Atlantic First Nations Water Authority Business Case

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Executive Summary

Background

Access to safe drinking water and wastewater services are vital to the health of all Canadians. Local authorities are typically responsible to provide these services in many different circumstances and situations, whether they are a municipality or delivered through a private system. Their ability to maintain the quality of drinking water, treat wastewater and meet regulatory standards is often hampered by their ability to maintain the physical infrastructure associated with these systems. As systems deteriorate or fall into disrepair local authorities are faced with significant points of stress in their organizations as they strive to meet increasing demands which if not resolved will put many Canadians at risk.

The situation is similar for many communities in Atlantic Canada. Within the Atlantic region, many First Nations communities are individually responsible to operate their own water and wastewater services which are further complicated due to the lack of financial and organizational capacity and unique challenges as such as their remote locations. While Government of Canada funding is provided to First Nation communities and administered locally by each Atlantic First Nation, community systems often lack the certified expertise to ensure water and wastewater assets are operating in a good condition and meeting regulatory standards. As a result, the risk of equipment and process failures increase which in turn leads to drinking water advisories, and the need for residents to boil water before consuming. 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.

Objectives

Despite the ongoing struggle for Atlantic First Nations to deliver safe drinking water and wastewater services, the pursuit to deliver safe services has strengthened existing partnerships and led to the formation of new opportunities. Working with the Government of Canada, specifically Indigenous Services Canada, First Nation communities have established the Atlantic First Nations Water Authority (AFNWA) as a crucial element in their desires towards self-determination and as a true nation-to-nation solution to water issues facing their communities. Incorporated on July 18, 2018 as a non-profit organization under the Canada Not-for-profit Corporations Act, the AFNWA is a groundbreaking First Nation owned organization that will provide water and wastewater utility services to Atlantic First Nations. This AFNWA business case has been developed to:

- Consolidate and validate the work carried out over the last 10 years by Atlantic First Nations to establish the AFNWA.
- Secure responsibility and authority from the Government of Canada for the delivery of water and wastewater services to participating Atlantic First Nations communities
- Facilitate the transfer of water and wastewater delivery for participating Atlantic First Nation communities
- Obtain Federal commitment for long-term funding of operational and capital project delivery in relation to the transfer of authorities and responsibilities to the AFNWA

- Establish a commitment by the Government of Canada to support the AFNWA throughout its ongoing operations.

Achieving these outcomes will assist the AFNWA to establish a culturally appropriate, service oriented and technically strong First Nations water authority which will own, operate, and maintain water and wastewater facilities on their reserves.

Establishing the AFNWA provides an important precedent for First Nations communities across Canada, and the Government of Canada as they consider self-governance, self-determination and contemplate coordinated service delivery opportunities across multiple sectors. The AFNWA business case will further support the Government of Canada's required policy approvals and establishing of necessary funding agreements. Using a scalable delivery model, the AFNWA governing structure shows promise for a model which can be utilized by First Nations in communities across Canada.

Current Situation

As of 2020, fifteen (15) First Nations communities have confirmed their commitment to the AFNWA by signing Band Council Resolutions (BCRs) indicating their desire to formally participate. Their support has ensured that the AFNWA will become the overarching governance and management body to specifically address the problems associated with water and wastewater services being provided to Atlantic First Nation communities. These communities, located within Nova Scotia, New Brunswick and Prince Edward Island represent 61% of the total Atlantic First Nations by population. An additional seven (7) Atlantic First Nations communities have declared their interest, with others in the region being potential future candidates.

Business Model Options

The Atlantic Policy Congress, with the careful consideration by the Atlantic First Nations communities developed four potential business models which could achieve the AFNWA's purpose, mission, and desired structure to deliver water and wastewater services to communities:

- Full Service Centralized (FSC)
- Full Service De-centralized (FSD)
- Full Outsource (FOS)
- Technical Services Support (TSS)

Each of the identified options provide varying levels of service and benefits to communities that are served by the AFNWA, as well as their ability to address the following considerations:

- Support long-term self-governance goals
- Build capacity in water and wastewater operations
- Achieve financial independence
- Deliver the required level of service
- Address risk management requirements
- Integrate culture and tradition considerations and aspirations to achieve self-determination and governance

The four business models are summarized below (in addition to the current state).

Table 1 Non-Financial Evaluation Summary

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			

Full-Service Decentralized

Based on the options analysis conducted as part of the AFNWA business case, the Full Service Decentralized (FSD) corporate structure has been recommended by Atlantic First Nations communities, the Chiefs, and their Band Councils. The FSD governing model has been identified as being able the most aligned to their 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.

Governance Model

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 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 Committee. 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 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.

Operating Model

The proposed AFNWA operational model recommends 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 proposed AFNWA corporate structure is a radical departure from the status quo which strengthens Atlantic First Nation communities desire for self-determination while provide the ability to build a sustainable approach without dependence on federal agencies. This approach will not go where others have tread but instead blaze a trail for others to follow.

Once operational, the AFNWA will adopt and adapt to best practices to ensure an efficient and effective approach to service delivery with leadership from a commence into a full management structure led by a management team experienced in the operation of water and wastewater systems. Led by a qualified Chief Executive Officer (CEO), the management team will be responsible to coordinate qualified water and wastewater employees to deliver on AFNWA's mission. Four departments will be established within the utility with the following key responsibilities:

Table 2: Key AFNWA Departmental 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, information technology, and customer care. The department would be 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 customers, First Nations leadership (i.e. Chiefs and Elders), regulatory agencies, federal government, the general public and the media. The overall responsibility for this department would 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 Supervisor of Compliance will be an integral part of the Operations team. The overall responsibility for this department would be 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.

Hub and Spoke

To ensure participating Atlantic First Nations communities receive the level of service required to meet the water authorities' objectives, the AFNWA operations will be structured as an FSD 'hub and spoke' model. Under this organizational design, service delivery is arranged into a network of several geographic hubs which offer an array of services to the communities (spokes).

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)[1].

- Cape Breton (Eskasoni, Potlotek, Membertou)
- Prince Edward Island (Lennox Island, Abegweit)
- New Brunswick West (Oromocto, Tobique)
- New Brunswick East (Eel River Bar, Elsipogtog)
- Nova Scotia East (Millbrook, Sipekne'katik, Paqtnkek, Pictou Landing)
- Nova Scotia West (Acadia, Glooscap)

The hub and spoke model accommodate varying circumstances such as growing or declining populations or changing (geographic) groupings of participating communities as further BCR's are finalized. Additionally, the hub and spoke will allow the AFNWA to recognize First Nations traditional territory and Atlantic Canada's geographic challenges by optimizing service delivery with communities being no more than a 2.5-hour drive away from a service hub. Locating hubs within the communities will further allow the AFNWA to position expertise and operational knowledge close to water and wastewater systems while providing support from the main office and regional hubs.

Structuring the AFNWA under the FSD model will further allow for the most effective and efficient operation coupled with the best opportunity to establish relationships with the communities. This relationship is important to ensure traditional knowledge and values are integrated into how the water utility operates and to educate communities on long term sustainability.

Scalability

Choosing a hub and spoke model provides the AFNWA with a highly scalable and efficient design which can accommodate the addition or subtraction of satellite communities. While the current model has been developed to accommodate the fifteen (15) participating Atlantic First Nation communities, AFNWA can

[1] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August, 2017. P.23

expand to accommodate the remaining Atlantic First Nations communities who have yet to sign BCRs. This expansion from the current fifteen (15), to thirty-three (33) can be completed with minimal impacts to its operating costs.

The current staffing levels identified to service fifteen (15) communities reflect an important baseline for the five departments to fully service the Atlantic First Nations communities. With this foundation AFNWA does not anticipate having a significant operational impact as new communities join (see Table 3). Operating projections for the potential twenty-two (22) communities have been informed through various studies while the projection for a full AFNWA compliment of thirty-three (33) communities reflects an estimate that has been undertaken without a condition assessment of assets associated with these additional communities. As additional investigation and detail information it is anticipated the minor modifications may be required.

Table 3 FSD Full Time Equivalent Requirements to Accommodate Future Community Interest

AFNWA Department	15 Communities	22 Communities	33 Communities
CEO Office	2	2	2
Corporate Services	8	8	8
Communications	2	3	3
Operations[2]	20	22	28
Engineering	5	5	5
Total	**37**	**40**	**46**

Financial Analysis

To support the review of potential AFNWA business operating models, a financial analysis was conducted to further confirm the AFNWA and Government of Canada financial objectives. Conducted in 2018[3] to compare the individual operating models, this financial analysis was updated between 2019 and 2021 to determine the operating, maintenance and capital investments required to establish a financially independent AFNWA (see Section 6). The following table compares the current state of the fifteen (15) communities with the proposed FSD delivery model in 2017 dollars.

[2] This includes a Supervisor of Compliance as recommended in the OCWA Report review and is also included in the financial model.

[3] Halifax Water and Accelerator Inc. “Corporate Structuring for Atlantic First Nations Water Authority.” 2017 Appendix J.

Table 4 Comparison of operating expenses (typical year)

Operating Expenses		Full Service-Decentralized		Current State
AFNWA Structure				
Administration[4]	$	1,096,915	$	
Corporate Services Department	$	823,918	$	
Communications Department	$	270,630	$	
Operations Department	$	1,830,074	$	
Engineering Department	$	517,204	$	
Corporate Structure (Operating) Sub Total	$	**4,538,741**	**$**	**4,012,206**
AFNWA Board Costs	$	250,000	$	250,000
Community Systems O&M plus MTA Costs	$	3,200,000	$	3,200,000
Testing Program	$	3,000,000	$	3,000,000
Operating Total	$	**10,988,741**	**$**	**10,462,206**

Note 1) Current State financials have been extracted from the Ulnooweg Financial Analysis for the participating 15 communities
Note 2) Ongoing operating costs have been assumed which does not include the $1.5M one-time startup costs
Note 3) Board and other costs identified in the lower section of the table would not fully apply to current state but have been applied to provide a comparison

As identified in Table 4, the proposed AFNWA FSD operating expenditure is similar to the current state and does not provide enough variance to identify a preferred solution on financial grounds alone. The cost of providing the staff structure is different for each option however this is principally influenced by whether staff costs are outsourced to an external provider (where there would be a corresponding operational cost) or employed in house.

Operating costs per household

The operating cost per household for the provision of water and wastewater services compared to the current state of funding is provided in Table 5.

Table 5 Cost per household of current state versus AFNWA

Participating Communities	Operating Cost ($) Per Household
Current State (15 communities)	$ 907
Adjusted Current state (15 communities)	$ 2,364
AFNWA (15 communities)	$ 2,497

Current state costs for 2017 as compiled by Ulnooweg First Nation do not include the corporate structure costs which includes corporate services, communications and public relations, operations and engineering. It is also anticipated that ongoing operating costs will be required to support AFNWA board costs, community-based operations and maintenance costs, MTA costs and testing programs. If these costs are applied to the Ulnooweg costs to give a basis of comparison this results in a **$2,364** cost per

[4] Identifies corporate costs including but not limited to salaries and benefits, contract services, training and development, office lease, cleaning and janitorial, utilities, insurance, telephones, vehicles and vehicles expenses, advertising, professional services and property taxes.

household. This cost per household is comparable with the AFNWA Business Case projected costs of **$2,497**.

Capital cost projections

An important scope of work for the AFNWA to address is the capital investment required to improve and replace water treatment, water distribution, wastewater treatment, and water collection systems to ensure assets are capable of meeting regulatory standards. Identifying these investments will ensure facilities are brought up to a compliant regulatory standard based upon the condition assessments prepared by CBCL and cost information drawn from previous reports and financial projections. A projected 25-year (2022-2046) cash flow which has incorporated inflation has been developed for participating Atlantic First Nations communities with BCRs. Incorporating these factors ensure proper financial projections are integrated within the model (see section 6.3 Financial Analysis) and ensure alignment to anticipated financial needs. Capital cost projections are summarized in Table 6.

Table 6 Capital cost projections

	Total Years 1-10 (2022/23 – 2031/32)	Total Years 11-25 (2032/33 – 2046/47)
Annual Asset Renewal	$59,269,745	$112,174,264
Capital expenses - water upgrades	$8,170,939	$462,181
Capital expenses – wastewater upgrades	$39,027,635	$4,786,646
Total Capital Expenditure	**$106,468,319**	**$117,423,091**

The costs identified in Table 6 are only an assessment of expected costs based upon the information currently available as of January 2021. The capital requirements will be refined by the senior management team who will develop a 10-year Capital Spending plan informed by an Asset Management Plan and by an Integrated Resource Plan.[5] It is anticipated that additional capital funding will be required in years 11 to 25 to maintain the facilities in good working order and as a such an annual asset renewal funding budget of $5 million per year (2018 dollars) plus yearly inflation has been incorporated.

Funding

Atlantic First Nation communities have historically received funding directly from Indigenous Services Canada which was estimated to address 80% of the community's water and wastewater operation and maintenance costs. With the establishment of the AFNWA, a new funding model will be incorporated which redirects this ISC funding directly to the water authority as opposed to being received by the First Nations communities. Although the remaining 20% has been provided through the First Nations own funding, recent announcements from the federal government indicate a different approach in the future. As announced by Minister Marc Miller on December 2, 2020, ISC will contribute 100% of operation and maintenance costs commencing in the 2020/21 fiscal year.

Implementation

The AFNWA business case has been prepared to demonstrate the strategic, organizational, and financial viability of the AFNWA and to provide an order of cost for the funding which will be required by the

[5] An Integrated Resource Plan [IRP] for a 25 year period will be developed after three years of full operations and updated every five years, thereafter.

Government of Canada. Having confirmed the viability and order of costs for the water authority, the AFNWA is now prepared to move towards full operations. To ensure the AFNWA is successful in its operations, the following staged approach will be required:

- **Phase 1: Approval & Funding:** is an enabling phase which includes tasks which must be completed to allow the AFNWA to take on additional responsibility in 2020. This includes receiving the approval, interim funding and commitment by Government of Canada (GOC) to provide long-term funding to AFNWA in line with the order of cost identified in this Business Case. This commitment of GOC funding will allow Band Council Resolutions (BCR) to be completed with participating First Nations Band and license agreements established.

  As interim funding is received, AFNWA will be able to hire key senior leadership in order to establish the direction and develop detailed operating and capital budgets. Hiring a full complement of staff is not anticipated at this point. Instead, staff will be hired through the transition period as required with a full staff complement in Spring 2022.

- **Phase 2: Operational Funding:** comprises establishing the remaining AFNWA management team and the tasks of these managers will be to develop and adopt a formal training and development program for all staff[6]. Furthermore, senior management will develop human resource and change management strategies that recognize the experience and knowledge of staff currently employed in water and wastewater system operation and take a consistent approach to salaries, benefits, training, and career development.

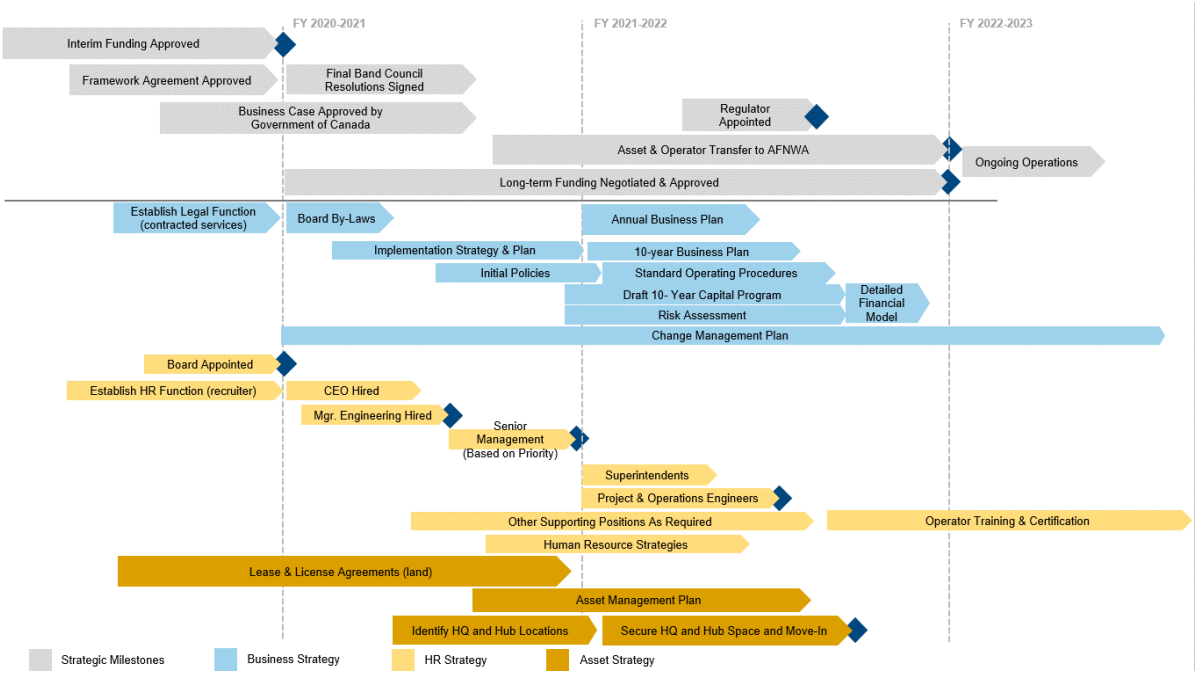
  Additional tasks include confirming regulatory oversight and develop operational planning to identify AFNWA funding requirements. This phase will also be complemented by advancing AFNWA's capital planning by developing an Asset Management Plan and ten-year capital budget. Completion of these plans will allow the AFNWA to understand its assets, determine their existing performance and identify required future investments. Moving from an order of costs, as identified in this business case to a more refined operating and capital costs model will be important for the AFNWA to achieve prior to full operations.

- **Phase 3: AFNWA Funding**: comprises the development of detailed budgets into a comprehensive Funding Model. The funding requirements will be subject to negotiation with ISC with the understanding that the level of funding will be in line with the order of cost identified in the AFNWA business case. As transfer agreements are finalized, AFNWA will commence full autonomous operations.

[6] The OCWA Report notes that Compliance and Training staff are needed to ensure quality control and continuous improvement. AFNWA accepts this recommendation and will be reflected in the Business Plan. The Business Plan will be developed in 2021 by the Senior Management Team after their recruitment.

The following identifies a high-level schedule for the implementation of the AFNWA.

Figure 1 High-level implementation schedule for the AFNWA



Desire for Change

There is a strong desire for change among Atlantic First Nations and the Government of Canada. Maintaining the current approach and status quo does not meet the needs or aspirations of the AFNWA or the Government of Canada and perpetuates the issues of the past. This business case recommends that the Government of Canada provide operational and capital funding to allow the AFNWA to establish a full service de-centralized business model and adopt a hub and spoke organizational structure for operations. Providing this long-term funding will allow the AFNWA to become an organization where First Nations own, operate and upgrade their own water and wastewater facilities.

This AFNWA business case validates previously completed business plans, asset condition assessments, and financial analyses. As operations commence, AFNWA will gain a greater understanding of the level of services being provided to Atlantic First Nation communities, the asset condition of water and wastewater systems, and the financial needs required for investment. As such, further refinements in operations and capital budgets should be anticipated.

Ontario Clean Water Agency (OCWA) Review

ISC commissioned the Ontario Clean Water Agency (OCWA) to review the AFNWA Business Case. On January 12, 2021, OCWA published their *Report to the Atlantic First Nations Water Authority – Review and Recommendations on the Business Case (*OCWA Report). The OCWA report concludes that the Business Case was well researched, logical, coherent, and convincing and is a powerful testament to the viability of the AFNWA objectives and future success.

OCWA's review included the re-modelling of the proposed Regional hub and spoke approach and compared budgets to ensure the projections aligned with industry best practices and how OCWA

structures and cost similar hub and spoke operations. OCWA endorsed the AFNWA approach and associated budget but identified some anomalies with the costs for the Testing Program, initial start-up, and the Integrated Resource Plan. They noted that these costs should be incorporated as a one-time, periodic, or amortized expense. This has been corrected in this final version of the Business Case. OCWA found very few concerns with the Business Case with recommendations limited to:

- Regulatory framework[7] requires further development and may increase program costs
- Compliance and Training staff[8] are needed to ensure quality control and continuous Improvement

These items where considered by AFNWA during the preparation of the Business Case and will benefit from the input of the AFNWA senior management team which is currently being hired. AFNWA accepts the OCWA recommendations and confirm that these items will be addressed in the Business Plan.

The OCWA Report recognized that there are many aspects that cannot be assumed at this point in the process—namely the detailed asset condition of the facilities. As noted, these aspects will be determined once the asset management plan is completed in 2022. OCWA's Report supports the AFNWA methodology for the Asset Management Plan. AFNWA has commenced work on the Asset Management Plan which will form a key input into the 10-year Capital Spending Plan and Business Plan.

[7] The OCWA Report notes that the applicable regulatory framework requires further development and may increase program costs. The OCWA Report also notes that the Business Case does not specify which regulatory frameworks the AFNWA will be mandated to meet. This is a work in progress. The regulatory structure and any associated costs to AFNWA will be reflected in the Business Plan. AFNWA have draft regulations for drinking water prepared by Dalhousie University and Environment Canada and Climate Change has confirmed that they are positioned to regulate wastewater. There is a need to identify a Business regulator and this will be progressed and reflected in the Business Plan.

[8] The OCWA Report recommends one additional staff person in the role of Supervisor of Compliance. This has been adjusted in the financial model using the rate for a supervisor. Other additional costs may be reflected in the Business Plan as AFNWA compliance and training plans are developed.

Table of Contents

1 Business Needs and Desired Outcomes

1.1 Overview and Background

1.1.1 Water and Wastewater Treatment in Canada

Access to safe drinking water and wastewater services are vital to the health of all Canadians.[9] 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 safe provision of these services.

In Atlantic Canada, First Nation communities are individually responsible for operating the water and wastewater services in their communities and ensuring sufficient staff expertise and training. First Nation 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[10]. In addition, there are over 900 drinking water advisories daily[11] 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 related to drinking water, eliminating these risks require constant oversight in operations, and the performance of infrastructure. According to the 2016 Canadian Infrastructure Report Card, $60 billion of water and $24 billion of wastewater assets are currently in fair, poor or very poor condition.[12] 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 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. 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.[13]

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[9] 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 Nation Communities.” Minister of Public Works and Government Services Canada, 2005. p.1

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

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

[12] Canadian Construction Association, Canadian Public Works Association, Canadian Society for Civil Engineering, Federation of Canadian Municipalities. (2016) Canadian Infrastructure Report Card 2016.

[13] Minister of Indigenous Services Mandate Letter (October 4, 2017)

1.1.2 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 systems, for which, until December 2020, they assumed 20% of the costs. They are also responsible for ensuring that water systems are operated by trained operators, for monitoring drinking water quality and for issuing drinking water advisories. As of 2019, Atlantic First Nations have resolved outstanding drinking water advisories which indicates that they are ready for a transfer of responsibilities from Canada to the AFNWA.

The Government of Canada supports water and wastewater services through funding. 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 under a Municipal Type Agreement[14] (MTA) supplies the Atlantic First Nation with treated water or receives its wastewater.

Because of 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.

1.2 The Problem

Safe Drinking Water / Lower Level of Service

In 2019, First Nation communities continue to struggle daily with unsafe drinking water due to several First Nation specific water-related challenges as highlighted in Table 7.

Table 7 First Nation Water-Related Challenges[15]

Challenges	Brief Description
Location	Many First Nations are in difficult terrain with smaller systems, making it technically difficult and costly to provide water services. Water sources are often located off reserve, and it is difficult for First Nations to protect them.

[14] A Municipal Type Agreement (MTA) is an agreement which enables an Atlantic First Nation 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 resolution) and inconsistencies exist between MTAs. For some communities, the MTA is between ISC and the municipality.

[15] 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 Nation Communities.” Minister of Public Works and Government Services Canada, 2005. Exhibit 5.10

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.
Costs & Financing	Providing drinking water is costly, and there is limited economy of scale. Water facilities serve a small population. Poor economic conditions limit First Nations' access to financing for water projects and to regular revenues to cover a portion of 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 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.
Technical Standards	Provincial guidelines and regulations on drinking water are typically applied except when less stringent than federal standards. Support to help meet standards and enforcement mechanisms is limited.
Population Growth	On-reserve population is estimated to continue to increase. Between 2006 – 2016 First Nations populations in Atlantic Canada more than doubled (+101.6%).[16]. Thirty-year forecasts (up to 2036) indicate that the average annual growth rate for First Nation will be higher than non-First Nations, and remain younger than the general population.[17] 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), These trials led to a comprehensive set of Atlantic wide regulations for First Nations which were submitted to the Government of Canada in 2013. 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 on what can be planned for and accomplished. A lack of predictable funding has limited First Nations community's ability to proactively plan, construct and maintain water and wastewater infrastructure in a manner that optimizes their systems.

[16] 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

[17] 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

These challenges are consistent with those identified in Atlantic First Nations communities by the Chiefs / Mayors meeting, Elders Meetings, First Nation Leaders and Operator Workshops, and the APC Water Forum to identify specific problems associated with Atlantic First Nations (see Section 1.4).

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.[18] 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[19]. Delivering water and wastewater services that did not meet regulatory standards negatively impacted public health, economic development, and protection of the environment.[20]

Providing services to small communities over a large geographic area presents a unique challenge for Atlantic First Nations due to the inefficiencies and the complexity with delivery to these locations. Distance between individual operations introduces issues associated with ensuring qualified and committed community water managers, operators and monitors have the support required to maintain these systems. Another problem is the need to ensure consistency of operator compensation, training and career development that is competitive with the municipal sector and can instill a consistent service culture and emergency response capability.

Lacking the integration of cultural and spiritual with the technical models of water and wastewater services further introduced barriers to the proper stewardship of water. For example, separating traditional knowledge from water and wastewater services has led many Atlantic First Nations to lose their awareness as to their stewardship role of water.

1.3 The Opportunity

Atlantic First Nations communities have identified the establishment of the Atlantic First Nations Water Authority (AFNWA) as a crucial element in their desires towards self-determination and as a true nation-to-nation solution to water issues facing their communities. As a result, fifteen (15 First Nations communities have proposed and are supportive of the AFNWA as

an overarching governance and management body to specifically address the problems associated with water and wastewater services being provided to Atlantic First Nation communities.

As a non-profit corporation owned by First Nations and governed by a Board of Directors which includes First Nation Chiefs, the AFNWA strengthen the important aspirations towards self-determination. In addition, it establishes a professional technical service organization responsible for the management and delivery of water and wastewater services to 15 member communities with a combined population of over 23,000 and 4,400 households. The AFNWA enjoys wide regional support from First Nations communities across Atlantic Canada who have been actively

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

engaged in the planning and development of the AFNWA.[21] Refer to Appendix 1 for a map of participating Atlantic First Nation communities.

The main opportunities with the establishment of the AFNWA are outlined below.

1.3.1 Safe Drinking Water & Wastewater Treatment

AFNWA can address the provision of safe, clean water and wastewater in all participating Atlantic First Nations by implementing a professionally managed utility with a business approach and service culture (with abilities to respond to emergencies). The formation of the AFNWA has been identified by the Atlantic First Nations as the best approach to meet current and emerging regulatory standards. The AFNWA, as the sole authority to control water for participant communities, will be able to provide a collective stewardship and responsibility for the Atlantic First Nation communities. Having a singular authority will provide a level of oversight that will provide consistent high-quality water and wastewater services for their residents, manage funding and revenues, support public health, economic development, and protection of the environment.

1.3.2 Self-Governance & Self-Determination

The Government's support for reconciliation with First Nation communities is consistent with the direction to modernize institutional structures to support self-governance, self-determination, and financial independence.

Federal funding will enable and support AFNWA to address historical needs, deferred maintenance, and update systems to a regulatory standard. Once this initial tranche of funding has been invested, AFNWA will be positioned to proactively operate, invest, and deliver services in a way that maximizes and achieves a greater level of financial independence. While individual Atlantic First Nation communities currently receive direct funding, the AFNWA will proactively manage the needs of all participating communities, maximum the investment within their systems, and lead the communities from a yearly funding request, to a longer-term approach for sustainability.

The AFNWA will transform water and wastewater service delivery for First Nation communities in Atlantic Canada by offering a new integrated cultural, traditional and industry best practices model of delivery that further supports self-determination. The AFNWA will have the authority and responsibility for water and wastewater services in member communities. It is a key element in Atlantic First Nation's self-determination, self-governance, and financial control. The AFNWA will be established as a non-profit organization which will be owned and operated directly by Atlantic First Nations. It will strengthen the roles of elected officials, utility board members, and senior management. Strategic and management decisions will be based on the best interests of the Atlantic First Nation communities whom the AFNWA serves, providing stronger accountability for the quality of drinking water and wastewater effluent to clients, communities, and regulators.

