

NEW TOOL HELPS MUNICIPALITIES TO REDUCE THEIR GREENHOUSE GAS EMISSIONS

“ If you find yourself in a hole, stop digging ”
- WILL ROGERS

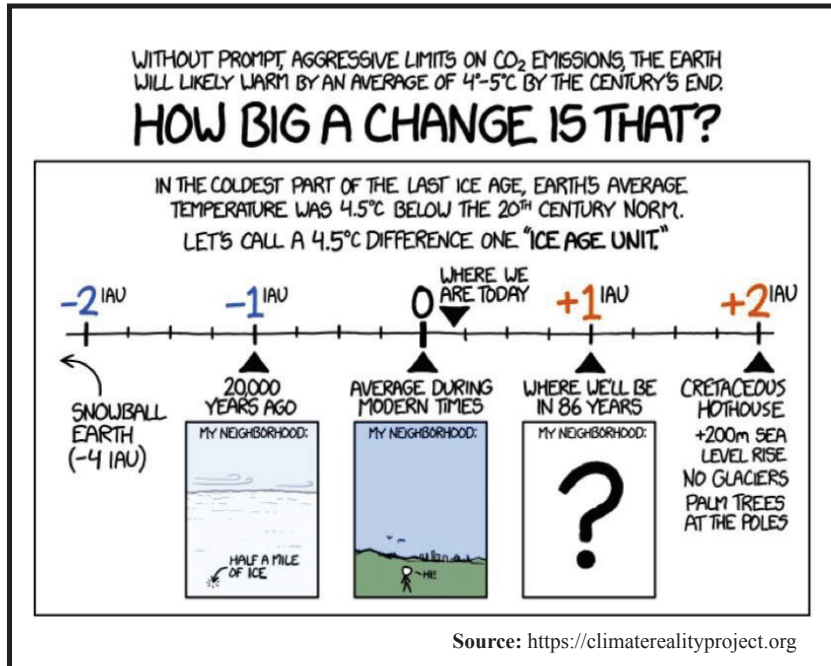
If you are working in asset management, you have no doubt started to think about climate change and how it will affect the long-term management of the infrastructure you use to provide critical services to your residents. Most infrastructure managers concentrate their efforts on climate change adaptation: management strategies to mitigate risk of impacts to service from climate events like increased rainfall, more frequent flooding, increased wind, higher fire risk, etc.

But should we overlook the need to reduce our contribution to the greenhouse gases that are at the root of climate change? This is climate change mitigation, and the answer is “No!”. While one municipality alone may not be directly responsible for a large share of Canada’s emissions, the fact is that close to 50% of Canada’s climate change emissions are under direct or indirect control of municipalities (see Act Locally: The Municipal Role in Fighting Climate Change, FCM 2009). Compare this to 26% from industry – together we can make a huge difference!

AIM Network has begun to support municipalities to take on this challenge by developing its inaugural climate change mitigation

workshop. The workshop is part of the first module in its cohort program currently running in New Brunswick. The program has been tailored to meet the anticipated Phase 2 Provincial requirements for asset management, for which climate change is an integral component. (see article on page 6, AIM Network’s New Brunswick Cohort Program is in Full Swing).

As with all of AIM Network’s training offerings, the focus is practical application of asset management principles. Participants leave the program with an actionable list of mitigation projects, along with estimates of cost and the greenhouse gas reductions that come from them so they can be incorporated into five-year capital planning.



The good news is that many of the “low hanging fruit” projects for climate mitigation pay for themselves in energy savings. The AIM Climate Mitigation tool is a spreadsheet-based calculation sheet that allows municipalities to explore options for mitigation projects and prioritize the most effective ones. The spreadsheet is provided free to municipalities to provide them with an accessible and practical starting point to plan for climate mitigation investments.

It helps develop the rationale for capital expenditures or identify projects with a high probability of success that would then justify undertaking detailed engineering studies on energy efficiency retrofits.



