Discussion Paper

Iqaluit Water Demand Strategy

MCINTYRE Solutions

October, 2018

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Contents

Supply versus Demand Management

Water **supply management** addresses the production and distribution of water and aims to reduce losses and waste as water makes its way from Geraldine Lake Reservoir to customers. Supply management is within the control of the City as it owns and operates the water system.

Water **demand management** is concerned with consumption and how households, businesses, and institutions use water. While the City can influence water consumption, once water passes the property line it is the owner, facility operator, and tenants and other end-users that control water use.

The City's Water Demand Strategy will focus on how to promote and support the wise use of water by water customers.

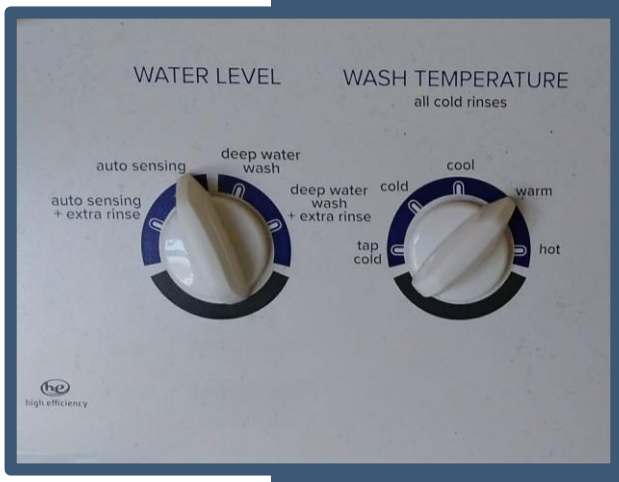
Purpose and Methodology

The City of Iqaluit is developing a Water Demand Strategy to support achievement of its sustainable community objectives. The first step in the process is to analyze how water is used today, and to identify opportunities and challenges to improving water efficiency in the community.

The purpose of this Discussion Paper is to highlight key findings and to begin to identify options for a long-term Water Demand Strategy.

The following activities were carried out to prepare this document:

- Review of background documents and discussions regarding territorial and municipal laws, Iqaluit's water supply and distribution system, current operations, historic consumption, and water metering and pricing.
- Literature review regarding Inuit water traditions, rights, needs, and concerns; and arctic-climate water demand programs.
- Interviews with a selection of high volume users and facility tours:
  - Artic College
  - Baffin Correction Centre
  - City Facilities
  - Discovery Hotel
  - Government of Nunavut
  - Hospital
  - Legislative Assembly
  - Medical Boarding Home
  - NCC Properties
  - NPR Properties
  - Nunastar Properties
  - Public Works & Government Services Canada
  - Qikiqtani Laundry Service
  - Qikiqtaaluk Properties
  - School Board
- Documentation and follow-up with interviewees.
- Identification of common themes, opportunities and barriers.



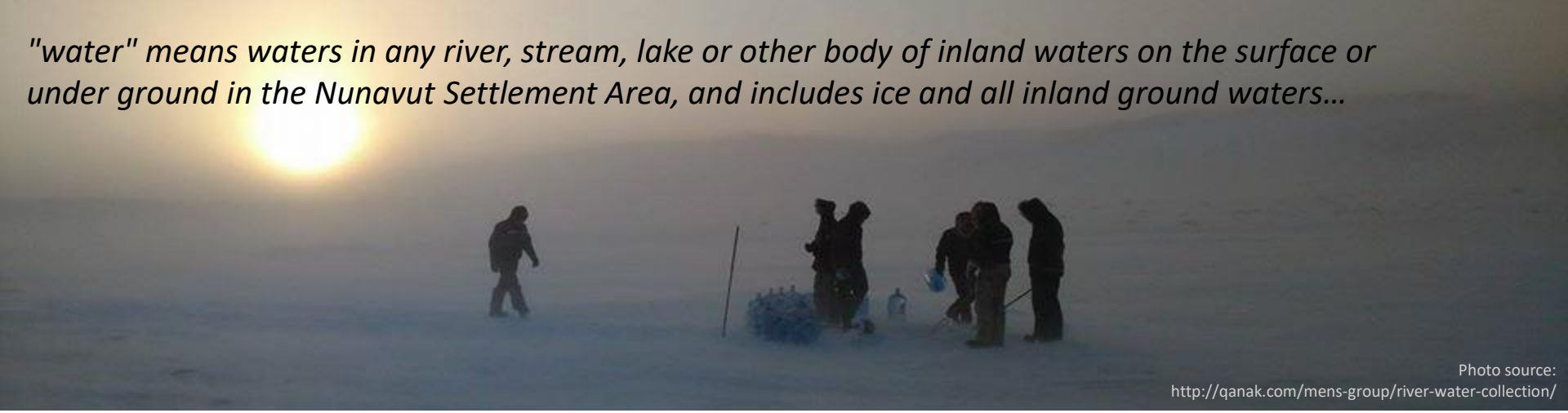


Photo source:
http://qanak.com/mens-group/river-water-collection/

Nunavut Land Claims Agreement

The *Nunavut Agreement* identifies several rights, benefits, and obligations related to water management. These commitments must be respected during development and implementation of a Water Demand Strategy for Iqaluit.

Article 5.7.16 provides all Inuit the right of free and unrestricted access for the purpose of harvesting to all lands, water and marine areas within the Nunavut Settlement Area including all Crown lands, Parks and Conservation Areas, and, to all lands vested in a municipal corporation. (Limited restrictions apply per Article 5.7.17.)

Article 13 established the Nunavut Water Board (NWB) as a jointly-administered governmental organization to regulate the use and management of water. This organization licences the City's drinking water system and controls land development within the watershed.

Article 14 allows the allocation of land and future changes in municipal boundaries to provide municipalities with sufficient land for basic sanitation services including a community water supply.

