 Ton (Parks - Gen. Services)	4,521.80	4,609.40	11.03
12	2006 Int.Cab/Chasis (W&S-Wastewater Coll)	5,196.40	5,628.84	12.68
13	2007 F350 3/4 Ton (Pedestrian & Traffic Mgt)	4,761.50	5,154.72	11.62
14	2008 Gmc Savana Cargo Van (Watershed Management)	4,147.30	4,076.51	10.12
15	2010 Ford Crown Victoria (Police)	1,920.80	1,909.06	4.69
16	2011 Ford Crown Victoria (Police)	308.00	277.98	0.75
17	2011 Ford Crown Victoria (Police)	4,958.10	4,973.10	12.10
18	2012 Dodge Charger (Police)	5,558.20	5,668.71	13.56
19	2012 Dodge Charger (Police)	9,886.02	10,090.46	24.12
	Replaced (compared to 2017 fleet)			
20	2003 Ford 3/4 Ton 4x4 (W&S- Wastewater Pumping)	4,311.70	4,301	11
21	2004 Chrysler Sebring (W&S-Wastewater Coll)	233.80	225.26	0.57
22	2004 Ford Econoline Van (Carp Shop - Fac. Magt)	2,243.80	2,229.32	5.47
23	2004 Ford F450 4x4 (Parks General Services)	2,262.90	2,422.33	5.52
24	2004 Sterling Lt9500 (W&S-Wastewater Coll)	3,136.80	3,238.75	7.65
25	2005 Challenger Tractor (Parks - Gen. Services)	224.00	221.20	0.55
26	2005 Gmc Savana Cargo V (W&S - Water Trans & Dist.)	2,289.20	2,257.76	5.58
27	2005 Gmc Sierra 3/4 Ton (W&S- Wastewater Pumping)	3,436.60	3,717.88	8.38
28	2005 Int. Cab/Chass W Dum (W&S - Water Trans & Dist.)	3,474.80	3,876.90	8.48
29	2007 Chrysler Sebring (Police)	1,929.90	1,927.87	4.71
30	2007 Dodge Gr Caravan C/V (W&S - Ici Metering/Hydran)	3,675.50	3,645.44	8.97
31	2007 Ford F450 1 Ton (Mo- Sidewalk Maintenance)	3,654.40	3,963.20	8.92
32	2007 Ford F450 1 Ton (Mo-Snow Control Street)	717.50	698.07	1.75
33	2007 Ford F450 4x4 (W&S - Water Trans & Dist.)	4,039.80	4,492.57	9.86
34	2007 Ford F550 4x4 (Watershed Management)	1,374.80	1,519.58	3.35
35	2007 Ford Ranger Xl 4x4 (W&S-Wastewater Treatment)	1,530.70	1,511.41	3.73
36	2007 Kubota Tractor (Parks General Services)	206.10	173.51	0.50
37	2008 Dodge Ram 4500 (Mo-Snow Control Street)	4,051.30	4,590.42	9.88
38	2008 Ford F550 1 1/2 Ton (Parks General Services)	3,039.10	3,316.12	7.41
39	2008 Pontiac Torrent (Police)	2,727.70	2,665.80	6.65
40	2010 Chev Express Van (Sj Water - Watershed Mgmt)	5,460.40	5,388.47	13.32
41	2010 Ford F150 4wd Ext. C (Mo-Snow Control Street)	5,911.10	6,031.57	14.42
42	2011 Ford Crown Victoria (Police)	3,902.30	3,815.36	9.52
43	2011 Gmc Savana Cargo Van (Police)	12,830.50	12,857.02	31.30
44	2012 Dodge Charger (Police)	6,363.10	6,420.39	15.52
45	2012 Dodge Charger (Police)	9,537.10	9,551.53	23.27
46	2012 Toyota Rav 4 (City Mgrs. Office)	418.00	414.78	1.02
47	2014 Dodge Charger (Police)	4,868.10	4,681.80	11.88
48	2014 Dodge Charger (Police)	11,068.40	11,150.19	27.00
49	2014 Dodge Charger Awd (Police)	7,418.20	7,505.88	18.10
	Fleet optimization (vehicles removed)			
50	1996 Mt Trackless-Refur (Mo-Street Cleaning)	53.30	60.66	0.13
51	2000 Mt Trackless (Mo-Snow Contr. Sidewal)	3,027.80	3,422.88	7.39
52	2001 Ford F250 4x4 (Fleet Services)	2,259.10	2,457.07	5.51
53	2004 Chrysler Intrepid (Fire -Carmarthen)	656.50	682.74	1.60
54	2004 Chrysler Sebring (Water And Waste Water Eng)	580.50	596.48	1.42
55	2004 Dodge Caravan (Fire Prevention)	1,008.80	1,006.45	2.46
56	2004 Dodge Ram 1500 2wd (Carp Shop - Fac. Magt)	2,327.80	2,289.09	5.68
57	2004 Dodge Ram 2500 4x4 (W&S-Wastewater Treatment)	2,380.00	2,642.45	5.81
58	2004 Dodge Ram 2wd (Parks General Services)	4,441.30	4,580.13	10.83
59	2004 Ford F450 4x4 (Mo-Surface Maintenance)	2,125.70	2,271.20	5.19
60	2004 Ford F550 1.5 Ton (Sports Fields)	1,823.10	1,927.09	4.45
61	2004 Jcb Backhoe (W&S - Water Trans & Dist.)	1,047.80	1,157.47	2.56
62	2004 John Deere 4wd (W&S-Wastewater Treatment)	347.10	405.47	0.85
63	2004 Mt Trackless (Mo-Snow Contr. Sidewal)	1,600.20	1,880.12	3.90
64	2004 Sterling Tandem (Mo - Stormwater Mgmt)	8,309.00	9,187.26	20.27
65	2005 F150 4x4 (Pedestrian & Traffic Mgt)	5,072.20	5,116.71	12.37
66	2005 F450 4x4 (Mo-Street Cleaning)	639.20	703.66	1.56
67	2005 Ford Econoline Van (Water And Waste Water Eng)	588.10	622.59	1.43
68	2005 Ford F150 (W&S-Wastewater Treatment)	1,521.40	1,497.22	3.71
69	2005 Ford F150 4x4 (Fleet Services)	2,727.60	2,712.23	6.65
70	2005 Ford F150 4x4 (Water Trans And Pump)	2,564.20	2,608.58	6.26
71	2005 Freestar (Mo - Stormwater Mgmt)	2,217.80	2,260.90	5.41
72	2005 Hyundai Sonata (Police)	140.80	135.00	0.34
73	2005 Hyundai Sonata (W&S - Water Trans & Dist.)	627.10	645.12	1.53
74	2005 Toyota Camry (Police)	513.00	503.38	1.25
75	2006 Chev Impala (Fire Prevention)	754.90	766.76	1.84
76	2006 Chevrolet Aveo (Bldg. Insp-Permitting Ser)	638.00	635.55	1.56
77	2006 Chevrolet Aveo (Bldg. Insp-Permitting Ser)	765.00	765.29	1.87
78	2006 Chevrolet Aveo (Planning)	252.90	259.17	0.62
79	2006 Chevrolet Aveo (Property Mgt.)	597.20	607.24	1.46
80	2006 Dodge Magnum (Police)	1,095.50	1,034.24	2.67
81	2006 Harley Davidson (Police)	17.10	18.37	0.04
82	2006 Jcb Backhoe 4x4 (W&S-Wastewater Coll)	78.20	89.00	0.19
83	2006 Sterling 6-Yard (Mo-Snow Control Street)	1,878.70	2,092.06	4.58
84	2007 Chev Cobalt Lt (Water And Waste Water Eng)	675.20	677.57	1.65
85	2007 Chevrolet Impala (Fire Prevention)	925.20	935.46	2.26
86	2007 Chevrolet Impala Ls (Water And Waste Water Eng)	561.50	569.88	1.37
87	2007 Dodge Caliber (Bldg. Insp-Permitting Ser)	503.60	491.18	1.23
88	2007 Dodge Caravan (Police)	490.70	493.94	1.20
89	2007 Dodge Durango (Fire -Carmarthen)	1,484.00	1,484.54	3.62
90	2007 Dodge Gr Caravan C/V (W&S - Ici Metering/Hydran)	2,287.20	2,272.07	5.58
91	2007 Ford Ranger 4x4 (Mo-Surface Maintenance)	5,615.90	5,479.46	13.70
92	2007 Ford Ranger 4x4 (Pedestrian & Traffic Mgt)	4,734.20	4,682.03	11.55
93	2008 Chevrolet Aveo Lt (Bldg. Insp-Permitting Ser)	485.10	481.92	1.18
94	2008 Dodge Grand Caravan (Parking Comm. Admin)	1,663.50	1,535.97	4.06
95	2008 Harley Davidson (Police)	4.20	4.83	0.01
96	2008 Harley Davidson (Police)	12.70	14.53	0.03
97	2008 Smart Car (Bldg. Insp-Permitting Ser)	164.10	170.19	0.40
98	2008 Smart Car (W&S - Ici Metering/Hydran)	424.00	447.57	1.03
99	2008 Smart Car (W&S - Ici Metering/Hydran)	1,183.20	1,292.12	2.89
100	2009 Jeep Compass Awd (Mo-Surface Maintenance)	1,593.40	1,587.47	3.89
101	2010 Dodge Grand Caravan (Materials And Fleet Mgt)	4,282.60	4,275.05	10.45
102	2011 Cat Grader (Mo-Snow Control Street)	3,174.60	3,578.83	7.74
103	2011 Ford Crown Victoria (Police)	8,806.10	8,694.63	21.48
104	2013 Mitsubishi Rvr (Police)	681.60	696.12	1.66
105	2014 Dodge Charger (Police)	12,710.00	12,704.73	31.01
106	2014 Dodge Charger (Police)	7,728.50	7,938.47	18.85
107	2014 Dodge Charger Awd (Police)	8,101.60	8,071.57	19.76
108	2014 Freightliner Packer (Mo - Solid Waste Mgmt)	3,440.00	4,038.27	8.39
109	2014 Toyota Corolla Le (Police)	882.80	839.56	2.15
	Total	**305,952.9**	**313,842.1**	**746.4**

		Diesel (L)		
		Total Use	Total Cost ($)	Total eCO2 (t)
	Replaced vehicles			
1	2000 Ford Bucket Truck (Pedestrian & Traffic Mgt)	98.10	104.82	0.26
2	2000 Mt Trackless (Mo-Snow Contr. Sidewal)	140.60	155.32	0.38
3	2000 Mt Trackless (Mo-Snow Contr. Sidewal)	1,461.00	1,658.97	3.92
4	2003 Freightliner Packer (Mo - Solid Waste Mgmt)	3,404.20	3,867.03	9.13
5	2005 Ford F 150 4x4 (Mo-Snow Control Street)	468.40	404.15	1.26
6	2007 Ford F450 Cab/Chassi (Mo-Surface Maintenance)	4,393.30	4,686.31	11.79
7	2014 Hyundai Wheel Loader (Mo-Snow Control Street)	9,533.10	10,937.08	25.58
8	2014 Hyundai Wheel Loader (Mo-Snow Control Street)	11,273.80	12,599.46	30.25
9	2000 Mt Trackless (Mo-Snow Contr. Sidewal)	2,401.40	2,713.85	6.44
10	2003 Elgin Eagle Sweeper (Mo-Street Cleaning)	5,862.40	6,152.50	15.73
11	2003 Mt5t Trackless (Mo-Snow Contr. Sidewal)	3,926.80	4,492.06	10.54
12	2004 Sterling 6-Yard (Mo-Surface Maintenance)	5,055.80	5,362.27	13.57
13	2004 Sterling 6-Yard (Mo-Surface Maintenance)	4,196.10	4,644.49	11.26
14	2004 Sterling Tandem (Mo-Street Cleaning)	950.00	1,067.21	2.55
15	2005 Cat Loader (Mo-Snow Control Street)	18,090.40	21,222.92	48.54
16	2005 Ford F450 4x4 (Mo-Surface Maintenance)	184.10	201.67	0.49
17	2005 Intl. Cab/Chass. (Mo - Stormwater Mgmt)	6,390.80	6,961.80	17.15
18	2006 Intl. Tandem (Mo-Street Cleaning)	9,156.40	10,158.30	24.57
19	2007 Ford F450 4x4 (Mo-Surface Maintenance)	6,335.10	6,914.18	17.00
20	2008 Dodge Ram 4500 4x4 (Mo-Snow Control Street)	4,863.60	5,309.04	13.05
21	2010 Ford F450 4x4 (Mo-Snow Control Street)	8,401.70	8,886.15	22.55
22	2013 Case Loader (Mo-Snow Control Street)	8,627.90	9,936.70	23.15
23	2013 Case Loader (Mo-Snow Control Street)	8,358.00	9,554.34	22.43
	Fleet optimization (vehicles removed)			
24	1996 Spartan Pumper (Fire -Carmarthen)	1,798.70	1,907.88	4.83
25	1997 E-One Pumper (Fire -Carmarthen)	393.40	362.35	1.06
26	2004 Mt5t Trackless (Mo-Snow Contr. Sidewal)	203.50	234.72	0.55
27	2006 Ford F450 Super (W&S-Wastewater Coll)	3,509.40	3,784.35	9.42
28	2007 Ford F450 4x4 (Mo-Surface Maintenance)	6,156.20	6,719.92	16.52
29	2007 Ford F450 4x4 (Mo-Surface Maintenance)	6,883.80	7,101.91	18.47
30	2008 Dodge Ram 4500 (W&S-Wastewater Coll)	5,065.70	5,624.40	13.59
31	2010 Cat Vib. Asphalt Com (Mo-Surface Maintenance)	661.10	594.30	1.77
32	2013 Spaulding Asp. Recyc (Mo-Snow Control Street)	76.70	86.21	0.21
33	2015 Case Wheel Loader (Mo-Snow Control Street)	677.50	678.11	1.82
34	2015 Case Wheel Loader (Mo-Snow Control Street)	692.00	703.86	1.86
	Total	**149,691.0**	**165,788.6**	**401.7**

UMNB-CCEI - Saint John — Corporate - MAT Technical Sheet

Sector : Transportation

Description : Fleet management

Type : Action, Measure

Description

Three Nova buses (1995 and 1996) have been replaced by recent models

Note : Cumulative effects of other projects are not considered (ex. Idle free policy).

Saint John Transit - Fleet renewal	Base year : 2015	
1 Number de vehicles	3	
2 Fuel consumption	33,577	litres
3 Fuel cost	36,169	$
4 **GHG emissions**	**90.10**	**eCO_2** (t)
5 Average efficiency gains due to renewal of fleet	17.5%	
6 **Total Reductions in GHG Emissions**	**15.77**	**eCO2 (t)**

NB: Economic estimates only take into account energy costs

Notes

1 to 4 According to the corporate inventory

5 According to the OEE, between 2004 and 2014, in New Brunswick, the energy intensity of **urban buses** has passed from 1.94 Mj / Passenger km to 1.65 Mj / Passenger km, a 17,5 % decrease

It is assumed that, at a minimum, all the buses will experience similar efficiencies for 2025

Early actions

	Gasoline (L)		
	Total Use	Total Cost ($)	Total eCO2 (t)
NOVA - CLASSIC (1995)	5,885.00	6,339.31	15.79
NOVA - CLASSIC (1996)	10,136.00	10,918.47	27.20
NOVA - CLASSIC (1996)	17,556.00	18,911.28	47.11
Total	**33,577.0**	**36,169.1**	**90.1**

Type : Technology

Description

Saint John Energy and the City of Saint John have undertaken the conversion of legacy street lighting to ene environmentally preferable, lower maintenance LED (light emitting diode) street lights.

The City estimates the efficiency gains of LED technology up to 70%

LED technology is more reliable with a much longer life span compared to the current HPS bulbs (20 year d years for HPS bulbs), so they require less maintenance, making them more economical to operate

Streetlights	Base year : 2015	
Total lighting consumption	9,685,380	kWh
Cost of electricity for lighting	823,257	$
GHG emissions from lighting electric consumption	2,712	eCO_2 (t)
Efficiency gains after conversion	**70.4%**	
Annual consumption after conversion	2,862,346	kWh
Annual energy savings due to conversion	6,823,034	kWh
Annual savings due to conversion (for City of Saint John)	116,500	$
Reduction of GHG emissions after conversion	**1910.4**	**eCO2 (t)**

Note : The capital investment of the conversion is provided Saint John Energy

NB: Economic estimates only take into account energy costs

Notes

1-8 Based on information provided and validated by M. Samir Yammine.

2- includes rental fees. (0,07$/kWh without fees)

Notes (by Mr. Samir Yammine of Saint John) **:**

UMNB-CCEI - Saint John — Corporate - MAT Techni

Sector : Water & Sewage

Description : Energy Efficiency (Electricity)

Type : Technology

Description

City of St John plans to implement several conservation measures at its Water and sewage facilities :

Overall estimated GHG reductions: 27.8 %

	Water & Sewage	Base year : 2015	
1	Electricity use	17,477,448	kWh
2	Electricity cost	1,485,583	$
3	GHG emissions from electric consumption	4,894	eCO_2 (t)
4	Efficiency gains	27.8	%
5	Electricity use reduction (kWh)	4,862,000	kWh
6	**GHG emissions reduction (tons)**	**1,358.93**	**eCO_2 (t)**
7	Annual savings (2025)	520,234	$
8	Capital investment	3,806,000	$
9	Projects' benefits (2019-2025)	1,474,460	$
10	**Net Capital investment (Investment - cost reductions)**	**2,331,540**	**$**

Further technical and financial feasibility study may be required to validate numbers

Notes

UMNB-CCEI - Saint John — Corporate - MA

Sector : Buildings (Municipal Garages)

Description : Energy Efficiency (Elec. Natural gas & pr

Type : Technology

Description

City of St John plans to implement several energy conservation measures at its municipal garages :

Overall estimated GHG reductions: 55 %

	Buildings (Municipal Garages)	Electricity		Base year : Natur
1	Energy Use (Consumption)	1,397,644	kWh	114,627
2	Energy Costs	118,800	$	97,972
3	GHG emissions	391	eCO_2 (t)	219
4	Average efficiency gains	68	%	34
5	Energy Use reduction	950,500	kWh	38,991
6	**Total Reductions in GHG Emissions**			**349**
7	Annual savings (2025)			136,034
8	Capital investment			919,500
9	Projects' benefits (2019-2025)			335,652
10	**Net Capital investment (Investment - cost reductions)**			**583,848**

Further technical and financial feasibility study may be required to validate numbers

Notes

UMNB-CCEI - Saint John — Corporate - MAT Techni

Sector : Buildings (Sport & Leisure Buildings)

Description : Energy Efficiency (Electricity & Natural Gas)

Type : Technology

Description

City of St John plans to implement several energy conservation measures at its municipal garages :

Overall estimated GHG reductions: 50 %

	Buildings (Sport & Leisure Buildings)	Base year : 2015 Electricity		Natur
1	Energy Use (Consumption)	2,751,899	kWh	45,428
2	Energy Costs	233,911	$	38,827
3	GHG emissions	771	eCO_2 (t)	87
4	Average efficiency gains	50	%	48
5	Energy Use reduction	1,377,000	kWh	21,916
6	**Total Reductions in GHG Emissions**	**427.24**	**eCO2 (t)**	
7	Annual savings (2025)	165,399	$	
8	Capital investment	1,931,400	$	
9	Projects' benefits (2019-2025)	**12,212,892**	$	
10	**Projects' savings (2019-2025)**	**-10,281,492**	**$**	

Further technical and financial feasibility study may be required to validate numbers

Notes

According to the corporate inventory

Information on projects and their results is provided by Mr. Samir Yammine of Saint John

UMNB-CCEI - Saint John — Corporate - MAT Technic

Sector : Buildings (Management & Commissions

Description : Energy Efficiency (Electricity & Natural (

Type : Technology

Description

City of St John plans to implement several energy conservation measures at its municipal garages :

Overall estimated GHG reductions: 36 %

	Buildings (Management & Commissions)	Electricity		Base year : Natur
1	Energy Use (Consumption)	15,623,969	kWh	745,610
2	Energy Costs	1,328,037	$	637,273
3	GHG emissions	4,375	eCO_2 (t)	1,426
4	Average efficiency gains	38	%	29
5	Energy Use reduction	5,922,770	kWh	218,756
6	**Total Reductions in GHG Emissions**	**2,074.99**	**eCO2 (t)**	
7	Annual savings (2025)	812,716	$	
8	Capital investment	3,311,400	$	
9	Projects' benefits (2019-2025)	**3,557,852**	$	
10	**Net Capital investment (Investment - cost reductions)**	**-246,452**	**$**	

Further technical and financial feasibility study may be required to validate numbers

Notes

According to the corporate inventory

Information on projects and their results is provided by Mr. Samir Yammine of Saint John

City of St John plans to implement a number of energy conservation measures at its buildings
The table below describes these ECMs and their projected outcome

Planned projects' detail and time table

Facility Name	Energy Measures	Address
Water Pumping Stations	Upgrade the lighting System to LED	**Multiple**
	Upgrade the Energy Management Control System (ECMS) including Heat Pump	
	Energy Optimization	
	Install VFD where applicable	
	Install High Efficiency Motors & Pumps where applicable	
	Install Energy Meters	
	Voltage Optimization	
	Gogen, Renewable Energy & Waste Recovery	
	Energy Optimization	
	Install High Efficiency Motors & Pumps where applicable	

UMNB-CCEI - Saint John — Corporate - MAT Techni

Sector : Buildings (Fire stations)

Description : Energy Efficiency (Electricity & Natural Gas) & Renev

Type : Technology

Description

City of St John plans to implement several energy conservation measures at its Fire Stations :

Overall estimated GHG reductions: 24 %

	Buildings (Fire stations)	Base year : Electricity		Natur
1	Energy Use (Consumption)	965,707	kWh	65,453
2	Energy Costs	82,085	$	55,943
3	GHG emissions	270	eCO_2 (t)	125
4	Average efficiency gains	22	%	29
5	Energy Use reduction	211,000	kWh	18,986
6	**Total Reductions in GHG Emissions**		**95.68**	**eCO2 (t)**
7	Annual savings (2025)		38,222	$
8	Capital investment		373,000	$
9	Projects' benefits (2019-2025)		**62,106**	$
10	**Net Capital investment (Investment - cost reductions)**		**310,894**	**$**

Further technical and financial feasibility study may be required to validate numbers

Notes

According to the corporate inventory

Information on projects and their results is provided by Mr. Samir Yammine of Saint John

YHC ENVIRONNEMENT

UMNB-CCEI - Saint John — Corporate - MAT Technical Sheet

Sector : Transportation

Description : Optimal Replacement Policy - rental vehicles

Type : Measure, Action and Technology

Description

The City of Saint John, each year, rents some vehicles for seasonal needs.
This rental fleet is regularly renewed with recent models.
The City prioritizes the smallest models that meet his needs.
As for vehicles owned by the City, a fuel efficiency is achieved because recent models are generally more efficient

Optimal Replacement Policy - rental vehicles	Base year : 2015 Gasoline	Diesel
1 Number de vehicles	23	4
2 Fuel consumption	27,469 litres	6,912 litres
3 Fuel cost	29,198 $	7,198 $
4 GHG emissions	67.01 eCO_2 (t)	18.55 eCO_2 (t)
5 Number of vehicles to be replaced	23	4
6 Average efficiency gains due to renewal of fleet	5.0%	5.0%
7 Reduction of GHG emissions after conversion	3.4 eCO2 (t)	0.9 eCO2 (t)
8 Total Reductions in GHG Emissions	**4.28 eCO2 (t)**	

NB: Economic estimates only take into account energy costs

Notes

1 to 4 According to the corporate inventory
5 Based on corporate fleet information
5 It is assumed that vehicles are replaced by similar recent models
6 According to the OEE, between 2004 and 2014, in New Brunswick, the energy intensity of passenger road transportation has passed from 1.79 Mj / vehicle km to 1.75 Mj / vehicle km, a 5.1% decrease
It is assumed that, at a minimum, all vehicles in the City will experience similar efficiencies for 2025

Assumptions :

1. Some vehicles of the corporate fleet will be replaced based on their type and age

2. Vehicles will be replaced by recent equivalents

3. It is assumed that this policy has no impact on the total size of the corporate fleet thus, the same needs will be met through with more efficient vehicles

	Gasoline (L)		
	Total Use	Total Cost ($)	Total eCO2 (t)
Rental vehicles			
1 2011 Ford F250 Crew Cab (Parks General Services) - Seasonal rental	2,450.80	2,585.26	5.98
2 2011 Ford F250 Crew Cab (Parks General Services) - Seasonal rental	1,148.70	1,251.25	2.80
3 2011 Ford F250 Crew Cab (Pedestrian & Traffic Mgt) - Seasonal rental	2,705.50	2,766.62	6.60
4 2012 Chev Silverado (Parks General Services) - Seasonal rental	1,478.30	1,635.28	3.61
5 2012 Chev Silverado (Watershed Management) - Seasonal rental	1,367.40	1,387.14	3.34
6 2012 Ford F150 (W&S- Wastewater Pumping) - Seasonal rental	951.00	1,016.61	2.32
7 2013 Ford 3/4 Ton Crew (Rockwood Park) - Seasonal rental	844.20	940.61	2.06
8 2013 Ford F250 Crew Cab (Parks General Services) - Seasonal rental	1,819.00	1,975.77	4.44
9 2013 Ford F250 Crew Cab (Watershed Management) - Seasonal rental	1,576.80	1,765.52	3.85
10 2013 Gmc Sierra 1/2 Ton (W&S-Wastewater Coll) - Seasonal rental	1,341.70	1,444.08	3.27
11 2014 Ford F-150 Supercrew (Parks General Services) - Seasonal rental	675.60	752.20	1.65
12 2014 Ford F350 Crew Cab (Mo - Stormwater Mgmt) - Seasonal rental	2,568.40	2,694.71	6.27
13 2015 Chev Silverado (Sports Fields) - Seasonal rental	164.80	188.42	0.40
14 2015 Chev Silverado 2500 (W&S- Water Treatment) - Seasonal rental	419.20	463.28	1.02
15 2015 Chev Sonic (Mo-Surface Maintenance) - Seasonal rental	800.90	878.44	1.95
16 2015 Dodge Ram 1/2 Ton (Parks General Services) - Seasonal rental	556.69	533.09	1.36
17 2015 Dodge Ram 1500 (Parks General Services) - Seasonal rental	1,073.40	1,040.91	2.62
18 2015 Dodge Ram 1500 Crewc (Sports Fields) - Seasonal rental	881.00	959.28	2.15
19 2015 Dodge Ram Crew Cab (Sports Fields) - Seasonal rental	598.50	643.95	1.46
20 2015 Ford F150 Crew Cab (Parks General Services) - Seasonal rental	678.90	758.91	1.66
21 2015 Gmc Sierra (Parks General Services) - Seasonal rental	601.90	675.14	1.47
22 2015 Gmc Sierra Crewcab (Sports Fields) - Seasonal rental	1,078.30	1,165.23	2.63
23 2016 Ford F250 (Rockwood Park) - Seasonal rental	1,687.70	1,676.67	4.12
Total	**27,468.7**	**29,198.4**	**67.0**

	Diesel (L)		
	Total Use	Total Cost ($)	Total eCO2 (t)
Rental vehicles			
1 2015 Chev Silverado (Mo -Trans& Env. Eng.Ge) - Seasonal rental	2,261.00	2,338.66	6.07
2 2015 Chev Silverado 1 Ton (Parks General Services) - Seasonal rental	628.70	650.81	1.69
3 2015 Chev Silverado 1 Ton (W&S- Water Treatment) - Seasonal rental	3,339.50	3,486.29	8.96
4 2015 Dodge Ram 2500 (Watershed Management) - Seasonal rental	682.90	722.20	1.83
Total	**6,912.1**	**7,198.0**	**18.5**

YHC ENVIRONNEMENT

UMNB-CCEI - Saint John — Corporate - MAT Technical Sheet

Sector : Transportation

Description : Optimal Replacement Policy

Type : Measure, Action and Technology

Description

The City of Saint John has a fleet replacement policy that aims to optimize fleet size and usage. Vehicles are replaced based on a formula that takes into account
- Their age
- Their general state
- Their usage (mileage)

In addition, once a vehicle has reached its useful life, the City assesses whether better management of the remaining fleet could prevent its replacement or it could be replaced by a smaller vehicle.
As a result, this project includes a cleaner vehicle purchase policy component

Optimal Replacement Policy	Base year : 2015 Gasoline	Diesel
1 Number de vehicles	121	54
2 Fuel consumption	387,979 litres	372,840 litres
3 Fuel cost	390,823 $	397,246 $
4 GHG emissions	946.49 eCO_2 (t)	1000.49 eCO_2 (t)
5 Number of vehicles to be replaced	121	54
6 Average efficiency gains due to renewal of fleet	5.0%	5.0%
7 Reduction of GHG emissions after conversion	47.3 eCO2 (t)	50.0 eCO2 (t)
8 Total Reductions in GHG Emissions	**97.35 eCO2 (t)**	

NB: Economic estimates only take into account energy costs

Notes

1 to 4 According to the corporate inventory

5 Based on corporate fleet information

5 It is assumed that vehicles are replaced by similar recent models

6 According to the OEE, between 2004 and 2014, in New Brunswick, the energy intensity of passenger road transportation has passed from 1.79 Mj / vehicle km to 1.75 Mj / vehicle km, a 5.1% decrease

It is assumed that, at a minimum, all vehicles in the City will experience similar efficiencies for 2025

Assumptions :

1. Some vehicles of the corporate fleet will be replaced based on their type and age

2. Vehicles will be replaced by recent equivalents

3. It is assumed that this policy has no impact on the total size of the corporate fleet thus, the same needs will be met through with more efficient vehicles