Whether you are considering changing the lighting in your municipal buildings to LED lights, installing variable frequency drives on wastewater pumps or migrating your vehicle fleet to electric vehicles, the tool provides energy and greenhouse gas equivalencies for different fuel/power sources and allows you to adjust emission estimates based on how much of your provincial grid power comes from emitting sources.


The workshop presented the key concepts for putting together a five-year plan for greenhouse gas mitigation activities:

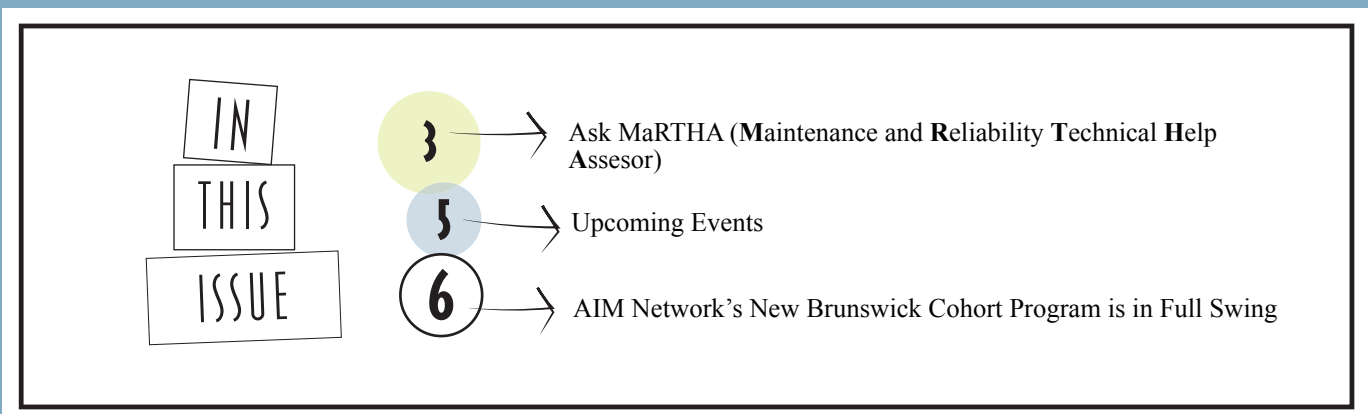
- Identifying the difference between climate adaptation and mitigation, along with the different approach toward planning;
- How mitigation affects our potential climate future and how it reduces the requirement for adaptation activities in quantity and character;
- How mitigation fits into an asset management plan;

- How climate mitigation activities are measured;
- What makes a climate mitigation project feasible;
- How to identify priority projects for climate mitigation; and
- How to document and present the case for climate mitigation to municipal councils and residents.

Many communities in Canada have now declared a climate emergency and are responding to the global call to action to reduce our greenhouse gas emissions. Local leaders have a big role and responsibility to support the common goal to protect the quality of life of everyone on the planet. If you agree but are having trouble getting started, AIM Network can help. Just send us a note at info@aimnetwork.ca with the subject line Climate Mitigation and we will get in touch.