Article 22.2.6 permits municipalities and a Designated Inuit Organizations (DIO) to enter into fee-for-services agreements to govern the supply of local services to Inuit Owned Lands, including a drinking water supply.

Article 32.2.1 provides Inuit with the opportunity to exercise self-determination in relation to social and cultural policy, programs, and services, including their method of delivery, and a requirement that they reflect Inuit goals and objectives.

Qikiqtani Truth Commission (QTC)

Many Nunavummiut have experienced problems with municipal drinking water as evidenced by testimony contained in the *Final Report: Achieving Saimaqatigiingniq*, 2010 of the Qikiqtani Truth Commission.

> *One of the inducements that brought Inuit into settlements during the 1950s and 1960s was the promise of free or low-rent housing. Many discovered that the number of houses was inadequate, most houses were too small, quality was poor and the costs increased.*
>
> *Another witness, Joshua Alookie, said his parents were promised running water, good housing, good schooling and employment opportunities in Qikiqtarjuaq. Mr. Alookie's parents had to wait almost 20 years after relocating before they had indoor plumbing.*

Maintaining a safe, reliable, and affordable drinking water supply is fundamental to the provision of appropriate housing and protection of public health—two key themes identified by the Commission.

In addressing water efficiency, care must be taken to honour previous commitments and ensure that policies and programs support quality housing and health for all.

Iqaluit Sustainable Community Plan

The *Iqaluit Sustainable Community Plan*, 2014 captures the community's vision for water management and use:

- *Everyone in the community understands where our water comes from and works together to protect it.*
- *Water conservation is part of the way we live and do business.*
- *We monitor growth to ensure that water and wastewater facilities have the capacity to meet the needs of our growing community.*
- *We effectively plan for the upgrades that are required as facilities age and our population grows.*
- *We continually work to improve our piped Utilidor system and the infrastructure that supports it.*
- *For areas on trucked services that are too costly to convert to piped services, we have improved service delivery and flooding is a very rare occurrence.*
- *We also monitor climate change impacts on the quality and quantity of our water supply, and we adapt to these changes.*

The sustainability plan also contains 5-year actions for water demand management:

- *Include stricter residential and commercial water conservation requirements in next General Plan.*
- *Work with residents and businesses to reduce water consumption through behaviour change.*

Development of a Water Demand Strategy provides an opportunity for the City to engage the community in a discussion of the drinking water system, use of water resources, and options for ensuring sustainable consumption over time.

Community Profile

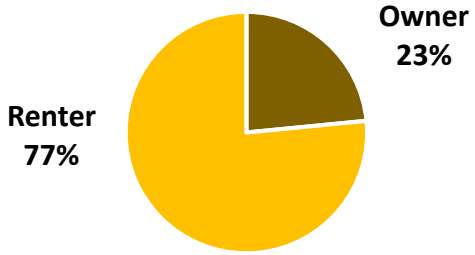
Iqaluit is one of the fastest growing communities in Canada. In 2016, the population was 7,740—a 15.5% increase over 2011. This compares to 12.7% growth in the Territory and a national increase of 5.0% during the same period. Almost 30% of residents surveyed in 2016 had moved to Iqaluit within the previous 5 years. (Statistics Canada, 2016)

The number of dwellings grew to 2,749 by 2016—a 16.1% increase over 2011. Physical growth of the city since 2001 has required expansion of the drinking water system, increased system maintenance and repair, and greater focus on managing water supply and demand.

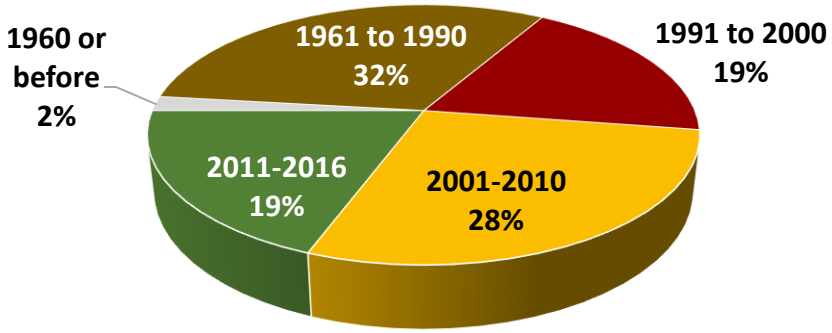
Most Iqalummiuq rent housing, with many organizations leasing units for their employees. Thirty-nine percent (39%) are leased to the federal, territorial, or municipal governments. Twenty-three percent (23%) are leased to Nunavut Housing Corporation to supplement its own housing stock. The remainder is largely leased to businesses and private individuals. Major lessors and their landlords play a significant role in managing water demand in Iqaluit.

Over 60% of all housing was built post 1991. This means there is a high likelihood that over half the dwelling units and other building have water efficient fixtures per plumbing codes introduced in the 1990s. This is supported by observations during several walk-throughs carried out in August 2018 with landlords and facility managers.

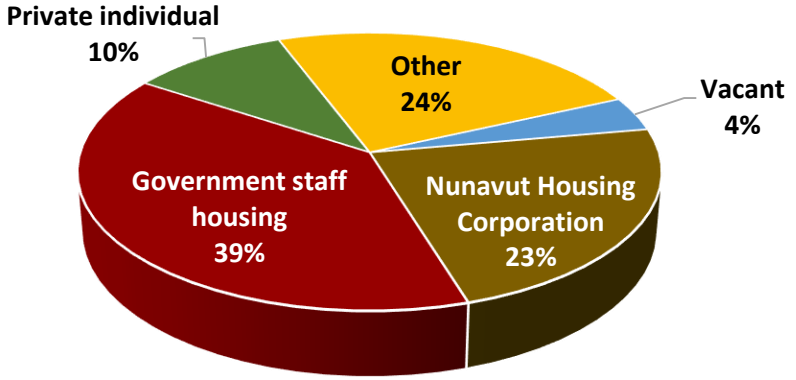
Home Ownership, Iqaluit 2016
(Statistics Canada)