[21] Media Release, Atlantic First Nations Water Authority Board of Directors meet with Minister Seamus O'Regan, May 3rd, 2019

1.3.3 Integrate Culture and Tradition

A key opportunity identified by Atlantic First Nations will be in their ability to integrate cultural and traditional knowledge within AFNWA in delivering water and wastewater services by educating communities, and the rising generation in the traditional, cultural, and scientific importance of water[22]. Integrating Two-Eyed Seeing and Wise Practices are two key examples identified that will further integrate a respect for the spiritual and physical nature of water[23].

1.3.4 Financial Independence

AFNWA will develop over time operational efficiencies by harmonizing / implementing uniform technologies, efficiencies in operations and maintenance and human resource qualifications across all communities. This will directly align the Government of Canada's aspirations for a new fiscal relationship, by having greater control by First Nations.

AFNWA has also been designed to accommodate other communities joining the water authority in the future. With more participation, AFNWA will be able to realize greater efficiencies and benefits due to the larger number of communities that are being served. AFNWA continues to engage in conversations with these communities and has planned to accommodate additional participation in the future.

Operationally, AFNWA will prioritize needs and implement a proactive investment approach to ensure water and wastewater systems are operating efficiently and receiving the necessary capital investments to address needs. Administrative, operations and maintenance, and purchasing are a few of the operating efficiencies that can be anticipated.

AFNWA will also be able to negotiate with neighboring municipalities in an equal and consistent way. This approach will serve the collective interests of the Atlantic First Nations communities and provide a further example of shared leadership and accountability values.

1.3.5 Economic Development

Economic benefits stemming from AFNWA investment will benefit individuals located within Atlantic First Nations communities. Examples may include such initiatives as providing education and long-term training for science technology engineering and mathematics, providing well-paying employment opportunities for Atlantic First Nations people, and the establishment of economic development activities including employment, job training, careers and leadership training. Short-term benefits would include construction jobs during the capital investment phase of infrastructure projects in the participant communities. Participant Atlantic First Nation communities will also experience an increase in economic development in the medium to long-term, for example, the AFNWA will make indigenous procurement a priority. AFNWA will support communities who wish to provide water and/or wastewater services to commercial developments

[22] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August 2017. P.5

[23] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August 2017. P.5.

that may be located on reserves. Providing this level of service will further contribute to the increase in the economic activities of Atlantic First Nation communities.

1.3.6 A Model for First Nations Across Canada

AFNWA will provide an important precedent for First Nations communities across Canada as they consider self-governance and self-determination and contemplate coordinated service delivery across multiple sectors. As a scalable delivery model, the AFNWA governing structure can be utilized by First Nations in other regions across Canada.

1.4 The Evolution

The evolution of the AFNWA has been the result of over 10 years work by Atlantic First Nations and various stakeholders to build legal, regulatory, Atlantic First Nation community and Federal Government support.[24] In 2005 it was identified that First Nations "did not benefit from a level of drinking water comparable to that available to people living off reserves because provincial legislation and regulations are not applied on reserves. Consequently, First Nations communities did not have a regulatory regime to govern drinking water."[25] Between 2006 and 2008 further studies[26] identified that regulations alone would not be effective in ensuring safe drinking water unless accompanied by investment in human resources and physical assets. Continued investment in comprehensive consultations were identified as a requirement to improve water treatment and management practices for First Nation communities.

The Government announced in 2008 the First Nations Water and Wastewater Action Plan (FNWWAP) which provided funding for treatment facility construction and renovation, operation and maintenance of facilities, training of operators and related public health activities on-reserve. Through this investment, the Government laid the foundation for the improvement of health and quality of life of people in First Nation communities by assisting First Nations to provide better water and wastewater services to their residents.

Additional assessments began in 2009 that included representatives from INAC, Environmental Health Officers from Health Canada and Tribal Council Representatives as well as consultants. In March 2009, 13 engagement sessions on the development of a proposed legislative framework for drinking water and wastewater in First Nations communities were held across the country focusing on the desirability of federal, safe water legislation pertaining to First Nation communities, and to ascertain First Nation perspectives on developing federal legislation that would call for the incorporation by reference of provincial/territorial regulations relating to potable water and wastewater. These assessments[27] informed the need and size for the Government's

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[24] Atlantic Policy Congress "APCs Clean Water Initiative's (CWI) Atlantic First Nation Water Authority (AFNWA) Chronology." 2016. Appendix A, B and C.

[25] 2005 Report of the Commissioner of the Environment and Sustainable Development to the House of Commons – Chapter 5: Drinking Water in First Nations Communities" by the Auditor General

[26] Expert Panel on Safe Drinking Water for First Nations (2006) and the Senate Standing Committee on Aboriginal Peoples (2007)

[27] Including "Summary Report of the Impact Analyses of the Proposed Federal Legislative Framework for Drinking Water and Wastewater in First Nations Communities" (April 17, 2009)

future, long-term investment strategy in water and wastewater infrastructure systems in First Nations communities across Canada.

Between 2010 and 2013, the United Nations General Assembly recognized the right to safe and clean drinking water and sanitation as a human right, ISC released the National Assessment of First Nation Water and Wastewater Systems, and the House of Commons indicated that federal governments have not made satisfactory progress on past commitments and recommendations related to water and wastewater programs[28]. This included the call for a regulatory regime to be implemented in First Nations communities because provincial legislation and regulations are not applied on First Nation reserves.

Within the Atlantic region, the Atlantic Policy Congress of First Nations Chiefs Secretariat (APC)[29] developed the First Nations Clean Water Initiative - Atlantic Region (FNCWI-AR) which led to the creation of a First Nations Water Authority that would ultimately become responsible for the upgrades, operation, and long-term maintenance of water and wastewater infrastructure on member First Nation communities in the Atlantic Region. In 2014, 24 Atlantic First Nations communities signed Band Council Resolutions (BCR) to facilitate updating asset condition and cost analysis of current water and wastewater systems in their communities and to initiate the required engineering work, land surveys and environmental assessments.[30] APC initiated this to improve the planning of future investments in the water authority's infrastructure.

In addition to advancing the understanding on the current state of service delivery in the communities and the national work on regulatory frameworks and regulations, First Nations, APC, INAC, First Nations and Inuit Health Branch (HC-FNIHB) and ISC held multiple outreach activities, workshops and stakeholder engagements between 2009 and 2017. Topics have ranged from the possible benchmark regulations to the composition of the AFNWA using engagements such as:

- Water Forums
- Chief / Mayor's and Elders Meetings
- National Surveys
- Atlantic First Nation Leaders Workshops
- Operator Workshops

Through this extensive consultation with First Nation Chiefs, Elders, system operators, community outreach activities and many others, APC was able to develop a recommended corporate structure, and a preliminary five-year business plan[31][32] for the AFNWA. As a result of

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[28] Status Report to the Auditor General of Canada

[29] Atlantic Policy Congress (APC) of First Nations Chiefs Secretariat, is a federally incorporated (1995) policy research and advocacy Secretariat for 31 Mi'kmaq, Maliseet, Passamaquoddy and Innu Chiefs, Nations and Communities in Atlantic Canada, Quebec and Maine.

[30] Atlantic Policy Congress "APCs Clean Water Initiative's (CWI) Atlantic First Nation Water Authority (AFNWA) Chronology." 2016. Table 3, p. 4

[31] Halifax Water and Accelerator Inc. "Preliminary Fire Year Business Plan." June 2018.

[32] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August 2017.

the success of this stakeholder engagement and notional support from ISC, the AFNWA was officially incorporated 18 July 2018 under the Canada Not-for-profit Corporations Act. At its first Board meeting on July 11, 2018, the AFNWA endorsed the recommended organizational structure for the utility and the preliminary five-year business plan. Refer to Appendix 2 for a full detailed list of the engagements, workshops, meetings, and forums.

2 Current State

2.1 Participating Atlantic First Nation Communities

Atlantic First Nations communities located within Nova Scotia, New Brunswick and Prince Edward Island have been engaged as to their interest in participating in the AFNWA. Those Atlantic First Nations communities who have confirmed their interest, as of February 2020 in participating and have signed Band Council Resolutions (BCRs) have been identified in Table 8. As additional Atlantic First Nations communities show interest, and sign BCR's they will be allowed to participate with the AFNWA. As of May 2019, fifteen (15) Atlantic First Nation communities located within three provinces have expressed interest in establishing the AFNWA (Table 8) with an additional seven (7) remaining interested but have not formally signed a BCR. This represents a total registered population of 24,000 within the participating AFNWA nation communities with communities ranging in size between 340 and 4,600.

Table 8 Atlantic First Nation Communities expressed interest (w. signed BCRs) in AFNWA.

Participating Atlantic First Nations Communities	Province	Registered Population [33] (2016)
Abegweit First Nation	PEI	338
Acadia First Nation	NS	1,664
Eel River Bar First Nation	NB	772
Elsipogtog First Nation	NB	3,456
Eskasoni First Nation	NS	4,642
Glooscap First Nation	NS	393
Lennox Island First Nation	PEI	1,004
Membertou First Nation	NS	1,573
Millbrook First Nation	NS	1,995
Oromocto First Nation	NB	743
Paqtnkek Mi'kmaw First Nation	NS	599
Pictou Landing First Nation	NS	672
Potlotek First Nation	NS	773
Sipekne'katik First Nation	NS	2,771
Tobique First Nation	NB	2,553
	Total	**23,948**

The commitment of these 15 communities represents a significant critical mass of Atlantic First Nation communities, and the populations they service. The inclusion of these Atlantic First Nation

[33] Indigenous and Northern Affairs Canada. (June 18, 2019) "First Nation Profiles." Retrieved from https://fnp-ppn.aadnc-aandc.gc.ca/fnp/Main/Search/SearchFN.aspx?lang=enghttps://fnp-ppn.aadnc-aandc.gc.ca/fnp/Main/Search/SearchFN.aspx?lang=eng March 3, 2020.

communities provides a significant percentage by population [80%] of First Nation communities participating in the AFNWA.

To facilitate the opportunity to incorporate future Atlantic First Nation communities, the AFNWA has been designed to be scalable. As of the March 2020, AFNWA is aware of an additional seven (7) communities that have expressed interest to participate but have yet to formally commit (Table 9).

Table 9 Atlantic First Nation Communities expressed interest (w/o BCRs) in AFNWA.

Atlantic First Nations Communities Expressing Interest	Province	Registered Population [34] (2016)
Buctouche First Nation	NB	126
Indian Island First Nation	NB	206
Kingsclear First Nation	NB	1,057
Metepenagiag First Nation	NB	695
St Mary's First Nation	NB	1,960
Waycobah First Nation	NS	931
Woodstock First Nation	NB	1,123
	Total	**6,098**

Tables 10 and 11 below identify the current type of system of the facility for the participating Atlantic First Nation communities. These assessments are a snapshot in time because water and wastewater conditions and their associated level of risks may improve or further deteriorate based on future levels of investment, and impact of operation. Implementing a regular inspection protocol will ensure a current un1derstanding of each system.

Table 10 Participating Atlantic First Nations Communities by type of Water Systems

Groundwater (8 Systems)	Municipal Type Agreement (6 Systems)	Surface Water (1 System)
• Abegweit • Elsipogtog • Eskasoni • Lennox Island • Paqtnkek • Pictou Landing • Sipekne'katik • Tobique	• Acadia • Eel River Bar • Glooscap • Membertou • Millbrook • Oromocto	• Potlotek

[34] Indigenous and Northern Affairs Canada. (2019, June 18) "First Nation Profiles." Retrieved from http://fnp-ppn.aandc-aadnc.gc.ca/fnp/Main/Search/SearchFN.aspx?lang=eng

Table 11 Participating Atlantic First Nations Communities by type of Wastewater Systems[35]

MTA (5 systems)	Facultative or Aerated Lagoons (6 systems)	Mechanical Plant (2 systems)	Small Communal System (15 Homes) (1 System)	Private (1 Community)
• Acadia • Eel River Bar • Membertou • Millbrook • Oromocto	• Elsipogtog • Lennox Island • Pictou Landing • Potlotek • Sipekne'katik • Tobique	• Eskasoni • Paqtnkek	• Abegweit (Scotchfort)	• Glooscap

2.2 Regulatory Framework

Currently there are three Federal departments involved in the regulation and service provision of delivering safe drinking water on reserves. Their roles can be summarized as follows

- Indigenous Services Canada provides funding – including funds for capital construction, upgrading, operating and maintenance costs – to First Nations for the provision of water services to First Nations communities. ISC also provides technical advice, ensures value for money and ensures source water protection for First Nations on reserves. Additional support has been provided to First Nations in developing their own source water protection plans[36].
- Health Canada establishes Canadian Drinking Water Quality Guidelines
- Indigenous Services Canada, First Nations and Inuit Health Branch ensures the delivery of drinking water monitoring programs on reserves located south of the 60th parallel, either directly or in an oversight (non-enforcement) role
- Environment and Climate Change Canada is involved in source water protection through its powers to regulate wastewater discharge into federal waters or into water generally where water quality has become a matter of national concern, and to enforce effluent discharge standards into water throughout Canada.

Developing of a compliance and enforcement framework is to be co-developed with ISC. Appendix 3 identifies key developments that have further characterized, commented on and in some cases attempted to address the regulatory gap relating to water and wastewater services in First Nations Communities

[35] Indigenous and Northern Affairs Canada. (2019 June 18). "National Assessment of First Nations Water and Wastewater Systems - Atlantic Regional Roll-Up Report." Retrieved from https://www.aadnc-aandc.gc.ca/eng/1314206899796/1314207059703

[36] Refer to Appendix 2 for an overview of key AFNWA engagements

While not regulated by provincial regulatory standards, Atlantic Canada First Nation communities must introduce regulatory requirements to establish water and wastewater quality standards. The introduction of requirements that go beyond secondary level treatments to safeguard inland receiving waters, and the influence of surface water infiltration may become a requirement which in turn will require additional funding. In these situations, minimum end of pipe effluent standards will be required[37], including further disinfection and filtration upgrades.[38] As a result, AFNWA will need to respond as future regulations are developed, approved, and implemented.

Quality Environmental Management System [QEMS]

The OCWA Report recommends a QEMS for all water and wastewater systems that fall under the AFNWA umbrella. This is a systematic way of ensuring environmental and public health outcomes are consistently met.

AFNWA will consider the implementation of a QEMS in the future for possible ISO 14001 certification. The first step will be to implement water and sanitation safety plans which are complementary to QEMS. AFNWA propose to provide its plans for implementing water and sanitation safety plans together with the associated costs in the Business Plan.

[37] Introduced as part of the 2009 Canadian Council of the Ministers of the Environment and required under the 2012 Wastewater Systems Effluent Regulations
[38] Halifax Water and Accelerator Inc. “Preliminary Fire Year Business Plan.” June 2018. P.15

3 Environmental Analysis

3.1 Strategic Context

The Government of Canada continues to strive for reconciliation with First Nations and in ensuring the establishment of self-determination, self-governance and financial control. To enable this requires the modernization of institutional structures and governance so that First Nations can build the capacity to support a new fiscal relationship.[39]

Moving towards Indigenous self-government requires the support of the Government of Canada, particularly under the Indian Act in the overseeing of existing services and in the provision of community infrastructure, emergency management, water, education, moneys and trusts, and registration. In the Prime Minister's mandate letter to the Minister of Indigenous Services the following direction was provided:

> ***"Ensure the successful delivery of the significant investments made in Indigenous services through Budget 2016 and Budget 2017. This includes new and repaired housing, ensuring First Nations children on reserve receive a quality education, and eliminating all long-term boil water advisories by 2021 as a key measure in ensuring First Nations people on reserve have access to clean drinking water."***[40]

To further support the goals of First Nation self-determination, the Indigenous and Northern Affairs department was divided in 2017 into two departments: Crown-Indigenous Relations and Northern Affairs and the Department of Indigenous Services Canada. Receiving Royal Assent on June 21, 2019[41], this separation and establishment allows one department to focus on a new relationship with Indigenous people, such as First Nations working on self-government agreements, while the other will continue providing services for all First Nations.

AFNWA, as a service delivery organization with the authority to govern participating Atlantic First Nation communities, will contribute to the economic development of communities, and in the creation of jobs for Atlantic First Nation communities which will assist in realizing self-determination and financial independence. As AFNWA will operate regionally, investments will be made in the local community to ensure that qualified water and wastewater employees remain and provide benefits to communities.

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[39] Justin Trudeau, Prime Minister of Canada. (2019, June 18) "Minister of Indigenous Services Mandate Letter" Retrieved from https://pm.gc.ca/eng/minister-indigenous-services-mandate-letter-october-4-2017
[40] Justin Trudeau, Prime Minister of Canada. (2019, June 18) "Minister of Indigenous Services Mandate Letter" Retrieved from https://pm.gc.ca/eng/minister-indigenous-services-mandate-letter-october-4-2017
[41] Parliament of Canada (2019, June 29) Retrieved from https://www.parl.ca/LegisInfo/BillDetails.aspx?Language=E&billId=10404016

On July 10, 2018, the AFNWA have adopted the following mission statement:

"Provision of 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"

3.2 Cultural and Spiritual Alignment

For Atlantic First Nations integrating the cultural and spiritual traditions for Atlantic First Nation communities is a key component in delivery of water and wastewater services, and an important guide for the AFNWA[42].

Figure 2 Cultural and Spiritual Significance of Water

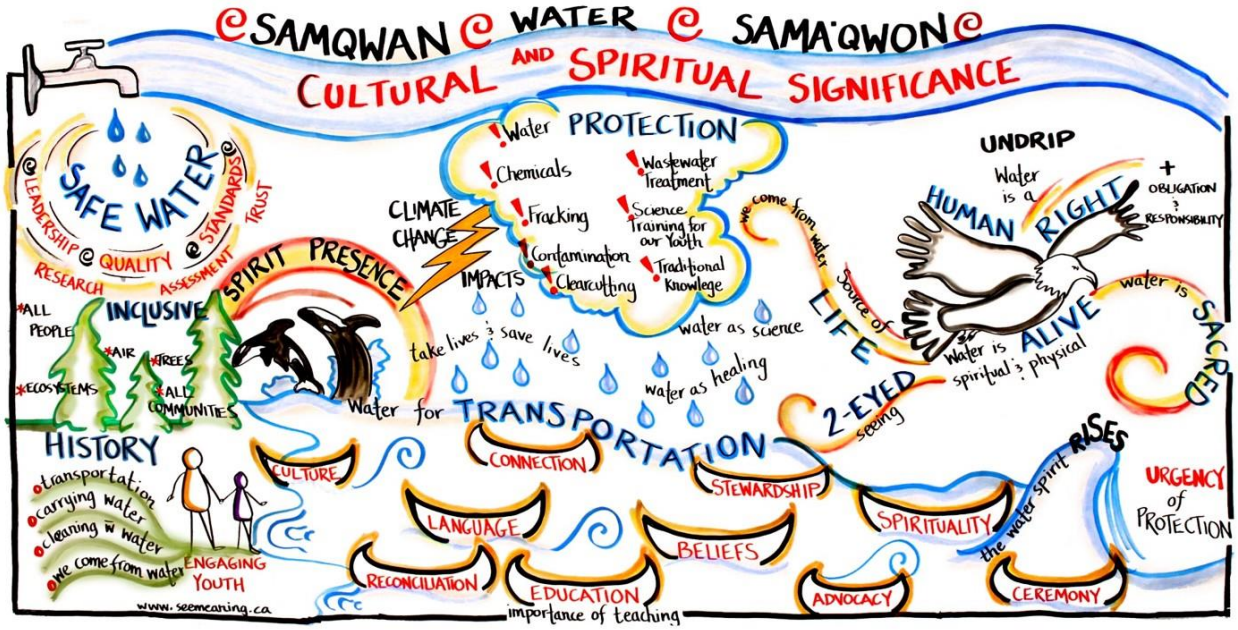

Figure 2 and the list below summarizes the wisdom gathered from engagement with Atlantic First Nations Elders and cultural and spiritual importance of water:[43]

- Water is alive, is both spiritual and physical and an important part of many ceremonies. Examples of ceremonies include ceremonies for the water spirit, ceremonies that take your troubles away, offerings being made into water.
- Water can take life and it can save life. Water plays a central role for the community and family activities. Clean water is needed to make Grandmother recipes, it is linked to good health, and serves as a healer.

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[42] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August 2017.
Appendix C

[43] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August 2017.
Appendix C

- Water is sacred. We all come from water and it is the source of life for all living things. A child is carried in water. The water comes before the child is born. Traditional teachings also included the identification that First Nation woman have a sacred connection to water.
- Water and nature have rights. Humans have the responsibility to respect and preserve those rights. Stewarding environmental health, the health of Mother Nature is a responsibility.
- First Nations believe in the shared ownership of land and water rather than individual ownership.
- Atlantic First Nations have both formal and informal leadership, and a shared leadership in the communities between formally elected councils, operating under the delegated authority under the Indian Act, and informal leaders.

Atlantic First Nations have identified the importance of Two-Eyed Seeing and Wise Practices and their application to the AFNWA.

Two-Eyed Seeing integrates non-indigenous science-based decision making while integrating and respecting indigenous Atlantic First Nations traditional knowledge and culture. Experience has highlighted that implementation of non-indigenous solutions have not fully resolved the issues associated with water and wastewater systems for Atlantic First Nation communities. A Two-Eyed Seeing approach would allow AFNWA to address some of the harm that has been created by not integrating culture and tradition into water and wastewater services. Elders have identified that Atlantic First Nations currently have a lack of trust for water.[44] Embedding culture through Two-Eyed Seeing will utilize the best of both approaches to help restore the relationship between communities and water, it will reconnect people to the source of water and the importance of it, and reconcile quality, culture, and science.

Elders have also identified 'Wise Practices', practices which provide "locally appropriate actions, tools, principles or decisions that contribute to the development of sustainable and equitable conditions."[45] These practices include the need for leaders to understand:

1. Identity and culture (have a strong understanding and grounding in their culture, traditional knowledge, and values, and in their people's historical connection to their traditional territories)
2. Leadership
3. Strategic vision and planning (system thinkers who take a holistic approach)
4. Good governance and management
5. Accountability and stewardship
6. Performance evaluation

[44] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August 2017. Appendix C
[45] Brown, Keith G., Doucette, Mary Beth, Tulk, Janice. (2016) *Indigenous Business in Canada,* p.51

7. Collaborations, partnerships, and external relationships[46]

Refer to Appendix 4 for further clarification on how the AFNWA strategically aligns and supports Atlantic First Nations communities, Atlantic First Nation Leadership, the Government of Canada, standards and regulatory organizations, regional or neighbouring water and wastewater services or authorities.

3.3 Precedent Scan

Conducting a survey across Canada has revealed there are no directly comparable national precedents that exists for the delivery of water and wastewater service by one First Nation governing body. The following examples have similarities to the AFNWA

British Columbia's First Nations Health Authority

In British Columbia, the First Nations Health Authority (FNHA) was the first provincewide health authority of its kind in Canada. In 2013, the FNHA assumed the programs, services, and responsibilities formerly handled by Health Canada's First Nations Inuit Health Branch - Pacific Region. FNHA is part of a unique health governance structure that includes political representation and advocacy through the First Nations Health Council, and technical support and capacity development through the First Nations Health Directors Association. Collectively, this First Nations health governing structure works in partnership with B.C. First Nations to improve the health and well-being of First Nations and Aboriginal people in British Columbia.

Specific benefits of the FNHA include increasing political representation, improving health of First Nations, move toward self-governance and increasing operational/management capacity. AFNWA was informed by the establishment of the FNHA and the Health Canada's First Nations Inuit Health Branch - Pacific Region as they provided an important milestone for First Nations.

Small Municipal Amalgamations

While similar organizations to the AFNWA have not been introduced in other First Nations communities, amalgamations of smaller utility operations with a central management "hub" is a well-tested model. Municipal amalgamations in Ontario provide the promise of increased utility efficiency. For example, the City of Kawartha Lakes amalgamated 18 municipalities and now has 21 water systems and five wastewater systems. Utilizing a hub model provides a centralized, integrated logistics system designed to keep costs down**.** Hub and spoke utilities centers receive resources (i.e. expertise, products) from many different origins, consolidate the products, and send them directly to destinations. The hub model was also advanced in recommendations contained in the publication, *Watertight: the case for change in Ontario's water and wastewater sector.*[47]

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[46] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August 2017.
P.5-6

[47] Watertight, the case for change in Ontario's water and wastewater sector, Published by Ontario Ministry of Public Infrastructure Renewal, 2005

Benefits include increasing economies of scale and efficiencies in operations, provision of services in remote locations, autonomy in service delivery, and a flexible organizational model to implement operating efficiencies.

Small Utility Amalgamations (Co-Operatives)

Co-operative (co-op) utilities exist across Canada which are involved in providing such services as gas, electricity, other forms of energy and water supply services. These corporations are formed under specific federal, provincial or territorial co-operative legislation, often owned by an association of persons seeking to satisfy common needs.[48] According to Innovation, Science and Economic Development reporting in 2013, there were 212 reporting utility co-ops' in 2013. Approximately half of these (107) are in Alberta and largely focused on natural gas and water. The balance, (105) are outside of Alberta and are involved in water supply activities such as agriculture irrigation and rural community water supply.[49]

Benefits include increasing economies of scale and efficiencies in operations for small customers, bulk purchasing, and consistent coordination of service requirements, contracts etc.

Regionalization

Many municipalities in Canada, including those in Nova Scotia, have made significant advances with regionalization for service delivery. In Nova Scotia, these include Queens County, Cape Breton Regional Municipality and Halifax Regional Municipality (HRM). With respect to HRM, service is delivered through Halifax Water, a body corporate utility regulated by the Public Utilities Act through the Nova Scotia Utility and Review Board. Halifax Water's governance and approach to service delivery served as model to guide the formation of the AFNWA as it has been recognized as a leading best in class utility.

Benefits include increasing economies of scale and efficiencies in operations, consistent level of and reliability of service, centralization of expertise distributed to service area, and tailored service to a geographic region.

[48] Innovation, Science and Economic Development Canada, Government of Canada. (2019 March 15). "Co-operatives in Canada – 2013" Retrieved from https://www.ic.gc.ca/eic/site/061.nsf/eng/h_03070.html
[49] Innovation, Science and Economic Development Canada, Government of Canada. (2019 March 15). "Co-operatives in Canada – 2013" Retrieved from https://www.ic.gc.ca/eic/site/061.nsf/eng/h_03070.html

4 Analysis and Recommendation

4.1 Preliminary Evaluation Criteria

To facilitate the identification of viable options, evaluation criteria were developed from stakeholder consultations and drawn from the reports and work of APC (including Halifax Water, Accelerator Inc) on behalf of AFNWA.[50] The following Table 12 provides a summary of the primary drivers, and screening criteria utilized in the corporate structure analysis and required to meet the identified business needs and desired outcomes.

Table 12 AFNWA Evaluation and Screening Drivers and Criteria

Drivers	Criteria
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 Atlantic First Nations self-determination
	Focuses and fosters relationships and connections with local communities
	Creates efficiency in operations (e.g. standardized approach to system design, reduces duplication, simple accounting, reporting, communications, continuity between head office and communities)
	Provides coordination and equality across communities
	Responsiveness to operations, engineering, corporate services, and communications and public relations
	Establishes operational knowledge and expertise close to communities
Cultural and Spiritual	Cultural and spiritual is integrated into service delivery
Financial Independence	Creates equal investment in FN assets
	Improves FN access to capital for investment
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 as they consider self-governance and self-determination

Aligning to these drivers and screening criteria will ensure AFNWA has a board and management structure that can meet the technical, cultural, and financial components for water and wastewater delivery. Ensuring the AFNWA structure is aligned with these drivers will ensure ongoing success once in operation.

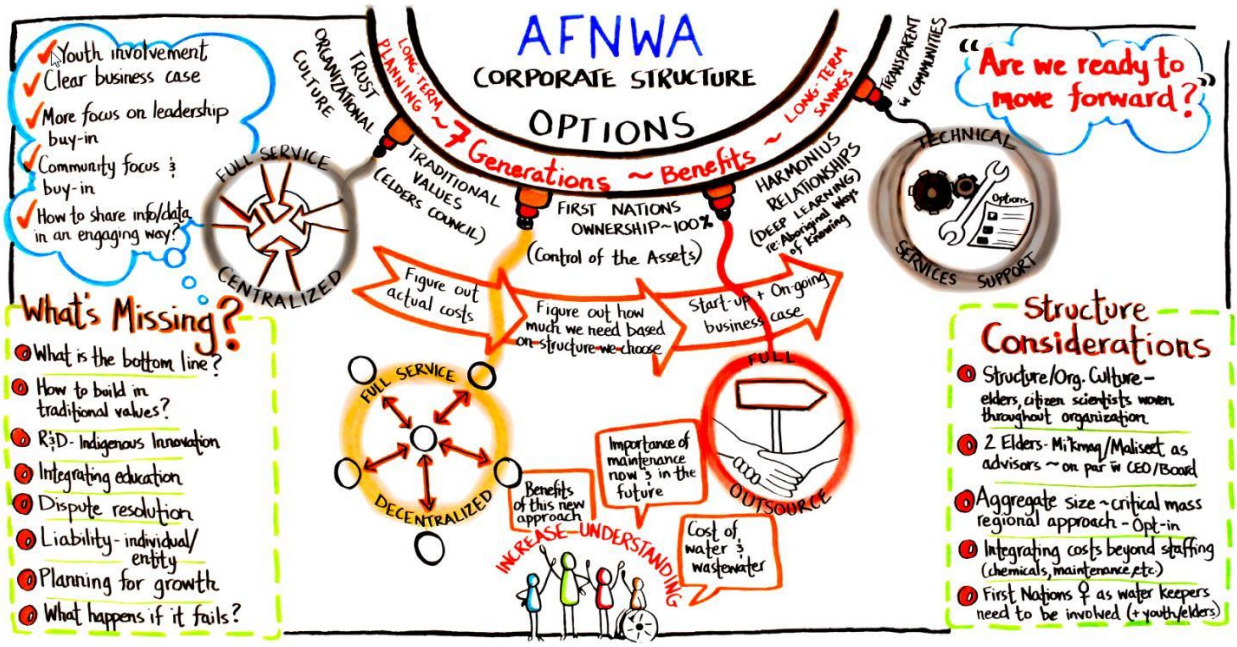
[50] Halifax Water and Accelerator Inc. “Corporate Structuring for Atlantic First Nations Water Authority.” August 2017. Halifax Water and Accelerator Inc. “Preliminary Fire Year Business Plan.” June 2018.