By: Matt Delorme

 SNAPSHOT OF AIM NETWORK'S CLIMATE MITIGATION TOOL																
Percentage GHG Emitting Ene 19.60% Cost of Power \$0.136 per kWh Tonnes CO2 per kWh (unadjusted) Tonnes Discount rate for Net Present 1.00% Annual kWh Per Vehicle Form Average km per year * kWh per km Annual kWh Per Unit Formula Average Watts Power * Days in Service per Year * Average Hours in Service Per Day																
Location	Current System	Quantity	Units	Annual kWh/unit	Proposed System	Annual kWh/unit	Unit Cost	System Cost	Annual O&M Savings/ Cost	Timeframe (years)	Annual kWh Savings	Annual Savings	Net Present Value Savings	GHG Reduction (kgCO2e)	Percentage GHG Reduction	Notes
City Hall	100W Equivalent Fluorescent Light Ballast	80	Ea	87.6	100W Equivalent LED Light Ballast	52.6	\$100.00	\$8,000.00	\$100.00	20	2803.2	\$381.24	\$684.16	176.04	7.8%	% GHG Reduction adjusted by % power from emitting sources
Public Works	F150 Gasoline	20000	km	1.21	F150 Hybrid	0.88	N/A	\$6,000.00	\$1,403.00	10	6719.4	\$0.00	\$7,288.24	1616.48	27.7%	F150 Hybrid 9.4 L/100 km combined. Hybrid Power Boost approximate upgrade of \$6,000. O&M costs include reduced maintenance and gasoline cost savings.
WWTP	5HP Gorman Rupp Pump	1500	hours	5.40	Add Variable Frequency Drive	3.24	N/A	\$4,500.00	\$500.00	20	3240.0	\$440.64	\$12,474.37	203.47	40.0%	Main input pump is a good candidate: high run time per day, long pipe runs with much of TDH in friction loss and ease of install close to the pump at the lift station. Estimated power savings 60%. Primary run times at peak hours so 100% energy savings is GHG emitting
City Hall	R-20 Insulation	20000	Sq Ft	7.48	R-24 Insulation	6.21	\$6.00	\$120,000.00	\$0.00	40	25433.1	\$3,458.91	-\$6,427.91	4676.39	17.0%	20,000 square foot building c/w natural gas heat. Estimate of 0.68 cubic metres nat gas per sq ft. annually



Ask MaRTHA

(MAINTENANCE AND RELIABILITY
TECHNICAL HELP ASSESSOR)

By: Martha Myers



I was introduced in the last newsletter as AIM Network's Atlantic Asset Management Conference Chair, but I am also working with AIM Network to expand their scope into maintenance and reliability, which is my first love (just joking... kind of). Maintenance and reliability play key roles in asset management because they are important parts of an asset's lifecycle. Lifecycle delivery of assets include the following activities:

- Creation/acquisition
- Installation/Commissioning
- Operation
- Maintenance
- Disposal

The operation and maintenance activities make up approximately 80% of the cost over the life of an asset/system, so doing it right can help ensure you get the most value from your assets, which is the goal of asset management.

One area in which we are focusing our attention is with water and wastewater systems, of which there are many in the region. The four Atlantic provinces operate and maintain over 450 Wastewater systems and even more potable water systems. They are common systems, serving similar, important functions, and proper inspection, operation, maintenance, and management of them have a significant impact on the operational cost and effectiveness to meet the level of service required.

Water and wastewater services are not only critical for the community, but they are also highly regulated and complex. When it comes to maintenance and reliability, they are labour intensive, require planning, scheduling, spare parts, monitoring, reporting, analysis, and testing. That's where we come in... offering support and an environment where we can share what others are doing.

AIM Network has partnered with the Atlantic Canada Water and Wastewater Association (ACWWA) to offer full day workshops on the role of operations and maintenance in the management of water and wastewater systems. We have created a general overview course and four separate workshops focusing on Water Transmission & Distribution, Water Treatment, Wastewater Collection and Wastewater Treatment. With these workshops, we are just starting to scratch the surface in what I see as an opportunity to be more proactive, to make it easier to operate and maintain these systems, and to improve performance through fewer unplanned outages and emergencies.



From working with and interviewing several municipalities, we have learned there is a wide range of maturity when it comes to maintenance and reliability, so building a workshop to tackle all levels is a bit challenging, but one that we decided to jump right into!

