ATLANTIC FIRST NATIONS WATER AUTHORITY INC.
TEN-YEAR BUSINESS PLAN

Years 2022/23- 2031/32

Approved by AFNWA Board February 10, 2022
Amended October 5th,2022

Term	Definition
ArcGIS	ArcGIS is a geographic information system for working with maps and geographic information maintained by the Environmental Systems Research Institute. (Esri)
Asset Management (AM)	Asset management is the business process of knowing what you own, its condition relative to desired level of service and direction on capital and operation infrastructure investments
Atlantic Policy Congress of First Nations Chiefs Secretariat (APC)	Atlantic Policy Congress (APC) of First Nations Chiefs Secretariat, was federally incorporated in 1995 and is a policy research and advocacy Secretariat for 33 Mi'kmaq, Maliseet, Passamaquoddy and Innu Chiefs, Nations and Communities. APC is governed by a board of directors comprised of the Chiefs.
Band Council Resolution (BCR)	A record of a First Nation Council decision made by a majority of the Councilors of a First Nation at a meeting of the Council duly convened
Canadian Council of Minister of Environment (CCME)	The Canadian Council of Ministers of the Environment is an inter-governmental organization in Canada with members from the federal government, ten provincial governments and three territorial governments.
Computerized Maintenance Management (CMM)	Computerized maintenance management system, also known as computerized maintenance management information system, is a software package that maintains a computer database of information about an organization's maintenance operations.
Centre for Water Resources Studies (CWRS)	The Centre for Water Resources Studies was established in 1981 by the Faculty of Engineering at Dalhousie University to address water issues facing Atlantic Canada through applied research
Esri	Esri is an international supplier of geographic information system software, web GIS and geodatabase management applications.

First Nations Fiscal Management Act (FNFMA)	The First Nations Fiscal Management Act supports the ability of First Nations to develop the capacity and secure the money to plan and bring to life a 7th generation strategy.
First Nations Financial Management Board (FNFMB)	The FNFMB is one of three First Nations institutions created under the FNFMA To support First Nations to put in place good governance and finance practices to achieve their goals.
First Nations and Inuit Health Branch (FNIHB)	FNIHB, a division of Indigenous Services Canada, supports the delivery of health services to First Nations and Inuit.
Full Service Decentralized (FDS)	An organizational corporate structure that incorporates a Hub and Spoke model for service delivery. It prescribes some functions to be centralized at one headquarter location and others to be decentralized to a regional level
Geodatabase	A geodatabase is a database designed to store, query, and manipulate geographic information and spatial data.
Groundwater Under the Direct Influence of Surface Water (GUDI)	It refers to groundwater sources (e.g., wells, springs, infiltration galleries, etc.) where microbial pathogens are able to travel from surface water to the groundwater source.
Guidelines for Canadian Drinking Water Quality (GCDWQ)	The GCDWQ is a Guidance document produced by Health Canada as facilitated through a federal/provincial/territorial committee that establishes limits for physical, chemical and biological parameters in relation to Drinking Water. The GCDWQ can be incorporated into drinking water standards in whole or in part through provincial or territorial legislation
Indigenous Services Canada (ISC)	Indigenous Services Canada is one of two departments in the Government of Canada with responsibility for policies relating to Indigenous peoples in Canada. ISC's mandate is to work "collaboratively with partners to improve access to high quality services for First Nations, Inuit and Métis".

Inflow and Infiltration (I&I)	Inflow and infiltration (I&I) happen when extraneous water from the environment and premises enters the sewage system.
Halifax Water	Halifax Water is the municipal water, wastewater, and stormwater utility serving the residents of the Halifax Regional Municipality.
Maintenance Management (MM)	A Maintenance Management is a compilation of records in the form of binders or computer files that formalize the planning, scheduling, documentation and reporting of preventative maintenance activities and provides a method of recording unscheduled or corrective maintenance activities.
Municipal Type Agreement (MTA)	An agreement between First Nations and an adjacent municipality to provide water and wastewater services
Nujo'tme'k Samuqwan Safety Plans	This name describes the water safety plans (WSP) and sanitation safety plans (SSP) and an associated risk management framework. This approach establishes a preventive risk management approach following the World Health Organization (WHO) safety plan framework.
Ontario Clean Water Agency (OCWA)	The Ontario Clean Water Agency is a Crown agency of the Government of Ontario that provides operation, maintenance, and management services for more than 450 water and wastewater treatment facilities in the province of Ontario.
Safe Drinking Water for First Nations Act (SDWFNA)	This act allows the Government of Canada and First Nations to develop federal regulations to ensure clean water.
Supervisory Control and Data Acquisition (SCADA)	A control system architecture comprising computers, networked data communications and graphical user interfaces for high-level supervision of machines and processes.
Transition Management (TM)	A collective term for all approaches to prepare, support, and help individuals, teams, and organizations in making organizational change.

Transition Implementation Plan (TIP)	A plan that guides the overall operationalization of the AFNWA to fully autonomous operations from June 2020 to June 2022
Ultraviolet (UV)	UV is **Ultraviolet radiation**, an energy band within the electromagnetic energy spectrum. It is a colorless, tasteless, odorless and chemical free way to ensure your water supply is safe and clear of germs and other microorganisms that can make you sick.
Wastewater System Effluent Regulations (WSER)	A federal wastewater regulation under the Fisheries Act that came into effect in June 2012. The WSER applies to most wastewater treatment systems across Canada that discharge municipal wastewater effluent to receiving waters at an average daily volume of 100 m3 or more.

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1 EXECUTIVE SUMMARY

The idea of a water and wastewater utility owned and operated by First Nations, for First Nations, is not a new concept. This vision was put forward at the turn of the century following the Walkerton incident when national attention was focused on public health impacts from tainted drinking water. Chiefs across the Wabanaki territory in Atlantic Canada saw similar outcomes in their communities with the lack of resources and accountability for water service. After the federal Auditor General[1] and Expert Panel on Drinking Water[2] produced reports in 2005 and 2006, respectively, First Nations Chiefs in Atlantic Canada took stock of the situation and decided to advance the concept of a water and wastewater utility to serve their collective interests. Many studies and initiatives were advanced through the Atlantic Policy Congress of First Nations Chiefs Secretariat [APC] leading to the incorporation of the Atlantic First Nations Water Authority [AFNWA] on July 18, 2018. With the announcement of a Framework Agreement between AFNWA and Indigenous Services Canada [ISC] in June 2020, the utility was given a springboard to achieve its objective and transform water and wastewater service delivery to First Nations communities. Under the guidance of the Board of Directors, management of the AFNWA produced a Transition Implementation Plan [TIP] to serve as a roadmap to make the AFNWA ready for full autonomous operation by Spring 2022. The TIP milestones and objectives have been reached or are on track for completion with the expected approval of a Transfer Agreement between AFNWA and ISC by March 31, 2022, and the announcement of federal funding in Spring 2022 to support this Ten-Year Business Plan. The Business Plan outlines programs and resources to transform water and wastewater service delivery to build capacity, promote growth and prosperity for First Nations communities in the spirit of self-determination and reconciliation. The Business Plan calls for a regional approach with increased funding to rectify deficiencies of the past and bring service to levels comparable to leading utilities in Canada. It is a service built around Two Eyed Seeing[3] which incorporates the best of applied science with a Wabanaki world view for a sustainable and long-term approach to fulfill its mission to provide safe, clean drinking water and wastewater to participating First Nations communities. The responsibility for this mandate extends from the source to the tap and back to the source again as envisioned in Figure 1.

[1] Office of the Auditor General of Canada. “Report of the Commissioner of the Environment and Sustainable Development to the House of Commons: Chapter 5 Drinking Water in First Nations Communities.” Minister of Public Works and Government Services Canada, 2005.
[2] Indian Affairs and Northern Development Canada (November 2006). Report of the Expert Panel on Safe Drinking Water for First Nations. https://publications.gc.ca/collections/Collection/R2-445-2006E2.pdf
[3] Hatcher, A., Bartlett, C., Marshall, M., & Marshall, A. (2009). Two-eyed seeing: A cross-cultural science journey. Green Teacher (Toronto), (86), 3.

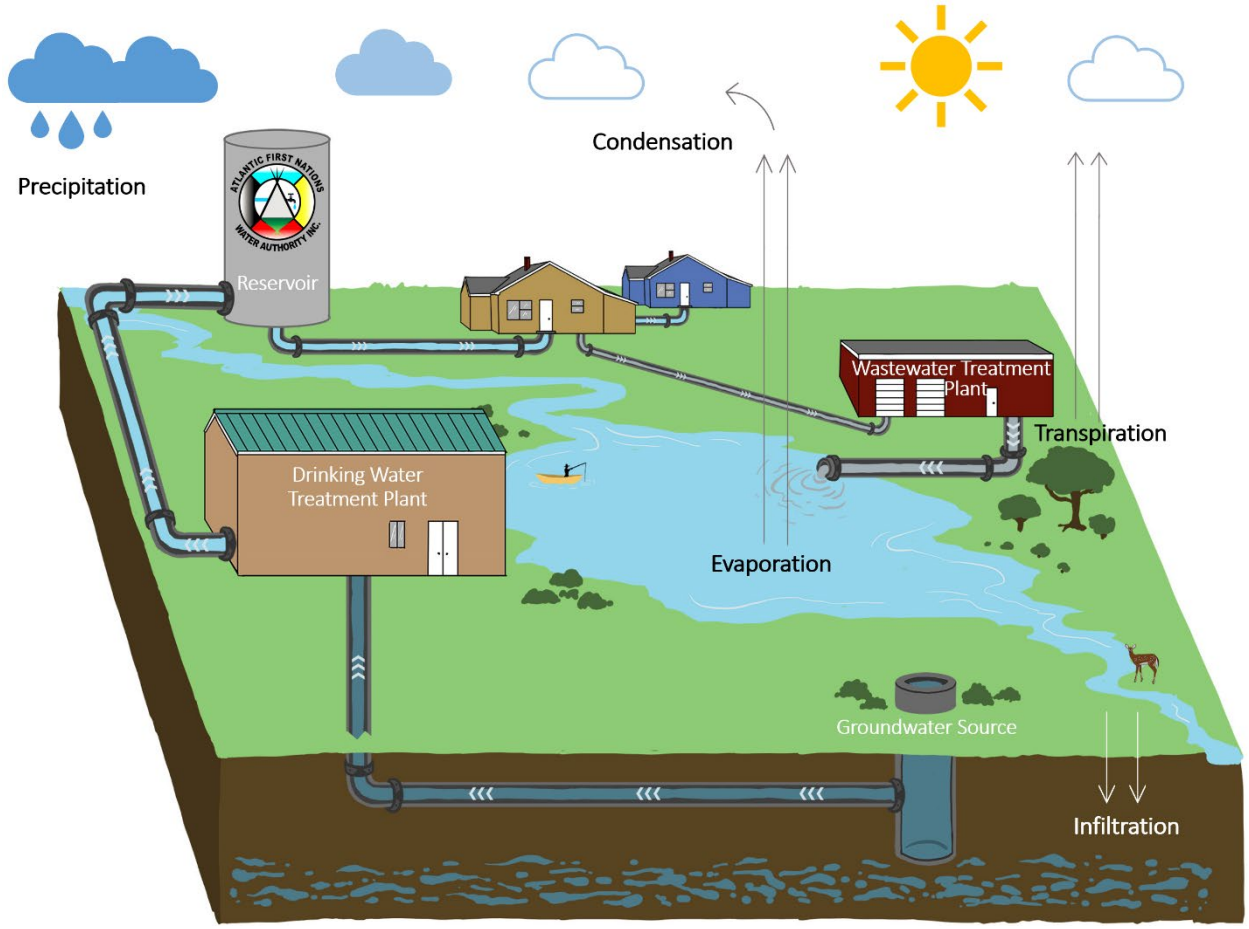


Figure 1- AFNWA responsibility from source to tap and back to source

The Capital and Operations budgets in this Business Plan call for investments of $134 million and $114 million, respectively, over a ten-year period for service to seventeen communities that participated in the Asset Management Plan recently completed. Through the spring and summer of 2022, AFNWA will embark on a dedicated communications and outreach program to solidify membership in the AFNWA with the goal to increase membership over time. AFNWA has clearly stated and will continue to state that the door is always open for communities to be part of the journey. The corporate structure for the utility was designed for scalability under a hub and spoke operations model and is positioned for service and growth.

2 INTRODUCTION

In the Atlantic region, the vision for a water utility by First Nations, for First Nations, was first discussed in forums established by the Atlantic Policy for First Nations Chiefs Secretariat as early as 2003. Since that time, many studies, workshops, and engagements have taken place. In 2017, APC tendered a project that would include cost estimates to be generated for the AFNWA as a functioning utility. Halifax Water and Accelerator Inc. were contracted to develop corporate structure options for the AFNWA drawing from national experience, industry best practices, and workshops with First Nations stakeholders to incorporate First Nations' culture and values[4]. For each proposed model, Halifax Water and Accelerator Inc. evaluated it against the triple bottom line, looking at economic, social, and environmental outcomes. In the end, a full-service decentralized corporate structure with a hub and spoke approach to operations was adopted which ultimately led to incorporation of the Atlantic First Nations Water Authority [AFNWA] on July 18, 2018.

With Capital and Operations estimates in place, a Business Case was developed in 2019 to establish an order of magnitude cost for the AFNWA over a twenty-five-year period. The Business Case recommended that the Government of Canada provide operational and capital funding to AFNWA to establish the preferred full service de-centralized model for sustainable service delivery. The Business Case was updated and approved by the Board on March 31, 2021, after a peer review by the Ontario Clean Water Agency [OCWA][5].

The Business Case also recommended a phased-in, milestone-based approach with a two-year transitional period leading to full autonomous operations. The transition period, governed by the Transition Implementation Plan [TIP], formally commenced upon the signature of a Framework Agreement with Indigenous Services Canada [ISC] in June 2020. The TIP allowed for the development of detailed operations plans, an asset management plan and a 10-year capital program with an aim to be fully operational by Spring 2022. It was originally documented in the TIP that detailed capital and operating budgets would be submitted to the AFNWA Board of Directors for approval as part of the AFNWA Business Plan at the end of January 2022.

Notwithstanding the approach laid out in the TIP, the process for Canada to approve the transfer of service responsibility to the AFNWA changed. Initially, it was thought that ISC would have to provide a Memorandum to Cabinet to obtain the required policy cover to proceed with a service delivery transfer to the AFNWA. ISC confirmed in November 2021 that they have the required authority directly from the Department of Indigenous Services Act, specifically section 7(b), which reads:

[4] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August 2017
[5] Ontario Clean Water Agency. *"Report to the Atlantic First Nations Water Authority – Review and Recommendations on the Business Case*." January 12, 2021

> *In accordance with any agreements respecting the transfer of responsibilities that are entered into under section 9, take the appropriate measures to give effect to the gradual transfer to Indigenous organizations of departmental responsibilities with respect to the development and provision of those services.*

Given that there was no longer a requirement to seek Cabinet approval, the AFNWA was asked to accelerate the development of its ten-year capital and operating budgets to be included in the 2022/23 federal budget process. This ten-year business plan provides detail on these budgets and associated programs to ensure a sustainable approach to service delivery for the communities that join AFNWA. As of January 15, 2022, seventeen communities within Mi'kma'ki and Wolastokuk have expressed interest in becoming members of the AFNWA.

3 CURRENT STATE of SERVICE

3.1 Overview

Access to safe drinking water and wastewater services are vital to the health of all Canadians.[6] The responsibility to ensure these services are provided typically falls to local means, whether through municipal, private, or natural systems. Consistently the physical infrastructure associated with these services are under an increasing level of stress which by extension is introducing new challenges to the provision of these services.

In Atlantic Canada, First Nations communities are individually responsible for operating the water and wastewater services in their communities and ensuring sufficient staff expertise and training. First Nations communities receive funding from the Federal Government of Canada though a lump sum payment which is administered by each First Nation. Capital and large maintenance projects are funded by the Federal Government of Canada on a project-by-project basis.

Canadian cities discharge over 150 billion liters of untreated and undertreated sewage yearly into surface waters[7]. In addition, there are over 900 drinking water advisories daily[8] across Canada which highlights the inability for consumers in those locations to access safe drinking water. While the advisories serve to warn consumers about real or potential health risks

[6] Office of the Auditor General of Canada. "Report of the Commissioner of the Environment and Sustainable Development to the House of Commons: Chapter 5 Drinking Water in First Nations Communities." Minister of Public Works and Government Services Canada, 2005. p.1

[7] Government of Canada. (2017) Wastewater Regulations Overview. Retrieved from Government of Canada: https://www.canada.ca/en/environment-climate-change/services/wastewater/regulations.html

[8] WaterToday.ca. (2018) Advisory Wrap Up. Retrieved from WaterToday.ca: http://www.watertoday.ca/index.asp

related to drinking water, eliminating these risks require constant oversight in operations, and the performance of infrastructure. Small communities present special challenges for operators to maintain regulatory standards. This is due to their remote locations, the availability of certified operators, and the lack of financial capacity to support infrastructure repairs and renewals. As a result, equipment and process failures increase which in turn leads to drinking water advisories, and the need for residents to boil water before consuming or seek alternative supply [e.g., bottled water]. The Government of Canada has recognized the need to improve the quality, and safety of water and wastewater services to Canadians and has recognized the need to introduce regulations, modernize institutions and provide funding for critical infrastructure to support First Nations vision of self-determination.[9]

3.2 Water and Wastewater Treatment in Atlantic First Nations

First Nations communities, through their Chiefs and Councils, are responsible for the design, construction, operation, and maintenance of their water and wastewater systems, for which, until December 2020, they assumed 20% of the operation and maintenance costs. In December 2020, the Government of Canada increased funding to cover 100% of the operations and maintenance costs based on a specific formula. Although this increase was welcome by First Nations communities, the funding was still short of full cost recovery as indicated by the Parliamentary Budget Office in their updated report of December 1 2021[10].

First Nations communities are also responsible for ensuring that water and wastewater systems are operated by trained operators, for monitoring drinking water and wastewater quality and for issuing drinking water advisories.

The Government of Canada supports water and wastewater services through funding of operations and capital projects. There are two types of water and wastewater delivery methods currently being offered in Atlantic First Nation communities:

- A First Nation community owns the water or wastewater system. Assets are funded by ISC. Public systems serve five or more residences or are public facilities.
- A nearby municipality supplies the First Nation with treated water or receives its wastewater under a Municipal Type Agreement[11] (MTA).

[9] Minister of Indigenous Services Mandate Letter (October 4, 2017)
[10] Office of the Parliamentary Budget Officer. Clean Water For First Nations: Is the Government Spending Enough? (December 1, 2021)
[11] A Municipal Type Agreement (MTA) is an agreement which enables an Atlantic First Nations to receive a portion, or all their water and/or wastewater services from an adjacent municipal utility system. In some cases, gaps exist under an MTA (e.g., responsibilities for ongoing maintenance and repair, basis of cost, and means to dispute

Due to the range in population and challenges of small system operations which do not benefit from economies of scale, the water and wastewater services delivered in each community vary in type, condition, and performance. In addition, there are differences in the levels of maintenance and support for the operators in the various communities. As a result, there are substantial gaps and lack of consistencies in the level of water and wastewater treatment standards, operation and maintenance costs, the methods of control and monitoring used (e.g., Supervisory Control and Data Acquisition (SCADA) systems), the level of autonomy and integration of cultural considerations.

3.3 Challenges to maintain Safe Drinking Water / Wastewater Effluent / Level of Service

First Nation communities continue to struggle daily with unsafe drinking water and wastewater due to several First Nation specific water-related challenges as highlighted in Table 7.

Table 7 First Nation Water-Related Challenges[12]

Challenges	**Brief Description**
Location	Many First Nations are in difficult terrain with smaller systems, making it technically difficult and costly to provide water and wastewater services. Water sources are often located off reserve, and it is difficult for First Nations to protect them.
Accountability	Federal Departments set requirements that make First Nations responsible for providing day-to-day drinking water. It is not clear who is ultimately accountable for the safety of the drinking water and wastewater effluent.
Costs & Financing	Providing drinking water and wastewater services is costly, and there is limited economy of scale. Water and wastewater facilities serve a small population. Poor economic conditions limit First Nations' access to financing for water and wastewater projects and to regular revenues to cover all operation and maintenance costs. This creates a built-in shortfall in funding available for the safety of drinking water.
Operators	It is difficult to find and retain qualified and certified operators. While programs such as the Circuit Rider Training Program have been around for more than 10 years, Operators may lack the incentive, or the community

resolution) and inconsistencies exist between MTAs. For some communities, the MTA is between ISC and the municipality.