To further support the Government of Canada's commitment to advance gender equality in Canada, a Gender-based Analysis (GBA+) assessment and screening of the AFNWA opportunity and the content associated with this business case is included. Refer to Appendix 5 for a summary of the GBA+ screening.

4.2 Viable Options

Identifying viable business model options to match the purpose, mission, and structure of the AFNWA has been the result of years of effort by the Atlantic Policy Congress, and careful consideration by the Atlantic First Nations communities.[51] Through this work four potentially viable business models have been identified for the AFNWA (Figure 3).

Figure 3 Corporate Structure Options[52]



These options ranged from full-service provider to an oversight role with services contracted to an outside agency.

- Full Service Centralized (FSC)
- Full Service De-centralized (FSD)
- Full Outsource (FOS)
- Technical Services Support (TSS)

[51] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August, 2017. Halifax Water and Accelerator Inc. "Preliminary Fire Year Business Plan." June 2018.
[52] Atlantic Policy Congress, First Nation Leaders Workshop, 2017, May 24.

The FSC, FSD, FOS and TSS business models vary in their ability to meet the management structure, level of service, risk management considerations and aspirations to achieve self-determination and governance. Despite this variation, the FSC, FSD, FOS and TSS business models are organizationally structured around a Corporate Services Department, Communications Department, Operations Department and an Engineering Department.

A detailed summary of each option and high-level pros and cons (refer to Appendix 6) are based on research conducted by Halifax Water and Accelerator Inc., and stakeholder group consultants conducted by APC[53]. Conclusions and recommendations are also based on outreach activities, which included meetings and workshops with First Nations Chiefs, Elders and water system operators.[54]

4.3 Option Analysis & Recommendation

The current state, and the four models fully described in Appendix 6 provide varying levels of service and benefits to communities served by the AFNWA. Table 13 identifies the evaluation criteria that was used for screening and analysis of the viable options. Based on the analysis, the Full Service Decentralized (FSD) corporate structure has been recommended by Atlantic First Nations communities as being able to provide the highest level of service and direct benefits to the communities served. The FSD also has the most potential for the utility to establish relationships with the hub and spoke model so often referenced in the best practice review.

Table 13. AFNWA Evaluation and Screening Criteria

Criteria	Full Service – Centralized (FSC)	Full Service – Decentralized (FSD)	Full Outsource (FOS)	Technical Services Support (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 Atlantic First Nations self-governance	✓	✓			
Focuses and fosters relationships and connections with local communities	✓	✓			

[53] Refer to Appendix 11 for a list of key consultant reports
[54] Atlantic Policy Congress "APCs Clean Water Initiative's (CWI) Atlantic First Nation Water Authority (AFNWA) Chronology." 2016. Appendix C

Criteria	Full Service – Centralized (FSC)	Full Service – Decentralized (FSD)	Full Outsource (FOS)	Technical Services Support (TSS)	Current State
Creates efficiency in operations	✓	✓		✓	
Provides coordination and consistency across communities	✓	✓	✓		
Responsiveness to operations, engineering, corporate services, and communications and public relations		✓	✓		
Cultural and Spiritual					
Atlantic First Nations 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	✓	✓			
Total	Less Preferred	**Preferred Option**	Not Preferred	Not Preferred	Not Preferred

The Full Service – Decentralized (FSD) organizational structure provides the AFNWA with an opportunity to decentralize specific functions to the communities in order to meet the needs of the customers in the different geographic regions. Often referred to as a “Hub and Spoke” model, each regional area would be sized and staffed to best align with the needs of that region and the specific communities being served. The FSD enables the creation of specific centres or operational knowledge and expertise close to communities, creates local hubs with the responsibility to provide day to day operational decision making, and with organizational wide direction and support. The FSD model will also allow for more direct interaction with customers and foster relationships within the communities.

Utilization of the FSD model establishes an important framework that can accommodate the inclusion of additional communities. While currently operating under a 15-community model, this scalability allows the AFNWA to accommodate the remaining Atlantic First Nations communities efficiently and without significant organizational modifications.

5 Project Opportunity and Description

5.1 Project Description

Establish the AFNWA, under a Full Service – Decentralized (FSD) model as a permanent and independent water authority owned by Atlantic First Nations who will be responsible for the provision of water and wastewater services in those committed Atlantic First Nation communities (Figure 4).

Figure 4 AFNWA Vision and Description

Under the FSD model, AFNWA will be able to directly address the ongoing concern in Atlantic First Nations communities about their ability to provide consistent high-quality water and wastewater services for their residents. The formation of the AFNWA under the FSD model provides the best approach for Atlantic First Nations to meet these new standards on a sustainable basis.

Implementation of the AFNWA will advance the First Nations and the Government of Canada aspirations to achieve self-governance. To accomplish this, the legal and formal organizational structure for the AFNWA needs to be established complete with the legal authorities, regulatory oversight, policies, and processes. The AFNWA will be owned by Atlantic First Nations and governed by a professional and geographically represented Board, the majority of whom will be from Atlantic First Nations. The Board of the AFNWA will consist of up to 15 directors, 12 of whom will be Atlantic First Nations selected by the owners and 3 of whom will be technical

experts appointed by the owner-directors. In addition, the Board will have the wise guidance of an Elders Council.[55]

AFNWA will be operated regionally based on the FSD model, by qualified water and wastewater management and employees as a non-profit corporation under the Canada Not For-Profit Corporations Act. Structuring the AFNWA under the FSD model will allow for the most effective and efficient operation with the best opportunity to establish relationships with the communities served by the AFNWA. This relationship is important to ensure traditional knowledge and values are integrated into the water utility for long term sustainability. The FSD also maximizes benefits to local communities with all offices located in Atlantic First Nation communities and services obtained from local contractors. This is a transformative project for First Nation communities with the business model based on leading, successful water utilities in non-indigenous communities (e.g., Halifax Water; EPCOR).

The formal establishment of AFNWA will also require the integration of cultural and spiritual, Two-Eyed Seeing and Wise Practices to ensure that the physical and spiritual significance of water by Atlantic First Nations is sustained, and that the shared responsibility of Atlantic First Nations will respect and preserve those rights. Incorporating Atlantic First Nations human resources will strengthen AFNWA's ability to ensure ongoing collaboration, public outreach and communication, and the sensitivity to incorporate important culture and tradition into the operations within its member communities.

5.2 Participating Atlantic First Nations Communities with Band Council Resolutions

As identified in 2.1, the following fifteen (15) Atlantic First Nations communities located within Nova Scotia, New Brunswick and Prince Edward Island have committed to participating in the AFNWA.

Table 14 Participating Communities of the Atlantic First Nation Water Authority

Participating Communities		
Abegweit First Nation	Glooscap First Nation	Paq'tnkek First Nation
Acadia First Nation	Lennox Island First Nation	Pictou Landing First Nation
Eel River Bar First Nation	Membertou First Nation	Potlotek First Nation
Elsipogtog First Nation	Millbrook First Nation	Sipekne'katik First Nation
Eskasoni First Nation	Oromocto First Nation	Tobique First Nation

[55] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August 2017. P.15

6 Financial Analysis

6.1 Operating and Capital Costs

AFNWA will require investment in operations and ongoing capital investment.

Operating forecasts incorporate initial startup costs to establish the AFNWA, and the anticipated long-term annual operation costs. Operating costs include salaries and benefits of the functional areas of corporate services, communications and public relations, operations and engineering, plus overall administration cost of the utility including boards costs. The additional core operating costs include the community-based operations and maintenance costs, and water quality testing programs.

Most capital costs are associated with water treatment, water distribution, wastewater treatment, and wastewater collection systems. Capital and operating costs have been presented for a 10-year (2022-2031) time frame in order to provide a comprehensive overview of the scope of investment that is required to establish AFNWA, and to ensure the provision of safe water and wastewater services. The operating and capital financials presented have been drawn from previous reports. Financial projections will be refined as the AFNWA establishes operations and completes their management and asset management planning. The financials presented provide estimates at the time of investigation but may not fully represent current conditions or address continued investment by the Atlantic First Nations communities.

It is anticipated that capital budgets will be approved annually, however, establishing a 10-year capital plan will establish medium-term capital requirements. A long-term funding arrangement and budget will be required to provide AFNWA with ongoing financial stability and to more firmly establish the authority. In this regard, as referenced in the Corporate Structure and preliminary Five-Year Business Plan, an Integrated Resource Plan (IRP) will be developed after the first three years of operation and be revised every five years thereafter. The IRP will consider the infrastructure needs over a 25 to 30-year period within the strategic drivers of:

- asset renewal
- regulatory compliance
- facilitation of growth

This latter strategic driver is very important to First Nations where their population is projected to grow as economic opportunities are realized. Establishing this 25 to 30-year perspective will ensure there is a holistic and strategic view of required and potential capital investments. Refer to Appendix 7 and 8 for the 2022-2046 summary operating and capital budget projections associated with participating Atlantic First Nation communities

6.1.1 Maintenance and Asset Deficiencies

A core role of the new AFNWA will be to provide an efficient continuity of operation and maintenance within each community system. In addition, AFNWA will be required to address system deficiencies that have been the result of a lack of prescribed maintenance, not including other factors such as warranty defects or force majeure. AFNWA will be required to implement corrective action, such as maintenance, repairs or renewal, in order to satisfy the required level of

service, and meet an identified regulatory requirement. A deferred maintenance program will need to be implemented in order to arrest continued depreciation of the assets.

AFNWA will own and manage the community water and wastewater assets from all Atlantic First Nation communities who have signed formal BCR's to join the AFNWA.

As each Atlantic First Nation communities have historically operated independently there will be a variation in the design, construction, operation and maintenance standards, and monitoring that has been instituted in each water and wastewater system. It is anticipated that AFNWA will need to identify the cost benefit of operating each system, identify which assets can be improved, or require replacement.

An early task will be to develop consistent standards driven by industry best practice and regulatory requirements. An asset management plan (AMP) will be developed by the AFNWA and should include an assessment of the condition of each community's assets with a plan for achieving and maintaining future regulatory compliance.[56] Considerations of asset type, condition and operating standards of the infrastructure will be important prior to significant capital upgrades being completed. With this assessment rationalized and incorporated into the AMP, future investment will inform AFNWA as to whether standardization of assets, continued operation of discrete systems, or abandonment of existing assets in lieu of new investments is required.

As referenced above, an IRP incorporates requirements over a 25 to 30-year period for three strategic drivers: asset renewal, growth, and regulatory compliance. Supporting the AMP, the IRP investigates customer growth potential, demand projections of the utility, the capability to meet customer service needs, and the development of emergency response planning.

6.2 Financial Performance

Projected AFNWA financials have been amalgamated from key assessments and previous reports. Sourced data include the anticipated operating and capital costs associated with establishing the AFNWA structure and the ongoing capital expenses that will be required to address capital deficiencies for participating Atlantic First Nation communities.

Based on a 2017 Halifax Water report, Table 15 identifies the operating costs associated with the four management structures considered to accommodate the current 15 Atlantic First Nation communities (as discussed in detail in Appendix 6).[57] These management structures introduce an important baseline which has the scalability to accommodate future participation by other Atlantic First Nations communities. While these additional costs may be required to incorporate additional hubs, operators etc., the foundation of operating expenses, identified in 2017 dollars are identified below. While 2017 dollars were utilized based on the Halifax Water report, a 2022 financial summary was conducted to further refine and project the long-term funding need. Figures provided in Table 15 also encompass recommendations (for Full Service Decentralized option

[57] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." 2017 Appendix J.

only) from the Ontario Clean Water Agency (OCWA) Review[58] of January 2021. For additional details refer to Appendix 7.

Table 15 Management Structure Operating Expense Comparison[59]

Operating Expenses	*Full Service Centralized*	*Full Service-Decentralized*	*Full Outsource*	*Technical Services Support*	*Current State*
AFNWA Structure					
Administration	1,119,183	1,096,915	742,153	1,001,782	
Corporate Services Department	823,918	823,918	366,854	823,918	
Communications Department	270,630	270,630	198,462	270,630	
Operations Department	1,732,032	1,830,074	529,232	1,160,702	
Engineering Department	517,204	517,204		517.204	
Corporate Structure (Operating) Sub Total	4,462,967	**4,538,741**	**1,836,701**	**2,774,236**	**4,012,206**
AFNWA Board Costs	250,000	250,000	250,000	250,000	250,000
Community Systems O&M plus MTA Costs	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000
Testing Program	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
Operating Total	10,912,967	**10,988,741**	**10,224,236**	**10,224,236**	**10,462,206**

Note 1) Full Outsource integrates Operations and Engineering
Note 2) Current State financials have been extracted from the Ulnooweg Financial Analysis for the 15 participating communities
Note 2) Ongoing operating costs have been assumed which does not include the $1.5M one-time startup costs
Note 3) Board and other costs identified in the lower section of the table would not fully apply to current state but have been applied to provide a comparison

A projected 25-year (2022-2046) cash flow which has incorporated inflation and depreciation, AFNWA operating and capital expenses, and projected ISC community funding (Table 16 and Appendix 7) has been developed for participating Atlantic First Nations communities with BCRs (Table 8). These factors have been incorporated to ensure proper financial projections are integrated within the model (refer to 6.3 Financial Assumptions) and to ensure alignment to anticipated financial needs.

[58] Ontario Clean Water Agency (OCWA). "Atlantic First Nations Water Authority – Review and Recommendations on the Business Case." January 12, 2021.
[59] Ulnooweg Development Group Inc. "Ulnooweg Community Financial Analysis – Final Interim Report. 2018. P.13

Table 16 AFNWA Participating Atlantic First Nations Communities Projected Financial Expenses ($) Years 1-10 (2023 – 2032) and Total Years (1-25)

Financial Year	Total Years 1-25	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Financial Summary											
Profit and Loss											
Revenue - External Funding	110,629,012	3,086,386	3,148,282	3,211,248	3,275,473	3,340,982	3,407,985	3,476,145	3,545,668	3,616,581	3,689,111
Revenue - Operating	-	-	-	-	-	-	-	-	-	-	-
Cost of Sales	-	-	-	-	-	-	-	-	-	-	-
Gross Margin	110,629,012	3,086,386	3,148,282	3,211,248	3,275,473	3,340,982	3,407,985	3,476,145	3,545,668	3,616,581	3,689,111
AFNWA structure											
Admin Department	(38,040,157)	(1,187,400)	(1,211,213)	(1,235,437)	(1,260,146)	(1,285,349)	(1,311,126)	(1,337,349)	(1,364,096)	(1,391,378)	(1,419,281)
Corporate Services Department	(28,572,834)	(891,883)	(909,770)	(927,965)	(946,524)	(965,455)	(984,817)	(1,004,513)	(1,024,604)	(1,045,096)	(1,066,055)
Communications Department	(9,385,237)	(292,954)	(298,829)	(304,806)	(310,902)	(317,120)	(323,480)	(329,950)	(336,549)	(343,280)	(350,164)
Operations Department	(63,465,540)	(1,981,037)	(2,020,767)	(2,061,182)	(2,102,406)	(2,144,454)	(2,187,460)	(2,231,210)	(2,275,834)	(2,321,350)	(2,367,905)
Engineering Department	(17,936,232)	(559,868)	(571,096)	(582,518)	(594,169)	(606,052)	(618,206)	(630,570)	(643,182)	(656,045)	(669,202)
AFNWA Board costs	(8,669,805)	(270,623)	(276,050)	(281,571)	(287,202)	(292,946)	(298,821)	(304,798)	(310,894)	(317,112)	(323,471)
One Time Start Up Costs	(1,623,735)	(1,623,735)	-	-	-	-	-	-	-	-	-
Community Systems O&M plus MTA costs	(110,973,506)	(3,463,969)	(3,533,438)	(3,604,107)	(3,676,189)	(3,749,713)	(3,824,913)	(3,901,411)	(3,979,439)	(4,059,028)	(4,140,431)
Testing program	(104,037,662)	(3,247,471)	(3,312,598)	(3,378,850)	(3,446,427)	(3,515,356)	(3,585,856)	(3,657,573)	(3,730,724)	(3,805,339)	(3,881,654)
Integrated Resource Plan	(8,155,835)	-	-	-	(3,000,000)	-	-	-	-	(1,104,140)	-
< >	-	-	-	-	-	-	-	-	-	-	-
< >	-	-	-	-	-	-	-	-	-	-	-
Total operating expenses	(390,860,543)	(13,518,941)	(12,133,762)	(12,376,437)	(15,623,966)	(12,876,445)	(13,134,679)	(13,397,373)	(13,665,320)	(15,042,767)	(14,218,163)
EBITDA	(280,231,531)	(10,432,556)	(8,985,479)	(9,165,189)	(12,348,493)	(9,535,462)	(9,726,694)	(9,921,228)	(10,119,653)	(11,426,186)	(10,529,052)
Depreciation and Amortization	(54,396,722)	-	(179,495)	(358,941)	(612,531)	(866,151)	(1,119,908)	(1,373,926)	(1,601,451)	(1,829,438)	(2,057,986)
EBIT	(334,628,253)	(10,432,556)	(9,164,975)	(9,524,130)	(12,961,024)	(10,401,613)	(10,846,602)	(11,295,154)	(11,721,103)	(13,255,624)	(12,587,038)
Operating Profit / (Loss)	(334,628,253)	(10,432,556)	(9,164,975)	(9,524,130)	(12,961,024)	(10,401,613)	(10,846,602)	(11,295,154)	(11,721,103)	(13,255,624)	(12,587,038)
Cash Flow											
EBITDA	(280,231,531)	(10,432,556)	(8,985,479)	(9,165,189)	(12,348,493)	(9,535,462)	(9,726,694)	(9,921,228)	(10,119,653)	(11,426,186)	(10,529,052)
Capital Expenditure - Participating Communities											
Water Treatment	(4,402,576)	(415,460)	(423,792)	(864,535)	(881,826)	(899,462)	(917,501)	-	-	-	-
Water Distribution	(4,230,544)	(189,544)	(193,345)	(394,424)	(402,313)	(410,359)	(418,589)	(426,961)	(435,500)	(444,210)	(453,118)
Wastewater Collection	(20,421,860)	(914,975)	(933,325)	(1,903,982)	(1,942,062)	(1,980,903)	(2,020,630)	(2,061,042)	(2,102,263)	(2,144,308)	(2,187,312)
Wastewater Treatment	(23,392,422)	(1,048,067)	(1,069,086)	(2,180,935)	(2,224,554)	(2,269,045)	(2,314,550)	(2,360,841)	(2,408,058)	(2,456,219)	(2,505,478)
Total capital expenditure	(52,447,402)	(2,568,046)	(2,619,548)	(5,343,877)	(5,450,754)	(5,559,770)	(5,671,270)	(4,848,844)	(4,945,821)	(5,044,737)	(5,145,909)
Lifecycle Capital Maintenance Expenditure - Participating Communities											
Annual Asset Renewal	(171,444,010)	(5,412,452)	(5,520,997)	(5,631,417)	(5,744,045)	(5,858,926)	(5,976,426)	(6,095,954)	(6,217,874)	(6,342,231)	(6,469,423)
Total	(171,444,010)	(5,412,452)	(5,520,997)	(5,631,417)	(5,744,045)	(5,858,926)	(5,976,426)	(6,095,954)	(6,217,874)	(6,342,231)	(6,469,423)
Net Cash Flow	(504,122,942)	(18,413,053)	(17,126,024)	(20,140,483)	(23,543,292)	(20,954,158)	(21,374,390)	(20,866,026)	(21,283,347)	(22,813,154)	(22,144,384)
Cash Account											
Cash Balance b/f		11,751,966	(6,661,087)	(23,787,111)	(43,927,594)	(67,470,886)	(88,425,045)	(109,799,434)	(130,665,461)	(151,948,808)	(174,761,962)
Net Cash Flow		(18,413,053)	(17,126,024)	(20,140,483)	(23,543,292)	(20,954,158)	(21,374,390)	(20,866,026)	(21,283,347)	(22,813,154)	(22,144,384)
Cash Balance c/f		(6,661,087)	(23,787,111)	(43,927,594)	(67,470,886)	(88,425,045)	(109,799,434)	(130,665,461)	(151,948,808)	(174,761,962)	(196,906,346)

Key elements of the operating costs include the formation of the AFNWA structure to establish administrative, corporate services, communications and public relations, operations, and engineering[60].

The costs identified in the Table 16 do not include impacts from GUDI for water treatment costs. Further hydrogeological assessments over a period of one to two years would be required to quantify additional costs. Table 16 does include additional costs for wastewater treatment beyond the minimum national performance standard of secondary treatment, which is further clarified in Table 17 below. Adding this additional cost / contingency is based on Halifax Water's experience as they own and operate 14 wastewater treatment plants with 9 discharging to inland receiving waters. These nine plants have treatment technologies ranging from enhanced secondary to tertiary with increased capital costs approximately double that for secondary treatment.

Table 17 – Environmental Risk Assessmernt I Impact on Participating Communities Wastewater Treatment Costs

Participating Community	CBCL Table 11.1 2018 Wastewater Treatment Costs	Revised CBCL Table 11.1 2018 Wastewater Treatment Costs
Abegweit	-	-
Acadia	-	-
Eel River Bar	-	-
Elsipogtog	5,100,000	7,650,000
Eskasoni	4,350,000	6,525,000
Glooscap	-	-
Lennox Island	675,000	1,012,500
Membertou	-	-
Millbrook	-	-
Oromocto*	-	-
Paqtnkek Mi'kmaw	2,437,500	3,656,250
Pictou Landing	435,000	652,500
Potlotek	1,102,500	1,653,750
Sipekne'katik Indian Brook	232,500	348,750
Tobique	2,400,000	3,600,000
Total	**16,732,500**	**25,098,750**

* Oromocto was not included within the CBCL report.
**Costs reflect capital expenses input which are escalated for incorporation within the financial analysis (Refer to Table 20 Assumption 5)

[60] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." 2017 Appendix J.

The cost per household for the provision of water and wastewater services compared to the current state of funding is provided in Table 18. It is anticipated that as additional Atlantic First Nations communities agree to participate with AFNWA, that the average cost per household will decrease as the operational costs will be further shared.

Table 18 Cost per household of current state versus AFNWA

Participating Communities	Operating Cost ($) Per Household
Current State (15 communities)	$ 907
Adjusted Current state (15 communities)	$ 2,364
AFNWA (15 communities)	$ 2,497

Current state costs for 2017 as compiled by Ulnooweg do not include corporate services, communications and public relations, operations and engineering. It is also anticipated that ongoing operating costs will be required to support AFNWA board costs, community-based operations and maintenance costs, and testing programs. If these costs are applied to the Ulnooweg costs to give a basis of comparison this results in a **$2,364** cost per household. This cost per household is comparable with the AFNWA costs of **$2,497**.

6.3 Financial Assumptions

The following assumptions (Table 19 and 20) have been made in the development of the financial analysis and associated financial performance.

Table 19 – Assumptions Utilized in the Financial Analysis

Assumption
1. Purpose of the AFNWA business case, and the associated financial analysis is to identify a preferred solution, and to identify an order of costs. Additional investigation will be required to articulate a more refined capital budget request. Detailed budget recommendation will be provided separately.
2. Financial projections indicate a high-level estimate based on research conducted to date, and at various points in time. Financial numbers are indicative of the potential need.
3. Responsibility to identify and validate capital investment priorities will rest with the AFNWA. Capital project budgets will primarily identify initial considerations (years 1-2), with future years (3-10) showing an anticipated magnitude of investment.
4. The financial projections from previous reports identify the investment required to establish minimal levels of service and comply with current regulatory standards.
5. A 10-year capital and operating budget window will enable AFNWA to meet current regulatory standards
6. The proposed financial performance and funding model will be refined with the completion of the AFNWA AMP and IRP.
7. The initial AMP will be completed within the 2-3 years operational / start up period.
8. Outsourcing project management expertise will provide AFNWA with the ability to aggressively address capital needs while allowing AFNWA to develop operational capacity

Assumption
9. The 10-year capital plan identifies a total capital need for the Atlantic First Nations communities. Specific cash flows, and prioritized projects may be modified based on service needs
10. Utilities will operate in accordance with best practice develop long-term integrated resource plans (IRP) that our updated on a regular cycle (typically every five years).[61]
11. Establishing the AFNWA will require the transfer and accumulation of community water and wastewater assets.
12. The financial value of the assets has been identified through the work of CBCL however this does not presume to identify the remaining useful life. This will be identified during the development of an Asset Management Plan.
13. Deferred maintenance costs have not been identified as part of the financial expenses. The Asset Management Plan will determine a full costing and determine remaining useful life.
14. Financing costs have not been assumed as part of the financial model as it is anticipated Government of Canada funding will match the identified funding request.
15. No capital allowances have been provided to accommodate future studies (i.e. GUDI studies) which may identify requirements for additional capital expenses. Due to the lack of information these speculative costs have not been incorporated into the financial analysis.
16. Depreciation has been calculated based on the following projected lifecycle projections: water treatment 50 years, water distribution 75 years, wastewater treatment 40 years, and water collection 60 years.
17. Inflation (at 2%) has been incorporated within the project operating and capital budget.
18. Cost of sales which incorporates costs for sourcing and processing water has been incorporated within the AFNWA Operations costs.
19. Wastewater treatment costs have been grossed up by 50% in recognition that most of the First Nation communities live near inland waterways and will require wastewater effluent treatment beyond secondary levels. Refer to Table 17 for additional clarification.

Estimates for the capital costs to bring infrastructure up to a good state of repair have been sourced from the APC – First Nation Asset Condition Assessments, CBCL Report (2018) and CBCL Memo (2021).[62] That report provides detailed accounts of investigations including in some cases statements of assumptions in development of needs and costs. The detailed information including assumptions in the report is fundamental to the resulting Class C cost estimates. Table 20 recounts some of the more general assumptions in the report.

[61] The Integrated Resource Plan (IRP) is a comprehensive road map for meeting the AFNWA's objective of providing reliable and efficient water and wastewater service to all customers/communities over a 25 to 30-year period.

[62] CBCL. "AFNWA Business Case Reconciliation, AFNWA Gap Analysis - Rev 1." March 5, 2021.

Table 20 – Assumptions in APC – First Nation Asset Condition Assessments, CBCL Report

Assumption
1. Information on systems and conditions may not have been available and not all communities were visited. The report states assumptions were made based on experience and professional judgement to compensate for the incomplete information/documentation;
2. Class C cost opinions are presented in source reports. The Public Service and Procurement Canada (previously referred to as Public Works and Government Services Canada) definition of Class C estimates includes "based on a comprehensive list of requirements and assumptions, including a full description of the preferred schematic design option, construction/design experience, and market conditions";
3. In some instances, only cost estimates for studies and investigations needed to establish needs are included. Completion of those studies and investigations may identify new needs/costs;
4. For linear wastewater collection assets and in the absence of inspection reports, age and evidence of inflow and infiltration (I/I) were used to advise on a % of system replacement need and associated capital allowance. Inspections of linear assets such as CCTV inspections of pipes to identify condition and I/I sources will be important to confirming needs/costs and strategies to address needs;
5. Needs assessments focused on existing infrastructure. The report notes two important risks which may result in new infrastructure needs and costs – determination of well water sources under the influence of surface activities (GUDI) and wastewater receiving waters being adversely impacted by existing effluent discharge. For several communities, capital costs are included for studies and the results of those studies may identify new needs/costs.
6. The report notes the absence of agreed standards against which to assess needs. The report clearly states the standards utilized in the assessments. Establishment of standards under the AFNWA may change the assessments of needs and costs;

6.3.1 Required Capital Investments

The above estimates include capital investment projections for continued asset renewal ($5 million per year (2018 dollars) and upgrades in four main categories: water treatment, water distribution, wastewater treatment, and wastewater collection. Table 21 provides an overview of the estimated capital investments.