Year of Construction (% dwelling units)
Iqaluit 2016 (Statistics Canada)



Rental Market by Lease Holder, Iqaluit 2017
(CMHC, 2018)

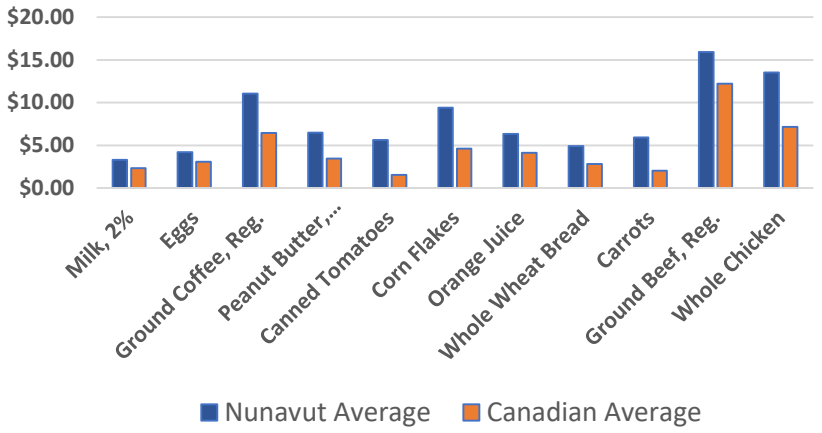


Iqaluit is the capital of Nunavut and centre of business and administration in the territory. In 2016, almost all residents were English-speaking, with 40% having Inuktitut as their mother tongue, and 6% saying French. Roughly 23% said Inuktitut is the primary language spoken at home. Iqaluit is perhaps the only municipality in Canada where government business is conducted in an indigenous language on a regular basis.

While after-tax household incomes in Iqaluit are relatively high, so is the cost of living. In 2017, the average monthly rent for a 2-bedroom apartment was $2,648. And, many items in a typical food basket are double the average price in Canada. This places pressure on utilities to ensure that basic services such as drinking water are affordable.

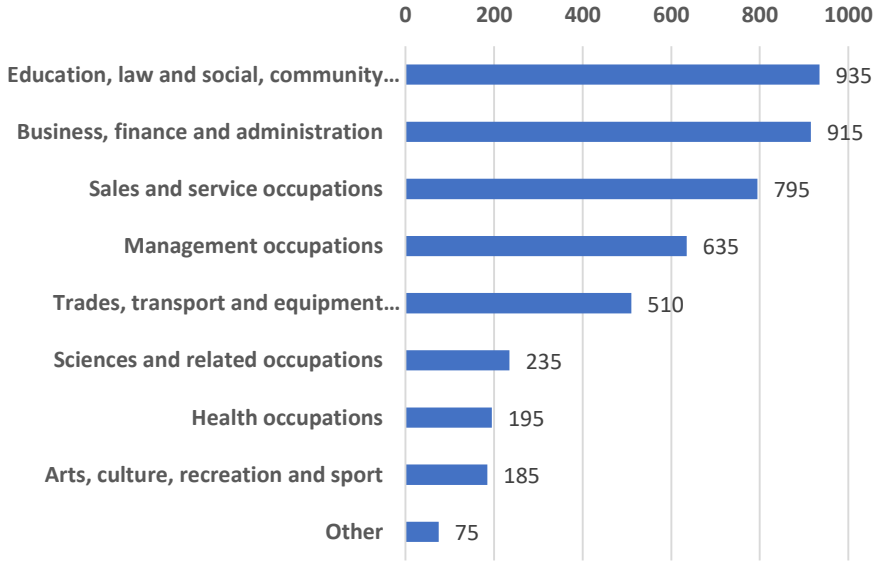
Approximately 15% of households had 5 or more occupants, though the percentage is likely higher due to the number of short and long-term visitors that stay in private residences. Levels of overcrowding in Nunavut are twice the national average according to Canada Housing and Mortgage Corporation (CMHC). Overcrowding and associated social challenges can result in abnormally high water use, particularly in public housing.

2017 Retail Price Comparison (Government of Nunavut)



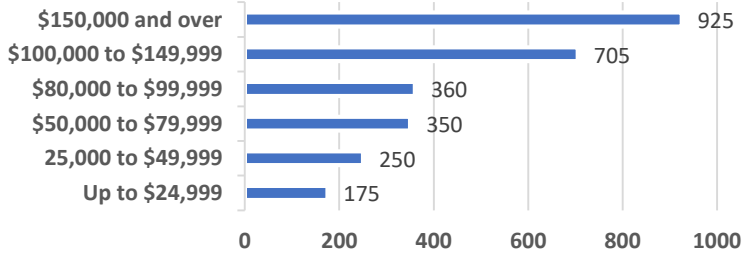
Labour Force by Occupation in Iqaluit, 2016

Number employed (Statistics Canada, 2016)



After-tax Household Income, 2015

Number of Households (Statistics Canada, 2016)



Drinking Water Supply

The City's drinking water is supplied by Lake Geraldine Reservoir, which is fed by the Sylvia Grinnell River Basin and the Apex River Basin. The combined surface area of the two watersheds is approximately 303,950 hectares and can support a population of approximately 8,300. (Trow, 2004)

Reservoir levels rise with spring melt and precipitation, and fall with consumption and evaporation. Water levels range from a maximum of 111.3 m (height of weir) to as low as 107.5 m by the end of winter. The City's 2012 Water License limits withdrawals from the reservoir to 1,100,000 m^3 per year. This limit was exceeded in 2016 and 2017 and contributed to record low reservoir levels. (City, 2018)

In 2018, a temporary license was obtained to pump water from the Niaqunguk River (Apex River) to the reservoir for several weeks to ensure that the volume available at freeze-up would be sufficient for the 2018-2019 winter season. (Nunavut Water Board, 2018) As a back-up measure, the City also approved the purchase of a reverse osmosis filtration system capable of treating sea water for consumption.