[12] Office of the Auditor General of Canada. "Report of the Commissioner of the Environment and Sustainable Development to the House of Commons: Chapter 5 Drinking Water in First Nations Communities." Minister of Public Works and Government Services Canada, 2005. Exhibit 5.10

	supports to attend the required training. As such many Operators do not have the qualifications required. As most First Nations communities are small, there are few qualified candidates to enable time away from operations to pursue training or even take vacation.
Technical Standards	As there are no standard national regulations for drinking water, Provincial guidelines and regulations on drinking water are applied on an adhoc basis. With regard to wastewater, there are national standards but there is inconsistency conformance. Support to help meet standards and enforcement mechanisms is limited.
Population Growth	On-reserve population is expected to increase. Between 2006 – 2016 First Nations populations in Atlantic Canada more than doubled (+101.6%).[13]. Thirty-year forecasts (up to 2036) indicate that the average annual growth rate for First Nations will be higher than non-First Nations and remain younger than the general population.[14] This may lead to difficulty in estimating population growth and economic development in each community to plan water systems that can meet drinking water needs for 10 to 20 years.
Control & Oversight	Current regulatory, and administrative functions are distributed among multiple Federal, and Provincial organizations. As a result, First Nation lack the control to implement investments that meet their specific needs. Furthermore, the APC in partnership with Dalhousie University developed a regulatory framework for First Nations water and wastewater operations in Atlantic Canada based on the 16 elements defined by the Expert Panel on Safe Drinking Water for First Nations (2006).[15] This work led to a comprehensive set of Atlantic wide regulations for First Nations which were submitted to the Government of Canada in 2013 and updated in 2022 to include a Wabanaki world view. The challenge in the context of the AFNWA will be finding the appropriate body to enforce those regulations.
Funding	Funding for capital expenditures is allocated on a year-to-year basis. The funding provided to ISC regional offices for capital is unpredictable, allowing for uncertainty from the Government of Canada and First Nations. A lack of predictable funding has limited First Nations community's ability to proactively plan, construct and maintain water and wastewater infrastructure in an efficient manner that optimizes their systems.

[13] Statistics Canada (2019 June 24) "Aboriginal peoples in Canada: Key results from the 2016 Census." Retrieved from https://www150.statcan.gc.ca/n1/daily-quotidien/171025/dq171025a-eng.htm
[14] Statistic Canada (2019 September 21). "Projections of the Aboriginal Population and Households in Canada, 2011 to 2036." Retrieved from http://publications.gc.ca/collections/collection_2015/statcan/91-552-x2015001-eng.pdf
[15] Indian Affairs and Northern Development Canada (November 2006). Report of the Expert Panel on Safe Drinking Water for First Nations. https://publications.gc.ca/collections/Collection/R2-445-2006E2.pdf

These challenges are consistent with those identified in Atlantic First Nations communities by Chiefs, Elders and Operators in various engagements leading to the incorporation of the AFNWA.

Like the national findings, a primary concern for Atlantic First Nations is their inability to provide consistent high-quality water and wastewater services for their residents.[16] Other similar concerns have been identified through engagement which included the inability to meet proposed and heightened new quality regulations, standards and guidelines, a lack of enforceable regulations and common standards, the inability to provide a uniform level of service and equity among communities[17]. It was recognized that the delivery of water and wastewater services that do not meet regulatory standards negatively impacts public health, economic development, and protection of the environment.[18]

4 GOVERNANCE AND CORPORATE STRUCTURE OVERVIEW

4.1 Board of Directors

The AFNWA will be 100% owned by Atlantic First Nations and governed by a geographically represented Board of Directors, the majority of whom will be First Nations. The Board of Directors for the AFNWA will consist of up to 15 members with 12 representatives from First Nation communities and 3 technical experts.

The Board of Directors will also receive guidance from a permanent Elders Advisory Lodge. Elders play a crucial role in First Nations communities, as First Nations communities have both formal and informal leadership. To ensure the AFNWA is and remains aligned with First Nations values, culture and knowledge, the Elders will provide advice to the Board through an ex officio advisory committee. The Chair of the Elder Advisory Lodge will have the right to attend and participate in meetings of the Board as an ex officio, non-voting member. The term “Lodge” was chosen by the Elders because traditionally a lodge is where one seeks wisdom and sound advice.

While the number of directors is larger than is typical for municipal boards of similar populations, this number reflects the complexity and geography associated with the diverse number of communities participating in the AFNWA. It is also representative of the oversight associated with the magnitude of the capital and operating funding request. The AFNWA

[16] Halifax Water and Accelerator Inc. “Preliminary Fire Year Business Plan.” June 2018. P. 1
[17] Halifax Water and Accelerator Inc. “Preliminary Fire Year Business Plan.” June 2018. P.10
[18] Halifax Water and Accelerator Inc. “Corporate Structuring for Atlantic First Nations Water Authority.” August 2017 P.9.

Directors are elected by the owners, which are the communities. A Board of Directors is the senior level of management required by law to oversee the operations of the AFNWA. A formal corporate governance manual was approved by the AFNWA on November 6, 2020.

The AFNWA Board of Directors is also supported by three (3) Standing Committees. At present, the three Standing Committees are the Audit and Finance Committee, the Board Executive Committee, and the Environment, Health & Safety Committee. Standing Committees are established to support the Board in fulfilling its key stewardship responsibilities. The priorities and work of the Standing Committees aligns with governance priorities established annually by the Board. The delegated policymaking, decision-making and monitoring roles are clearly described in the Terms of Reference for each Standing Committee.

The Board Executive Committee assists the Board to:

- Continuously improve the effectiveness and efficiency of the Board's functioning through the adoption of progressive governance policies and practices
- Determine priorities and consider proposals for policies, governance policies and legislative/regulatory amendments
- Consider priorities for the AFNWA through the review of emerging issues and long-term trends
- Provide human resources oversight, including leadership in the annual evaluation and compensation of the CEO
- Consider appropriate levels of stakeholder involvement in relation to policy development/revision and strategic or annual business planning

The Audit and Finance Committee's purpose is to review the adequacy and effectiveness of these activities and to assist the Board in its oversight of:

- The AFNWA's financial affairs, policies, and strategies, including its annual and long-term financial plan
- The integrity of the AFNWA financial statements
- The external auditors' qualifications and independence
- The performance of the external auditors
- The adequacy and effectiveness of corporate controls
- Risk management
- The AFNWA's compliance with legal and regulatory requirements

The Environment, Health & Safety Committee assists the Board to:

- Fulfill its role in oversight and governance by reviewing,

reporting and making recommendations to the Board on the AFNWA's policies, standards, and practices with respect to the environment, occupational health, safety, and security,

- Monitor overall business conduct and ethics that reflects the AFNWA's commitment to its stakeholders

4.2 Full-Service Decentralized Corporate Structure

Corporate structure alternatives for the AFNWA were developed in 2017 under the guidance of APC through a contract with Halifax Water and Accelerator Inc. Of the four models reviewed, one stood out for service to First Nations communities, that being a Full Service-Decentralized structure.

The Full Service – Decentralized (FSD) organizational structure is a variation of the functional organizational structure that allows some functions to be centralized at one headquarter location and others to be decentralized to a regional level. The decentralized functionality allows the structure to align its core competences with the needs of communities in different geographic regions. Within the Canadian water and wastewater industry this organizational structure is often referred to as a "Hub and Spoke" model. The FSD structure is defined by the central support functions at a head office with a series of similar regional operations centers.

The organizational design of the decentralized structure is focused on local community operations staff that will be organized around six operational areas. The intent of the service areas is to create centers of operational knowledge and expertise in regions encompassing several communities close to each other. Doing so will place more day-to-day operational decision making nearer to the communities being served, as well as resources and operational knowledge. While the Manager of Operations will still have the ability to bring resources as required from anywhere within the utility, having resources and decision-making authority within each service area will create a sense of common mission among the various operators serving in a service area. It will also allow for more direct interaction with customers and foster relationships within the communities. The operations Hub and Spoke model is illustrated in Figure 2.

Figure 2- Operations Hub and Spoke Service Areas

The hub grouping is intended, to the degree possible, to keep all communities within a 2.5 - hour drive of each other. Other agencies that provide similar operations in First Nations communities indicate that 2.5 hours is viewed as a maximum travel distance to allow for efficiencies and collaboration among operators.[19]

Under the FSD model, it is proposed that local community operations staff be organized around the following geographic areas (with the number of assigned communities)[20].

- Unama'ki (Eskasoni, Potlotek, Membertou)
- Epekwitk (Lennox Island, Abegweit)
- Wolastoqiyik (Oromocto, Tobique, Kingsclear, St. Marys)
- Mlsigeneegatig (Esgenoôpetitj, Elsipogtog)
- We'kopekwitk (Millbrook, Sipekne'katik, Paqtnkek, Pictou Landing)
- Kespukwitk (Acadia, Glooscap)

[19] Ontario Clean Water Agency. *"Report to the Atlantic First Nations Water Authority – Review and Recommendations on the Business Case*." January 12, 2021
[20] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August 2017. P.23

The Hub and Spoke model can accommodate varying circumstances such as growing or declining populations or changing (geographic) groupings of participating communities.

Although reinforced through an independent options analysis conducted as part of the AFNWA Business Case, the FSD corporate structure was endorsed by Atlantic First Nations community representatives; the Chiefs, Elders and Operators. The FSD governing model has been identified as being the most aligned to First Nations cultural and spiritual considerations and having the potential to provide the highest level of service and direct benefits to the communities served. The analysis in this business case independently supports their conclusion that an FSD structure represents the option which best meets the non-financial evaluation criteria.

Non-Financial Key Success Factors	(FSC)	(FSD)	(FOS)	(TSS)	Current State
Safe Drinking Water & Wastewater Treatment					
Meet regulatory standards	✓	✓	✓	✓	
Manages or transfers service delivery risk	✓	✓	✓	✓	
Provides a direct accountability for quality of services to AFNWA organization and communities	✓	✓		✓	
Optimizes response time for issues and actions		✓			
Self-Governance					
Enables self-governance	✓	✓			
Focuses and fosters relationships and connections with local communities	✓	✓			✓
Creates efficiency in operations	✓	✓		✓	
Provides coordination & consistency across communities	✓	✓	✓		
Responsiveness to operations, engineering, corporate services, and communications and public relations		✓	✓		
Cultural and Spiritual					
AFN cultural and spiritual aspects can influence service delivery	✓	✓			✓
Financial Independence					
Establishes operational knowledge and expertise close to communities	✓	✓			✓
Creates FN asset equity and ownership	✓	✓			
Economic Development					
Stimulates economic development	✓	✓			
Creates FN employment, staffing, career development and mentorship	✓	✓		✓	
Model for First Nations					
Creates precedent for First Nations communities across Canada	✓	✓			
		Preferred Option			

Figure 3- Non-Financial Evaluation Summary

Embodied in the FSD model is the ability to establish a technically strong First Nations owned and operated organization with the capability to manage and operate their own water and wastewater facilities, and to deliver capital projects over the long term.

The AFNWA will adopt and adapt to best practices to ensure an efficient and effective approach to service delivery with a management team experienced in the operation of water and wastewater systems. The complete organization chart is attached as Appendix B with the recognition that Supervisors and Operators will be hired at the time of system transfer in 2022. Led by an experienced Chief Executive Officer (CEO), the management team is responsible to coordinate qualified water and wastewater employees to deliver on AFNWA's mission. Four departments are established within the utility with the following key responsibilities:

Department	Responsibilities
Corporate Services	Provides a series of administrative or back-office services that support the efficient operation of the Water Authority. These activities include finance, accounting, procurement, human resources, and information technology. The department is led by the Manager of Corporate Services.
Communications and Outreach	Provides a series of activities that communicate and promote Water Authority services, projects and activities to stakeholders including residents, First Nations leadership (i.e., Chiefs and Elders), regulatory agencies, federal government, the general public and the media. The overall responsibility for this department rest with the Manager of Communication and Outreach.
Operations	Provides the core activities to operate and maintain the water and wastewater infrastructure. In the proposed Hub and Spoke model, Operators would be located in the local community and report to the hub supervisor who in turn reports to the Superintendent of Operations, located in the corporate head office. To ensure an effective and efficient operation that engages digital technology, a technical services division would also support operations with a technical superintendent directing technologists with skills in industrial control systems and instrumentation. To ensure compliance with water and wastewater regulations, a Regulatory Compliance Coordinator will be an integral part of the Operations team. The Operations Engineer will also provide leadership in the development and implementation of water and wastewater safety [Nujo'tme'k Samuqwan] plans. The overall responsibility for this department is assigned to the Manager of Operations.
Engineering	Provides a series of technical services that support the short term and long-term management of the water and wastewater system assets. These activities include asset management (inventory, condition assessment and long-term planning), capital project delivery (design and construction management) and master planning for development and growth. The department would be led by the Manager of Engineering.

Figure 4- Key AFNWA Departmental Responsibilities

5 COST OF SERVICE/REVENUE REQUIREMENTS

AFNWA established its initial cost of service through a variety of different methods, mostly comprising of third-party consulting contracts but also by leveraging information acquired directly from participating First Nations communities and through knowledge sharing with established utilities. All information was then reviewed thoroughly to identify inconsistencies or deviations from industry standards. Final figures were also compared to historical funding; the projects identified in the capital budget were compared to a pre-existing list of anticipated upgrades, while the operational budget was compared to current levels of funding. While we acknowledge that operations has been under-resourced financially throughout the past, the historical figures provided a basis for comparison at an organizational level.

AFNWA has already developed a Memorandum of Understanding with FNFMB to establish an economic oversight agency, similar to a regulatory role as seen in other utility sectors in Canada. The continuation of discussions and the movement towards establishing this agency is considered critical to the future financial success of AFNWA when considering cost of service and projected revenue requirements.

6 WASTEWATER REGULATIONS

There are national regulations for wastewater effluent under the *Fisheries Act*, administered by Environment and Climate Change Canada (ECCC). The *Wastewater Systems Effluent Regulations* (WSER) prohibit discharge of deleterious substances such as contaminants in wastewater effluent into a receiving water body. These regulations allow wastewater system operators or owners to discharge effluent up to an established concentrations for various parameters as follows:

- Organics measured by carbonaceous biochemical oxygen demand (cBOD): 25 mg/L
- Solids measured by total suspended solids (TSS): 25 mg/L
- Total residual chlorine (TRC): 0.02 mg/L
- Un-ionized ammonia measured as N at 15 deg C: 1.25 mg/L

These parameters are consistent with the National Performance Standards recommended by The Canada-Wide Strategy for the Management of Municipal Wastewater Effluent (CCME Strategy), prepared by the Canadian Council of the Ministers of the Environment (CCME). As part of the CCME strategy, it is recommended that wastewater effluent meet, as a minimum the National Performance Standards, as well as setting effluent quality objectives through site-specific Environmental Risk Assessments (ERAs) of the impact of the treated effluent on the

receiving water quality. This takes into account the receiving water environment and its ability to assimilate the treated effluent from the wastewater treatment facilities and proximity to recreational, commercial and traditional personal harvest areas. As a result, treatment levels are established based on the most stringent of the National Performance Standards or ERA findings. Many provinces follow the CCME protocol by setting effluent targets following the CCME risk-based assessment of the receiving water.

The Atlantic Canada Water & Wastewater Association (ACWWA) Wastewater Guidelines have been accepted in most Atlantic provinces and can serve to standardize design guidelines and approaches. These guidelines are currently being updated to provide a climate change adaptation focus.

AFNWA, together with the Centre for Water Resources Studies (Dalhousie University), has prepared a report on *Water and Wastewater Regulatory Benchmarks: Compliance and Oversight Recommendations for the Atlantic First Nations Water Authority*. Through this project, CWRS consulted with the AFNWA Elders Advisory Lodge to develop a risk management cycle with Wabanaki knowledge and principles guiding the process. As a result, the risk management process has been named Nujo'tme'k Samuqwan (we take care of the water) to describe the water safety plans (WSP) and sanitation safety plans (SSP) and the risk management framework. This approach establishes a compliance standard framework (such as WSER) and a preventive risk management approach following the World Health Organization (WHO) safety plan framework.

It is proposed that AFNWA wastewater facilities be regulated by ECCC to comply with the WSER. Oversight of the risk-based management practices can be audited by a third-party contracted by AFNWA. Consultation with ECCC and Government of Canada is currently ongoing with the understanding that ECCC will continue to be the regulator for wastewater compliance.

In recognition that some communities are not in full compliance with WSER, it will be necessary to discuss steps to achieve compliance with the proposed effluent targets. In the implementation of the WSER, municipalities that were not in compliance had the option to apply for a Transitional Authorization (TA) which is valid for a period of 10, 20 or 30 years, depending on the level of risk associated with the effluent and receiving water. It is expected that TAs may need to be established to define the timeline for facilities to meet the effluent parameters. It should also be noted that ECCC has begun another round of consultation to look at possible changes to WSER for practical applications. AFNWA will be part of this consultation to provide feedback on future amendments.

7 DRINKING WATER REGULATIONS

For drinking water, Health Canada produces guidelines for drinking water quality for consideration of adoption at the provincial level. The main publication is the *Guidelines for Canadian Drinking Water Quality (GCDWQ)*. The regulators for municipal (non-First Nations) drinking water systems are at the provincial level. Provinces do not currently have jurisdiction over First Nations drinking water systems.

Federal legislation, such as the *Safe Drinking Water for First Nations Act (SDWFNA),* governing drinking water is being reviewed by the Assembly of First Nations (AFN). Once the SDWFNA is repealed and replaced, it is anticipated that national regulations will be developed for suitability in a First Nations context.

As noted in the previous section, AFNWA, together with the Centre for Water Resources Studies (Dalhousie University), has prepared a report on *Water and Wastewater Regulatory Benchmarks: Compliance and Oversight Recommendations for the Atlantic First Nations Water Authority*. An important task within Nujo'tme'k Samuqwan plans is the development of watershed protection plans, including identification of and plans for proper decommissioning of abandoned wells within community water supply aquifers.

There are significant differences between the provincial drinking water requirements for approvals/permits, reporting and even design guidelines. System classifications are similar but are administered provincially with the ability of an operator to transfer certification credentials from one jurisdiction to another.

The ACWWA Water Supply Guidelines have been accepted in most Atlantic provinces and can serve to standardize design guidelines and approaches. These guidelines are currently being updated to provide a climate change adaptation focus.

The CWRS report recommended the formation of a Compliance Unit to provide internal oversight of the drinking water compliance monitoring. Until the SDWFNA and accompanying regulations are finalized and implemented, this unit will provide the support needed for the operation of the drinking water systems. In the interim, regulations developed by CWRS that closely follow those in place through NS Environment and Climate Change will be adopted by AFNWA.

8 ECONOMIC OVERSIGHT FRAMEWORK

The concept of economic oversight of AFNWA has been discussed over the last several years but has taken on more significance with the signing of the Framework Agreement with Indigenous Services Canada [ISC] and Board approval of the Transition Implementation Plan [TIP] in June 2020. This is in recognition that the utility needs to be transparent and accountable to the federal government [all relevant funding agencies] and the First Nations communities it will serve.

Economic oversight of utilities in Canada is well developed. Oversight agencies typically focus on ensuring the utility achieves full cost recovery, value for money, fair and equitable rates, and service performance objectives. All of these themes are appropriate for economic oversight for the Atlantic First Nations Water Authority [AFNWA] with the exception of rate regulation. The aspect of user fees is not proposed for recovery of costs for the AFNWA with funding provided by the federal government of Canada. Notwithstanding, the principal of fiscal responsibility and expenditure oversight is still applicable.