2025	
Fire trucks	2000
Heavy machinery	2010
Heavy trucks	2015
Trucks and light vehicles	2015

		Gasoline (L)		
		Total Use	Total Cost ($)	Total eCO2 (t)
0	1965 Volkswagon Beetle (Police)			
1	2003 Ford 3/4 Ton 4x4 (W&S-Wastewater Treatment)	1,059.70	1,054.54	2.59
2	2003 Ford Econoline Van (Police)	1,040.90	1,085.67	2.54
3	2004 Dodge Ram 2500 4x4 (Technical Rescue Service)	1,010.80	944.79	2.47
4	2004 Ford F550 1.5 Ton (Parks General Services)	1,914.30	2,057.15	4.67
5	2004 International 4300 (Urban Forestry)	3,108.70	3,368.61	7.58
6	2005 Dodge Ram 2500 4x4 (Fleet Services)	4,808.40	4,735.64	11.73
7	2005 Gmc Sierra 2500 (Fire - Regional Hazmat)	1,162.50	1,159.04	2.84
8	2005 Kubota Tractor (Parks General Services)	773.80	879.11	1.89
9	2005 Kubota Tractor (Sports Fields)	182.60	172.97	0.45
10	2006 Ford F450 Boom Truck (W&S-Wastewater Coll)	3,374.10	3,680.77	8.23
11	2006 Ford Ranger Supercab (Mo-Programs & Cust. Seriv)	3,328.30	3,337.71	8.12
12	2006 Gmc Sierra 1/2tn 4x4 (Fire -Carmarthen)	1,717.60	1,696.19	4.19
13	2007 Chev Cargo Van (Police)	1,283.30	1,308.52	3.13
14	2007 Chrysler Sebring (Police)	1,387.50	1,375.07	3.38
15	2007 Chrysler Sebring (Police)	1,309.10	1,287.20	3.19
16	2007 Chrysler Sebring (Police)	1,307.30	1,313.43	3.19
17	2007 Dodge Caliber (H.R. - Administration)	499.60	495.84	1.22
18	2007 Dodge Charger Awd (Fire Prevention)	1,981.80	1,967.39	4.83
19	2007 Gmc Sierra 3500 (W&S- Wastewater Pumping)	2,792.10	3,084.37	6.81
20	2007 Toyota Camry Hybrid (Fire -Carmarthen)	774.30	762.81	1.89
21	2007 Toyota Camry Hybrid (W&S-Wastewater Treatment)	798.40	799.27	1.95
22	2008 Chevrolet Aveo Lt (Bldg. Insp-Permitting Ser)	934.00	941.27	2.28
23	2008 Ford Crown Victoria (Police)	93.20	93.38	0.23
24	2008 Ford Crown Victoria (Police)	3,634.70	3,595.66	8.87
25	2008 Ford F250 4x4 Xl (Sj Water - Watershed Mgmt)	5,511.60	5,368.82	13.45
26	2008 Ford F450 4x4 (W&S-Wastewater Coll)	773.30	815.22	1.89
27	2008 Ford Fusion Se (Fire Prevention)	1,114.90	1,100.97	2.72
28	2008 Gmc Savana Cargo Van (Fire Investigation)	1,870.40	1,887.03	4.56
29	2008 Jeep Compass (Mo - Stormwater Mgmt)	857.60	848.69	2.09
30	2008 Jeep Compass Awd (Parks General Services)	529.40	541.98	1.29
31	2008 Smart Car (Bldg. Insp/ By-Law Enforc)	263.30	268.25	0.64
32	2008 Volvo Rbr Tire Excav (W&S-Wastewater Coll)	5,520.50	5,792.48	13.47
33	2009 Ford Crown Victoria (Police)	2,464.20	2,395.26	6.01
34	2009 Int. Fuel Truck (Fleet Services)	7,276.20	7,185.59	17.75
35	2009 Int.Cab/Chass Vactor (W&S-Wastewater Coll)	8,143.90	8,726.31	19.87
36	2009 Jeep Compass Awd (Mo - Solid Waste Mgmt)	839.70	825.08	2.05
37	2009 Jeep Compass Awd (Pedestrian & Traffic Mgt)	1,034.30	1,088.91	2.52
38	2009 Jeep Compass Awd (W&S - Water Trans & Dist.)	578.70	574.90	1.41
39	2009 Jeep Liberty (Data Processing)	1,093.30	1,086.10	2.67
40	2009 Jeep Liberty (W&S - Water Trans & Dist.)	907.90	896.22	2.21
41	2009 Kubota Tractor (Parks General Services)	64.60	65.61	0.16
42	2009 Toyota Prius (Parks - Gen. Services)	427.50	439.11	1.04
43	2009 Toyota Prius (Police)	140.50	138.97	0.34
44	2010 Chev Aveo Lt (Bldg. Insp-Permitting Ser)	1,154.80	1,155.90	2.82
45	2010 Ford Crown Victoria (Police)	3,563.70	3,567.09	8.69
46	2010 Ford Crown Victoria (Police)	932.10	890.60	2.27
47	2010 Ford F150 4wd Ext. C (Mo-Snow Control Street)	4,667.90	4,640.65	11.39
48	2010 Ford F150 4wd Ext. C (Parks General Services)	2,821.10	2,767.40	6.88
49	2010 Ford F150 4wd Ext.C (Carp Shop - Fac. Magt)	2,489.30	2,440.38	6.07
50	2010 Ford F150 Ext. Cab (Parking Commission)	4,843.00	4,778.60	11.81
51	2010 Ford Ranger Super Ca (Neighbourhood Development)	1,408.60	1,461.66	3.44
52	2010 Kia Soul (Police)	1,650.20	1,641.67	4.03
53	2010 Pontiac G5 (W&S- Wastewater Pumping)	831.30	827.26	2.03
54	2010 Pontiac G5 (W&S- Water Treatment)	828.90	825.70	2.02
55	2010 Toyota Tacoma (Mo-Surface Maintenance)	1,646.90	1,692.08	4.02
56	2011 Chev Impala (Fire -Carmarthen)	2,063.30	2,069.36	5.03
57	2011 Chev Impala Ltz (Police)	894.10	885.95	2.18
58	2011 Ford F250 Crew Cab (W&S- Wastewater Pumping)	4,793.50	4,745.49	11.69
59	2011 Ford F450 W/Flat Bed (Parks - Gen. Services)	4,227.20	4,632.34	10.31
60	2011 Gmc Canyon W/ Box Ca (W&S-Wastewater Treatment)	2,977.40	2,991.12	7.26
61	2011 Gmc Sierra 3/4 Ton (W&S- Wastewater Pumping)	5,341.90	5,488.51	13.03
62	2011 International Tandem (W&S - Water Trans & Dist.)	12,064.01	13,311.77	29.43
63	2011 VolvoExcavator (W&S - Water Trans & Dist.)	6,922.40	7,529.21	16.89
64	2012 Dodge Charger (Police)	7,981.90	7,940.55	19.47
65	2012 Dodge Charger (Police)	11,823.30	11,874.86	28.84
66	2012 Ford F450 Crew Cab (W&S - Water Trans & Dist.)	5,597.20	6,117.57	13.65
67	2012 Ford F450 Crew Cab (W&S - Water Trans & Dist.)	5,705.50	6,214.81	13.92
68	2012 Ford Fusion Se (Police)	2,730.10	2,753.45	6.66
69	2012 Ford Fusion Se (Police)	2,047.00	2,045.78	4.99
70	2013 Dodge Avenger (Police)	828.70	794.73	2.02
71	2013 Dodge Avenger (Police)	3,338.70	3,344.55	8.14
72	2013 Dodge Avenger (Police)	1,247.30	1,212.41	3.04
73	2013 Dodge Ram 1500 W/Cap (Fire -Carmarthen)	5,791.90	5,803.34	14.13
74	2013 Ford F150 Reg Cab 4x (Fleet Services)	1,560.20	1,615.13	3.81
75	2013 Ford F150 Supercab (Carp Shop - Fac. Magt)	2,012.80	2,018.97	4.91
76	2013 Ford Supercab 4x4 (W&S - Water Trans & Dist.)	4,718.10	4,777.51	11.51
77	2013 Ford Supercab 4x4 (W&S-Wastewater Coll)	5,903.90	5,846.87	14.40
78	2014 Dodge Charger (Police)	12,423.70	12,305.12	30.31
79	2014 Dodge Charger (Police)	11,151.10	11,160.61	27.20
80	2014 Dodge Charger Enf. (Fire -Carmarthen)	2,502.70	2,458.90	6.11
81	2014 Dodge Ram 1500 St (W&S - Water Trans & Dist.)	5,705.90	5,663.05	13.92
82	2014 Dodge Ram 1500 St (W&S- Water Treatment)	9,134.30	9,095.40	22.28
83	2014 Dodge Ram Promaster (Police)	1,397.90	1,366.91	3.41
84	2014 F250 Reg Cab 4x4 (Mo-Snow Control Street)	9,041.30	8,818.47	22.06
85	2014 Ford F150 Ext. Cab (W&S - Water Trans & Dist.)	17,176.30	17,344.10	41.90
86	2014 Ford F150 Reg. Cab (Sports Fields)	2,750.40	2,775.46	6.71
87	2014 Ford F150 Supercab (Fleet Services)	1,339.90	1,350.12	3.27
88	2014 Ford F150 Supercab (Fleet Services)	4,670.00	4,639.05	11.39
89	2014 Ford F150 Supercab (Fleet Services)	3,584.50	3,548.75	8.74
90	2014 Ford F150 Supercab (Mo - Stormwater Mgmt)	4,902.30	4,837.58	11.96
91	2014 Ford F150 Supercab (Mo-Snow Control Street)	6,102.50	6,005.93	14.89
92	2014 Ford F150 Supercab (Mo-Surface Maintenance)	6,296.40	6,122.83	15.36
93	2014 Ford F150 Supercab (Pedestrian & Traffic Mgt)	4,403.30	4,374.54	10.74
94	2014 Ford F150 Supercrew (W&S-Wastewater Coll)	2,672.30	2,672.99	6.52
95	2014 Ford F250 Supercab (W&S-Wastewater Treatment)	2,365.50	2,318.78	5.77
96	2014 Ford F450 (Mo-Snow Control Street)	13,412.00	13,107.26	32.72
97	2014 Ford F450 (Mo-Surface Maintenance)	12,355.00	12,033.37	30.14
98	2014 Ford F450 Ext. Cab (Mo-Street Cleaning)	14,552.40	13,817.45	35.50
99	2014 Gmc Savana Ext Cargo (Police)	558.30	571.50	1.36
100	2014 Honda Cr-V (Mo-Surface Maintenance)	2,293.60	2,302.37	5.60
101	2014 Toyota Corolla Le (Police)	1,469.60	1,470.50	3.59
102	2015 Dodge Charger Awd (Fire -Carmarthen)	230.00	212.37	0.56
103	2015 Ford F250 Ext. Cab (Water Trans And Pump)	6,856.60	7,245.45	16.73
104	2015 Ford F250 Supercab (W&S - Water Trans & Dist.)	2,633.10	2,768.43	6.42
105	2015 Ford F350 Reg Cab (Parks General Services)	5,061.00	5,113.60	12.35
106	2015 Ford F350 Reg Cab (Sports Fields)	5,267.10	5,207.96	12.85
107	2015 Ford Interceptor (Police)	435.60	399.59	1.06
108	2015 Ford Interceptor (Police)	1,276.80	1,181.42	3.11
109	2015 Ford Interceptor (Police)	1,435.60	1,332.13	3.50
110	2015 Ford Interceptor (Police)	809.60	753.74	1.98
111	2015 Ford Interceptor Awd (Police)	40.80	37.17	0.10
112	2015 Toyota Corolla (Police)	649.40	647.08	1.58
113	2015 Toyota Corolla Le (Police)	1,102.31	1,090.25	2.69
114	2015 Toyota Rav 4 Awd (Parking Comm. Admin)	1,409.60	1,422.98	3.44
115	2016 Dodge Ram 1500 4wd (Sports Fields)	95.30	87.87	0.23
116	2016 Dodge Ram 1500 Crew (Water And Waste Water Eng)	128.90	119.23	0.31
117	2016 Dodge Ram 2500 Crew (Watershed Management)	136.90	124.99	0.33
118	2016 Ford F250 3/4ton 4wd (W&S-Water Pump-Storage)	125.30	115.53	0.31
119	2016 Ford F250 3/4ton 4wd (Water Trans And Pump)	302.30	281.80	0.74

		Diesel (L)		
		Total Use	Total Cost ($)	Total eCO2 (t)
1	1996 Metalfab Tanker (Fire -Carmarthen)	565.80	593.08	1.52
2	1997 Rosenbauer 109 Aeria (Fire -Carmarthen)	2,098.60	2,094.45	5.63
3	2000 Spartan Pumper (Fire -Carmarthen)	4,014.50	4,291.02	10.77
4	2001 Freightliner Tanker (Fire -Carmarthen)	1,816.40	1,813.75	4.87
5	2001 Spartan Pumper (Fire -Carmarthen)	6,261.90	6,469.11	16.80
6	2002 Ford F550 Air Supply (Fire -Carmarthen)	474.50	505.69	1.27
7	2003 Cat TrackExcavator (Mo - Stormwater Mgmt)	2,347.60	1,685.14	6.30
8	2003 E-One Aerial Ladder (Fire -Carmarthen)	6,687.50	7,161.51	17.95
9	2004 E-One Rescue Pumper (Fire -Carmarthen)	7,427.00	7,909.34	19.93
10	2004 John Deere Loader (Mo-Snow Control Street)	6,985.60	7,581.38	18.75
11	2005 Gmc C5500 Crew Cab (Fire - Regional Hazmat)	86.90	97.89	0.23
12	2005 Sterling Tandem (Mo - Stormwater Mgmt)	9,353.00	9,939.97	25.10
13	2006 E-One Pumper (Fire -Carmarthen)	5,079.50	5,328.42	13.63
14	2006 E-One Pumper (Fire -Carmarthen)	4,644.80	4,872.74	12.46
15	2006 Int'l Tandem (Mo-Snow Control Street)	9,558.50	10,399.40	25.65
16	2006 Intl. 6-Yard (Mo - Stormwater Mgmt)	4,626.90	5,359.58	12.42
17	2006 Intl. 6-Yard (Mo-Snow Control Street)	5,722.50	6,086.13	15.36
18	2006 Intl. 6-Yard (Mo-Surface Maintenance)	4,664.10	4,790.09	12.52
19	2006 John Deere Loader (Mo-Snow Control Street)	10,384.70	11,419.77	27.87
20	2007 Camoplast Sdwlk Mach (Mo-Snow Contr. Sidewal)	3,554.60	4,009.12	9.54
21	2007 Cat.Backhoe/Loader (Mo - Stormwater Mgmt)	3,357.10	3,355.17	9.01
22	2007 Cat.Backhoe/Loader (Mo - Stormwater Mgmt)	2,042.10	1,874.97	5.48
23	2007 Int. E-One Tanker (Fire -Carmarthen)	1,882.50	1,957.18	5.05
24	2007 International 7500 (Mo-Surface Maintenance)	5,640.50	5,520.78	15.14
25	2007 Intl. 6-Yard (Mo - Stormwater Mgmt)	2,873.80	3,102.51	7.71
26	2007 John Deere Grader (Mo-Snow Control Street)	13,041.90	14,378.98	35.00
27	2008 Case Wheel Loader (Mo-Street Cleaning)	7,403.70	7,947.48	19.87
28	2008 Int. Tandem (Mo- Sidewalk Maintenance)	4,183.50	4,394.86	11.23
29	2008 International Tandem (Mo-Snow Control Street)	11,677.30	13,109.03	31.34
30	2008 Intl 6-Yard (Mo-Snow Contr. Sidewal)	9,093.10	10,190.02	24.40
31	2008 Jd Backhoe Loader (Mo - Stormwater Mgmt)	4,814.70	4,857.92	12.92
32	2008 Jd Backhoe/Loader (Mo - Stormwater Mgmt)	5,585.80	5,939.62	14.99
33	2009 Cat Loader (Mo-Street Cleaning)	5,677.30	5,581.11	15.23
34	2009 Elgin Whirl. Sweeper (Mo-Street Cleaning)	10,222.20	10,603.06	27.43
35	2009 Int.Cab/Chass Vactor (Mo - Stormwater Mgmt)	8,288.30	7,965.43	22.24
36	2009 Mt6 Trackless (Mo-Snow Contr. Sidewal)	3,743.20	4,053.06	10.04
37	2009 Mt6 Trackless (Mo-Snow Contr. Sidewal)	2,260.40	2,359.16	6.07
38	2009 New Holland Loader (Mo-Snow Control Street)	5,835.50	6,203.91	15.66
39	2009 Sterling Tandem (Mo - Stormwater Mgmt)	15,808.90	16,557.37	42.42
40	2009 Sterling Tandem (Mo-Snow Control Street)	18,887.40	20,229.90	50.68
41	2010 Ford F150 4wd Ext. C (Mo - Solid Waste Mgmt)	6,092.90	6,023.07	16.35
42	2010 Prinoth Sw 4s (Mo-Snow Contr. Sidewal)	5,213.00	5,729.27	13.99
43	2010 Prinoth Sw 4s (Mo-Snow Contr. Sidewal)	4,056.60	4,573.22	10.89
44	2011 Ford Bucket Truck (Pedestrian & Traffic Mgt)	2,872.50	3,095.16	7.71
45	2011 International Packer (Mo - Solid Waste Mgmt)	11,177.90	12,230.51	30.00
46	2011 International Tandem (Mo-Street Cleaning)	15,560.20	16,076.33	41.75
47	2011 Intl. Single Axle (Mo-Surface Maintenance)	12,115.10	12,981.79	32.51
48	2011 Intl. Single Axle (Mo-Surface Maintenance)	13,851.60	14,918.73	37.17
49	2012 Cat Roller (Mo-Surface Maintenance)	291.70	287.63	0.78
50	2012 Cat Roller (Mo-Surface Maintenance)	189.40	178.70	0.51
51	2012 Inter. Single Axle (Mo-Snow Control Street)	13,980.40	15,472.74	37.52
52	2012 International Tandem (Mo-Snow Control Street)	19,333.20	20,701.14	51.88
53	2012 International Tandem (Mo-Snow Control Street)	16,126.60	17,871.49	43.27
54	2012 International Tandem (Mo-Snow Control Street)	13,305.20	14,516.62	35.70
	Total	**372,840.4**	**397,245.5**	**1,000.5**

120	2016 Ford F250 4wd (Other Fac.)	479.00	440.55	1.17
121	2016 Toyota Corolla Le (Bldg. Insp-Permitting Ser)	146.00	134.34	0.36
	Total	**387,979.4**	**390,822.7**	**946.5**

UMNB-CCEI - Saint John — Corporate - MAT Technical Sheet

Sector : Transportation

Description : Optimal replacement policy (SJT)

Type : Measure, Action and Technology

2025	
Urban bus	2008
Heavy machinery	2010
Heavy trucks	2015
Trucks and light vehicles	2015

Description

The optimal replacement policy is as follows:

- Fire trucks: after 25 years
- Heavy machinery: after 12 to 15 years
- Heavy trucks: after 8 to 10 years
- Trucks and light vehicles: after 10 years
- **Transit buses : after 17 years**

Thus, at the end of this action plan (2015-2025), a large number of the vehicles of the bus fleet will be replaced. In addition, the City plans to optimize the fleet size to make it more efficient.

Note : Cumulative effects of other projects are not considered (ex. Idle free policy).

Optimal replacement policy (SJT)	Base year : 2015	
1 Number de vehicles	47	
2 Number of vehicles to be replaced	31	
3 Fuel consumption	941,145	litres
4 Fuel cost	1,013,799	$
5 GHG emissions	2525.50	eCO_2 (t)
6 Average efficiency gains due to renewal of fleet	17.5%	
7 **Total Reductions in GHG Emissions**	**441.96**	**eCO2 (t)**

NB: Economic estimates only take into account energy costs

Notes

1 to 4 According to the corporate inventory

5 Based on fleet information

5 It is assumed that vehicles are replaced by similar recent models

6 According to the OEE, between 2004 and 2014, in New Brunswick, the energy intensity of **urban buses** has passed from 1.94 Mj / Passenger km to 1.65 Mj / Passenger km, a 17,5 % decrease

It is assumed that, at a minimum, all the buses will experience similar efficiencies for 2025

Assumptions :

1. Buses will be replaced based on their age (up to 17 years)
2. Buses will be replaced by recent equivalents
3. It is assumed that this policy has no impact on the total size of the fleet thus, the same needs will be met through with more efficient vehicles
4. It is assumed that the renewed fleet will be on average 17.5% more efficient than the current fleet.

Note :
All buses are already equipped with AVL/telemetry

Early actions

Vehicles not subject to replacement policy (either too recent)

		Gasoline (L)		
		Total Use	Total Cost ($)	Total eCO2 (t)
	FORD - E450 (2008)	10,107.00	10,887.23	27.12
	FORD - E450 (2009)	7,314.00	7,878.62	19.63
	FORD - E450 (2009)	2,508.00	2,701.61	6.73
	CHEVROLET - EXPRESS (2011)	10,808.00	11,642.35	29.00
	CHEVROLET - EXPRESS (2012)	9,410.00	10,136.43	25.25
	CHEVROLET - EXPRESS (2013)	9,911.00	10,676.10	26.60
	CHEVROLET - EXPRESS (2014)	5,858.00	6,310.22	15.72
	FORD - F350 (2008)	4,400.00	4,739.67	11.81
1	ORION - ORION 6 (1997)	24,331.00	26,209.29	65.29
2	ORION - ORION 7 (2002)	22,115.00	23,822.22	59.34
3	ORION - ORION 7 (2004)	10,970.00	11,816.86	29.44
4	ORION - ORION7 (2002)	20,008.00	21,552.57	53.69
5	ORION - ORION 7 (2004)	25,063.00	26,997.80	67.25
6	ORION - ORION7 (2004)	28,113.00	30,283.25	75.44
7	ORION - ORION7 (2005)	30,394.00	32,740.34	81.56
8	ORION - ORION7 (2005)	31,179.00	33,585.94	83.67
9	ORION - ORION7 (2006)	28,005.00	30,166.92	75.15
10	ORION - ORION7 (2006)	27,763.00	29,906.23	74.50
11	ORION - ORION7 (2006)	37,427.00	40,316.27	100.43
12	ORION - ORION NG (2007)	36,474.00	39,289.70	97.88
13	ORION - ORION NG (2007)	36,472.00	39,287.55	97.87
14	ORION - ORION NG (2007)	40,571.00	43,702.98	108.87
15	ORION - ORION NG (2007)	38,354.00	41,314.83	102.92
16	ORION - ORION NG (2007)	40,326.00	43,439.07	108.21
17	ORION - ORION NG (2007)	35,774.00	38,535.66	96.00
18	ORION - ORION NG (2007)	38,300.00	41,256.66	102.78
19	ORION - ORION NG (2007)	37,957.00	40,887.18	101.85
20	ORION - ORION NG (2007)	22,962.00	24,734.61	61.62
21	ORION - ORION NG (2007)	42,459.00	45,736.73	113.94
22	ORION - ORION NG (2007)	35,696.00	38,451.64	95.79
23	ORION - ORION NG (2008)	42,149.00	45,402.80	113.10
24	ORION - ORION NG (2008)	36,673.00	39,504.06	98.41
25	ORION - ORION NG (2008)	35,882.00	38,652.00	96.29
26	ORION - ORION NG (2008)	44,352.00	47,775.86	119.02
	ORION - ORION NG (2009)	38,932.00	41,937.45	104.47
	ORION - ORION NG (2010)	41,308.00	44,496.87	110.85
	ORION - ORION NG (2010)	43,260.00	46,599.56	116.09
	ORION - ORION NG (2010)	32,039.00	34,512.33	85.97
	ORION - ORION NG (2012)	38,335.00	41,294.37	102.87
27	NOVA - CLASSIC (1992)	17,610.00	18,969.45	47.26
28	NOVA - CLASSIC (1995)	19,235.00	20,719.89	51.62
	NOVA - CLASSIC (1995)	5,885.00	6,339.31	15.79
	NOVA - CLASSIC (1996)	10,136.00	10,918.47	27.20
	NOVA - CLASSIC (1996)	17,556.00	18,911.28	47.11
29	NOVA - CLASSIC (1989)	16,906.00	18,211.10	45.37
30	NOVA - ARTICULATED (2008)	10,107.00	10,887.23	27.12
31	NOVA - ARTICULATED (2008)	27,518.00	29,642.32	73.84
	Total	**1,228,912.0**	**1,323,780.9**	**3,297.7**

YHC ENVIRONNEMENT

UMNB-CCEI - Saint John — Corporate - MAT Technical Sheet

Sector : Transportation

Description : Corporate Idle-free Policy

Type : Measure & Action

Description

Idling refers to running a vehicle's engine when the vehicle is not in motion. Idling occurs when car owner is warming up or cooling down a vehicle, drivers are stopped at a red light, waiting while parked outside a business or residence, or otherwise stationary with the engine running. For the average vehicle with a 3-litre engine, every 10 minutes of idling costs 300 millilitres (over 1 cup) in wasted fuel – and one half of a litre (over 2 cups) if your vehicle has a 5-litre engine

For a successful anti-idling campaign includes
- the adoption of a speed reduction regulation
- carrying out an awareness-raising campaign
- the acquisition and installation of permanent signs

Refer to OEE website for calculators and additional information on idling:
www.nrcan.gc.ca/energy/efficiency/communities-infrastructure/transportation/idling/4397

	Corporate Idle-free Policy	Base year : 2015 Gasoline		Diesel	
1	Number of units	173		95	
2	Fuel consumption *	491,215	litres	681,259	litres
3	Fuel cost *	506,876	$	734,112	$
4	GHG emissions *	1198.33	eCO_2 (t)	1828.11	eCO_2 (t)
5	Average fuel wasted idling	25,189	litres	19,760	litres
6	Average fuel economy	5.1%		2.9%	
7	GHG emissions reduction	61.45	eCO2 (t)	53.02	eCO2 (t)
8	Fuel savings ($)	25,992	$	37,644	$
9	**Total GHG Emissions reduction**	**114.47**	**eCO2 (t)**		
10	Total fuel savings ($)	63,636	$		
11	Saving per tonne of GHG reduced	556	/ t eCO2		

*** Cumulative effects of replacement policy are roughly taken into account**

NB: Economic estimates only take into account energy costs

Notes

to 4 According to the corporate inventory

UMNB-CCEI - Saint John — Corporate - MAT Tech

Sector : Transportation

Description : Telemetry & Idle-free Policy

Type : Measure & Action

Description

Telemetry is a particularly effective measure to improve energy efficiency and the GHG emissions related to vehicle management measure that makes it possible to optimize the use of vehicles.

An information gathering module retrieves the electronic data from the vehicle in order to optimize the efficiency c in behavior. The management of this information is carried out by means of computer software and enables the ve obtain reports according to the parameters he has previously established.

Telemetry combined with idle-free policy allows fuel savings exceeding 10 %

For a successful program, telemetry should be accompanied by an anti-idling campaign that includes
- the adoption of a speed reduction regulation
- carrying out an awareness-raising campaign
- the acquisition and installation of permanent signs

All Saint John Transit buses are already equipped with Automatic vehicle location (AVL)

This project aims to equip 144 vehicles of municipal fleet with idle free AVL devices

	Telemetry & Idle-free Policy	Base year : 2015 Gasoline			Die
1	Number of units	70			17
2	Fuel consumption *	198,858	litres		53,963
3	Fuel cost *	198,094	$		56,728
4	GHG emissions *	485.12	eCO_2 (t)		144.81
5	Average fuel economy			**10.0%**	
6	GHG emissions reduction	48.51	eCO2 (t)		14.48
7	Fuel savings ($)	19,809	$		5,673
8	**Total GHG Emissions reduction**			**62.99**	**eCO2 (t)**
9	Total fuel savings ($)			25,482	$
10	Saving per tonne of GHG reduced			404.53	/ t eCO2

*** Cumulative effects of replacement policy are roughly taken into account**

NB: Economic estimates only take into account energy costs

Notes

to 4 According to the corporate inventory

5 Adaptation of OEE calculator : driver(s) avoid idling for 10 minute a day

UMNB-CCEI - Saint John — Corporate - MAT Technical Sheet

Sector : Transportation

Description : Electric Vehicle

Type : Technology

Description

Electric cars use electrical energy to power an electric motor, they also reduce society's dependence on environmentally damaging fossil fuels while lowering greenhouse gas emissions and air pollution.
Electric cars are cost effective, good for the environment and deliver great performance.
There are two kinds of electric car:
Fully Electric Cars are powered 100% by electricity and have zero tailpipe emissions. Fully electric cars can travel 200-400 km on a single charge.
Plug-in Hybrid Electric Cars have small battery packs for short all-electric driving distances (20-80 km) before a gasoline engine or generator turns on for longer trips.

Nissan Leaf (2018) versus Chevrolet Aveo (2010)	Base year : 2015	
Total kilometers travelled	13,317 km	
Number of targeted units	2	
Energy saved per year (Gj and $)	22.26	680 $
GHG emissions reduction (tonnes and %)	1.48	68.1%

NB: Economic estimates only take into account energy costs

Notes

Information Entry

Choose the Gasoline vehicle	Choose the electric vehicle (EV)	Enter your annual km
Chevrolet Aveo (2010)	Nissan Leaf (2018)	13,317

Enter your Province of residence
Nouveau Brunswick

Cost Calculator

Cost of gasoline consumption ($)	Cost of electricity consumption ($)	Savings on fuel cost ($)	
891	210.54	680	76.4%

GHG Emissions Calculator

GHG Emissions - Gas (kg eq. CO2)	GHG Emissions - Electricity (kg eq. CO2)	GHG emissions Reduction (kg eq. CO2)	
2,173.4	693.5	1,479.8	68.1%

Energy Calculator (Gj)

Energy Consumption - Gas	Energy Consumption - Electricity	Energy Savings (Gj)	
31.2	8.9	22.3	71.4%

Cost of Energy

Price of Gasoline * ($)	Price of kwh of Electricity ** ($)
1.00	0.085

Source : RNCan, Guide de la consommation de carburant 2015
Essence : 2 nov 2015
NOTES :
The Quebec electricity price is an estimate of Hydro-Québec, the New Brunswick price is taken from the 2015 Fuel Consumption Guide
* For Gas price in your area you can consult:
http://www.regie-energie.qc.ca/energie/composantes.php
** Au besoin, mettre à jour les prix d'électrcité dans le Tabeau 3 de l'onglet Données

UMNB-CCEI - Saint John — Corporate - MAT Technical Sheet

Sector : Transportation

Description : Electric Vehicle (Saint John Transit)

Type : Technology

Description

Electric cars use electrical energy to power an electric motor, they also reduce society's dependence on environmentally damaging fossil fuels while lowering greenhouse gas emissions and air pollution.
Electric cars are cost effective, good for the environment and deliver great performance.
There are two kinds of electric car:
Fully Electric Cars are powered 100% by electricity and have zero tailpipe emissions. Fully electric cars can travel 200-400 km on a single charge.
Plug-in Hybrid Electric Cars have small battery packs for short all-electric driving distances (20-80 km) before a gasoline engine or generator turns on for longer trips.

Saint John Transit plans to buy two full electric buses for 2020

Disel vs electric bus	Base year :	2015
Total kilometers travelled	64,805	km
Number of targeted units	2	
Diesel use (GJ and $)	1,613	45,375 $
GHG emissions from diesel use (tons)	113	eCO_2 (t)
Electricity use of replacement buses (GJ and $)	338	7,987 $
GHG emissions from electricity use (tons)	26	eCO_2 (t)
GHG emissions reduction (tonnes and %)	86.72	76.7%
NB: Economic estimates only take into account energy costs		

UMNB-CCEI - Saint John — Corporate - MAT Techni

Sector : Transportation

Description : Hybrid Vehicle

Type : Technology

Description

Electric cars use electrical energy to power an electric motor, they also reduce society's dependence on environm fossil fuels while lowering greenhouse gas emissions and air pollution.
Electric cars are cost effective, good for the environment and deliver great performance.
There are two kinds of electric car:
Fully Electric Cars are powered 100% by electricity and have zero tailpipe emissions. Fully electric cars can travel single charge.
Plug-in Hybrid Electric Cars have small battery packs for short all-electric driving distances (20-80 km) before a ga generator turns on for longer trips.

	Daimler Smart versus Chevrolet Volt (2018)	Base year : 2015	
1	Total kilometers travelled	31,302 km	
2	Number of targeted units	4	
3	Energy saved per year (Gj and $)	29.32	893 $
4	GHG emissions reduction (tonnes and %)	1.95	39.4%

NB: Economic estimates only take into account energy costs

https://saintjohnca.sharepoint.com/sites/SupplyChainManagementTemporaryFileStorage/Shared Documents/Proposals/2021/094001P - Consulting Services – City of Saint John Public Transit and Fleet Low Carbon Migration Strategy/Corp GHC ActionPlan

Saisie d'information

Number of vehicles	Enter your annual km	Enter your Province of residence
4	7,825	Nouveau Brunswick

Vehicles

Choose the Gasoline vehicle	Electric Vehicle *	Choose the ratio of vehicle usage in all-electric mode *
Daimler Smart	Chevrolet Volt (2018)	50%

* Chevrolet Volt is a rechargeable electric hybrid model with an all-electric range of 60 km

GHG Emissions Calculator (kg éq. CO2)

	Daimler Smart	Chevrolet Volt (2018)	GHG emissions Reduction (kg eq. CO2)	
Emissions - Gas Consumption	4,963.5	2,138.1		
Emissions - Electricity Consumption	n/a	872.1		
Combined Emissions (kg eq. CO2)	4,963.5	3,010.2	1,953.3	39.4%

Cost Calculator ($)

	Daimler Smart	Chevrolet Volt (2018)	Savings on fuel cost ($)	
Cost - Gas Consumption	2,034.6	876.4		
Cost - Electricity Consumption	n/a	264.7		
Combined Costs ($)	2,034.6	1,141.2	893.4	43.9%

Energy Calculator (Gj)

	Daimler Smart	Chevrolet Volt (2018)	Energy Savings (Gj)	
Energy - Gas Consumption	71.2	30.7		
Energy - Electricity Consumption	n/a	11.2		
Combined Energies (kg eq. CO2)	71.2	41.9	29.3	41.2%

Energy Cost ($)

Gas Price * ($)	Price of kwh of Electricity ** ($)
1.00	0.085

Source : RNCan, Guide de la consommation de carburant 2015
Essence : 2 nov 2015
NOTES :
The Quebec electricity price is an estimate of Hydro-Québec, the New Brunswick price is taken from the 2015 Fuel Consumption Guide
* For Gas price in your area you can consult:
http://www.regie-energie.qc.ca/energie/composantes.php
** Au besoin, mettre à jour les prix d'électrcité dans le Tabeau 3 de l'onglet Données

Tableau 1

Modèle	Consommation moyenne	
Chevrolet Spark (2015)	17.80	(kWh/100km)
Nissan Leaf (2018)	18.60	(kWh/100km)
Electric bus	145.0	(kWh/100km)
Mitsubishi i-MIEV (2015)	18.70	(kWh/100km)
Daimler Smart	6.50	(l/100km)
Chevrolet Aveo (2010)	6.69	(l/100km)
Toyota Yaris (2015)	7.30	(l/100km)
Chevrolet Impala (2015)	9.20	(l/100km)
Diesel Bus	65.00	(l/100km)
Chevrolet Silverado (2015)	12.70	(l/100km)
Modèle hybride	**Consommation moyenne**	
Chevrolet Volt (2018)	19.90	(kWh/100km)
	5.60	(l/100km)

http://roulezelectrique.com/autob http://roulezelectrique.com/au

www.sto.ca/ligneverte/_download/depliant_phybride_2_1.pdf

Côtes de consommation selon le Guide de consommation de carburant RNCan
Selon une distance de parcours correspondant à 55 % en ville et 45 % sur la route

Tableau 2

Nombre	Ratio mode électrique
0	0%
1	10%
2	25%
3	33%
4	50%
5	67%
7	75%
10	80%
12	100%

Tableau 3

	Essence (litres)	Québec	Nouveau Brunswick
		Électrcité (kWh)	Électrcité (kWh)
GES (kg équivalent CO2)	2.43953	0.003400	0.280000
Prix d'énergie		0.0989 $	0.0850 $

Coefficient essence pour les voitures légères de niveau 2 selon Rapport d'inventaire national 1990-2012
Coefficient électricité : Rapport d'inventaire national 1990-2012
Prix d'électrcité québécoise est une estimation d'Hydro-Québec, celui du NB est tiré du Guide de la consommation de carburant 2015

Tableau 4

	Essence (litre)	Électricité (kWh)
Contenu énergétique (Gj)	0.03500	0.003600

Statistiques Canada, Guide statistique de l'énergie

Sources

VÉHICULES HYBRIDES ÉLECTRIQUES RECHARGEABLES

MARQUE / MODÈLE	CATÉGORIE	MOTEUR (kW)	CYLINDRÉE (L)	CYLINDRES	TRANSMISSION	CARBURANT	CONSOMMATION — COMBINÉE L_e/100 km — VILLE / ROUTE / COMBINÉE L/100 km	$ PAR AN	EMISSIONS DE CO_2 (g/km)	AUTONOMIE (km)	TEMPS DE RECHARGE (h)
CHEVROLET											
VOLT	C	111	1,4	4	AV	B	2,4 (21,4 kWh/100 km)	937	0	61	4
						Z	6,7 / 5,9 / 6,4		147	547	-

Coût annuel de carburant

Le coût estimatif annuel de carburant est fondé sur la cote combinée, sur une distance de parcours de 20 000 km et sur une prévision des prix, soit 1,27 $/L pour l'essence ordinaire, 1,40 $/L pour l'essence super, 1,26 $/L pour le carburant diesel et 0,12 $/kWh d'électricité. Le prix du carburant E85 n'est pas fourni.

Extraits du Guide de consommation de carburant RNCan 2015

Instructions - Inventory Quantification Support Spreadsheet

The Inventory Quantification Support Spreadsheet is a tool created to assist municipal governments in the calculation of their greenhouse gas (eCO2) emissions. This tool will help you calculate your municipal government's corporate and community eCO2 (equivalent CO2) emissions based on energy consumption and waste to landfill.

Although the spreadsheet does not include tools to quantify eCO2 reductions from measures, it allows PCP communities to successfully complete the inventory component of Milestone One. The data collected and analyzed with this spreadsheet tool will be transferable to additional Milestone support tools currently under development by PCP.

Separate worksheets have been developed to track the data within each community and corporate sector. The corporate sectors include buildings, vehicle fleet, streetlights, water and sewage, and waste. The community sectors include residential, commerical, industrial, transportation and waste. A summary of the corporate and community inventories is provided in a separate worksheet and will be automatically filled in as you input the data into each sector's worksheet.

Cells highlighted in light yellow ***must*** be filled in in order to calculate eCO2 emissions.
Cells highlighted in blue *can* be filled in, but are not necessary to calculate eCO2 emissions.
Cells highlighted in light blue *can* be altered with empirical data if available.
Cells highlighted with dark green contain the eCO2 emissions which are automatically calculated based on the information you provide.
Tabs highlighted in blue are corporate/municipal operation sectors
Tabs highlighted in yellow are community sectors
Tabs highlighted in purple are for emission factors and other reference information
General Info Tab (green), **must be filled in**

The electricity emission coefficients used in the calcuation of the eCO2 emissions were developed for Canada's National Inventory Report - Environment Canada 1990-2010. They represent the average amount of eCO2 emissions per unit of electricity within each province/territory. If your municipal government's electricity source differs from that of the rest of the province/territory, you should update the electricity emission coefficients. Please contact PCP's technical support providers to discuss this option:
Peter Martens, Project Assistant, ICLEI-Canada, (647) 728-4389, peter.martens@iclei.org; or
Jonathan Connor, Project Coordinator, ICLEI-Canada, (647) 728-4391, jonathan.connor@iclei.org.

If you require background information on greenhouse gas (GHG) emission inventories and the protocol, please refer to the document entitled "Frequently asked questions on inventories" available on the PCP website: http://sustainablecommunities.fcm.ca/Partners-for-Climate-Protection/

Directives - Tableur de soutien pour la quantification de l'inventaire des émissions de gaz à effet de serre

Le Tableur de soutien pour la quantification de l'inventaire des émissions de GES est un outil qui a été créé pour assister les gouvernements municipaux dans le calcul des émissions d'eCO2. Cet outil vous aidera à calculer l'eCO2 (l'équivalent en CO2) que produisent les activités municipales et communautaires de votre gouvernement municipal en se basant sur la consommation d'énergie et les déchets enfouis.

Même si le tableur n'inclut pas la possibilité de quantifier les réductions d'eCO2 que produiraient les mesures, il permet aux collectivités membres du PPC de réaliser avec succès l'inventaire de l'Étape 1. Les données recueillies et analysées par l'entremise de ce tableur seront transférables à d'autres outils en cours d'élaboration visant à soutenir les différentes étapes du PPC.

Des feuilles de travail distinctes ont été élaborées afin d'assurer le suivi des données de chacun des secteurs de la collectivité et des secteurs d'activité municipale. Les secteurs d'activité municipale comprennent les bâtiments, le parc de véhicules, l'éclairage des rues, les réseaux d'aqueduc et d'égouts et les matières résiduelles. Les secteurs de la collectivité englobent les secteurs résidentiel, commercial et industriel, les transports et les matières résiduelles. Le sommaire des inventaires des secteurs de la collectivité et des activités municipales est fourni sur une autre feuille de travail. Cette feuille se remplit au fur et à mesure que vous saisissez les données dans chacune des feuilles par secteur.