Purification and Distribution

The purification plant has a rated Maximum Day capacity of 9,500m^3/day. Assuming gross demand of 400 litres/person/day, the treatment plant can serve a population of approximately 11,300 (Earth Tech, 2002) and the storage facility approximately 10,500 people. Water is conveyed to customers by water trucks and the Utilidor—a 35 km system of buried and exposed insulated pipe, 2 booster stations, and 5 water heating stations.

Customers using hauled water are provided with a daily top-up service, available 8:00 am to 5:00 pm except holidays. Tank top-ups outside those times cost $250.00—a strong incentive to use water wisely.

Customers requiring more than 2,000 litres per day must be connected to the Utilidor, unless approved by council. And, commercial and industrial developments with low water use are discouraged from developing within the Utilidor service area to reserve serviced land for more water intensive land uses.

The City's General Plan encourages intensification of Iqaluit's core and does not support expansion of the Utilidor service area to areas receiving trucked service.

City of Iqaluit General Plan

The *City of Iqaluit General Plan*, 2010 has policies governing Iqaluit's drinking water system, including water efficiency. The following policy excerpts are the most pertinent for development of a water demand strategy:

2.3.2 Ensuring Clean Air, Water, & Land

A clean and adequate water supply will remain a high priority. The City will ensure protection of the Lake Geraldine and Niaqunguk River watersheds for future water supply…

4.2 Watershed Protection Area

No development, including roads or trails, is permitted within the Watershed Protection Area.

5.3.1 General Commercial Policies

All commercial developments with large water use (greater than 2,000 litres per day) shall be serviced by utilidor.

7.3 Water Supply & Treatment

- Until the water supply to the Lake Geraldine reservoir has been increased, the City will not undertake any land development after a population of 8,300.
- The City will approve development applications only when it is satisfied there is sufficient water treatment and treated water storage to service the proposed development.

7.5 Water & Sewer Services: Piped vs. Trucked

- All new residential, commercial and institutional development will be serviced by the Utilidor.
- Development approved by Council shall be limited to single-detached, semi-detached or duplex residential developments, and to small-scale commercial and institutional developments where water use does not exceed 2,000 l/d.
- Council will require water conservation methods, such as the use of low flow water fixtures, to reduce consumption.
- New industrial development may be permitted on trucked services depending on the use(s) being proposed; any use with water demand greater than 2,000 litres per day will require connection to utilidor.

8.7 Lot Development Standards

All buildings shall use water saving devices that meet the following specifications:

- Toilets – water saver or ultra-low flush using 6 litres per flush or less.
- Showerheads – low-flow using 9.8 litres per minute or less at 551 kPa
- Washroom and kitchen faucets - 8.3 litres per minute or less at 413 kPa

Metered Water Use

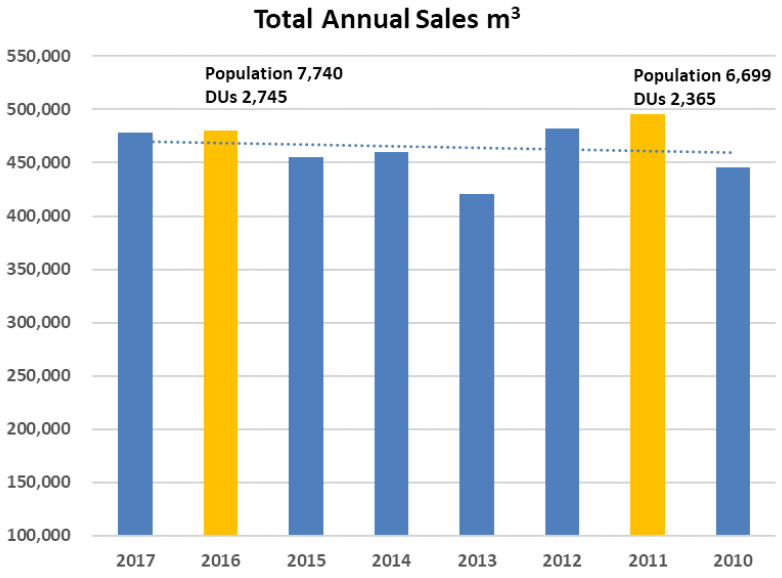
As of October 2018, the City had 1,535 water meter accounts of which 479 received trucked service. (City, 2018)

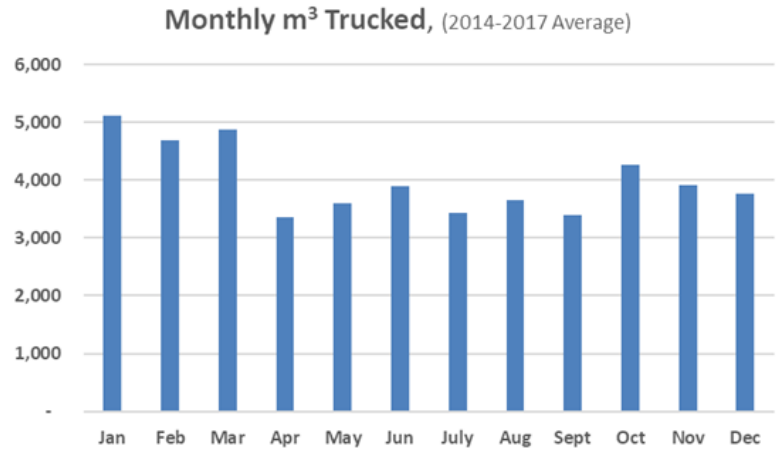
Trends in Sales

Metered water use in Iqaluit has not changed significantly over the past eight years despite a growing population. The graph at right shows a slight upward trend in water use, but not at a rate that matches growth in population and dwelling units.