Here's our approach:

- ① We start by identifying the assets that make up the system, the specifications (material, size, manufacturer, etc.), what maintenance tasks are currently taking place, frequency, and spare parts on hand. Participants soon learn what information is missing.
- ② Next, participants use a new AIMNet tool we created that analyzes what operational and maintenance tasks should be done. They identify the services and performance the system is meant to provide, and how can it fail. As with other AIMNet tools, it is provided free of charge to municipal organizations and will evolve as we learn how to improve it.
- ③ With an understanding of the failure modes, their likelihood, consequences and overall risk, tasks are put in place to prevent the failure in the first place.

Some Words of Wisdom about Maintenance

As we become more strategic about maintenance, we go from being totally Reactive – waiting for an asset to fail before doing anything, to Planned – doing all maintenance at a prescribed interval, to Proactive – based on known and anticipated failure modes and performing maintenance based on early detection, and finally Strategic – tying everything back to the organizations strategic objectives, which

will result in a mix of all! Everyone is at a different stage, but all have a desire to improve.

Once we know what needs to be done, planning and scheduling maintenance activities is another challenge. Our workshops show simple ways to set up a dedicated calendar to schedule operation and maintenance tasks, and to create a filing system on a common drive that is easy to use and structured in a common way. Some municipalities use a more sophisticated Computerized Maintenance Management System (CMMS). In the first two workshops, we had participants who have had a CMMS for many years, but are still not utilizing it fully, others have just started implementation of a new CMMS and are thrilled with it, and most do not have one at all. The benefits and challenges of using a CMMS is a whole separate topic!

**“Alone we can do so little,
but together we can do so much”**

- Helen Keller

Like in AIM Network's cohort programs, we have learned through these workshops that the value of learning from what other people are doing is priceless and eases the burden of trying to do it all on your own. Becoming strategic about operations and maintenance is worth the effort, because it helps assets reach their full service life potential, leads to savings in capital investment costs and ensures they perform according to their intended purpose.

Any questions? **Ask MaRTHA!**

Upcoming Events

SEPTEMBER 1-3, 2021:

LEADERSHIP EVENT FOR COUNCILLORS AND MANAGEMENT IN BADDECK, NS

Registration is open for AIM Network's two-day leadership event from September 1-3 at Inverary Resort on Baddeck Bay in Nova Scotia. Participants will share an intense, interactive experience that engages them to examine:

- How collaborating with different roles in your municipality improves asset management processes and overall job satisfaction;
- How to change misunderstanding and miscommunication that happen in municipalities;
- How self-awareness and emotional intelligence positively impact the municipality; and
- How investing in the development of key leadership competencies can benefit the municipality far beyond the election cycle.

This experience is open to CAOs/town managers and local elected officials. It is guaranteed to educate, entertain, and enlighten participants while shining a light on dysfunctional patterns in municipalities that can keep us from meeting our asset management goals and objectives. The workshop is being led by Christina Benty, MA of Strategic Leadership Solutions. For more information contact info@aimnetwork.ca. Registration for this event closes on August 16th.

OCTOBER 25-27, 2021:

ATLANTIC ASSET MANAGEMENT CONFERENCE IN DARTMOUTH, NS

AIM Network is pleased to host the third annual Atlantic Asset Management Conference in person in Dartmouth, NS from October 25 - 27, 2021. Join us as we explore the theme "Evolving Needs, Adapting Services" and learn about the best practices and latest progress on asset management in the region. The call for abstracts is now open (see sidebar). Registration for the conference will open on August 1st. See our website for details: <https://www.aimnetwork.ca/2021conference>.

Call for Presentations

AIM Network is calling on asset management practitioners in Atlantic Canada to share their asset management stories and successes at its third annual Atlantic Asset Management Conference in Dartmouth, NS from October 25 - 27, 2021.

Please submit an abstract (maximum 250 words) to info@aimnetwork.ca. Your abstract should include the presentation title, project description, presenters, and presentation type and include presenter biographies. We are prioritizing content that focuses on one of the topic areas below:

1. Matching Infrastructure Needs to Delivery of Services -The COVID19 pandemic has seen people re-discover their local communities, creating new demands and service expectations. Local assets are being utilized differently and level of service expectations are changing rapidly. How do we measure community service expectations and forecast investment needs to keep pace?