The recent announcement by Indigenous Services Canada [ISC] that the federal government will increase funding for operations and maintenance of water and wastewater systems from 80 to 100 % of costs reflects a significant change to help improve service delivery in First Nations communities. In combination with capital funding, the Government of Canada has now become the sole source of funding for both operations and capital budgets. With this financial obligation resting with the federal government, ISC and AFNWA recognize that economic oversight will be necessary to ensure value for money and improvements in service delivery. AFNWA also recognizes that a water and wastewater utility is a natural monopoly and as such economic oversight is prudent.

Based on the concept of self-determination and a more direct relationship with the federal government, AFNWA sought to engage agencies at the national level as possible candidates for economic oversight. In addition to having a national mandate, AFNWA prefers that a First Nations organization provide oversight. In that regard, initial discussions with the First Nations Financial Management Board [FNFMB] have shown promise. The FNFMB is interested in taking on the role for economic oversight of the AFNWA and are currently seeking authority to execute an MOU with ISC and AFNWA. Of particular interest to AFNWA is their familiarity with First Nations and their deep understanding of financial matters related to the First Nations Fiscal Management Act [FNFMA]. It is also anticipated that they could draw on their relationships with other agencies under the FNFMA, as indicated in the chart below.

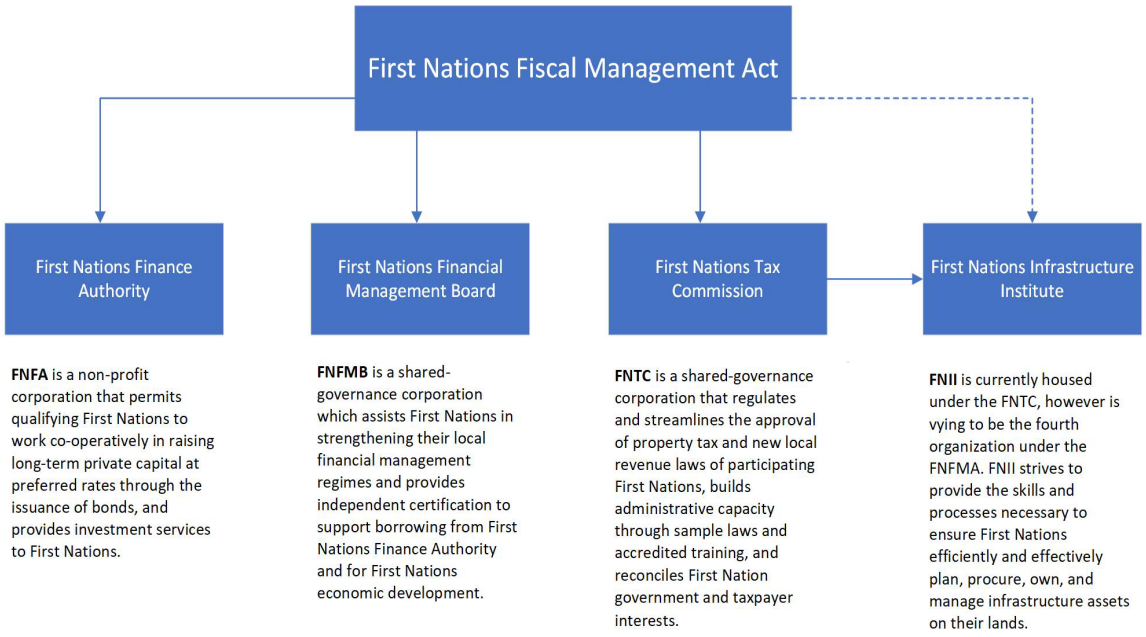


Figure 5- First Nations Fiscal Management Act Relationships Chart

The AFNWA prefers a simplified "One Window" approach for economic oversight and views the FNFMB as the prime agency to fulfill that role. It is acknowledged however that the FNFMB could call on its sister agencies under the FNFMA to provide support in relevant areas. For example, the newly formed agency First Nations Infrastructure Institute [FNII] could play a role in reviewing large scale infrastructure projects once formally incorporated under the FNFMA. As well, the First Nations Finance Authority [FNFA] could authorize debentures for capital financing should AFNWA achieve certification to the standards for non-profit organizations. AFNWA is currently reviewing these standards and adopting policies and practices to align accordingly.

It is also recognized that the FNFMB will require additional resources if it is tasked with the role of economic oversight. It is anticipated that FMB will seek funding support from the federal government in this regard.

In terms of roles and responsibilities for FNFMB, the following are potential areas of oversight:

1. Annual Capital and Operational Budgets with follow up reporting after the completion of each fiscal year. An application for Budget approval and the filing of an annual reconciliation report would be a standard requirement.
2. Oversight for establishment and maintenance of accounting framework, internal control policies, and enterprise-wide procedures consistent with GAAP and utility functionality.
3. Approval of Five-Year Business Plans.

4. Oversight for performance outcomes including levels of service [FNII could assist with this aspect].
5. Approval of Integrated Resource Plans [IRP] which are long term plans for system investments in relation to asset renewal, regulatory compliance, and growth. The IRP covers a 25-year period with updates every 5 years. FNII and FNFA could support this initiative.
6. Approval of Development Charges. Development Fees are widely accepted in relation to economic development initiatives in First Nations communities. A Fee would be assessed for Commercial users that receive service from AFNWA to ensure that growth pays for growth, a well-established cost causation principle. The AFNWA and FNII are currently exploring this option with Paqtnkek under existing federal legislation applicable to First Nations to ensure fair and equitable treatment for Business and Commercial Users. The First Nations Tax Commission has an established template for development charges and looks promising for support in this aspect.
7. Approval to secure debentures through FNFA.

The AFNWA Board approved an MOU with FNFMB and ISC at the Board meeting of January 26, 2022, giving direction to management to develop an economic oversight framework with FNFMB as the oversight agency.

9 FINANCIAL PROGRAMS & PRO FORMA BUDGETS

Capital and Operating budgets covering the years of 2022/23 – 2031/32 were developed in Fall 2021. The development process for the budgets included a series of workshops with the senior management team, leveraging a multitude of information and insight from external consultants and vendors. The senior management team then performed a final review that included reasonability testing from internal and external resources. Finally, the budget was presented, reviewed, and approved by the Board at a meeting held on January 26, 2022. The table below summarizes the total Capital and Operating Budget for the 10-year period, all in 2022 dollars.

Table 1- Summary of Total Capital and Operating Budget for 10-Year Period.

	03/31/2023	03/31/2024	03/31/2025	03/31/2026	03/31/2027	03/31/2028	03/31/2029	03/31/2030	03/31/2031	03/31/2032	TOTAL
TOTAL OPERATING EXPENSES	12,529,810	12,726,819	12,842,235	12,605,135	12,409,789	12,331,107	12,235,725	12,155,829	12,059,171	11,977,933	123,873,553
TOTAL CAPITAL EXPENSES	19,097,376	8,354,976	8,889,620	11,972,352	16,715,948	18,997,030	12,151,825	11,371,623	13,812,839	11,942,238	133,305,828
TOTAL COMBINED BUDGET	31,627,186	21,081,795	21,731,855	24,577,487	29,125,737	31,328,137	24,387,550	23,527,452	25,872,010	23,920,171	257,179,380

9.1 Capital Program

The capital program is led by the Engineering Department in close collaboration with the Operations and Corporate Services Departments. During the development of the Asset Management Plan (AMP), the prioritization of the capital works in terms of ranking the urgency of repairs, upgrades and replacements of assets followed a detailed evaluation framework. The ranking was based not only on age but, where possible, on condition, ability to meet required performance, health and safety, and environment impact. For future years, the process of prioritizing capital projects will draw on the information and input from the operations team with respect to condition of assets, performance, etc. as well as related street work in the communities. The 10-year capital budget establishes the available funding for various portfolios (e.g. watermain replacement for a neighbourhood). Input from the operations staff will allow ranking to focus on the critical sections or components (e.g. which sections of watermain to be replaced). Corporates Services will track expenditures and manage funds. External consultants and subject matter experts will be brought in as appropriate to assist in delivery of specialized or large projects and engineering studies. Some of the major projects undertaken this year are described below. Other initiatives include troubleshooting and leak detection assessments, review of design documents for construction of new or replacement facilities, participation in the development of regional water and wastewater guidelines, and undertaking reseacrh projects.

9.1.1 Asset Management Program

The Asset Management Program for AFNWA is a process to understand what water and wastewater assets are owned and operated by the utility and ensure these assets can be effectively managed over the long term. The water and wastewater assets will comprise the infrastructure for which the Government of Canada, through Indigenous Services Canada (ISC), is currently responsible for in the provision of service to First Nations communities. Once the transfer of responsibility is completed, AFNWA will take on the responsibility to provide these services on behalf of the Government of Canada to participating communities. The service areas that will not be transferred include individual septic systems and individual wells and water supplies. Although ISC will continue to support these services through other agencies and programs, AFNWA is able to support communities through planning and dvelopment studies to determine feasible and practical approaches to ensure good public health and environmental outcomes.

9.1.2 Asset Management Plan

Through a competitive proposal call process, AFNWA retained Dillon Consulting Limited to undertake the preparation of Asset Management Plans and 10-year capital budgets for seventeen participating communities.

Deliverables that were produced in the Asset Management Plan project included:

- Review of Industry Best Practice
- Asset Management Plan Framework
- The roadmap to maintain the AMP
- Detailed asset inventory and identification of data gaps
- Environmental Risk Assessment reports for wastewater treatment facilities
- Drinking water assessments (GUDI status)
- Operational Survey of surface appurtenances
- Capital projects prioritization process
- 10-year capital investment plan
- Capital plans for each community

Figure 6 is the graphic produced by Dillon in the Asset Management Framework document showing the four pillars that support the Asset Management Program and the associated elements in each pillar:

1. Information
    a. Inventory: a listing of infrastructure owned by the community
    b. Condition: useful information related to whether an asset is delivering the required service and the life expectancy of the asset
    c. System Performance: ability of the assets to meet the required Level of Service Standards
2. Lifecycle Process
    a. Level of Service: parameters that reflect the social, political, environmental and economic outcomes that the organization delivers
    b. Risk: potential for undesirable outcomes that result from an incident or event

c. Lifecycle Strategy: identified and prioritizes system interventions in consideration of existing infrastructure and technology, the condition of assets, and the target level of service requirements

3. Financial Sustainability

   a. Capital Plans: schedule for estimated cost and timing for asset replacement and major repairs

   b. Business Plan: used to develop the annual budget for the Asset Management system, which will be incorporated into AFNWA's overall annual budget and Business Plan

   c. Funding: required to maintain, replace or construct new infrastructure

4. People & Leadership

   a. AFNWA Staff: will contribute to the success of the asset management system

   b. AFNWA Board: composed of 12 First Nations representatives and three technical experts that help oversee the operations of AFNWA

   c. Elders Advisory Lodge: provides direction concerning cultural values and knowledge for the purposes of the Asset Management System

   d. Communities: key participants in supporting the operations of the assets and provision of vital information related to the performance of the water and wastewater services

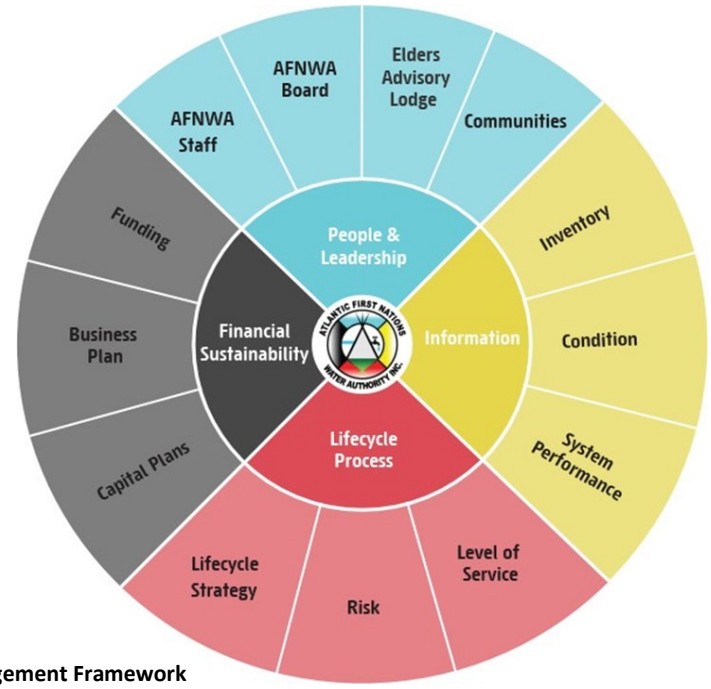


Figure 6- Asset Management Framework

A separate proposal call was used to retain Eramosa Engineering Inc. to conduct a SCADA Master Plan project. All participating communities use SCADA (Supervisory Control and Data Acquisition) systems in some fashion. Eramosa conducted a site visit to each community to document the current state of the SCADA system in use. For communities with a Municipal Type Service Agreement (MTSA), the field team assessed the SCADA system belonging to the municipality providing municipal services.

The deliverables from this project included:

- The current state of SCADA systems in each community
- RTU and HMI Desired State Technical Memoranda
- Data Management and Alarm Management Technical Memoranda
- Communications, Architecture, and Cybersecurity Desired State Technical Memoranda
- SCADA, Process Control and Communications Master Plan Final Report including an implementation plan to upgrade systems over a five-year period to achieve the desired state.

9.1.3 Ten-Year Capital Budget – General Overview

In preparation of the transfer and funding agreements with the Government of Canada, AFNWA established a 10-year capital budget based on the work completed by Dillon Consulting and Eramosa Engineering, as well other projects identified by AFNWA management. These include engineering studies, investigations, equipment and vehicles that are capital in nature. AFNWA has defined a project as capital if it relates to an asset with a value exceeding $5,000 and a useful life exceeding one year. The establishment of the 10-year capital budget funding reflects when assets are expected to require upgrades or replacement, based on the best available information and industry best practice.

The field program in the Asset Management Plan project documented the observed conditions of various asset elements. For buried infrastructure or other assets in which asset conditions were not easily observed, the age of the asset, together with the anticipated useful life of that type of asset, was the key factor in establishing the replacement dates in the capital plan.

The asset condition is a key factor in adjusting the scheduled replacement dates in the capital plan. Additionally, a number of projects were “combined” into the same year to take advantage of undertaking work in the same area in the community to minimize the impact on the community and for potential cost savings due to bundling of projects. It should be noted that the scheduling of projects did not have the advantage of consulting with communities so that water and wastewater infrastructure work can be timed to coincide with other work such as road rehabilitation or housing developments being planned in the community. This coordination effort is planned to be undertaken once the capital plan has been accepted by the Government of Canada to realize additional synergies and avoid scheduling conflicts.

The capital program developed by Dillon and as displayed in Figure 7 can be broken down into the following categories:

SCADA System

- Replacement of components that are obsolete or incompatible with the desired state in the SCADA Master Plan
- Upgrade of software to most current version
- Installation of firewalls and encryption software
- Addition of servers to provide backup
- Provision of new equipment where SCADA systems had previously not been provided, such as wastewater lift stations

Wastewater Collection

- Replacement or upgrade of lift stations, sewers and manholes at end of useful life, to meet required performance or non-compliance due to overflows or health and safety requirements

Wastewater Treatment

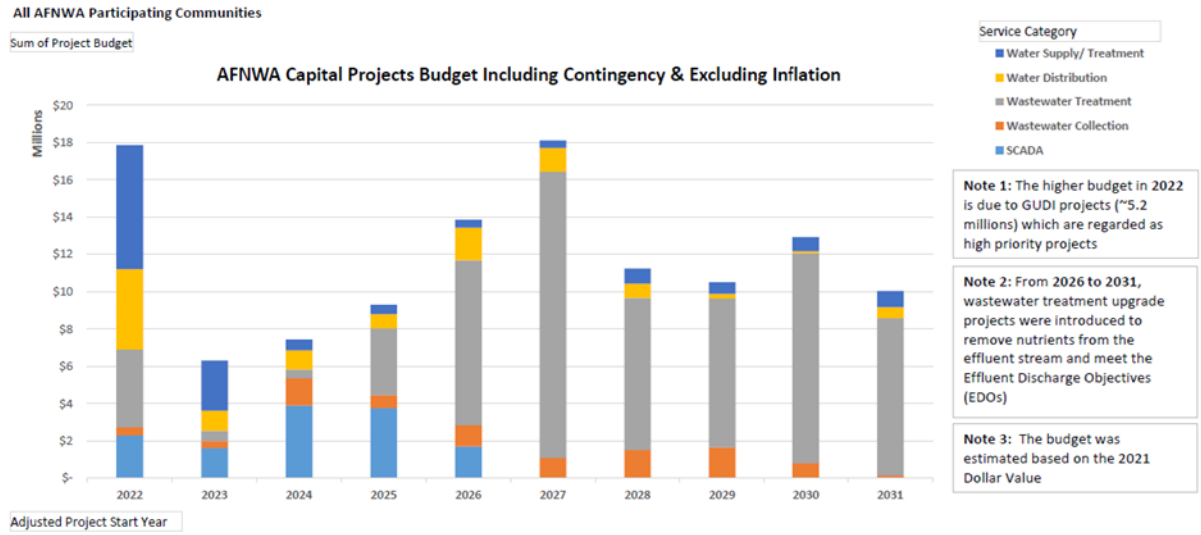
- Replacement or upgrade of wastewater treatment facilities to meet required performance as per WSER or anticipated effluent discharge objectives from Environmental Risk Assessments

Water Distribution

- Replacement or upgrade of water supplies, reservoirs, booster stations, valves and piping at end of useful life, to meet required performance or for compliance with the Guidelines for Canadian Drinking Water Quality [GCDWQ]

Water Supply/Treatment

- Addition of treatment components to meet GUDI designation of groundwater supplies
- Upgrades to water treatment facilities at end of useful life, to meet required performance or for compliance with the GCDWQ



All AFNWA Participating Communities

Row Labels	SCADA	Wastewater Collection	Wastewater Treatment	Water Distribution	Water Supply/ Treatment	Grand Total	Grand Total Including Inflation (Note 4)
2022	$ 2,293,023	$ 452,454	$ 4,153,972	$ 4,315,099	$ 6,628,050	$ 17,842,600	$ 18,300,130
2023	$ 1,619,552	$ 374,692	$ 553,609	$ 1,068,294	$ 2,691,053	$ 6,307,199	$ 6,643,142
2024	$ 3,903,978	$ 1,466,990	$ 462,286	$ 1,029,760	$ 562,752	$ 7,425,766	$ 8,058,562
2025	$ 3,760,777	$ 707,390	$ 3,570,336	$ 764,531	$ 489,091	$ 9,292,125	$ 10,338,361
2026	$ 1,708,389	$ 1,138,952	$ 8,839,864	$ 1,738,616	$ 436,993	$ 13,862,814	$ 15,732,108
2027		$ 1,093,051	$ 15,344,599	$ 1,283,800	$ 380,476	$ 18,101,926	$ 20,992,684
2028		$ 1,509,291	$ 8,162,312	$ 764,862	$ 808,693	$ 11,245,158	$ 13,366,959
2029		$ 1,659,902	$ 7,987,193	$ 230,986	$ 624,690	$ 10,502,771	$ 12,796,606
2030		$ 793,684	$ 11,271,612	$ 117,543	$ 748,310	$ 12,931,149	$ 16,149,233
2031		$ 142,185	$ 8,444,257	$ 593,323	$ 867,255	$ 10,047,021	$ 12,861,036
Grand Total	**$ 13,285,719**	**$ 9,338,593**	**$ 68,790,041**	**$ 11,906,814**	**$ 14,237,362**	**$ 117,558,529**	**$ 135,238,822**

Note 4: The inflated budget was calculated based on a 2.5% (Dillon Consulting) inflation rate for all projects excluding SCADA projects which increased to 3.0% (Eramosa Engineering)

Figure *7*- Capital Program

A detailed listing of the capital projects is presented in Appendix D2.

Figure 8 shows the Replacement Assets Values (RAV) by Category based on November 2021 dollar value, excluding the SCADA system which crosscuts all asset classes.