Seasonal water use patterns are best identified by examining hauled water sales because of daily delivery records. The table at right illustrates that usage is greatest during the winter months, which corresponds to anecdotal information regarding:

- running-water to prevent pipe freezing;
- more laundry and baths associated with winter life; and
- significant number of people go on vacation outside the City during the summer.



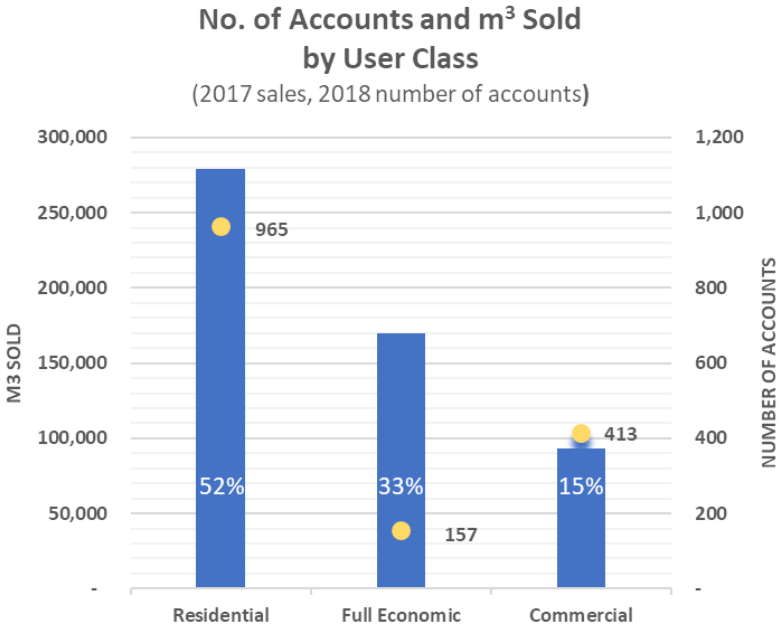


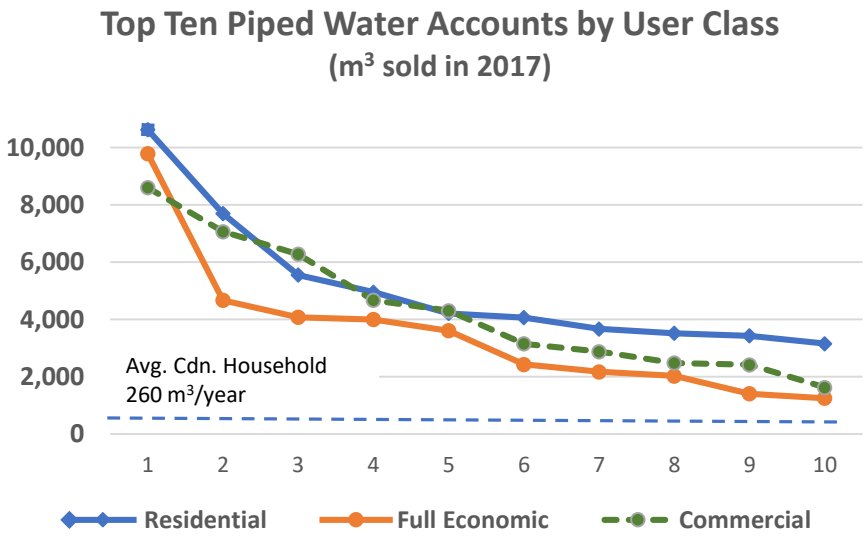
Use by Billing Class & Volume

Most of the City's 1,535 water billing accounts are for residential use, as shown at right. Average residential water use in Canada for a household of three is approximately 260m^3/year. (Environment Canada, 2011)

Large water account holders are referred to as *High Volume Users* (HVUs). Ten apartment buildings and townhouse complexes accounted for approximately 20% of residential water sales in 2017. Combined, the top ten Residential, Commercial and Full Economic accounts (30 buildings) purchased 25% of municipal water sold in 2017. Almost all 30 used more than 2,000 m^3/year. See below illustration.

Six of the top ten Full Economic accounts are residential buildings. Non-residential uses among these top 30 accounts include major public institutions, hotels, and some office buildings.





Several high volume customers were visited in August 2018. Site walk throughs and staff interviews revealed that many of these buildings were built with a high degree of water efficiency, or have undergone water efficiency retrofits. Several have capital or operating accounts used to replace inefficient fixtures and appliances during tenant change-over, building renewal projects, or in accordance with major lease agreements.

Where limited water efficiency action was observed, some property managers indicated that no investments would occur until decisions were made regarding potential demolition and rebuild at the site. And, in a limited number of cases there was a desire to conduct large scale retrofits or appliance change-outs but insufficient funds to do so.

Costs Recovery

The municipality funds water services through a variety of means, but primarily through the water rate. All municipal water customers in Iqaluit have water meters that measure consumption to which a $/litre rate is applied. Water use is metered in the building or on the truck.

Water rate *structures*, the *price* of water, and financial *rebates and incentives* influence how water is used, investments in water efficient fixtures and appliances, and can impact economic development. Care must be taken to use financial tools appropriately as water is an essential resource and the cost of living in Iqaluit is very high.

The 2018 water rate is 2¢/litre ($20.00/$m^3$) with a 1.3¢/litre rebate applied to residential customers for a net charge of $7.00/$m^3$. For comparison purposes, the 2018 summer-time rate charged by the City of Vancouver was $6.30/$m^3$. In both Iqaluit and Vancouver the water rate also pays for wastewater services.

The City receives an annual transfer from the Government of Nunavut, currently just over $1.23 million/year. This amount has not changed significantly in several years. The balance of revenues come from fees for trucked water call-outs, service connections, review of development applications, the sale of water meters, and from interest earned. (City, 2018)

In 2017, the value of rebates issued to Residential account holders was just over $2.9 million—$1.67 million more than it received from the Territory.