Table 21 Capital cost projections

	Total Years 1-10 (2022/23 – 2031/32)	Total Years 11-25 (2032/33 – 2046/47)
Annual Asset Renewal	$59,269,745	$112,174,264
Capital expenses - water upgrades	$8,170,939	$462,181
Capital expenses – wastewater upgrades	$39,027,635	$4,786,646
Total Capital Expenditure	**$106,468,319**	**$117,423,091**

The costs identified in Table 21 are only an assessment of expected costs based upon the information currently available as of January 2021. The capital requirements, particularly for the

longer term (11-25 years), will be revised during the development of the 10-year Capital Spending plan informed by an Asset Management Plan and the Integrated Resource Plan[63]. Additional costs related to integrated resource planning, IT investments, corporate equipment and fleet will also be required. The capital plan will prioritize investments with consideration for the following:

- Address existing deficiencies
    - Repair aging water distribution and wastewater collection systems
    - Repair critical water and wastewater treatment infrastructure
    - Reduce risk through bulk purchasing and multi-community contract management
    - Replace existing equipment to limit additional maintenance requirements
    - Construct common Supervisory Control and Data Acquisition System [SCADA]
- Asset renewal
    - On-going rehabilitation or renewal of systems or components based on life cycle analysis. Maintain state of good repair to achieve desired Level of Service.
- Build system resiliency
    - Invest to provide and / or improve backup power
    - Improve building and system security to protect assets
    - Construct new backup systems where feasible
    - Implement water loss control program within water distribution system
    - Implement Inflow and Infiltration Reduction program within wastewater collection
    - Continue previous investment
    - Retain consultants to phase in or advance future work
    - Complete preliminary design studies that identify plant expansion needs and upgrades
    - Pursue partner studies with each MTA community to identify timing of possible investment from partner communities to the Atlantic First Nation community

While the intent of the AFNWA business case is primarily focused on confirming the AFNWA opportunity, understanding the financial requirements is critical. Previous financial analyses conducted between 2009 and 2018, varied in scope, approach, and recommendations. As part of this Business Case, a detailed review and analysis was conducted to determine the financial investments required to establish the AFNWA. Capital costs for participating AFNWA communities were sourced from individual community assessments,[64] cash flow according to their water and wastewater risk summaries[65] and reconciliation of ISC provided data on capital investments between 2017-2021 and those funded through 2021-2022.[66] Appendix 8 provides investment requirements by community. While this information provided a general understanding of the financial need and potential timing for the investment, it is anticipated that prioritization will formally occur as AFNWA completes their AMP and IRP.

[64] Halifax Water Business Plan referenced CBCL reports as source of capital investments.
[65] Capital costs include design and construction contingencies and include potential contractor general conditions and markup.
[66] CBCL. “AFNWA Business Case Reconciliation, AFNWA Gap Analysis - Rev 1.” March 5, 2021.

6.3.2 Recent ISC Capital Investments

ISC's long term commitment to provide funding to Atlantic First Nations communities requires a specific mention. ISC's recent investment in capital from 2017 up to 2021-2022 has been provided and integrated into the financial analysis in this Business Case (section 6.3.1, Table 16, and Table 21). While specific investment details are not available at the time of this publication, CBCL has conducted a reconciliation of ISC 2018-2021 investments against capital requirements identified in 2018. Refined capital cost requirements were developed by CBCL by cross-referencing projects completed and those planned up to the end of FY 2021-2022.[67] These investments by ISC enables AFNWA to begin its operations in FY 2022-2023 with lower future capital requirements, particularly for water treatment and water distribution. Table 21 highlights examples of the types of investments ISC has recently undertaken.

Table 22 – ISC 2017 – 2019 Capital Investments in Participating Communities

Participating Community	Water Treatment	Water Distribution	Wastewater Collection
Elsipogtog	Upgraded SCADA, Iron Manganese treatments, Wellhead analytics, GUDI assessments, Contingency	Fire hydrant, repairs / replacement, Leak detection program, Contingency	Manhole replacement, Pumping station upgrade, Collection piping replacement, Contingency
Tobique	Connect second well, Wellhead flow monitoring, Well level, temperature, conductivity monitoring, Iron and manganese treatment, UV disinfection system, Chlorination upgrades, Online analytical instruments, Backup power New TWP building, SCADA Contingency	Dedicated transmission line, PRV building, reconstruction SCADA	Manhole replacement, Pumping station upgrade, SCADA, Contingency
Eskasoni	Develop new well, GUDI assessments, UV disinfection, Spencer line chlorine contact, Instrumentation		
Pictou Landing	Iron manganese treatments		
Potlotek	New building, New treatment process, New low/high lift pump, New SCADA system, Contingency		
Sipekne'katik	Drill, test, develop and commission new production well		

More detailed projections will be developed through the development of the AMP and IRP.

[67] Ibid.

6.4 Funding Sources

6.4.1 Indigenous Services Canada

Historically, Atlantic First Nation communities received funding directly from Indigenous Services Canada which was estimated to address 80% of the community's water and wastewater service needs, With the establishment of the AFNWA a new funding model will be implemented which will redirect the ISC funding directly to the water authority as opposed to being received by the First Nations communities. According to a report[68] conducted in March 2018, the following table identifies funding received from Indigenous Services Canada. In December 2020, it was announced that First Nations will now receive 100% funding for operations and maintenance from the federal government.

Table 23 – ISC Atlantic First Nation Community Provided Funding

First Nation Community	2018 ISC Funding	First Nation Community	2018 ISC Funding
Abegweit	$146,020	Millbrook	$42,594
Acadia	$60,226	Oromocto	$33,601
Eel River Bar	-	Paqtnkek	$149,140
Elsipogtog	$215,057	Pictou Landing	$215,057
Eskasoni	$461,046	Potlotek	$193,933
Glooscap	$29,583	Sipekne'katik	$219,252
Lennox Island	$292,322	Tobique	$182,611
Membertou	-		

6.4.2 Potential Organizations with Funding Opportunities

Opportunities may exist for the AFNWA to Identify other organizations and potential funding opportunities. Tapping into multiple funding sources will reduce the dependency on any one organization or funding program which will allow the AFNWA to implement a dedicated, and sustainable funding model. Ongoing monitoring will be implemented in order to influence policy to facilitate the development of a sustainable funding source for AFNWA. Potential funding sources (Table 24) include but are not limited to the following:

[68] Ulnooweg Development Group Inc. "Ulnooweg Community Financial Analysis – Final Interim Report. 2018.

Table 24 Potential Funding Sources

Potential Organizations with Funding Opportunities	Rationale / Funding Alignment
Government of Canada	
Indigenous Services Canada	Provides funding for construction and upgrades (capital investment) and 80% of operating and maintenance expenses to First Nations for the provision of water services to their communities. Forms part of the block funding received by communities. Transfer water and wastewater based and top up funding from specific Atlantic First Nation communities to AFNWA Operating costs spent on water and wastewater testing may be eligible as part of the Water Monitors program or through the Department of Indigenous Services Canada
Non-Aboriginal Funding Agreements	In these circumstances the Government of Canada and a local town or municipality provides funding (or a funding agreement) that supports to provision, or assistance of water or wastewater services. An example would be through an MTA
Long bond yields of the Government of Canada	Securing long bond yields under Government of Canada rates, First Nations Finance Authority etc.
First Nations & Inuit Health Branch of Indigenous Services Canada	Responsible for the delivery of drinking water quality monitoring programs.
Environment and Climate Change Canada	Involved in source water protection through its powers to regulate the discharge of effluent.
Community Funding	
Atlantic First Nation communities	Existing funding received for water and wastewater services by Atlantic First Nations
Business and industries	As communities' benefit from securing water and wastewater service, economic development may follow suite. Development charges, and reallocated business tax may provide Atlantic First Nation communities, and AFNWA with another funding source
AFNWA Own Source Revenues (OSR)	Ability for AFNWA to redistribute revenues to address capital requirements.
Philanthropy	Provide positive impact to address specific needs
AFNWA depreciation	As assets are constructed by the AFNWA, financial plans may include depreciation as an operational expense and utilized to

Potential Organizations with Funding Opportunities	Rationale / Funding Alignment
	develop a reserve which may act as a funding source for future capital investments.[69]

6.5 Future Financial Needs

While the current review has provided an analysis of previously completed business plans, asset condition assessments, financial analysis, and other assessments, it is anticipated more detailed information will be required to refine and identify future needs. As operations commence AFNWA will gain a greater understanding of the level of services being provided to Atlantic First Nation communities, the asset condition of water and wastewater systems, and the financial needs required for investment. With the completion of the AFNWA AMP and IMP, capital priorities, and funding sources will be confirmed enabling a more strategic understanding of financial need.

Once operational, the AFNWA can investigate alternatives including new technologies and, over time, reduce cost and/or risk. Improving capital forecasting to reconcile contracting capability to deliver projects may modify cash flow forecasting or require a modification to existing AFNWA operating capacities to address timelines. Capital estimates may be further refined due to AFNWA's ability be more cost-effective in pursing multi-year construction activity, design and tendering or the delivery of services to multiple communities.

[69] Halifax Water and Accelerator Inc. "Preliminary Fire Year Business Plan." June 2018. P.2

7 Management Strategy

7.1 Governance Plan

Establish AFNWA Corporate Governance

Officially incorporated on 18 July 2018 under the Canada Not-for-profit Corporations Act, AFNWA will initiate formal governance with the allocation of funding from the federal government. The AFNWA will be governed by a 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. 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 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. It is responsible for setting the strategic direction, high level oversight, risk management framework, and the body to whom the Chief Executive Officer (CEO) will report to. A Director Competency Matrix has been developed by the AFNWA to ensure the knowledge, skills and experience of each Director and the Board can efficiently fulfill the responsibilities they are required to complete. In addition, the Board will have the wise guidance of an Elders Council who help ensure that First Nations culture, values and traditions are embedded in the AFNWA.

Establishing the AFNWA will require the identification of the required management and operational staff and their roles and responsibilities prior to recruitment to establish a full staff compliment. With the Board implementation, and the AFNWA staff, the organization will be prepared to implement a management strategy to ensure the efficient delivery of water and wastewater services to participating Atlantic First Nations communities.

On May 29th, 2018, the Atlantic First Nations Chiefs selected the following first members to serve as the Board of Directors for the AFNWA[70]:

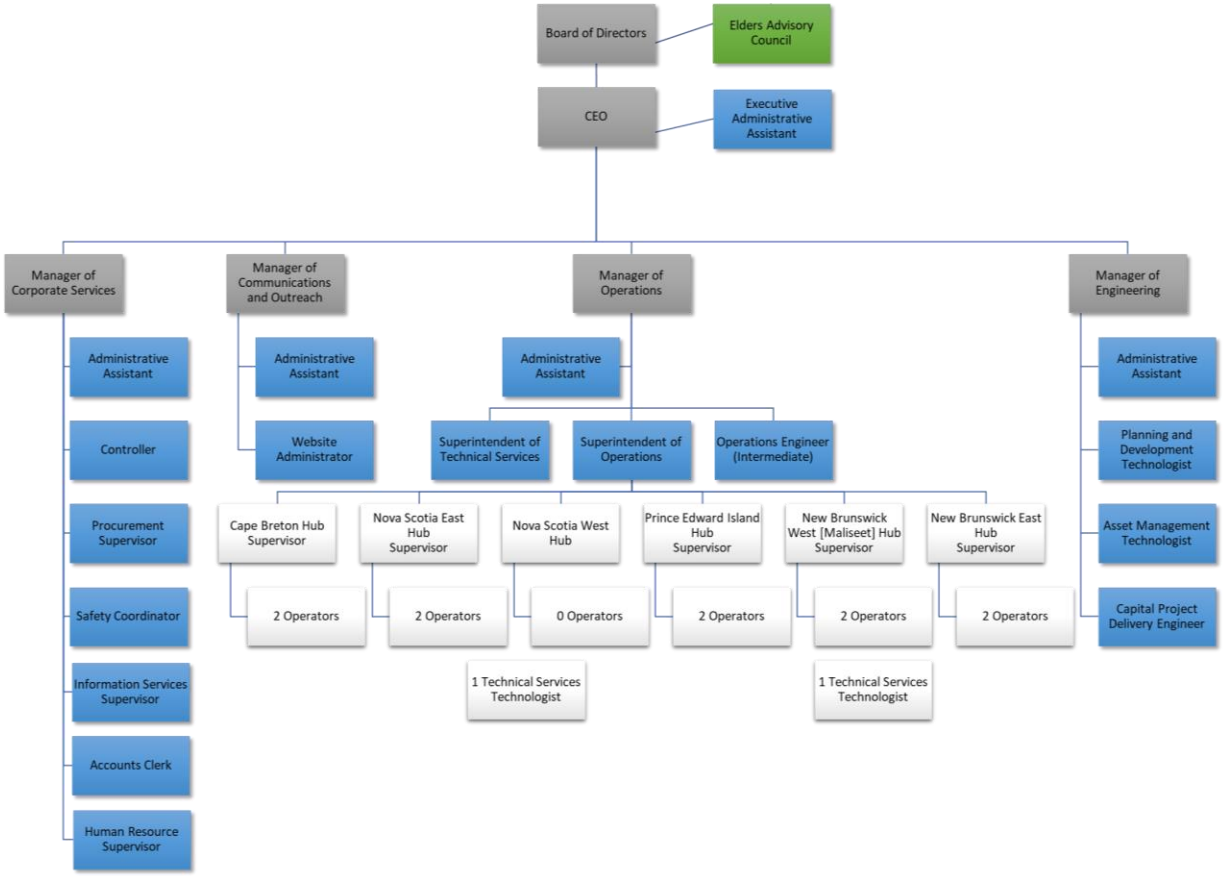
- Chief Leroy Denny, Eskasoni First Nation
- Chief Aaron Sock, Elsipogtog First Nation
- Chief Matilda Ramjattan, Lennox Island First Nation
- Chief Andrea Paul, Pictou Landing First Nation
- Chief Wilbert Marshall, Potlotek First Nation

The AFNWA will establish a fully operationalized structure with a management team experienced in the operation of water and wastewater systems. Led by a qualified CEO, the management team will be responsible to coordinate qualified water and wastewater employees to deliver on the mission of the non-profit corporation.

[70] AFNWA press release. “Atlantic Chiefs select first board members of the Atlantic First Nations Water Authority Inc.” May 29, 2018.

The initial organizational chart is provided in Figure 5 complete with management, operations, and administrative staff[71]. As additional communities join the AFNWA, new communities will be assigned to hubs based on service considerations such as their geographic location, service demands for existing operations, and cultural considerations. Should capacity be limited to accommodate these new communities within the existing hubs, additional hubs and the required operators will be added. This scalability and flexibility are an inherit benefit of the hub and spoke / FSD management structure.

Figure 5 Governance and organizational chart for the AFNWA



The AFNWA will establish the precedent and pioneer the opportunity for this governance and service delivery model to be incorporated across Canada. AFNWA will also position itself as an important influencer in the development of future provincial and national regulations which will benefit all First Nations across Canada.

[71] The OCWA Report recommends one additional staff person in the role of Supervisor of Compliance. This has been adjusted in the financial model using the rate for a supervisor. Other additional costs may be reflected in the Business Plan as AFNWA compliance and training plans are developed.

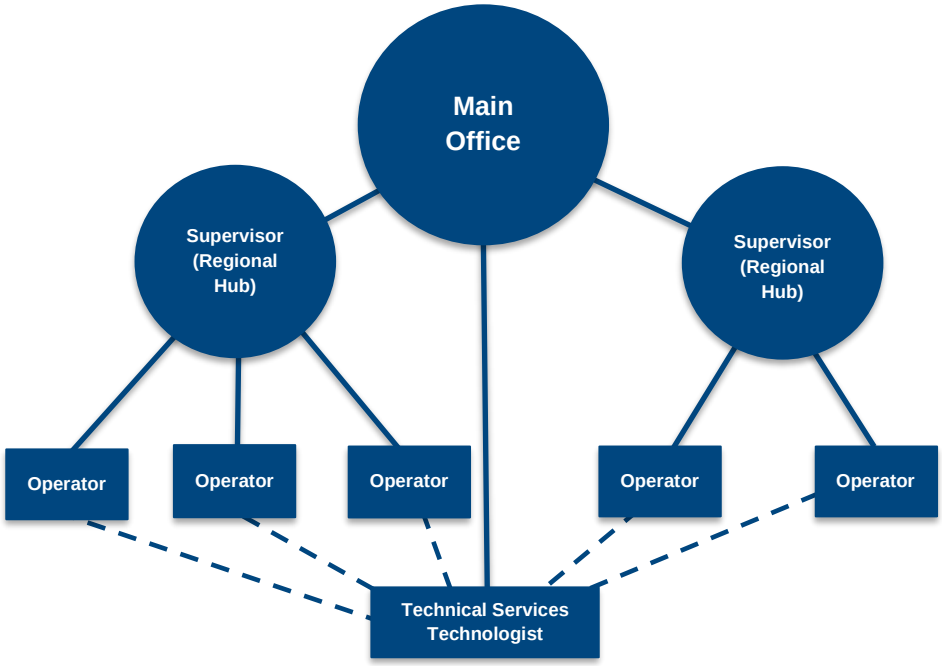
7.2 Operational Management

7.2.1 Operating as a 'Hub & Spoke'

The Full-Service Decentralized 'hub & spoke' organizational design is a model which arranges service delivery into a network consisting of one central anchor (hub) which offers an array of services with support from the main office. The main office (headquarters) would be located within the service corridor between Halifax and Moncton in an Atlantic First Nation community to maximize local benefits and strengthen relationships. Regional hub offices should also be located within Atlantic First nation communities to further maximize local benefits and strengthen relationships.

The intent of the hubs is to position expertise and operational knowledge in locations close to several communities. Regional hubs have been identified for Cape Breton, Nova Scotia East, Nova Scotia West, Prince Edward Island, New Brunswick West, and New Brunswick East. Regional hubs provide management and support for individual communities. They have been organized based on proximity of travel distance to ensure timely support and monitor costs by region.

Figure 6 Hub & Spoke Relationship Diagram



Utilizing a hub and spoke model will require the planning, organizing, and supervising of the regional hubs to ensure service delivery standards are being met. The following identifies key operational management activities of the main office:

- Managing staff performance and accountability
- Implementing training requirements and ensuring participation in associated training
- Scheduling to ensure operations are meeting regulatory requirements
- Alignment of operational duties with the goals of water and wastewater activities

- Conformance to organization processes
- Maintenance of records
- Establishment of operational procedure, metrics, and staff responsibilities
- Implementing performance reviews for staff
- Identification and reporting of key success measures

The secondary establishments (spokes) offer a more limited arrange of services which are focused on the delivery of water and wastewater services to the communities to which they are located. Embedding supervisors and operators allows for a direct connection to be developed with the community which allows them to become familiar with local operations. Furthermore, it allows local managers to become personally involved with the community. The following identifies the key activities of hub and associated spokes:

- Day to day operational decision making to address community needs
- Management of local resources and operational knowledge
- Creation of a sense of a common mission among local operators
- Responsibility for direct interaction with the community, customers and the opportunity to foster relationships

7.2.2 Scalability

While currently designed to accommodate 15 communities, the hub and spoke model is a highly scalable and efficient design which can be expanded to accommodate additional satellite communities, address growing or declining populations and changing (geographic) groupings of participating communities as BCR's are finalized.

As of March 2020, AFNWA recognizes the opportunity to formally expands its services to an additional eighteen Atlantic First Nations communities. The following table identifies the seven (7) communities who have expressed interest to participate, and the other eleven (11) potential communities.

Table 25 Identified future AFNWA First Nation Communities

Atlantic First Nations Communities Expressing Interest	Potential Atlantic First Nations Communities
Buctouche First Nation, NB	Burnt Church First Nation, NB
Indian Island First Nation, NB	Eel Ground First Nation, NB
Kingsclear First Nation, NB	Fort Folly First Nation, NB
Metepenagiag First Nation, NB	Madawaska Maliseet First Nation, NB
St Mary's First Nation, NB	Mushuau Innu First Nation, NL
Waycobah First Nation, NS	Pabineau First Nation, NB
Woodstock First Nation, NB	Annapolis Valley First Nation, NS
	Sheshatshiu Innu First Nation, NL
	Miawpukek First Nation, NL
	Wagmatcook First Nation, NS
	Bear River First Nation, NS

The current staffing levels identified to service fifteen (15) communities reflect an important baseline for the five departments to fully service the Atlantic First Nations communities. With this foundation AFNWA does not anticipate having a significant operational impact as new communities join (see Table 25). It should be noted that utility staffing for 22 communities were identified in the Corporate Structuring Report prepared by Halifax Water and Accelerator Inc. (August 2017) and at the time benefitted from a condition assessment carried out by CBCL in 2013. This condition assessment was further updated by CBCL in a report dated, April 2018. The staffing required for all 33 First nation communities reflects an estimate that has been untaken without a condition assessment of assets associated with the 11 potential communities as noted in Table 25 above. Supported by additional maps in Appendix 9, Table 27 identifies the potential hub and spoke model should additional communities join the AFNWA. As these projections have been based on estimates, further modifications are possible as more detail information is obtained on asset condition and system attributes. For example, if significant capital projects are identified through a condition assessment, additional staffing will be required in the Engineering Department to. deliver an enhanced capital budget. From an operational perspective, the different staffing requirements are indicated in Table 26[72] below

Table 26 FSD Full Time Equivalent Requirements to Accommodate Future Community Interest

AFNWA Department	15 Communities	22 Communities	33 Communities
Administration	2	2	2
Corporate Services	8	8	8
Communications	2	3	3
Operations[73]	20	22	28
Engineering	5	5	5
Total	**37**	**40**	**46**

[73] This includes a Supervisor of Compliance as recommended in the OCWA Report review and is also included in the financial model.

Table 27 FSD Hub and Spoke Modification to Accommodate Future Community Interest

AFNWA Hub	15 Communities (6 hubs)	22 Communities (6 hubs)	33 Communities (7 Hubs)
Cape Breton	Eskasoni, Potlotek, Membertou	Eskasoni, Potlotek, Membertou, Waycobah	Eskasoni, Potlotek, Membertou, Waycobah, Wagmatcook
Prince Edward Island	Lennox Island, Abegweit	Lennox Island, Abegweit	Lennox Island, Abegweit, Fort Folly
New Brunswick West	Oromocto, Tobique	St. Mary's, Tobique, Kingsclear, Oromocto, Woodstock,	St. Mary's, Tobique, Kingsclear, Woodstock, Oromocto Madawaska
New Brunswick East	Eel River Bar, Elsipogtog	Eel River Bar, Elsipogtog, Bouctouche, Metepenagiag, Indian Island	Eel River Bar, Elsipogtog, Buctouche, Metepenagiag, Indian Island, Pabineau, Burnt Church, Eel Ground
Nova Scotia East	Millbrook, Sipekne'katik, Paqtnkek, Pictou Landing	Millbrook, Sipekne'katik, Paqtnkek, Pictou Landing	Millbrook, Sipekne'katik, Paqtnkek, Pictou Landing
Nova Scotia West	Acadia, Glooscap	Acadia, Glooscap,	Acadia, Glooscap, Bear River, Annapolis Valley
Newfoundland and Labrador			MiawPukek, Mushuau, Sheshatshiu

AFNWA will continually reassess the organizational structure in order to maintain the identified level of service for Atlantic First Nations communities and to ensure efficiency in operations.

7.2.3 Risk Management

It will take several years to implement and develop the AFNWA to a fully functioning and mature organization. During this implementation several risks (identified in Appendix 10) must be managed, and risk response plans established for the highest risk events.

7.2.4 Regulatory Oversight

As the AFNWA will deliver essential public health and sanitation services, it is paramount that the operations be subject to regulatory oversight to ensure high quality drinking water and wastewater effluent. A federal regulatory body is recommended as First Nations communities fall under federal jurisdiction. Environment and Climate Change Canada currently regulates municipal wastewater systems through the federal Fisheries Act, and federal oversight would address the significant differences that exist between Atlantic Canada jurisdictions. While regulations have not been confirmed, in the interim, the AFNWA could adopt the regulations developed by the Centre for Water Resources Studies (CWRA) through Dr. Graham Gagnon for drinking water, and the federal wastewater system effluent regulations for wastewater.[74]

A regulator should be appointed to develop and govern business operations of the AFNWA. This federal regulator will be charged with the review and approval of business plans, capital budgets and integrated resources plans developed by the AFNWA. Additional responsibilities may include compliance and enforcement, and for reviewing and providing oversight on major capital expenditures that may be beyond the scope or expertise of the AFNWA. A similar regulatory role could be implemented to that established by the Nova Scotia Utility and Review Board in its oversite of utilities operating in Nova Scotia under the Public Utilities Act. The variation as it relates to the AFNWA is in how a federal regulator could modify its mandate to support the goals of First Nations self-governance while ensuring water and wastewater services are delivered with sound business principles for accountability and sustainability.

7.2.5 Medium- And Long-Term Operations

To sustain operations, a planned and managed investment will be required to reduce the risk across the AFNWA assets. Maturing or establishing capital plans, implementing a uniform operations and maintenance program, and human resourcing will ensure investments are directed towards priority capital projects, and key individuals charged with the responsibility for delivering the AFNWA services. Formalizing this work will enable AFNWA to provide the following actions for participating communities:

- Confirm and perform asset condition assessments for water and wastewater assets to close any knowledge gaps identified by previous studies
- Complete an Integrated Resource Plan (IRP)[75] to cover a 25-30-year period for infrastructure investment
- Develop Asset Management plans including system deficiencies, deferred and incomplete maintenance (within 2 years)
- Finalize capital budgets required to ensure all water and wastewater assets meet regulatory benchmarks / standards
- Conduct operating & maintenance assessments and implement continuous improvement reporting and operations

[75] The IRP should be completed after approximately three years of operation and updated every five years thereafter, as noted in the preliminary Five-Year Business Plan approved by the AFNWA Board on July 11, 2018. The IRP will consider investments in the strategic areas of asset renewal, regulatory compliance and growth to meet expected levels of service.

- Advocate for regulatory benchmarks and appropriate funding program mechanisms to support Atlantic First Nation infrastructure investment

7.2.6 Continuous Improvement

Implementing a Full-Service – Decentralized model will require that AFNWA implement a continuous improvement program to ensure performance levels of water and wastewater services are achieving the AFNWA identified value for the community. Examples include the integration of ongoing water and wastewater quality testing to ensure alignment to regulatory standards, the integration of lessons learned from individual communities to inform other communities, and the regular review of organizational standards and policies. While initial stages of the project implementation will be largely focused on ensuring operations deliver a minimum level of performance required for water and wastewater services to align with anticipated regulatory standards, continued analysis will clarify future needs, and identify opportunities to maximize value for investments.

7.3 Asset Management

Identifying and prioritizing required investments in the participating Atlantic First Nation communities is a top priority for the AFNWA as operations commence. To support of this level of decision making AFNWA will develop an Asset Management Plan (AMP) in order to further confirm the current CBCL costs which is the best information currently available. The AMP will assist AFNWA in managing their infrastructure by identifying an agreed level of service to member communities, and prioritize projects which must be undertaken over time to match available funding. For the AFNWA, the AMP will consider a system-based approach where all assets are identified, technical and financial plans for each asset are created, and recommendations provided to ensure the most effective solution is implemented to provide a required level of service. Identifying the condition of these water and wastewater assets and prioritizing funding to correct deficiencies will be central to achieving regulatory compliance and keeping the systems in a state of good repair.

Many First Nations communities in Atlantic Canada already practice elements of asset management with systems to record information about water and wastewater assets, manage maintenance of infrastructure and make decisions on water and wastewater spending priorities. The AFNWA AMP will be periodically updated to identify changing conditions and to address potential risks. Examples include the depreciation of assets as they age which may impact utility funding and the associated financial adjustments which will to be made to account for these costs.

The Asset Management Plan will also assist in creating a ten-year pro-forma capital budget as it is anticipated to include all the infrastructure upgrade projects required to bring systems into compliance with benchmark regulations including funding for asset renewal.

There are cases in some communities where deferred maintenance has accumulated to the point where systems require complete replacement in order to maintain function. Previous reports point towards increasing gaps in asset performance due to a lack of continued infrastructure investment. This represents both a risk and an opportunity for the AFNWA:

- Capital needs have been established against a robust set of regulatory benchmarks however those have not been confirmed by the AFNWA. Possible adjustments to the regulatory benchmarks represent a risk if additional capital is needed to meet a new set of regulatory benchmarks.
- For systems where complete or significant replacement is anticipated, there will be an opportunity to consider replacement of existing technologies with current best practice technologies and management methods for servicing the small / low density populations in some of the participating communities. (Applying life cycle analysis to existing assets may even advise early decommissioning and replacement with technologies with lower O&M and therefore life cycle costs).