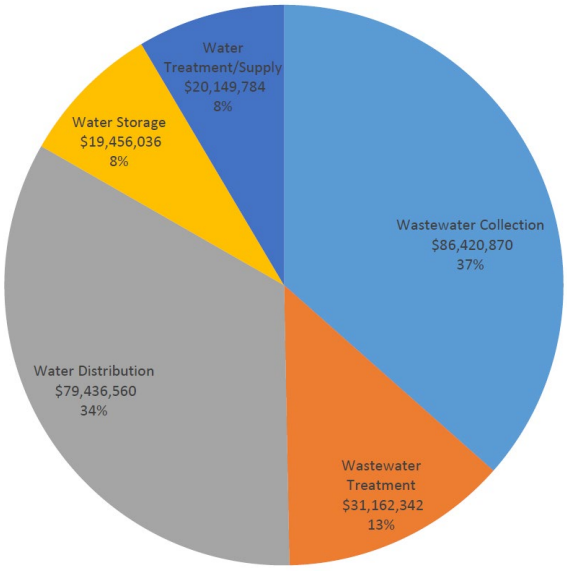


Figure 7- Replacement Assets Values (RAV) by Category base on November 2021 dollar value, excluding the SCADA system

9.1.4 Major Projects

The SCADA Master Plan project produced a desired state for the SCADA systems which would allow AFNWA to monitor operations in real time and collect data for system analysis and asset management. The desired state will also enhance support and backup by Headquarters and other communities in the service districts. Eramosa documented the current state of the SCADA systems in the participating communities and identified a significant gap between the current state and the desired state for the SCADA systems. A number of projects were established to address this need. Some of these projects will be implemented at the corporate level (i.e., by the utility for all communities). Other projects were identified to incorporate instrumentation in the wastewater collection systems, specifically lift stations. While some projects can be delayed until near the end of the useful life of components, some projects address the vulnerability in cybersecurity which is viewed to be a high priority. Due to the sensitive nature of these projects, details are not provided within this document. An overview is provided in Section 10.1.4. SCADA Master Plan Implementation.

The Canada-Wide Strategy for the Management of Municipal Wastewater Effluent, prepared by the Canadian Council of the Ministers of the Environment (CCME), established the National

Performance Standards for wastewater effluent limits for Carbonaceous Biochemical Oxygen Demand (cBOD) of 25 mg/L, Total Suspended Solids (TSS) of 25 mg/L, and Total Residual Chlorine (TRC) of 0.02 mg/L. As part of the CCME strategy, it is recommended that effluent quality objectives be established through site-specific Environmental Risk Assessments (ERAs) of the impact of the treated effluent on the receiving water quality. This takes into account the receiving water environment and its ability to assimilate the treated effluent from the wastewater treatment facilities. As a result, treatment levels are established based on the most stringent of the National Performance Standards or ERA findings. AFNWA has committed to following this protocol. The ERAs undertaken for each community with a wastewater treatment facility were used to establish effluent discharge objectives. A number of projects were identified to meet with aligning the treatment performance to meet the ERA requirements. Most of these involve nutrient reduction/removal (i.e., nitrogen and/or phosphorus) or a higher quality effluent in terms of cBOD and TSS (i.e., tertiary treatment). Many of the wastewater treatment facilities are lagoons, which are not known for their ability to reduce nutrients and are typically not able to meet tertiary treatment levels. Projects may include conversion of lagoon treatment to an activated sludge or other mechanical treatment technology, or to add a polishing stage to address the specific nutrient of effluent quality parameters. A listing of the projects stemming from the ERAs is presented in Appendix D.

Groundwater supplies were assessed to determine if they will have a GUDI (Groundwater Under Direct Influence of surface water) designation. Unless there is documentation or compelling information that a well is non-GUDI, engineering practice dictates that the wells should be considered GUDI. Projects were identified by Dillon to provide additional treatment where wells are considered GUDI, if the treatment components are not in place already. Once the GUDI assessments have been finalized, it may be possible to eliminate some GUDI-related projects. The implementation of some GUDI projects were timed to allow for further GUDI assessments to be completed. A listing of GUDI projects is presented in Appendix D3.

Some feasibility studies, inspections and related projects were also identified by AFNWA management for the capital program, which were in addition to the scope identified by Dillon or Eramosa, as follows:

Table 2- Additional Capital Programs for Ten Year Budget

Project Description	Budget
Hydraulic studies • Computer modeling of potable water systems to establish the pressure profiles at various critical flow conditions • Budget based on $375,000 over 3 years, then $25,500 in each subsequent year	$553,500
Lagoon sludge depth studies • Investigation of the depth of settled sludge in wastewater lagoons for the purposes of planning cleanout activities • Budget based on $31,500 for each community with lagoon except newly constructed ones	$126,000
Lagoon sludge cleanouts • Removal (dredging), dewatering (if appropriate), transportation and final disposal of settled sludge from wastewater lagoons • Budget based on remaining mass of accumulated solids estimated from flow and assumed solids concentration entering the lagoon, to be confirmed by the sludge depth studies	$1,842,000
Reservoir inspection • Inspection program to establish the condition of the potable water reservoir using remote-controlled robotic cameras or divers • Budget based on inspection of reservoirs in two communities in each of the first three years ($128,000 per year) and one community in the seven subsequent years ($64,000 per year)	$832,000
Master meter program • Purchase and installation of meters for the purpose of monitoring water usage in leak detection programs • Budget based on the implementation in five communities for each of the first three years ($125,000 per year) and two communities per year for the next three years ($50,000 per year)	$525,000
Integrated Resource Plan • Development of an Integrated Resource Plan for the communities based on the asset inventories and capacities and projecting future development needs • Based on $3,000,000 over two years at years 4 and 5, and $1,000,000 at year 10	$4,000,000

9.1.5 Integrated Resource Plan

In addition to taking a long term view [25 year] on investments for asset renewal and regulatory compliance, the Integrated Resource Plan (IRP) will identify growth initiatives in the communities and constraints with respect to water and wastewater capacities. The result of the IRP will ensure that upgrades and replacements are timed to remove barriers to growth and that conveyance and treatment capacities are established in anticipation of future needs. The

IRP will also consider any proposed future regulatory requirements and climate change adaptation to address vulnerabilities.

The IRP will be conducted in years 4 and 5, which will allow the utility to follow the current Asset Management Plan project priorities. Requirements to satisfy growth were factored into the listing of capital projects at a high level, but there is a significant piece of work that has not been done. This project will serve to collect the data and ensure that future planning is based on a solid understanding of potential growth, future performance levels and capacity limitations in the existing systems.

9.2 Ten-Year Operating Budgets

The Operating Budget was developed to cover the period from 2022/23 to 2031/32, as shown in Appendix E and summarized in the Table below. The budget drew from a range of sources to identify the basis for estimation. The final budget was then reviewed multiple times to establish reasonability by comparison to industry best practices and historical expenditures.

Table 3- (10 – Year Operating and Capital Budgets)

	03/31/2023	03/31/2024	03/31/2025	03/31/2026	03/31/2027	03/31/2028	03/31/2029	03/31/2030	03/31/2031	03/31/2032	TOTAL
OPERATING EXPENSES											
SALARIES & BENEFITS	4,613,641	4,613,641	4,531,236	4,464,940	4,382,536	4,316,239	4,233,835	4,167,539	4,085,134	4,018,838	43,427,579
PROFESSIONAL DEVELOPMENT	306,316	457,765	407,765	246,382	246,382	246,382	246,382	246,382	246,382	246,382	2,896,521
TRAVEL	368,140	368,140	368,140	368,140	368,140	368,140	368,140	368,140	368,140	368,140	3,681,395
CONTRACT SERVICES	4,286,656	4,337,216	4,438,336	4,438,336	4,337,216	4,337,216	4,337,216	4,337,216	4,337,216	4,337,216	43,523,840
UTILITIES & ADMIN SERVICES	1,338,053	1,338,053	1,418,408	1,418,408	1,418,408	1,418,408	1,418,408	1,418,408	1,418,408	1,418,408	14,023,374
PROFESSIONAL SERVICES	589,174	589,174	539,174	539,174	539,174	539,174	539,174	539,174	539,174	539,174	5,491,743
COMMUNITY OUTREACH	115,250	115,250	87,750	87,750	87,750	87,750	87,750	87,750	87,750	87,750	932,500
INFORMATION SERVICES	80,740	75,740	74,925	74,110	73,296	72,481	71,666	70,851	70,036	69,222	733,067
FLEET COSTS	257,000	257,000	257,000	257,000	257,000	257,000	257,000	257,000	257,000	257,000	2,570,000
CHEMICALS	83,500	83,500	83,500	83,500	83,500	83,500	83,500	83,500	83,500	83,500	835,000
OTHER PROFESSIONAL SERVICES	266,340	266,340	411,000	402,394	391,387	379,816	367,654	354,869	341,430	327,303	3,508,534
BOARD COMPENSATION	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	2,250,000
TOTAL OPERATING EXPENSES	**12,529,810**	**12,726,819**	**12,842,235**	**12,605,135**	**12,409,789**	**12,331,107**	**12,235,725**	**12,155,829**	**12,059,171**	**11,977,933**	**123,873,553**
CAPITAL ITEMS											
CAPITAL PROGRAMS	1,254,777	2,047,777	1,463,855	2,680,226	2,853,134	895,104	906,667	868,852	881,691	1,895,217	15,747,299
CAPITAL PROJECTS <$20K	364,357	160,944	178,296	258,346	213,842	463,178	340,286	240,647	232,083	65,676	2,517,654
CAPITAL PROJECTS - AMP/SCADA	17,478,242	6,146,255	7,247,470	9,033,780	13,648,973	17,638,748	10,904,872	10,262,124	12,699,065	9,981,345	115,040,874
TOTAL CAPITAL EXPENSES	**19,097,376**	**8,354,976**	**8,889,620**	**11,972,352**	**16,715,948**	**18,997,030**	**12,151,825**	**11,371,623**	**13,812,839**	**11,942,238**	**133,305,828**

Some of the key operations cost centres and primary sources of estimation were:

- Payroll: Management created an organizational chart and identified critical positions. These positions were then brought to an HR firm (Karen Reedman) and a salary framework was established based on the Korn Ferry methodology and a national benchmark to determine salary ranges for each position. The adopted Pension and Benefit packages are comparable to the industry benchmark as well as the individual First Nations communities. In recognition that Community Operators will be employed

with AFNWA, it is our intention to provide a total compensation pakage that is as good or better than their current level of benefits.

- Other relevant staffing costs include professional development and travel which was estimated based on actual course costs and anticipated travel requirements.
- Contract Services: A range of services including water quality testing, hired equipment, road repairs, trenching and excavation, snow removal, trucking liquid biosolids, etc. The budget was based on input from Halifax Water, quotations from venders, and historical costs from the communities.
- Utilities and administration expenses are inclusive of telecommunication expenses, utilities, repair and maintenance, office and sanitary supplies, furniture and equipment, and insurance. All budgeted items were derived from vendor quotations and assessed for reasonability and completeness.
- Professional services includes audit and legal budgets, as well as engineering consulting contracts for leak detection and troubleshooting. Estimations were based on actual audit and legal fees, and an estimation of consulting hours required from external engineering firms.
- Community Outreach includes all Public Relations, Advertising/Promotion, and Sponsorships. Figures were established based on an estimation provided by our Communications team, on a community-by-community basis.
- Information Services houses the full budgets for all employee software as well as the cost to maintain servers. All costs were obtained directly from service providers.
- Fleet costs is inclusive of all costs to operate and maintain a vehicle, namely fuel, repairs and routine maintenance. Estimations were provided from Halifax Water based on their actual costs to operate.
- Chemical costs were estimated based on the volume of chemicals used in a community, with current rates, using Halifax Water as a reference test for reasonability in total expenditure.
- Other Professional Services is comprised mainly of occupancy expenses such as office leases, or bank interest on term financing for an owned premise. It also includes insurance for Directors, General Liability, and Errors & Omissions.
- Board Compensation is inclusive of per diems, stipends and travel, for 15 Board Members, 3 Board Committees, and an Elders Advisory Lodge.

9.3 Debt Strategy

AFNWA is expected to be fully funded for operational and capital projects within the communities with commitments from the federal government. The only capital asset that will require debt financing is an investment for a future corporate headquarters to be constructed in the 2023-2024 fiscal year at the Power Centre of Millbrook First Nation.

AFNWA is in the process of refining policies to adhere to the approved standards for Not-for-Profit Organizations, as set forth by FNFMB. FNFMB has requested an amendment to the current FNFMA legislation that would permit Not-for-Profit Organizations to have access to the FNFA debentures, similar to First Nations Band Offices who are certified under similar standards. Access to the FNFA debentures would allow AFNWA to secure financing at a preferential rate for any future investments in capital projects. It is anticipated that certification will be in place before completion of the headquarters facility in 2024 to allow debt servicing through FNFMA. Alternatively, AFNWA could seek debt financing through a chartered bank or enter into a leasing arrangement with the Millbrook First Nation.

A Memorandum of Understanding has been signed with FNFMB to establish a framework for economic oversight of AFNWA. This oversight would ensure that AFNWA restricts the use of debt financing only when necessary, and only when repayment can be guaranteed through established funding sources. This oversight will be governed largely by key financial performance indicators and industry benchmarks.

10 OPERATIONS SERVICE STRATEGY

10.1.1 Hub and Spoke

AFNWA with the guidance of the Board of Directors decided on a full service decentralized corporate structure that incorporates a Hub and Spoke model for service delivery, as discussed in Section 4.2. This model has been used successfully in other areas in Canada, most notably by the Ontario Clean Water Agency [OCWA]. This model allows for a closer relationship with communities and a faster localized response within each service area across Wabanaki territory It also is a very scalable such that AFNWA can add communities in the future if they wish to participate.

The headquarters for AFNWA is centrally located in Millbrook First Nation giving no more than 4 to 5 hours maximum from any First Nations community. All senior management and most of the non-operational staff will be located in this central hub.

The Service Areas for AFNWA, as referenced in Section 4.2 were chosen for optimal service to current participating communities and incorporation of other communities in the future and include:

- Unama'ki (Cape Breton)
- Epekwitk (Prince Edward Island)
- Wolastokuk (New Brunswick West)
- Mlsigeneegatig (New Brunswick East)
- We'kopekwitk (Nova Scotia East)
- Kespukwitk (Nova Scotia West)

An office will be established in the hub community of each service area where the supervisor will direct staff and establish a close working relationship with the Public Works departments of participating communities. Supervisors will report directly to the Superintendent of Operations who will be stationed at the headquarters in Millbrook. It is proposed that all Operators within the service area will be cross trained in each system within their Hub in order to facilitate staffing for vacations, sick days, or emergency situations.

10.1.2 Water and Sanitation Safety Plans

AFNWA hired Dalhousie CWRS to develop a framework for water and wastewater quality regulations and Nujo'tme'k Samuqwan Safety Plans. The regulatory aspect included the recognition that Environment and Climate Change Canada would continue the role of regulator for compliance with the federal Wastewater Systems Effluent Regulations [WSER]. In recognition that there is no national regulatory agency or national regulations for drinking water at present, CWRS presented options for an interim oversight arrangement until such time that a national regulator is identified. It is expected that national regulations and a corresponding regulator will emerge after the repeal and replacement of the Safe Drinking Water for First Nations Act. CWRS suggested that the First Nations and Inuit Health Branch of ISC, with support of the ISC-Regional Office, could play an interim oversight role for AFNWA to ensure conformance to the Guidelines for Canadian Drinking Water Quality [GCDWQ]. CWRS are also developing a set of interim regulations consistent with the GCDWQ and based to a large extent on those utilized in Nova Scotia. Figure 9 below illustrates the framework for oversight of drinking water and wastewater quality.

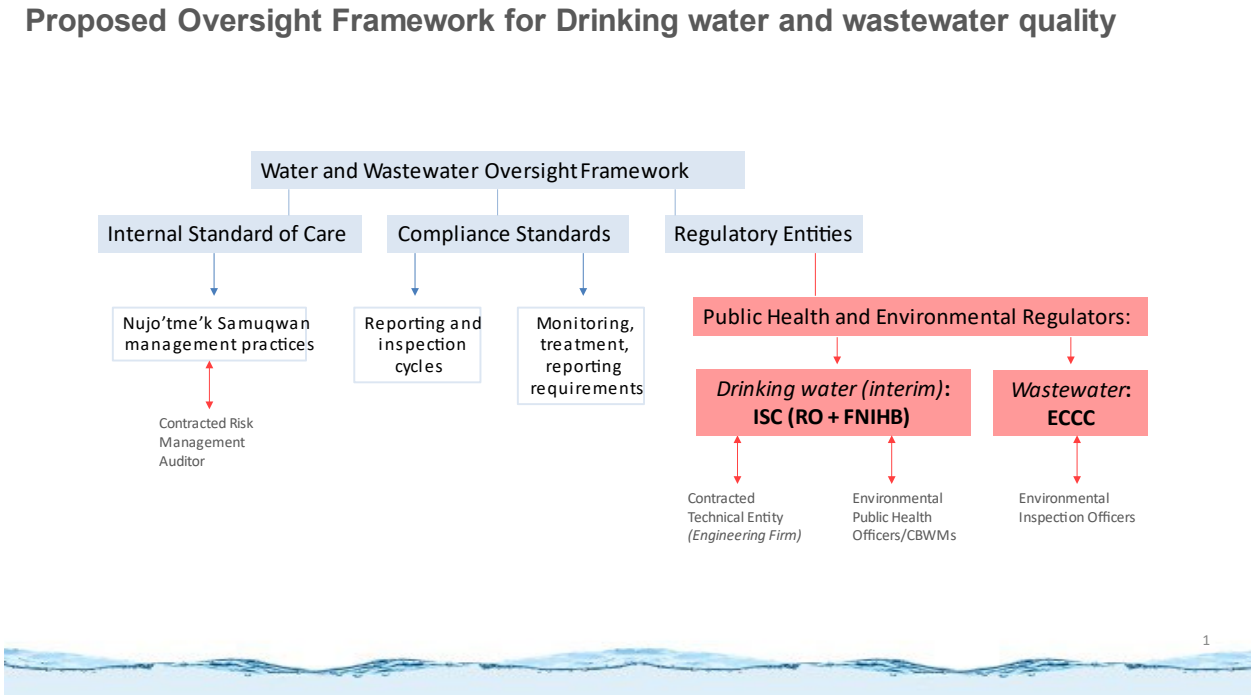


Figure 8- Proposed Oversight Framework for Drinking Water and Wastewater Quality

Complementary to the regulatory framework, the Nujo'tme'k Samuqwan safety plans for water and wastewater quality assurance are consistent with the World Health Organization model and incorporates a Wabanaki worldview, as illustrated in Figure 10 .

Figure 9- Nujo'tmek Samuqwan Safety Plans

With feedback from AFNWA staff, Indigenous Services Canada, and the Elders Advisory Lodge, CWRS completed their work with recommendations for implementation approved by the Board at the January 26, 2022, meeting.

10.1.3 Emergency Response Plans

AFNWA are in the process of building a global Emergency Response Plan inclusive of emergency response plans for each of the member communities. Individual response plans need to be developed in partnership with member communities as any major disaster that would put AFNWA into an emergency situation would also impact the First Nation(s) and more than likely the whole region. Examples would be flooding, storm surge, major power outages, etc.

For AFNWA, the response to emergency events will be based on the Incident Command System and related emergency management systems. Our long-term goal would be to have all AFNWA staff trained up to Incident Command System Level 300 including all operators and supervisors. All superintendents and senior management would be expected to take Level 400 training. Various staff will take specialized training in emergency management based on their specific positions. This training would be targeted to the roles performed during an emergency such as administrative assistants within AFNWA taking scribe training or Finance staff taking Emergency Operations Centre Logistics training.

AFNWA will also encourage and support any community staff who would be working alongside utility staff such as public works. An inventory of all available equipment and resources that the First Nations can make available to AFNWA will be documented as well as internal resources and those from external suppliers.

It would be expected the operators or supervisors would make themselves available to sit on the regional or municipal emergency management teams in their regions. AFNWA will also coordinate its activities with provincial and federal emergency response teams recognizing that emegency events have no boundaries.