Les cellules surlignées en jaune pâle ***doivent*** être remplies afin de calculer les émissions d'eCO2.

Les cellules surlignées en bleu *peuvent* être remplies, mais elles ne sont pas nécessaires au calcul des émissions d'eCO2.

Les cellules surlignées en bleu pâle *peuvent* être modifiées à l'aide de données empiriques, le cas échéant.

Les cellules surlignées en vert foncé contiennent les émissions d'eCO2 calculées automatiquement à l'aide des données que vous entrez.

Les onglets surlignés en bleu sarcelle représentent les secteurs de la collectivité / d'activité municipale.

Les onglets surlignés en jaune sont des secteurs de la collectivité.

Les onglets surlignés en violet sont pour les coefficients d'émissions et autre informations de référence

Les onglets d'informations générales (en vert) doivent être remplis.

Les coefficients d'émissions relatives à l'électricité utilisés dans le calcul des émissions d'eCO2 ont été élaborés pour le Rapport d'inventaire national du Canada : 1990-2010 d'Environnement Canada. Les coefficients représentent la quantité moyenne d'émissions d'eCO2 par unité d'électricité produite dans chacune des provinces ou territoires. Si les sources d'électricité de votre gouvernement municipal sont différentes de celles de votre province ou territoire, vous devriez modifier en conséquence les coefficients d'émissions relatives à l'électricité. Afin de discuter de cette option, veuillez communiquer avec le représentant du soutien technique du PPC :
Peter Martens, assistant de projet, ICLEI-Canada, (647) 728-4389, peter.martens@iclei.org;
Jonathan Connor, assistant de projet, ICLEI - Canada, 647-728-4391; jonathan.connor@iclei.org.

Si vous avez besoin d'information de base sur les inventaires d'émissions de gaz à effet de serre (GES) et sur le protocole, veuillez consulter le document « Frequestly asked questions on inventories » (en anglais seulement) sur le site Web du PPC, au http://fmv.fcm.ca/fr/Partners-for-Climate-Protection/. http://sustainablecommunities.fcm.ca/Partners-for-Climate-Protection/

General Information

Name of Municipal Government	Saint John
Province/Territory	New Brunswick
Corporate Inventory Year	2015
Community Inventory Year	2015
Population of Saint John	67,575
Number of persons per household (2016)	2.24
Population of New Brunswick	747,101

Saint John

Corporate Inventory

GHG Emissions summary

Corporate GHG Emissions for the base year

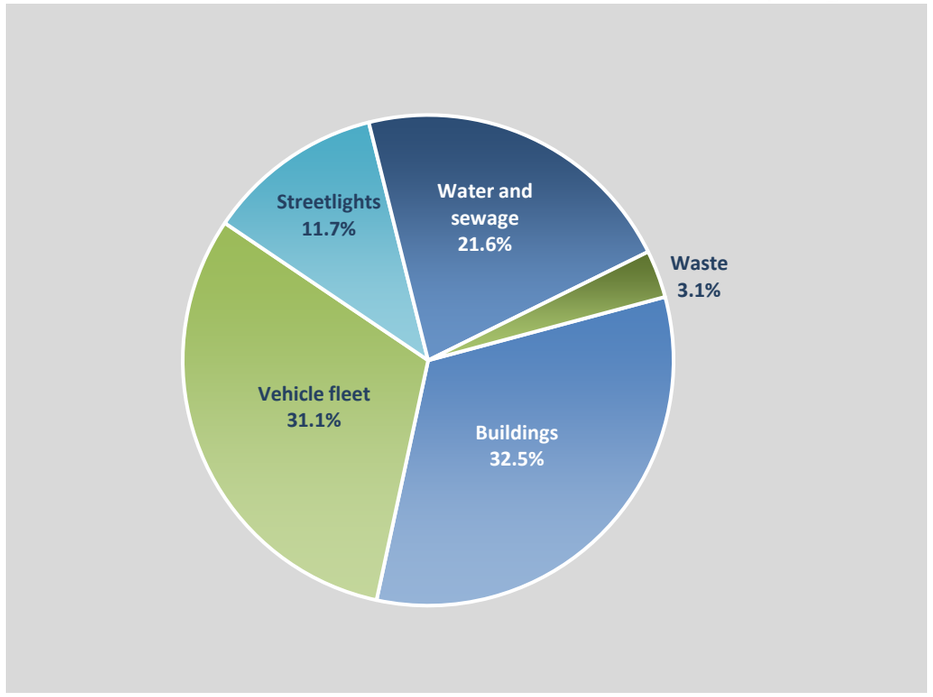
GHG (tons eCO2)	2015
Buildings	7,737
Vehicle fleet	7,390
Streetlights	2,771
Water and sewage	5,134
Waste	744
Total	23,776
Population	67,575
GHG per capita (teCO2)	0.4

Energy Consumption summary

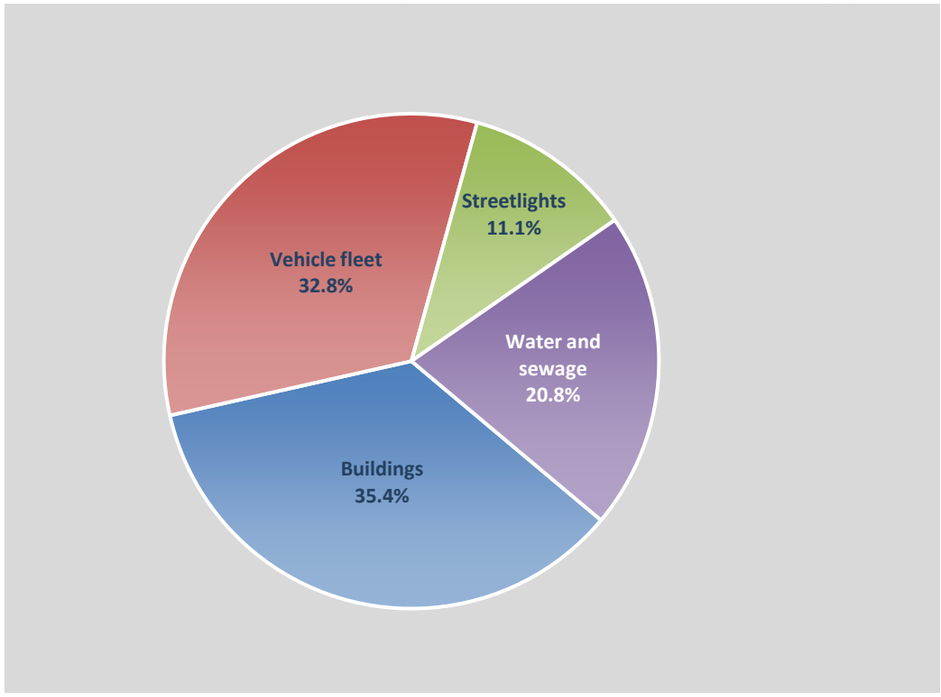
Corporate Energy Consumption for the base year

Energy Consumption (Gj)	2015
Buildings	113,878
Vehicle fleet	105,624
Streetlights	35,622
Water and sewage	66,860
Waste	-
Total	321,983
Population	67,575
Energy per capita (Gj)	4.8

Corporate GHG Emissions Breakdown by Sector ($teCO_2$)



Corporate Energy Consumption Breakdown by Sector (Gj)



Corporate GHG Emissions Breakdown by Energy Type ($teCO_2$)

Energy	2015			
	Volume	Units	($teCO_2$)	%

Corporate Energy Consumption Breakdown by Energy Type (Gj)

Energy	2015			
	Volume	Units	(Gj)	%

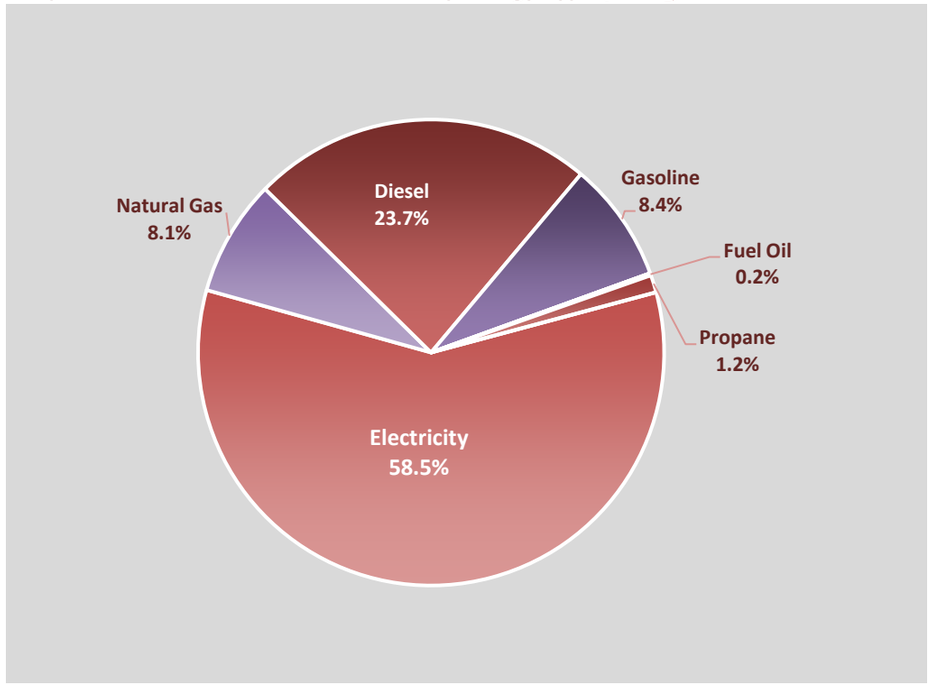
Saint John

Corporate Inventory

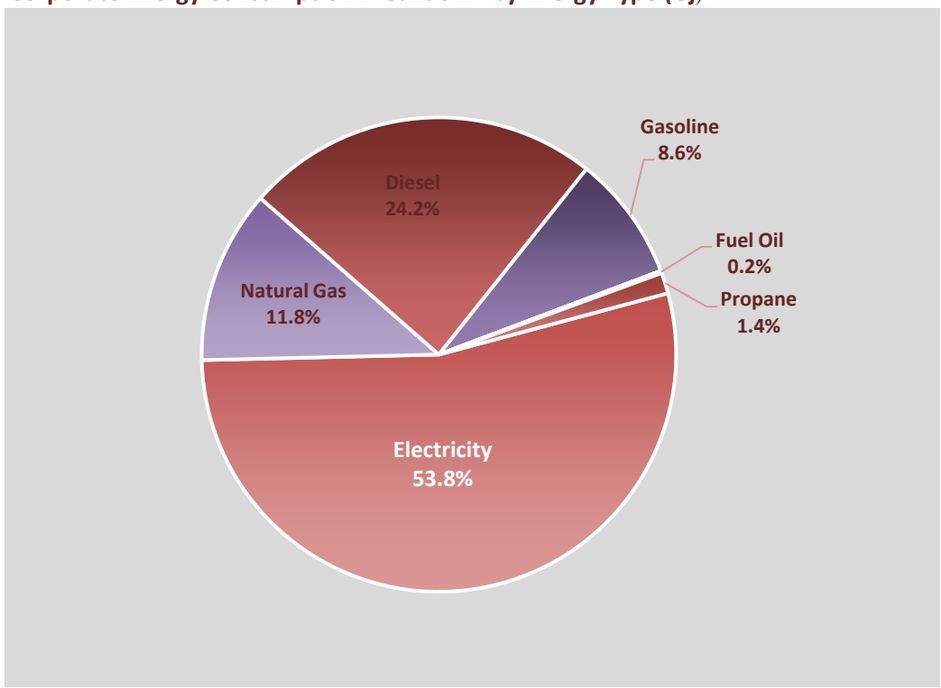
Electricity	48,111,540	kWh	13,471.2	58.5%
Natural Gas	971,119	m3	1,857.4	8.1%
CNG	0	Liters	0.0	0.0%
Diesel	2,037,035	Liters	5,466.2	24%
Gasoline	788,719	Liters	1,924.1	8.4%
District Energy	0	Gj	0.0	0.0%
Ethanol Blend (10%)	0	Liters	0.0	0%
Biodiesel	0	Liters	0.0	0%
Fuel Oil	12,767	Liters	34.9	0%
Propane	180,007	Liters	277.9	1%
Waste	-		-	
Total			23,031.8	

Electricity	48,111,540	kWh	173,202	53.8%
Natural Gas	971,119	m3	38,107	11.8%
CNG	0	Liters	0	0.0%
Diesel	2,037,035	Liters	78,018	24%
Gasoline	788,719	Liters	27,605	8.6%
District Energy	0	Gj	0	0.0%
Ethanol Blend (10%)	0	Liters	0	0%
Biodiesel	0	Liters	0	0%
Fuel Oil	12,767	Liters	495	0%
Propane	180,007	Liters	4,556	1%
Waste	-		-	
Total			321,983	

Corporate GHG Emissions Breakdown by Energy Type ($teCO_2$)



Corporate Energy Consumption Breakdown by Energy Type (Gj)



Transportation Sector- GHG Emissions

Transportation GHG Emissions Breakdown by Fuel Type (teCO2)

Energy	2015			
	Liters	($)	($teCO_2$)	%
Gasoline	788,719	806,016 $	1,924.1	26.0%
Ethanol Blend (10%)	0	0 $	0.0	0.0%
Diesel	2,037,035	2,193,854 $	5,466.2	74.0%

Transportation Sector- Energy Consumption

Transportation Energy Consumption Breakdown by Fuel Type (Gj)

Energy	2015			
	Liters	($)	(Gj)	%
Gasoline	788,719	806,016 $	27,605	26.1%
Ethanol Blend (10%)	0	0 $	0	0.0%
Diesel	2,037,035	2,193,854 $	78,018	73.9%

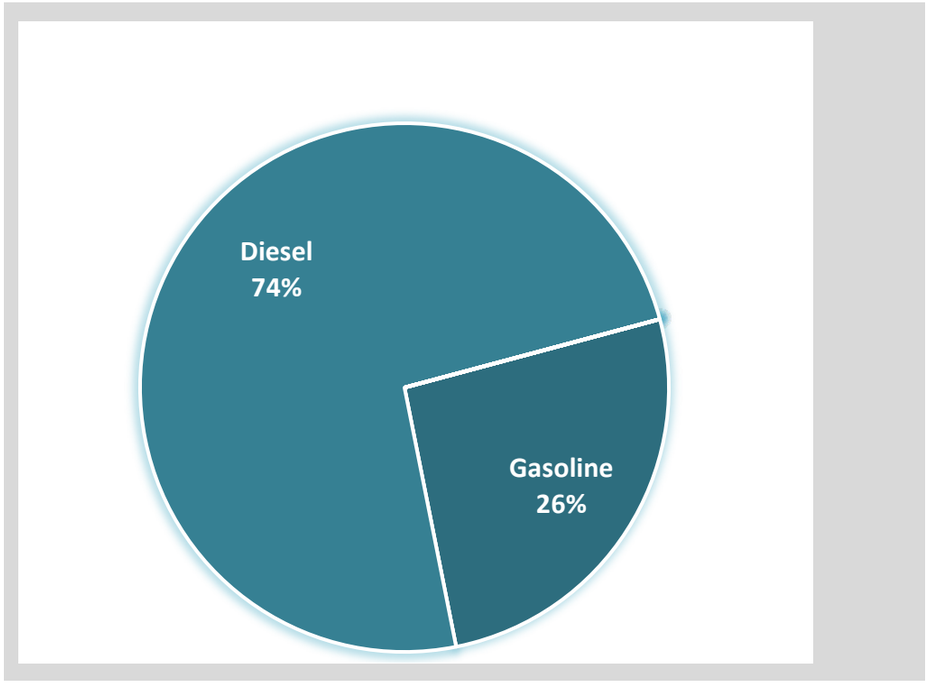
Saint John

Corporate Inventory

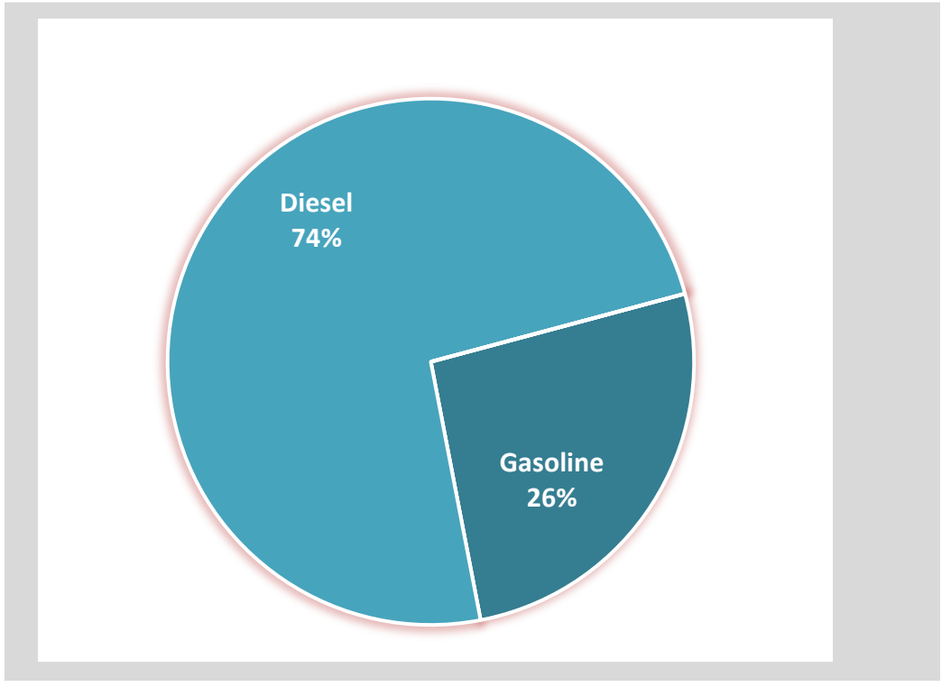
Biodiesel	0	0 $	0.0	0.0%
CNG	0	0 $	0.0	0.0%
Propane	0	0 $	0.0	0.0%
Total		**2,999,870 $**	**7,390.3**	

Biodiesel	0	0 $	0	0.0%
CNG	0	0 $	0	0.0%
Propane	0	0 $	0	0.0%
Total		**2,999,870 $**	**105,624**	

Transportation Sector- GHG Emissions ($teCO_2$)



Transportation Sector- Energy Consumption (Gj)



Buildings, Water and Sewage sectors - GHG Emissions

Infrastructures and lighting GHG Emissions Breakdown by Energy Type (teCO2)

Energy	2015			
	Volume	($)	($teCO_2$)	%
Electricity (kWh)	48,111,540	4,089,481 $	13,471.2	86.1%
Natural Gas (m^3)	971,119	830,015 $	1,857.4	11.9%
Propane (liters)	180,007	72,003 $	277.9	1.8%
District Energy (GJ)	0	0 $	0.0	0.0%
Fuel Oil (liters)	12,767	9,703 $	34.9	0.2%
Diesel (lires)	0	0 $	0.0	0.0%
Total		**5,001,202 $**	**15,641.5**	

Infrastructures and lighting GHG Emissions Breakdown by Energy Type (teCO2)

Buildings and Sewage sectors - Energy Consumption

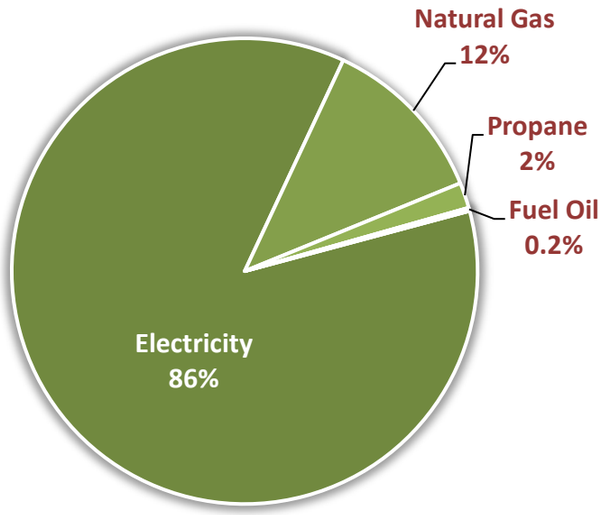
Infrastructures and lighting Energy Consumption Breakdown by Energy Type (Gj)

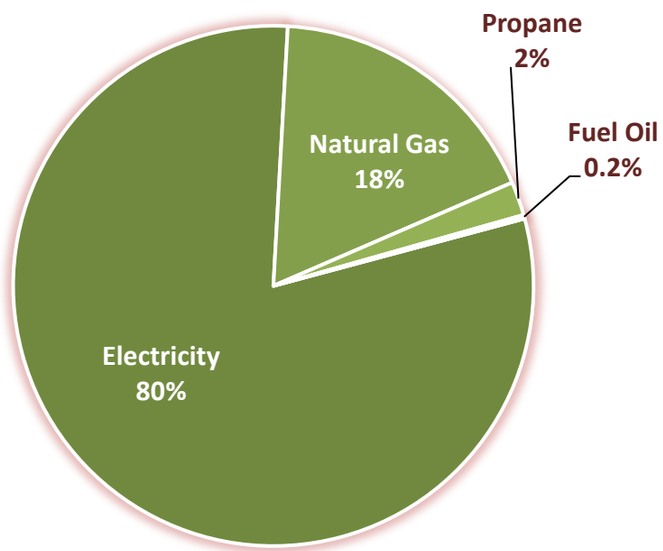
Energy	2015			
	Volume	($)	(Gj)	%
Electricity	48,111,540	4,089,481 $	173,202	80.1%
Natural Gas	971,119	830,015 $	38,107	17.6%
Propane	180,007	72,003 $	4,556	2.1%
District Energy	0	0 $	0	0.0%
Fuel Oil	12,767	9,703 $	495	0.2%
Diesel	0	0 $	0	0.0%
Total		**5,001,202 $**	**216,360**	

Infrastructures and lighting Energy Consumption Breakdown by Energy Type (Gj)

Saint John

Corporate Inventory





Saint John

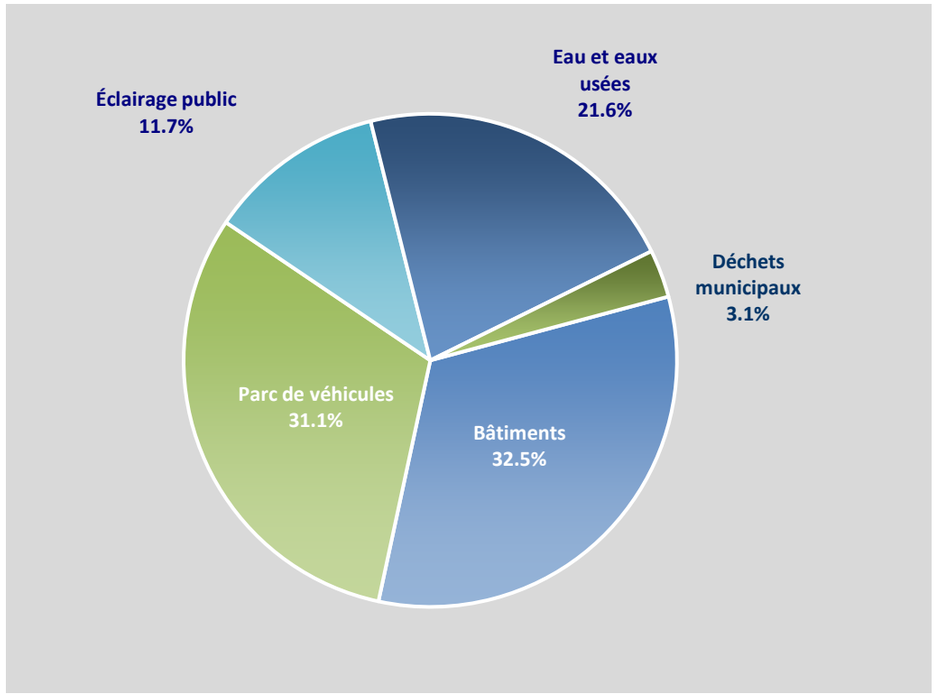
Inventaire corporatif

Émissions de GES

Émissions de GES corporatives pour l'année de référence

GES (tonnes équivalent CO_2)	2015
Bâtiments	7,737
Parc de véhicules	7,390
Éclairage public	2,771
Eau et eaux usées	5,134
Déchets municipaux	744
Total	**23,776**
Population	67,575
GES per capita (teCO2)	0.4

Émissions de GES corporatives par secteur ($teCO_2$)



Émissions de GES corporatives par source énergétique

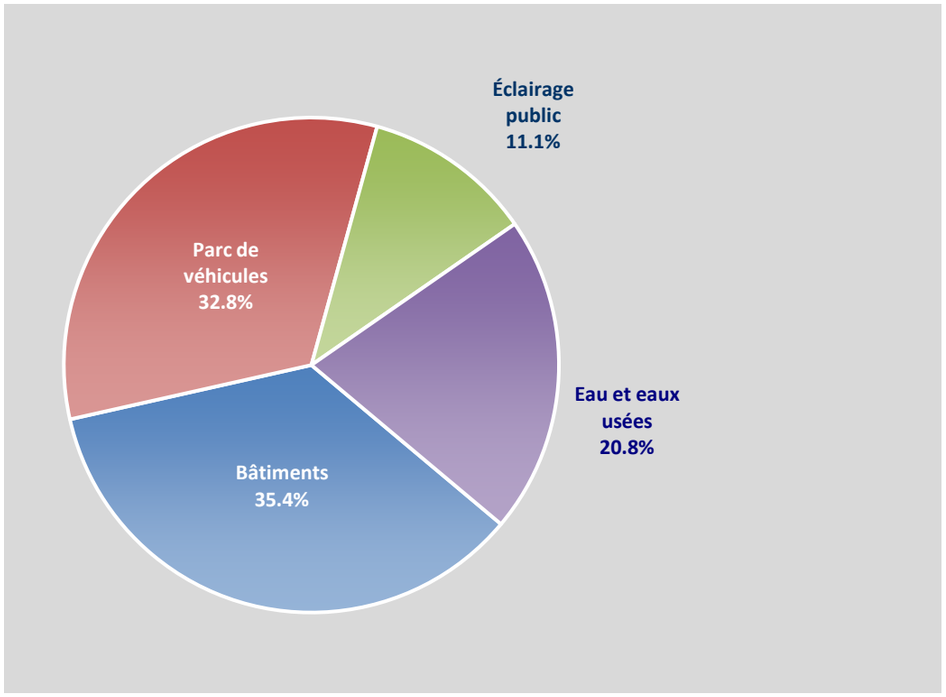
Énergie consommée	2015			
	Volume	Unité	($teCO_2$)	%

Consommation énergétique

Consommation énergétique de la corporatives pour l'année de référence

Consommation d'énergie (Gj)	2015
Bâtiments	113,878
Parc de véhicules	105,624
Éclairage public	35,622
Eau et eaux usées	66,860
Déchets municipaux	-
Total	**321,983**
Population	67,575
Énergie per capita (Gj)	4.8

Consommation énergétique corporatives par secteur (Gj)



Consommation énergétique corporative par source

Énergie consommée	2015			
	Volume	Unité	(Gj)	%

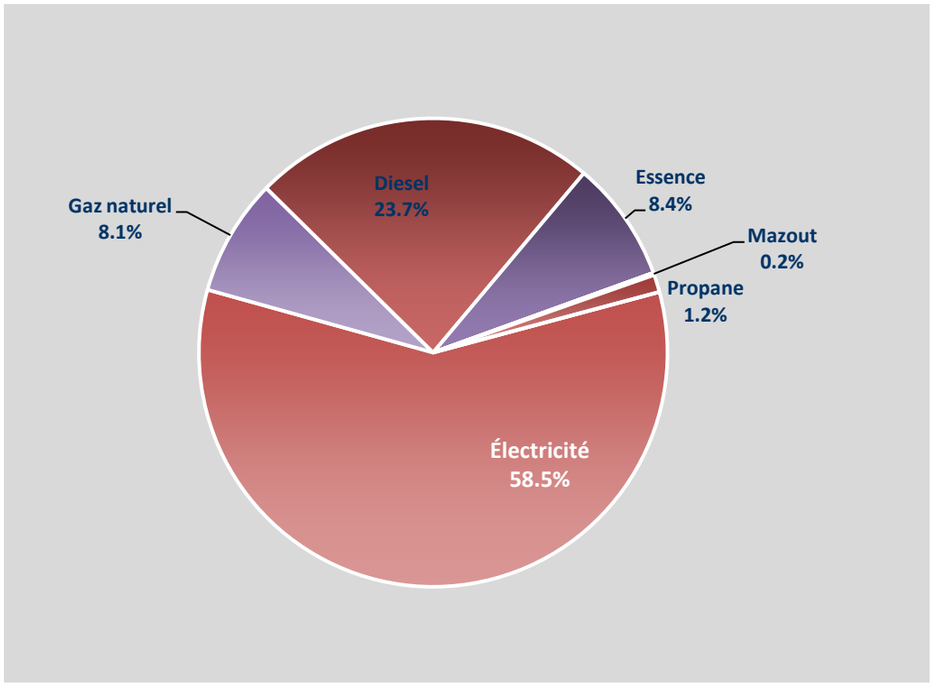
Saint John

Inventaire corporatif

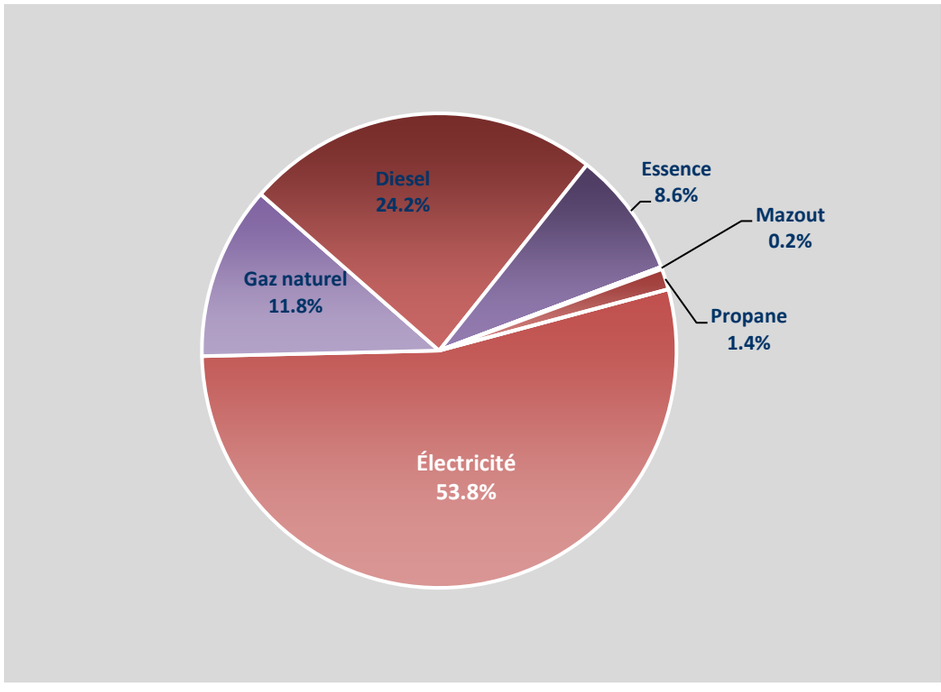
Électricité	48,111,540	kWh	13471.2	58.5%
Gaz naturel	971,119	m3	1857.4	8.1%
GNC	0	Litres	0.0	0.0%
Diesel	2,037,035	Litres	5466.2	24%
Essence	788,719	Litres	1924.1	8.4%
Énergie de quartier	0	GJ	0.0	0.0%
Éthanol (10%)	0	Litres	0.0	0%
Biodiesel	0	Litres	0.0	0%
Mazout	12,767	Litres	34.9	0%
Propane	180,007	Litres	277.9	1%
Déchets solides	-	Litres	-	
Total			**23,031.8**	

Électricité	48,111,540	kWh	173201.5	53.8%
Gaz naturel	971,119	m3	38106.7	11.8%
GNC	0	Litres	0.0	0.0%
Diesel	2,037,035	Litres	78018.4	24%
Essence	788,719	Litres	27605.2	8.6%
Énergie de quartier	0	GJ	0.0	0.0%
Éthanol (10%)	0	Litres	0.0	0%
Biodiesel	0	Litres	0.0	0%
Mazout	12,767	Litres	495.4	0%
Propane	180,007	Litres	4556.0	1%
Déchets solides	-	Litres	-	
Total			**321,983.2**	

Émissions de GES corporatives par source ($teCO_2$)



Consommation énergétique corporatives par source (Gj)



Transports - émissions de GES

Émissions de GES issues des transports par source énergétique

Énergie consommée	2015			
	Litres	($)	($teCO_2$)	%
Essence	788,719	806,016 $	1,924.1	26.0%
Essence à l'éthanol (10%)	0	0 $	0.0	0.0%
Diesel	2,037,035	2,193,854 $	5,466.2	74.0%

Transports - Consommation énergétique

Consommation énergétique relative aux transports par source

Énergie consommée	2015			
	Litres	($)	(Gj)	%
Essence	788,719	806,016 $	27,605	26.1%
Essence à l'éthanol (10%)	0	0 $	0	0.0%
Diesel	2,037,035	2,193,854 $	78,018	73.9%

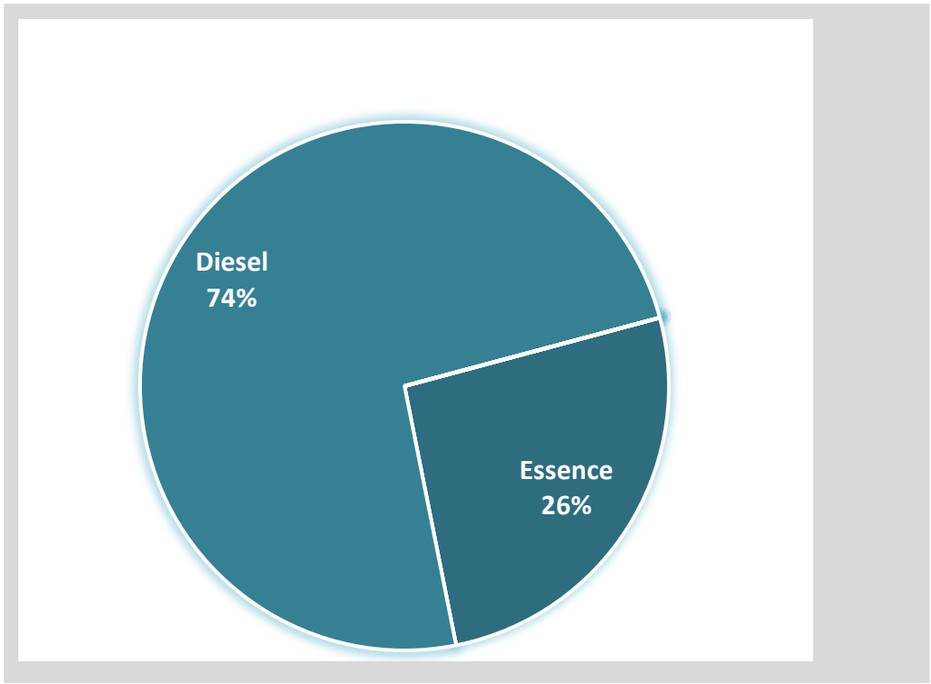
Saint John

Inventaire corporatif

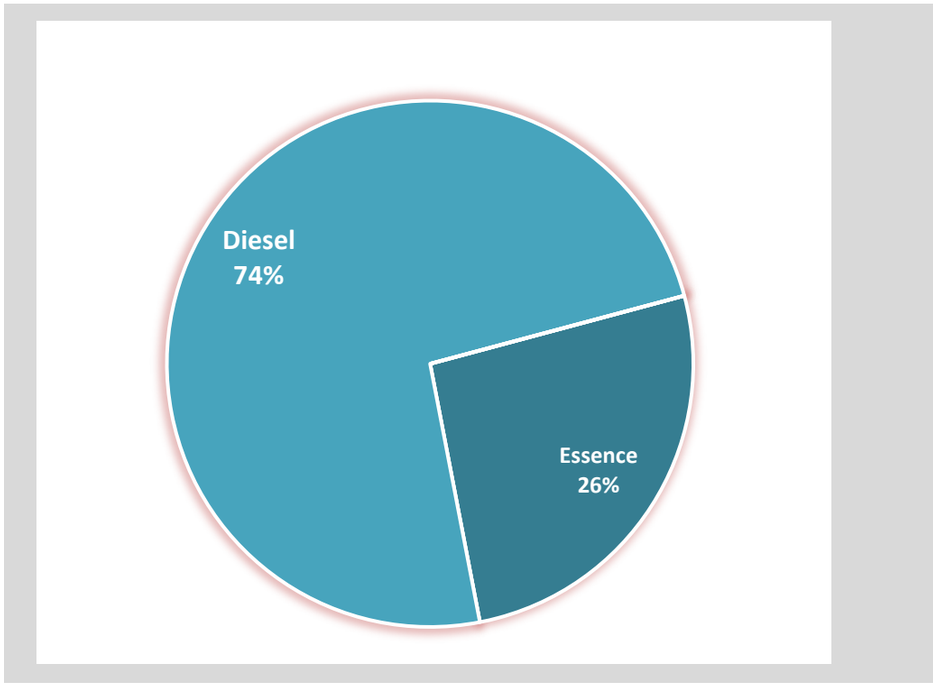
Biodiesel	0	0 $	0.0	0.0%
GNC	0	0 $	0.0	0.0%
Propane	0	0 $	0.0	0.0%
Total		**2,999,870 $**	**7,390.3**	