There are cases in some communities where background reports note additional studies will be required to identify if a higher level of treatment of drinking water or wastewater effluent is required to reduce risk to acceptable levels. In those cases, background reports do not provide a technical analysis or the possible cost of a higher level of treatment:

- For provision of drinking water, background reports recount that some well based sources currently with minimal treatment have not been confirmed to be “non-GUDI”. While background reports and the financial assessment include some capital allowances for GUDI studies, technical estimates for additional treatment which may be required to address risk have not been provided in background reporting or included in the financial assessment.
- For disposal of treated wastewater effluent, background reports recount that some treatment processes discharging to inland waters may be placing stress on the receiving water and a higher level of treatment may be required. Estimates for additional treatment which may be required to address risk have not been provided in background reporting or included in the condition assessment by CBCL (2018).
- The capital costs for wastewater treatment projected by CBCL Ltd. were based on compliance with the federal municipal wastewater effluent regulations (WSER) which stipulate a minimum national performance standard of secondary treatment. Based on the experience of Halifax Water, environmental risk assessments for recent capital projects have stipulated that treatment plants discharging to inland waterways (brooks, rivers and lakes) need to be designed to enhanced secondary or tertiary levels. Accordingly, wastewater treatment costs have been grossed up by 50% in recognition that most of the First Nation communities live near inland waterways and will require wastewater effluent treatment beyond secondary levels. For clarity and increased transparency Table 17 compares the CBCL Table 11.1 wastewater treatment costs, the revised table inclusive of the increase contingency and the costs identified for the specific / applicable plants.

Asset management training and guidance has been available to First Nations communities in Atlantic Canada. Recently the new Asset Management Program was introduced in fiscal year 2018-2019 to help First Nations develop capacity for long-term infrastructure construction and maintenance planning. This program is an initiative under Indigenous Services Canada's (ISC) Capital Facilities and Maintenance Program. The AFNWA may be able to take advantage of training and funding to support asset management activities.

To support asset management:

- AFNWA can develop an Asset Management Policy. The policy will outline AFNWA's commitments to corporate asset management planning and key principles such as service delivery standards, health and environmental protection standards and a lifecycle approach to decision making.
- AFNWA can integrate asset management strategies into the IRP: The strategies will outline the approach the AFNWA will use to achieve organizational objectives for water and wastewater systems through asset management practices including how risk will be incorporated into decision making (for instance, stating that prioritized projects will be where risk reduction potential per dollar is highest).
- The IRP can complement the AMP with the identification of infrastructure master plans for the various water and wastewater systems

Developing an asset management approach and principles to investment will enable AFNWA to address the following key challenges for the AFNWA:

- Establishing service levels in consideration of the type and condition of existing assets / levels of service and how to bring all communities to either the same service level or acceptable service levels.
- How to bring a large stock of existing infrastructure up to a state of good repair including opportunities with new technologies and moving towards standardization of infrastructure components.
- How to capture the existing life cycle status of a large stock of infrastructure and consider beneficial life cycle investments or, perhaps, "plan to fail" strategies which reduce spending which will not extend the life cycle of the asset.
- Bring some focus to non-infrastructure solutions such as supply and demand management, operations flexibility and staff training with a goal to optimize life cycle and possibly defer major capital spending; and
- Discuss procurement methods for the new AFNWA with some focus on value over the life cycle of the new infrastructure.

8 Implementation Strategy

8.1 Governance and Oversight

The process to establish this permanent, independent water authority requires a staged approach to ensure cultural support, and a level of service which shows value to the Atlantic First Nations communities who are participating.

The following identifies key stages that are required for full implementation of the AFNWA.

8.1.1 Phase 1: Approval & Funding

This enabling phase commences with the GOC approving the business case, the associated transition proposal and committing to providing funding to the AFNWA for a two-year transition period (2020-2022). This commitment will allow the following steps to commence.

Interim Funding Approval

The development of the AFNWA business case will present the Government of Canada with a formal funding request. In anticipation of a funding approval process, interim funding is recommended in 2020 to enable the AFNWA to transition to a functioning utility in the spring of 2022. Interim funding will enable the AFNWA to establish the legal and human resources functions immediately. This interim period will further enable continued conversations with Atlantic First Nation communities to solicit participation.

Funding

Further commitment by Government of Canada (GOC) will be required to provide long term funding to AFNWA in line with the order of cost identified in this Business Case. Noting that long term funding will come with final negotiation at the end of this two-year transition. Successful funding and signature of the Framework Agreement will close this step.

Band Council Resolutions:

The commitment to GOC funding will allow BCRs to be completed with participating First Nations Bands. This deliverable will require the AFNWA interim COO to travel to participating and non-participating First Nations alike to request a BCR for further commitment to the project. This will allow license and asset transfer agreements to be developed. This step is dependent on the signature of the proposed Framework Agreement before the community visits commence.

Implement Human Resources Strategy and AFNWA Management Structure

As interim funding is received, AFNWA will be able to implement a human resource strategy to establish the AFNWA management structure. This Human Resource strategy will recognize the experience and knowledge of staff currently employed in the community water and wastewater system operations and take a consistent approach to salaries, benefits, training, and career

development that is competitive with the municipal sector[76]. Hiring key senior leadership is required to establish the direction and develop detailed operating and capital requirements.

The goal is to hire all staff by April 2022 (one year after funding approval) with a clear preference to hire from participating Atlantic First Nations. The strategy involves the following activities:

- Contract with a professional search organization
- Hire the CEO and senior managers by April 1, 2021 to ensure top talent is retained.
- Initiate review and accountability of policy implementation, regular reporting and measurement
- Initiate and schedule regular Board meetings
- Hire and commence training of superintendents, technical services staff and operators
- Develop a formal training and development program for all staff employed by the AFNWA
- Hire and-or transfer local operators from the communities to the AFNWA wherever possible.
- Develop an operator training and certification program to commence once the assets and human resources are transferred to the AFNWA.

Hiring a full complement of staff is not anticipated at this point. Instead, a full complement of staff will be transitioned seamlessly on the required need. These following manager positions will have to be selected in order of priority. For 2020-2021, however, it is recommended that the CEO, Manager of Engineering and selected support staff be identified to work alongside the interim COO. At the beginning of 2021-2022, the remainder of the intermediate managers will be hired. Please see section 7.1 for a full governance and organizational chart for the AFNWA which identifies the full complement of senior managers.

License Agreements

Finalizing BCRs will enable licensing/land access agreements to be drafted and completed with participating First Nations Bands. The AFNWA and its legal team will work directly with First Nations lands departments, ISC, and Department of Justice to create land access/license agreements that will both allow the AFNWA to enter communities, exclusively work on water and wastewater infrastructure, and indemnify Chiefs and Councils for water and wastewater service delivery.

8.1.2 Phase 2: Operational Funding

This phase establishes the remaining AFNWA management team in order to complete remaining tasks identified below.

[76] The OCWA Report notes that staff training is needed to ensure quality control and continuous improvement. AFNWA recognize that the areas of training require further development and that this will be reflected in the Business Plan. Implementation Planning has commenced, and the Business Plan will be developed in 2021 by the Senior Management Team after their recruitment.

Planning for the Implementation of an FSD "hub and spoke" operations model.

The introduction of the AFNWA as a First Nations governing body will introduce the need to develop organizational regulations and policies for the delivery of water and wastewater services. This will be facilitated by the hiring of the remaining senior managers which is anticipated to occur by April 1, 2021 (one year after transition funding approval) with a clear preference to hire from participating Atlantic First Nations.

Management will then be responsible to develop and adopt a formal training and development program for all staff. Furthermore, senior management will develop human resource strategies that recognize the experience and knowledge of staff currently employed in water and wastewater system operation and take a consistent approach to salaries, benefits, training, and career development. The formation of a corporate structure will establish policies and procedures that support human resource management, staff interaction and core work practices. The initial policies will be developed around an industry standard approach and cover core subject areas, such as:

- Health & Safety
- Remuneration & Expenses
- Communication
- Training & Development
- Discipline
- Information Technology

AFNWA policies will address culture, tradition, and be sensitive to the diversity of multiple First Nation communities it is providing service to.

Once the CEO, senior management and legal counsel (contracted) is in place, other business activities will commence:

- Develop board by-laws
- Annual and 10-year business planning
- Develop standard operating procedures
- Implement change management and communication planning

Operational Planning

Senior Management team develop an operations plan that identifies AFNWA operational funding requirements including:

- Board and management costs,
- Operating and maintenance costs; and
- Administration and accommodation costs.

Capital Planning.

The implementation of the previous phases will allow Senior Management to advance their capital planning and develop key planning documents which is anticipated to be completed within 18

months (anticipated to be completed by December 31, 2021) after CEO and Manager of Engineering are hired.

With these key management hires AFNWA will be in a position to draft a 10-year capital program based on the Asset Management Plan (AMP), and incorporation of asset management planning. In the development of the AMP the following considerations will need to be identified:

- Define assets, systems, facilities etc. that are to be included
- Determine how performance of assets will align to AFNWA objectives
- Identify methods to gather data and analysis from participating Atlantic First Nation communities
- Determine the level of service and targeted levels of services, and identify gaps
- Forecast future AFNWA growth and asset utilization
- Process to identify, intake and prioritize projects
- Summarize how assets will be managed and operated
- Model financial requirements
- Define future asset management practices including planning and monitoring

Ongoing Operations including Capital Investment Activities

With the formal receipt of funding, the establishment of AFNWA operations and the development of guiding policies and asset management planning, AFNWA will be able to commence capital investment for identified priorities. Capital investment will be executed according to priorities identified through 5 and 10-year capital planning horizons, and through AFNWA Board budget approval.

Following standard procurement processes, and oversight by professional services will ensure investments are delivering successfully according to identified project objectives.

Implement Change Management

AFNWA will appoint a dedicated change management team and develop a change management strategy in order to align the communications to ensure effective engagement and support. This step will be maintained for the 2-year transition period and the first year of full autonomous operation.

Regulatory Oversight

Agency oversight has been identified as a best practice in the utility profession.[77] At some locations in this business case, extracts from source documents reference Federal departments as regulators.

Approval of the AFNWA Business Case will establish a Government of Canada funding stream and a commitment by the Government of Canada to provide support to the AFNWA throughout its ongoing operations. Devolution and self-administration of federally funded programs is not

[77] Watertight, the case for change in Ontario's water and wastewater sector, Published by Ontario Ministry of Public Infrastructure Renewal, 2005

unfamiliar to the Atlantic First Nations who have pursued similar devolution in health programing. Many of the principles pursued in the health initiative are similar to those noted in the evolution of the proposal to establish the AFNWA. Like health care, a governance model for the AFNWA presents unique challenges in considering and respecting the policies, regulation and legislation related to environmental protection and water and wastewater services across three Provinces and the Federal Government. With the goal of achieving self-determination of Atlantic First Nations.

The continuation of the existing roles of the Atlantic Policy Congress, ISC and Health Canada may provide enough governance at formation of the AFNWA. Once operational, the AFNWA working with those three groups and member communities can work to establish and implement a regulatory governance structure. Key elements towards confirmation of governance will be:

- establishment of principles for provision of water and sewer services including representation in governance and communication with municipal (in the case of MTAs), provincial and federal partners.
- establishment of design standards for infrastructure and in particular for water treatment and distribution along with levels of service which meet the agreed principles.
- establishment of working agreements with all partners which meet the agreed principles; and
- establishment of metrics to be used to report to community members, governance partners and Federal funders on success meeting principles, guidelines and levels of service.

In addition to leading initiatives required to establish governance, AFNWA will confirm regulatory oversight agencies with GOC and develop a plan for implementing their requirements. As an interim step, the AFNWA and Dalhousie University will continue their work in developing a strategy for operating in the interim within an unregulated environment.

8.1.3 Phase 3: Detailed Business Plan and Funding

The final phase in implementing the AFNWA comprises the development of detailed budgets into a comprehensive Funding Model. The funding requirements will be subject to negotiation with ISC with the understanding that the level of funding will be in line with the order of cost identified in the AFNWA business case. As transfer agreements are finalized, AFNWA will commence full autonomous operations. Additional details are provided below.

Risk Assessment

AFNWA will prepare a detailed risk assessment to act as an input into the detailed financial model. This will be an ongoing practice within the AFNWA. The asset management plan will identify detailed operational risks; however, it will be the prerogative of the AFNWA to identify additional risks along with the appropriate mitigation strategy. Risks categories may include but are not limited to:

- Economic
- Social
- Political
- Technological
- Legal

- Environmental

Financial Model

Develop a detailed financial model that incorporated inputs from the AMP, Operational plan, risk assessment and 10-year capital spending plan. The model should be sufficiently detailed to consider scenarios and risks which might impact operations and service delivery. The model will be a vehicle for agreeing to the funding model with GOC.

Refine Detailed Budgets and funding model

The intention of this step is to review the detailed financial model and risk assessment with ISC and participating First Nations to develop/agree a detailed funding model

Transfer Agreement from Participating Atlantic First Nations Assets and Operators to the AFNWA

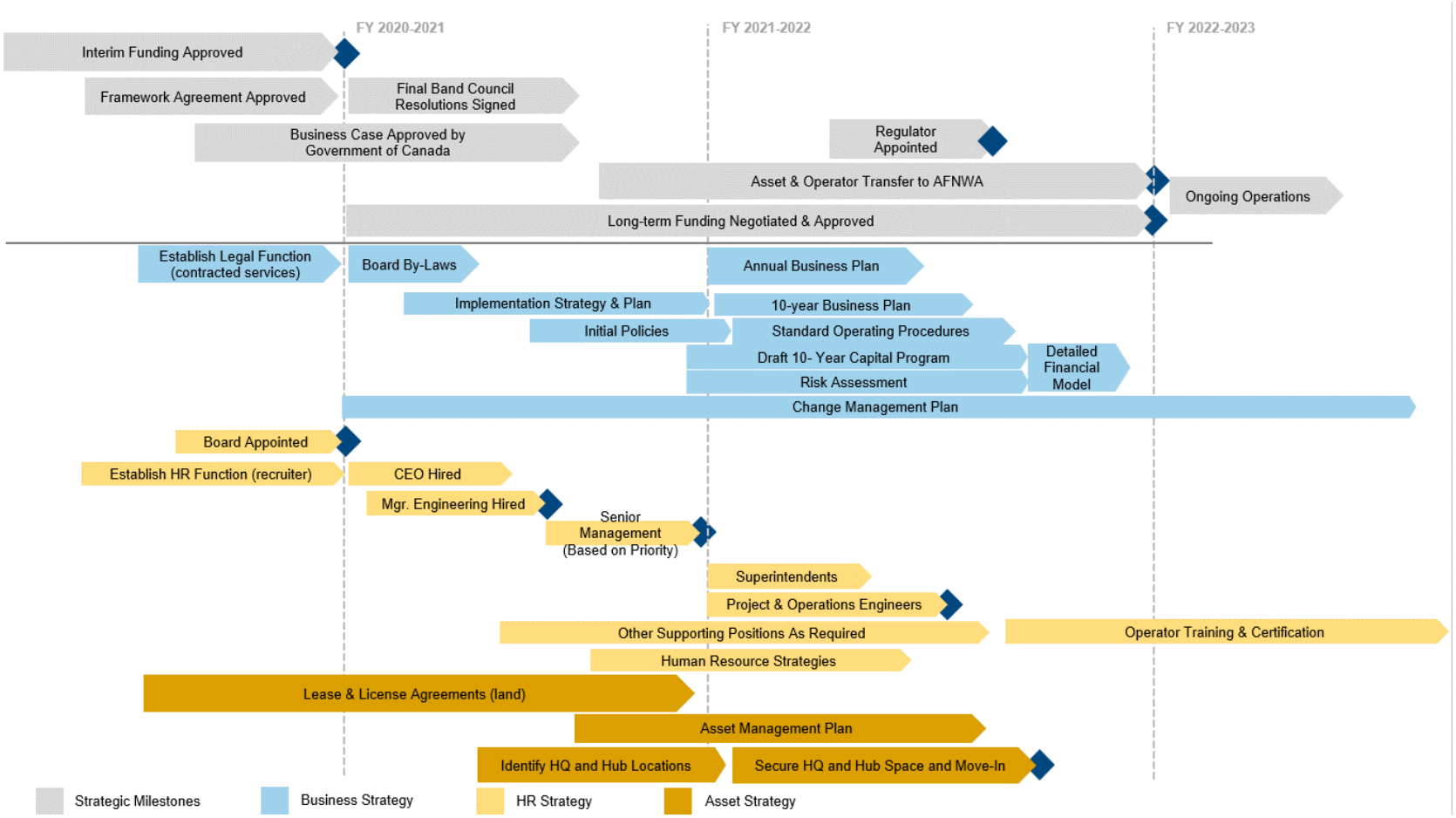
While the signing of BCR's provides AFNWA the ability to access the communities to assess engineering work, land surveys, and environmental assessments, additional regulation or policy may be required from each band to align with, participate in, or receive the direct services being provided by the AFNWA.

Formalizing transfer agreements with participating First Nation communities will coincide with the date of AFNWA full autonomous operation. The Transfer agreement will include the agreed funding model and will address how changes such as future upgrades to regulations will be dealt with. AFNWA will at that time assume responsibility for MTAs from First Nations and hard assets will need to be transferred over to the AFNWA in order to assume control over drinking water and wastewater service delivery. Transferring assets will require a reciprocal provision by AFNWA to assume all liabilities from the First Nations communities in respect to the operation and provision of water and wastewater services from the date of transfer with an ongoing indemnity to protect communities from liability. The transfer of assets and responsibility will result in the individual communities and Band Councils not having any further personal liability for the ownership and operation of water and wastewater assets from the date of transfer. This process will follow a defined transition plan as developed by AFNWA senior management.

8.2 Schedule

The following identifies a high-level schedule for the implementation of the AFNWA.

Figure 7 High Level Implementation Schedule



8.3 Change Management Strategy

AFNWA will introduce a change management strategy that provides a defined process to ensure a lasting acceptance and support of the governing body, management approach, funding arrangements and operating policies and procedures.

The primary aim of the change management strategy will be to identify the impact on local communities, water and wastewater systems, processes and the people working within, and receiving these services. As such the change management strategy will be focused on three key aspects: developing a readiness for change within the AFNWA organization formally, the Atlantic First Nations communities they provide service to, and the regulatory authorities who will provide oversight.

Typical change management strategies include the following:

- Defining the change, and indicate why the change is needed
- Identify how the change will impact stakeholders
- Implementation strategy
    - Define roles
    - Identify available support
    - Establish stages in the change process
        - Training, communications, skill development, assessments, etc.
- Identify additional plans required to ensure full implementation

A dedicated change management team will be established to ensure the change management strategy is properly implemented.

8.4 Communication and Outreach Strategy

Due to the cultural, geographical, variety of technical applications and complexity of communities participating in the AFNWA, a third critical piece will be to implement an ongoing communication and outreach program. Implementing this at the outset will ensure the long-term success of the AFNWA by building trust and relationships with the communities being serviced. This is complementary to the change management process and will address important organizational and operational issues related to the transition to AFNWA.

The change management strategy will be supported by a communications and public relations strategy which will help build a broad awareness of the issues AFNWA will be addressing. The strategy will build support through the engagement, education and understanding of stakeholders, identify champions, and provide information to mobilize supporters to communicate the benefits associated with AFNWA. Some of the key communication objectives include:

- Establish broad base awareness of the need for Atlantic Canadian First Nations communities to have access to clean and safe drinking water / wastewater
- Engage and educate stakeholders that there is a plan to create and manage a regional Atlantic First Nation water authority.

- Identify key stakeholders and champions that can play a role in helping to secure financial support from the federal government.
- Position and mobilize influencers with the case for support, and the right messages and tools to help secure funding and advance the development of the regional water authority

A proactive and phased communications approach is recommended in order to share the learning and research as the project advances. The following steps are recommended:

- Stage 1 Identify key stakeholders and influencers
- Stage 2 Connect and share the narrative; speak with relevance and resonance
- Stage 3 Engage influencers
- Stage 4 Educate. Identify, track and respond to questions
- Stage 5 Empower advocacy through responsive and evolving communications, and provide tools for advocacy

The change management and communications plans will continue to evolve and be refined as messages are shared with stakeholders.

9 Recommendations

9.1 Recommendations

There is a strong desire to implement the AFNWA among Atlantic First Nations and the Government of Canada, including multiple letters of support from various stakeholders (Refer to Appendix 12).

The business case recommends that the Government of Canada commit to provide 25 years operational and capital funding as set out in Tables 16 and 21 to allow the AFNWA to establish a full service de-centralized business model and adopt a hub and spoke organizational structure. This conclusion is tempered with the recommendation that a phased-in, milestone approach is adopted with a two-year transitional period between the provision of operational funding and fully autonomous operation.

Maintaining the status quo does not meet the success factors identified in the Business Case and perpetuates the issues of the past. Providing long-term Government of Canada funding will allow the AFNWA to be owned, operated and managed by First Nations.

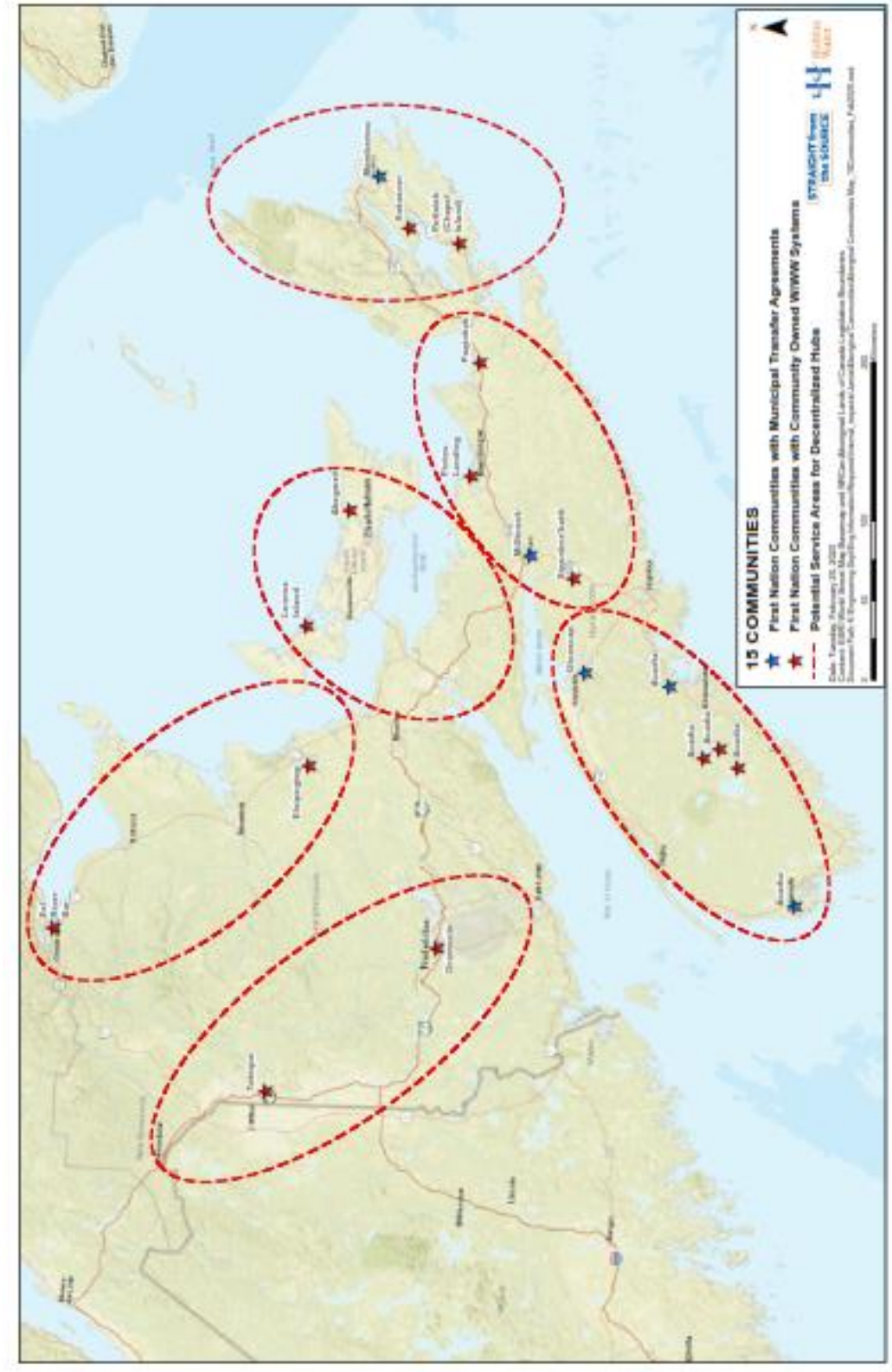
The timeline included in Chapter 8 establishes the recommended approach.

Table 28 Key Recommendations

AFNWA	
AFNWA appoint a dedicated change management team.	• Develop an AFNWA change management strategy. • Align the communications and change management strategies to ensure effective engagement and support.
AFNWA recruit and appoint senior management team	• Contract with a professional search organizational to hire the CEO and senior managers to ensure top talent is retained.
AFNWA confirm regulatory Oversight Agencies with GOC	• Identify Business and Operations Regulatory oversight Agencies and develop a plan for implementing their requirements.
Senior Management Team	
Senior Management develop an implementation plan	• CEO and management team develop a detailed implementation plan that addresses the sequencing of management activities required to developing policies, procedures and by-laws

Implement an FSD “hub and spoke” operations model	• Hire senior management staff by April 2021 (one year after funding approval) with a clear preference to hire from participating Atlantic First Nations. • Adopt a formal training and development program for all staff • Hire local operators wherever possible with an immediate focus on training and certification to align with skill-based pay. • Develop Human Resource strategies that recognize the experience and knowledge of staff currently employed in water and wastewater system operation and take a consistent approach to salaries, benefits, training and career development.
Senior Management develop key documentation	• Operations plan for years 1 and 2 of AFNWA operational funding • Asset management plan within 2 years of AFNWA operations • 10-year capital program based on the asset management plan.
Senior Management plan for regulatory oversight	• Develop a plan for implementing the requirements of the Business and Operations Regulatory oversight Agencies.
Senior Management develop procedures & corporate policies	• Establish policies and procedures that provide human resource management, staff interaction and core work practices • Address culture, tradition, and be sensitive to the diversity of multiple First Nation bands.

Appendix 1- Participating Atlantic First Nation Communities



Appendix 2 - Overview of Key AFNWA Engagements

Overall:

The AFNWA has been a standing agenda item at each APC All Chiefs Forum and each All Chief and Council assembly.

Analysis on the Impacts of a Proposed Federal Legislative Framework for Drinking Water and Wastewater in Atlantic First Nations Communities – produced by CWRS, April 8th, 2009

- This report reviews the 16 elements proposed by the 2006 Expert Panel and determines that 14 of these elements apply directly to First Nations in the Atlantic Region.
- The report analyzes the impacts of implementing these 14 elements in terms of relevance to First Nations communities, applying provincial requirements into First Nations communities, and also discusses options for the implementation.

Drinking Water Regulatory and Operational Framework for First Nations Communities in Atlantic Canada – Proposal, January 28, 2010

- Based on the 16 elements of a regulatory system proposed by the Expert Pany on Safe Drinking Water for First Nations Report (2006), this document reviews and develops methods for addressing these elements in First Nations Communities in the Atlantic Region.
- This proposal outlines the overall tasks that would be necessary to undertake a regulatory framework, a projected schedule and an estimated budget for the work.
- This document is proposal based on initiatives outlined at the Engagement Session on the Development of a Proposed Federal Legislative Framework for Drinking Water and Wastewater in First Nation Communities (March 31, 2009).

Atlantic Policy Congress Water and Wastewater P3 Initiative Proposal – Produced by Raymond Chabot Grant Thornton. **December 2, 2011**

- Initial proposal received by APC from Raymond Chabot Grant Thornton LLP for the APC Water and Wastewater P3 Initiative.

APC P3 Opportunity Report by Raymond Chabot Grant Thornton, April 26, 2012

- Report commissioned by P3 Canada to explore various options for implementing infrastructure improvements and conducting ongoing O&M of the WWW systems in the Atlantic FN Communities.

Atlantic Canada Water Authority Governance Structure. Prepared by CWRS, March 31, 2012

- This report outlines a proposed governance structure for the Water Authority, under the requirements for a P3 Canada agreement.
- The report suggested 3 options for the development of preliminary organizational structure of the Water Authority. Option 1: The water authority to be established as a Crown Agency for regulating and monitoring drinking water and wastewater systems; Option 2: The Water Authority would be established as a private company with asset ownership; Option 3: The Water Authority would be established as a corporation by a special federal act. The 3 options were compared and

options 2 or 3 were recommended over option 1 based on the overall scope, and the type of management/ownership needed for this project.
- The report also discusses the structure of the Board of Directors and the powers associated with being a Director.

Atlantic Canada Water Rate Study. Prepared by CWRS. March 31, 2012

- As commissioned by APC, the purpose of this report was to conduct a water rate study for utilities in Atlantic Canada to determine the best path forward for Atlantic Canadian First Nations communities in developing a water-pricing model.
- The recommendation proposed in this report was to adopt a volumetric rate structure which would lead to lower consumption rate and in turn, lower operating costs for the facility. Through a metered approach, the facility has a much better understanding of the state of the distribution system and will be able to identify leaks much more efficiently.