2. Quality-of-Life Infrastructure - As more people How do we go beyond planning for core infrastructure and manage infrastructure which promotes a high quality of life for residents and makes people want to live in our communities?

3. Natural Assets and Green Infrastructure - Often overlooked as an asset, our natural environment delivers key services such as stormwater management, outdoor recreation, and culture. How has your organization brought natural assets and green infrastructure into your asset management program?

4. Public Outreach & Stakeholder Engagement - It's important we plan infrastructure investments to meet the public's needs and expectations. How has your organization created communication channels with your community to identify needs and communicate the value of infrastructure and your decision-making processes?

5. Climate Change Adaptation & Mitigation - Climate change is a constant threat to our communities but presents exciting new opportunities to rethink how we manage infrastructure to provide services. How have you addressed climate driven vulnerabilities within your community?

6. AM & Infrastructure Innovation - Asset Management and technology is constantly evolving. Have you pushed the field forward or implemented a new and exciting technology to manage your assets? Have you developed an innovative approach to manage your infrastructure?

7. Enabling AM in Your Organization - Asset Management is still a new process for many of us and we want to celebrate your success. Share your stories of advancing your AM program and help inspire those looking to getting started or looking to take the next step.

**** Limited Spots Available ****

AIM Network's New Brunswick Cohort Program is in Full Swing

Earlier this year, **AIM Network** welcomed four municipalities from New Brunswick into its cohort program, which has been tailored to respond to the Province's anticipated Phase 2 asset management requirements. The Province had provided early indications that municipalities would need to show progress in the following key areas, which we've grouped into six broad categories:

① Governance and Policy:

Linkages between asset management policy and other governance documents, establishment of a condition assessment policy;

② Levels of Service:

Definition of acceptable levels of service delivery, identification of performance measures to assess and report on level of service;

③ Asset data and information:

Condition assessment and state of infrastructure reporting;

④ Risk assessment including climate risk:

includes Defining risk evaluation process, consideration of risk mitigation strategies for high risk assets, identification of greenhouse gas emission reduction opportunities, identification of climate change vulnerabilities;

⑤ Cost analysis and financial planning:

includes Demonstrating linkages between asset management planning and budgeting processes, cost analysis of all existing and planned assets over 50 years old, cash flow forecasts (and assumptions about them) for all assets; funding sources for the next 10 years and strategies to manage funding gaps; and

⑥ Prioritization of investments based on good practice asset management.

The cities of **Dieppe** and **Edmundston**, the Regional Municipality of **Tracadie** and the Village of **Atholville** joined the program to make progress in the above areas. While each community is unique, the common, structured approach that AIM Network brings to the asset management process has been valued by all of them.

Get to know the Municipalities!

The City of DIEPPE



The **City of Dieppe** has a population of about 28,000 people and over the past decade has experienced a boom in growth that hasn't slowed during the pandemic. While a decade ago that growth was centered on people moving from rural areas in the province, the current growth the City is seeing has been driven largely by the pandemic. People from farther afield, such as Ontario, many of whom work in the knowledge economy and can work from home, have arrived in search of a quieter and more affordable place to live. The City has welcomed some new immigrants as well.

Much of Dieppe's infrastructure is relatively new so its assets are in very good shape. Their asset management work, combined

with their financial plan adopted in 2018, is setting them up to ensure they have the right level of investment and reserves to manage them well over their full lifecycle. Still experiencing continuous growth, the city is wondering how to balance the investments required for the management of existing assets in relation to the addition of new assets such as trails and parks. The City is also pre-occupied with and preparing for the impacts climate change will bring over the long-term. The City sits on the Pedicodiac river, so it is important to address the risk of possible flooding in the medium to long-term.