Biodiesel	0	0 $	0	0.0%
GNC	0	0 $	0	0.0%
Propane	0	0 $	0	0.0%
Total		**2,999,870 $**	**105,624**	

Secteur des transports - émissiosn de GES par source ($teCO_2$)



Secteur des transports - consommation énergétique par source (Gj)



Bâtiments et éclairage - émissions de GES

Émissions de GES issues des infrastructures et de l'éclairage par source énergétique

Énergie consommée	2015			
	Volume	($)	($teCO_2$)	%
Électricité (kWh)	48,111,540	4,089,481 $	13,471.2	86.1%
Gaz naturel (m^3)	971,119	830,015 $	1,857.4	11.9%
Propane (litres)	180,007	72,003 $	277.9	1.8%
Énergie de quartier (GJ)	0	0 $	0.0	0.0%
Mazout (litres)	12,767	9,703 $	34.9	0.2%
Diesel (lires)	0	0 $	0.0	0.0%
Total		**5,001,202 $**	**15,641.5**	

Bâtiments et éclairage - émissions de GES ($teCO_2$)

Bâtiments et éclairage - Consommation énergétique

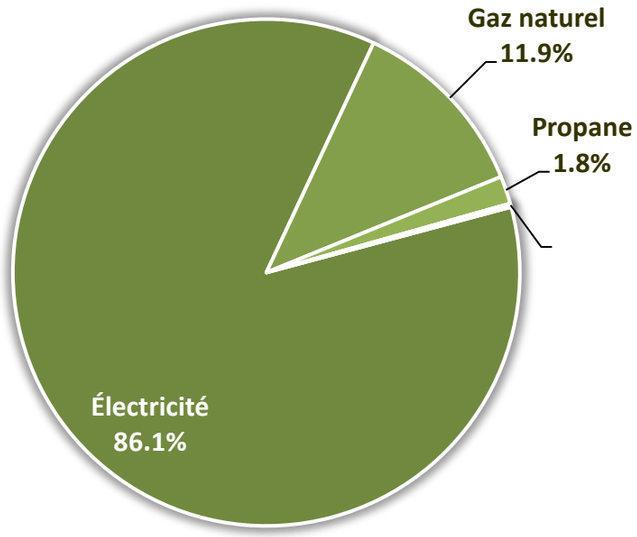
Consommation énergétique relative aux infrastructures et éclairage par source

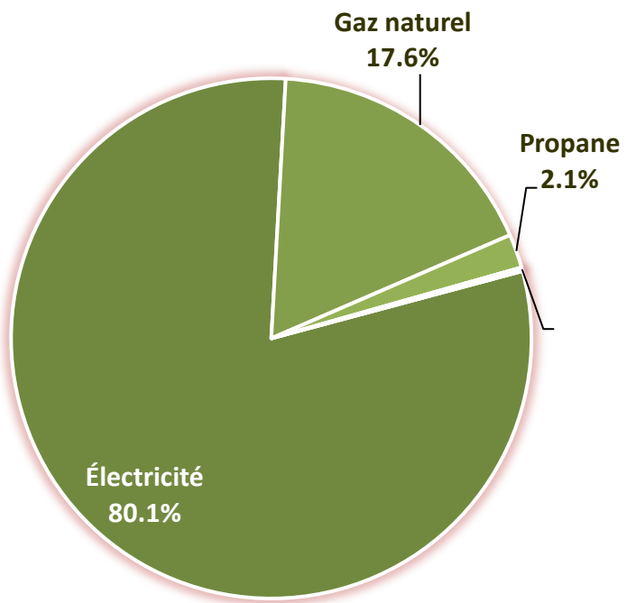
Énergie consommée	2015			
	Volume	($)	(Gj)	%
Électricité	48,111,540	4,089,481 $	173,202	80.1%
Gaz naturel	971,119	830,015 $	38,107	17.6%
Propane	180,007	72,003 $	4,556	2.1%
Énergie de quartier	0	0 $	0	0.0%
Mazout	12,767	9,703 $	495	0.2%
Diesel	0	0 $	0	0.0%
Total		**5,001,202 $**	**216,360**	

Bâtiments et éclairage - Consommation énergétique (Gj)

Saint John

Inventaire corporatif





Buildings

Corporate Inventory

Description:

Cells in orange are estimated. See below

Building or Building Group Name	Electricity (kWh) Total Use	Electricity (kWh) Energy (GJ)	Electricity (kWh) Total Cost ($)	Electricity (kWh) Total eCO2 (t)	Natural gas (m3) Total Use	Natural gas (m3) Energy (GJ)	Natural gas (m3) Total Cost ($)	Natural gas (m3) Total eCO2 (t)	Propane (L) Total Use	Propane (L) Energy (GJ)	Propane (L) Total Cost ($)	Propane (L) Total eCO2 (t)	Fuel Oil (L) Total Use	Fuel Oil (L) Energy (GJ)	Fuel Oil (L) Total Cost ($)	Fuel Oil (L) Total eCO2 (t)	Indicators Operating Hours	Indicators Occupants	Indicators Floor Area (m2)
Fire	0	0		0.0		0		0		0		0		0		0			
Fire Station #1 - 47 Leinster Street	270,862	975	23,023	75.8	9,709	381	8,298	19		0		0		0		0			
Fire Station #2 - 850 Loch Lomond Road	86,340	311	7,339	24.2	4,973	195	4,251	10		0		0		0		0			
Fire Station #4 - 36 Courtenay Avenue	64,723	233	5,501	18.1	17,174	674	14,678	33		0		0		0		0			
Fire Station #5 - 35 Adelaide Street	179,680	647	15,273	50.3	9,566	375	8,176	18		0		0		0		0			
Fire Station #6 (Propane) - 286 King Street West	79,862	288	6,788	22.4		0		0	6,858	173	2,743	11		0		0			
Fire Station #7 - 7 Manchester Avenue West	199,040	717	16,918	55.7	5,469	215	4,674	10		0		0		0		0			
Fire Station #8 - 608 Millidge Avenue	51,000	184	4,335	14.3	18,563	728	15,866	36		0		0		0		0			
Fire Training Center - 688 Grandview Avenue	34,200	123	2,907	9.6	0	0		0		0		0		0		0			
Works	0	0		0.0		0		0		0		0		0		0			
North Garage - 14 McIntosh Street	148,000	533	12,580	41.4	25,257.65	991	21,588	48		0		0		0		0			
East Garage - 525 McAllister Drive	209,671	755	17,822	58.7	19,243.37	755	16,447	37		0		0		0		0			
West Garage - 1954 Manawagonish Rd.	51,780	186	4,401	14.5	13,047.91	512	11,152	25	17,437	441	6,975	27		0		0			
Main Garage - 175 Rothesay Avenue	0	0	0	0.0	52,899.08	2,076	45,213	101		0		0		0		0			
Operation Complex - 175 Rothesay Avenue	973,670	3,505	82,762	272.6	4,179.41	164	3,572	8		0		0		0		0			
Municipal Operation Lunch Area (175 Rothesay Ave)	14,523	52	1,234	4.1		0		0		0		0		0		0			
Facility Management	0	0		0.0		0		0		0		0		0		0			
Tourist Information Centre West - 1509 Saint John Throughway	24,975	90	2,123	7.0		0		0		0		0		0		0			
Barbour's General Store - 10 Market Square	13,150	47	1,118	3.7		0		0		0		0		0		0			
Chipman Hill Pedway - 22 Chipman Hill	38,790	140	3,297	10.9		0		0		0		0		0		0			
St. Patrick Street Pedway - 58 Saint Patrick Street	224,820	809	19,110	62.9		0		0		0		0		0		0			
City Market Pedway - 36 Germain Street	125,481	452	10,666	35.1		0		0		0		0		0		0			
Harbour Station Pedway - 70 Station Street	111,753	402	9,499	31.3		0		0		0		0		0		0			
Carnegie Building - 20 Peel Plaza	205,686	740	17,483	57.6		0		0		0		0		0		0			
City Market (10 Meters) - 47 Charlotte Street	259,225	933	22,034	72.6	114,679	4,500	98,016	219		0		0		0		0			
City Hall (60 % City Share) - 15 Market Square	2,889,600	10,403	245,616	809.1	158,002	6,200	135,044	302		0		0		0		0			
King Square Band Stand - 56 Charlotte Street	2,973	11	253	0.8		0		0		0		0		0		0			
Loyalis Buried Ground - 14 Sydney Street	59,189	213	5,031	16.6		0		0		0		0		0		0			
Peel Plaza Public Park - 1 Peel Plaza	9,148	33	778	2.6		0		0		0		0		0		0			
Red School House - 1 Market Square	13,169	47	1,114	3.7		0		0		0		0		0		0			
Fort Howe Blockhouse - 20 Magazine Street	221	1	19	0.1		0		0		0		0		0		0			
Peel Plaza Project Office - 50 Carleton Street	32,978	119	2,803	9.2		0		0		0		0		0		0			
Leisure Services	0	0		0.0		0		0		0		0		0		0			
Peter G. Murray Arena - 701 Dever Road	404,160	1,455	34,354	113.2	14,256	559	12,185	27		0		0		0		0			
Hilton Belyea Arena - 390 Lowell Street	492,720	1,774	41,881	138.0		0		0		0		0		0		0			
Charles Gorman Arena - 80 University Avenue	469,440	1,690	39,902	131.4	6,091	239	5,206	12		0		0		0		0			
Stewart Hurley Arena - 1500 Hickey Road	442,680	1,594	37,628	124.0		0		0		0		0		0		0			
Leisure Services Offices - 171 Adelaide Street	101,120	364	8,595	28.3		0		0		0		0		0		0			
Leisure Services Maintenance Garage - 171 Adelaide Street	40,423	146	3,436	11.3	8,950	351	7,649	17		0		0		0		0			
Leisure Services Storage Building - 171 Adelaide Street	284	1	24	0.1		0		0		0		0		0		0			
Shamrock Park Clubhouse (Ballfield) - 200 Visart Street	72,720	262	6,181	20.4		0		0		0		0		0		0			
Forest Hills Maintenance Depot/Office - 707 Westmorland Road	52,464	189	4,459	14.7		0		0		0		0		0		0			
Forest Hills Ballfield/Canteen - 651 Westmorland Road	46,980	169	3,993	13.2		0		0		0		0		0		0			
Dominion Park, Canteen/Clubhouse - 730 Dominion Park Road	5,136	18	437	1.4		0		0		0		0		0		0			
Dominion Park, Storage Building - 730 Dominion Park Road	155	1	13	0.0		0		0		0		0		0		0			
Seaside Park Lawn Bowling - 520 Fundy Drive	19,802	71	1,683	5.5		0		0		0		0		0		0			
Lancaster Memorial (Ballfield) - 224 Greendale Crescent	32,515	117	2,764	9.1		0		0		0		0		0		0			
Lancaster Memorial Storage Building - 224 Greendale Crescent	331	1	28	0.1		0		0		0		0		0		0			
Rockwood Park A-Frame - 191 Fisher Lakes Drive	7,200	26	612	2.0		0		0		0		0		0		0			
Rockwood Park Trailer Park	28,687	103	2,438	8.0		0		0		0		0		0		0			
Carleton Community Centre - 120 Market Place	129,660	467	11,021	36.3	16,131	633	13,788	31		0		0		0		0			
Nick Nicolle Community Centre - 85 Durham Street	186,300	671	15,836	52.2		0		0		0		0		0		0			
Forest Glen C.C. (City Share 0%) - No Energy Data	0	0	0	0.0		0		0		0		0		0		0			
Interpretation Centre - 10 Fisher lakes Drive	35,467	128	3,015	9.9		0		0		0		0		0		0			
South End C.C. (City Share 0%) - No Energy Data	0	0	0	0.0		0		0		0		0		0		0			
Allison Grounds (Ballfield) - 2 Tilley Avenue	24,325	88	2,068	6.8		0		0		0		0		0		0			
Fallsview Park Washrooms - 100 Fallsview Avenue	7,325	26	623	2.1		0		0		0		0		0		0			
Rainbow Park - 205 Sydney Street	66,960	241	5,692	18.7		0		0		0		0		0		0			
Flemming Court Splash Pad - 2 Flemming Court	10,982	40	933	3.1		0		0		0		0		0		0			
Harbour Passage - Hilyard Street	10,000	36	850	2.8		0		0		0		0		0		0			
Harbour Passage-5 Station Street (200 Chesly Drive)	10,067	36	856	2.8		0		0		0		0		0		0			
Harbour Passage Chesly Drive	16,660	60	1,416	4.7		0		0		0		0		0		0			
Victoria Square Light	3,665	13	312	1.0		0		0		0		0		0		0			
Peal Plaza Parking Lights	10,568	38	898	3.0		0		0		0		0		0		0			
Stake Park (1 Station Street)	23,100	83	1,964	6.5		0		0		0		0		0		0			
Rockwood Horse Barn - 175 Fisher Lakes Drive		0	0	0.0		0		0		0		0		0		0			
Commission	0	0		0.0		0		0		0		0		0		0			
LBR - 536 Main Street	487,080	1,753	41,402	136.4	49,694	1,950	42,474	95		0		0		0		0			
Canada Games Aquatic Center - 50 Union Street	1,764,823	6,353	150,010	494.2	248,407	9,747	212,313	475		0		0		0		0			
Harbour Station - 99 Station Street	2,252,385	8,109	191,453	630.7		0		0		0		0		0		0			
Transit Building - 55 MacDonald Street	918,319	3,306	78,057	257.1	127,455	5,001	108,956	244		0		0		0		0			
PHQ - 1 Peel Plaza	1,227,714	4,420	104,356	343.8	33,720	1,323	28,829	64		0		0		0		0			
Uptown Library - 1 Market Square	168,720	607	14,341	47.2		0		0		0		0		0		0			
West Library - 621 Fairville Blvrd, Lancaster Mall	61,112	220	5,195	17.1	7,409	291	6,333	14		0		0		0		0			
East Library - 55 MacDonald Street (Inlcuded as part Transit Building)	28,454	102	2,419	8.0	6,244	245	5,336	12		0		0		0		0			
Market Square Parking - 1 Market Square	104,400	376	8,874	29.2		0		0		0		0		0		0			
T&C Lights - 1 Market Square	375,120	1,350	31,885	105.0		0		0		0		0		0		0			
Common Area Electricity - 1 Market Square	753,942	2,714	64,085	211.1		0		0		0		0		0		0			
Loyalist Plaza - 1 Market Square	1,980	7	168	0.6		0		0		0		0		0		0			
HVAC Market Square (45%/41% City Share) - 1 Market Square	2,877,868	10,360	244,619	805.8		0		0		0		0		0		0			
NMW Street Lights - 1 Market Square	28,000	101	2,380	7.8		0		0		0		0		0		0			
Cathodic Protection - 1 Market Square	22,861	82	1,943	6.4		0		0		0		0		0		0			
New ParkingGarage - 75 Carleton Street	378,853	1,364	32,203	106.1		0		0		0		0		0		0			
Public Garden (PO Box 535 STN Main)	161,240	580	13,705	45.1		0		0		0		0	12,767	495	9,703	35			
Total	**20,739,219**	**74,661**	**1,762,834**	**5,807.0**	**971,119**	**38,107**	**830,015**	**1,857**	**24,295**	**615**	**9,718**	**38**	**12,767**	**495**	**9,703**	**35**	**0**	**0**	**0.0**

Buildings Con't, …

Building or Building Group Name	Total Cost ($)	Total Energy (GJ)	Total eCO2 (t)	Total Cost ($)/Operating Hour	Total Cost ($)/Occupant	Cost ($)/m2	eCO2 (t)/Operating Hour	eCO2 (t)/Occupant	eCO2 (t)/m2
Fire	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Fire Station #1 - 47 Leinster Street	31,321	1,356	94	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Fire Station #2 - 850 Loch Lomond Road	11,580	506	34	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Fire Station #4 - 36 Courtenay Avenue	20,180	907	51	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Fire Station #5 - 35 Adelaide Street	23,449	1,022	69	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Fire Station #6 (Propane) - 286 King Street West	9,531	461	33	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Fire Station #7 - 7 Manchester Avenue West	21,593	931	66	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Fire Station #8 - 608 Millidge Avenue	20,201	912	50	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Fire Training Center - 688 Grandview Avenue	2,907	123	10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Works	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
North Garage - 14 McIntosh Street	34,168	1,524	90	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
East Garage - 525 McAllister Drive	34,269	1,510	96	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
West Garage - 1954 Manawagonish Rd.	22,578	1,140	66	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Main Garage - 175 Rothesay Avenue	45,213	2,076	101	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Operation Complex - 175 Rothesay Avenue	86,334	3,669	281	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Municipal Operation Lunch Area (175 Rothesay Ave)	1,234	52	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Facility Management	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Tourist Information Centre West - 1509 Saint John Throughway	2,123	90	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Barbour's General Store - 10 Market Square	1,118	47	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Chipman Hill Pedway - 22 Chipman Hill	3,297	140	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
St. Patrick Street Pedway - 58 Saint Patrick Street	19,110	809	63	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
City Market Pedway - 36 Germain Street	10,666	452	35	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Harbour Station Pedway - 70 Station Street	9,499	402	31	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Carnegie Building - 20 Peel Plaza	17,483	740	58	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
City Market (10 Meters) - 47 Charlotte Street	120,050	5,433	292	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
City Hall (60 % City Share) - 15 Market Square	380,660	16,603	1,111	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
King Square Band Stand - 56 Charlotte Street	253	11	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Loyalis Buried Ground - 14 Sydney Street	5,031	213	17	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Peel Plaza Public Park - 1 Peel Plaza	778	33	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Red School House - 1 Market Square	1,114	47	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Fort Howe Blockhouse - 20 Magazine Street	19	1	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Peel Plaza Project Office - 50 Carleton Street	2,803	119	9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Leisure Services	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Peter G. Murray Arena - 701 Dever Road	46,538	2,014	140	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Hilton Belyea Arena - 390 Lowell Street	41,881	1,774	138	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Charles Gorman Arena - 80 University Avenue	45,108	1,929	143	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Stewart Hurley Arena - 1500 Hickey Road	37,628	1,594	124	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Leisure Services Offices - 171 Adelaide Street	8,595	364	28	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Leisure Services Maintenance Garage - 171 Adelaide Street	11,085	497	28	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Leisure Services Storage Building - 171 Adelaide Street	24	1	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Shamrock Park Clubhouse (Ballfield) - 200 Visart Street	6,181	262	20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Forest Hills Maintenance Depot/Office - 707 Westmorland Road	4,459	189	15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Forest Hills Ballfield/Canteen - 651 Westmorland Road	3,993	169	13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Dominion Park, Canteen/Clubhouse - 730 Dominion Park Road	437	18	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Dominion Park, Storage Building - 730 Dominion Park Road	13	1	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Seaside Park Lawn Bowling - 520 Fundy Drive	1,683	71	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Lancaster Memorial (Ballfield) - 224 Greendale Crescent	2,764	117	9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Lancaster Memorial Storage Building - 224 Greendale Crescent	28	1	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Rockwood Park A-Frame - 191 Fisher Lakes Drive	612	26	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Rockwood Park Trailer Park	2,438	103	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Carleton Community Centre - 120 Market Place	24,809	1,100	67	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Nick Nicolle Community Centre - 85 Durham Street	15,836	671	52	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Forest Glen C.C. (City Share 0%) - No Energy Data	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Interpretation Centre - 10 Fisher lakes Drive	3,013	128	10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
South End C.C. (City Share 0%) - No Energy Data	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Allison Grounds (Ballfield) - 2 Tilley Avenue	2,068	88	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Fallsview Park Washrooms - 100 Fallsview Avenue	623	26	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Rainbow Park - 205 Sydney Street	5,692	241	19	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Flemming Court Splash Pad - 2 Flemming Court	933	40	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Harbour Passage - Hilyard Street	850	36	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Harbour Passage-5 Station Street (200 Chesly Drive)	856	36	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Harbour Passage Chesly Drive	1,416	60	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Victoria Square Light	312	13	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Peal Plaza Parking Lights	898	38	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Stake Park (1 Station Street)	1,964	83	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Rockwood Horse Barn - 175 Fisher Lakes Drive	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Commission	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
LBR - 536 Main Street	83,875	3,703	231	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Canada Games Aquatic Center - 50 Union Street	362,323	16,101	969	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Harbour Station - 99 Station Street	191,453	8,109	631	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Transit Building - 55 MacDonald Street	186,993	8,307	501	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
PHQ - 1 Peel Plaza	133,176	5,743	408	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Uptown Library - 1 Market Square	14,341	607	47	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
West Library - 621 Fairville Blvrd, Lancaster Mall	11,527	511	31	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
East Library - 55 MacDonald Street (Inlcuded as part Transit Building)	7,755	347	20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Market Square Parking - 1 Market Square	8,874	376	29	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
T&C Lights - 1 Market Square	31,885	1,350	105	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Common Area Electricity - 1 Market Square	64,085	2,714	211	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Loyalist Plaza - 1 Market Square	168	7	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
HVAC Market Square (45%/41% City Share) - 1 Market Square	244,619	10,360	806	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
NMW Street Lights - 1 Market Square	2,380	101	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Cathodic Protection - 1 Market Square	1,943	82	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
New ParkingGarage - 75 Carleton Street	32,203	1,364	106	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Public Garden (PO Box 535 STN Main)	23,408	1,076	80	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Total	**2612269.33**	**113,878**	**7,737**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

Vehicle Fleet

Corporate Inventory

Description:

Cells in orange are estimated. See below

Vehicle Fleet Con't, …

Vehicle or Vehicle Group Name	Gasoline (L)				Diesel (L)				Propane (L)				Indicators		Vehicle or Vehicle Group Name	Total						
	Total Use	Energy (GJ)	Total Cost ($)	Total eCO2 (t)	Total Use	Energy (GJ)	Total Cost ($)	Total eCO2 (t)	Total Use	Energy (GJ)	Total Cost ($)	Total eCO2 (t)	Vehicle Kilometers	# of Vehicles		Total Cost ($)	Total Energy (GJ)	Total eCO2 (t)	Total Cost ($)/km	Total Cost ($)/# of Vehicles	Total eCO2 (t)/km	Total eCO2 (t)/# of Vehicles
1965 Volkswagon Beetle (Police)	53	2	56	0		0	0	0		0	0	0			**1965 Volkswagon Beetle (Police)**	56	2	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1996 Mt Trackless-Refur (Mo-Street Cleaning)	53	2	61	0		0	0	0		0	0	0			**1996 Mt Trackless-Refur (Mo-Street Cleaning)**	61	2	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2000 Mt Trackless (Mo-Snow Contr. Sidewal)	3,028	106	3,423	7		0	0	0		0	0	0			**2000 Mt Trackless (Mo-Snow Contr. Sidewal)**	3,423	106	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2001 Ford F250 4x4 (Fleet Services)	2,259	79	2,457	6		0	0	0		0	0	0			**2001 Ford F250 4x4 (Fleet Services)**	2,457	79	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2003 Ford 3/4 Ton 4x4 (W&S- Wastewater Pumping)	4,312	151	4,301	11		0	0	0		0	0	0			**2003 Ford 3/4 Ton 4x4 (W&S- Wastewater Pumping)**	4,301	151	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2003 Ford 3/4 Ton 4x4 (W&S-Wastewater Treatment)	1,060	37	1,055	3		0	0	0		0	0	0			**2003 Ford 3/4 Ton 4x4 (W&S-Wastewater Treatment)**	1,055	37	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2003 Ford Econoline Van (Police)	1,041	36	1,086	3		0	0	0		0	0	0			**2003 Ford Econoline Van (Police)**	1,086	36	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Chrysler Intrepid (Fire -Carmarthen)	657	23	683	2		0	0	0		0	0	0			**2004 Chrysler Intrepid (Fire -Carmarthen)**	683	23	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Chrysler Sebring (W&S-Wastewater Coll)	234	8	225	1		0	0	0		0	0	0			**2004 Chrysler Sebring (W&S-Wastewater Coll)**	225	8	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Chrysler Sebring (Water And Waste Water Eng)	581	20	596	1		0	0	0		0	0	0			**2004 Chrysler Sebring (Water And Waste Water Eng)**	596	20	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Dodge Caravan (Fire Prevention)	1,009	35	1,006	2		0	0	0		0	0	0			**2004 Dodge Caravan (Fire Prevention)**	1,006	35	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Dodge Ram 1500 2wd (Carp Shop - Fac. Magt)	2,328	81	2,289	6		0	0	0		0	0	0			**2004 Dodge Ram 1500 2wd (Carp Shop - Fac. Magt)**	2,289	81	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Dodge Ram 2500 4x4 (Technical Rescue Service)	1,011	35	945	2		0	0	0		0	0	0			**2004 Dodge Ram 2500 4x4 (Technical Rescue Service)**	945	35	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Dodge Ram 2500 4x4 (W&S-Wastewater Treatment)	2,380	83	2,642	6		0	0	0		0	0	0			**2004 Dodge Ram 2500 4x4 (W&S-Wastewater Treatment)**	2,642	83	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Dodge Ram 2wd (Parks General Services)	4,441	155	4,580	11		0	0	0		0	0	0			**2004 Dodge Ram 2wd (Parks General Services)**	4,580	155	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Ford Econoline Van (Carp Shop - Fac. Magt)	2,244	79	2,229	5		0	0	0		0	0	0			**2004 Ford Econoline Van (Carp Shop - Fac. Magt)**	2,229	79	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Ford F450 4x4 (Mo-Surface Maintenance)	2,126	74	2,271	5		0	0	0		0	0	0			**2004 Ford F450 4x4 (Mo-Surface Maintenance)**	2,271	74	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Ford F450 4x4 (Parks General Services)	2,263	79	2,422	6		0	0	0		0	0	0			**2004 Ford F450 4x4 (Parks General Services)**	2,422	79	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Ford F550 1.5 Ton (Parks General Services)	1,914	67	2,057	5		0	0	0		0	0	0			**2004 Ford F550 1.5 Ton (Parks General Services)**	2,057	67	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Ford F550 1.5 Ton (Sports Fields)	1,823	64	1,927	4		0	0	0		0	0	0			**2004 Ford F550 1.5 Ton (Sports Fields)**	1,927	64	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 International 4300 (Urban Forestry)	3,109	109	3,369	8		0	0	0		0	0	0			**2004 International 4300 (Urban Forestry)**	3,369	109	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Jcb Backhoe (W&S - Water Trans & Dist.)	1,048	37	1,157	3		0	0	0		0	0	0			**2004 Jcb Backhoe (W&S - Water Trans & Dist.)**	1,157	37	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 John Deere 4wd (W&S-Wastewater Treatment)	347	12	405	1		0	0	0		0	0	0			**2004 John Deere 4wd (W&S-Wastewater Treatment)**	405	12	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Mt Trackless (Mo-Snow Contr. Sidewal)	1,600	56	1,880	4		0	0	0		0	0	0			**2004 Mt Trackless (Mo-Snow Contr. Sidewal)**	1,880	56	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Sterling Lt9500 (W&S-Wastewater Coll)	3,137	110	3,239	8		0	0	0		0	0	0			**2004 Sterling Lt9500 (W&S-Wastewater Coll)**	3,239	110	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2004 Sterling Tandem (Mo - Stormwater Mgmt)	8,309	291	9,187	20		0	0	0		0	0	0			**2004 Sterling Tandem (Mo - Stormwater Mgmt)**	9,187	291	20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Challenger Tractor (Parks - Gen. Services)	224	8	221	1		0	0	0		0	0	0			**2005 Challenger Tractor (Parks - Gen. Services)**	221	8	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Dodge Ram 2500 4x4 (Fleet Services)	4,808	168	4,736	12		0	0	0		0	0	0			**2005 Dodge Ram 2500 4x4 (Fleet Services)**	4,736	168	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 F150 4x4 (Pedestrian & Traffic Mgt)	5,072	178	5,117	12		0	0	0		0	0	0			**2005 F150 4x4 (Pedestrian & Traffic Mgt)**	5,117	178	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 F450 4x4 (Mo-Street Cleaning)	639	22	704	2		0	0	0		0	0	0			**2005 F450 4x4 (Mo-Street Cleaning)**	704	22	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Ford Econoline Van (Water And Waste Water Eng)	588	21	623	1		0	0	0		0	0	0			**2005 Ford Econoline Van (Water And Waste Water Eng)**	623	21	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Ford F150 (W&S-Wastewater Treatment)	1,521	53	1,497	4		0	0	0		0	0	0			**2005 Ford F150 (W&S-Wastewater Treatment)**	1,497	53	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Ford F150 4x4 (Fleet Services)	2,728	95	2,712	7		0	0	0		0	0	0			**2005 Ford F150 4x4 (Fleet Services)**	2,712	95	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Ford F150 4x4 (Water Trans And Pump)	2,564	90	2,609	6		0	0	0		0	0	0			**2005 Ford F150 4x4 (Water Trans And Pump)**	2,609	90	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Freestar (Mo - Stormwater Mgmt)	2,218	78	2,261	5		0	0	0		0	0	0			**2005 Freestar (Mo - Stormwater Mgmt)**	2,261	78	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Gmc Savana Cargo V (W&S - Water Trans & Dist.)	2,289	80	2,258	6		0	0	0		0	0	0			**2005 Gmc Savana Cargo V (W&S - Water Trans & Dist.)**	2,258	80	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Gmc Sierra 2500 (Fire - Regional Hazmat)	1,163	41	1,159	3		0	0	0		0	0	0			**2005 Gmc Sierra 2500 (Fire - Regional Hazmat)**	1,159	41	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Gmc Sierra 3/4 Ton (W&S- Wastewater Pumping)	3,437	120	3,718	8		0	0	0		0	0	0			**2005 Gmc Sierra 3/4 Ton (W&S- Wastewater Pumping)**	3,718	120	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Hyundai Sonata (Police)	141	5	135	0		0	0	0		0	0	0			**2005 Hyundai Sonata (Police)**	135	5	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Hyundai Sonata (W&S - Water Trans & Dist.)	627	22	645	2		0	0	0		0	0	0			**2005 Hyundai Sonata (W&S - Water Trans & Dist.)**	645	22	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Int. Cab/Chass W Dum (W&S - Water Trans & Dist.)	3,475	122	3,877	8		0	0	0		0	0	0			**2005 Int. Cab/Chass W Dum (W&S - Water Trans & Dist.)**	3,877	122	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Kubota Tractor (Parks General Services)	774	27	879	2		0	0	0		0	0	0			**2005 Kubota Tractor (Parks General Services)**	879	27	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Kubota Tractor (Sports Fields)	183	6	173	0		0	0	0		0	0	0			**2005 Kubota Tractor (Sports Fields)**	173	6	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2005 Toyota Camry (Police)	513	18	503	1		0	0	0		0	0	0			**2005 Toyota Camry (Police)**	503	18	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Chev Impala (Fire Prevention)	755	26	767	2		0	0	0		0	0	0			**2006 Chev Impala (Fire Prevention)**	767	26	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Chevrolet Aveo (Bldg. Insp-Permitting Ser)	638	22	636	2		0	0	0		0	0	0			**2006 Chevrolet Aveo (Bldg. Insp-Permitting Ser)**	636	22	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Chevrolet Aveo (Bldg. Insp-Permitting Ser)	765	27	765	2		0	0	0		0	0	0			**2006 Chevrolet Aveo (Bldg. Insp-Permitting Ser)**	765	27	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Chevrolet Aveo (Planning)	253	9	259	1		0	0	0		0	0	0			**2006 Chevrolet Aveo (Planning)**	259	9	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Chevrolet Aveo (Property Mgt.)	597	21	607	1		0	0	0		0	0	0			**2006 Chevrolet Aveo (Property Mgt.)**	607	21	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Dodge Magnum (Police)	1,096	38	1,034	3		0	0	0		0	0	0			**2006 Dodge Magnum (Police)**	1,034	38	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Ford F450 Boom Truck (W&S-Wastewater Coll)	3,374	118	3,681	8		0	0	0		0	0	0			**2006 Ford F450 Boom Truck (W&S-Wastewater Coll)**	3,681	118	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Ford Ranger Supercab (Mo-Programs & Cust. Seriv)	3,328	116	3,338	8		0	0	0		0	0	0			**2006 Ford Ranger Supercab (Mo-Programs & Cust. Seriv)**	3,338	116	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Gmc Sierra 1/2tn 4x4 (Fire -Carmarthen)	1,718	60	1,696	4		0	0	0		0	0	0			**2006 Gmc Sierra 1/2tn 4x4 (Fire -Carmarthen)**	1,696	60	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Harley Davidson (Police)	17	1	18	0		0	0	0		0	0	0			**2006 Harley Davidson (Police)**	18	1	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Jcb Backhoe 4x4 (W&S-Wastewater Coll)	78	3	89	0		0	0	0		0	0	0			**2006 Jcb Backhoe 4x4 (W&S-Wastewater Coll)**	89	3	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2006 Sterling 6-Yard (Mo-Snow Control Street)	1,879	66	2,092	5		0	0	0		0	0	0			**2006 Sterling 6-Yard (Mo-Snow Control Street)**	2,092	66	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Chev Cargo Van (Police)	1,283	45	1,309	3		0	0	0		0	0	0			**2007 Chev Cargo Van (Police)**	1,309	45	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Chev Cobalt Lt (Water And Waste Water Eng)	675	24	678	2		0	0	0		0	0	0			**2007 Chev Cobalt Lt (Water And Waste Water Eng)**	678	24	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Chevrolet Impala (Fire Prevention)	925	32	935	2		0	0	0		0	0	0			**2007 Chevrolet Impala (Fire Prevention)**	935	32	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Chevrolet Impala Ls (Water And Waste Water Eng)	562	20	570	1		0	0	0		0	0	0			**2007 Chevrolet Impala Ls (Water And Waste Water Eng)**	570	20	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Chrysler Sebring (Police)	1,388	49	1,375	3		0	0	0		0	0	0			**2007 Chrysler Sebring (Police)**	1,375	49	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Chrysler Sebring (Police)	1,930	68	1,928	5		0	0	0		0	0	0			**2007 Chrysler Sebring (Police)**	1,928	68	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Chrysler Sebring (Police)	1,309	46	1,287	3		0	0	0		0	0	0			**2007 Chrysler Sebring (Police)**	1,287	46	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Chrysler Sebring (Police)	1,307	46	1,313	3		0	0	0		0	0	0			**2007 Chrysler Sebring (Police)**	1,313	46	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Dodge Caliber (Bldg. Insp-Permitting Ser)	504	18	491	1		0	0	0		0	0	0			**2007 Dodge Caliber (Bldg. Insp-Permitting Ser)**	491	18	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Dodge Caliber (H.R. - Administration)	500	17	496	1		0	0	0		0	0	0			**2007 Dodge Caliber (H.R. - Administration)**	496	17	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Dodge Caravan (Police)	491	17	494	1		0	0	0		0	0	0			**2007 Dodge Caravan (Police)**	494	17	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Dodge Charger Awd (Fire Prevention)	1,982	69	1,967	5		0	0	0		0	0	0			**2007 Dodge Charger Awd (Fire Prevention)**	1,967	69	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Dodge Durango (Fire -Carmarthen)	1,484	52	1,485	4		0	0	0		0	0	0			**2007 Dodge Durango (Fire -Carmarthen)**	1,485	52	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Dodge Gr Caravan C/V (W&S - Ici Metering/Hydran)	3,676	129	3,645	9		0	0	0		0	0	0			**2007 Dodge Gr Caravan C/V (W&S - Ici Metering/Hydran)**	3,645	129	9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Dodge Gr.Caravan C/V (W&S - Ici Metering/Hydran)	2,287	80	2,272	6		0	0	0		0	0	0			**2007 Dodge Gr.Caravan C/V (W&S - Ici Metering/Hydran)**	2,272	80	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Ford F450 1 Ton (Mo- Sidewalk Maintenance)	3,654	128	3,963	9		0	0	0		0	0	0			**2007 Ford F450 1 Ton (Mo- Sidewalk Maintenance)**	3,963	128	9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Ford F450 1 Ton (Mo-Snow Control Street)	718	25	698	2		0	0	0		0	0	0			**2007 Ford F450 1 Ton (Mo-Snow Control Street)**	698	25	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Ford F450 4x4 (W&S - Water Trans & Dist.)	4,040	141	4,493	10		0	0	0		0	0	0			**2007 Ford F450 4x4 (W&S - Water Trans & Dist.)**	4,493	141	10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Ford F550 4x4 (Watershed Management)	1,375	48	1,520	3		0	0	0		0	0	0			**2007 Ford F550 4x4 (Watershed Management)**	1,520	48	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Ford Ranger 4x4 (Mo-Surface Maintenance)	5,616	197	5,479	14		0	0	0		0	0	0			**2007 Ford Ranger 4x4 (Mo-Surface Maintenance)**	5,479	197	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Ford Ranger 4x4 (Pedestrian & Traffic Mgt)	4,734	166	4,682	12		0	0	0		0	0	0			**2007 Ford Ranger 4x4 (Pedestrian & Traffic Mgt)**	4,682	166	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Ford Ranger Xl 4x4 (W&S-Wastewater Treatment)	1,531	54	1,511	4		0	0	0		0	0	0			**2007 Ford Ranger Xl 4x4 (W&S-Wastewater Treatment)**	1,511	54	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Gmc Sierra 3500 (W&S- Wastewater Pumping)	2,792	98	3,084	7		0	0	0		0	0	0			**2007 Gmc Sierra 3500 (W&S- Wastewater Pumping)**	3,084	98	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Kubota Tractor (Parks General Services)	206	7	174	1		0	0	0		0	0	0			**2007 Kubota Tractor (Parks General Services)**	174	7	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Toyota Camry Hybrid (Fire -Carmarthen)	774	27	763	2		0	0	0		0	0	0			**2007 Toyota Camry Hybrid (Fire -Carmarthen)**	763	27	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2007 Toyota Camry Hybrid (W&S-Wastewater Treatment)	798	28	799	2		0	0	0		0	0	0			**2007 Toyota Camry Hybrid (W&S-Wastewater Treatment)**	799	28	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Chevrolet Aveo Lt (Bldg. Insp-Permitting Ser)	485	17	482	1		0	0	0		0	0	0			**2008 Chevrolet Aveo Lt (Bldg. Insp-Permitting Ser)**	482	17	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Chevrolet Aveo Lt (Bldg. Insp-Permitting Ser)	934	33	941	2		0	0	0		0	0	0			**2008 Chevrolet Aveo Lt (Bldg. Insp-Permitting Ser)**	941	33	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Dodge Grand Caravan (Parking Comm. Admin)	1,664	58	1,536	4		0	0	0		0	0	0			**2008 Dodge Grand Caravan (Parking Comm. Admin)**	1,536	58	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Dodge Ram 4500 (Mo-Snow Control Street)	4,051	142	4,590	10		0	0	0		0	0	0			**2008 Dodge Ram 4500 (Mo-Snow Control Street)**	4,590	142	10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Ford Crown Victoria (Police)	93	3	93	0		0	0	0		0	0	0			**2008 Ford Crown Victoria (Police)**	93	3	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Ford Crown Victoria (Police)	3,635	127	3,596	9		0	0	0		0	0	0			**2008 Ford Crown Victoria (Police)**	3,596	127	9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Ford F250 4x4 Xl (Sj Water - Watershed Mgmt)	5,512	193	5,369	13		0	0	0		0	0	0			**2008 Ford F250 4x4 Xl (Sj Water - Watershed Mgmt)**	5,369	193	13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Ford F450 4x4 (W&S-Wastewater Coll)	773	27	815	2		0	0	0		0	0	0			**2008 Ford F450 4x4 (W&S-Wastewater Coll)**	815	27	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Ford F550 1 1/2 Ton (Parks General Services)	3,039	106	3,316	7		0	0	0		0	0	0			**2008 Ford F550 1 1/2 Ton (Parks General Services)**	3,316	106	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Ford Fusion Se (Fire Prevention)	1,115	39	1,101	3		0	0	0		0	0	0			**2008 Ford Fusion Se (Fire Prevention)**	1,101	39	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Gmc Savana Cargo Van (Fire Investigation)	1,870	65	1,887	5		0	0	0		0	0	0			**2008 Gmc Savana Cargo Van (Fire Investigation)**	1,887	65	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Harley Davidson (Police)	4	0	5	0		0	0	0		0	0	0			**2008 Harley Davidson (Police)**	5	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Harley Davidson (Police)	13	0	15	0		0	0	0		0	0	0			**2008 Harley Davidson (Police)**	15	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Jeep Compass (Mo - Stormwater Mgmt)	858	30	849	2		0	0	0		0	0	0			**2008 Jeep Compass (Mo - Stormwater Mgmt)**	849	30	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Jeep Compass Awd (Parks General Services)	529	19	542	1		0	0	0		0	0	0			**2008 Jeep Compass Awd (Parks General Services)**	542	19	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Pontiac Torrent (Police)	2,728	95	2,666	7		0	0	0		0	0	0			**2008 Pontiac Torrent (Police)**	2,666	95	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Smart Car (Bldg. Insp/ By-Law Enforc)	263	9	268	1		0	0	0		0	0	0			**2008 Smart Car (Bldg. Insp/ By-Law Enforc)**	268	9	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Smart Car (Bldg. Insp-Permitting Ser)	164	6	170	0		0	0	0		0	0	0			**2008 Smart Car (Bldg. Insp-Permitting Ser)**	170	6	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