Water and Wastewater Regulatory Benchmarks for First Nations Communities in Atlantic Canada. Prepared by CWRS, March 31, 2012

- The purpose of this report was twofold:
  (1) to develop a regulatory benchmark 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), and (2) to assess the requirements of conducting pilot trials within 4 communities in Atlantic Canada to evaluate their compliance with the proposed regulatory benchmark as developed.

Water and Wastewater Infrastructure Asset Condition Assessment by the Centre of Water Resource Studies Dalhousie University and CBCL Limited. 2012-2013

- Covered 28 of 33 communities in NS; NB, PEI and NFLD.
- Of particular emphasis, adding to the accuracy and efforts of the Neegan Burnside Report, CWRS added the consideration of applying First Nations Regulatory Benchmarks for water and wastewater systems.
- The study evaluated water and wastewater system conditions in terms of compliance, operations, capacity and management efficiency.
- A large part of the assessment was focused on an in-depth cost analysis investigating the cost of replacing systems, as well as increased operational costs for each system.

Atlantic First Nations Water and Wastewater Initiative—Pre-Business Case Work by Raymond Chabot Grant Thornton, March 2013

- Report commissioned by APC to provide a detailed costing analysis on sources and uses of funding for W/WW activities in the Atlantic Region.
- The document focused on in-depth cost analysis, covering costs categories such as energy, chemical, labor, and specific capital expenditures related to water and wastewater infrastructure.

Regulatory Benchmark Pilot Trials for First Nations Communities in Atlantic Canada – prepared by CWRS, April 1, 2013

- This report was commissioned by APC to launch a pilot trial in four First Nations communities to investigate the capacity of existing water and wastewater systems to incorporate the upcoming proposed regulatory structure.

- The bulk of the report starts by providing an overview of the regulatory structure to be implemented in communities and presenting results obtained from the pilot trials along with providing a description of the approach used. The water quality results are discussed, and costs of operation and maintenance activities are investigated and discussed.
- The conclusion of the report provides a brief overview of each community in terms of water quality data, costs estimates and feasibility of implementing the proposed regulatory structure.

Options for a Regional First Nations Water Authority – Prepared by CWRS. July 15, 2013

- The purpose of this document was to outline many options available to the First Nations Water Authority according to information retrieved from all reports produced including proceedings from various workshops.
- The options and suggestions of this report include topics such as incorporation, board of director's structure, management structure, and P3 models for community management, liability insurance, and the use of water metering and enforcement of regulations.

Proposal: Atlantic Canada First Nations Water and Wastewater Initiative Activities 2013-2014

- This proposal outlines all tasks and activities that have occurred and tasks and activities that still need to be identified and completed.
- The document is divided into suggested phases for the project, which includes work plans, timelines, communications plans and regulatory regimes.

Atlantic Policy Congress Water Wastewater Project – Gap Analysis of Cost Estimates, Design and Technical Study completed by P3 Canada, **March 2014**

- This report is an in-depth cost analysis of using a P3 model for the rehabilitation and on-going operations and maintenance of water and wastewater infrastructure across a number of First Nations communities in the Atlantic Region.

APC Water/Wastewater Project – Preliminary Project Plan completed by KPMG, March 28, 2014

- The purpose of the preliminary project plan is to: (1) Identify the major work steps and activities through the planning and development phases of the project; (2) visualize the work steps required to progress the project through to construction and ongoing operations; (3) provide a forum for the project stakeholders to discuss and confirm what is required for the project to move forward; and (4) secure commitment and resources from the project stakeholders and other relevant parties to complete various work steps and activities.

Project Charter – First Nations Clean Water Initiative – Atlantic Region, July 15, 2014

- The Project Charter serves as the main project management tool to ensure that all aspects and deliverables of the proposed AFNWA are completed.
- There are three major deliverables within the scope of the Project Charter: (1) The creation of the Water Authority as a corporate entity, (2) The transfer of existing water and wastewater assets to the Water Authority, and (3) The consideration of a Public-Private Partnership proposal for the upgrade and long-term maintenance of water and wastewater systems in Atlantic First Nations communities.
- Incorporation is the primary and priority deliverable to INAC, as well as the trigger for funding and other determinations/answers to many of the Chiefs' concerns.

Communications Plan – First Nations Clean Water Initiative Atlantic Region, October 2014

- The purpose of the document was to establish a multi-year communications plan to be carried out simultaneously with the Project Charter.
- The main strategy and approach of this plan were divided into 5 main stages: identify, connect, engage, mitigate, and maintain. These 5 stages will help ensure that all communications aspect throughout the life of this project are addressed and solved to the best of the communication team's ability.

Joint Progress Briefing Note – Asset Inventory, October 2014

- **July 2014 – Draft of Owner's Engineer RFP --** Developed by Dalhousie University and sent to P3 Canada in September 2014 and AANDC in October 2014.
- **October 2014—Field Campaign for all First Nations Communities –** Field campaign included the initial lift of water and wastewater infrastructure and the update of the existing cadastral mapping of the Indian Reserves in Atlantic Canada.

First Nations Clean Water Initiative Atlantic Region – ADM Briefing, December 2014

- This ADM briefing was in the form of a power point presentation and outlined the AFNWA project goals, principals, and activities broken down into 4 phases. Phase 1: Approval of the initial timeline, Phase 2: Initial Implementation of project elements, Phase 3: Community approval through a vote, and Phase 4: P3 Business Case

FNCWI Website Launch, 2015-2016

- Dalhousie engaged further with 3'Oclock Communications on several occasions during December 2015, which produced tentative website design and logo. In consequence, tentative website design and logo have been presented to APC for feedback. The final website design was approved. The website went live on the January 20-21st workshop date – www.fncwi.ca

Draft Corporate Operations Package, February 2015

- Dalhousie worked with McInnis Cooper to develop a term sheet for the Atlantic First Nation Water Authority – completed February 2015.

Request for Service—For Call Up Against Supply Arrangement (SA) — prepared by PPP Canada, March 2015

- PPP Canada put forth a request for proposal, in order to engage a technical advisor (engineering firm) and a cost consultant from engineering, design and cost-estimation experience in the field of water and wastewater treatment and conveyance systems.
- PPP Canada request for proposal requires an assignment that would include successful schematic level design and cost estimate for the rehabilitation of water and wastewater systems. Regarding cost estimation component, a completion of a Gap Analysis that assesses the capacity and performance of the existing assets and compares them to future needs;
  As per PPP Canada Schematic Design Estimate Guide (SDEG) for all components of the project. These components include treatment plans, pumping stations, residual waste treatment systems, storage facilities and the overall conveyance systems.

First Nations Clean Water Initiative Atlantic Region – Briefing Note, March 20, 2015

- The purpose of this briefing note was to update Chief and Council on the progress, the main advantages and the benefits of following a P3 financial model for the Atlantic First Nations Water Authority.

Workshops, Meetings, and Forums

Atlantic First Nation Housing & Infrastructure Network – Water and Wastewater Committee Meetings, 2010-2012

- The purpose of the Water and Wastewater Committee, as supervised by the Senior Housing and Infrastructure Committee, was to discuss long-term sustainability of water and wastewater management, develop innovative strategies that will address water and wastewater issues, and to recommend changes to policies and share best practices to improve the design, delivery and implementation of infrastructure programs.
- Water and Wastewater committee members promoted activities and documentation that support the ultimate goal of having sustainable management of water and wastewater infrastructure in First Nations communities.

October 25, 2013 – Safe Drinking Water for First Nations Act: Regulatory Development Intergovernmental Engagement.

- This document presents proceedings from a meeting called on by INAC to facilitate an information exchange between water and wastewater management stakeholders. The provinces were invited as technical experts and the purpose of the meeting was not to gage their interested in taking on an active role in the activities related to development of a First Nations water and wastewater regulatory regime.
- Topics of discussion included approvals to operate, monitoring, emergency response, testing and sampling, awareness, record keeping, compliance and enforcement, municipal transfer agreements and other agreements, legal issues, First Nations specific issues, and information sharing.

March 2014 – Atlantic First Nations Water Authority Summary Report – prepared by CWRS

- This report summarizes the outcomes of the four workshops that were held with technical experts, the federal government and First Nations leaders to discuss options for a Water Authority moving forward. The workshops were held on June 25th, July 15th and Dec 2nd, 2013, and March 3rd, 2014.
- As a result of the first two expert workshops, the Coop model was deemed to be the most promising due to the fact that it is a one-member one-vote situation, providing equity amongst communities.
- During the December 2nd, 2013 meeting, issues arose with respect to generation of surplus funding and how this would be distributed
- As a result of the March 3rd, 2014 meeting that the model moving forward would be a not-for-profit corporation through the Not-For-Profit Corporations Act.

January 20, 2015 – Land designation workshop

- Dalhousie helped to organize a one-day land designation workshop that was held in Dartmouth on January 20, 2015 (Dartmouth, Holiday Inn) – led by National Aboriginal Land Managers Association (NALMA), based on their land designation toolkit.
- APC and Dalhousie engaged McInnis Cooper to participate in a meeting with APC and Lands Activity Team on February 27, 2015 over land designation discussions, which led to the creation of a term sheet for lease development entitled “Lease Development Assumptions”.
- Received Lease Development Assumptions document from Lands Activity team on March 4, 2015 and provided suggested revisions.

CWRS 2015 – February 2015 – Atlantic First Nation Water Authority Governance Report – Governance workshop – prepared by CWRS

- On January 21, 2015, a workshop was held on corporate governance and unique issues related to the Water Authority. The goal of the workshop was to provide all participants with an understanding of corporate governance best practices, and to engage in discussion about specific governance issues that must be addressed in order to organize and operate the Water Authority.
- Participants were actively engaged with questions and feedback and detailed ideas were expressed:
    - Board Size: 7-11 members were recommended
    - Observing Board Members: during the start-up period of the Water Authority, it was recommended that a representative from each community be present at board meetings
    - Selection of Board Members: in general, participants were in favor of representation by province or region. It was also suggested that communities establish a nomination committee.
    - Length of Term: Participants recommended a staggered four-year term
    - Selection of Chair: Participant consensus was that the Board would be responsible for nominating/electing a Chair.
    - Transparency: It was suggested that board meetings could rotate between public and closed door.
    - One member, one vote).

February 17, 2015 – First Nations Clean Water Initiative Atlantic Region: Land Tenure and Land Access Working Group Meeting.

- The purpose of this working group meeting was to discuss proceedings from the January 20/21 Water Authority Workshop, and to ensure that the message of the Water Authority and the subsequent land tenure activities are to be as clear, concise and reliable as possible.
- All information from this working group was collated and presented at the March 2015 All Chiefs Forum.

December 2nd and 3rd 2015—Governance Focus Group:

- A focus group held on December 2nd and 3rd, 2015 focused on the Atlantic First Nations Water Authority's (AFNWA) governance; specifically, on the Board of Directors structure and composition. The participants of the focus group decided on the following recommendations for the structure of the Board of Directors within the Water Authority.
    - **Board Size**: Maximum of 15 Directors; minimum of 12 First Nations (FN) Representatives, and 3 Technical Experts.
    - **Selection of Shareholder Representatives**: The participating communities (i.e., shareholders of the AFNWA) will individually elect one shareholder representative for their community.
    - **Selection of Board Members**:
        - **First Nations Representatives**: 12 Directors of the AFNWA shall be elected at a shareholder meeting. The Directors shall meet a set of director qualification, including stipulations put forth by the *Not-for-Profit Corporations Act* (i.e., must be over 18 years of age, and must not have declared bankruptcy) and as set out in the by-laws and AFNWA policy.

- **Technical Experts**: Technical experts shall be interviewed and selected by a nomination committee. The nomination committee will include members from the 12 FN board members and may include the Chief Executive Officer (CEO).
- **Chief Executive Officer (CEO)**: The CEO will not be a voting member of the board.

- **Length of Term:** The length of term shall remain flexible, with the Directors being appointed to serve staggered terms of 2, 3, or 4-year terms. Directors are able to serve for up to 2 consecutive terms.
- **Transparency**: Regular board meetings shall remain open to the public and may be broadcasted on the internet for additional accessibility. There shall also be a "closed" portion of each meeting in order to discuss sensitive topics, where the public will be asked to leave. The public will be provided with the motions passed/rejected during the closed portion.

January 2016—All Chiefs Forum – Clean Water Initiative

- A major meeting organized by APC in January 2016, attended by all Chiefs of Atlantic First Nation communities, had centered on annual priorities and concerns of APC's overall departmental portfolio's outcomes and objectives with significant attention devoted on the AFNWA initiative.
- An APC resolution to incorporate the Water Authority narrowly did not pass due to some concerns over asset-transfer and funding functions of the AFNWA. APC and its partner CWRS of Dalhousie University responded that such concerns would be resolved by governance and institutional organization enabled through incorporation of the AFNWA.
- In response to the All Chief Forum's concerns, APCs Housing and Infrastructure staff determined specific steps may be required to move CWI communication forward. Staff recommended revised communication may strengthen APC's ability to allay.

Corporate Structure Engagement

Halifax Water participated in the APC Atlantic First Nations Water Forum held on March 15 and 16, 2017 in Dartmouth, NS. In attendance were Chiefs and operations staff from over 12 First Nation communities, APC staff, ULNOOWEG staff and representatives from Dalhousie University, Indigenous and Northern Affairs Canada (INAC) and Public Health agencies. The Water Forum was held to update First Nation communities on activities related to the Clean Water Initiative with a focus on regulations and activities directly related to the formation of the AFNWA. Halifax Water was invited to present on the aspects of operating a water and wastewater utility in a regulated environment and to introduce the current project on corporate structuring of the AFNWA. Halifax Water and Accelerator representatives also participated in a panel discussion at the end of the Water Forum in relation to the broader implications of the Clean Water Initiative.

In terms of receiving feedback on the implications of the AFNWA, several themes emerged which shed light on how a utility should operate and serve First Nation communities. Central to the success of the AFNWA is the need for ongoing collaboration, public outreach and communication. The participants also had a strong sense of environmental stewardship with a time frame that considers seven generations. In addition, in traditional teachings and displayed at the Water Forum, First Nation women have a sacred connection to water.

As a follow up to the concerns expressed about water and wastewater operators, the general manager of Halifax Water met with operators from First Nation communities at the Maritime Provinces Water and wastewater Association (MPWWA) conference in Halifax on April 24, 2017. During the session, concerns and comments were received:

- Operator salaries are low (many are making in the order of $30,000 annually which is half the market rate) and as a result some have left the community to find employment elsewhere.

- There is a lack of understanding about water and wastewater systems and a need to educate the broader community on the complexities and importance of maintaining systems in a state of good repair.
- There is a negative perception of Public Private Partnership (P3) approaches, which influenced some First Nation communities to not introduce band council resolutions to participate in the APC initiative to consider formation of the AFNWA.

Chief & Mayor Meeting

As a follow up to views expressed at the Water Forum, APC also facilitated a meeting of First Nations Chiefs, Halifax Regional Municipality Mayor Mike Savage and Councillor Russell Walker (Vice Chair of Halifax Water) on April 27, 2017 at the Lake Major water supply plant in Dartmouth, NS. The session was held primarily for First Nation Chiefs to gain insight on the governance aspects of a water and wastewater corporation (Halifax Water) and relationship with its owner, the Halifax Regional Municipality (HRM). In addition to attendance by eight Chiefs, representatives from APC, Dalhousie University, Accelerator and Halifax Water also participated. After an informal meet and greet over lunch, the general manager of Halifax Water provided a presentation on utility governance. The presentation provided a history of Halifax Water, its relationship with regulators, its approach to sustainability, an overview of rate structures and an overview on the relationship with HRM. Key themes and concerns expressed by the Chiefs, Mayor Savage and Councillor Walker included:

- The critical nature of water and wastewater services to support public health, economic development and protection of the environment; communities cannot thrive without it
- The importance of a professionally managed utility with a business approach and service culture with abilities to respond to emergencies
- Recognition that elected officials have to wear a different hat when serving as Utility Board members; decisions are based on the best interests of the utility and its customers above specific constituents' concerns
- Recognition that water meters are necessary for utilities to manage the distribution system. It is important to monitor customer usage to minimize leakage, which if left unchecked, would increase costs and jeopardize service to all customers. A discussion ensued where First Nation representatives recognized that meters could also play a role in collecting some revenue as some communities are paying for the service now
- In addition to an understanding that a First Nations Water Authority would need to be accountable to a regulator for the quality of drinking water and wastewater effluent, there was discussion on the potential for a regulator to monitor the business aspects of a utility

On May 1, 2017 the APC arranged a meeting of 7 Elders from PEI, NB and NS, several members of APC, including the Executive Director John Paul, and Rod Burgar, a member of the project team. The purpose of the meeting was to receive the advice of the Elders on the cultural and spiritual significance of water in the context of the AFNWA.

Over the course of the day the Elders elaborated on the historic place water holds for First Nations, the importance of protecting water for future generations and the responsibilities the AFNWA must assume if it is authorized by the community owners to manage water and wastewater in the Atlantic Region. Specific topics that were discussed included:

- Cultural and spiritual significance of water
- Decision-making: community, tribal and regional
- Structuring the AFNWA so it is by and for First Nations across the region
- Values that are connected with water both as an object and as a living spiritual entity
- Two-Eyed Seeing; traditional knowledge integrated with western science
- The need for engagement and communication about the operation of the AFNWA

The advice and conversation among the Elders were recorded in a Report entitled: "Creating an Atlantic

First Nations Water Authority with Culture as a Foundation" and also in two pictorial story boards: 'Cultural and Spiritual Significance of Samqwan'/Sama'qwon and 'Atlantic First Nations Clean Water Initiative' which are depicted below as Chart 2 and 3, respectively.

A second meeting of Elders was held on July 5, 2017. The purpose of the meeting was to review the draft Final Report with the Elders prior to the July 10th workshop to determine if the Report reflected the advice, they had provided previously on how to ensure traditional First Nations culture and values are embedded in the AFNWA. The Elders reviewed and discussed the results from the earlier storyboards and found that they captured the essence of their conversation. In addition, the meeting provided an opportunity to provide an overview and receive feedback on the four alternatives for a corporate structure of the AFNWA. The pros and cons of each alternative were discussed and ultimately the Elders revealed a preference for the full service, decentralized model. Other key themes discussed during the session included:

- The question on "Authority" as a name for the organization; it was suggested that the final name could be changed later once the organization is set up
- Mother Nature and her concerns appearing through climate change
- Communities shouldn't have the sole authority to control water as there is a collective stewardship responsibility
- Prioritize needs and a proactive approach through the AFNWA with a standard level of service over time
- The AFNWA can facilitate activities and negotiate with neighbour municipalities on behalf of local communities
- The AFNWA can serve the collective interests of First Nation communities with the resources needed to solve problems
- Clean drinking water is a human right; the AFNWA Board should set policy which could incorporate a mission statement and values
- The AFNWA has responsibility to educate communities in matters of water
- A water theme toolkit should be produced by the AFNWA to educate youth; Elders wisdom should be incorporated
- It was noted that the costs of the AFNWA Board were not included and a statement in the final report should reflect this fact with an estimate of annual costs.

During the second meeting, the Elders suggested the AFNWA adopt the following as the mission statement: "To provide clean and safe water and wastewater for all Atlantic First Nations Communities". A new storyboard was created as a result of this meeting which reflects the mission statement and depicts the preferred corporate alternative (full service-decentralized) for the AFNWA with its operations based on a regional hub and spoke alignment. A copy of the storyboard is contained in the Executive

On May 24, 2017, a workshop was held with First Nation leaders to review the preliminary report on corporate structure alternatives for the AFNWA. Participants in the workshop included First Nation Chiefs, Elder Albert Marshall, operators from First Nation communities and representatives from APC, INAC, Dalhousie University and ULNOOWEG. In addition, a graphic artist was present to capture the essence of the workshop, including pros and cons of each of the four corporate structure alternatives. This is depicted below (as Chart 4 and 5, respectively) in two pictorial story boards: 'Atlantic First Nations Water Authority' and 'Atlantic First Nations Water Authority: Corporate Structure Options'.

The general manager of Halifax Water provided a presentation on the four-corporate structure alternatives, namely; full service - centralized; full service - decentralized; full outsource; and technical services support. The overview included a detailed explanation of each alternative and preliminary costing. Through feedback, questions and discussion, there was a clear indication that the full outsource alternative was the least preferred and there was a preference for the full service – decentralized model.

Notwithstanding the findings from the May 24, 2017 workshop, a second First Nation Leaders workshop

was held on July 10, 2017 to receive additional feedback on the corporate structure alternatives and the recommendations to operationalize the AFNWA. A draft final report, dated June 30, 2017 was circulated in advance of the workshop and the general manager of Halifax Water provided an overview of the key recommendations including details on the preferred corporate structure. The preferred structure is a full service, decentralized model with operations set up with a regional hub and spoke approach.

On June 27, 2017 a workshop was held with operators and administrators from First Nation communities, APC staff and Halifax Water managers experienced in water and wastewater system operations. The purpose of the workshop was to review the preliminary report produced by Halifax Water and Accelerator and solicit feedback on the alternative corporate structures from operators employed by First Nation communities. The workshop was aided by a presentation from the general manager of Halifax Water which was similar to the one provided at the First Nation Leaders workshop on May 24, 2017. The format was an open forum where questions and concerns were expressed throughout the presentation and afterwards in a general discussion.

Much of the discussion centered on the practical aspects of operations including the approach to regulations for a regional water utility operating in the diverse communities of Atlantic Canada. As disclosed in previous studies and discussed at the Water Forum on March 15 and 16, 2017, it was acknowledged that Dr. Graham Gagnon of Dalhousie has proposed regulations to serve as a framework within Atlantic Canada to ensure a consistent approach. A considerable time was spent on discussing the implications of growth in First Nation communities and how a utility will incorporate this into its strategic plans. It was articulated that the AFNWA should develop an integrated resource plan to include growth, asset renewal, regulatory compliance and level of service. A key pursuit of the AFNWA will be to provide a consistent level of service over time and prioritize projects based on need. Also, on the minds of operators was the need for a consistent and higher standard for safety. All saw the formation of the AFNWA as an opportunity to deliver services in a much safer manner. The operators discussed the aspect of meters installed within homes and businesses, which may be perceived as a move to charge for water.

All recognized the importance of meters to measure consumption for operational reasons to keep flows within the range for optimal treatment and minimize wastage due to leakage. It was also acknowledged that a future AFNWA may have to adjust staffing levels to balance its operations approach with the community expectations for service.

After reviewing the pros and cons of the four alternative corporate structures, it was clear that the operators preferred a full-service approach. Time was then spent comparing the centralized versus decentralized options. Based on this discussion, a consensus was reached amongst the operators that a decentralized structure was the most appropriate and would likely be well received by communities. The operators confirmed that a key feature to support relationship with First Nation communities were the hub and spoke approach that embeds supervisors and operators directly in the communities. This is a finding consistent with other organizations operating or supporting water and wastewater systems across Canada.

Appendix 3 – Key First Nation Developments Addressing Water and Wastewater Regulatory Gap

The following provides lists of institutional (Table 21) and internal (Table 22) developments which has addressed water and wastewater gap for the First Nations

Table 21 List of Institutional Developments

Institutional Developments	Brief Description
Indigenous and Northern Affairs Canada (INAC) (2003)	Report analyzes state of drinking water safety for FNCs through on-site assessments
Office of Auditor General Report. (2005)	Report cites unbalanced quality of FN water relative to non-native communities of similar sizes/locale
Plan of Action for Safe Drinking Water (2006)	INAC action plan to address the most significant water problems on reserves, establish national standards of operation for water treatment facilities, as well as ensure that all operators of water systems received mandatory training. Plan created Panel 2006; Committee 2007, Assessment 2011, Act 2013.
Expert Panel on Safe Drinking Water for First Nations (2006)	Multi-stakeholder panel examined options for a regulatory regime for First Nations' drinking water. The panel recommended commissioned Indigenous oversight, which would include inspections and holding particular parties, including federal Agencies, to account. The Panel identified 16 elements of a proposed regulatory system.
The Senate Committee on Aboriginal Peoples (2007)	The committee primarily recommended for INAC to engage a comprehensive consultation process with First Nations communities and organizations regarding legislative options, including those set out in reports of the Expert Panel on Safe Drinking Water and the Assembly of First Nations, with a view to collaboratively developing such legislation.
Auditor General Report (2011)	One of the main recommendations related to water and wastewater programs was a call for a regulatory regime to be implemented in First Nations communities because provincial legislation and regulations are not applied on First Nations reserves
Neegan Burnside Assessment (2011)	As part of the First Nations Water and Wastewater Action Plan, Neegan Burnside Ltd. was hired by the Canadian government to conduct an independent assessment of the state of water infrastructure in these communities. 807 systems in 560 communities were assessed. It found a vast majority of the Atlantic First Nations Drinking Water systems failed the Guidelines for Canadian Drinking Water Quality (GCDWQ)

Institutional Developments	Brief Description
Safe Drinking Water for First Nations Act (2013)	The Act called for enforceable regulatory standards, in order to ensure safe drinking water, effective treatment and source water protections. The Act also places Chief and Council completely liable and responsible for the state of drinking water and wastewater discharge within their community. Act clearly defines lines of responsibility between the owner and regulator of water assets. This Act would be an enabling statute for AFNWAs regulatory capacity

Table 22 List of Internal Developments

Internal Developments	Brief Description
Regulatory Benchmarks Report – Dalhousie CWRS (2009)	Report determines 14 of the 16 elements proposed by Panel 2006, have direct application to the Atlantic FN context.
Drinking Water Regulatory and Operational Framework Proposal – Dalhousie CWRS (2010)	Proposal developed methods for operationalizing 14 compatible elements.
APC Water and Wastewater P3 Initiative Proposal (2011)	Initial proposal received by APC from Raymond Chabot Grant Thornton LLP for the APC Water and Wastewater P3 Initiative
APC P3 Opportunity Report (2012)	Report explored various options for implementing infrastructure improvements and conducting ongoing O&M of the WWW systems in the Atlantic FN Communities.
Atlantic Canada Water Authority Governance Structure – Dalhousie CWRS (2012)	Report outlines a proposed governance structure for the Water Authority, under the requirements for a P3 Canada agreement. Amongst its three core recommendations, it was eventually adopted that a not-for-profit corporation, by federal statute, would be suitable for the AFNWA.
Atlantic Canada Water Rate Study – Dalhousie CWRS (2012)	Report recommended a volumetric rate structure, which would lead to lower consumption rate and in turn, lower operating costs for the facility

Internal Developments	Brief Description
Water and Wastewater Regulatory Benchmarks for First Nations Communities in Atlantic Canada - Dalhousie CWRS (2012)	Reported developed regulatory benchmarks for First Nations W/WW operations based on the 16 elements from Panel 2006.
Water and Wastewater Infrastructure Asset Condition Assessment - Dalhousie CWRS, CBCL (2012)	Study evaluated water and wastewater system conditions in terms of compliance, operations, capacity and management efficiency
Pre-Business Case Work (2013)	Raymond Chabot Grant Thornton report which provides a detailed costing analysis on sources and uses of funding for W/WW activities in the Atlantic Region
Regulatory Benchmark Pilot Trials - Dalhousie CWRS (2013)	Report covers a pilot trial in 4 First Nations communities to investigate the capacity of existing water and wastewater systems to incorporate the upcoming proposed regulatory structure.
Options for a Regional First Nations Water Authority - Dalhousie CWRS (2013)	Report outlines governance options such as incorporation, board of director's structure, management structure, P3 models for community management, liability insurance, the use of water metering and enforcement of regulations
APC – First Nation Asset Condition Assessments – Final Report. CBCL (2013)	Report provides a Class C cost estimate for infrastructure necessary to bring water and wastewater infrastructure in participating communities, up to regulatory compliance. Further defined, the objectives can be summarized as follows: to perform Asset Condition Assessments for water and wastewater assets in 22 First Nation, Communities in Atlantic Canada, to address the infrastructure gap between existing systems and the proposed regulatory benchmarks, and to complete Class C cost estimates for capital project upgrades necessary to meet the regulatory benchmarks.
Atlantic First Nations Water/ Wastewater Initiative Activities – APC (2013-2014)	Proposal outlines all tasks and activity deliverables, including ones that need to be completed

Internal Developments	Brief Description
APC Water Wastewater Project – Gap Analysis of Cost Estimates, Design and Technical Study – P3 Canada (2014)	Report is an in-depth cost analysis of using a P3 model for the rehabilitation and on-going operations and maintenance of water and wastewater infrastructure across a number of Atlantic FN regions
APC Water/Wastewater Project – Preliminary Project Plan (March 2014)	The purpose of the preliminary project plan is to determine the project management cycle and phase deliverables/milestones crucial to developing the AFNWA
Project Charter – CWI – API, P3, NRCan, INAC (2014)	Project Charter serves as the main project management tool to ensure that all aspects and deliverables of the proposed AFNWA are completed. Project Charter details requisite steps required for all stakeholders, especially APC, FN communities, INAC and P3 Canada, to determine the value of money and the potential of a P3 option
CWI Communications Plan - API, P3, NRCan, INAC (2014)	Document was to establish a multi-year communications plan to be carried out simultaneously with the Project Charter
First Nations Clean Water Initiative Atlantic Region – ADM Briefing – APC, INAC (2014)	ADM meeting outlined core project accomplishments, including community approval through a vote, and a P3-led business plan
FNCWI Website Launch – CWRS (2015)	Final website design launched www.fncwi.ca
Draft Corporate Operations Package – McInnes Cooper, CWRS (2015)	Term sheet developed for the Atlantic First Nation Water Authority.
Request for Service—For Call Up Against Supply Arrangement (SA) – P3 (2015)	RFP Proposal engaged bidding process participated by various engineering firms and cost consultants. RFP requires successful schematic level design and cost estimate for the rehabilitation of water and wastewater systems.