The top 10 Residential water accounts in the City are for buildings owned by the private sector. These 10 buildings received rebates valued at just over $660,000 in 2017. (City, 2018) Many of the residential units in those buildings are *leased* to government entities. Residential buildings *owned* by government entities do not qualify for the residential rebate, including Nunavut Housing Corporation.

Regardless of whether a building is leased or owned by the public or private sector, most residential tenants do not pay a water bill as the cost of water is included in monthly rents. (Interviews, August 2018)

Customer Opinion

Most water efficiency measures require the cooperation of residents, business owners, and employees. Understanding user needs, behaviors, and concerns is essential to developing a feasible water demand strategy.

A study of Inuit experience with Iqaluit's municipal water supply found that those interviewed had concerns regarding the following matters (Watson, 2017):

- Taste and smell of chlorine, particularly amongst Elders.
- Discoloured (brown) water, particularly following maintenance of the Utilidor.
- Service interruptions due to infrastructure failure, maintenance activities, or severe weather including frozen water tanks and service lines.

  …we did go through a few blizzards, so three days on one tank. Eight people. It's almost impossible. And if anything I think I do remember we had to gather some snow to melt.
- Depleted water supply when sharing water tanks with multiple people or dwelling units.
- Historic boil water advisories, usually experienced spring and fall due to changing temperatures in Lake Geraldine Reservoir.
- High cost of water, call-out fees to fill a tank, cost to repair or replace a tank and related infrastructure.
- Illness, possibly arising from contaminates entering tanks during water filling or the prolonged use of filters.
- Inconsistent messaging regarding water shut-offs.

Photo source: http://nunatsiaq.com August 10, 2018

Many of these concerns are shared by non-Inuit customers as evidenced by media reports, on-line public forums, and discussions with high volume users. Other matters raised by consumers in recent years include the following:

- Water losses due to poor condition of the distribution system.
- Delays in addressing water losses from visible leaks.
- Leaks from distribution system flooding private property.
- Delays in addressing water shortage.
- Hauling water to high volume customers that use more than 2000 litres/day.
- Use of potable water to fight fires.
- Inequity in levels of service between customers on the Utilidor and those receiving trucked service for the same price per cubic meter.
- Waterless Wednesdays during prior water shortage.

Addressing these concerns is challenging given continued growth, and the impacts of climate change, limited operating and capital costs, and difficulties filling municipal staff vacancies.

Analysis

Gross Demand

Iqaluit is one of the fastest growing communities in Canada, experiencing a 16% increase in population between 2011 and 2016. While raw water withdrawals from Lake Geraldine increased during that time, water sales were relatively stable with an average of 537,926m3/year over that period. This indicates either that:

- Water efficiency practices in recent years are off-setting increases from population growth; or
- Increases in water demand are not being captured and billed.

The impact of past efficiency measures cannot be discounted for the following reasons:

- In 2011, the City implemented a significant rate increase that may have prompted retrofits by major landlords as the cost of water is included in many rental agreements.
- Government of Canada specifications for new builds and leased properties require a high level of water efficiency that is maintained or improved upon over time.
- Approximately 50% of all housing was built since 2001 and likely has water efficient fixtures, e.g. 13 litre flush in the 1990s, 6 litre flush in the 2000s, and with dual flush and auto sensors in the 2010s.
- All commercial, institutional and residential sites visited in August 2018 indicated a medium to high degree of water efficiency.
- In most cases, property managers said that retrofits are being phased-in.

Tenants

Over 70% of residents live in rental accommodation, and most do not pay the water bill. This can lead to inefficient water use and a disregard of leaks. The greater concern expressed by landlords was non-reporting of water problems by tenants, in some cases out of fear of penalty.

For this reason, most landlords interviewed expressed interest in real-time on-line reporting of metered consumption to allow for early identification of broken and leaking infrastructure. Some also expressed interest in submetering to have tenants pay for their water use. All were supportive of the City developing tenant-educational materials for landlord use.

Affordability & the Residential Rebate

While the residential rebate allows the net Residential water rate to be comparable to southern cities, it is unclear whether this “affordability” subsidy trickles down to lessees and renters when provided to commercial landlords. It may be more appropriate to apply the subsidy to government landlords as it is assumed that public sector landlords operate on a cost-recovery basis and are not taking profit.

This is particularly the case for Nunavut Housing Corporation and its agent Iqaluit Housing Association, which could benefit by applying rebated amounts to the implementation of water efficiency measures and improving the supply and condition of affordable housing in the city. (Nunavut Housing Corporation, 2017)

Homeowners and Small Business

While most high volume users interviewed have the budgets required to carry-out water efficient retrofits, the same is not necessarily true for home owners and small businesses that are responsible for paying water bills. The current residential rebate provides affordability relief for homeowners, but does not incent retrofits or water efficiency, and does not address the needs of small businesses.

Many municipalities offer rebate programs to encourage the replacement of inefficient fixtures and appliances. However, most rebate programs occur in communities with much older housing stock, and require administrative support that the City is not resourced to provide. Two alternative approaches are considered more appropriate to the Iqaluit setting:

- Provide people with the tools they need to make informed decisions, and ensure that water efficient goods are available on-hand in the market place.
- Provide site specific subsidies to the few high volume users that lack the budgets required to implement water efficiency measures by using a portion of the Territorial transfer.

Water Service Standard

The service standard gap identified between the City and some of its customers appears to be due, in part, to insufficient resources and business processes to identify and respond to problems in the distribution system in a timely and appropriate manner.

With respect to insufficient resources, it is understood that the Territorial annual transfer was originally intended to be used for system maintenance and renewal. At some point, those funds were allocated towards providing the Residential rebate. (City, 2018) There is a need to reassess how the Territorial transfer is used to ensure that the City is able to provide the service standard expected by rate payers, and recover the moral authority it needs to ask residents and businesses to be more water efficient. Assessment of the value of the annual transfer is also warranted through discussions with the Government of Nunavut.