10.1.4 SCADA Master Plan Implementation

One of the most important components required to operate and monitor close to 100 water and wastewater facilities geographically separated across 17 communities and 3 provinces is a reliable Supervisory Control and Data Acquisition (SCADA) system. A SCADA, Process Control, and Communications Master Plan (SCADA Master Plan) was developed in 2021 and included a

comprehensive 5-year implementation plan. The implementation plan calls for the migration of individual SCADA systems presently in use by each individual community to a common set of products, platforms, and systems that the Atlantic First Nations Water Authority [AFNWA] could use to support a standardized and integrated approach to operations as depicted in Figure 11.

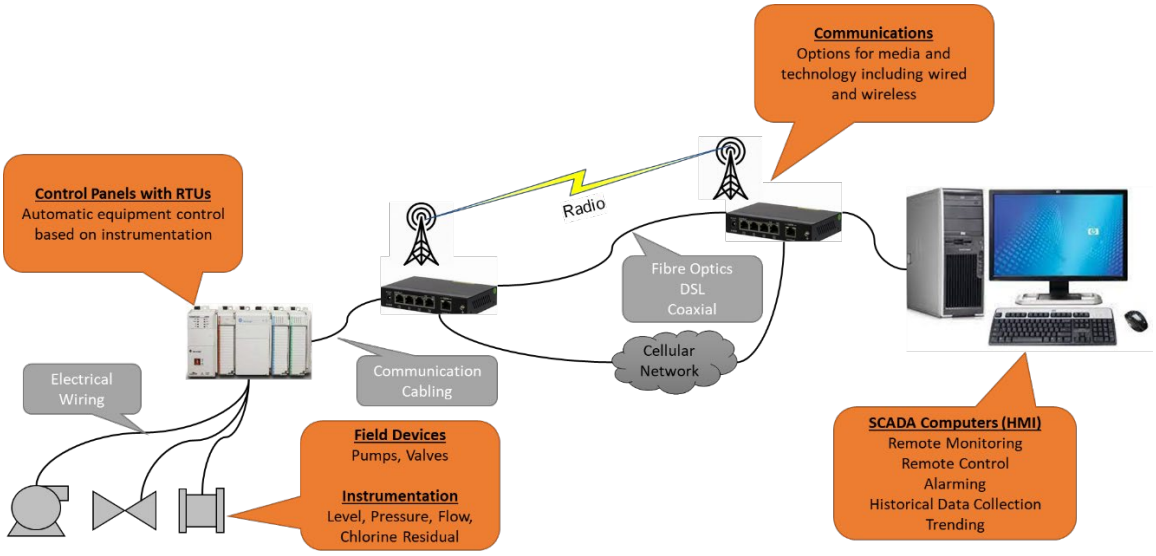


Figure 10- Components of SCADA System

The SCADA master plan, carried out by Eramosa Engineering and the AFNWA Engineering Department, involved 3 main phases. The first was to identify all existing SCADA related infrastructure in service presently and assess its condition as part of the Current State Evaluation. An important step through this process involved engaging community representatives to better understand their systems, what's working well, what isn't working well and why, and to identify any suggestions for improvement. The second was to develop a set of options for the Desired State of the SCADA system based on best practices, published standards, industry trends, alignment with AFNWA business objectives and the end user's needs. Options were evaluated in detail with recommendations made for several key technical aspects of the overall SCADA system including hardware, software, networked communications, and cybersecurity. The final phase of the project was to develop the Master Plan complete with technical recommendations, capital and operating expenditure plans, and a recommended implementation approach and overall schedule.

Key technical considerations made when developing the Desired State recommendations are summarized in the list below.

- Investment to Date – hardware and software upgrades can be complex and costly and should not be done without first considering whether or not the existing assets would meet the needs of the AFNWA as a larger utility.

- Local Support – including both distributors for hardware and software technology selected but also for integrator support of the proposed upgrades and long-term maintenance of the SCADA systems.

- Network Availability – high-speed communications are an essential component of a robust and reliable SCADA system. A review of the best-suited technologies and their availability based on geography was performed to shortlist options.

- Architecture Design – options reviewed ranged from simple on-site SCADA computers to a fully cloud-hosted solution. The final recommendation was made based on the future of technology, a desire to be able to operate remotely including from corporate headquarters, and with consideration for redundancy.

- Cybersecurity – water and wastewater utilities are not immune to evolving online security threats. Not only were all technical product recommendations made with a heavy focus on cybersecurity, but policies and procedures were recommended to enhance both existing and recommended SCADA components to better protect the critical infrastructure servicing the community's water and wastewater systems.

Additional recommendations were made that went beyond the core of SCADA components including a set of standards to be applied to all future capital upgrades and maintenance processes and technical training for operations and management personnel.

Overall, the adoption of the recommendations made within the SCADA Master Plan, as outlined in Figure 12, and the subsequent implementation of the proposed upgrades will set the AFNWA up for the future of technology and leading-edge operation of critical water and wastewater systems. The total cost for implementation over a five-year period was estimated at $13,286,000 excluding inflation.

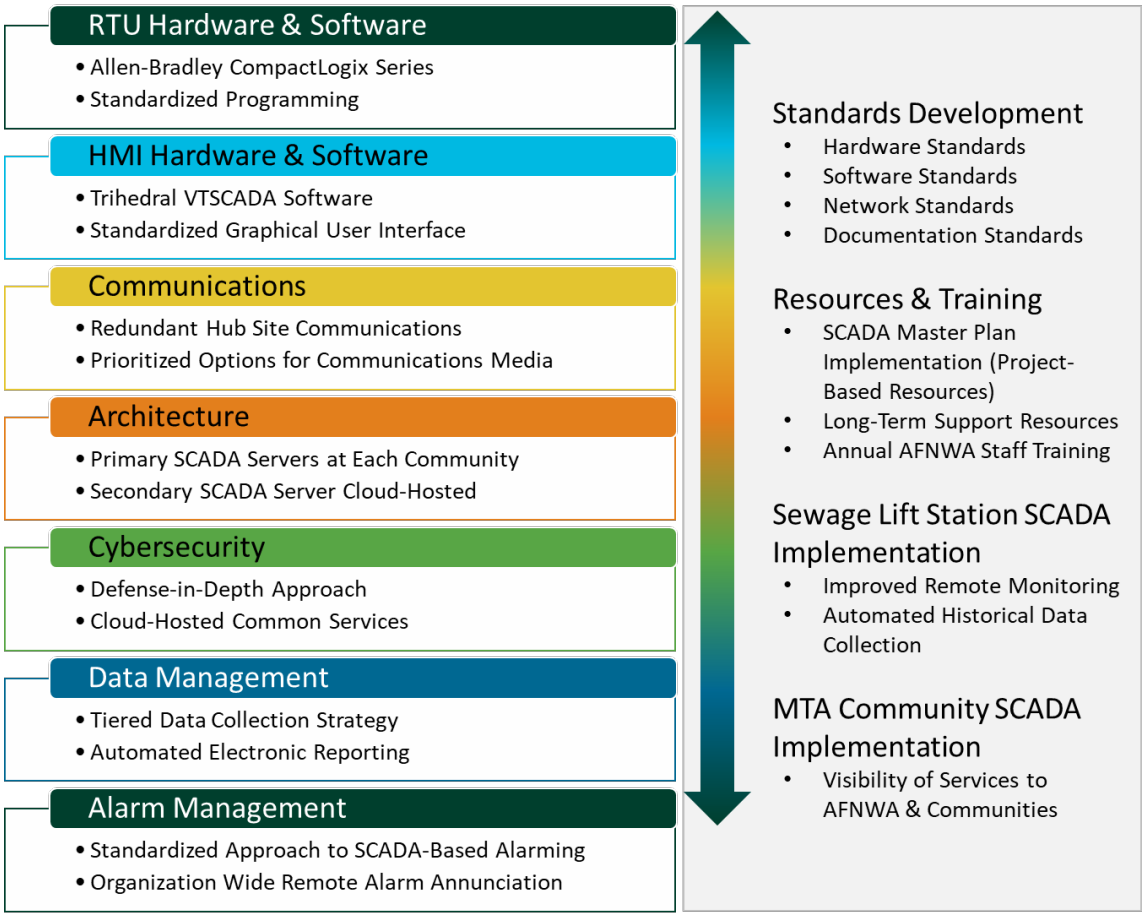


Figure 11- SCADA Master Plan Recommendations

Due to the sensitive nature of information contained within the SCADA master plan, further details are not contained within this document.

11 COMMUNICATIONS AND OUTREACH

11.1 Two Eyed Seeing

Defined by Eskasoni Elder Albert Marshall as, "to see from one eye with the strengths of Indigenous ways of knowing, and to see from the other eye with the strengths of Western ways of knowing, and to use both of these eyes together." AFNWA will apply First Nations traditional knowledge and culture emphasizing environmental stewardship, the spiritual aspects of water, and *Two-Eyed Seeing*, which integrates Western-based methods with Indigenous traditions, knowledge, and teachings. The Mi'kmaw word is *Etuaptmumk*. This theme was incorporated in the graphic storyboard, shown as Figure 13, as part of the engagement with Chiefs, Elders and Operators in 2017.

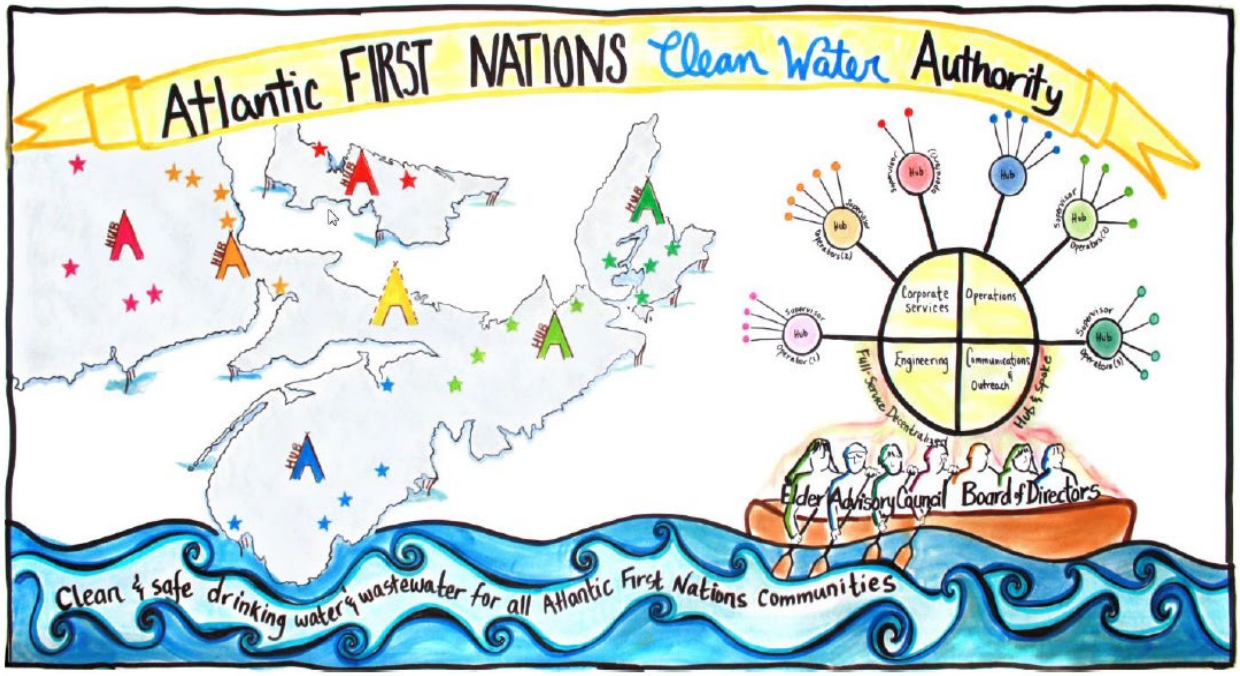


Figure 12- Service approach that is accountable, equitable and based on Two -Eyed Seeing

11.2 Website https://www.afnwa.ca

The digital home and source for information on the Atlantic First Nations Water Authority, with a full-time staff member dedicated to site operation and updates. Launched in spring 2021, the

website offers audiences a full 'tour' of AFNWA with convenient accessibility. Static features of the website include an overview of the services we provide, Management and Board profiles, a library of AFNWA documents that chronicle organizational milestones, Board reports and meeting minutes, Operator resources, Events Calendar and information on how to participate with AFNWA. The website will evolve with AFNWA operations and progress as communities become members of the utility. Future expansion plans include tenders for public procurement opportunities and learning portals for staff.

11.3 Education Programs and Scholarships

Working with AFNWA departments, and as part of the Board-approved Communications & Outreach Strategy, the AFNWA will develop, plan, and facilitate [in collaboration with other organizations, or standalone] educational programs designed to engage interest in water and wastewater in youth. As we go from elementary to junior and then senior high, the program dynamics can change depending on the audience. The prime objective is capacity building by steering potential and current graduates to pursue careers related to engineering, natural resources, information services, utility management, and related careers. Water, its cleanliness and accessibility, are key to healthy communities for all generations.

With a shared commitment to community outreach and building First Nations capacity, AFNWA sponsors two (2) annual academic awards; the Nujo'tmuk Samuqwan Award at NSCC, and the Danny Lanteigne Memorial Award at NBCC. The recipients for each award will show academic success, a passion for career in water services, and be a member of an Atlantic First Nations community; both NBCC and NSCC select their recipients from programs related to engineering or environmental technology, and others related to water and wastewater services. Both awards were introduced to students in spring 2021.

11.4 Community Engagement

The Covid-19 pandemic played a significant factor in AFNWA ability to visit communities in its transitional years, prior to full service offerings anticipated in spring 2022. With Covid restrictions expected to be lifted in 2022, or with the aid of digital apps like Zoom or Teams, the Communications and Outreach department will foster relationships and accountability with our participating communities and broader stakeholders.

Community engagement will include gatherings to provide overviews of AFNWA history, details on the services provided, and be open to all community members. AFNWA is also at the ready

to offer presentations to the communities' respective Chiefs and Councils, to establish understanding around AFNWA services and ensure the needs of the communities are fully considered. The objective(s) of such sessions are to educate and inform, building a sense of trust and accountability at the grassroots level, and share the successes and benefits of being a participant with AFNWA.

Community outreach is not just limited to physical presence in communities, but also integral to our social corporate responsibilities. AFNWA is an open employer to staff from all walks of life, regardless of race, sex and gender, orientation, religion, ethnicity, or abilities. In our digital programs, office culture, and daily practices, AFNWA will demonstrate that it is a community ally, an advocate, and a safe and respectful space for employees, visitors, and community members.

11.5 Visual Identity: Logo and Brand

Brand power is a legitimate communications tool, and ours is easily identifiable. The AFNWA logo needs to be on all internal and external communications including public relations literature, email signatures, SWAG, etc. Our logo is an identity; it symbolizes AFNWA's commitment to service delivery. It should be easily identifiable and recognized in communities.

Placement is also important to consider; the logo and name should always be visible to audiences. The logo must never be altered, have its size changed (to a point of distortion, or too small to see and read). We may experience times where the logo will require alterations (i.e., promo items and clothing, for placement) with approval by the Manager of Communications and Outreach, and the CEO. Requests to use the AFNWA logo will also require approval from the Manager of Communications and Outreach so AFNWA is aware of its external use.

11.6 Annual Report and Newsletter(s)

The Communications and Outreach department is responsible for the quarterly production of the AFNWA newsletter [Samqwan/Samaqan+Sage] including compiling news and stories, photos, and corresponding with corporate partnerships, including consultants. The Annual Report was published in October after approval of annual financial statements. The documents will be shared on the AFNWA website, updates posted on social media with directions to visit the website, and also directly communicated to our key stakeholders. The quarterly newsletter summarizes current milestones, shares upcoming plans, and spotlights the talented team

members visually allowing stakeholders to gain a sense of familiarity with 'who is working for the communities.'

12 PROCUREMENT STRATEGY

AFNWA is committed to value for money purchasing and support for economic development within Atlantic First Nations communities, whether they participate in AFNWA or not.

The following principles will guide the procurement practices of AFNWA:

- To maintain the highest ethical standards in procurement matters.
- To ensure the correct goods or services are acquired.
- To achieve best value for money, recognizing that the promotion of cost effectiveness or efficiency is a fulsome process requiring consideration for full life-cycle costs, including but not limited to; acquisition, operating, training, repair, maintenance, warranty, customer impact, environmental impact, asset disposal and residual value.
- To ensure that all funding agreement requirements are satisfied.
- Encourage best practice contract and risk management
- Promote and obtain competitive offers from the most responsible and responsive vendors.
- Promote vendors who comply with the provisions of the solicitation and contractual terms and conditions while also respecting our Organizational goals for minimizing negative environmental impact and embracing Indigenous cultural values.
- Participate in joint procurement activities with First Nations communities and organizations, neighbouring municipalities, or commercial developments, where applicable and where it is deemed to be in the best interest of AFNWA.

A procurement policy has been developed by management for approval of the AFNWA Board. The policy by design favours Indigenous owned businesses, Community owned businesses, and businesses which have an established and proven track record for supporting economic growth or capacity development within First Nations communities. Other consideration will also be given for businesses who have a demonstrated commitment to preserving the environment. This preferential treatment will be coordinated through bid-value-reductions, defined in the Procurement Policy.

In addition to the bid-value-reductions discussed above, AFNWA will utilize Standing Orders and Set Asides to support business initiatives. Standing orders will allow AFNWA to establish and secure a fixed rate for services in communities for services such as excavation, street repair, or general repairs and maintenance. Set Asides will be used to support any purchase that is

deemed to be culturally significant, supportive of critical capacity building in Indigenous owned businesses, or a significant contributor to workforce development.

13 HR STRATEGY

13.1 First Nations First

The AFNWA mandate includes investments into capacity development and, as a result, there is a documented target throughout our policies and procedures to recruit, retain, cross train, professionally develop, and support all staff. The HR Policy is specific to state that, all other things equal, preference will be given to First Nations candidates. This explicit preferential treatment is intended to support Community movement towards self-government and self-determination.

13.2 Operator Training and Certification Program

As part of the business strategy, it was decided by the Board of Directors that all existing water/wastewater staff will be offered employment with the AFNWA as the communities sign on to become members. In preparation for this opportunity, AFNWA has been working closely with Operators to upgrade their levels of certification, commensurate with the systems that they operate. The levels of certifications range from class 1 up to class 4 with the following license breakdowns with the minimum requirement for operators to hold a grade 12 diploma or a GED prior to obtaining any of the following:

- Operator in Training [OIT]
- Level 1,2,3&4 licenses for Water and Wastewater Treatment
- Level 1,2&3 licenses for Water Distribution and Wastewater Collection

The certification levels of the operators within First Nations communities are as varied as the systems in place. This has led the AFNWA to take a proactive approach to meeting the objectives of Operators to achieve their desired level of certification on an individual basis. This includes financial support for courses, workshops, training manuals, tutors, and examinations.

The three provinces within the Maritimes all have different rules and requirements to obtain water/wastewater certification. Nova Scotia and PEI both have an OIT program, but New Brunswick starts their program at Level 1. For a consistent approach, AFNWA will align itself with the Nova Scotia requirements.

Each Operator will have individual training plans developed based on what certifications and education they have with some operators starting by obtaining their GED's. The operators that come aboard will have two years to obtain either their OIT or Level 1 depending on their existing level of education. AFNWA is committed to supporting operators to the fullest extent possible.

13.3 Total Compensation

Many organizations take a wholistic approach to compensation to attract and retain qualified staff. In that regard, AFNWA initiated a review of best practice to guide the development of its human resource and compensation policies which were ultimately approved by the AFNWA Board at meetings held on June 24, 2020, and August 26, 2020, respectively. Not surprisingly, these two polices were some of the first policies brought before the Board in recognition of their importance to the success of the organization.

Adoption of a compensation policy aligns with governance best practice and provides the basis for staff remuneration. In accordance with best practice, the Board approved policy promotes internal equity for employees and facilitates a mechanism for comparison to other organizations who are competing for talent. The compensation policy also includes features to motivate staff to go beyond "doing their jobs" and strive for excellence with recognition for individual, and organizational performance. The policy outlines elements of base pay, individual and organizational remuneration to achieve excellence for a sustainable service delivery.

Key to the base pay remuneration is the adoption of the Korn Ferry [previously HAY] methodology to ensure internal equity and facilitate the opportunity to compare with other organizations for external equity. The Korn Ferry methodology is widely used in Canada and other countries and has been in place for over 50 years. Foundational to the methodology is its approach to pay equity and compliance with human rights legislation with a focus on gender equity.