Appendix 4 – AFNWA Strategic Alignment

The following summarizes AFNWA key stakeholders, their primary goals and priorities, and key means by which the AFNWA meets these goals and priorities.

Atlantic First Nation communities	
Goal	**How AFNWA supports**
Deliver safe drinking water	Implement consistent standards across all communities, upgrade and maintain systems to current and future standards Address Drinking Water Advisories to mitigate potential public health risk to the community;
Deliver safe, efficient and reliable wastewater services	Implement consistent standards across all communities, upgrade and maintain systems to current and future standards Enhance capacity development of water/wastewater treatment plant operators and community-based water monitors;
Cost effective water and wastewater services	Implement standardization, centralized administration to reduce costs, implement processes and asset management plans to maintain systems
Provide local customers with safe drinking water and wastewater services.	Implement consistent standards across all communities, upgrade and maintain systems to current and future standards, maintain relationships and contractual relationships with municipal water authorities (where applicable) Ensure delivery of drinking and raw water quality monitoring are initiated and sustained Ensure AFNWA board has geographic representation.
Manage water and wastewater services in 15 communities covering 25,000 people and 4,400 households in Atlantic Canada	When established, 79% of Atlantic FN people will be serviced under the water authority

Atlantic First Nation Leadership - **Formal Elected Councils** - **Chiefs** - **Elders** - **Atlantic Policy Congress (APC)**	
Goal	**How AFNWA supports**
Strengthen culture and traditional ties with water	Integrate Two-Eyed Seeing, Wise Practices within AFNWA governing model, processes and procedures. Develop Elder Council and ensure majority of board is drawn from member communities. Ensure AFNWA board has geographic representation.

Economic development of communities	AFNWA invests in a regional model which requires employment to be located at the community utility systems
Provide AFNWA and communities information to make informed decisions.	Integration with AFNWA governance model / structure Ensure AFNWA board has geographic representation. Incorporating indigenous procurement

Government of Canada - **Department of Indigenous Services Canada**	
Goal	**How AFNWA supports**
Establish First Nation self-determination, self-governance and support First Nation financial control.	AFNWA is a governing and management body for water and wastewater services in Atlantic First Nation's communities of Atlantic Canada Ensure AFNWA board has geographic representation.
Modernization of institutional structures and governance of First Nations	AFNWA establishes the precedent for First Nation governance across Canada and across sectors

Standards and Regulatory Organizations - **Health Canada** - **Environment Canada**	
Goal	**How AFNWA supports**
Ensure Atlantic First Nations meet regulatory water and wastewater standards	Implement current and future regulations in AFNWA process
Ensure delivery of drinking water monitoring programs are implemented, and their oversight role is supported	Provides a singular point of contact for all participant Atlantic First Nation communities to establish a consistent monitoring program
Defer responsibility of First Nation communities' systems and their associated liability of asset to First Nations communities (clarify MTA delivery roles and responsibilities)	Centralized communications to one self-governing body, implement asset investment is conducted to maintain levels of service requirements Ensure AFNWA board has geographic representation.
Ensure source water protection is maintained for all Atlantic First Nations	Provides a singular point of contact for all participant Atlantic First Nation communities

Adhere to discharge standards for all Atlantic First Nations	Provides a singular point of contact for all participant Atlantic First Nation communities

AFNWA - **Board** - **Staff** - **System Operators**	
Goal	**How AFNWA supports**
Provide local customers with safe drinking water and wastewater services.	Implement consistent standards across all communities, upgrade and maintain systems to current and future standards, maintain relationships and contractual relationships with municipal water authorities (where applicable) Ensure AFNWA board has geographic representation.
Receive support in resolving water and wastewater responsibilities for their communities	Implement resolutions process, day-to-day maintenance and management of drinking water and wastewater systems, Ensure AFNWA board has geographic representation.
Improve cultural awareness of the importance of water, and public involvement	Implement a communications and outreach plan to educate communities Ensure AFNWA board has geographic representation.
Meet proposed regulations and guidelines for drinking water and wastewater services	Implement consistent standards across all communities, upgrade and maintain systems to current and future standards, maintain relationships and contractual relationships with municipal water authorities (where applicable). Build a singular point of contact with regulatory agencies. Advocate in the development of regulations and standards on behalf of Atlantic First Nations
Incorporate Indigenous traditional knowledge	Implement an Elders Council and engagement with Chiefs. Integrate engagement within Board decisions
Support qualified and committed community water managers, operators and monitors	Adopt a formal training and development program for all staff employed by the AFNWA. Implement strategies that recognize the experience and knowledge of staff currently employed in water and wastewater system operation and take a consistent approach to salaries, benefits, training and career development.
Bring the current water and wastewater infrastructure assets up to a uniform standard state of repair across all communities	Implement consistent standards across all communities, upgrade and maintain systems to current and future standards, maintain relationships and contractual relationships with municipal water authorities (where applicable). Build a singular point of contact with regulatory agencies. Advocate in the development of regulations and standards on behalf of Atlantic First Nations
Proactively plan for growth in communities	Implement a clear preference to hire from participating Atlantic First Nations.
Build Atlantic First Nation expertise in the area of water and wastewater services	Implement a clear preference to hire from participating Atlantic First Nations.

Develop and strengthen relationship with committed and potential Atlantic First Nations communities	Engage communities in an open and transparent manner by developing and implementing a communication and outreach program.

Regional / Neighbouring Water and Wastewater Services / Authorities	
Goal	**How AFNWA supports**
(Municipal) Water Authorities generate revenue from the provision of water and wastewater to Atlantic First Nations through an MTA.	Engage communities in an open and transparent manner to determine effective and financially appropriate service delivery costs for Atlantic First Nations. Conduct scenario and financial analysis to confirm MTA value, and communicate benefits to Atlantic First Nations if an MTA is the preferred scenario
Ensure First Nations are clear on responsibilities of both parties in the MTA	Lead the identification of responsibilities for ongoing maintenance and repair, basis of cost, and means to dispute resolution may not be specified. Provide one singular point of contact to address and resolve agreement, or operations concerns.
Ensure MTA is competitive and fair	Due to the oversight of multiple MTA, AFNWA will be able to identify best practices and lessons learned from across the region. This will enable both parties to revise and execute improved MTA.

Appendix 5 - Gender-Based Analysis (GBA+) Screening

Establishing the AFNWA as a permanent and independent water authority will impact a broad and diverse number of stakeholders. The following GBA+ analysis screening (Table 23) has been conducted to provide an initial assessment, and to ensure the recommended option:

- Supports gender equality and closes key gaps between diverse groups of women, men and non-binary people
- Ensures that the groups and people consulted adequately represent the women, men and non-binary people that will be affected by the organization
- Has examined the importance of reducing obstacles to the participation of woman, men and non-binary in the planned recommendation

Issue: Implementing an independent water authority for Atlantic First Nations will result in changes to training, career options, and changes to the delivery of participating on communities

Table 23 GBA+ Initial Screening

Consultation Objective	Target Client	How?	When?
Has the AFNWA taken steps to ensure the implementation and organization being recommended is culturally appropriate?	• Atlantic First Nations Leadership (Chief, Formal Elected Council, Elders)	• Atlantic First Nations represented on Board of Directors • Elders Advisory committee • 2 Eyed Seeing policy • Engagement workshops to solicit understanding	• Develop of initial policies • Hiring requirement to inform CEO and Senior Management of cultural intent • Development of business plan
	• Federal, provincial and local government leaders	• Outreach programs • Informal meetings • Workshops	• Ongoing, incorporated as standing item on all conversations
Has the AFNWA considered ways to increase youth/young adult participation in its workforce? (i.e.: many water operators are approaching retirement; many municipal water works are putting in place succession planning / youth outreach to promote the water operations field.	• Youth 15+ • Recent graduates	• Training • Targeted education • Career counselling • Outreach programs • Marketing and communications • Sponsor scholarships, co-op placements	• Implement regular communications with youth during academic year • Incorporation of operator training
Has the AFNWA considered ways to	• Young women aged 15-24	• Implement education training	• During the planning phase

Consultation Objective	Target Client	How?	When?
increase female participation in its workforce? (i.e.: women are very underrepresented in water operations careers)	• Women looking to upgrade skills / career changes	• Mentorship opportunities • Semi-structured discussion groups	• During implementation of the initiative
	• First Nation women	• Informal meetings • Job shadowing • Targeted marketing • Implement policy direction	• Operator training • Development of backup operator plans / contingency plans
Is the proposed organizational AFNWA structure easy to access, inclusive and open to the communities they serve?	• Seniors	• Provision of interpreters including oral and sign language, local dialect	• Compulsory training for AFNWA employees • Establishment of local hubs resources, access to provide broad services • Community communication plans
	• Persons with disabilities	• Implement accessibility considerations in all capital investments, marketing, and communications	• Compulsory training for AFNWA employees • Early identification of project requirements • Service reviews and plan development
	• Women, men and non-binary customers	• Develop and promote inclusive policies • Implement broad marketing messages	• Compulsory training for AFNWA employees • Implementation and engagement of senior management • Diverse policy development, target hiring practices
	• Language barriers	• Provision of interpreters including oral and sign language, local dialect	• Ensure hiring reflects diverse languages of Atlantic First Nations communities
Is the AFNWA culture supportive of a diverse population?	• All current and potential clients of the AFNWA	• Develop an implementation guide	• Initial hiring process and training

Appendix 6 – AFNWA Option Analysis

Viable Options

Identifying viable business model options to match the purpose, mission and structure of the AFNWA has been the result of years of effort by the Atlantic Policy Congress, and careful consideration by the Atlantic First Nations communities.[78] Through this work four potentially viable business models have been identified for the AFNWA. These options ranged from full-service provider to an oversight role with services contracted to an outside agency.

- Full Service Centralized (FSC)
- Full Service De-centralized (FSD)
- Full Outsource (FOS)
- Technical Services Support (TSS)

The FSC, FSD, FOS and TSS business models vary in their ability to meet the management structure, level of service, risk management considerations and aspirations to achieve self-determination and governance. Despite this variation, the FSC, FSD, FOS and TSS business models are organizationally structured around a Corporate Services Department, Communications Department, Operations Department and an Engineering Department.

A summary of each option and high-level pros and cons are based on research conducted by Halifax Water and Accelerator Inc., and stakeholder group consultants conducted by APC[79]. Conclusions and recommendations are also based on outreach activities, which included meetings and workshops with First Nations Chiefs, Elders and water system operators.[80]

Full Service Centralized (FSC)

The Full Service – Centralized (FSC) organizes groups of people based on their specific expertise, and enables the management of staff, and their function through in-house employment.

The FSD model houses all AFNWA staff in a central corporate head office with the exception of operators who would be directly located in communities. Due to the diverse communities being serviced by AFNWA the central office would be positioned in a strategically central location, somewhere along the corridor between Moncton and Halifax. To maximize the community benefits and foster a deeper relationship with the AFNWA it is recommended that the head offices for all organizational models be located in Atlantic First Nation communities. This will further enable the incorporation of values and traditional knowledge of the communities served by the AFNWA.

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[78] Halifax Water and Accelerator Inc. “Corporate Structuring for Atlantic First Nations Water Authority.” August, 2017.
, Halifax Water and Accelerator Inc. “Preliminary Fire Year Business Plan.” June, 2018.

[79] Refer to Appendix 11 for a list of key consultant reports

[80] Atlantic Policy Congress “APCs Clean Water Initiative’s (CWI) Atlantic First Nation Water Authority (AFNWA) Chronology.” 2016. Appendix C

Local operators would report to a superintendent of operations, located in the corporate head office. To ensure adequate support, operators would be cross trained to assist other communities' water and wastewater systems. Initially, additional staff may be required to operate systems in the recognition that existing operators receive additional training and/or certified in either water or wastewater operations. Routine monitoring and maintenance would be the responsibility of local operators but would contract out more complex maintenance requiring heavy equipment, or skills not resident in the local operator or department. The superintendent of technical services and two staff would be responsible for the SCADA and operational technology systems. They would be responsible to plan and oversee the development of a SCADA system across the entire service area while also assisting local operators with instrumentation, data management, configuration and control issues.

The AFNWA Engineering Department would have primary responsibility for the planning, construction and management of the utility's assets. Immediate responsibilities would include the assessment of current infrastructure needs and developing a program to deliver capital projects to upgrade service delivery across the service area of the AFNWA. This department would be responsible for capital project delivery, asset management, planning and development.

Initial analysis identifies the following pros and cons:

FSC Pros	FSC Cons
Efficient aggregation of expertise within each functional area.	Discontinuity between head office and communities
Limited duplication of roles	Challenge to provide prompt response time for issues or actions required from head office.
Simplistic management structure for accountability, reporting and communicating	Increased travel costs for operational response from head office
Waterstudies[81] report workshop results noted the, "in-house staffing approach was considered more desirable by industry and First Nation representatives"	

Full Service De-centralized (FSD)

The Full Service – Decentralized (FSD) organizational structure allows some specific functions to be centralized at AFNWA headquarters while allow other functions to be decentralized to a regional level. Enabling decentralized functions allows the AFNWA structure to align its core competences with the needs of the customers in different geographic regions. This functional structure is often referred to as a "Hub and Spoke" model within the Canadian water and wastewater industry. Each regional centre would be sized and staffed to best align with the needs of that region and the specific communities being served. Both the head office and the regional centres may have staff that are aligned with each of the four core functional areas

[81] Gagnon, Graham. (March 2014). Waterstudies, Centre for Water Resources Studies (CWRS), Dalhousie University, Atlantic First Nations Water Authority Summary Report, Appendix A.

Under the FSD model, it is proposed that local community operations staff be organized around the following operational hubs (with the number of assigned communities)[82].

- Cape Breton (Eskasoni, Potlotek, Membertou)
- Prince Edward Island (Lennox Island, Abegweit)
- New Brunswick West [Maliseet] (Oromocto, Tobique)
- New Brunswick East (Eel River Bar, Elsipogtog)
- Nova Scotia East - Millbrook, Sipekne'katik, Paqtnkek, Pictou Landing
- Nova Scotia West - Acadia, Glooscap

Establishing organizational hubs allows for the creation of specific centers of operational knowledge and expertise in areas close to several communities. Local hubs will be responsible to provide day to day operational decision making as they are the organizational unit closes to the communities being served and have the greatest understanding of the resources and operational knowledge specific to those systems. Decentralizing this level of decision-making authority will create a common mission among the operators serving around a hub, while still providing the flexibility to bring in resources from the main office or other service areas. The FSD model will also allow for more direct interaction with customers and foster relationships within the communities.

FSD Pros	FSD Cons
Optimizes response time for operations and maintenance activities	Coordination and consistency between regional offices
Focused relationship with community	Additional office costs – a series of parallel regional offices can introduce duplication of activities especially around support functions
Higher level of service	Higher staff costs with the introduction of front-line supervisors
Preferred option of the Atlantic First Nations	
Provides highest ability to establish operational knowledge and expertise close to communities	
Provides the highest ability to focus and foster relationships and connections with local communities	

Full Outsource (FOS)

The Full Outsource (FOS) model provides one manager in each of the functional areas but follows a Public-Private Partnership or P3 model as it contracts out the remaining responsibilities

[82] Halifax Water and Accelerator Inc. "Corporate Structuring for Atlantic First Nations Water Authority." August, 2017. P.23

with a third party outside of the water authority. The FOS is similar to the FSC with the addition of multiple sub-contracts supplying all the resources within each functional area.

Under a FOS model, the AFNWA would be to manage the provision of services by the contracted entity and to manage the relationship between the communities and both the authority and the contracted agency. Under a P3 model, AFNWA would not have any operating staff but focus any staffing in the engineering and operations functional units to ensure that obligations related to the contracts are being met. If desired by the authority, the engineering functions of planning and development, asset management and capital project delivery could remain in house or be contracted out as well.

There is a risk in a FOS functional model that the authority will be unable to provide direct services to communities, and as a result be separated by a degree from the ability to make changes on the ground. Ensuring that the negotiated contract with the third-party agency meets the AFNWA desired outcomes will determine the ultimate success of the authority. Important considerations of the contract include determining which risks are transferred, how to measure performance, and what mechanisms will allow adjustments to be made if required. While an effective contract can be negotiated, the authority will need to ensure they can meet future challenges will be determined by the initial negotiated contract.

FOS Pros	FOS Cons
Risk transfer to third party	Waterstudies[83] report workshop results noted the, “in-house staffing approach was considered more desirable by industry and First Nation representatives”.
Fixed price contracts with more definitive construction schedule	Accountability for service still rests with water authority
	Loss of flexibility to address local community or customer concerns
	Once contracts established, very little flexibility to modify service in response to changing needs
	More expensive financing
	The legal costs under this approach are expected to be significantly higher.
	Atlantic First Nations least favourite option

Technical Services Support (TSS)

The Technical Services Support (TSS) model enables an organization to act as a technical service provider directly with Atlantic First Nations communities with system ownership remaining with the community. This is a common model across Canada. While the actual operational staffing structure could resemble the FSC or FSD models discussed above, the TSS provides a

[83] Gagnon, Graham. (March 2014). Waterstudies, Centre for Water Resources Studies (CWRS), Dalhousie University, Atlantic First Nations Water Authority Summary Report, Appendix A.

full series of services (across all four functional areas) direct to the communities on a contract basis. A community therefore has the independence to choose to utilize all or a subset of the available services as deemed to best fit their requirements.

The TSS model provides a similar range of services although this model presumes that the Atlantic First Nation community would retain asset ownership and allow them to use the AFNWA for a range of services if desired. Under this functional model it is anticipate that there would be some mid management level consolidation of duties which provide some timely and cost effectively service delivery improvements. The exact composition in this model would, however, be dependent on the level of service desired by an individual community.

TSS Pros	TSS Cons
Ownership stays with First Nation community – control of assets and finances.	Functional resource requirements may fluctuate with addition and deletion of various contracts
Community can add or delete range of services required – customized service delivery	Fluctuating resource requirements will make it difficult to attract and retain managers and qualified operators
Water authority is a simple service delivery model with no equity ownership	Ownership stays with First Nation community – liability of ownership also stays with community
	Reduced opportunity for consistent region wide service level and regulatory compliance.
	Operational synergy will be lost due to the disparity in levels of service
	Will not be able to negotiate for resources and federal funding as one voice for all First Nation communities
	Standardized approach to system design will be compromised

Appendix 7 – Financial Summary of Participating Atlantic First Nations Communities with BCRs

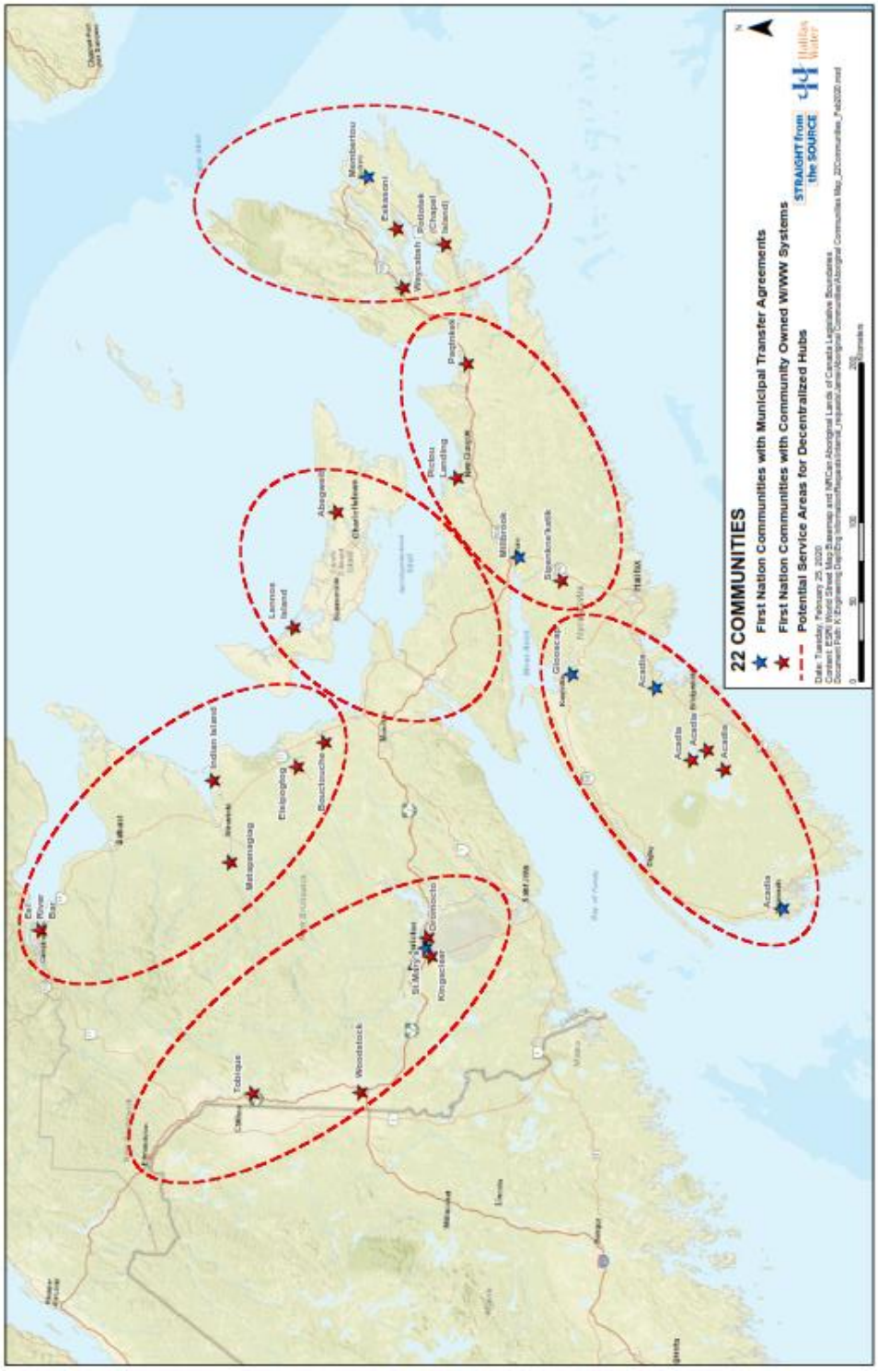
Financial Year	Total Years 1-25	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47
Financial Summary																										
Profit and Loss																										
Revenue - External Funding	110,629,012	3,086,386	3,148,282	3,211,248	3,275,473	3,340,982	3,407,985	3,476,145	3,545,668	3,616,581	3,689,111	3,762,893	3,838,151	3,914,914	3,993,427	4,073,295	4,154,761	4,237,856	4,322,846	4,409,303	4,497,489	4,587,439	4,679,439	4,773,027	4,868,488	4,965,858
Revenue - Operating	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cost of Sales	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Margin	110,629,012	3,086,386	3,148,282	3,211,248	3,275,473	3,340,982	3,407,985	3,476,145	3,545,668	3,616,581	3,689,111	3,762,893	3,838,151	3,914,914	3,993,427	4,073,295	4,154,761	4,237,856	4,322,846	4,409,303	4,497,489	4,587,439	4,679,439	4,773,027	4,868,488	4,965,858
AFNWA structure																										
Admin Department	(38,040,157)	(1,187,400)	(1,211,213)	(1,235,437)	(1,260,146)	(1,285,349)	(1,311,126)	(1,337,349)	(1,364,096)	(1,391,378)	(1,419,281)	(1,447,667)	(1,476,620)	(1,506,153)	(1,536,358)	(1,567,086)	(1,598,427)	(1,630,396)	(1,663,093)	(1,696,355)	(1,730,282)	(1,764,888)	(1,800,282)	(1,836,288)	(1,873,014)	(1,910,474)
Corporate Services Department	(28,572,834)	(891,883)	(909,770)	(927,965)	(946,524)	(965,455)	(984,817)	(1,004,513)	(1,024,604)	(1,045,096)	(1,066,055)	(1,087,376)	(1,109,123)	(1,131,306)	(1,153,994)	(1,177,074)	(1,200,615)	(1,224,628)	(1,249,187)	(1,274,171)	(1,299,655)	(1,325,648)	(1,352,233)	(1,379,278)	(1,406,863)	(1,435,001)
Communications Department	(9,385,237)	(292,954)	(298,829)	(304,806)	(310,902)	(317,120)	(323,480)	(329,950)	(336,549)	(343,280)	(350,164)	(357,167)	(364,311)	(371,597)	(379,049)	(386,630)	(394,363)	(402,250)	(410,317)	(418,523)	(426,894)	(435,432)	(444,164)	(453,047)	(462,108)	(471,351)
Operations Department	(63,465,540)	(1,981,037)	(2,020,767)	(2,061,182)	(2,102,406)	(2,144,454)	(2,187,460)	(2,231,210)	(2,275,834)	(2,321,350)	(2,367,905)	(2,415,263)	(2,463,568)	(2,512,839)	(2,563,234)	(2,614,498)	(2,666,788)	(2,720,124)	(2,774,676)	(2,830,169)	(2,886,773)	(2,944,508)	(3,003,560)	(3,063,631)	(3,124,903)	(3,187,401)
Engineering Department	(17,936,232)	(559,868)	(571,096)	(582,518)	(594,169)	(606,052)	(618,206)	(630,570)	(643,182)	(656,045)	(669,202)	(682,586)	(696,238)	(710,163)	(724,405)	(738,893)	(753,671)	(768,744)	(784,161)	(799,845)	(815,842)	(832,158)	(848,847)	(865,824)	(883,141)	(900,803)
AFNWA Board costs	(8,669,805)	(270,623)	(276,050)	(281,571)	(287,202)	(292,946)	(298,821)	(304,798)	(310,894)	(317,112)	(323,471)	(329,941)	(336,539)	(343,270)	(350,154)	(357,157)	(364,301)	(371,587)	(379,039)	(386,620)	(394,352)	(402,239)	(410,306)	(418,512)	(426,882)	(435,420)
One Time Start Up Costs	(1,623,735)	(1,623,735)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Community Systems O&M plus MTA costs	(110,973,506)	(3,463,969)	(3,533,438)	(3,604,107)	(3,676,189)	(3,749,713)	(3,824,913)	(3,901,411)	(3,979,439)	(4,059,028)	(4,140,431)	(4,223,239)	(4,307,704)	(4,393,858)	(4,481,976)	(4,571,616)	(4,663,048)	(4,756,309)	(4,851,696)	(4,948,730)	(5,047,704)	(5,148,658)	(5,251,914)	(5,356,952)	(5,464,091)	(5,573,373)
Testing program	(104,037,662)	(3,247,471)	(3,312,598)	(3,378,850)	(3,446,427)	(3,515,356)	(3,585,856)	(3,657,573)	(3,730,724)	(3,805,339)	(3,881,654)	(3,959,287)	(4,038,473)	(4,119,242)	(4,201,853)	(4,285,890)	(4,371,608)	(4,459,040)	(4,548,465)	(4,639,434)	(4,732,223)	(4,826,867)	(4,923,669)	(5,022,142)	(5,122,585)	(5,225,037)
Integrated Resource Plan	(8,155,835)	-	-	-	(3,000,000)	-	-	-	-	(1,104,140)	-	-	-	-	(1,219,191)	-	-	-	-	(1,346,158)	-	-	-	-	(1,486,347)	-
< >	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
< >	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total operating expenses	(390,860,543)	(13,518,941)	(12,133,762)	(12,376,437)	(15,623,966)	(12,876,445)	(13,134,679)	(13,397,373)	(13,665,320)	(15,042,767)	(14,218,163)	(14,502,526)	(14,792,577)	(15,088,428)	(16,610,215)	(15,698,844)	(16,012,821)	(16,333,077)	(16,660,634)	(18,340,004)	(17,333,724)	(17,680,398)	(18,034,975)	(18,395,674)	(20,249,934)	(19,138,860)
EBITDA	(280,231,531)	(10,432,556)	(8,985,479)	(9,165,189)	(12,348,493)	(9,535,462)	(9,726,694)	(9,921,228)	(10,119,653)	(11,426,186)	(10,529,052)	(10,739,633)	(10,954,426)	(11,173,514)	(12,616,788)	(11,625,549)	(11,858,060)	(12,095,221)	(12,337,788)	(13,930,701)	(12,836,235)	(13,092,959)	(13,355,536)	(13,622,647)	(15,381,446)	(14,173,002)
Depreciation and Amortization	(54,396,722)	-	(179,495)	(358,941)	(612,531)	(866,151)	(1,119,908)	(1,373,926)	(1,601,451)	(1,829,438)	(2,057,986)	(2,287,206)	(2,517,182)	(2,600,455)	(2,684,826)	(2,770,334)	(2,857,001)	(2,944,856)	(3,033,933)	(3,124,269)	(3,215,891)	(3,308,830)	(3,124,269)	(3,215,891)	(3,308,830)	(3,403,121)
EBIT	(334,628,253)	(10,432,556)	(9,164,975)	(9,524,130)	(12,961,024)	(10,401,613)	(10,846,602)	(11,295,154)	(11,721,103)	(13,255,624)	(12,587,038)	(13,026,839)	(13,471,607)	(13,773,969)	(15,301,614)	(14,395,883)	(14,715,060)	(15,040,077)	(15,371,721)	(17,054,971)	(16,052,126)	(16,401,790)	(16,479,806)	(16,838,538)	(18,690,277)	(17,576,123)
Operating Profit / (Loss)	(334,628,253)	(10,432,556)	(9,164,975)	(9,524,130)	(12,961,024)	(10,401,613)	(10,846,602)	(11,295,154)	(11,721,103)	(13,255,624)	(12,587,038)	(13,026,839)	(13,471,607)	(13,773,969)	(15,301,614)	(14,395,883)	(14,715,060)	(15,040,077)	(15,371,721)	(17,054,971)	(16,052,126)	(16,401,790)	(16,479,806)	(16,838,538)	(18,690,277)	(17,576,123)
Cash Flow																										
EBITDA	(280,231,531)	(10,432,556)	(8,985,479)	(9,165,189)	(12,348,493)	(9,535,462)	(9,726,694)	(9,921,228)	(10,119,653)	(11,426,186)	(10,529,052)	(10,739,633)	(10,954,426)	(11,173,514)	(12,616,788)	(11,625,549)	(11,858,060)	(12,095,221)	(12,337,788)	(13,930,701)	(12,836,235)	(13,092,959)	(13,355,536)	(13,622,647)	(15,381,446)	(14,173,002)
Capital Expenditure - Participating Communities																										
Water Treatment	(4,402,576)	(415,460)	(423,792)	(864,535)	(881,826)	(899,462)	(917,501)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Distribution	(4,230,544)	(189,544)	(193,345)	(394,424)	(402,313)	(410,359)	(418,589)	(426,961)	(435,500)	(444,210)	(453,118)	(462,181)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater Collection	(20,421,860)	(914,975)	(933,325)	(1,903,982)	(1,942,062)	(1,980,903)	(2,020,630)	(2,061,042)	(2,102,263)	(2,144,308)	(2,187,312)	(2,231,058)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater Treatment	(23,392,422)	(1,048,067)	(1,069,086)	(2,180,935)	(2,224,554)	(2,269,045)	(2,314,550)	(2,360,841)	(2,408,058)	(2,456,219)	(2,505,478)	(2,555,588)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total capital expenditure	(52,447,402)	(2,568,046)	(2,619,548)	(5,343,877)	(5,450,754)	(5,559,770)	(5,671,270)	(4,848,844)	(4,945,821)	(5,044,737)	(5,145,909)	(5,248,827)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Capital Maintenance Expenditure - Participating Communities																										
Annual Asset Renewal	(171,444,010)	(5,412,452)	(5,520,997)	(5,631,417)	(5,744,045)	(5,858,926)	(5,976,426)	(6,095,954)	(6,217,874)	(6,342,231)	(6,469,423)	(6,598,812)	(6,730,788)	(6,865,404)	(7,003,088)	(7,143,150)	(7,286,013)	(7,431,733)	(7,580,775)	(7,732,390)	(7,887,038)	(8,044,779)	(7,732,806)	(7,887,038)	(8,044,779)	(8,205,674)
Total	(171,444,010)	(5,412,452)	(5,520,997)	(5,631,417)	(5,744,045)	(5,858,926)	(5,976,426)	(6,095,954)	(6,217,874)	(6,342,231)	(6,469,423)	(6,598,812)	(6,730,788)	(6,865,404)	(7,003,088)	(7,143,150)	(7,286,013)	(7,431,733)	(7,580,775)	(7,732,390)	(7,887,038)	(8,044,779)	(7,732,806)	(7,887,038)	(8,044,779)	(8,205,674)
Net Cash Flow	(504,122,942)	(18,413,053)	(17,126,024)	(20,140,483)	(23,543,292)	(20,954,158)	(21,374,390)	(20,866,026)	(21,283,347)	(22,813,154)	(22,144,384)	(22,587,271)	(17,685,214)	(18,038,918)	(19,619,876)	(18,768,698)	(19,144,072)	(19,526,954)	(19,918,563)	(21,663,092)	(20,723,273)	(21,137,738)	(21,088,342)	(21,509,685)	(23,426,225)	(22,378,676)
Cash Account																										
Cash Balance b/f		11,751,966	(6,661,087)	(23,787,111)	(43,927,594)	(67,470,886)	(88,425,045)	(109,799,434)	(130,665,461)	(151,948,808)	(174,761,962)	(196,906,346)	(219,493,617)	(237,178,831)	(255,217,749)	(274,837,624)	(293,606,323)	(312,750,395)	(332,277,349)	(352,195,912)	(373,859,003)	(394,582,276)	(415,720,014)	(436,808,356)	(458,318,041)	(481,744,266)
Net Cash Flow		(18,413,053)	(17,126,024)	(20,140,483)	(23,543,292)	(20,954,158)	(21,374,390)	(20,866,026)	(21,283,347)	(22,813,154)	(22,144,384)	(22,587,271)	(17,685,214)	(18,038,918)	(19,619,876)	(18,768,698)	(19,144,072)	(19,526,954)	(19,918,563)	(21,663,092)	(20,723,273)	(21,137,738)	(21,088,342)	(21,509,685)	(23,426,225)	(22,378,676)
Cash Balance c/f		(6,661,087)	(23,787,111)	(43,927,594)	(67,470,886)	(88,425,045)	(109,799,434)	(130,665,461)	(151,948,808)	(174,761,962)	(196,906,346)	(219,493,617)	(237,178,831)	(255,217,749)	(274,837,624)	(293,606,323)	(312,750,395)	(332,277,349)	(352,195,912)	(373,859,003)	(394,582,276)	(415,720,014)	(436,808,356)	(458,318,041)	(481,744,266)	(504,122,942)