2008 Smart Car (W&S - Ici Metering/Hydran)	424	15	448	1		0		0		0		0			2008 Smart Car (W&S - Ici Metering/Hydran)	448	15	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Smart Car (W&S - Ici Metering/Hydran)	1,183	41	1,292	3		0		0		0		0			2008 Smart Car (W&S - Ici Metering/Hydran)	1,292	41	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Volvo Rbr Tire Excav (W&S-Wastewater Coll)	5,521	193	5,792	13		0		0		0		0			2008 Volvo Rbr Tire Excav (W&S-Wastewater Coll)	5,792	193	13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Ford Crown Victoria (Police)	2,464	86	2,395	6		0		0		0		0			2009 Ford Crown Victoria (Police)	2,395	86	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Int. Fuel Truck (Fleet Services)	7,276	255	7,186	18		0		0		0		0			2009 Int. Fuel Truck (Fleet Services)	7,186	255	18	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Int.Cab/Chass Vactor (W&S-Wastewater Coll)	8,144	285	8,726	20		0		0		0		0			2009 Int.Cab/Chass Vactor (W&S-Wastewater Coll)	8,726	285	20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Jeep Compass Awd (Mo - Solid Waste Mgmt)	840	29	825	2		0		0		0		0			2009 Jeep Compass Awd (Mo - Solid Waste Mgmt)	825	29	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Jeep Compass Awd (Mo-Surface Maintenance)	1,593	56	1,587	4		0		0		0		0			2009 Jeep Compass Awd (Mo-Surface Maintenance)	1,587	56	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Jeep Compass Awd (Pedestrian & Traffic Mgt)	1,034	36	1,089	3		0		0		0		0			2009 Jeep Compass Awd (Pedestrian & Traffic Mgt)	1,089	36	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Jeep Compass Awd (W&S - Water Trans & Dist.)	579	20	575	1		0		0		0		0			2009 Jeep Compass Awd (W&S - Water Trans & Dist.)	575	20	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Jeep Liberty (Data Processing)	1,093	38	1,086	3		0		0		0		0			2009 Jeep Liberty (Data Processing)	1,086	38	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Jeep Liberty (W&S - Water Trans & Dist.)	908	32	896	2		0		0		0		0			2009 Jeep Liberty (W&S - Water Trans & Dist.)	896	32	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Kubota Tractor (Parks General Services)	65	2	66	0		0		0		0		0			2009 Kubota Tractor (Parks General Services)	66	2	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Toyota Prius (Parks - Gen. Services)	428	15	439	1		0		0		0		0			2009 Toyota Prius (Parks - Gen. Services)	439	15	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Toyota Prius (Police)	141	5	139	0		0		0		0		0			2009 Toyota Prius (Police)	139	5	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Chev Aveo Lt (Bldg. Insp-Permitting Ser)	1,155	40	1,156	3		0		0		0		0			2010 Chev Aveo Lt (Bldg. Insp-Permitting Ser)	1,156	40	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Chev Express Van (Sj Water - Watershed Mgmt)	5,460	191	5,388	13		0		0		0		0			2010 Chev Express Van (Sj Water - Watershed Mgmt)	5,388	191	13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Dodge Grand Caravan (Materials And Fleet Mgt)	4,283	150	4,275	10		0		0		0		0			2010 Dodge Grand Caravan (Materials And Fleet Mgt)	4,275	150	10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Ford Crown Victoria (Police)	3,564	125	3,567	9		0		0		0		0			2010 Ford Crown Victoria (Police)	3,567	125	9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Ford Crown Victoria (Police)	932	33	891	2		0		0		0		0			2010 Ford Crown Victoria (Police)	891	33	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Ford F150 4wd Ext. C (Mo-Snow Control Street)	5,911	207	6,032	14		0		0		0		0			2010 Ford F150 4wd Ext. C (Mo-Snow Control Street)	6,032	207	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Ford F150 4wd Ext. C (Mo-Snow Control Street)	4,668	163	4,641	11		0		0		0		0			2010 Ford F150 4wd Ext. C (Mo-Snow Control Street)	4,641	163	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Ford F150 4wd Ext. C (Parks General Services)	2,821	99	2,767	7		0		0		0		0			2010 Ford F150 4wd Ext. C (Parks General Services)	2,767	99	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Ford F150 4wd Ext.C (Carp Shop - Fac. Magt)	2,489	87	2,440	6		0		0		0		0			2010 Ford F150 4wd Ext.C (Carp Shop - Fac. Magt)	2,440	87	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Ford F150 Ext. Cab (Parking Commission)	4,843	170	4,779	12		0		0		0		0			2010 Ford F150 Ext. Cab (Parking Commission)	4,779	170	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Ford Ranger Super Ca (Neighbourhood Development)	1,409	49	1,462	3		0		0		0		0			2010 Ford Ranger Super Ca (Neighbourhood Development)	1,462	49	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Kia Soul (Police)	1,650	58	1,642	4		0		0		0		0			2010 Kia Soul (Police)	1,642	58	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Pontiac G5 (W&S- Wastewater Pumping)	831	29	827	2		0		0		0		0			2010 Pontiac G5 (W&S- Wastewater Pumping)	827	29	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Pontiac G5 (W&S- Water Treatment)	829	29	826	2		0		0		0		0			2010 Pontiac G5 (W&S- Water Treatment)	826	29	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Toyota Tacoma (Mo-Surface Maintenance)	1,647	58	1,692	4		0		0		0		0			2010 Toyota Tacoma (Mo-Surface Maintenance)	1,692	58	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Cat Grader (Mo-Snow Control Street)	3,175	111	3,579	8		0		0		0		0			2011 Cat Grader (Mo-Snow Control Street)	3,579	111	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Chev Impala (Fire -Carmarthen)	2,063	72	2,069	5		0		0		0		0			2011 Chev Impala (Fire -Carmarthen)	2,069	72	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Chev Impala Ltz (Police)	894	31	886	2		0		0		0		0			2011 Chev Impala Ltz (Police)	886	31	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Ford Crown Victoria (Police)	8,806	308	8,695	21		0		0		0		0			2011 Ford Crown Victoria (Police)	8,695	308	21	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Ford Crown Victoria (Police)	3,902	137	3,815	10		0		0		0		0			2011 Ford Crown Victoria (Police)	3,815	137	10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Ford F250 Crew Cab (W&S- Wastewater Pumping)	4,794	168	4,745	12		0		0		0		0			2011 Ford F250 Crew Cab (W&S- Wastewater Pumping)	4,745	168	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Ford F450 W/Flat Bed (Parks - Gen. Services)	4,227	148	4,632	10		0		0		0		0			2011 Ford F450 W/Flat Bed (Parks - Gen. Services)	4,632	148	10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Gmc Canyon W/ Box Ca (W&S-Wastewater Treatment)	2,977	104	2,991	7		0		0		0		0			2011 Gmc Canyon W/ Box Ca (W&S-Wastewater Treatment)	2,991	104	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Gmc Savana Cargo Van (Police)	12,831	449	12,857	31		0		0		0		0			2011 Gmc Savana Cargo Van (Police)	12,857	449	31	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Gmc Sierra 3/4 Ton (W&S- Wastewater Pumping)	5,342	187	5,489	13		0		0		0		0			2011 Gmc Sierra 3/4 Ton (W&S- Wastewater Pumping)	5,489	187	13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 International Tandem (W&S - Water Trans & Dist.)	12,064	422	13,312	29		0		0		0		0			2011 International Tandem (W&S - Water Trans & Dist.)	13,312	422	29	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 VolvoExcavator (W&S - Water Trans & Dist.)	6,922	242	7,529	17		0		0		0		0			2011 VolvoExcavator (W&S - Water Trans & Dist.)	7,529	242	17	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Dodge Charger (Police)	7,982	279	7,941	19		0		0		0		0			2012 Dodge Charger (Police)	7,941	279	19	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Dodge Charger (Police)	6,363	223	6,420	16		0		0		0		0			2012 Dodge Charger (Police)	6,420	223	16	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Dodge Charger (Police)	9,537	334	9,552	23		0		0		0		0			2012 Dodge Charger (Police)	9,552	334	23	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Dodge Charger (Police)	11,823	414	11,875	29		0		0		0		0			2012 Dodge Charger (Police)	11,875	414	29	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Ford F450 Crew Cab (W&S - Water Trans & Dist.)	5,597	196	6,118	14		0		0		0		0			2012 Ford F450 Crew Cab (W&S - Water Trans & Dist.)	6,118	196	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Ford F450 Crew Cab (W&S - Water Trans & Dist.)	5,706	200	6,215	14		0		0		0		0			2012 Ford F450 Crew Cab (W&S - Water Trans & Dist.)	6,215	200	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Ford Fusion Se (Police)	2,730	96	2,753	7		0		0		0		0			2012 Ford Fusion Se (Police)	2,753	96	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Ford Fusion Se (Police)	2,047	72	2,046	5		0		0		0		0			2012 Ford Fusion Se (Police)	2,046	72	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Toyota Rav 4 (City Mgrs. Office)	418	15	415	1		0		0		0		0			2012 Toyota Rav 4 (City Mgrs. Office)	415	15	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Dodge Avenger (Police)	829	29	795	2		0		0		0		0			2013 Dodge Avenger (Police)	795	29	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Dodge Avenger (Police)	3,339	117	3,345	8		0		0		0		0			2013 Dodge Avenger (Police)	3,345	117	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Dodge Avenger (Police)	1,247	44	1,212	3		0		0		0		0			2013 Dodge Avenger (Police)	1,212	44	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Dodge Ram 1500 W/Cap (Fire -Carmarthen)	5,792	203	5,803	14		0		0		0		0			2013 Dodge Ram 1500 W/Cap (Fire -Carmarthen)	5,803	203	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Ford F150 Reg Cab 4x (Fleet Services)	1,560	55	1,615	4		0		0		0		0			2013 Ford F150 Reg Cab 4x (Fleet Services)	1,615	55	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Ford F150 Supercab (Carp Shop - Fac. Magt)	2,013	70	2,019	5		0		0		0		0			2013 Ford F150 Supercab (Carp Shop - Fac. Magt)	2,019	70	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Ford Supercab 4x4 (W&S - Water Trans & Dist.)	4,718	165	4,778	12		0		0		0		0			2013 Ford Supercab 4x4 (W&S - Water Trans & Dist.)	4,778	165	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Ford Supercab 4x4 (W&S-Wastewater Coll)	5,904	207	5,847	14		0		0		0		0			2013 Ford Supercab 4x4 (W&S-Wastewater Coll)	5,847	207	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Mitsubishi Rvr (Police)	682	24	696	2		0		0		0		0			2013 Mitsubishi Rvr (Police)	696	24	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Charger (Police)	12,710	445	12,705	31		0		0		0		0			2014 Dodge Charger (Police)	12,705	445	31	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Charger (Police)	12,424	435	12,305	30		0		0		0		0			2014 Dodge Charger (Police)	12,305	435	30	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Charger (Police)	4,868	170	4,682	12		0		0		0		0			2014 Dodge Charger (Police)	4,682	170	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Charger (Police)	7,729	270	7,938	19		0		0		0		0			2014 Dodge Charger (Police)	7,938	270	19	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Charger (Police)	11,151	390	11,161	27		0		0		0		0			2014 Dodge Charger (Police)	11,161	390	27	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Charger (Police)	11,068	387	11,150	27		0		0		0		0			2014 Dodge Charger (Police)	11,150	387	27	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Charger Awd (Police)	7,418	260	7,506	18		0		0		0		0			2014 Dodge Charger Awd (Police)	7,506	260	18	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Charger Awd (Police)	8,102	284	8,072	20		0		0		0		0			2014 Dodge Charger Awd (Police)	8,072	284	20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Charger Enf. (Fire -Carmarthen)	2,503	88	2,459	6		0		0		0		0			2014 Dodge Charger Enf. (Fire -Carmarthen)	2,459	88	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Ram 1500 St (W&S - Water Trans & Dist.)	5,706	200	5,663	14		0		0		0		0			2014 Dodge Ram 1500 St (W&S - Water Trans & Dist.)	5,663	200	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Ram 1500 St (W&S- Water Treatment)	9,134	320	9,095	22		0		0		0		0			2014 Dodge Ram 1500 St (W&S- Water Treatment)	9,095	320	22	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Dodge Ram Promaster (Police)	1,398	49	1,367	3		0		0		0		0			2014 Dodge Ram Promaster (Police)	1,367	49	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 F250 Reg Cab 4x4 (Mo-Snow Control Street)	9,041	316	8,818	22		0		0		0		0			2014 F250 Reg Cab 4x4 (Mo-Snow Control Street)	8,818	316	22	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F150 Ext. Cab (W&S - Water Trans & Dist.)	17,176	601	17,344	42		0		0		0		0			2014 Ford F150 Ext. Cab (W&S - Water Trans & Dist.)	17,344	601	42	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F150 Reg. Cab (Sports Fields)	2,750	96	2,775	7		0		0		0		0			2014 Ford F150 Reg. Cab (Sports Fields)	2,775	96	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F150 Supercab (Fleet Services)	1,340	47	1,350	3		0		0		0		0			2014 Ford F150 Supercab (Fleet Services)	1,350	47	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F150 Supercab (Fleet Services)	4,670	163	4,639	11		0		0		0		0			2014 Ford F150 Supercab (Fleet Services)	4,639	163	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F150 Supercab (Fleet Services)	3,585	125	3,549	9		0		0		0		0			2014 Ford F150 Supercab (Fleet Services)	3,549	125	9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F150 Supercab (Mo - Stormwater Mgmt)	4,902	172	4,838	12		0		0		0		0			2014 Ford F150 Supercab (Mo - Stormwater Mgmt)	4,838	172	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F150 Supercab (Mo-Snow Control Street)	6,103	214	6,006	15		0		0		0		0			2014 Ford F150 Supercab (Mo-Snow Control Street)	6,006	214	15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F150 Supercab (Mo-Surface Maintenance)	6,296	220	6,123	15		0		0		0		0			2014 Ford F150 Supercab (Mo-Surface Maintenance)	6,123	220	15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F150 Supercab (Pedestrian & Traffic Mgt)	4,403	154	4,375	11		0		0		0		0			2014 Ford F150 Supercab (Pedestrian & Traffic Mgt)	4,375	154	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F150 Supercrew (W&S-Wastewater Coll)	2,672	94	2,673	7		0		0		0		0			2014 Ford F150 Supercrew (W&S-Wastewater Coll)	2,673	94	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F250 Supercab (W&S-Wastewater Treatment)	2,366	83	2,319	6		0		0		0		0			2014 Ford F250 Supercab (W&S-Wastewater Treatment)	2,319	83	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F450 (Mo-Snow Control Street)	13,412	469	13,107	33		0		0		0		0			2014 Ford F450 (Mo-Snow Control Street)	13,107	469	33	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F450 (Mo-Surface Maintenance)	12,355	432	12,033	30		0		0		0		0			2014 Ford F450 (Mo-Surface Maintenance)	12,033	432	30	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F450 Ext. Cab (Mo-Street Cleaning)	14,552	509	13,817	36		0		0		0		0			2014 Ford F450 Ext. Cab (Mo-Street Cleaning)	13,817	509	36	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Freightliner Packer (Mo - Solid Waste Mgmt)	3,440	120	4,038	8		0		0		0		0			2014 Freightliner Packer (Mo - Solid Waste Mgmt)	4,038	120	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Freightliner Tandem (W&S - Water Trans & Dist.)	10,689	374	11,993	26		0		0		0		0			2014 Freightliner Tandem (W&S - Water Trans & Dist.)	11,993	374	26	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Freightliner Tandem (W&S - Water Trans & Dist.)	13,173	461	14,545	32		0		0		0		0			2014 Freightliner Tandem (W&S - Water Trans & Dist.)	14,545	461	32	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Gmc Savana Ext Cargo (Police)	558	20	572	1		0		0		0		0			2014 Gmc Savana Ext Cargo (Police)	572	20	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Honda Cr-V (Mo-Surface Maintenance)	2,294	80	2,302	6		0		0		0		0			2014 Honda Cr-V (Mo-Surface Maintenance)	2,302	80	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Isuzu W/ Line Pnt Eq (Pedestrian & Traffic Mgt)	2,278	80	2,391	6		0		0		0		0			2014 Isuzu W/ Line Pnt Eq (Pedestrian & Traffic Mgt)	2,391	80	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Toyota Corolla Le (Police)	883	31	840	2		0		0		0		0			2014 Toyota Corolla Le (Police)	840	31	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Toyota Corolla Le (Police)	1,470	51	1,470	4		0		0		0		0			2014 Toyota Corolla Le (Police)	1,470	51	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Volvo Backhoe (W&S - Water Trans & Dist)	4,901	172	5,059	12		0		0		0		0			2014 Volvo Backhoe (W&S - Water Trans & Dist)	5,059	172	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Volvo Backhoe (W&S - Water Trans & Dist)	4,456	156	4,879	11		0		0		0		0			2014 Volvo Backhoe (W&S - Water Trans & Dist)	4,879	156	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Dodge Charger Awd (Fire -Carmarthen)	230	8	212	1		0		0		0		0			2015 Dodge Charger Awd (Fire -Carmarthen)	212	8	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Ford F250 Ext. Cab (Water Trans And Pump)	6,857	240	7,245	17		0		0		0		0			2015 Ford F250 Ext. Cab (Water Trans And Pump)	7,245	240	17	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Ford F250 Supercab (W&S - Water Trans & Dist.)	2,633	92	2,768	6		0		0		0		0			2015 Ford F250 Supercab (W&S - Water Trans & Dist.)	2,768	92	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Ford F350 Reg Cab (Parks General Services)	5,061	177	5,114	12		0		0		0		0			2015 Ford F350 Reg Cab (Parks General Services)	5,114	177	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Ford F350 Reg Cab (Sports Fields)	5,267	184	5,208	13		0		0		0		0			2015 Ford F350 Reg Cab (Sports Fields)	5,208	184	13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Ford F550 Mini Packe (Mo-Street Cleaning)	9,968	349	10,581	24		0		0		0		0			2015 Ford F550 Mini Packe (Mo-Street Cleaning)	10,581	349	24	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Ford Interceptor (Police)	436	15	400	1		0		0		0		0			2015 Ford Interceptor (Police)	400	15	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Ford Interceptor (Police)	1,277	45	1,181	3		0		0		0		0			2015 Ford Interceptor (Police)	1,181	45	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Ford Interceptor (Police)	1,436	50	1,332	4		0		0		0		0			2015 Ford Interceptor (Police)	1,332	50	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Ford Interceptor (Police)	810	28	754	2		0		0		0		0			2015 Ford Interceptor (Police)	754	28	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Ford Interceptor Awd (Police)	41	1	37	0		0		0		0		0			2015 Ford Interceptor Awd (Police)	37	1	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Freightline Tandem (W&S - Ici Metering/Hydran)	8,865	310	9,584	22		0		0		0		0			2015 Freightline Tandem (W&S - Ici Metering/Hydran)	9,584	310	22	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Toyota Corolla (Police)	649	23	647	2		0		0		0		0			2015 Toyota Corolla (Police)	647	23	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Toyota Corolla Le (Police)	1,102	39	1,090	3		0		0		0		0			2015 Toyota Corolla Le (Police)	1,090	39	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Toyota Rav 4 Awd (Parking Comm. Admin)	1,410	49	1,423	3		0		0		0		0			2015 Toyota Rav 4 Awd (Parking Comm. Admin)	1,423	49	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 West. Star Vactor (W&S-Wastewater Coll)	11,978	419	12,171	29		0		0		0		0			2015 West. Star Vactor (W&S-Wastewater Coll)	12,171	419	29	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2016 Dodge Ram 1500 (Fire -Carmarthen)	956	33	893	2		0		0		0		0			2016 Dodge Ram 1500 (Fire -Carmarthen)	893	33	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