Before joining the cohort program, Dieppe already had an asset management plan and policy in place. Their current work with AIM Network is building on that. They know their buildings could be better financed right now and are looking at how to increase investments in this area. Steve Landry is the City's deputy treasurer and the lead on asset management. The component of the program he is appreciating the most is related to developing levels of service. He's found that people in the asset management world always talk about levels of service and nobody really knows how to move forward. With a new council starting after New Brunswick's recent municipal elections, this work is helping to frame the communications to council on the benefits and needs related to asset management.

The City of EDMUNDSTON



The **City of Edmundston** started its asset management journey in 2017. That's when geomatics coordinator Daniel Arsenault was hired to do all the mapping and hosting of asset data. Arsenault works for the planning department and as part of the City's asset management team he also collaborates with all service areas.

Arsenault appreciates the support the City is getting from AIM Network, because he feels the high level directives that come from the Province are important guidance but they don't provide a standard or roadmap to develop and implement a full blown asset management program.

Before Edmundston joined the cohort program, their asset data was incomplete and only met the Public Sector Accounting Board financial requirements, which alone aren't appropriate to support forward looking asset management planning. Estimated costs of the assets was age-based on theoretical life spans of the infrastructure. And it had been challenging to pull together data from the legacy of an amalgamation that took place about 20 years ago. The data was housed in four different management regimes that had been putting pipes and roads in and managing water systems that were designed differently. The City has now started using AIM Network's tools to consolidate their data and have added new asset groups. The only component they were lacking was asset data on their facilities.

Arsenault is grateful the program is enabling them to build in climate considerations as they do this work. Climate change adaptation and mitigation has always been a grey area for them and they were unsure about how to apply it to asset management. Using the AIMnet climate mitigation tool, they are now exploring hybrid vehicles, LED upgrades, and aligning these ideas with their asset management plans. They didn't understand the impact of these decisions, even though they were doing very good projects related to climate mitigation. Now, anything new or that is retrofitted will bring in climate considerations.

The Regional Municipality of TRACADIE



The **Regional Municipality of Tracadie**'s big motivation to join the cohort program was to get the support they needed with the municipality's first asset management plan, currently being developed. Aziz Essalhi is their manager of environment and asset management and he had learned about the opportunity through his contacts at the Association of Francophone Municipalities of New Brunswick, from which they'd been getting support previously. He learned that AIM Network's capital planning tool would be able to get them to the next level in their asset management planning by centralizing all their data in one location and generating reports.

Essalhi has appreciated being part of AIM Network because of the opportunity to learn from others, a benefit of the cohort approach that is exactly what he had hoped for. They've had quite a bit of contact with Edmundston, which has similar road network

projects. Outside of the cohort, Essalhi has benefitted from learning from Victoria County, Nova Scotia, which has a similar water and wastewater system. He met someone from Victoria County recently at AIM Network's workshop on operations and maintenance of water and wastewater systems.

The Village of ATHOLVILLE



Finally, the **Village of Atholville** is a small community of about 4,000 people covering an expansive geographic area. The Village joined the cohort program because asset management was work that needed to get done and they simply needed the support to do it. The Village's CAO, Nicole Lebrun says that with a small staff complement of 10 people, asset management was work that was continually pushed to the side because of other priorities. She is thrilled with the progress they've already made since joining the program. They have integrated their asset inventory into the AIMnet software, their levels of service are almost all done, and their policy has been developed and is ready to be approved.

Lebrun is hoping their progress on asset management will support them with decision making around what she sees as their biggest challenge, which is to better manage their fire services. The Village has had several meetings with the fire chiefs over how to manage the costs of their large fleet of nine fire trucks while maintaining a safe response time for the community in the event of a fire. They don't yet have a handle on the lifecycle costs of managing the fleet and they hope to have that done by the end of the cohort program. She expects this information will help bring the issue to the forefront with council and lend itself to having an informed discussion about the costs to deliver the desired level of service to the community.

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