In addition to base pay, senior management have the opportunity to earn up to 3% of their base pay linked to individual performance. Individual performance would be tied to annual goals and objectives approved by the CEO consistent with annual budgets and Business Plans. The CEO's goals and objectives would be established through consultation with the Board Executive [Chair and Vice-Chair]. It should be noted that senior management are not eligible for overtime as stated in both the HR Policy and the proposed Compensation Policy. All other staff are eligible for overtime pay beyond the regular 40-hour workweek.

In an effort to promote teamwork and ensure staff are focused on strategic outcomes, all staff will be eligible for financial incentives in relation to a corporate balanced scorecard which will be developed in the 2022/23 fiscal year.

The AFNWA has established a defined contribution pension plan as well as a health and dental plan. The pension and medical plans are cost shared 50/50 between the employee and employer. In addition, the utility has progressive sick leave, personal leave, and vacation benefits to ensure work/life balance. The AFNWA promotes a healthy lifestyle with a specific focus on mental health, an aspect that is still overlooked in broader society.

The AFNWA supports training and development for all employees and is working with the NS Education Workplace Initiatives Division to conduct a needs assessment to guide efforts. As part of annual performance reviews, management will be reviewing career development plans with each individual employee. AFNWA has a lifelong learning program to financially support individuals who would like to pursue educational training through provincial community colleges and universities.

13.4 Career Development

AFNWA will support career development in a variety of different ways over the coming years. Initially, our priority will be to have all Water and Wastewater Operators certified to a level that is appropriate for the facilities that they are responsible for. This means assistance with completing GED/high school equivalency in some cases, and support for continuing education to maintain their current level of certification in other cases. Simultaneously, we will work with all staff (administrative or operative) to identify their career development goals and support them with formal education and on the job training, wherever possible. Beyond the initial onboarding phase, AFNWA will continue to support existing staff, as well as develop capacity within communities by hiring trainees and fully supporting their career development.

13.5 Succession Planning

A succession plan has been developed by our Human Resources team to identify critical personnel along with alternative staff that can perform duties for colleagues in an emergency situation. This succession plan will be formalized, inclusive of both emergency coverage and long-term planning, once AFNWA is fully operational.

14 IT STRATEGIC INITIATIVES

14.1 Geographic Information Systems

AFNWA has adopted the ESRI ArcGIS platform to support business needs. The platform provides easy access to maps and information on the water & wastewater infrastructure for AFNWA staff and others they collaborate with, such as consultants, contractors, and customers.

The ArcGIS platform will enable AFNWA to create, organize, and share geographic information and tools with anyone in the organization on various devices in the office or the field. ArcGIS apps are accessible from desktops, the web, smartphones, and tablets. The platform complements and extends on-premises AFNWA information with rich content available for free by other parties (basemaps, imagery, demographics, landscapes, etc.) and services (geocoding, routing, geoprocessing, analysis, etc.). The ArcGIS platform includes online mapping and geographic analysis, allowing AFNWA to manage content, share maps and collaborate with business partners and communities.

The ArcGIS system infrastructure has three options: ArcGIS Online, ArcGIS Professional and ArcGIS Enterprise. The Geomatics Pilot Project between AFNWA, FNIHB and Halifax Water recommended a combination of ArcGIS Online and ArcGIS Professional licences to optimize the used of ESRI's ArcGIS system. Accordingly, ArcGIS online subscription and ArcGIS Professional basic licenses have been purchased, which will be renewed annually. As AFNWA grows, more licenses can be added.

Three types of ArcGIS user subscriptions were purchased and distributed as described below.

Type of User	Privileges	User
ArcGIS Professional	• Administer the subscription • Create maps and apps with your data • Analyze data to understand trends • Share maps with stakeholders in a variety of ready-to-use apps	• Asset Management Technologist
Field Worker	• Use apps for data collection, surveys, and inspections • Seamlessly integrate field-collected data • Share updates with your team in real-time	• Unama'ki Hub Supervisor • We'kopekwitk Hub Supervisor • Mlsigeneegatig Hub Supervisor • Wolastokuk Hub Supervisor • Epekwitk Hub Supervisor • Operations Engineer • Project Engineer
Viewer	• Securely view your team's maps and apps	• CEO • Manager of Engineering

	• Monitor project performance through dashboards • Use location information to make decisions	• Manager of Operations • Superintendent of Operations • Superintendent of Technical Services • Operators of communities (11)

Figure 13- Three (3) Types of ArcGIS user subscriptions purchased

Dillon Consulting Limited collected field data for location and attributes and developed an ArcGIS online map for each participating community as part of the AMP project. The map shows the location of the assets and their characteristics in an organized way, which helps AFNWA staff in their duties. Operators will use the map to locate buried assets for operation and maintenance purposes, updated with any future information. Technical staff will use the map to store and organize asset information, which will be used for capital projects and planning.

The ArcGIS online map along with survey equipment will provide AFNWA with capacity to locate any features within ±10 cm by utilizing the navigation feature of the survey equipment. The precise locating of buried assets will save time and cost for operation activities. Survey equipment can use a global navigation satellite system (GNSS) to provide accurate positioning data. FNIHB funded the initial purchase of survey equipment, which will be distributed between AFNWA hub offices. Additional survey equipment will be purchased as follows:

Survey Equipment Description	Distribution
GNSS receiver	• Hub communities • Superintendents • Headquarters
Tablets (dedicated for surveys)	• Hub communities • Headquarters
Total station	• 4 units to be shared
Metal detector	• Each community • Headquarters
Signal correction and licensing	• Annual subscription to be shared

Figure 14- Survey Equipment for Engineering and Operations

14.2 Computerized Maintenance Management

AFNWA is compiling an asset inventory for each of the future member First Nations. There are a number of computerized maintenance management [CMM] programs in the market and more research is required by the team to select a short list of viable options. Our long-term

goal is to standardize assets with our member communities so that spare components can be made available at each site with other inventory located within the hub communities and headquarters.

The program will also be required to track chemical useage and consumables such as UV bulbs.

The standardizing of the assets will be built into our long-term capital and maintenance forecasts to save on costs and and ensure an integrated and consistent approach to asset management.

15 CONTINUOUS IMPROVEMENT

15.1 Transition Management

Since incorporation in 2018, AFNWA has continued to gather momentum at a rapid pace. Growing from 7 full time employees to a team of 21 employees over the course of 7 months brought a range of challenges that required a proactive approach to transition management. A concerted effort has been made by management to incorporate regular office activities that support team building through formal cultural training events, as well as informal gatherings. Weekly all-staff meetings were established to reinforce our culture of safety first, as well as deliver regular updates on the progress of our Transition Implementation Plan. All these internal efforts have been designed to keep employees engaged and lines of communication open during this time of transition.

The next phase of AFNWA transition management will have an external focus, as we promote and educate communities on the benefits of joining AFNWA and begin to onboard participating communities. Management will prepare for questions from media, government agencies, and communities alike. Regular meetings will be held to discuss the AFNWA Transition Management strategy in an attempt to anticipate and minimize any potential disruptions.

As new communities join AFNWA, our operations team has been tasked with managing the transition of new employees and onboarding to the utility. From a human resources perspective, AFNWA has agreed to hire all existing community operators at the time of system transfer and intentionally designed a total compensation packages that would be equal or better to what is currently in place. The most significant transition for operators will be the establishment of reporting relationship, access to available resources, and expanded job duties. AFNWA management will ensure that communication lines remain open, and that the operator

is involved in mapping out their own individual transition plan so as to alleviate any anxiety for the operator and the community.

15.2 Cost Containment

AFNWA presents quarterly reports for approval by the Audit & Finance Committee. Quarterly reports detail a comparison of actual results to budgeted results, as well as a management discussion and analysis of any material variations.

Going forward, all capital projects will also have an internal reporting requirement of progress reports. Full completion reports will be made available to any economic monitor or federal funding agency, upon request, or as part of any ongoing reporting requirement (as applicable).

The most significant element of cost containment is employee driven expenses such as payroll (e.g., overtime and sick time), fleet management, information technology, travel, etc. AFNWA has already begun developing and will continue to develop policies and programs to measure performance. AFNWA will be developing a Corporate Balanced Scorecard with financial objectives that includes incentives for achieving corporate goals associated with cost containment.

15.3 Wastewater Treatment Facilities Compliance Plan

Sampling of effluent from wastewater treatment facilities (WWTFs) will be conducted by the Operations staff as required for compliance with regulatory requirements, for process control and to optimize treatment performance. Sampling results will be recorded and uploaded to WaterTrax or a similar program to maintain accurate data and allow access by operations and engineering staff. The Sanitation Safety Plan will establish the protocol to review and analyze the results and establish the need to take additional samples, including samples at other locations in the process train (i.e. inlet to the WWTF, upstream of filters, upstream of disinfection system). WWTFs that currently do not meet WSER or effluent discharge objectives from the ERA will be assessed to determine the steps required to bring the facilities into compliance.

A number of operators do not have the certification requirements for the level of classification for the water or wastewater systems they operate. This is a regulatory requirement and a concerted effort is underway to get operators to the appropriate level of certification.

15.4 Inflow and Infiltration Reduction

Wastewater sewers in participating communities are “separate” sanitary sewers. There are no “combined” sewers that also carry stormwater/groundwater with the sanitary sewage. However, there are a number of pathways that allow inflow of stormwater and infiltration of groundwater into the wastewater system including cracks or openings in the manhole, separated pipe joints, cracked or broken pipes, direct connections of catch basins and rain downspouts, foundation drains, etc. Even holes in manhole covers, if submerged can allow stormwater to enter the sewer. Figure 16 illustrates typical areas for inflow and infiltration into the sanitary sewer systems.

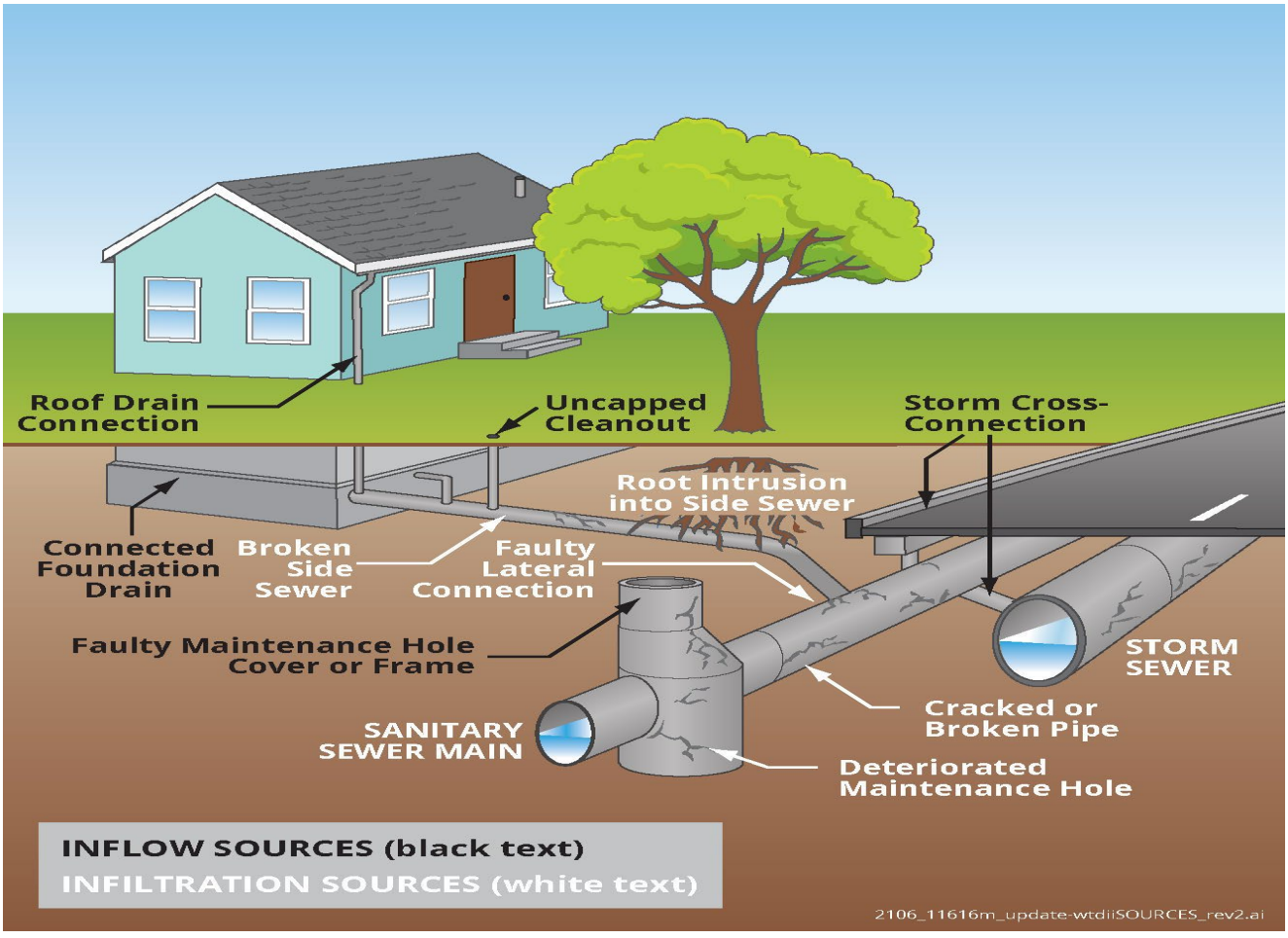


Figure 15- Typical areas for inflow and infiltration into the sanitary sewer systems.

A number of inflow and infiltration (I&I) studies have been included in the capital plan to assess the magnitude of the issue, to identify potential sources of I&I and possible remedies. Extraneous flows from I&I will reduce the capacity of the sewer system and treatment facility,

and if significant, may hamper growth or necessitate upgrade of lift stations or WWTF earlier than planned, and may result in poor effluent quality or bypassing in some types of WWTFs.

15.5 Water Loss Control

Water Loss Control is a vital program to support a sustainable potable water system. Aggravated losses in the water system can add up to huge financial loss if not caught and rectified in a timely manner. Many situations contribute to water loss including the following:

- Breaks within the water distribution system. (This can also lead to a contaminated water supply if the pressure drops, and you have back flow into the system.)
- Running toilets or faucets within an individual home, institution, or business.
- Hydrant leaks as a result of poor operations and maintenance practices
- Service line leaks with losses that are hard to stem with broken shutoffs and curb stops that inhibit correction in a timely manner and necessitate a shut down that impacts more than the individual home, institution, or business.

Water loss control will be a major program within operations and follow best practice in approach, consistent with the AWWA M36 manual[21] and IWA methodology as illustrated in Figure 17.

This approach is holistic in nature and includes water audits for each individual community, establishment of master meters to monitor flow in real time, pressure management, active leak detection, asset management, a robust SCADA system to capture and analyze data, and the establishment of performance benchmarks to monitor performance. The primary focus will be detect and repair leakage as quickly as possible to reduce the leak run time. In addition to financial savings, better health outcomes will be realized as a leaky system is prone to contamination. Stewardship of water resources also fits nicely with Nujo'tme'k Samuqwan safety plans.

AFNWA has already been active in support of water loss control in Glooscap and Pictou Landing with direct intervention to identify active leakage. AFNWA staff has started to purchase equipment to track and find losses within the water system and have been working with professionals in the field to learn hands on best practices on finding leaks. All operations staff will take training in tracking and finding leaks including the Operators within the participating communities, to Supervisors, Superintendents, and the Manager of Operations.

[21] Water Audits and Loss Control Programs, - AWWA Manual M36, 4th edition, published 2016

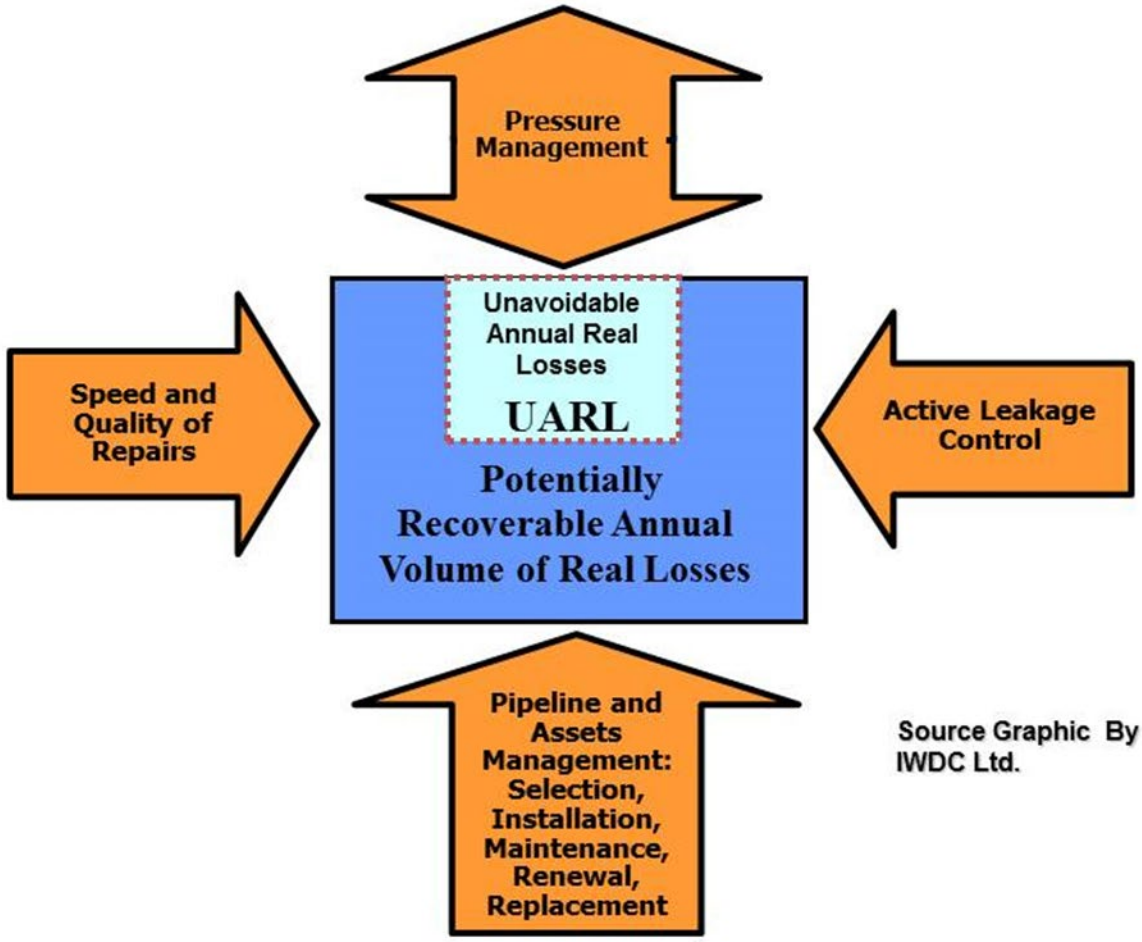


Figure 16- Best Practice Strategies for Reduction of Real Losses – IWA/AWWA Methodology

16 CLIMATE CHANGE

Climate change is a global phenomenon that is well documented and the subject of much consultation in the engineering and water/wastewater industry. There are two distinct aspects to climate change:

1. Adaptation to climate change effects
2. Strategies to mitigate climate change impacts

AFNWA has adopted guidelines developed by Atlantic Canada Water & Wastewater Association (ACWWA) for water supply and wastewater systems. These guidelines are currently being updated to include a focus on adaptation and building resilience to climate change effects. The updates are expected to be completed in 2022. AFNWA will be reviewing the guidelines to ensure compliance. The traditional design of water and wastewater systems is based on the use of historical data. Unfortunately, climate change effects will make these traditional approaches inadequate.

Receiving waters that previously provided adequate assimilative capacity for the discharge of treated effluent from a wastewater treatment facility may be inadequate during low flow conditions in the future due to drought conditions. Water quality in rivers and lakes may deteriorate due to higher intensity rainfall events that would carry higher sediment and contaminant loads into the water body. Planning will be done to identify vulnerabilities to climate change which will be incorporated into the capital planning process.