	2016 Dodge Ram 1500 4wd (Sports Fields)	95	3	88	0		0		0		0		0			**2016 Dodge Ram 1500 4wd (Sports Fields)**	88	3	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2016 Dodge Ram 1500 Crew (Water And Waste Water Eng)	129	5	119	0		0		0		0		0			**2016 Dodge Ram 1500 Crew (Water And Waste Water Eng)**	119	5	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2016 Dodge Ram 2500 Crew (Watershed Management)	137	5	125	0		0		0		0		0			**2016 Dodge Ram 2500 Crew (Watershed Management)**	125	5	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2016 Ford F250 3/4ton 4wd (W&S-Water Pump-Storage)	125	4	116	0		0		0		0		0			**2016 Ford F250 3/4ton 4wd (W&S-Water Pump-Storage)**	116	4	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2016 Ford F250 3/4ton 4wd (Water Trans And Pump)	302	11	282	1		0		0		0		0			**2016 Ford F250 3/4ton 4wd (Water Trans And Pump)**	282	11	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2016 Ford F250 4wd (Other Fac.)	479	17	441	1		0		0		0		0			**2016 Ford F250 4wd (Other Fac.)**	441	17	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2016 Toyota Corolla Le (Bldg. Insp-Permitting Ser)	146	5	134	0		0		0		0		0			**2016 Toyota Corolla Le (Bldg. Insp-Permitting Ser)**	134	5	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Rental vehicles		0		0		0		0		0		0			**Rental vehicles**	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2011 Ford F250 Crew Cab (Parks General Services) - Seasonal rental	2,451	86	2,585	6		0		0		0		0			**2011 Ford F250 Crew Cab (Parks General Services) - Seasonal rental**	2,585	86	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2011 Ford F250 Crew Cab (Parks General Services) - Seasonal rental	1,149	40	1,251	3		0		0		0		0			**2011 Ford F250 Crew Cab (Parks General Services) - Seasonal rental**	1,251	40	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2011 Ford F250 Crew Cab (Pedestrian & Traffic Mgt) - Seasonal rental	2,706	95	2,767	7		0		0		0		0			**2011 Ford F250 Crew Cab (Pedestrian & Traffic Mgt) - Seasonal renta**	2,767	95	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2012 Chev Silverado (Parks General Services) - Seasonal rental	1,478	52	1,635	4		0		0		0		0			**2012 Chev Silverado (Parks General Services) - Seasonal rental**	1,635	52	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2012 Chev Silverado (Watershed Management) - Seasonal rental	1,367	48	1,387	3		0		0		0		0			**2012 Chev Silverado (Watershed Management) - Seasonal rental**	1,387	48	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2012 Ford F150 (W&S- Wastewater Pumping) - Seasonal rental	951	33	1,017	2		0		0		0		0			**2012 Ford F150 (W&S- Wastewater Pumping) - Seasonal rental**	1,017	33	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2013 Ford 3/4 Ton Crew (Rockwood Park) - Seasonal rental	844	30	941	2		0		0		0		0			**2013 Ford 3/4 Ton Crew (Rockwood Park) - Seasonal rental**	941	30	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2013 Ford F250 Crew Cab (Parks General Services) - Seasonal rental	1,819	64	1,976	4		0		0		0		0			**2013 Ford F250 Crew Cab (Parks General Services) - Seasonal rental**	1,976	64	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2013 Ford F250 Crew Cab (Watershed Management) - Seasonal rental	1,577	55	1,766	4		0		0		0		0			**2013 Ford F250 Crew Cab (Watershed Management) - Seasonal rental**	1,766	55	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2013 Gmc Sierra 1/2 Ton (W&S-Wastewater Coll) - Seasonal rental	1,342	47	1,444	3		0		0		0		0			**2013 Gmc Sierra 1/2 Ton (W&S-Wastewater Coll) - Seasonal rental**	1,444	47	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2014 Ford F-150 Supercrew (Parks General Services) - Seasonal rental	676	24	752	2		0		0		0		0			**2014 Ford F-150 Supercrew (Parks General Services) - Seasonal renta**	752	24	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2014 Ford F350 Crew Cab (Mo - Stormwater Mgmt) - Seasonal rental	2,568	90	2,695	6		0		0		0		0			**2014 Ford F350 Crew Cab (Mo - Stormwater Mgmt) - Seasonal rental**	2,695	90	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Chev Silverado (Sports Fields) - Seasonal rental	165	6	188	0		0		0		0		0			**2015 Chev Silverado (Sports Fields) - Seasonal rental**	188	6	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Chev Silverado 2500 (W&S- Water Treatment) - Seasonal rental	419	15	463	1		0		0		0		0			**2015 Chev Silverado 2500 (W&S- Water Treatment) - Seasonal rental**	463	15	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Chev Sonic (Mo-Surface Maintenance) - Seasonal rental	801	28	878	2		0		0		0		0			**2015 Chev Sonic (Mo-Surface Maintenance) - Seasonal rental**	878	28	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Dodge Ram 1/2 Ton (Parks General Services) - Seasonal rental	557	19	533	1		0		0		0		0			**2015 Dodge Ram 1/2 Ton (Parks General Services) - Seasonal rental**	533	19	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Dodge Ram 1500 (Parks General Services) - Seasonal rental	1,073	38	1,041	3		0		0		0		0			**2015 Dodge Ram 1500 (Parks General Services) - Seasonal rental**	1,041	38	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Dodge Ram 1500 Crewc (Sports Fields) - Seasonal rental	881	31	959	2		0		0		0		0			**2015 Dodge Ram 1500 Crewc (Sports Fields) - Seasonal rental**	959	31	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Dodge Ram Crew Cab (Sports Fields) - Seasonal rental	599	21	644	1		0		0		0		0			**2015 Dodge Ram Crew Cab (Sports Fields) - Seasonal rental**	644	21	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Ford F150 Crew Cab (Parks General Services) - Seasonal rental	679	24	759	2		0		0		0		0			**2015 Ford F150 Crew Cab (Parks General Services) - Seasonal rental**	759	24	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Gmc Sierra (Parks General Services) - Seasonal rental	602	21	675	1		0		0		0		0			**2015 Gmc Sierra (Parks General Services) - Seasonal rental**	675	21	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Gmc Sierra Crewcab (Sports Fields) - Seasonal rental	1,078	38	1,165	3		0		0		0		0			**2015 Gmc Sierra Crewcab (Sports Fields) - Seasonal rental**	1,165	38	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2016 Ford F250 (Rockwood Park) - Seasonal rental	1,688	59	1,677	4		0		0		0		0			**2016 Ford F250 (Rockwood Park) - Seasonal rental**	1,677	59	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Chev Silverado (Mo -Trans& Env. Eng.Ge) - Seasonal rental		0		0	2,261	87	2,339	6		0		0			**2015 Chev Silverado (Mo -Trans& Env. Eng.Ge) - Seasonal rental**	2,339	87	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Chev Silverado 1 Ton (Parks General Services) - Seasonal rental		0		0	629	24	651	2		0		0			**2015 Chev Silverado 1 Ton (Parks General Services) - Seasonal rental**	651	24	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Chev Silverado 1 Ton (W&S- Water Treatment) - Seasonal rental		0		0	3,340	128	3,486	9		0		0			**2015 Chev Silverado 1 Ton (W&S- Water Treatment) - Seasonal rental**	3,486	128	9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	2015 Dodge Ram 2500 (Watershed Management) - Seasonal rental		0		0	683	26	722	2		0		0			**2015 Dodge Ram 2500 (Watershed Management) - Seasonal rental**	722	26	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Replaced vehicles		0		0		0		0		0		0			**Replaced vehicles**	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	1998 Chev Blazer (Fire -Carmarthen)	4	0	0	0		0		0		0		0			**1998 Chev Blazer (Fire -Carmarthen)**	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2005 F150 4x4 (Mo-Snow Control Street)	3,049	107	2,994	7		0		0		0		0			**2005 F150 4x4 (Mo-Snow Control Street)**	2,994	107	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2005 F150 4x4 (Mo-Surface Maintenance)	2,443	86	2,402	6		0		0		0		0			**2005 F150 4x4 (Mo-Surface Maintenance)**	2,402	86	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2005 Ford F450 (Pedestrian & Traffic Mgt)	2,601	91	2,840	6		0		0		0		0			**2005 Ford F450 (Pedestrian & Traffic Mgt)**	2,840	91	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2005 Hyundai Sonata (Police)	134	5	129	0		0		0		0		0			**2005 Hyundai Sonata (Police)**	129	5	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2006 Chev Impala (Police)	430	15	377	1		0		0		0		0			**2006 Chev Impala (Police)**	377	15	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2006 Dodge Ram 2500 St (Other Fac.)	7,344	257	7,451	18		0		0		0		0			**2006 Dodge Ram 2500 St (Other Fac.)**	7,451	257	18	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2006 Ford F550 (Mo-Street Cleaning)	1,886	66	2,196	5		0		0		0		0			**2006 Ford F550 (Mo-Street Cleaning)**	2,196	66	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2006 Ford Freestar (Police)	1,560	55	1,587	4		0		0		0		0			**2006 Ford Freestar (Police)**	1,587	55	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2006 Gmc Savana Cargo Van (Water Trans And Pump)	1,615	57	1,570	4		0		0		0		0			**2006 Gmc Savana Cargo Van (Water Trans And Pump)**	1,570	57	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2006 Gmc Sierra 1/2 Ton (Parks - Gen. Services)	4,522	158	4,609	11		0		0		0		0			**2006 Gmc Sierra 1/2 Ton (Parks - Gen. Services)**	4,609	158	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2006 Int.Cab/Chasis (W&S-Wastewater Coll)	5,196	182	5,629	13		0		0		0		0			**2006 Int.Cab/Chasis (W&S-Wastewater Coll)**	5,629	182	13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2007 F350 3/4 Ton (Pedestrian & Traffic Mgt)	4,762	167	5,155	12		0		0		0		0			**2007 F350 3/4 Ton (Pedestrian & Traffic Mgt)**	5,155	167	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2008 Gmc Savana Cargo Van (Watershed Management)	4,147	145	4,077	10		0		0		0		0			**2008 Gmc Savana Cargo Van (Watershed Management)**	4,077	145	10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2010 Ford Crown Victoria (Police)	1,921	67	1,909	5		0		0		0		0			**2010 Ford Crown Victoria (Police)**	1,909	67	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2011 Ford Crown Victoria (Police)	308	11	278	1		0		0		0		0			**2011 Ford Crown Victoria (Police)**	278	11	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2011 Ford Crown Victoria (Police)	4,958	174	4,973	12		0		0		0		0			**2011 Ford Crown Victoria (Police)**	4,973	174	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2012 Dodge Charger (Police)	5,558	195	5,669	14		0		0		0		0			**2012 Dodge Charger (Police)**	5,669	195	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2012 Dodge Charger (Police)	9,886	346	10,090	24		0		0		0		0			**2012 Dodge Charger (Police)**	10,090	346	24	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2000 Ford Bucket Truck (Pedestrian & Traffic Mgt)		0		0	98	4	105	0		0		0			**2000 Ford Bucket Truck (Pedestrian & Traffic Mgt)**	105	4	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2000 Mt Trackless (Mo-Snow Contr. Sidewal)		0		0	141	5	155	0		0		0			**2000 Mt Trackless (Mo-Snow Contr. Sidewal)**	155	5	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2000 Mt Trackless (Mo-Snow Contr. Sidewal)		0		0	1,461	56	1,659	4		0		0			**2000 Mt Trackless (Mo-Snow Contr. Sidewal)**	1,659	56	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2003 Freightliner Packer (Mo - Solid Waste Mgmt)		0		0	3,404	130	3,867	9		0		0			**2003 Freightliner Packer (Mo - Solid Waste Mgmt)**	3,867	130	9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2005 Ford F 150 4x4 (Mo-Snow Control Street)		0		0	468	18	404	1		0		0			**2005 Ford F 150 4x4 (Mo-Snow Control Street)**	404	18	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2007 Ford F450 Cab/Chassi (Mo-Surface Maintenance)		0		0	4,393	168	4,686	12		0		0			**2007 Ford F450 Cab/Chassi (Mo-Surface Maintenance)**	4,686	168	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2014 Hyundai Wheel Loader (Mo-Snow Control Street)		0		0	9,533	365	10,937	26		0		0			**2014 Hyundai Wheel Loader (Mo-Snow Control Street)**	10,937	365	26	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	2014 Hyundai Wheel Loader (Mo-Snow Control Street)		0		0	11,274	432	12,599	30		0		0			**2014 Hyundai Wheel Loader (Mo-Snow Control Street)**	12,599	432	30	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			0		0		0		0		0		0			**0**	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	1993 Spartan Pumper (Fire -Carmarthen)		0		0	239	9	279	1		0		0			**1993 Spartan Pumper (Fire -Carmarthen)**	279	9	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	1996 Metalfab Tanker (Fire -Carmarthen)		0		0	566	22	593	2		0		0			**1996 Metalfab Tanker (Fire -Carmarthen)**	593	22	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	1996 Spartan Pumper (Fire -Carmarthen)		0		0	1,799	69	1,908	5		0		0			**1996 Spartan Pumper (Fire -Carmarthen)**	1,908	69	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	1997 E-One Pumper (Fire -Carmarthen)		0		0	393	15	362	1		0		0			**1997 E-One Pumper (Fire -Carmarthen)**	362	15	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	1997 Rosenbauer 109 Aeria (Fire -Carmarthen)		0		0	2,099	80	2,094	6		0		0			**1997 Rosenbauer 109 Aeria (Fire -Carmarthen)**	2,094	80	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2000 Mt Trackless (Mo-Snow Contr. Sidewal)		0		0	2,401	92	2,714	6		0		0			**2000 Mt Trackless (Mo-Snow Contr. Sidewal)**	2,714	92	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2000 Spartan Pumper (Fire -Carmarthen)		0		0	4,015	154	4,291	11		0		0			**2000 Spartan Pumper (Fire -Carmarthen)**	4,291	154	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2001 Freightliner Tanker (Fire -Carmarthen)		0		0	1,816	70	1,814	5		0		0			**2001 Freightliner Tanker (Fire -Carmarthen)**	1,814	70	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2001 Spartan Pumper (Fire -Carmarthen)		0		0	6,262	240	6,469	17		0		0			**2001 Spartan Pumper (Fire -Carmarthen)**	6,469	240	17	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2002 Ford F550 Air Supply (Fire -Carmarthen)		0		0	475	18	506	1		0		0			**2002 Ford F550 Air Supply (Fire -Carmarthen)**	506	18	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2003 Cat TrackExcavator (Mo - Stormwater Mgmt)		0		0	2,348	90	1,685	6		0		0			**2003 Cat TrackExcavator (Mo - Stormwater Mgmt)**	1,685	90	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2003 Elgin Eagle Sweeper (Mo-Street Cleaning)		0		0	5,862	225	6,153	16		0		0			**2003 Elgin Eagle Sweeper (Mo-Street Cleaning)**	6,153	225	16	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2003 E-One Aerial Ladder (Fire -Carmarthen)		0		0	6,688	256	7,162	18		0		0			**2003 E-One Aerial Ladder (Fire -Carmarthen)**	7,162	256	18	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2003 Mt5t Trackless (Mo-Snow Contr. Sidewal)		0		0	3,927	150	4,492	11		0		0			**2003 Mt5t Trackless (Mo-Snow Contr. Sidewal)**	4,492	150	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2004 E-One Rescue Pumper (Fire -Carmarthen)		0		0	7,427	284	7,909	20		0		0			**2004 E-One Rescue Pumper (Fire -Carmarthen)**	7,909	284	20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2004 John Deere Loader (Mo-Snow Control Street)		0		0	6,986	268	7,581	19		0		0			**2004 John Deere Loader (Mo-Snow Control Street)**	7,581	268	19	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2004 Mt5t Trackless (Mo-Snow Contr. Sidewal)		0		0	204	8	235	1		0		0			**2004 Mt5t Trackless (Mo-Snow Contr. Sidewal)**	235	8	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2004 Sterling 6-Yard (Mo-Surface Maintenance)		0		0	5,056	194	5,362	14		0		0			**2004 Sterling 6-Yard (Mo-Surface Maintenance)**	5,362	194	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2004 Sterling 6-Yard (Mo-Surface Maintenance)		0		0	4,196	161	4,644	11		0		0			**2004 Sterling 6-Yard (Mo-Surface Maintenance)**	4,644	161	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2004 Sterling Tandem (Mo-Street Cleaning)		0		0	950	36	1,067	3		0		0			**2004 Sterling Tandem (Mo-Street Cleaning)**	1,067	36	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2005 Cat Loader (Mo-Snow Control Street)		0		0	18,090	693	21,223	49		0		0			**2005 Cat Loader (Mo-Snow Control Street)**	21,223	693	49	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2005 Ford F450 4x4 (Mo-Surface Maintenance)		0		0	184	7	202	0		0		0			**2005 Ford F450 4x4 (Mo-Surface Maintenance)**	202	7	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2005 Gmc C5500 Crew Cab (Fire - Regional Hazmat)		0		0	87	3	98	0		0		0			**2005 Gmc C5500 Crew Cab (Fire - Regional Hazmat)**	98	3	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2005 Intl. Cab/Chass. (Mo - Stormwater Mgmt)		0		0	6,391	245	6,962	17		0		0			**2005 Intl. Cab/Chass. (Mo - Stormwater Mgmt)**	6,962	245	17	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2005 Sterling Tandem (Mo - Stormwater Mgmt)		0		0	9,353	358	9,940	25		0		0			**2005 Sterling Tandem (Mo - Stormwater Mgmt)**	9,940	358	25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2006 E-One Pumper (Fire -Carmarthen)		0		0	5,080	195	5,328	14		0		0			**2006 E-One Pumper (Fire -Carmarthen)**	5,328	195	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2006 E-One Pumper (Fire -Carmarthen)		0		0	4,645	178	4,873	12		0		0			**2006 E-One Pumper (Fire -Carmarthen)**	4,873	178	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2006 Ford F450 Super (W&S-Wastewater Coll)		0		0	3,509	134	3,784	9		0		0			**2006 Ford F450 Super (W&S-Wastewater Coll)**	3,784	134	9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2006 Int'l Tandem (Mo-Snow Control Street)		0		0	9,559	366	10,399	26		0		0			**2006 Int'l Tandem (Mo-Snow Control Street)**	10,399	366	26	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2006 Intl. 6-Yard (Mo - Stormwater Mgmt)		0		0	4,627	177	5,360	12		0		0			**2006 Intl. 6-Yard (Mo - Stormwater Mgmt)**	5,360	177	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2006 Intl. 6-Yard (Mo-Snow Control Street)		0		0	5,723	219	6,086	15		0		0			**2006 Intl. 6-Yard (Mo-Snow Control Street)**	6,086	219	15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2006 Intl. 6-Yard (Mo-Surface Maintenance)		0		0	4,664	179	4,790	13		0		0			**2006 Intl. 6-Yard (Mo-Surface Maintenance)**	4,790	179	13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2006 Intl. Tandem (Mo-Street Cleaning)		0		0	9,156	351	10,158	25		0		0			**2006 Intl. Tandem (Mo-Street Cleaning)**	10,158	351	25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2006 John Deere Loader (Mo-Snow Control Street)		0		0	10,385	398	11,420	28		0		0			**2006 John Deere Loader (Mo-Snow Control Street)**	11,420	398	28	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2007 Camoplast Sdwlk Mach (Mo-Snow Contr. Sidewal)		0		0	3,555	136	4,009	10		0		0			**2007 Camoplast Sdwlk Mach (Mo-Snow Contr. Sidewal)**	4,009	136	10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2007 Cat.Backhoe/Loader (Mo - Stormwater Mgmt)		0		0	3,357	129	3,355	9		0		0			**2007 Cat.Backhoe/Loader (Mo - Stormwater Mgmt)**	3,355	129	9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2007 Cat.Backhoe/Loader (Mo - Stormwater Mgmt)		0		0	2,042	78	1,875	5		0		0			**2007 Cat.Backhoe/Loader (Mo - Stormwater Mgmt)**	1,875	78	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2007 Ford F450 4x4 (Mo-Surface Maintenance)		0		0	6,156	236	6,720	17		0		0			**2007 Ford F450 4x4 (Mo-Surface Maintenance)**	6,720	236	17	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2007 Ford F450 4x4 (Mo-Surface Maintenance)		0		0	6,335	243	6,914	17		0		0			**2007 Ford F450 4x4 (Mo-Surface Maintenance)**	6,914	243	17	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2007 Ford F450 4x4 (Mo-Surface Maintenance)		0		0	6,884	264	7,102	18		0		0			**2007 Ford F450 4x4 (Mo-Surface Maintenance)**	7,102	264	18	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2007 Int. E-One Tanker (Fire -Carmarthen)		0		0	1,883	72	1,957	5		0		0			**2007 Int. E-One Tanker (Fire -Carmarthen)**	1,957	72	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2007 International 7500 (Mo-Surface Maintenance)		0		0	5,641	216	5,521	15		0		0			**2007 International 7500 (Mo-Surface Maintenance)**	5,521	216	15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2007 Intl. 6-Yard (Mo - Stormwater Mgmt)		0		0	2,874	110	3,103	8		0		0			**2007 Intl. 6-Yard (Mo - Stormwater Mgmt)**	3,103	110	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2007 John Deere Grader (Mo-Snow Control Street)		0		0	13,042	500	14,379	35		0		0			**2007 John Deere Grader (Mo-Snow Control Street)**	14,379	500	35	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2008 Case Wheel Loader (Mo-Street Cleaning)		0		0	7,404	284	7,947	20		0		0			**2008 Case Wheel Loader (Mo-Street Cleaning)**	7,947	284	20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2008 Dodge Ram 4500 (W&S-Wastewater Coll)		0		0	5,066	194	5,624	14		0		0			**2008 Dodge Ram 4500 (W&S-Wastewater Coll)**	5,624	194	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2008 Dodge Ram 4500 4x4 (Mo-Snow Control Street)		0		0	4,864	186	5,309	13		0		0			**2008 Dodge Ram 4500 4x4 (Mo-Snow Control Street)**	5,309	186	13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2008 E-One Bronto Aerial (Fire -Carmarthen)		0		0	7,065	271	7,475	19		0		0			**2008 E-One Bronto Aerial (Fire -Carmarthen)**	7,475	271	19	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2008 Int. Tandem (Mo- Sidewalk Maintenance)		0		0	4,184	160	4,395	11		0		0			**2008 Int. Tandem (Mo- Sidewalk Maintenance)**	4,395	160	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	2008 International Tandem (Mo-Snow Control Street)		0		0	11,677	447	13,109	31		0		0			**2008 International Tandem (Mo-Snow Control Street)**	13,109	447	31	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

2008 Intl 6-Yard (Mo-Snow Contr. Sidewal)		0		0	9,093	348	10,190	24		0		0			**2008 Intl 6-Yard (Mo-Snow Contr. Sidewal)**	10,190	348	24	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Jd Backhoe Loader (Mo - Stormwater Mgmt)		0		0	4,815	184	4,858	13		0		0			**2008 Jd Backhoe Loader (Mo - Stormwater Mgmt)**	4,858	184	13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2008 Jd Backhoe/Loader (Mo - Stormwater Mgmt)		0		0	5,586	214	5,940	15		0		0			**2008 Jd Backhoe/Loader (Mo - Stormwater Mgmt)**	5,940	214	15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Cat Loader (Mo-Street Cleaning)		0		0	5,677	217	5,581	15		0		0			**2009 Cat Loader (Mo-Street Cleaning)**	5,581	217	15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Elgin Whirl. Sweeper (Mo-Street Cleaning)		0		0	10,222	392	10,603	27		0		0			**2009 Elgin Whirl. Sweeper (Mo-Street Cleaning)**	10,603	392	27	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Int.Cab/Chass Vactor (Mo - Stormwater Mgmt)		0		0	8,288	317	7,965	22		0		0			**2009 Int.Cab/Chass Vactor (Mo - Stormwater Mgmt)**	7,965	317	22	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Mt6 Trackless (Mo-Snow Contr. Sidewal)		0		0	3,743	143	4,053	10		0		0			**2009 Mt6 Trackless (Mo-Snow Contr. Sidewal)**	4,053	143	10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Mt6 Trackless (Mo-Snow Contr. Sidewal)		0		0	2,260	87	2,359	6		0		0			**2009 Mt6 Trackless (Mo-Snow Contr. Sidewal)**	2,359	87	6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 New Holland Loader (Mo-Snow Control Street)		0		0	5,836	223	6,204	16		0		0			**2009 New Holland Loader (Mo-Snow Control Street)**	6,204	223	16	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Sterling Tandem (Mo - Stormwater Mgmt)		0		0	15,809	605	16,557	42		0		0			**2009 Sterling Tandem (Mo - Stormwater Mgmt)**	16,557	605	42	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2009 Sterling Tandem (Mo-Snow Control Street)		0		0	18,887	723	20,230	51		0		0			**2009 Sterling Tandem (Mo-Snow Control Street)**	20,230	723	51	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Cat Vib. Asphalt Com (Mo-Surface Maintenance)		0		0	661	25	594	2		0		0			**2010 Cat Vib. Asphalt Com (Mo-Surface Maintenance)**	594	25	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Ford F150 4wd Ext. C (Mo - Solid Waste Mgmt)		0		0	6,093	233	6,023	16		0		0			**2010 Ford F150 4wd Ext. C (Mo - Solid Waste Mgmt)**	6,023	233	16	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Ford F450 4x4 (Mo-Snow Control Street)		0		0	8,402	322	8,886	23		0		0			**2010 Ford F450 4x4 (Mo-Snow Control Street)**	8,886	322	23	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Prinoth Sw 4s (Mo-Snow Contr. Sidewal)		0		0	5,213	200	5,729	14		0		0			**2010 Prinoth Sw 4s (Mo-Snow Contr. Sidewal)**	5,729	200	14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2010 Prinoth Sw 4s (Mo-Snow Contr. Sidewal)		0		0	4,057	155	4,573	11		0		0			**2010 Prinoth Sw 4s (Mo-Snow Contr. Sidewal)**	4,573	155	11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Ford Bucket Truck (Pedestrian & Traffic Mgt)		0		0	2,873	110	3,095	8		0		0			**2011 Ford Bucket Truck (Pedestrian & Traffic Mgt)**	3,095	110	8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 International Packer (Mo - Solid Waste Mgmt)		0		0	11,178	428	12,231	30		0		0			**2011 International Packer (Mo - Solid Waste Mgmt)**	12,231	428	30	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 International Tandem (Mo-Street Cleaning)		0		0	15,560	596	16,076	42		0		0			**2011 International Tandem (Mo-Street Cleaning)**	16,076	596	42	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Intl. Single Axle (Mo-Surface Maintenance)		0		0	12,115	464	12,982	33		0		0			**2011 Intl. Single Axle (Mo-Surface Maintenance)**	12,982	464	33	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2011 Intl. Single Axle (Mo-Surface Maintenance)		0		0	13,852	531	14,919	37		0		0			**2011 Intl. Single Axle (Mo-Surface Maintenance)**	14,919	531	37	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Cat Roller (Mo-Surface Maintenance)		0		0	292	11	288	1		0		0			**2012 Cat Roller (Mo-Surface Maintenance)**	288	11	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Cat Roller (Mo-Surface Maintenance)		0		0	189	7	179	1		0		0			**2012 Cat Roller (Mo-Surface Maintenance)**	179	7	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 Inter. Single Axle (Mo-Snow Control Street)		0		0	13,980	535	15,473	38		0		0			**2012 Inter. Single Axle (Mo-Snow Control Street)**	15,473	535	38	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 International Tandem (Mo-Snow Control Street)		0		0	19,333	740	20,701	52		0		0			**2012 International Tandem (Mo-Snow Control Street)**	20,701	740	52	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 International Tandem (Mo-Snow Control Street)		0		0	16,127	618	17,871	43		0		0			**2012 International Tandem (Mo-Snow Control Street)**	17,871	618	43	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2012 International Tandem (Mo-Snow Control Street)		0		0	13,305	510	14,517	36		0		0			**2012 International Tandem (Mo-Snow Control Street)**	14,517	510	36	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Case Loader (Mo-Snow Control Street)		0		0	8,628	330	9,937	23		0		0			**2013 Case Loader (Mo-Snow Control Street)**	9,937	330	23	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Case Loader (Mo-Snow Control Street)		0		0	8,358	320	9,554	22		0		0			**2013 Case Loader (Mo-Snow Control Street)**	9,554	320	22	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Cat Roller (Mo-Surface Maintenance)		0		0	161	6	100	0		0		0			**2013 Cat Roller (Mo-Surface Maintenance)**	100	6	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 International Packer (Mo - Solid Waste Mgmt)		0		0	14,741	565	15,855	40		0		0			**2013 International Packer (Mo - Solid Waste Mgmt)**	15,855	565	40	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 International Packer (Mo - Solid Waste Mgmt)		0		0	16,363	627	17,583	44		0		0			**2013 International Packer (Mo - Solid Waste Mgmt)**	17,583	627	44	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 International Packer (Mo - Solid Waste Mgmt)		0		0	14,815	567	16,214	40		0		0			**2013 International Packer (Mo - Solid Waste Mgmt)**	16,214	567	40	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 International Packer (Mo - Solid Waste Mgmt)		0		0	19,465	746	21,009	52		0		0			**2013 International Packer (Mo - Solid Waste Mgmt)**	21,009	746	52	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 International Packer (Mo - Solid Waste Mgmt)		0		0	19,543	748	21,422	52		0		0			**2013 International Packer (Mo - Solid Waste Mgmt)**	21,422	748	52	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Pierce Saber Pumper (Fire -Carmarthen)		0		0	5,589	214	5,878	15		0		0			**2013 Pierce Saber Pumper (Fire -Carmarthen)**	5,878	214	15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2013 Spaulding Asp. Recyc (Mo-Snow Control Street)		0		0	77	3	86	0		0		0			**2013 Spaulding Asp. Recyc (Mo-Snow Control Street)**	86	3	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Doosan Loader (Mo-Snow Control Street)		0		0	5,644	216	6,167	15		0		0			**2014 Doosan Loader (Mo-Snow Control Street)**	6,167	216	15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Ford F150 Supercab (Mo-Snow Control Street)		0		0	4,729	181	4,774	13		0		0			**2014 Ford F150 Supercab (Mo-Snow Control Street)**	4,774	181	13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Int. 7500 Single Axl (Mo-Snow Control Street)		0		0	17,977	689	19,334	48		0		0			**2014 Int. 7500 Single Axl (Mo-Snow Control Street)**	19,334	689	48	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Int. 7500 Single Axl (Mo-Snow Control Street)		0		0	14,487	555	15,370	39		0		0			**2014 Int. 7500 Single Axl (Mo-Snow Control Street)**	15,370	555	39	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Int. Tandem 7600 (Mo - Stormwater Mgmt)		0		0	18,988	727	21,068	51		0		0			**2014 Int. Tandem 7600 (Mo - Stormwater Mgmt)**	21,068	727	51	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 International Packer (Mo - Solid Waste Mgmt)		0		0	22,876	876	24,574	61		0		0			**2014 International Packer (Mo - Solid Waste Mgmt)**	24,574	876	61	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 International Packer (Mo - Solid Waste Mgmt)		0		0	20,129	771	21,965	54		0		0			**2014 International Packer (Mo - Solid Waste Mgmt)**	21,965	771	54	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2014 Leeboy Asphalt Paver (Mo-Surface Maintenance)		0		0	868	33	508	2		0		0			**2014 Leeboy Asphalt Paver (Mo-Surface Maintenance)**	508	33	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Case Wheel Loader (Mo-Snow Control Street)		0		0	678	26	678	2		0		0			**2015 Case Wheel Loader (Mo-Snow Control Street)**	678	26	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Case Wheel Loader (Mo-Snow Control Street)		0		0	692	27	704	2		0		0			**2015 Case Wheel Loader (Mo-Snow Control Street)**	704	27	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Freight. Single Axle (Mo-Snow Control Street)		0		0	12,347	473	13,140	33		0		0			**2015 Freight. Single Axle (Mo-Snow Control Street)**	13,140	473	33	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Trackless Mt6 (Mo-Snow Contr. Sidewal)		0		0	5,710	219	6,408	15		0		0			**2015 Trackless Mt6 (Mo-Snow Contr. Sidewal)**	6,408	219	15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Trackless Mt6 (Mo-Snow Contr. Sidewal)		0		0	5,860	224	6,373	16		0		0			**2015 Trackless Mt6 (Mo-Snow Contr. Sidewal)**	6,373	224	16	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2015 Trackless Mt6 (Mo-Snow Contr. Sidewal)		0		0	7,354	282	8,246	20		0		0			**2015 Trackless Mt6 (Mo-Snow Contr. Sidewal)**	8,246	282	20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2016 Ford F250 3/4 Ton (W&S-Water Pump-Storage)		0		0	144	6	140	0		0		0			**2016 Ford F250 3/4 Ton (W&S-Water Pump-Storage)**	140	6	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2016 Freightliner Packer (Mo - Solid Waste Mgmt)		0		0	14,021	537	14,969	38		0		0			**2016 Freightliner Packer (Mo - Solid Waste Mgmt)**	14,969	537	38	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2016 Freightliner Packer (Mo - Solid Waste Mgmt)		0		0	11,229	430	11,816	30		0		0			**2016 Freightliner Packer (Mo - Solid Waste Mgmt)**	11,816	430	30	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2016 Trackless Mt6 (Mo-Snow Contr. Sidewal)		0		0	281	11	273	1		0		0			**2016 Trackless Mt6 (Mo-Snow Contr. Sidewal)**	273	11	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2016 Trackless Mt6 (Mo-Snow Contr. Sidewal)		0		0	132	5	132	0		0		0			**2016 Trackless Mt6 (Mo-Snow Contr. Sidewal)**	132	5	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2016 Trackless Mt6 (Mo-Snow Contr. Sidewal)		0		0	129	5	125	0		0		0			**2016 Trackless Mt6 (Mo-Snow Contr. Sidewal)**	125	5	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2016 Trackless Mt6 (Mo-Snow Contr. Sidewal)		0		0	253	10	257	1		0		0			**2016 Trackless Mt6 (Mo-Snow Contr. Sidewal)**	257	10	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
		0		0		0		0		0		0			**0**	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
MISC. FUEL (Diesel fuel cards ; four departments)		0		0	17,540	672	18,646	47		0		0			**MISC. FUEL (Diesel fuel cards ; four departments)**	18,646	672	47	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
		0		0		0		0		0		0			**0**	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Transit Bus - SJTC		0		0		0		0		0		0			**Transit Bus - SJTC**	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
FORD - E450 (2008)		0		0	10,107	387	10,885	27		0		0			**FORD - E450 (2008)**	10,885	387	27	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
FORD - E450 (2009)		0		0	7,314	280	7,877	20		0		0			**FORD - E450 (2009)**	7,877	280	20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
FORD - E450 (2009)		0		0	2,508	96	2,701	7		0		0			**FORD - E450 (2009)**	2,701	96	7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
CHEVROLET - EXPRESS (2011)		0		0	10,808	414	11,640	29		0		0			**CHEVROLET - EXPRESS (2011)**	11,640	414	29	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
CHEVROLET - EXPRESS (2012)		0		0	9,410	360	10,134	25		0		0			**CHEVROLET - EXPRESS (2012)**	10,134	360	25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
CHEVROLET - EXPRESS (2013)		0		0	9,911	380	10,674	27		0		0			**CHEVROLET - EXPRESS (2013)**	10,674	380	27	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
CHEVROLET - EXPRESS (2014)		0		0	5,858	224	6,309	16		0		0			**CHEVROLET - EXPRESS (2014)**	6,309	224	16	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
FORD - F350 (2008)		0		0	4,400	169	4,739	12		0		0			**FORD - F350 (2008)**	4,739	169	12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION 6 (1997)		0		0	24,331	932	26,204	65		0		0			**ORION - ORION 6 (1997)**	26,204	932	65	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION 7 (2002)		0		0	22,115	847	23,817	59		0		0			**ORION - ORION 7 (2002)**	23,817	847	59	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION 7 (2004)		0		0	10,970	420	11,815	29		0		0			**ORION - ORION 7 (2004)**	11,815	420	29	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION7 (2002)		0		0	20,008	766	21,548	54		0		0			**ORION - ORION7 (2002)**	21,548	766	54	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION7 (2004)		0		0	25,063	960	26,992	67		0		0			**ORION - ORION7 (2004)**	26,992	960	67	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION7 (2004)		0		0	28,113	1,077	30,277	75		0		0			**ORION - ORION7 (2004)**	30,277	1,077	75	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION7 (2005)		0		0	30,394	1,164	32,734	82		0		0			**ORION - ORION7 (2005)**	32,734	1,164	82	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION7 (2005)		0		0	31,179	1,194	33,579	84		0		0			**ORION - ORION7 (2005)**	33,579	1,194	84	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION7 (2006)		0		0	28,005	1,073	30,161	75		0		0			**ORION - ORION7 (2006)**	30,161	1,073	75	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION7 (2006)		0		0	27,763	1,063	29,900	75		0		0			**ORION - ORION7 (2006)**	29,900	1,063	75	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION7 (2006)		0		0	37,427	1,433	40,308	100		0		0			**ORION - ORION7 (2006)**	40,308	1,433	100	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2007)		0		0	36,474	1,397	39,282	98		0		0			**ORION - ORION NG (2007)**	39,282	1,397	98	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2007)		0		0	36,472	1,397	39,280	98		0		0			**ORION - ORION NG (2007)**	39,280	1,397	98	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2007)		0		0	40,571	1,554	43,694	109		0		0			**ORION - ORION NG (2007)**	43,694	1,554	109	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2007)		0		0	38,354	1,469	41,307	103		0		0			**ORION - ORION NG (2007)**	41,307	1,469	103	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2007)		0		0	40,326	1,544	43,430	108		0		0			**ORION - ORION NG (2007)**	43,430	1,544	108	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2007)		0		0	35,774	1,370	38,528	96		0		0			**ORION - ORION NG (2007)**	38,528	1,370	96	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2007)		0		0	38,300	1,467	41,248	103		0		0			**ORION - ORION NG (2007)**	41,248	1,467	103	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2007)		0		0	37,957	1,454	40,879	102		0		0			**ORION - ORION NG (2007)**	40,879	1,454	102	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2007)		0		0	22,962	879	24,730	62		0		0			**ORION - ORION NG (2007)**	24,730	879	62	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2007)		0		0	42,459	1,626	45,728	114		0		0			**ORION - ORION NG (2007)**	45,728	1,626	114	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2007)		0		0	35,696	1,367	38,444	96		0		0			**ORION - ORION NG (2007)**	38,444	1,367	96	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2008)		0		0	42,149	1,614	45,394	113		0		0			**ORION - ORION NG (2008)**	45,394	1,614	113	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2008)		0		0	36,673	1,405	39,496	98		0		0			**ORION - ORION NG (2008)**	39,496	1,405	98	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2008)		0		0	35,882	1,374	38,644	96		0		0			**ORION - ORION NG (2008)**	38,644	1,374	96	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2008)		0		0	44,352	1,699	47,766	119		0		0			**ORION - ORION NG (2008)**	47,766	1,699	119	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2010)		0		0	38,932	1,491	41,929	104		0		0			**ORION - ORION NG (2010)**	41,929	1,491	104	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2010)		0		0	41,308	1,582	44,488	111		0		0			**ORION - ORION NG (2010)**	44,488	1,582	111	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2010)		0		0	43,260	1,657	46,590	116		0		0			**ORION - ORION NG (2010)**	46,590	1,657	116	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2012)		0		0	32,039	1,227	34,505	86		0		0			**ORION - ORION NG (2012)**	34,505	1,227	86	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ORION - ORION NG (2012)		0		0	38,335	1,468	41,286	103		0		0			**ORION - ORION NG (2012)**	41,286	1,468	103	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
NOVA - CLASSIC (1992)		0		0	17,610	674	18,966	47		0		0			**NOVA - CLASSIC (1992)**	18,966	674	47	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
NOVA - CLASSIC (1995)		0		0	19,235	737	20,716	52		0		0			**NOVA - CLASSIC (1995)**	20,716	737	52	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
NOVA - CLASSIC (1995)		0		0	5,885	225	6,338	16		0		0			**NOVA - CLASSIC (1995)**	6,338	225	16	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
NOVA - CLASSIC (1996)		0		0	10,136	388	10,916	27		0		0			**NOVA - CLASSIC (1996)**	10,916	388	27	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
NOVA - CLASSIC (1996)		0		0	17,556	672	18,908	47		0		0			**NOVA - CLASSIC (1996)**	18,908	672	47	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
NOVA - CLASSIC (1989)		0		0	16,906	647	18,207	45		0		0			**NOVA - CLASSIC (1989)**	18,207	647	45	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
NOVA - ARTICULATED (2008)		0		0	10,107	387	10,885	27		0		0			**NOVA - ARTICULATED (2008)**	10,885	387	27	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
NOVA - ARTICULATED (2008)		0		0	27,518	1,054	29,636	74		0		0			**NOVA - ARTICULATED (2008)**	29,636	1,054	74	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
		0		0		0		0		0		0			**0**	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Total	**788,719**	**27,605**	**806,016**	**1,924**	**2,037,035**	**78,018**	**2,193,854**	**5,466**	**0**	**0**	**0**	**0**	**0**	**0**	**Total**	**2,999,870**	**105,624**	**7,390**	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Streetlights

Corporate Inventory

Description:

	Electricity (kWh)				Indicator		
Streetlight Group Name	**Total Use**	**Energy (GJ)**	**Total Cost ($)**	**Total eCO2 (t)**	**# of Streetlights**	**Total Cost ($)/Streetlight**	**Total eCO2 (t)/Streetlight**
Traffic Lights	199,021	716	16,917	55.7	400	42.29	0.14
Saint John Sign	10,472	38	890	2.9		#DIV/0!	#DIV/0!
Street Lights	9,685,380	34,867	823,257	2711.9	8100	101.64	0.33
		0		0.0		#DIV/0!	#DIV/0!
		0		0.0		#DIV/0!	#DIV/0!
		0		0.0		#DIV/0!	#DIV/0!
		0		0.0		#DIV/0!	#DIV/0!
		0		0.0		#DIV/0!	#DIV/0!
		0		0.0		#DIV/0!	#DIV/0!
		0		0.0		#DIV/0!	#DIV/0!
Total	**9,894,873**	**35,622**	**841,064**	**2770.6**	**8500**	**98.95**	**0.33**