Appendix 8 – Required Capital Expenses by Participating Community

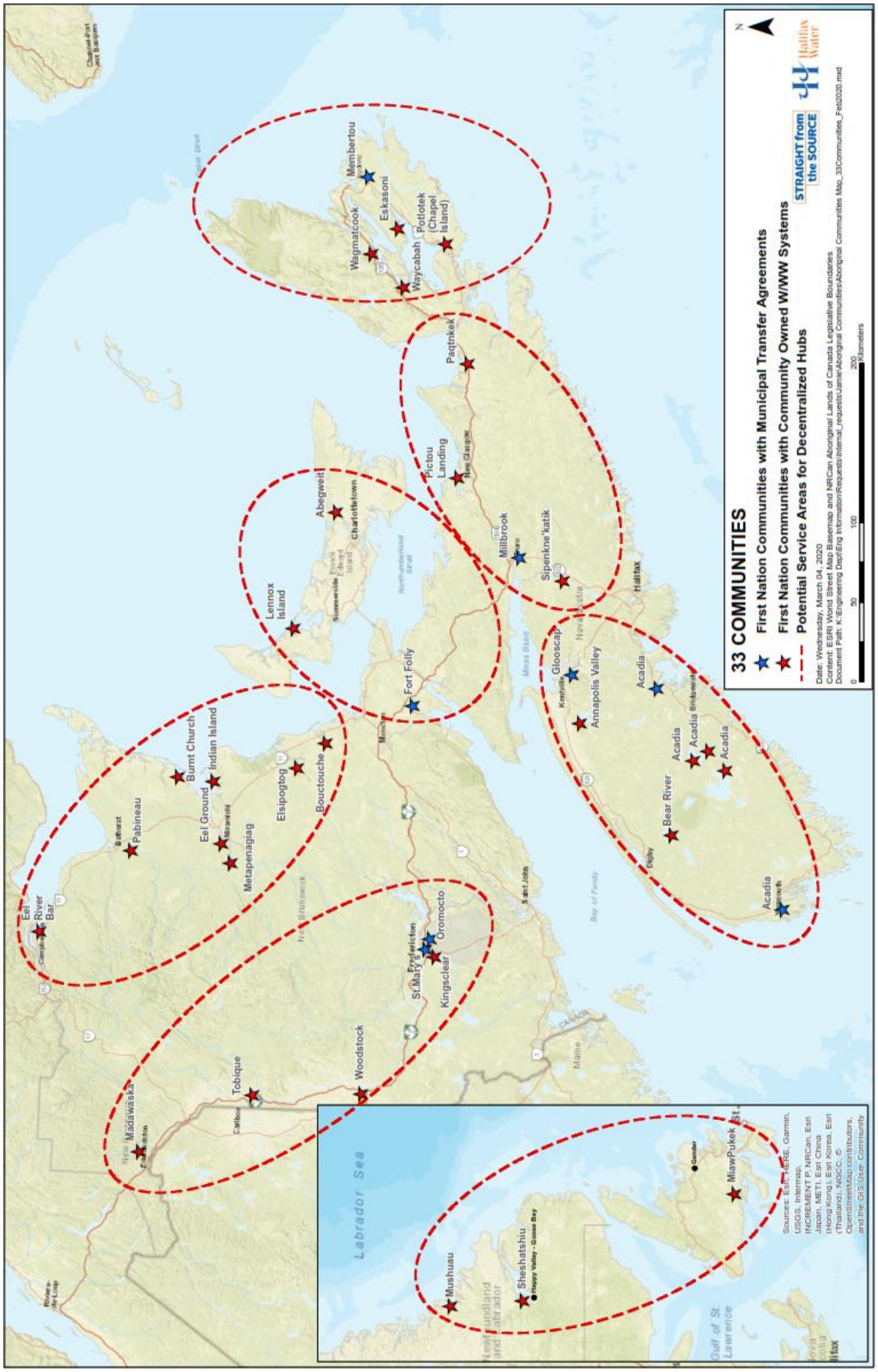
Member Community	Water Treatment	Water Distribution	Wastewater Collection	Wastewater Treatment	Total
Elsipogtog First Nation	$607,000	$703,000	$4,774,000	$2,459,000	$8,543,000
Tobique	$99,000	$105,000	$1,539,000	$2,623,000	$4,366,000
Eskasoni	$246,000	$1,137,000	$5,149,000	$9,321,000	$15,853,000
Paqtnkek Mi'kmaw First Nation	$361,000	$0	$1,828,000	$2,664,000	$4,853,000
Pictou Landing First Nation	$2,270,000	$612,000	$768,000	$476,000	$4,126,000
Potlotek First Nation	$0	$0	$569,000	$943,000	$1,512,000
Sipekne'katik Indian Brook	$255,000	$857,000	$1,674,000	$140,000	$2,926,000
Abegweit	$0	$88,000	$79,000	$0	$167,000
Lennox Island	$0	$0	$525,000	$738,000	$1,263,000
Eel River Bar First Nation	$0	$0	$0	$0	$0
Acadia	$0	$0	$0	$0	$0
Glooscap First Nation	$0	$0	$0	$0	$0
Membertou	$0	$0	$0	$0	$0
Millbrook First Nation	$0	$0	$0	$0	$0
Oromocto First Nation	$0	$0	$0	$0	$0
Total	$3,838,000	$3,502,000	$16,905,000	$738,000	$43,609,000

Appendix 9 – AFNWA Hub and Spoke Modification to Accommodate Future Community Interest

FSD Hub and Spoke Modification to Accommodate 22 Atlantic First Nation communities



FSD Hub and Spoke Modification to Accommodate 33 Atlantic First Nation communities



Appendix 10 - Risk Register

Developed through a risk workshop with senior ISC and APC leadership, the following identifies the highest risks, their probability and impact of each risk, and the appropriate risk management plan. The key risk events and corresponding planned risk responses relative to the implementation of the AFNWA are summarized below:

Table 19 Risk Factors

Risk Factors	Risk Response / Action
Corporate policies, procedures and by-laws are not ready in time for AFNWA operations (and their legal commitment to delivery water and wastewater services.	• CEO and initial management team develops a detailed implementation plan that addresses the sequencing the management activities required to developing policies, procedures and by-laws • CEO and initial management team recruits, hires or procures the resources to develop the policies, procedures and by-laws • core capital,
Significant unplanned operations or capital costs are incurred during the AFNWA in the early years	• Develop detailed operations plan within years 1 and 2 of AFNWA operations • Develop detailed asset management plan within 2 years of AFNWA operations • Develop a 10-year capital program based on the asset management plan
Challenge of AFNWA operations to meet regulatory standards	• Develop and implement standard testing program to ensure operations meet regulatory standards • Implement a risk management approach towards AFNWA operations • Implement change management with current operators on the need and importance of the adopted regulations and standards • Assess knowledge, skills and competency of current operators and then enlist (as required) water and wastewater operators into accredited/certified/recognized operator training program • Implement onsite mentorship and career development strategies to continuously improve operator knowledge, skills and reduce risk • Engage external consultants to provide operator support (as required)
Lack of Government of Canada support for full handover of oversight and authority to the AFNWA to provide and maintain water and wastewater services and infrastructure	• Ensure AFNWA has the approved mandate and authority to oversee participating Atlantic First Nations communities • Secure 25-year, long-term federal funding agreement to ensure self-governance can be established • Early agreement of 10-year asset management and capital plan • Stage capital investments to address manageable risks • Accelerate asset management planning, implement rigorous capital planning process to prioritize projects

Risk Factors	Risk Response / Action
Lack of experienced capital project management and asset management staff, and / or technical information result in delay to improve, replace or expand infrastructure	• Establish Project Management processes and Procedures based upon best practice. • Ensure asset management and procurement policies are in place based upon best practice. • Accelerate recruitment and retention strategy to secure qualified staff • Procure interim project and asset management resources during implementation phase to support AFNWA staff • Interim resources develop asset management and capital project plans to include tasks, responsibilities and an implementation timeline • ISC or other Agencies /Consultants to provide technical asset management assistance as required to develop the asset and capital plans
Change management is not implemented in coordination with the establishment of the AFNWA.	• Appoint a dedicated AFNWA change management team to develop a change management plan/strategy • Management team to develop a change management strategy. • Ensure Change Management Strategy is approved by the Board and Elders Council • Ensure that the Approved change management strategy/plan is implemented. • Establish a contingency and management reserve to address emergencies • Align the communications and change management strategies to ensure effective engagement and support.
Lack of long-term federal funding leaves AFNWA will legal commitments without funding availability	• Stage capital investments to address manageable risks • Secure long term, 25 year, operating and capital funding commitment from Government of Canada
Potential that infrastructure costs exceed the AFNWA funding availability resulting in the inability to meet regulation and provide safe water and wastewater services to Atlantic First Nations communities.	• Phase investment into discrete stages. • Develop a 25-year IRP after 3 years of operation. • Work with other First Nations Groups and Government departments to identify project funding sources that allow project to be implemented earlier than regular funding allows.
Federal funding is insufficient to address operating and capital AFNWA commitments to Atlantic First Nations communities.	• Implement a staged start up and funding plan over first 10 years of operations • Implement funding mechanisms that enable additional capital funding to be released based on revised asset management plans • Establish annual funding review and adjustment process that evaluates short and medium term operating and capital needs • Require AFNWA management to develop annual operating and capital budget plan. • Establish contingency reserve to accommodate larger operating or capital funding needs.

Risk Factors	Risk Response / Action
Legal disagreement over the transfer of Land and assets to the AFNWA	• Operate facilities under a license or lease agreement.

This following information provides a detailed risk assessment that will require ongoing monitoring, control and evaluation to ensure the successful implementation and establishment of the AFNWA.

Risk Factors	Probability	Impact	Risk Owner	Risk Response / Action
1. Meeting Regulatory Compliance				
1. Inability of Government of Canada to identify the regulator who will provide oversight to AFNWA and / or implement a multi-stakeholder regulator.	L	M		• ISC and APC to proactively develop a regulatory recommendation complete with roles and responsibilities • Appoint a federal agency to provide the regulatory oversight role for quality standards as First Nation communities fall under federal jurisdiction
2. Risk 1 extends to the appointment of a Business Regulator	M	M		• GOC to appoint a Business Regulator. ISC might carry out the role in the interim but an independent Business Regulator is recommended as a permanent solution. • Establish operating policies, procedures and by-laws • Establish a contingency and management reserve to address emergencies
3. Establishing regulatory oversight (whether provincial/federal regulatory body) is not completed prior to AFNWA operations (i.e. unanticipated time requirements to establish, significant stakeholder engagement, AFNWA management input).	M	M		• Identify specific regulations, standard that the AFNWA will adhere to prior to funding approval (CWRS, Federal MWER)

Risk Factors	Probability	Impact	Risk Owner	Risk Response / Action
4. Regulatory standards that are implemented by the regulator are not enforceable, or lack commonality amongst peers and other jurisdictions	L	M		• Ensure AFNWA participation in regulatory development and approval • Ensure regulator has the appropriate level of legal oversight (i.e. Federal)
5. Significant unplanned operations or capital costs are incurred during the AFNWA early years in the early years	H	H		• Develop detailed operations plan within years 1 and 2 of AFNWA operations • Develop detailed asset management plan within years 1, 2 of AFNWA operations • Develop a 10-year capital program based on the asset management plan
6. AFNWA does not receive the authority to mandate regulatory compliance for AFN	L	H		• Identify and secure key agreements required prior to assuming responsibilities / operations of the AFNWA • Government of Canada appoints regulators to administer regulatory standards and provide business oversight.
2. Staff and Training				
7. Challenge of AFNWA operations to meet regulatory standards	M	H		• Develop and implement standard testing program to ensure operations meet regulatory standards • Implement a risk management approach towards AFNWA operations • Implement change management with current operators on the need and importance of the adopted regulations and standards • Assess knowledge, skills and competency of current operators and then enlist (as required) water and wastewater operators into accredited/certified/recognized operator training program • Implement onsite mentorship and career development strategies to continuously improve operator knowledge, skills and reduce risk • Engage external consultants to provide operator support (as required) • Retain existing operations staff who are certified. Conduct an inventory

	Risk Factors	Probability	Impact	Risk Owner	Risk Response / Action
					of training levels, and leverage staff to assist across multiple systems (manage operational risk). Draw on existing training programs such as Circuit Rider Training Program to build AFNWA workforce. • During startup, implement a broad operating environment which shares resources with the focus on early risk identification and management •
	8. Operators are not all certified, several existing operators are not taking certification, and, in some cases, there are literacy issues	M	M		• HR plan to be developed in first year of operation. • Implement HR plan in year 2 of operation. • Assessment of the maturity of existing staff • Where necessary recruit new staff. • Seek partnerships with First Nations educational Institutions and Colleges, Universities and local municipalities.
	9. Training operators could be both costly and time consuming	M	H		• Budget for assessing operator knowledge/skills/competency and training of water and wastewater operators through accredited/certified/recognized operator training program
	10. Communities have insufficient resources, training and back up / redundancy in the systems	M	H		• Develop an operations plan to ensure redundancy and cross training between Atlantic First Nations operators
	11. Lack of experienced operations staff result in inability to meet water and wastewater quality standards as AFNWA begins operations	M	H		• Implement onsite mentorship and career development strategies to continuously improve operator knowledge and skills to reduce risk • Engage external consultants to provide operator support (as required) • Verify whether an accredited/certified/recognized operator training program can provide onsite training • Rotate training and operators to offset training schedule
	12. Lack of qualified candidates to fill	L	M		• CEO secures or procures resources to develop a phased recruitment and hiring strategy to secure qualified staff

Risk Factors	Probability	Impact	Risk Owner	Risk Response / Action

AFNWA staff and operator positions				• Recruitment and hiring strategy integrate:
				  ○ use of on the site training and collaboration with local educational facilities
				  ○ use of limited term positions to fill immediate need while training is provided
				• Procure interim project and asset management resources during implementation phase to support AFNWA staff

3. Demographic and Geographic Factors				
13. Challenges in providing a uniform level of service and equity between geographically dispersed communities.	M	M		• Introduce a Supervisory Control and Data Acquisition (SCADA) system. • Develop SOPs within years 1 -2 • Develop an Integrated resource plan after 3 years of operation. • Develop an emergency management plan at corporate and local level.
14. Geographic logistical challenges impact service, engineering and operations quality, responsiveness and meeting of regulatory standards	M	M		• Ensure Supervisors, Operators and Technical Services Technologists are regionally based and provided with transportation on-demand • Implement recommended Hub and Spoke model.
15. Higher than anticipated population growth within member communities	M	M		• Implement a community census and analyze to track AFNWA member community demographics • Adjust asset management and operations plans according to member community growth projections
4. Implementation				
16. Corporate policies, procedures and by-laws are not ready in time for AFNWA operations (and their legal commitment to delivery water and wastewater services.	H	H		• CEO and initial management team develops a detailed implementation plan that addresses the sequencing the management activities required to developing policies, procedures and by-laws • CEO and initial management team recruits, hires or procures the resources to develop the policies, procedures and by-laws • core capital,

Risk Factors	Probability	Impact	Risk Owner	Risk Response / Action
17. AFNWA commences service delivery before key staff are in place.	M	H		• Develop the human resourcing plan, process for salaries, benefits, training etc., appropriate financial reporting and management reporting. • Transfer assets and personnel on the same effective date.
5. Scalability				
18. Additional communities sign-on as members after the AFNWA begins operations	M	M		• AFNWA management team develops a viability assessment and "intake" process for integrating additional communities • Implement the Hub and spoke staffing to facilitate future communities to participate in the AFNWA to optimize staffing levels.
19. Communities opting out as members after the AFNWA during operational stage	M	M		
6. Self-Determination, Self-Government, Culture				
20. Lack of Government of Canada support for full handover of oversight and authority to the AFNWA to provide and maintain water and wastewater services and infrastructure	M	H		• Ensure AFNWA has the approved mandate and authority to oversee participating Atlantic First Nations communities • Secure 25-year, long-term federal funding agreement to ensure self-governance can be established • Early agreement of 10-year asset management and capital plan • Stage capital investments to address manageable risks • Accelerate asset management planning, implement rigorous capital planning process to prioritize projects
21. Atlantic First Nations communities do not perceive any additional improvement in water and wastewater services	H	L		• Document pre-AFNWA water and wastewater performance and implement regular reporting to Atlantic First Nations communities on performance
7. Capital Projects				
22. Costs of infrastructure exceed AFNWA funding levels	M	H		• Develop a 25-year IRP Plan. • Accelerate asset management planning to proactively identify high risk infrastructure • Phase capital investment across communities based on risk

Risk Factors	Probability	Impact	Risk Owner	Risk Response / Action
				• Develop an Emergency Management Plan
23. Lack of experienced capital project management and asset management staff, and / or technical information result in delay to improve, replace or expand infrastructure	M	H		• Establish Project Management processes and Procedures based upon best practice. • Ensure asset management and procurement policies are in place based upon best practice. • Accelerate recruitment and retention strategy to secure qualified staff • Procure interim project and asset management resources during implementation phase to support AFNWA staff • Interim resources develop asset management and capital project plans to include tasks, responsibilities and an implementation timeline • ISC or other Agencies /Consultants to provide technical asset management assistance as required to develop the asset and capital plans
8. Managing Change				
24. Change management is not implemented in coordination with the establishment of the AFNWA.	M	H		• Appoint a dedicated AFNWA change management team to develop a change management plan/strategy • Management team to develop a change management strategy. • Ensure Change Management Strategy is approved by the Board and Elders Council • Ensure that the Approved change management strategy/plan is implemented. • Establish a contingency and management reserve to address emergencies • Align the communications and change management strategies to ensure effective engagement and support.
25. Lack of coordinated and unified communication with participating Atlantic First	M	M		• Implement community specific and AFNWA wide communication strategies

Risk Factors	Probability	Impact	Risk Owner	Risk Response / Action
Nations communities				
26. AFNWA is the appropriate organization, and structure to deliver self-determination, self-government and financial independence.	L	M		• Implement regular internal and technical, and financial reviews to ensure alignment to the aspirations of AFNWA • Ensure Federal and AFNWA policies and structure can accommodate improvements as required
27. Atlantic First Nations culture refuses common water authority structure post agreement	L	L		• Ensure spiritual and cultural considerations are embedded in AFNWA governance and operations
28. Atlantic First Nations perceive different levels of service from AFNWA	L	L		• Provide system wide and community specific performance reports, include financial reporting
9. Funding				
29. Lack of long-term federal funding leaves AFNWA will legal commitments without funding availability	M	H		• Stage capital investments to address manageable risks • Secure long term, 25 year, operating and capital funding commitment from Government of Canada • Implement AFNWA system wide program funding to offset temporary funding shortfall from individual bands and smooth out funding cash flow irregularities
30. Potential that infrastructure costs exceed the AFNWA funding availability resulting in the inability to meet regulation and provide safe water and wastewater services to Atlantic First Nations communities.	M	H		• Phase investment into discrete stages. • Develop a 25-year IRP after 3 years of operation. • Work with other First Nations Groups and Government departments to identify project funding sources that allow project to be implemented earlier than regular funding allows.
31. Change of Government of Canada changes policy direction, funding availability	M	M		• Secure long-term federal funding prior to Fall 2019 election • Gather support from stakeholders • Continue communications plan with all levels of government, and identified stakeholders

Risk Factors	Probability	Impact	Risk Owner	Risk Response / Action
and political support				
32. Federal funding is insufficient to address operating and capital AFNWA commitments to Atlantic First Nations communities.	M	H		• Implement a staged start up and funding plan over first 10 years of operations • Implement funding mechanisms that enable additional capital funding to be released based on revised asset management plans • Establish annual funding review and adjustment process that evaluates short and medium term operating and capital needs • Require AFNWA management to develop annual operating and capital budget plan. • Establish contingency reserve to accommodate larger operating or capital funding needs.
10. Legal				
33. Legal disagreement over the transfer of Land and assets to the AFNWA	M	H		• Operate facilities under a license or lease agreement.
34. Government of Canada is only offering a standard form license with respect to new infrastructure and existing/upgraded infrastructure as opposed to ownership or lease, i.e. AFNWA will not have exclusive possession legally to its assets on site	M	M		• AFNWA has reviewed federal government standard form license agreement which has been used for material infrastructure improvements in the past including power lines with utilities. The standard form license agreement does contain many protections in favour of AFNWA notwithstanding that it is drafted as a license agreement as opposed to a lease. Risk can be mitigated by negotiating provisions in the license agreement to obtain the right to put up fencing/barriers for safety reasons. Further, the likelihood of termination by the Government of Canada, which would then transfer liability, arguably, back to the federal government, would appear unlikely once the assets have been upgraded, segregated and transferred to AFNWA.

Appendix 11 – Consultant Reports

In addition to key AFNWA engagements (Appendix 2), and developments identified in Appendix 3, various consultant reports have contributed to the development of understanding the AFNWA opportunity. Key consultant reports include but are not limited to the following:

- Preliminary Five-Year Business Plan, Halifax Water and Accelerator Inc. April 6, 2018
- Corporate Structuring for Atlantic First Nations Water Authority, Halifax Water and Accelerator Inc. August 8, 2017
- Ulnooweg Community Financial Analysis – Final Interim Report, Ulnooweg Development Group Inc., March 31, 2018
- APC – First Nation Asset Condition Assessments Final Report, CBCL Limited, April 2018
- AFNWA Business Case Reconciliation, AFNWA Gap Analysis - Rev 1. CBCL Limited. March 5, 2021.

Appendix 12 – Letters of Support

The following letters have been collected to demonstrate the strong contingent of support for the concept of a First Nations owned and operated water utility. Their support is grounded in the belief that First Nations should exercise their right to self-govern, especially in sector as fundamental as the delivery of safe water. These letters recognize the AFNWA will bring improved public health and safety, support long term cultural growth, and provide positive economic and environmental outcomes. Attached you will find letters submitted on behalf of:

- Premier, Nova Scotia
- Atlantic Mayors Congress
- Dalhousie University

Along with the letters of support, public opinion data from 2017 & 2018 has been attached. It was found that when Atlantic Canadians are informed of the research supporting the creation of an independent water authority to deliver water service to First Nations communities, a large majority of residents support the proposal. It was also found that:

- Support for the proposal is high across regions and demographic subgroups of Atlantic Canada.
- The primary reasons that Atlantic Canadians support an independently owned and operated First Nations water authority include that it is their right, that the communities should be responsible for their own water, and the need for safe water.
- The majority of Atlantic Canadians agree that an independent First Nations water authority can be done safely with appropriate regulations, is an important part of reconciliation, and can be operated as cost-efficiently as other municipal water authorities.

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