As a utility that embraces sustainability, there is strong motivation to not only focus on adaptation of systems to be resilient to the effects of climate change but to extend the focus to include mitigation of climate change progression. Adaptation would focus on being prepared for climate change impacts such as flooding, droughts, extreme weather events, disruption to supply chain for supply of chemicals and parts, etc. whereas mitigation would address reduction of energy consumption, production of greenhouse gases, etc. Assessment of options for heating, ventilation and air condition (HVAC), use of solar panels, water reuse, and beneficial reuse or efficient disposal of biosolids would be examples of mitigation approaches. Optimization of treatment performance will be undertaken by staff or consultants as appropriate. In cases where facilities are scheduled for upgrades, consideration will be given to conversion to technologies that produce less greenhouse gases or reuse existing components as appropriate. Consideration will be given to non-potable water supply for industrial or fire-fighting activities rather than rely on using treated/potable water for these purposes. Requests for proposals for work by external consultants will require the design work to follow methodologies that are in keeping with the concept of Nujo’tme’k Samuqwan (we take care of the water in a good way) and sustainability. Evaluation of options will not only look at lifecycle costs but also environmental impacts and the release of greenhouse gas.

17 SAFETY & SECURITY

17.1 Occupational Health & Safety Programs

AFNWA Occupational Health and Safety Programs are based on the Internal Responsibility System (IRS), which is the underlying philosophy of occupational health and safety legislation in Canada. The IRS relies on the employer in collaboration with employees being jointly responsible for determining the specific steps to be taken to achieve compliance with regulations and protect people and property from harm at all workplaces. AFNWA holds all persons at the workplace accountable for their own Health and Safety and for the Health and Safety of others.

The Joint Health and Safety Committee (JHSC) with assistance from the Safety and Security Coordinator will:

- Create, implement, and manage AFNWA Occupational Health and Safety Programs and assist management and non-management workers with achieving safety accountabilities.
- Co-ordinate and/or provide Health and Safety training for all employees in the identification of hazards and the prevention of harm at the workplace.
- Proactively work toward legislative compliance as well as conformance with the Corporate Health and Safety Policy.
- Conduct workplace safety audits and inspections to assist in identifying critical behaviours that can result in incidents and recommend control measures.
- Conduct workplace Occupational Health & Safety perception surveys.
- Assist with the development and management of a system for near miss reporting and other hazardous incident(s) through reporting, investigation, and preventive measure resolution assurance.
- Evaluate and recommend for future use either an off the shelf purchase of a Safety Management System or the development of an inhouse Safety Management System.
- Conduct service provider Occupational Health and Safety Assurance.

- Liaise with Federal, Provincial, First Nations, and professional organizations to assure ongoing compliance and continued improvements.

17.2 Corporate Security Program

The AFNWA Security Program is designed to protect two types of assets: property, and information. The program has been developed to take an all-hazards approach.

AFNWA makes use of three components as barriers for a physical security system to protect assets.

Protection: Physical barriers such as building envelope, fences, doors, door hardware, and containers are used that prevent or delay the determined opportunist from gaining unauthorized access to properties or other assets under AFNWA protection. AFNWA uses state of the art encrypted security software and proprietary passwords for information protection.

Detection: AFNWA will use intrusion alarms, access control systems, CCTV, and patrols to protect its assets. The detection components indicate and may also verify intrusion onto properties or other assets under AFNWA protection.

Response: This component is the reaction and response to an attempted or actual intrusion of properties or other assets under AFNWA protection. AFNWA works closely with local and national police services and private security agencies as required to ensure a rapid and appropriate response to either physical or electronic intrusions of AFNWA properties or other assets under AFNWA protection.

18 BUSINESS RISKS & MITIGATION STRATEGIES

18.1 Enterprise Risk Framework

AFNWA recognizes the importance of enterprise risk management [ERM] as a best practice and has established an effective risk governance structure. The risk governance structure reflects the oversight roles and decision points for the Board and Board Committees, as well as the relationships with management and management committees. The structure is attached to the Risk Policy, which was approved by the Board on July 28, 2022, and attached as Appendix G

Although Board members are not involved in day-to-day business activities, they have the ultimate responsibility to ensure that an effective ERM program is in place. The Board has the responsibility to effectively oversee ERM and the key risks facing the organization with a focus in three key areas. These include a well thought out governance structure to organize risk management; risk policies and risk tolerance levels that define risk appetite; and feedback processes that gauge the effectiveness of the ERM program.

Over the long term, ERM can enhance enterprise resilience, and the ability to respond to change, how that change could impact performance and necessitate a shift in strategy. In terms of structure, the current terms of reference for the Audit and Finance Committee includes responsibility for risk oversight. As such, this Committee will work with the CEO, CFO and other senior staff to review the risk framework and register and make recommendations for approval of the Board. Ultimately, the Board must decide where to tolerate, treat, transfer or terminate risks facing the organization. As indicated in the risk policy, all levels of the organization have roles and responsibilities with the ultimate authority resting with the Board.

Subsequent to the approval of the risk policy, management engaged with an outside consultant Grant Thornton to develop a risk framework and risk register which was endorsed by the Board at the meeting on January 26, 2022. This framework and register will be reviewed on a regular basis by the Audit and Finance Committee with regular updates from management.

18.2 Drinking Water Regulatory Compliance

The drinking water systems will comply with Health Canada requirements in the *Guidelines for Canadian Drinking Water Quality*. Sampling for compliance of drinking water quality will follow standard operating procedures to ensure relevant and representative results are recorded. These results will be analyzed as they arrive by AFNWA compliance and operations staff, with support from engineering staff. Instances of non-compliance are noted and flagged for immediate or subsequent action, depending on the severity. Notification mechanisms will be in place to ensure effective and timely communications with affected parties. Additional action to alter operations or issue drinking water advisories will be considered as appropriate or needed.

AFNWA will develop Water Safety Plans to ensure that standardized and acceptable standard operating procedures are followed in the production of drinking water. Adherence to Water Safety Plans will provide due diligence and a proactive approach to the operations of drinking water systems. Furthermore, it will provide comprehensive records of field data and observations which will be extremely useful in capital planning as it feeds back into the timelines for upgrades or replacement of components.

As there is no identified national regulator for compliance with drinking water standards, AFNWA will adopt an interim approach as more fully described in Section 7, Drinking Water Regulations. An external party will be hired by AFNWA to audit the compliance with Water Safety Plans.

18.3 Wastewater Regulatory Compliance

The treatment of wastewater will be governed by the Wastewater Systems Effluent Regulations (WSER) which will establish the minimum effluent quality to be discharged in terms of organics (carbonaceous biochemical oxygen demand: cBOD), solids (total suspended solids: TSS), residual chlorine (total residual chlorine: TRC) and un-ionized ammonia (which is a proxy for acute toxicity). Effluent discharge objectives will also comply with site-specific environmental risk assessment of receiving waters to minimize impact to the environment or to meet health and safety requirements. Additional parameters/targets to satisfy ERAs may include nutrients, lower cBOD and TSS concentrations, and bacteria concentrations.

Requirements for reporting of effluent quality results will be established in accordance with WSER including reporting of spills and bypasses. Timely reporting of results and spills is crucial especially where downstream waters may be used for drinking water supply, recreational uses, fisheries or shellfish harvesting.

The regulator for wastewater will be Environment and Climate Change Canada.

18.4 Biosolids Disposal

Lagoons are designed to allow storage and benthic digestion of settled sludge/biosolids at the bottom of the ponds. Removal and disposal of the settled sludge is typically undertaken infrequently, from 10 to 20 years, depending on the solids loading and the lagoon volume required for effective treatment of the wastewater. As the settled sludge accumulates, the available volume decreases until there is not enough hydraulic retention time to properly treat the wastewater. The capital plan includes sludge depth studies to estimate the depth of settled sludge and to establish the timing of sludge removal. The capital plan also includes funding for dredging, dewatering and disposal of sludge.

Other wastewater treatment facilities (non-lagoon types) used in the area include Sequencing Batch Reactor (SBR) and Rotating Biological Contactor (RBC) treatment technologies. The biosolids generated from these plants may be aerobically digested and transported by contractors to sludge disposal facilities such as septage lagoons. There are no biosolids

dewatering facilities in participating communities. The possibility of incorporating biosolids dewatering at these WWTFs will be considered to reduce transportation costs and associated production of greenhouse gases when upgrades for these facilities are planned.

Currently, the options for biosolids disposal, acceptable to provincial regulators include

1. Land application
2. Landfill cover or quarry/pit restoration
3. Composting
4. Septage and sludge lagoon

It is expected that regulations for biosolids management in the region will be reviewed and possibly updated. If regulations change so that any of these options are no longer acceptable, a review of biosolids management at Wastewater Treatment Facilities [WWTFs] may be needed.

18.5 Individual Wells and Septic Systems

There are a number of activities regarding Individual wells and Individual septic systems that AFNWA may get involved with in conjunction with the transfer of central system responsibilities from member First Nations. The main issues for discussion with member First Nations include but are not limited to:

- Maintenance of some Individual wells and septic systems that are currently being supported by the water/wastewater operators under the direction of Chief and Councils.
- ISC does not directly fund O&M for Individual wells and septic systems at this time. However, AFNWA understands that some communities fund O&M activity on Individual wells and septic systems though current budget allocations. The AFNWA will discuss the current, community-specific level of service with member First Nations and develop a consistent, utility-wide approach.
- There is no database of wells and septic systems on First Nations' lands so the number and location of operational, abandoned or non-viable wells and septic systems is unknown at this time.
- The number of monitoring wells are unknown at this time.
- There may be both Individual and public water/wastewater assets on land that are owned by the First Nations but are not considered reserve lands and there could be

neighbour municipal assets on reserve lands without permits or easements in the municipality's favour.

In an effort to more fully understand issues around Individual wells and septics systems, AFNWA is carrying out a study in fall 2022 to document these systems within a geographic database. This can serve as a baseline for future planning and feasibility studies for the potential extension of central water and wastewater systems or support the development of a strategy for the long-term sustainability of Individual wells and septic systems. This will require direct dialogue with ISC and in particular, the First Nations and Inuit Health Branch [FNIHB] division who currently monitor water quality and sanitation outcomes related to individual wells and septic systems. In recognition that many of these individual systems are failing or in a state of poor repair, AFNWA will provide direct maintenance support on reserve lands and coordinate activities where third parties are involved. AFNWA will provide staff time from engineering and operations to support these activities but will not incur costs from third parties for activities such as septic tank pump outs, well pump repairs or capital upgrades. These costs would remain with individual First Nation communities as is now the case. Notwithstanding, AFNWA recognizes that these individual systems are underfunded and will work with federal agencies and First Nations communities to develop a strategy to put them on a sustainable footing.

18.6 Capital Work in Progress

A number of capital projects are currently in progress. ISC will continue to be the lead for many of these "transition" projects to maintain continuity of project management and funding and to minimize disruption to the project progress. At a discrete and logical stage of the projects, AFNWA will take on the responsibility of the work, such as at the end of feasibility studies, following commissioning of constructed work, etc. A summary of the transition projects is presented in Appendix D5.

AFNWA staff are working closely with ISC regional engineers on these transition projects to ensure that AFNWA standards will be incorporated into the work to the fullest extent possible. Design and construction work will be viewed through the operations lens as well, to ensure efficiency and ease of operations after construction. AFNWA is currently working on standards for SCADA systems based on the SCADA Master Plan developed by Eramosa and will be looking for opportunities to converge with work in progress.

Some of these projects were identified by Dillon in the capital plan. Projects that were duplicates of ISC projects were "removed" from the capital plan by moving the target start date to 2020, rather than deleting from the capital plan. That way, the details of the project, as identified by Dillon, would not be lost.

18.7 Energy Costs

Through the budget process, AFNWA has started to track and estimate energy costs for each of the member First Nations but the numbers can only be rough estimates at this time due to incomplete data.

Long term planning within capital projects investments will bring down the costs associated with outdated or obsolete assets. A prime example of energy wastage would be plants being heated with wall mounted electric heaters and upgrading them to modern heat pump systems will make them more efficient. As plants and lift staions are upgraded, high efficiency equipment will be installed in recognition that energy costs will continue to increase.

Another investment AFNWA will be looking into regarding energy efficiencies would be to net meter solar panels on existing plants and pump stations to lower operating costs.

The application of SCADA built into the operations of the plants will also allow for autonomous control of various pumps and thus reduce energy costs.

18.8 Chemical Costs

Through the budget process AFNWA has started to track and estimate chemical costs for each of the member First Nations but the numbers can only be rough estimates at this time due to incomplete data.

One of the main cost benefits in regards to chemical costs for AFNWA are economies of scale. Buying chemical in bulk will reduce the costs of the associated chemicals.

With the standardizing of assets through our long term capital and maintenance planning, many plants will be able to use a standard chemical or consumable providing an opportunity to purchase in bulk and to stockpile within the hubs to reduce the chance of shortfalls during emergency situations or supply chain disruption.

18.9 External Funding

An application for funding has been submitted to the Government of Canada as part of the 2022/23 budget process to support the Ten-Year Operating and Capital Budget. It is expected that this funding will be announced in Spring 2022 and will be included in a formal agreement

between ISC and AFNWA. Although a commitment for ten years of funding has been agreed to, this agreement allows for a recalibration of funding after the first five years of operations. The current budget contemplates the participation of seventeen Atlantic First Nations communities. However, the organizational structure is scalable, as reflected in the Hub and Spoke, decentralized model more fully described in Section 4.2.

There is also an opportunity to work in partnership with FNIHB to achieve certification which could facilitate opportunities to issue debentures through FNFA at favourable rates. Debentures could be utilized for designated project funding, including the recovery of costs tied to infrastructure associated with economic growth.

As AFNWA continues to work with the participating communities, it is possible that AFNWA could be requested to commission infrastructure to accommodate economic development, in which case, associated charges could be received from commercial developers. AFNWA is currently participating in a project with Paqtnkek First Nation and the First Nations Infrastructure Institute to look at alternatives for cost recovery of infrastructure associated with economic growth.

One other revenue source that will be considered by AFNWA is responding to requests for maintenance services on private wells and septic systems. Most of the related expertise and equipment is available to AFNWA to provide this service, and AFNWA is supportive of all communities, community members, and their access to clean water. These services could be provided on a fee-for-service, based on staff availability, at cost.

19 CONCLUSIONS

The AFNWA has been established as a non-profit organization that is owned and operated directly by Atlantic First Nations. Strategic decisions will be based on the best interests of the Atlantic First Nations communities whom the AFNWA serves, providing stronger accountability for the quality of drinking water and wastewater effluent to communities, and oversight agencies.

The AFNWA operational model demonstrates an appropriately sized management and operational baseline to deliver the required services to communities with the flexibility to scale-up to accommodate communities who wish to join later. The AFNWA corporate structure is a radical departure from the status quo and strengthens Atlantic First Nations communities desire for self-determination and a sustainable approach to service delivery.

With approval of the Business Plan from the Board of Directors, Transfer and Funding Agreements with the federal government, and a committed staff, AFNWA is well positioned for service to participating First Nations communities.

APPENDIX A - Mission, Vision & Corporate Values

Mission

To provide safe, clean drinking water and wastewater in all participating First Nations communities in Atlantic Canada, delivered by a regional water authority owned and operated by First Nations.

Vision

To be a recognized leader for the delivery of water and wastewater services to First Nation communities across Canada

Corporate Values -Seven Grandfather Teachings

Love (Kitpu/Cihpolakon - Eagle): is unconditional and in being so it is given without asking for anything in return, it is given when the person you love is weak, because that is when they need it the most, it is shown when you fight, because it is then that love can be doubted.

Honesty (Putup/Putep - Whale): is the act of being honest with yourself about who you really are, it is about being honest about what you do and why you do it, it is about being honest with your aspirations for your physical, spiritual, psychological, and emotional lives. Honesty begins and ends with you, from within it flows to affect all those around you and thus the world in which you live, for we all hold within us the cause and effect of our environmental worlds.

Humility (Paqtism/Malsom - Wolf): is coming to understand that you don't know everything for anyone but yourself, and it is also knowing that to unlock that knowledge you may have to look with out yourself first and then look within. Humility is recognizing that sometimes you're wrong, even when everything tells you that you are right, it is being penitent, and it is accepting success with pride and not arrogance. Humility is allowing others to speak and act even if you could do so just as well, about knowing that sometimes what you want needs to be set aside for the needs of another.

Respect (Tiam/Mus - Moose): is given to others without the expectation that it will be given back, respect is the act of respecting someone in the face of their rage, bitterness, callousness, and unjust behavior, and respect is showing respect when they are respectful of you when you are at your worst. Respect is honoring their healthy beliefs even if yours are different, and it is acknowledging their right to freewill and thereby choice to be right or wrong, healthy, or unhealthy, respect is also being so for your own self.

Truth (Mikjikj/Cihkonaqc - Turtle): is to speak the truth even when you don't wish to, to walk through life truthfully with yourself and with others, it is to live with truth in your heart, soul, mind, and body, and it is to learn what being true is for you and you alone. It is the ability coupled with the willingness to recognize the truth in the physical actions of another as well as their emotional, psychological, and spiritual actions along with your own.

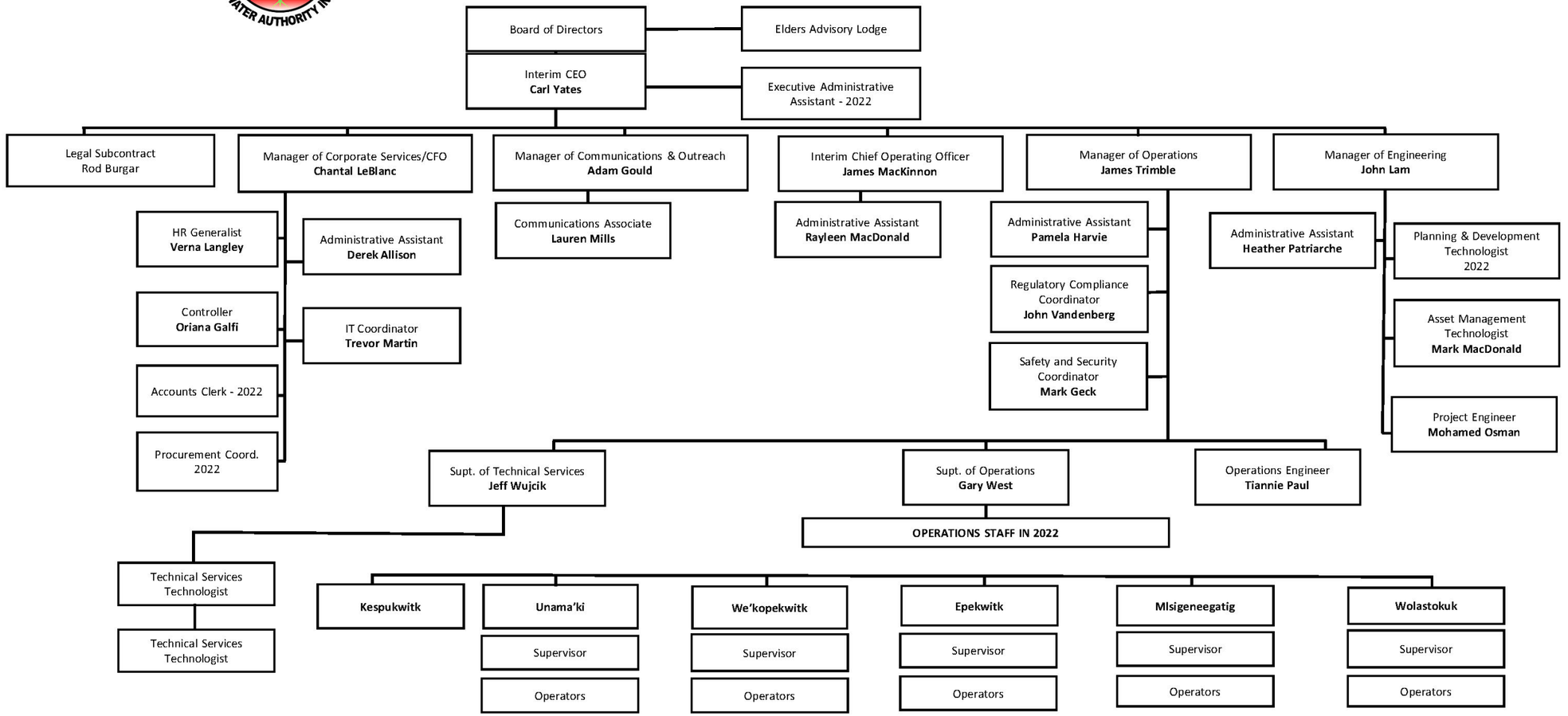
Bravery (Muin/Muwin - Bear): is to do the right thing even if you know it's going to hurt you, it is being true to who you are no matter what may happen to you, it is facing the future on your own healthy terms. Perhaps the bravest thing anyone can do in their life is to ask for help when they need it, then again it maybe to change their mind and do the right thing before it is too late even if that means they stand alone.