Water & Sewage

Corporate Inventory

Water & Sewage Con't, …

Description: *Cells in orange are estimated. See below*

Facility or Facility Group Name	Electricity (kWh)				Fuel Oil (L)				Propane (L)				Natural Gas (m^3)				Indicator	Total			
	Total Use	Energy (GJ)	Total Cost ($)	Total eCO2 (t)	Total Use	Energy (GJ)	Total Cost ($)	Total eCO2 (t)	Total Use	Energy (GJ)	Total Cost ($)	Total eCO2 (t)	Total Use	Energy (GJ)	Total Cost ($)	Total eCO2 (t)	Output (1000L)	Energy (GJ)	Total Cost ($)	Total eCO2 (t)	Total Cost ($)/Output (L)	Total eCO2 (t)/Output (L)
Water Pumping Station		0		0		0	0	0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
PARK ST PUMP HOUSE (WPS02) - 1 MITCHELL STREET	133,907	482	11,382	37		0		0		0		0		0		0		482	11,382	37	#DIV/0!	#DIV/0!
SOMERSET STREET PUMP HOUSE (WPS03) - 510 SOMERSET ST PUMP HOUSE	193,390	696	16,438	54		0		0		0		0		0		0		696	16,438	54	#DIV/0!	#DIV/0!
SPRUCE LAKE PUMP STATION (WPS04) - 2524 OCEAN WESTWAY	915,600	3,296	77,826	256		0		0		0		0		0		0		3,296	77,826	256	#DIV/0!	#DIV/0!
Westmorland Rd (WPS05) - Westmorland Rd	34,511	124	2,933	10		0		0		0		0		0		0		124	2,933	10	#DIV/0!	#DIV/0!
SEWARD CRESCENT (WPS07) - 14 SEWARD CRESCENT	34,444	124	2,928	10		0		0		0		0		0		0		124	2,928	10	#DIV/0!	#DIV/0!
Ocean Drive Well House (WPS08) - 103 OCEAN DRIVE	61,386	221	5,218	17		0		0		0		0		0		0		221	5,218	17	#DIV/0!	#DIV/0!
HIGHLAND RD P15 (WPS09) - 147 HIGHLAND ROAD	15,301	55	1,301	4		0		0		0		0		0		0		55	1,301	4	#DIV/0!	#DIV/0!
Westmount Drive (WPS10) - Westmount Drive	0	0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
CHAMPLAIN PUMPING STATION (WPS11) - 21 CHAMPLAIN DRIVE	311,400	1,121	26,469	87		0		0		0		0		0		0		1,121	26,469	87	#DIV/0!	#DIV/0!
Latimore Lake Chlorine Plant (WPS13) - Eldersly Avenue	294,720	1,061	25,051	83		0		0		0		0		0		0		1,061	25,051	83	#DIV/0!	#DIV/0!
WILLIE AVE WATER TOWER (WPS14) - 124 WILLIE AVENUE	4,047	15	344	1		0		0		0		0		0		0		15	344	1	#DIV/0!	#DIV/0!
New Water Tower (Tower Rd) (WPS15) or Lancaster Water Tank - 681 FUNDY DRIVE	10,863	39	923	3		0		0		0		0		0		0		39	923	3	#DIV/0!	#DIV/0!
Millidge Avenue Water Tank (WPS17) - 707 Samuel Davis Drive	6,752	24	574	2		0		0		0		0		0		0		24	574	2	#DIV/0!	#DIV/0!
80 Gault Road (Pipeline Row)	7,548	27	642	2		0		0		0		0		0		0		27	642	2	#DIV/0!	#DIV/0!
90 Gault Road	14,681	53	1,248	4		0		0		0		0		0		0		53	1,248	4	#DIV/0!	#DIV/0!
Woodward Av PRV Chamber (601 Woodward Avenue)	6,319	23	537	2		0		0		0		0		0		0		23	537	2	#DIV/0!	#DIV/0!
Woodward Av PRV Chamber (601 Woodward Avenue)	1,611	6	137	0		0		0		0		0		0		0		6	137	0	#DIV/0!	#DIV/0!
634 Dever Road (Flow Chamber)	3,599	13	306	1		0		0		0		0		0		0		13	306	1	#DIV/0!	#DIV/0!
GOLDEN GROVE PUMPING STATION (WPS19) - 200 Golden Grove Road	197,520	711	16,789	55		0		0		0		0		0		0		711	16,789	55	#DIV/0!	#DIV/0!
Lakewood Height WATER PUMPING STATION (WPS20) - 31 Fish Hatchery Road	169,087	609	14,372	47		0		0		0		0		0		0		609	14,372	47	#DIV/0!	#DIV/0!
UNIVERSITY AVENUE WATER PUMP STATION (WPS22) - 399 University Avenue	207,540	747	17,641	58		0		0		0		0		0		0		747	17,641	58	#DIV/0!	#DIV/0!
Mushquash Water Pumping Station (WPS23) (NB Power Provide Energy) - East Mushquash Lak	4,043,984	14,558	343,739	1,132		0		0		0		0		0		0		14,558	343,739	1,132	#DIV/0!	#DIV/0!
Cottage Hill Water Tank (WPS24) - 135 Cottage Hill	0	0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
Spruce Lake Water Tank (WPS25) - 271 Water Tower Rd	0	0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
Churchhill Height Water Tank (WPS26) - 450 Ocean Drive	62,544	225	5,316	18		0		0		0		0		0		0		225	5,316	18	#DIV/0!	#DIV/0!
Roakwood Water Tank (WPS27) - Fishe Lake	17,943	65	1,525	5		0		0		0		0		0		0		65	1,525	5	#DIV/0!	#DIV/0!
Waster Water Treatment Plant		0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
MILLIDGEVILLE (WWT01) - 700 Woodward Avenue or Cedar Point	1,464,480	5,272	124,481	410		0		0		0		0		0		0		5,272	124,481	410	#DIV/0!	#DIV/0!
LANCASTER LAGOON (WWT02) - 1291 Saint John Throughway	919,200	3,309	78,132	257		0		0		0		0		0		0		3,309	78,132	257	#DIV/0!	#DIV/0!
Eastern Waste Water Treatment (Propane) (WWT05) - 441 Redhead Rd	2,527,920	9,101	214,873	708		0		0	155,713	3,941	62,285	240		0		0		13,042	277,158	948	#DIV/0!	#DIV/0!
Waster Water Pumping Station		0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
CHAMPLAIN SOUTH PUMP STN (WWPS01) - 110 Champlain Drive	7,529	27	640	2		0		0		0		0		0		0		27	640	2	#DIV/0!	#DIV/0!
YORK STREET PUMP STATION (WWPS02) - 24 York Street	4,200	15	357	1		0		0		0		0		0		0		15	357	1	#DIV/0!	#DIV/0!
HICKEY RD PUMP STN (WWPS03) - 1501 Hickey Rd	187,000	673	15,895	52		0		0		0		0		0		0		673	15,895	52	#DIV/0!	#DIV/0!
McALLISTER DRIVE PUMP STN (WWPS04) - 600 McAllister Drive	7,200	26	612	2		0		0		0		0		0		0		26	612	2	#DIV/0!	#DIV/0!
WOODLAWN PARK PUMP STN (WWPS05) - 1335 Red Head Rd	60,056	216	5,105	17		0		0		0		0		0		0		216	5,105	17	#DIV/0!	#DIV/0!
PAULINE STREET PUMP STN (WWPS06) - 27 David Street	110,386	397	9,383	31		0		0		0		0		0		0		397	9,383	31	#DIV/0!	#DIV/0!
McALLISTER INDUSTRIAL PARK PUMP STN (WWPS08) - 60 Whitebone Way	41,474	149	3,525	12		0		0		0		0		0		0		149	3,525	12	#DIV/0!	#DIV/0!
ROWENBERRY PUMP STN (WWPS09) - 9 Rowanberry Terrace	3,600	13	306	1		0		0		0		0		0		0		13	306	1	#DIV/0!	#DIV/0!
CEDAR POINT PUMP STN (WWPS11) - 131 Rivershore Drive	18,400	66	1,564	5		0		0		0		0		0		0		66	1,564	5	#DIV/0!	#DIV/0!
MANNERS SUTTON ROAD PUMP STN (WWPS12) - 70 Manners Sutton Drive	7,400	27	629	2		0		0		0		0		0		0		27	629	2	#DIV/0!	#DIV/0!
BEACH CRESCENT PUMP STN (WWPS13) - 11 Beach Crescent	131,000	472	11,135	37		0		0		0		0		0		0		472	11,135	37	#DIV/0!	#DIV/0!
CARPENTER PLACE PUMP STN (WWPS14) - 1608 Saint John Throughway	146,000	526	12,410	41		0		0		0		0		0		0		526	12,410	41	#DIV/0!	#DIV/0!
LORNEVILLE PUMP STN (WWPS18) - 801 Lorneville Rd	100,980	364	8,583	28		0		0		0		0		0		0		364	8,583	28	#DIV/0!	#DIV/0!
GAULT ROAD PUMP STN (Not Active) (WWPS16) - 300 Gault Rd	0	0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
Glenwood Drive Pump Stn (WWPS17) - Glenwood Park	21,974	79	1,868	6		0		0		0		0		0		0		79	1,868	6	#DIV/0!	#DIV/0!
Ridgewood (Duplicate) (WWPS19) - Remove	0	0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
"A" STN DOMINION PUMP (WWPS20) - 657 Dominion Park Road	2,513	9	214	1		0		0		0		0		0		0		9	214	1	#DIV/0!	#DIV/0!
"B" STN DWYER RD STN (WWPS21) - 375 Dwyer Rd	11,000	40	935	3		0		0		0		0		0		0		40	935	3	#DIV/0!	#DIV/0!
"C" STN RUSSELL HILL RD (WWPS22) - 515 Greenhead Rd	33,307	120	2,831	9		0		0		0		0		0		0		120	2,831	9	#DIV/0!	#DIV/0!
"X" STN GREEN HEAD RD PUMP (WWPS23) - 375 Greenhead Rd	104,520	376	8,884	29		0		0		0		0		0		0		376	8,884	29	#DIV/0!	#DIV/0!
"Y" STN DEVER RD PUMP STN (WWPS24) - 736 Dever Rd	130,500	470	11,093	37		0		0		0		0		0		0		470	11,093	37	#DIV/0!	#DIV/0!
WESTGATE DRIVE PUMP STN (WWPS25) - 47 Downsview Drive	42,600	153	3,621	12		0		0		0		0		0		0		153	3,621	12	#DIV/0!	#DIV/0!
MARKET PLACE PUMP STN (WWPS26) - 240 Market place	358,114	1,289	30,440	100		0		0		0		0		0		0		1,289	30,440	100	#DIV/0!	#DIV/0!
MONTE CRISTO TREATMENT PLAN (Final) (WWPS27) - 62 Dantes Rd	0	0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
LANCASTER PUMP STN (WWPS29) - 1291 Saint John Throughway	277,440	999	23,582	78		0		0		0		0		0		0		999	23,582	78	#DIV/0!	#DIV/0!
One Mile PUMP STN (WWPS30) - 223 Rothesay Avenue	236,520	851	20,104	66		0		0		0		0		0		0		851	20,104	66	#DIV/0!	#DIV/0!
SIMPSON DRIVE PUMP STN (WWPS31) - 18 Simpson Drive	149,779	539	12,731	42		0		0		0		0		0		0		539	12,731	42	#DIV/0!	#DIV/0!
WALTER STREET PUMP STN (WWPS32) - 9 Walter Street	8,044	29	684	2		0		0		0		0		0		0		29	684	2	#DIV/0!	#DIV/0!
MAJOR BROOK PUMP STN (WWPS36) - 534 Rothesay Avenue	18,669	67	1,587	5		0		0		0		0		0		0		67	1,587	5	#DIV/0!	#DIV/0!
CHURCHILL BLVD PUMP STN (WWPS37) - 283 Samuel Davis Drive	487,800	1,756	41,463	137		0		0		0		0		0		0		1,756	41,463	137	#DIV/0!	#DIV/0!
DRURY PUMP STN (WWPS38) - 60 Drury Cove Rd	9,403	34	799	3		0		0		0		0		0		0		34	799	3	#DIV/0!	#DIV/0!
WEST SIDE ESTATE (WWPS39) - 60 Glenwood Drive	20,000	72	1,700	6		0		0		0		0		0		0		72	1,700	6	#DIV/0!	#DIV/0!
KENNEBACCASIS 1 PUMP STN (WWPS40) - 1099 Kennebecasis Drive	109,276	393	9,288	31		0		0		0		0		0		0		393	9,288	31	#DIV/0!	#DIV/0!
KENNEBACCASIS 2 PUMP STN (WWPS41) - 300 Kennebecasis Drive	31,274	113	2,658	9		0		0		0		0		0		0		113	2,658	9	#DIV/0!	#DIV/0!
MOORINGS PUMP STN (WWPS42) - 172 Manners Sutton Rd	4,148	15	353	1		0		0		0		0		0		0		15	353	1	#DIV/0!	#DIV/0!
SEA STREET PUMP STN (WWPS43) - 599 Sea Street	11,102	40	944	3		0		0		0		0		0		0		40	944	3	#DIV/0!	#DIV/0!
COLPITS PUMP STS (WWPS44) - 2585 Armstrong Rd	15,425	56	1,311	4		0		0		0		0		0		0		56	1,311	4	#DIV/0!	#DIV/0!
GAULT ROAD PUMP STN (Decommission) (WWPS45) - No Energy Data	0	0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
Spar Cove (WWPS46) - Duplicate, Remove	0	0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
Redhead (4011535/4523060) (WWPS47) - Redhead Rd	4,218	15	359	1		0		0		0		0		0		0		15	359	1	#DIV/0!	#DIV/0!
Bayside Dr (#2) (WWPS49) - 520 Bayside Rd	18,626	67	1,583	5		0		0		0		0		0		0		67	1,583	5	#DIV/0!	#DIV/0!
Bayside Dr (#3) (WWPS50) - 20 Irving Rd East (Near Causeway)	51,840	187	4,406	15		0		0		0		0		0		0		187	4,406	15	#DIV/0!	#DIV/0!
Bridge St (#23) (WWPS51) - 101 Bridge Street	14,218	51	1,209	4		0		0		0		0		0		0		51	1,209	4	#DIV/0!	#DIV/0!
Busby (WWPS52) - 148 1/2 Busby Street	2,784	10	237	1		0		0		0		0		0		0		10	237	1	#DIV/0!	#DIV/0!
Crown St (#8) (WWPS53) - 515 Crown St	41,280	149	3,509	12		0		0		0		0		0		0		149	3,509	12	#DIV/0!	#DIV/0!
Douglas Avenue (WWPS54) - 255 Douglas Avenue	4,646	17	395	1		0		0		0		0		0		0		17	395	1	#DIV/0!	#DIV/0!
Chesley Dr (#10A) (WWPS55) - 121 Chesly Drive	72,000	259	6,120	20		0		0		0		0		0		0		259	6,120	20	#DIV/0!	#DIV/0!
Elliot Row (#7) (WWPS56) - 165 Elliot Row	4,845	17	412	1		0		0		0		0		0		0		17	412	1	#DIV/0!	#DIV/0!
Fallsview (WWPS57) - Fallsview Avenue (Inside public washroom building)	7,338	26	624	2		0		0		0		0		0		0		26	624	2	#DIV/0!	#DIV/0!
Fallsview Dr (#30) (WWPS58) - 443 Fallsview Drive	12,138	44	1,032	3		0		0		0		0		0		0		44	1,032	3	#DIV/0!	#DIV/0!
Forest Hill Estates (WWPS59) - 20 Mountain View Drive	3,533	13	300	1		0		0		0		0		0		0		13	300	1	#DIV/0!	#DIV/0!

Fox Den (WWPS60) - 1 Fox Den Court	3,480	13	296	1		0		0		0		0		0		0		13	296	1	#DIV/0!	#DIV/0!
Harbour Station (#10) (WWPS61) - 21 Station Street	127,920	461	10,873	36		0		0		0		0		0		0		461	10,873	36	#DIV/0!	#DIV/0!
Highland Rd 1 (#21) (WWPS62) - 101 Highland Road	7,509	27	638	2		0		0		0		0		0		0		27	638	2	#DIV/0!	#DIV/0!
Highland Rd 2 (#21A) (WWPS63) - 203 Highland Road	5,701	21	485	2		0		0		0		0		0		0		21	485	2	#DIV/0!	#DIV/0!
Hitachi Crescent (WWPS64) - 20 Hitachi Crescent	2,413	9	205	1		0		0		0		0		0		0		9	205	1	#DIV/0!	#DIV/0!
Kennedy St (#24) (WWPS65) - 121 Kennedy Street	72,626	261	6,173	20		0		0		0		0		0		0		261	6,173	20	#DIV/0!	#DIV/0!
King St East (#7A) (WWPS66) - 289 King Street East	1,293	5	110	0		0		0		0		0		0		0		5	110	0	#DIV/0!	#DIV/0!
Lily Lake Pavilion (WWPS67) - 53 Lake Drive South	26,117	94	2,220	7		0		0		0		0		0		0		94	2,220	7	#DIV/0!	#DIV/0!
Major's Brook Drive (WWPS68) - 65 Majors Brooks Drive	4,924	18	419	1		0		0		0		0		0		0		18	419	1	#DIV/0!	#DIV/0!
Marsh St (#5) (WWPS69) - 60 March Street	20,966	75	1,782	6		0		0		0		0		0		0		75	1,782	6	#DIV/0!	#DIV/0!
Lower Cove Loop (#9) (WWPS70) - 12 Lower Cove Loop	303,480	1,093	25,796	85		0		0		0		0		0		0		1,093	25,796	85	#DIV/0!	#DIV/0!
Milford Rd (#32) (WWPS71) - 6 Milford Road	23,267	84	1,978	7		0		0		0		0		0		0		84	1,978	7	#DIV/0!	#DIV/0!
Millidge Avenue (WWPS10) - 1043 Millidgeville Avenue	8,208	30	698	2		0		0		0		0		0		0		30	698	2	#DIV/0!	#DIV/0!
Mill Street (#31) (WWPS72) - 520 Mill Street	22,105	80	1,879	6		0		0		0		0		0		0		80	1,879	6	#DIV/0!	#DIV/0!
Redhead Rd (#1) (WWPS73) - 61 Redhead Road	11,963	43	1,017	3		0		0		0		0		0		0		43	1,017	3	#DIV/0!	#DIV/0!
Redhead Rd (#50) (WWPS74) - 271 Redhead Road	4,845	17	412	1		0		0		0		0		0		0		17	412	1	#DIV/0!	#DIV/0!
Riverview Dr. (#28) (WWPS75) - 391 Manchester Avenue	14,762	53	1,255	4		0		0		0		0		0		0		53	1,255	4	#DIV/0!	#DIV/0!
Rockwood Park Interp. Centre (WWPS76) - 85 Riverview Drive	0	0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
Rothesay Ave MO (# 6) (WWPS77) - 175 Rothesay Avenue (It is Connected to Operation Com	0	0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
Spar Cove (#22) (WWPS46) - 240 Bridge Street	295,920	1,065	25,153	83		0		0		0		0		0		0		1,065	25,153	83	#DIV/0!	#DIV/0!
Thorne Ave (#4) (WWPS78) - 25 Edbert Street	1,700,000	6,120	144,500	476		0		0		0		0		0		0		6,120	144,500	476	#DIV/0!	#DIV/0!
Tippett Dr (#33) (WWPS79) - 651 Tippitt Drive	13,553	49	1,152	4		0		0		0		0		0		0		49	1,152	4	#DIV/0!	#DIV/0!
Ridgewood (WWPS46)- 410 Bay Street		0	0	0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
		0		0		0		0		0		0		0		0		0	0	0	#DIV/0!	#DIV/0!
Total	**17,477,448**	**62,919**	**1,485,583**	**4,894**	**0**	**0**	**0**	**0**	**155,713**	**3,941**	**62,285**	**240**	**0**	**0**	**0**	**0**	**0**	**66,860**	**1,547,868**	**5,134**	**#DIV/0!**	**#DIV/0!**

Waste

Corporate Inventory

Description: Waste tonnage is estimated in proportion to the corporate electricity use compared to the community electric use

Waste to landfill (t): 1,815

eCO2 Emissions (t): 744

Indicator	***Indicator Value***
Corporate electricity use ratio	*5.04%*

If no accurate data is available for waste, consider the following method for estimating the amount of waste produced

Location	Garbage bin capacity (cubic yards)*	On average, how full is bin at pickup? (%)	Frequency of pickup (times/month)	Estimated annual amount of waste (tonnes)
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
			Total	**0.00**

* 1 cubic yard = 0.76455 cubic meters
1 cubic meter = 1.30795 cubic yards

To calculate eCO2 emissions, enter this total into cell D8 above

Corporate Inventory Summary

Energy Costs and eCO_2 Emissions by Sector

Sector	Total Cost ($)	Energy (GJ)	Total eCO2 (t)
Buildings	2,612,269	113,878	7,737
Vehicle Fleet	2,999,870	105,624	7,390
Streetlights	841,064	35,622	2,771
Water and Sewage	1,547,868	66,860	5,134
Corporate Waste	-	-	744
Total	**8,001,071**	**321,983**	**23,776**

Energy Costs and eCO_2 Emission by Source

Energy Type	Total Use	Energy (GJ)	Total Cost ($)	Total eCO2 (t)
Electricity	48,111,540	173,202	4,089,481	13,471
Natural Gas	971,119	38,107	830,015	1,857
CNG	0	0	0	0
Diesel	2,037,035	78,018	2,193,854	5,466
District Energy	0	0	0	0
Ethanol Blend (10%)	0	0	0	0
Biodiesel (B5)	0	0	0	0
Biodiesel (B10)	0	0	0	0
Biodiesel (B20)	0	0	0	0
Fuel Oil	12,767	495	9,703	35
Gasoline	788,719	27,605	806,016	1,924
Propane	180,007	4,556	72,003	278
Waste	-	-	-	744
Total	**-**	**321,983**	**8,001,071**	**23,776**

• Business-as-Usual

Corporate Inventory

Corporate Information

Base Year	**2015**
Forecast Year*	**2025**
Reduction Target by Forecast Year* (%)	**30.0%**

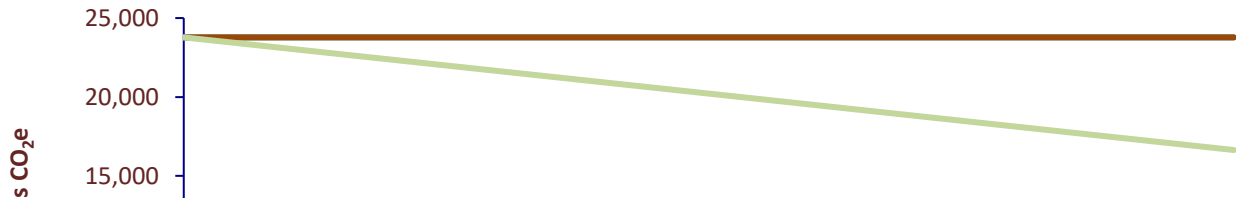
* PCP recommends calculating a BAU estimate for approximately 10 years after the baseline year

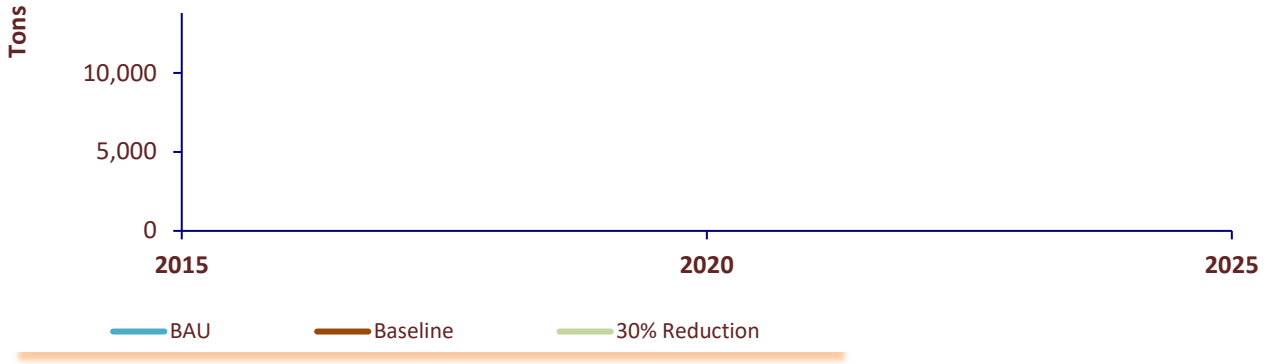
	Current emissions	% Change Expected**	Emissions in Forecast year	Explanation for % change expected
Buildings	7,736.8	0.0	7,736.8	2006-2016 period : Population decrease of less
Vehicle Fleet	7,390.3	0.0	7,390.3	2006-2016 period : Population decrease of less
Streetlights	2,770.6	0.0	2,770.6	2006-2016 period : Population decrease of less
Water and Sewage	5,134.1	0.0	5,134.1	2006-2016 period : Population decrease of less
Corporate Waste	744.4	0.0	744.4	2006-2016 period : Population decrease of less
Émissions total (t CO_2e)	**23,776.2**		**23,776.2**	

** For expected decreases, enter a minus symbol before the number

Source : Statistics Canada

Corporate Emissions Forecast

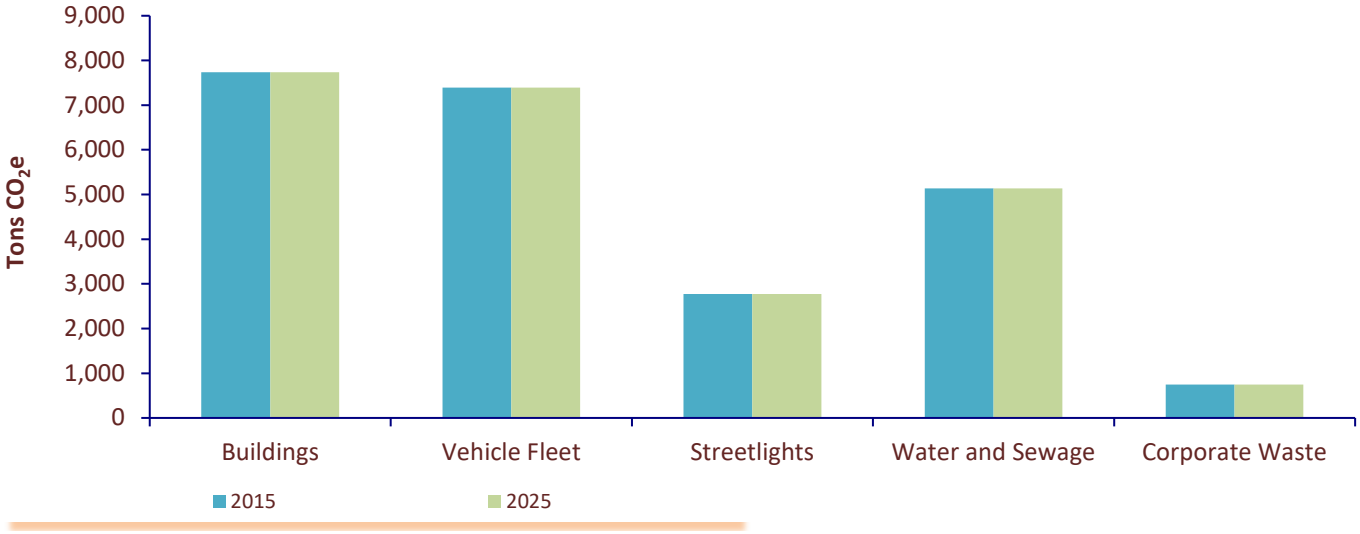




Data for Line Graph

BAU	2015	23,776
	2020	23,776
	2025	23,776
Baseline	2015	23,776
	2020	23,776
	2025	23,776
30% Reduction	2015	23,776
	2020	20,210
	2025	16,643

Corporate Emissions Forecast by Sector



Data for Bar Graph	Baseline	BAU
Buildings	7736.8	7,737
Vehicle Fleet	7390.3	7,390
Streetlights	2770.6	2,771
Water and Sewage	5134.1	5,134
Corporate Waste	744.4	744

Tonnes GHG/unité of fuel	Tonnes eCO_2/unit of fuel											
Source	**Type**	**BaseUnit**	**EnergyCoefficient**	**eCO_2Coefficient (t CO2e/base unit)**	**CO2Coefficient**	**N2OCoefficient**	**CH4Coefficient**	**NOxCoefficient**	**SOxCoefficient**	**COCoefficient**	**VOCCoefficient**	**PM10Coefficient**
Charbon bitumineux (Alb.)	Alta Bitum. Coal	(tonnes)	30.4	1.7		0.00011	1.50E-05	0	0	0	0	0
Charbon bitumineux (C.-B.)	B.C. Bitum. Coal	(tonnes)	30.4	1.7		0.00011	1.50E-05	0	0	0	0	0
GNC	CNG	(kg)	0.007612	0.003022	0.002725	8.60E-08	1.29E-05	0	0	0	0	0
Charbon - Anthracite	Coal - Anthracite	(tonnes)	27.7	2.39		0.00011	1.50E-05	0	0	0	0	0
Charbon bitumineux canadien	Coal - Cdn Bitum.	(tonnes)	27.7	2.765488		0.000120688	1.65E-05	0	0	0	0	0
Charbon - Lignite	Coal - Lignite	(tonnes)	15	1.49		0.00011	1.50E-05	0	0	0	0	0
Charbon sous-bitumineux	Coal - Sub-Bitum.	(tonnes)	18.3	1.74		0.00011	1.50E-05	0	0	0	0	0
Charbon bitumineux - É.-U.	Coal - U.S. Bitum.	(tonnes)	29	2.46		0.00011	1.50E-05	0	0	0	0	0
Coke	Coke	(tonnes)	28.83	2.48		0.00011	1.50E-05	0	0	0	0	0
Diesel	Diesel (mobile/road)	(litres)	0.03868	0.002683	0.002663	5.10E-08	2.20E-07	0	0	0	0	0
Énergie de quartier	District Energy	(GJ)	1	0.05847		0	0	0	0	0	0	0
Électricité (2000)	Electricity (2000)	(MWh)	3.6	0.190	0.18	4.00E-06	1.00E-05					
Essence à l'éthanol (10%)	Ethanol Blend (10%)	(litres)	0.03244	0.002196		8.50E-07	0	0	0	0	0	0
Mazout	Fuel Oil	(litres)	0.03868	0.002735	0.002725	3.10E-08	2.60E-08	0	0	0	0	0
Essence	Gasoline (mobile/road)	(litres)	0.03466	0.002440	0.002289	4.70E-07	2.30E-07	0	0	0	0	0
Mazout lourd	Heavy Fuel Oil	(litres)	0.04173	0.003145	0.003124	6.40E-08	5.70E-08	0	0	0	0	0
Kérosène	Kerosene	(litres)	0.03768	0.002544	0.002534	3.10E-08	2.60E-08	0	0	0	0	0
Gaz des sites d'enfouissement	Landfill Gas Electricity	(GJ)	0.999955453	0		0	0	0	0	0	0	0
Méthane - site d'enfouissement	Landfill Methane	(GJ)	1	0		0	0	0	0	0	0	0
Résidus urbains	MSW	(GJ)	1	0		0	0	0	0	0	0	0
Charbon bitumineux (Man.)	Man. Bitum. Coal	(tonnes)	30.4	2.52		0.00011	1.50E-05	0	0	0	0	0
Charbon bitumineux (N.-B.)	N.B. Bitum. Coal	(tonnes)	27	2.23		0.00011	1.50E-05	0	0	0	0	0
Charbon bitumineux (N.-É.)	N.S. Bitum. Coal	(tonnes)	28.5	2.3		0.00011	1.50E-05	0	0	0	0	0
Gaz naturel	Natural Gas	(cubic m)	0.03806	0.001903	0.001891	3.50E-08	3.70E-08	0	0	0	0	0
Propane	Propane	(litres)	0.02553	0.00154	0.00151	1.08E-07	2.70E-08	0	0	0	0	0
Énergie solaire	Solar	(GJ)	1	0		0	0	0	0	0	0	0
Bois	Wood	(cords)	25	0		0.22225	0.00075	0	0	0	0	0
Diesel (immobile)	Diesel (stationary)	(litres)		0.002790	0.002663	4.00E-07	1.33E-07	0	0	0	0	0
Biodiesel (B5)	Biodiesel (B5)	(litres)		0.002549								
Biodiesel (B10)	Biodiesel (B10)	(litres)		0.002415								
Biodiesel (B20)	Biodiesel (B20)	(litres)		0.002147								
Essence à l'éthanol (E85)	Ethanol (E85)	(litres)		0.000366								

	SAR
	GWP 100 year
CO2	1
CH4	21
N2O	310
SF6	23900

Notes:

- The emissions factor for diesel (mobile combustion) is taken from Canada's NIR (Annex 8). Assumes light-duty diesel vehicles (LDDVs) with 'Advanced Control' (i.e. Model years 1996-2003). [2,663 g CO2 + 0.051 g CH4 + 0.22 g N2O = 0.00268 tonnes CO_2e/L].
- The emissions factor for gasoline (mobile combustion) is taken from Canada's NIR (Annex 8). Assumes both light-duty gasoline vehicles (LDGVs) and light-duty gasoline trucks (LDGTs) with 'Tier 1: 1994-2003'.
- Every District Energy (DE) system is unique, please enter an emission factor for the local DE system in the yellow cell above to accurately calculate the emissions
- The emissions factor for stationary diesel refers to diesel that is not used for road transportation.
- The emission factor for CNG was taken from the NIR and converted from L into kg as this is the unit that is used to purchase this fuel. The conversion was done using the density of natural gas at STP (0.6937 kg/m^3)
- All emission factors from mobile source are tailpipe emissions and do not take into account life cycle analysis
- Unless otherwise stated, all values are taken from Canada's NIR, 1990-2011.

kg/kWh

National Inventory Report - Environment Canada 1990-2015

Electricity eCO2 Coefficients, by Province

InventoryYear	Alberta	British Columbia	Manitoba	New Brunswick	Newfoundland	Northwest Territories	Nova Scotia	Nunavut	Ontario	Prince Edward Island	Quebec	Saskatchewan	Yukon
1990	1.200	0.019	0.031	0.380	0.044	0.350	0.780	0.350	0.230	1.260	0.014	0.930	0.210
1991	1.000	0.010	0.020	0.350	0.035	0.240	0.773	0.240	0.196	1.268	0.004	0.797	0.240
1992	1.004	0.020	0.010	0.391	0.041	0.190	0.785	0.190	0.197	1.471	0.007	0.878	0.190
1993	1.003	0.042	0.011	0.346	0.033	0.210	0.776	0.210	0.127	1.186	0.002	0.831	0.210
1994	0.970	0.037	0.011	0.392	0.019	0.230	0.754	0.230	0.103	1.500	0.003	0.876	0.230
1995	0.970	0.050	0.010	0.550	0.034	0.240	0.750	0.240	0.120	1.730	0.002	0.860	0.240
1996	0.992	0.006	0.010	0.393	0.032	0.220	0.722	0.220	0.135	2.222	0.002	0.863	0.220
1997	0.993	0.012	0.007	0.513	0.029	0.260	0.739	0.260	0.172	1.429	0.002	0.901	0.260
1998	0.970	0.026	0.030	0.512	0.023	0.280	0.747	0.280	0.232	3.333	0.010	0.909	0.280
1999	0.956	0.010	0.020	0.453	0.020	0.140	0.739	0.140	0.237	2.500	0.006	0.893	0.140
2000	1.000	0.036	0.034	0.520	0.019	0.200	0.880	0.190	0.320	1.150	0.003	0.960	0.062
2001	0.890	0.050	0.015	0.540	0.042	0.160	0.780	0.160	0.270	1.040	0.003	0.880	0.160
2002	0.880	0.014	0.017	0.530	0.043	0.110	0.640	0.110	0.260	0.760	0.002	0.850	0.110
2003	0.950	0.015	0.038	0.470	0.038	0.110	0.720	0.110	0.280	0.680	0.010	0.820	0.110
2004	0.920	0.023	0.014	0.490	0.032	0.110	0.840	0.110	0.200	0.380	0.009	0.860	0.110
2005	0.990	0.026	0.010	0.420	0.021	0.490	0.970	0.200	0.240	0.170	0.004	0.840	0.077
2006	0.950	0.031	0.012	0.440	0.016	0.390	0.860	0.390	0.190	0.080	0.006	0.730	0.050
2007	1.000	0.022	0.015	0.480	0.026	0.440	1.010	0.440	0.240	0.100	0.004	0.830	0.055
2008	1.200	0.029	0.014	0.530	0.022	0.420	0.840	0.420	0.170	0.028	0.003	0.830	0.053
2009	1.100	0.027	0.007	0.590	0.023	0.400	0.870	0.400	0.120	0.017	0.004	0.910	0.046
2010	1.100	0.026	0.003	0.520	0.018	0.210	0.790	0.790	0.150	0.003	0.003	0.860	0.051
2011	1.000	0.015	0.004	0.440	0.022	0.210	0.790	0.790	0.140	0.003	0.003	0.860	0.074
2012	0.930	0.013	0.003	0.424	0.021	0.200	0.790	0.790	0.100	0.022	0.003	0.890	0.047
2013	0.810	0.016	0.003	0.275	0.021	0.200	0.760	0.750	0.080	0.008	0.003	0.780	0.045
2014	0.880	0.017	0.004	0.287	0.031	0.300	0.730	0.750	0.040	0.007	0.002	0.900	0.041
2015	0.950	0.021	0.004	0.280	0.033	0.500	0.670	0.830	0.043	0.020	0.002	0.800	0.046
2016	0.950	0.021	0.004	0.280	0.033	0.500	0.670	0.830	0.043	0.020	0.002	0.800	0.046
2017													
2018													
2019													
2020													
2021													

All emission factors have been updated from the National Inventory Report 1990-2015 - Greenhouse Gas Sources and Sinks in Canada. Annex 13. 2017.