The credibility gap can also be explained, in part, by cultural differences. Inuit residents who make up roughly 40% of Iqaluit's population have a different lived experience with water, including water-taking from natural sources. Opportunities should be provided to continue this culturally significant practice while at the same time ensuring protection of the watershed and providing education regarding limits in supply and the need for water efficiency.

Metering & Billing

Existing systems used to manage metering data and billing do not provide customers on-line access so that they can monitor use and identify problems in a timely manner. Significant fluctuations in water bills are identified manually at the time of billing, which may be several days or weeks after a problem has occurred.

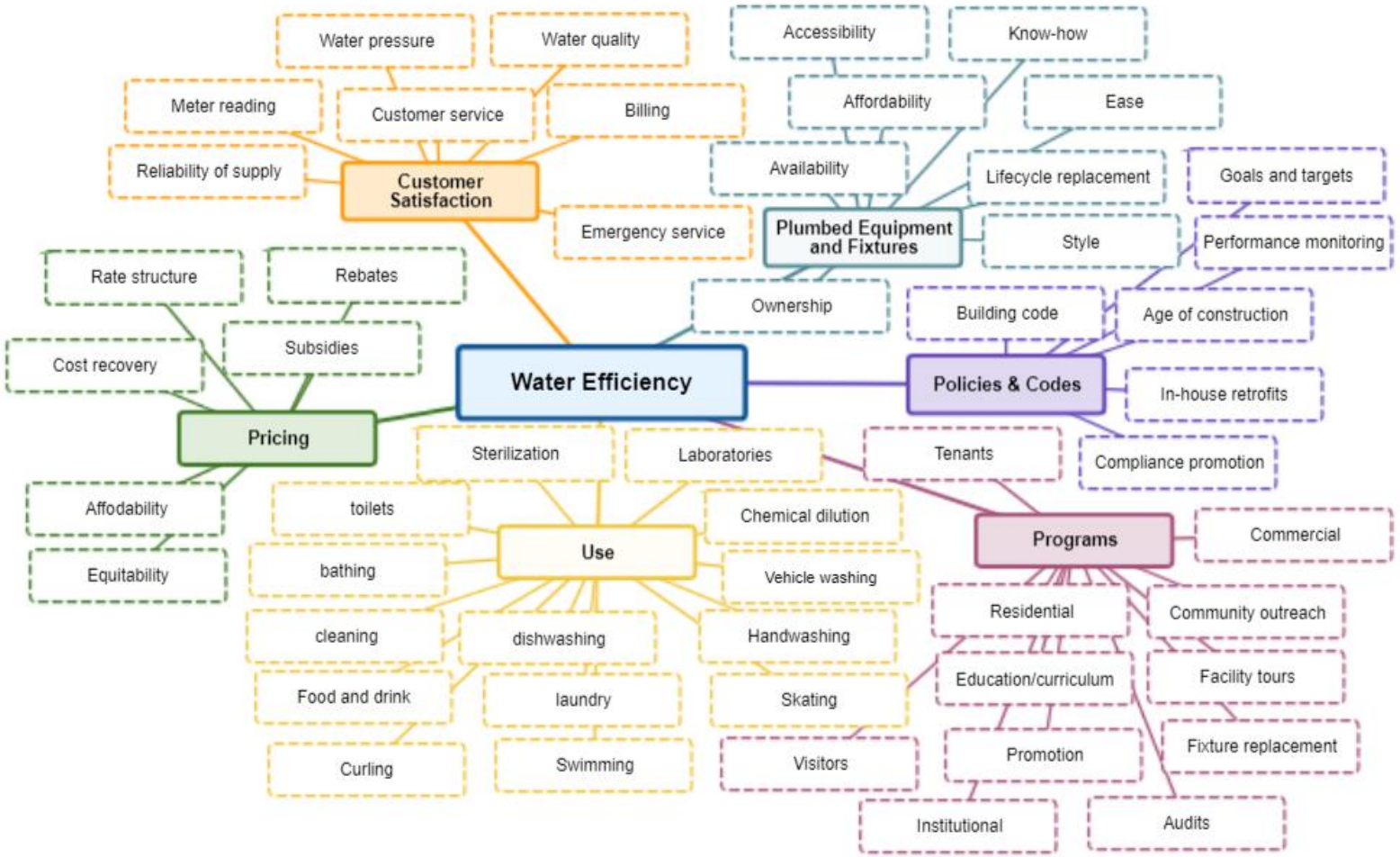
Similarly, data extraction and reporting for city business is time consuming, requiring manual manipulation instead of automatic report generation. Improved reporting functionality and on-line access would ease use and support early identification of leaks on private property.

Opportunities

A water demand strategy can touch on many issues, as illustrated on the following page. This report focuses on matters with the greatest potential for maintaining demand at current levels and mitigating increases over time arising from growth. Accordingly, options in this report are groups under the following themes:

- Early identification of leaks on private property
- Connecting end-users to the cost of water
- Access to and cost of water efficient appliances
- Attitudes and behaviours

Water efficiency map of issues



Theme 1: Early Identification

Both public and private sector High Volume Users (HVUs) expressed interest in technologies that would allow them to monitor use and identify leaks more frequently than the current monthly bill. Landlords also want to improve tenant reporting of problems, and early identification of misuse. Alternative approaches were identified to improve identification and response to water management problems on private property.