Wisdom (Kopit/Qapit - Beaver): is knowing the outcome of your actions before you act, it is understanding the difference between the ideals of Good and Evil, it is the knowledge that what you do, what you say, what you don't do or say is important. Everything matters, because this moment leads you into the next and therefore everything is vital.

APPENDIX B – Organizational Chart

January 1 2022

Atlantic First Nations Water Authority Organizational Chart



APPENDIX C – Community Water & Wastewater Service Districts and Supporting Infrastructure

REMOVED FROM THIS VERSION
AVAILABLE UPON REQUEST

APPENDIX D– Projected Capital Budgets for 2022/23 to 2031/32

D1- Capital Projects Summary

D2- Detailed List of Capital Projects

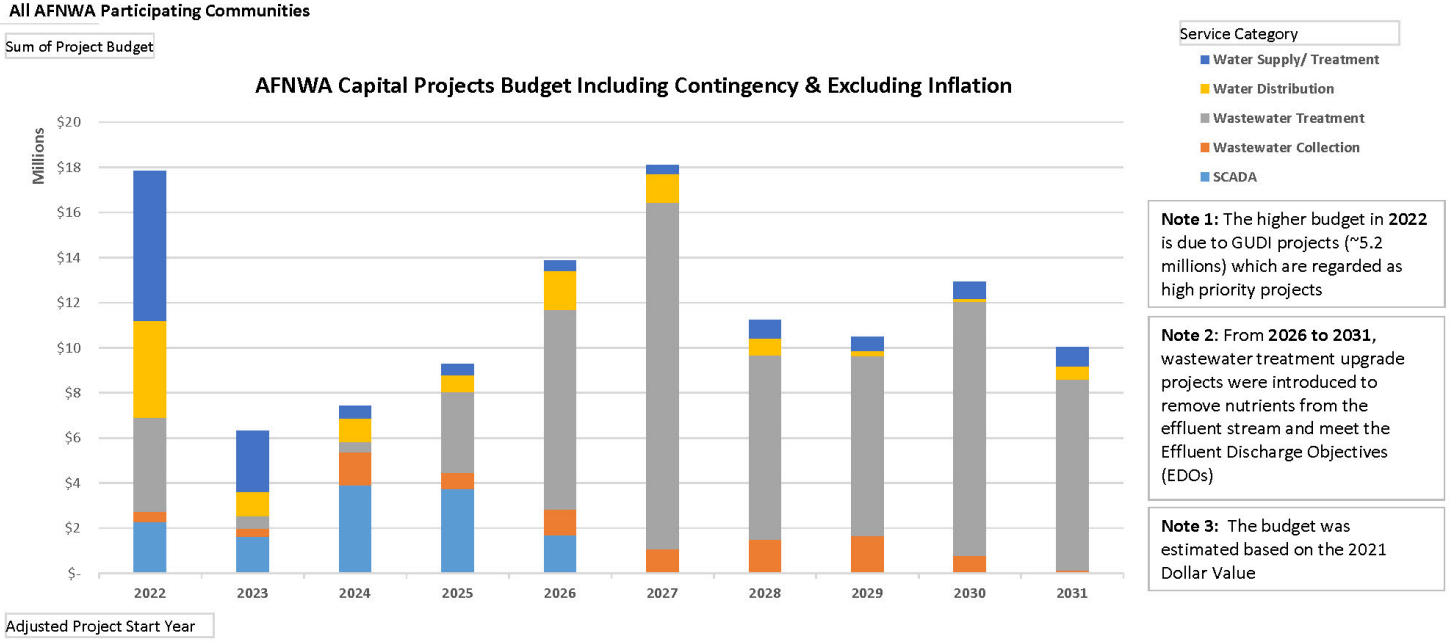
D3- Environmental Risk Assessment

D4- GUIDI Assessments

D5- Capital Works in Progress

Appendix D1 Capital Projects Summary

All AFNWA Participating Communities



Note 1: The higher budget in **2022** is due to GUDI projects (~5.2 millions) which are regarded as high priority projects

Note 2: From **2026 to 2031**, wastewater treatment upgrade projects were introduced to remove nutrients from the effluent stream and meet the Effluent Discharge Objectives (EDOs)

Note 3: The budget was estimated based on the 2021 Dollar Value

All AFNWA Participating Communities

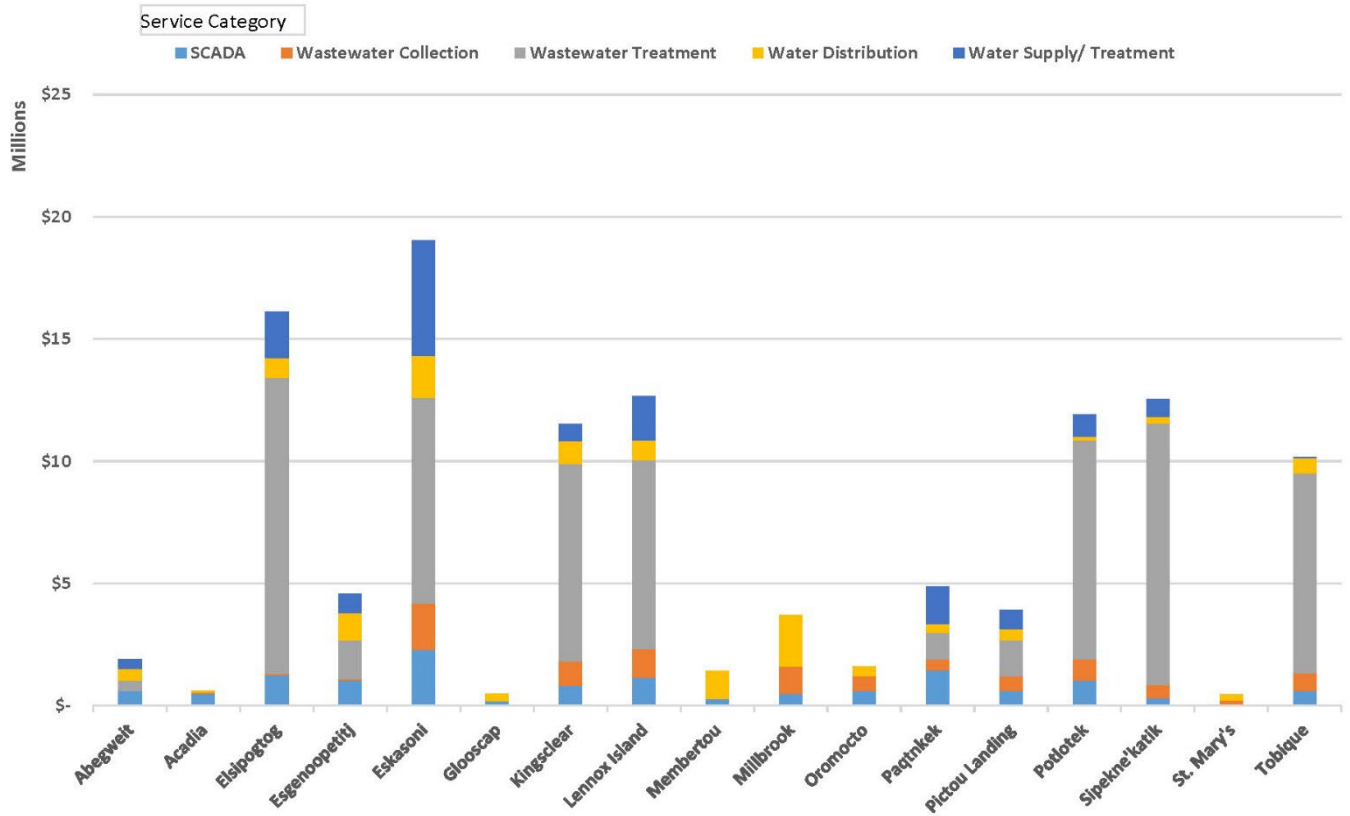
Row Labels	SCADA	Wastewater Collection	Wastewater Treatment	Water Distribution	Water Supply/ Treatment	Grand Total	Grand Total Including Inflation (Note 4)
2022	$ 2,293,023	$ 452,454	$ 4,153,972	$ 4,315,099	$ 6,628,050	$ 17,842,600	$ 18,300,130
2023	$ 1,619,552	$ 374,692	$ 553,609	$ 1,068,294	$ 2,691,053	$ 6,307,199	$ 6,643,142
2024	$ 3,903,978	$ 1,466,990	$ 462,286	$ 1,029,760	$ 562,752	$ 7,425,766	$ 8,058,562
2025	$ 3,760,777	$ 707,390	$ 3,570,336	$ 764,531	$ 489,091	$ 9,292,125	$ 10,338,361
2026	$ 1,708,389	$ 1,138,952	$ 8,839,864	$ 1,738,616	$ 436,993	$ 13,862,814	$ 15,732,108
2027		$ 1,093,051	$ 15,344,599	$ 1,283,800	$ 380,476	$ 18,101,926	$ 20,992,684
2028		$ 1,509,291	$ 8,162,312	$ 764,862	$ 808,693	$ 11,245,158	$ 13,366,959
2029		$ 1,659,902	$ 7,987,193	$ 230,986	$ 624,690	$ 10,502,771	$ 12,796,606
2030		$ 793,684	$ 11,271,612	$ 117,543	$ 748,310	$ 12,931,149	$ 16,149,233
2031		$ 142,185	$ 8,444,257	$ 593,323	$ 867,255	$ 10,047,021	$ 12,861,036
Grand Total	**$ 13,285,719**	**$ 9,338,593**	**$ 68,790,041**	**$ 11,906,814**	**$ 14,237,362**	**$ 117,558,529**	**$ 135,238,822**

Note 4: The inflated budget was calculated based on a 2.5% (Dillon Consulting) inflation rate for all projects excluding SCADA projects which increased to 3.0% (Eramosa Engineering)

Adjusted Project Start Year

Sum of Project Budget

Distribution of Capital Projects Budget by Communities

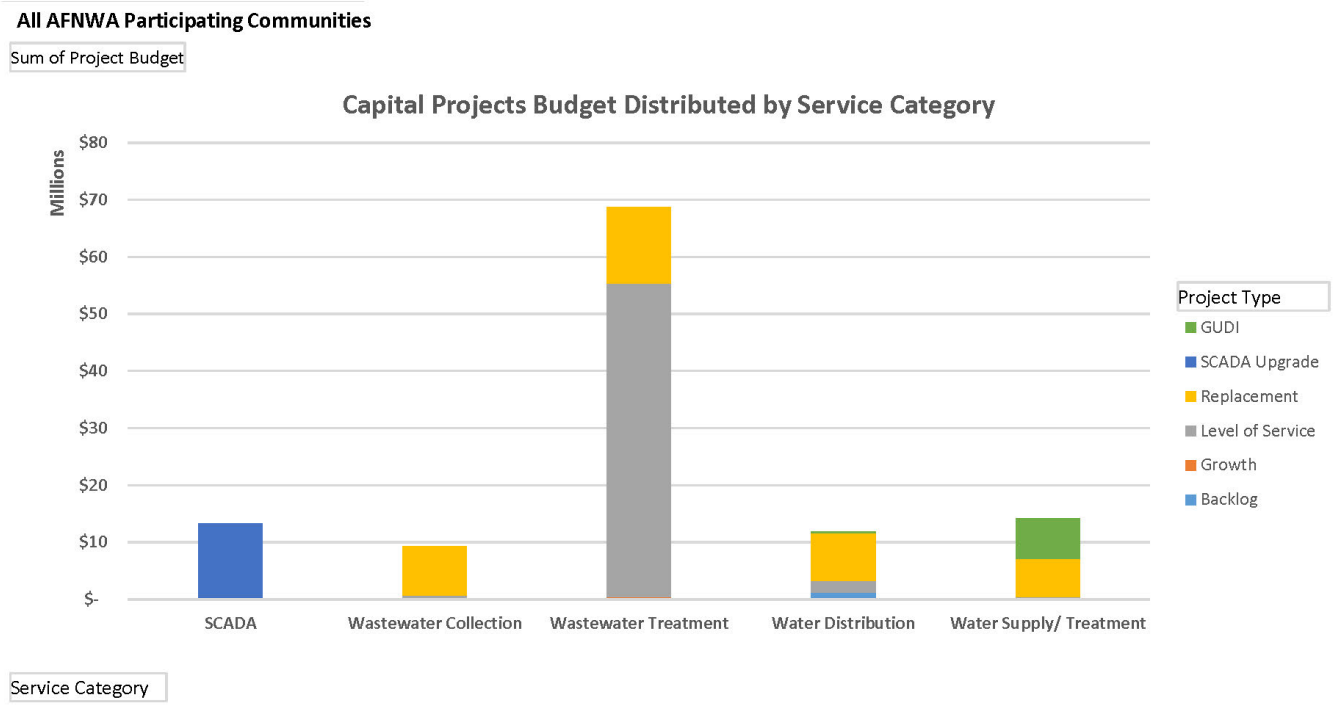


All AFNWA Participating Communities

ATLANTIC FIRST NATIONS WATER AUTHORITY
10-YEAR BUSINESS PLAN
2022/23 to 2031/32

Row Labels	SCADA	Wastewater Collection	Wastewater Treatment	Water Distribution	Water Supply/ Treatment	Grand Total
Abegweit	$ 611,175		$ 409,682	$ 504,753	$ 373,798	$ 1,899,409
Acadia	$ 505,087	$ 55,000		$ 55,000		$ 615,087
Elsipogtog	$ 1,253,737	$ 53,939	$ 12,100,047	$ 832,500	$ 1,873,058	$ 16,113,282
Esgenoopetitj	$ 1,029,487	$ 55,000	$ 1,614,363	$ 1,106,172	$ 766,252	$ 4,571,274
Eskasoni	$ 2,308,575	$ 1,882,472	$ 8,427,091	$ 1,690,715	$ 4,743,524	$ 19,052,376
Glooscap	$ 192,862			$ 312,335		$ 505,197
Kingsclear	$ 811,275	$ 995,761	$ 8,097,675	$ 930,664	$ 701,588	$ 11,536,963
Lennox Island	$ 1,141,612	$ 1,182,491	$ 7,719,304	$ 803,178	$ 1,807,199	$ 12,653,784
Membertou	$ 292,912			$ 1,121,964		$ 1,414,876
Millbrook	$ 505,087	$ 1,093,806		$ 2,104,465		$ 3,703,359
Oromocto	$ 611,175	$ 602,332		$ 396,142		$ 1,609,648
Paqtnkek	$ 1,453,837	$ 443,586	$ 1,105,943	$ 334,748	$ 1,559,893	$ 4,898,007
Pictou Landing	$ 611,175	$ 597,292	$ 1,485,117	$ 448,420	$ 768,201	$ 3,910,205
Potlotek	$ 1,035,525	$ 883,628	$ 8,933,990	$ 167,110	$ 881,751	$ 11,902,004
Sipekne'katik	$ 304,987	$ 546,690	$ 10,715,715	$ 258,868	$ 725,070	$ 12,551,330
St. Mary's		$ 220,688		$ 232,129		$ 452,817
Tobique	$ 617,212	$ 725,908	$ 8,181,113	$ 607,650	$ 37,028	$ 10,168,910
Grand Total	**$ 13,285,719**	**$ 9,338,593**	**$ 68,790,041**	**$ 11,906,814**	**$ 14,237,362**	**$ 117,558,529**

ATLANTIC FIRST NATIONS WATER AUTHORITY
10-YEAR BUSINESS PLAN
2022/23 to 2031/32



Row Labels	Backlog	Growth	Level of Service	Replacement	SCADA Upgrade	GUDI	Grand Total
SCADA					$ 13,285,719		$ 13,285,719
Wastewater Collection	$ 121,000		$ 615,594	$ 8,601,999			$ 9,338,593
Wastewater Treatment	$ 143,000	$ 285,000	$ 54,995,307	$ 13,366,734			$ 68,790,041
Water Distribution	$ 1,157,000		$ 2,089,030	$ 8,412,484		$ 248,300	$ 11,906,814
Water Supply/ Treatment	$ 342,750		$ 81,028	$ 6,707,626		$ 7,105,959	$ 14,237,362
Grand Total	**$ 1,763,750**	**$ 285,000**	**$ 57,780,958**	**$ 37,088,843**	**$ 13,285,719**	**$ 7,354,259**	**$ 117,558,529**

Appendix D2- Detailed List of Capital Projects

REMOVED FROM THIS VERSION
AVAILABLE UPON REQUEST

Appendix D3-Environmental Risk Assessments

REMOVED FROM THIS VERSION
AVAILABLE UPON REQUEST

Appendix D4- GUDI Assessments

REMOVED FROM THIS VERSION
AVAILABLE UPON REQUEST

D5- Capital Works in Progress

REMOVED FROM THIS VERSION
AVAILABLE UPON REQUEST

Appendix E- Projected Operating Statements for 2022/23 to 2031/32

ATLANTIC FIRST NATIONS WATER AUTHORITY
10-YEAR BUSINESS PLAN
2022/23 to 2031/32

	03/31/2023	03/31/2024	03/31/2025	03/31/2026	03/31/2027	03/31/2028	03/31/2029	03/31/2030	03/31/2031	03/31/2032	TOTAL
OPERATING EXPENSES											
SALARIES & BENEFITS	4,613,641	4,613,641	4,531,236	4,464,940	4,382,536	4,316,239	4,233,835	4,167,539	4,085,134	4,018,838	43,427,579
PROFESSIONAL DEVELOPMENT	306,316	457,765	407,765	246,382	246,382	246,382	246,382	246,382	246,382	246,382	2,896,521
TRAVEL	368,140	368,140	368,140	368,140	368,140	368,140	368,140	368,140	368,140	368,140	3,681,395
CONTRACT SERVICES	4,286,656	4,337,216	4,438,336	4,438,336	4,337,216	4,337,216	4,337,216	4,337,216	4,337,216	4,337,216	43,523,840
UTILITIES & ADMIN SERVICES	1,338,053	1,338,053	1,418,408	1,418,408	1,418,408	1,418,408	1,418,408	1,418,408	1,418,408	1,418,408	14,023,374
PROFESSIONAL SERVICES	589,174	589,174	539,174	539,174	539,174	539,174	539,174	539,174	539,174	539,174	5,491,743
COMMUNITY OUTREACH	115,250	115,250	87,750	87,750	87,750	87,750	87,750	87,750	87,750	87,750	932,500
INFORMATION SERVICES	80,740	75,740	74,925	74,110	73,296	72,481	71,666	70,851	70,036	69,222	733,067
FLEET COSTS	257,000	257,000	257,000	257,000	257,000	257,000	257,000	257,000	257,000	257,000	2,570,000
CHEMICALS	83,500	83,500	83,500	83,500	83,500	83,500	83,500	83,500	83,500	83,500	835,000
OTHER PROFESSIONAL SERVICES	266,340	266,340	411,000	402,394	391,387	379,816	367,654	354,869	341,430	327,303	3,508,534
BOARD COMPENSATION	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	2,250,000
TOTAL OPERATING EXPENSES	**12,529,810**	**12,726,819**	**12,842,235**	**12,605,135**	**12,409,789**	**12,331,107**	**12,235,725**	**12,155,829**	**12,059,171**	**11,977,933**	**123,873,553**

Appendix F- Proposed Drinking Water and Wastewater Regulations Framework

REMOVED FROM THIS VERSION
AVAILABLE UPON REQUEST

Appendix G- Enterprise Risk Management Policy

REMOVED FROM THIS VERSION