Available to download from: http://www.ec.gc.ca/ges-ghg/

All red text reflects emissions factors that have been changed since the last National Inventory Report.

Emission factors for 2016 are assumed to be same as the latest year with available data (2015)

Province	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Northwest Territories	Yukon	Nunavut
Emission Factor (tonnes eCO_2/m^3)	0.001913	0.001913	0.001913	0.001913	0.001899	0.001900	0.001898	0.001841	0.001940	0.001938	0.002478	0.001903	0.002478

↑: The eCO_2 emission factors for natural gas are for marketable gas (fuel consumed by the electric utilities, manufacturing industries, residential/commercial and transportation sectors), and are taken from Canada's National Inventory Report, 1990-2015 (Annex 6). They have not been broken down by year as fuel properties, such as carbon content, density, heating value, and to a lesser extent the combustion technology, remain relatively constant over time.

GHG Emission Factors for Natural Gas

Province	CO_2 (tonnes/m^3)	CH4 (g/m3)	N2O (g/m3)	eCO2 (tonnes/m3)
Newfoundland and Labrador	0.001901	0.037	0.035	0.001913
Prince Edward Island	0.001901	0.037	0.035	0.001913
Nova Scotia	0.001901	0.037	0.035	0.001913
New Brunswick	0.001901	0.037	0.035	0.001913
Quebec	0.001887	0.037	0.035	0.001899
Ontario	0.001888	0.037	0.035	0.001900
Manitoba	0.001886	0.037	0.035	0.001898
Saskatchewan	0.001829	0.037	0.035	0.001841
Alberta	0.001928	0.037	0.035	0.001940
British Columbia	0.001926	0.037	0.035	0.001938
Northwest Territories	0.002466	0.037	0.035	0.002478
Yukon	0.001901	0.037	0.035	0.001903
Nunavut	0.002466	0.037	0.035	0.002478

←: The CH_4 and N_2O emission factors are also taken from Canada's NIR (Annex 6). These values have been incorporated in the eCO_2 figure listed above. The 0.037 and 0.035 are values associated with Residential, Construction, Commercial/Institutional, and Agricultural uses of natural gas. They are also very similar to the values listed for Manufacturing Industries and

No data were available for Nunavut. Assumed emissions factor similar to NWT.
No data were available for PEI; Assumed emission factor similar to other Atlantic provinces

Corporate [1]

Waste Share Breakdown

Waste to Lanfill	Share (%) [2]	DOC (%) [3]
Food waste	15%	20%
Plant Debris	10%	15%
Paper Products	30%	40%
Wood	6%	43%
Other	39%	20%

Community

Waste Share Breakdown

Waste to Lanfill	Share (%) [2]	DOC (%) [3]
Food waste	34%	15%
Plant Debris	0%	20%
Paper Products	23%	40%
Wood	6%	43%
Textiles	4%	24%
Plastics, glass, metal, etc.	33%	15%

	Variable			Variable used			
	Corporate	**Community**	**Default**	**Corporate**	**Community**	**Definition**	**Explanation**
L_0	**86.02**	**72.93**					Estimated Value
	86.02	72.93	**59.98**	**86.02**	**72.93**	methane production potential (kg methane / t. of waste)	According to the data obtained
DOC (%) 3	**0.27**	**0.23**					Estimated Value
	0.27	0.23	0.15	0.27	0.23	Degradable organic carbon (t carbon / t Waste)	According to the data obtained
DOC Fraction	Default value	Default value	0.60	0.60	0.60	Fraction of DOC	Default value
Methane Fraction	Default value	Default value	50%	50%	50%	fraction of methane in the LFG (Landfill Gas)	Default value
MCF	Default value	Default value	80%	80%	80%	methane correction factor	Default value
Of	Default value	Default value	0.1	0.1	0.1	oxidation factor	Default value
Methane capture	Default value	Default value	75%	75%	75%	rate of uptake of biomethane by the landfill	Default value
Destructions of captured methane	Default value	Default value	99.7%	99.7%	99.7%	efficiency rate of flares	Default value
GWP			21	21	21	global warming potential of methane	Default value
Coefficient of stoichiometry			1 1/3	1 1/3	1 1/3	Coefficient of stoichiometry	Default value

	Corporate	Community
Tonnes of eCO2/tonne of Waste	0.410	0.348

Conversion factor	
Tonnes of waste per cubic yard:	0.1021

Sources :

PCP Protocol, Canadian Supplement to the International Emissions Analysis Protocol

EPA uncompacted mixed solid waste volume to weight conversion: 150-300lbs/y³ MSW = average of 225lbs/y3

www.epa.gov/osw/conserve/tools/recmeas/docs/guide_b.pdf

Solid Waste Association of North America, Manager of Landfill Operations Training and Certification Course. January 1989. Revised June 1991 and October 1994.

Notes :

1- For a municipality that owns or manages the landfill, all the waste related emissions must be recorded in the corporate inventory

2- Use data specific to the municipality; otherwise take the default values

3- Degradable organic carbon (t carbon / t Waste)

Energy Conversion Factors adapted from: **Statistics Canada's Report on Energy Supply-Demand in Canada 2015**

	Megajoules/Unit												
Fuel type	**Propane**	**Gasoline**	**Ethanol Blend (10%)**	**Biodiesel (B5)**	**Biodiesel (B10)**	**Biodiesel (B20)**	**Diesel**	**Fuel Oil**	**Heavy Fuel Oil**	**Natural Gas**	**CNG**	**Electricity**	**Wood**
Unit	L	L	L	L	L	L	L	L	L	m3	L	kWh	kg
2003	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	38.20	38.09	3.60	18.00
2004	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	38.21	38.09	3.60	18.00
2005	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	38.26	38.09	3.60	18.00
2006	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	38.18	38.09	3.60	18.00
2007	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	38.11	38.09	3.60	18.00
2008	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	38.26	38.09	3.60	18.00
2009	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	38.43	38.09	3.60	18.00
2010	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	38.52	38.09	3.60	18.00
2011	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	38.56	38.09	3.60	18.00
2012	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	38.74	38.09	3.60	18.00
2013	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	38.85	38.09	3.60	18.00
2014	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	39.00	38.09	3.60	18.00
2015	25.31	35.00	33.84	38.28	38.25	38.20	38.30	38.80	42.50	39.24	38.09	3.60	18.00
2016													

Update : january 2017

Other conversion information

1 cord of wood weighs approximately 1089 kg

	MJ/L
Ethanol	23.4
Biodiesel	37.8

http://www.itecref.com/resources-converter.html

Update : january 2017

“Greening Our Fleet” Policy

May 29th, 2019

SAINT JOHN

Purpose

Fleet Background

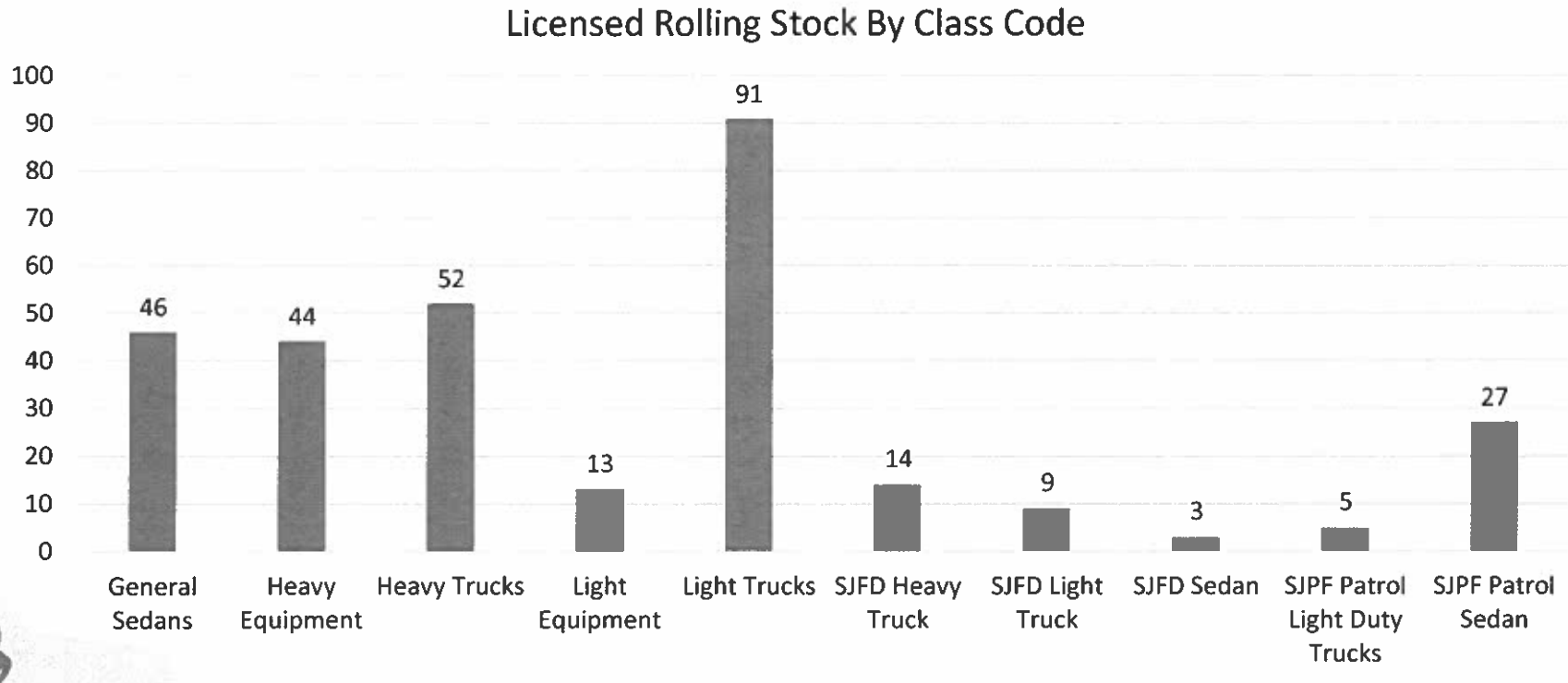
Review "Greening Our Fleet" Policy

Policy Roll-Out

Implementation Samples Review

SAINT JOHN

Fleet – Background



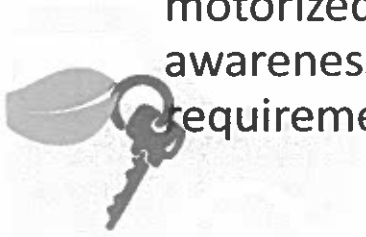
SAINT JOHN

Greening Our Fleet – Statement of Purpose

"Whereas, the City of Saint John recognizes that unnecessary vehicle and motorized equipment idling and longhauling wastes fuel and generates needless harmful emissions, and

Whereas, the City of Saint John recognizes its responsibility to the public to implement fuel efficient practices, conserve natural resources, prevent air pollution, and improve environmental performance and be environmentally conscious;

The aim of this Policy is to reduce greenhouse gas emissions (GHGs), other air pollutants and fuel consumption resulting from the operation of fleet vehicles and motorized equipment, implement and promote energy conservation and awareness, improve environmental performance, and reduce maintenance requirements and fuel costs."



SAINT JOHN

Greening Our Fleet - Scope

This Policy applies to the entire fleet of vehicles and motorized equipment in use by The City, whether owned, rented or leased for use by employees of The City in the performance of their duties and the delivery of services.

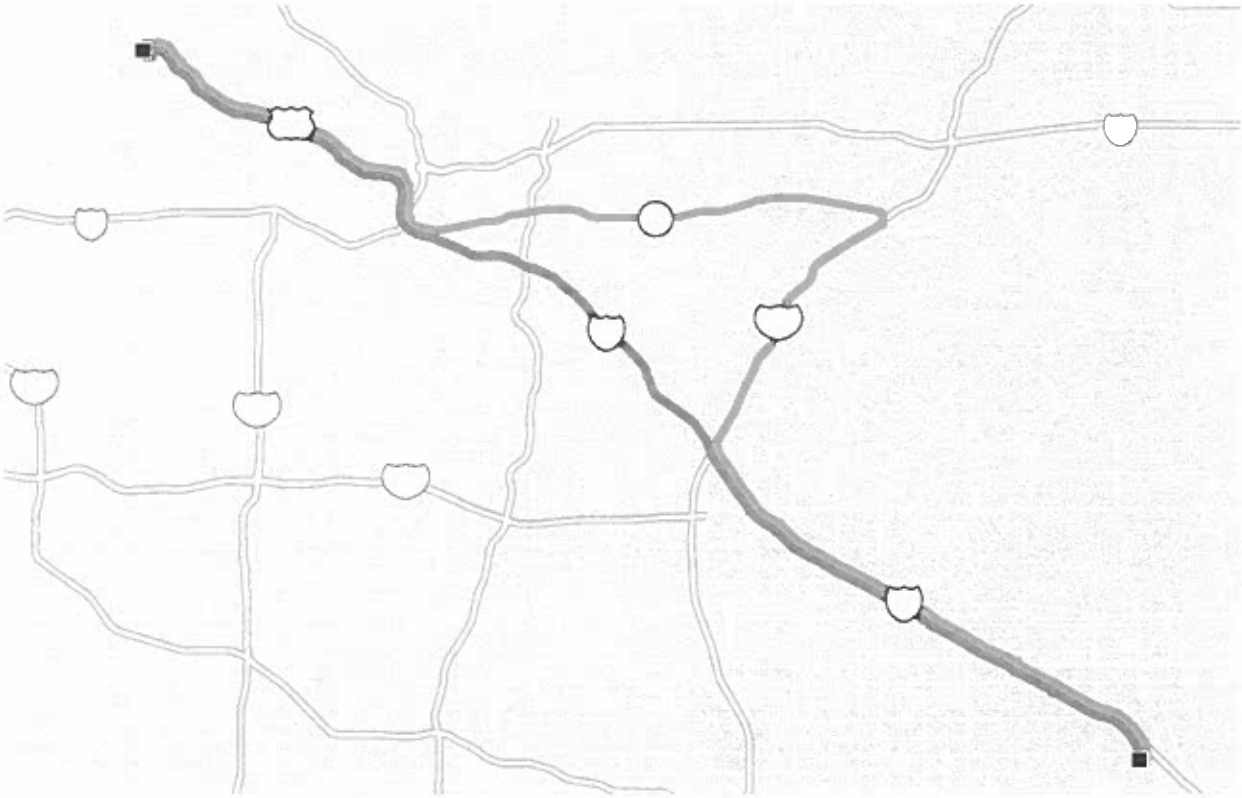
SAINT JOHN

Greening Our Fleet - Limitations

- Shall never be left idling when unattended.
- Engine warm-up periods will not exceed three (3) minutes.
- Will be shut off whenever idling time is expected to exceed three (3) minutes.
- Employees are to take the most direct safe route to their destination. Vehicles are not to be utilized for longhauling.

SAINT JOHN

Greening Our Fleet – Longhauling



SAINT JOHN

Greening Our Fleet - Exceptions

- Equipment maintenance and diagnostic purposes;
- Extreme Weather Conditions (below -10 and above 27 Celsius) or for the health and safety of employees or others;
- Not expected to be able to restart due to mechanical problem;
- While on the scene of an emergency or during training sessions;
- While on the scene of an emergency and while actively involved in a support function;
- And when the operation is required to power auxiliary equipment.

SAINT JOHN

Green Our Fleet - Monitoring

- This policy will be reviewed every 3 years, and as determined by the City Manager.
- Periodic audits, as often as required, of vehicle and motorized equipment use will be performed by both Fleet Services and/or Service Area supervisory and management staff to ensure adherence to the "Greening Our Fleet" Policy.
- The "Greening Our Fleet" Policy provides essential support for forward-looking leadership strategy and responsible, community-centered Fleet Management practices in the 21st Century.

Greening Our Fleet – Glossary

- Fuel: means any fossil fuel, usually gasoline, diesel or propane, consumed on the operation of a vehicle or motorized equipment.
- Idling: means the engine is running while the vehicle is stationary or the piece of motorized equipment is not performing work.
- Motorized Equipment: means any self-powered/person operated equipment used in support of municipal operations and services (i.e. lawn mowers, boat engines, bush cutters, etc.).
- Longhauling: The act of taking a long or excessive detour enroute to one's destination.
- Vehicle: means any on-road or off-road, self-propelled vehicle that is required to be registered and have a license plate by the Department of Motor Vehicles, Province of New Brunswick.

SAINT JOHN

Greening Our Fleet – Roles and Responsibilities

- Fleet Services
- Service Areas
- Employees
- Human Resources

SAINT JOHN

Greening Our Fleet – Implementation

Fleet Services will work directly with Human Resources to:

- Integrate the "Greening Our Fleet" Policy into the orientation of all new permanent or temporary employees, and to;
- Communicate the "Greening Our Fleet" Policy to employees in general through the 5*22 Safety Management System, as well as through On Job Training (OJT) and Career Field Training Programs, and through established corporate networks, including SharePoint and InfoCenter.

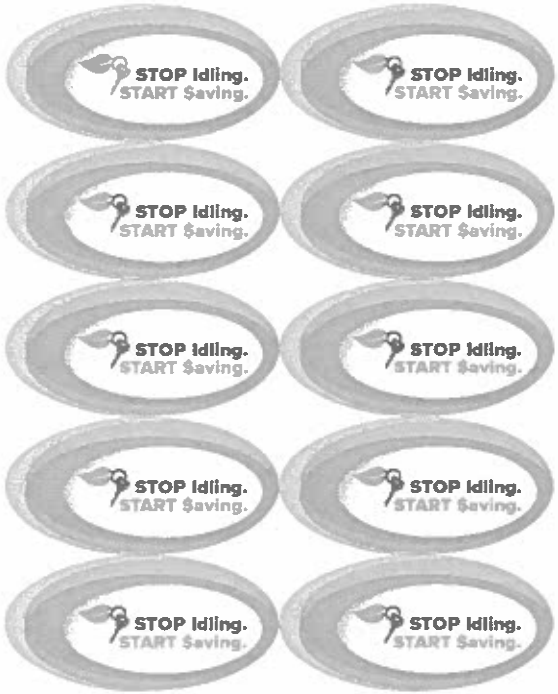
SAINT JOHN

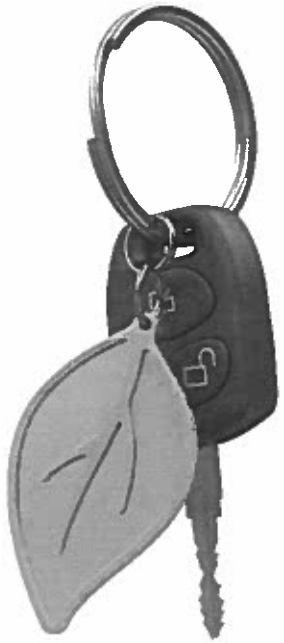
Employee Roll Out – Logo Sample Option

STOP Idling.
START $aving.

SAINT JOHN

Employee Roll Out – Implementation Sample Options



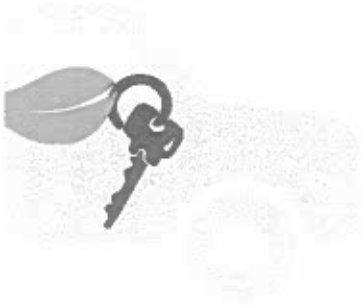


SAINT JOHN

Recommendation

- City staff recommends Finance Committee refer the policy statement to Council for adoption.

Questions?



SAINT JOHN

Vehicle Number	Fleet: Equipment Number	Description
001	3328	2018 FORD INTERCEPTOR SEDAN
002	3462	2019 DODGE CHARGER
003	3475	2019 FORD F250 CREW CAB 4WD
004	3329	2018 DODGE RAM 1500 SSV
005	3886	2020 MITSUBISHI RVR AWD
006	2784	2015 DODGE CHARGER AWD
008	3474	2018 TOYOTA CAMRY LE
009	2671	2014 DODGE CHARGER ENF.
012	2512	2013 DODGE RAM 1500 W/CAP
014	2783	2016 DODGE RAM 1500
020	3606	2020 E-ONE TYPHOON PUMPER
022	2557	2013 PIERCE SABER PUMPER
027	1956	2006 E-ONE PUMPER
028	1973	2006 E-ONE PUMPER
029	2963	2015 E-ONE TYPHOON PUMPER
031	1938	2004 E-ONE RESCUE PUMPER
033	1919	1993 SPARTAN PUMPER
041	2110	2008 E-ONE BRONTO AERIAL
042	3879	2006 AERIAL E-ONE HP 100 QUINT
043	1560	2003 E-ONE AERIAL LADDER
052	1362	2001 FREIGHTLINER TANKER
053	2057	2007 INT. E-ONE TANKER
080	1548	2004 DODGE RAM 2500 4X4
084	1726	2005 GMC SIERRA 2500
085	2312	2011 FORD F550 EXT. CAB
087	1408	2002 FORD F550 AIR SUPPLY
088	1958	2005 GMC C5500 CREW CAB
100	3804	2020 TOYOTA COROLLA LE
101	3453	2018 FORD TAURUS SE
102	3725	2020 TOYOTA COROLLA LE
103	2741	2015 TOYOTA COROLLA LE
110	3868	2020 FORD EXPLORER
111	3456	2019 DODGE CHARGER PURSUIT
112	3103	2017 FORD INTERCEPTOR SEDAN
114	3869	2020 FORD HYBRID EXPLORER
115	3863	2020 FORD EXPLORER
117	0110	1965 VOLKSWAGON BEETLE
118	2106	2008 FORD CROWN VICTORIA
120	3612	2017 DODGE RAM 1500 SSV
121	3867	2020 FORD EXPLORER
122	3458	2019 DODGE CHARGER PURSUIT
123	2768	2015 FORD INTERCEPTOR
124	2881	2016 FORD TRANSIT

131	3862	2020 FORD EXPLORER
132	3102	2017 FORD INTERCEPTOR SEDAN
133	3864	2020 FORD EXPLORER
134	3512	2016 DODGE CHARGER
140	3727	2020 TOYOTA COROLLA LE
142	3866	2020 FORD HYBRID EXPLORER
143	3460	2019 DODGE CHARGER PURSUIT
144	3454	2019 DODGE CHARGER PURSUIT
145	3104	2017 FORD INTERCEPTOR SEDAN
150	2879	2016 MITSUBISHI LANCER
151	2227	2010 KIA SOUL
152	2883	2016 DODGE CHARGER
153	3101	2017 FORD INTERCEPTOR SEDAN
154	2884	2016 DODGE CHARGER
155	1889	2006 HARLEY DAVIDSON ELCG
156	1890	2006 HARLEY DAVIDSON
157	2145	2008 HARLEY DAVIDSON
158	2144	2008 HARLEY DAVIDSON
160	3728	2020 TOYOTA COROLLA LE
162	2880	2016 MITSUBISHI LANCER
163	3814	2020 TOYOTA COROLLA LE
165	3895	2020 MITSUBISHI RVR AWD
166	2742	2015 TOYOTA COROLLA
167	3812	2020 TOYOTA COROLLA LE
169	2626	2014 TOYOTA COROLLA LE
173	3815	2020 TOYOTA COROLLA LE
174	3729	2020 TOYOTA COROLLA LE
175	3860	2020 FORD EXPLORER
176	3861	2020 FORD EXPLORER
179	2627	2014 TOYOTA COROLLA LE
181	1991	2007 CHEV CARGO VAN
182	2608	2014 GMC SAVANA EXT CARGO
184	2613	2013 HONDA TRX500 RUBICON
185	2593	2014 DODGE RAM PROMASTER
190	3896	2020 MITSUBISHI RVR AWD
195	3798	2020 TOYOTA COROLLA LE
196	3801	2020 TOYOTA COROLLA LE
197	3803	2020 TOYOTA COROLLA LE
198	2771	2015 FORD INTERCEPTOR AWD
199	3831	2019 FORD F550 (RESCUE 1)
200	3888	2020 MITSUBISHI RVR AWD
231	3494	2019 DODGE RAM 1500
232	2278	2011 FORD F450 W/FLAT BED
236	1817	2004 INTERNATIONAL 4300

242	2811	2016 FORD F250 4WD
244	2797	2016 DODGE RAM 1500 4WD
245	2685	2014 FORD F150 REG. CAB
247	3304	2017 FORD F350
254	2686	2015 FORD F350 REG CAB
255	2687	2015 FORD F350 REG CAB
257	3002	2016 KUBOTA UTILITY VEH
258	3014	2016 KUBOTA RTV UTILITY VEHICLE
259	3345	2017 KUBOTA RTV UTILITY VEHICLE
273-89	2667	2014 KUBOTA RTV X900G
274	1707	2005 KUBOTA TRACTOR
275	1710	2005 KUBOTA TRACTOR
278	3093	2017 KIOTI TRACTOR
279	3017	2015 CAT COMPACT LOADER
302	3282	2017 DODGE CARAVAN
306	2683	2014 FORD F150 SUPERCAB
307	2684	2014 FORD F150 SUPERCAB
308	2572	2013 FORD F150 REG CAB 4X
309	3481	2019 FORD F350 4WD REG CAB
350	2621	2014 HONDA CR-V
354	2794	2016 FORD TRANSIT
358	2795	2016 FORD F150 4WD
360	2573	2013 FORD F150 SUPERCAB
370	2270	2010 FORD F150 4WD EXT.C
371	1918	2006 GMC SIERRA 1/2 TON 4X4
408	2826	2016 FORD F250 3/4TON 4WD
410	2714	2015 FORD F250 EXT. CAB
411	2568	2013 FORD SUPERCAB 4X4
412	3314	2017 DODGE RAM 1500 CREW CAB
413	2827	2016 FORD F250 3/4TON 4WD
414	3283	2018 DODGE RAM 1500 CREW CAB
415	3907	2021 DODGE RAM 2500 CREW CAB
416	2828	2016 FORD F250 3/4TON 4WD
417	2829	2016 FORD F250 3/4TON 4WD
419	2012	2008 FORD F450
420	2855	2016 FORD F450 1 TON 4WD
421	3840	2020 FORD F450 4WD CREW CAB
422	3904	2021 DODGE RAM 2500 4WD CREW CAB W/ FLEET SIDE SHORT BOX
423	2682	2014 FORD F150 SUPERCAB
424	3837	2020 FORD F450 4WD CREW CAB
425	2715	2015 FORD F250 SUPERCAB
428	2571	2014 DODGE RAM 1500 ST
429	3300	2017 DODGE RAM 1500 ST

430	2819	2016 FORD F250 3/4 TON
431	3299	2018 FORD F150 XIE HALF TON
431	3900	2020 DODGE RAM 1500 4WD CREW CAB
432	2830	2016 DODGE RAM 4500
433	2854	2016 FORD F250 3/4 TON
434	2569	2013 FORD SUPERCAB 4X4
436	2575	2014 FORD F250 SUPERCAB
437	2869	2016 DODGE RAM 2500
438	2327	2011 GMC CANYON W/ BOX CA
439	2820	2016 DODGE RAM 2500 CREW
440	3724	2017 DODGE RAM 3500 ST CREW CAB
441	2700	2014 FORD F150 EXT. CAB
442	3302	2017 DODGE RAM 2500 CREW CAB
443	3839	2020 FORD F450 4WD CREW CAB
444	2595	2014 FREIGHTLINER TANDEM
445	2701	2015 FREIGHTLINER TANDEM
446	3399	2019 FORD F450 1 TON
447	2596	2014 FREIGHTLINER TANDEM
448	3309	2018 INTERNATIONAL TANDEM
449	3310	2018 INTERNATIONAL TANDEM
450	3316	2017 DODGE RAM 1500 CREW CAB
451	1800	2004 JOHN DEERE 4WD
453	2702	2014 VOLVO BACKHOE
454	3556	2020 FREIGHTLINER VACTOR
455	2330	2011 VOLVO EXCAVATOR
456	2118	2008 VOLVO RBR TIRE EXCAV
458	2703	2014 VOLVO BACKHOE
459	2309	2011 INTERNATIONAL TANDEM
496	2694	2015 WEST. STAR VACTOR
530	2856	2016 FORD F450 1 TON 4WD
544	3008	2017 FORD F450
548	2581	2014 ISUZU W/ LINE PNT EQ
560	3311	2017 DODGE RAM 1500 CREW CAB
562	2813	2016 FORD F150 4WD EXT.
563	2831	2016 DODGE RAM 4500
566	3902	2020 DODGE RAM 1500 4WD CREW CAB
568	2574	2014 F250 REG CAB 4X4
569	2704	2015 FORD F550 MINI PACKE
572	3320	2017 FORD F450 CREW CAB
574	2583	2014 FORD F450
575	2832	2016 DODGE RAM 4500 4WD
577	2584	2014 FORD F450
579	3903	2020 DODGE RAM 1500 4WD CREW CAB
580	2833	2016 DODGE RAM 4500

583	2680	2014 FORD F150 SUPERCAB
584	2812	2015 FORD F150 4WD
585	3842	2020 FORD F450 4WD CREW CAB
589	3319	2017 FORD F450 CREW CAB
590	3313	2017 DODGE RAM 1500 CREW CAB
592	3317	2017 FORD F450 CREW CAB
595	2857	2016 FORD F450 1 TON 4WD
596	2858	2016 FORD F450 1 TON 4WD
597	3318	2017 FORD F450 CREW CAB
601	2578	2014 INT. 7500 SINGLE AXL
603	2307	2011 INTL. SINGLE AXLE
606	2579	2014 INT. 7500 SINGLE AXL
607	2690	2015 FREIGHTLINER SINGLE AXLE
608	2801	2016 INTERNATIONAL TANDEM
611	2018	2008 INTL SINGLE AXLE
612	2806	2016 FREIGHTLINER 114SD SINGLE AXLE
614	2016	2008 INT. TANDEM
616	2370	2012 INTERNATIONAL TANDEM
618	2017	2008 INTERNATIONAL TANDEM
620	2802	2016 INTERNATIONAL TANDEM
621	2304	2011 INTERNATIONAL TANDEM
622	2803	2016 INTERNATIONAL TANDEM
623	2305	2012 INTERNATIONAL TANDEM
639	3578	2020 FREIGHTLINER TANDEM
640	2576	2014 INTERNATIONAL PACKER
641	3514	2020 FREIGHTLINER PACKER
642	3515	2020 FREIGHTLINER PACKER
643	2716	2016 FREIGHTLINER PACKER
644	3587	2020 FREIGHTLINER PACKER
646	2577	2014 INTERNATIONAL PACKER
647	3588	2020 FREIGHTLINER PACKER
648	2717	2016 FREIGHTLINER PACKER
650	2464	2013 INTERNATIONAL PACKER
651	2465	2013 INTERNATIONAL PACKER
652	2371	2012 INTERNATIONAL TANDEM
654	3577	2020 FREIGHTLINER TANDEM
655	3576	2020 FREIGHTLINER TANDEM
656	3575	2020 FREIGHTLINER TANDEM
657	2580	2014 INT. TANDEM 7600
658	2804	2016 INTERNATIONAL TANDEM
659	2805	2016 INTERNATIONAL TANDEM
677	2028	2007 JOHN DEERE GRADER
678	2878	2013 CAT GRADER
699	2234	2009 INT.CAB/CHASS VACTOR

701	2693	2014 DOOSAN LOADER
702	3016	2017 CASE LOADER
703	2117	2008 CASE LOADER
704	2167	2009 CAT LOADER
705	2873	2015 CASE LOADER
713	2874	2015 CASE LOADER
732	3088	2015 FREIGHTLINER VACUUM SWEEPER
736	2198	2009 ELGIN WHIRL. SWEEPER
761	2119	2008 JD BACKHOE LOADER
762	2019	2007 CAT.BACKHOE/LOADER
763	3430	2018 CASE BACKHOE LOADER
764	2020	2007 CAT.BACKHOE/LOADER
766	2120	2008 JD BACKHOE/LOADER
767	1547	2003 CAT TRACK EXCAVATOR
769	2967	2016 CASE EXCAVATOR
775	2824	2016 TRACKLESS MT6
782	3009	2016 TRACKLESS MT6
783	2705	2015 TRACKLESS MT6
786	2706	2015 TRACKLESS MT6
790	3498	2018 WACKER NEUSON WL32 COMPACT LOADER
791	2822	2016 TRACKLESS MT6
792	2823	2016 TRACKLESS MT6
793	3010	2016 TRACKLESS MT6
794	2825	2016 TRACKLESS MT6
795	2707	2015 TRACKLESS MT6
798	3913	2020 TRACKLESS MT7
910	2269	2010 FORD F150 4WD EXT. C
914	2344	2011 FORD BUCKET TRUCK
916	2688	2014 FORD F150 SUPERCREW
920	3489	2018 MITSUBISHI RVR AWD
921	3483	2018 MITSUBISHI RVR AWD
922	3485	2018 MITSUBISHI RVR AWD
928	3301	2017 DODGE RAM 1500 ST
935	2233	2010 TOYOTA TACOMA
P-01	3297	2018 FORD F150 XIE
P-02	2724	2015 TOYOTA RAV 4 AWD
P-101	3730	2020 TOYOTA COROLLA LE
P-102	3890	2020 MITSUBISHI RVR AWD
P-103	2868	2016 TOYOTA COROLLA LE
P-104	3327	2017 TOYOTA COROLLA
P-105	3892	2020 MITSUBISHI RVR AWD
P-106	3492	2019 TOYOTA COROLLA
P-107	3491	2019 TOYOTA COROLLA

P-108	3488	2018 MITSUBISHI RVR AWD
P-109	3398	2018 DODGE RAM 1500 QUAD CAB
P-110	3315	2017 DODGE RAM 1500 CREW CAB
P-113	3486	2018 MITSUBISHI RVR AWD
P-114	3487	2018 MITSUBISHI RVR AWD
P-205	3493	2019 DODGE RAM 1500
P-206	3732	2020 TOYOTA COROLLA LE
P-208	3326	2017 TOYOTA COROLLA
P-209	3482	2019 DODGE RAM 1500 4WD REG CAB
P-210	3884	2020 MITSUBISHI RVR AWD
P-211	3887	2020 MITSUBISHI RVR AWD
P-212	3490	2018 TOYOTA COROLLA
P-213	3325	2017 TOYOTA COROLLA
P-215	2796	2016 DODGE RAM 1500 CREW

ORP EXPLANATION

1) **Age of Vehicle Rating:** Simply subtract the age of the vehicle from the current year and assign one point per year.

2) **Odometer Reading Rating**: For every 20,000 km accumulated assign one point in this category.

3) **Maintenance Cost Rating:** This is the relationship of total life maintenance costs compared to the purchase price of the vehicle. Assign one point for every 20%.

4) **Fuel Consumption Rating:** The Canadian fuel industry rating based on the number of litres consumed for every 100km operated. (For example, apply a maximum of 5 points in this category for a rating of 15 L/100km or greater.

5) **General Overall Condition Rating:**
A subjective reference to identify the overall condition of the vehicle. 1 point for excellent, 2 points for average, and a maximum of 3 points for a poor condition vehicle.)

Once you determine the points for each of the five categories simply add to get the ORP analysis score. If the total is 17 or greater the vehicle should be replaced within the current year. However, keep in mind this is a “guide” and is not the “be all or end all” when it comes to vehicle/equipment replacement. The reality of economics, budget availability, and/or management operational considerations for example, should always prevail.