Option	Benefits	Requirements
1. Real-time upload of meter data using a fixed network	• Provides the City with continuous data feed from existing meters served by the Utilidor. • Allows for automated monitoring and reporting of metered use. • Allows for automated email notification of customers of unusual water use. • Allows for identification of illegal bleeds. • Opportunity to combine with electricity supplier.	• Collectors installed at high elevation to pick-up signals from existing meters in Utilidor service area (estimate that four are required.) • Software to translate data feed, monitor use, and provide notifications. • Annual support fee (based upon number collectors and meters served.)
2. On-line customer portal	• Builds on the above and provides customers with the ability to monitor water use on-line. • Opportunity to combine with electricity supplier.	The above, and: • Software that provides secure web portal for customers. • Annual support fee.
3. Monitoring of key equipment or areas	• Allows customers to submeter areas of their operation and monitor online from a computer located within ~300 meters.	• Transmitter installed between meter and register. • Permission from the City to install. • 4-10 mAmp service and 24 Volt DC power supply
4. Pre-formatted communication materials to support the reporting of problems by tenants	• Easily implemented information and tools by landlords and leaseholders. • Consistent look and recognition across the City. • Cost efficient implementation	• Design of templates for fridge magnets, washrooms stickers, common area signs, and key messages for insert into newsletters. • Production and distribution.

Theme 2: User Pay

The Residential Rebate levied on water bills does not encourage water efficiency, and there is no incentive for end-users to be waterwise because lease agreements and monthly rents include water service. Several options were identified to reconnect end users to the cost of service.

Option	Benefits	Requirements
1. Change future lease agreement re: water fixtures, appliances, and payment of water bill.	• Leaseholders incented to engage with their tenants on water efficiency. • Greater transparency of costs and savings associated with water efficiency leasehold improvements.	• Major leaseholders (governments and corporations) agree to pay water charges based upon actual use. • Rents and related terms adjusted. • Payment mechanism (direct or indirect to the City)
2. Submetering and billing of tenants	• End-users are informed of the volume they consume and are charged accordingly.	• Independent supply line to each unit. • Submetering of individual units. • Amendment to Water By-law. • Payment mechanism (direct or indirect to the City)
3. Limit Residential Rebate to the first $24m^3$ consumed per month.	• This assumes 200 litres/capita/day in a four-person household and would encourage efficient use of water by end-users; and water conservation programming by lease-holders and landlords.	• Amendment to Water By-law.
4. Apply Residential Rebate to IHA units only and to entire IHA water bill.	• Addresses the higher numbers of occupants typically found in public housing. • Supports improvements to IHA housing stock. • All others customers incented to implement water efficient measures and behaviours.	• Amendment to Water By-law
5. Reassign GN rebate to ongoing system operations and maintenance.	• Will improve quality of service, customer satisfaction, and system losses. • Will improve customer willingness to “do their bit” when City is seen to be addressing supply-side leaks.	• Amendment to Water By-law

Theme 3: Access & Affordability

While high volume users place annual orders for the shipment of water efficient fixtures and appliances, the average homeowner must purchase what is available in local stores when something requires immediate replacement. And, many individuals and organizations lack the capital to carry-out major retrofits.

Option	Benefits	Requirements
1. Ensure that water efficient dishwashers and clothes washers are sold at local stores	• Provides home owners and small businesses with water-efficient choices.	• Basic market research. • Agreement with local stores to stock water efficient appliances. • Appropriate storage.
2. Reallocate portion of Residential Rebate to support purchase of water efficient appliances by individual homeowners.	• Provides homeowners with financial support to make water-wise purchases. • Addresses the challenges of homeowners that have made a commitment to settle in Iqaluit.	The above, and: • Rebate administration/method. • Amendment to Water By-law. • Method for appropriate disposal of old appliances.
3. Reallocate portion of Residential Rebate to IHA for 2 years time to implement retrofit program.	• Accelerated improvements to condition of older housing stock. • Temporary measure would yield sustained savings, reduce operating costs for IHA and allow for allocation of savings to other housing improvements. • All others customers incented to implement water efficient measures and behaviours.	• Agreement with IHA. • Amendment to Water By-law.
4. Minimum water efficient standard for dishwashers and clothes washers supplied by municipal water.	• Stores would stock compliant units only. • Replacement of older units with water efficient units.	• Amendment to Water By-law.
5. On-line water audit tool for use by homeowners and business owners that pay water bill.	• Easily accessible by users and self-directed • Audit tools are available by end-use • Can be coordinated with Item 1	• Obtain and upload existing audit tool(s) • Promotion program • Coordinate with suppliers and plumbers

Theme 4: Attitudes & Behaviours

Water is often wasted without thought. People forget to be waterwise and need regular reminders unless they are receiving hauled service or paying the water bill. Many in Iqaluit are new to the community and are unaware of its water challenges. And, some activities and behaviors considered acceptable elsewhere require adaptation to Iqaluit's situation. However, to change peoples attitudes and behaviours, the City must improve its own credibility on this issue.

Option	Benefits	Requirements
1. Timely response to all visible leaks	• Increased credibility in public eye. • Increased willingness of public to do its part.	• Improved identification and response to leaks in the distribution system.
2. Prohibit Food Waste Disposal units on sinks (e.g. garburators)	• Reduces water use as well as solids entering the city's wastewater system that require treatment and disposal.	• Amendment of Water By-law.
3. Seasonal Public Education Campaign	• Keeps water efficiency in public's mind and addresses transient nature of population.	• Seasonal messaging and campaigns that don't just relate to shortages or breaks.
4. Pre-formatted communication materials to support education of tenants.	• Easily implemented information and tools by landlords and leaseholders. • Consistent look and recognition across the City. • Cost efficient implementation.	• Design of templates for washrooms stickers, common area signs, and key messages for insert into newsletters. • Production and distribution to building owners and managers.
5. Engagement of Inuit Community on traditional water taking	• Increased trust and understanding between the City and Inuit residents on traditional and municipal water supplies.	• Design and implementation of engagement strategy • Consideration of water taking opportunities

Next Steps

The following next steps are recommended:

- City review of this document to ensure that it is accurate, complete, and addresses sensitive issues appropriately.
- Targeted meetings with key stakeholder groups to review options and expand as needed.
- A public engagement strategy to:
  - Review and discuss options
  - Identify potential water efficiency performance measures.
- Discussions with the Government of Nunavut regarding the annual grant.
- Short-list the actions to be carried out this term of Council.
- Monitor performance and report back to Council.

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