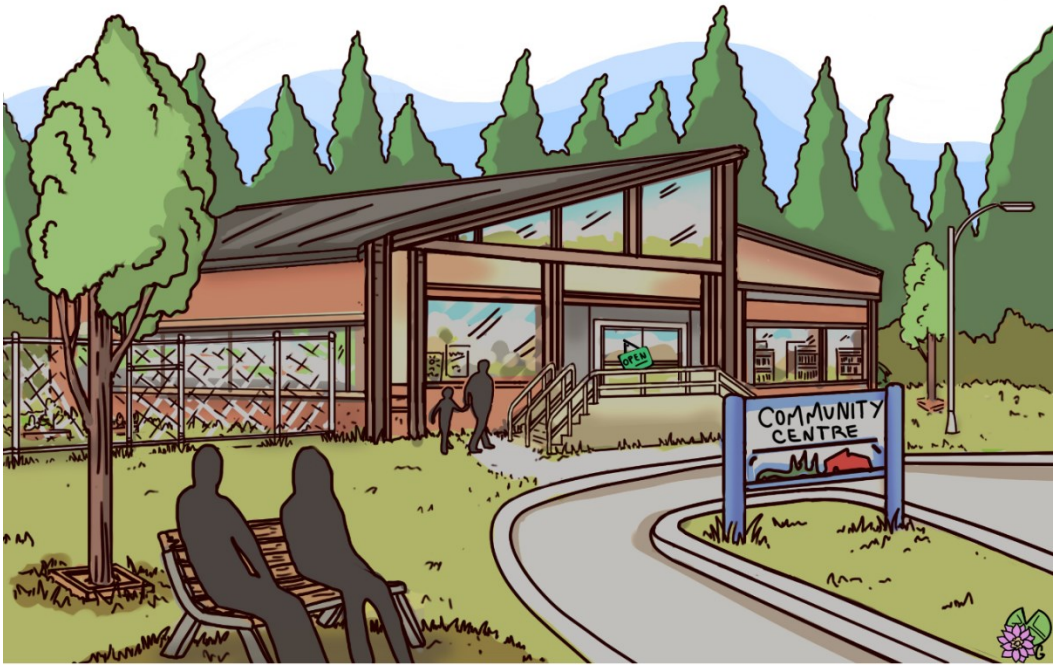
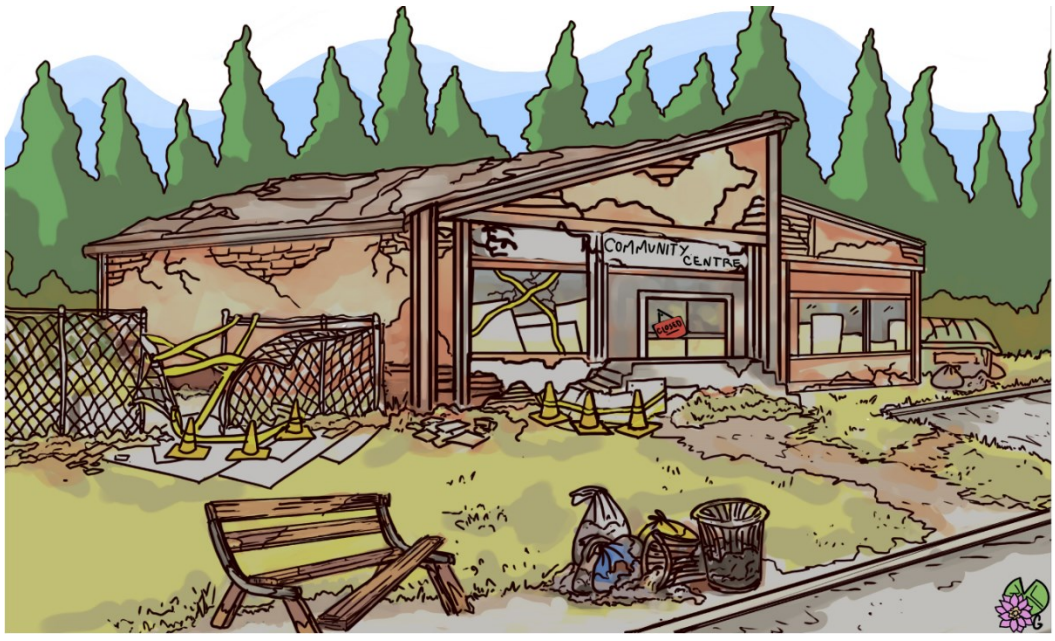


Methodology for the Comparison of Levels of Service between a First Nation Community and a Municipality

Users' Guide

July 2021



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Project Context

Mandate of the Consulting team

The Department of Indigenous Services Act mandates the Minister of Indigenous Services to "take the appropriate measures to give effect to the gradual transfer to Indigenous organizations of departmental responsibilities with respect to the development and provision of [housing and infrastructure] services" (section 7 (b)). The Housing and Infrastructure Service Reform Directorate (HISR), Indigenous Services Canada (ISC) is working with First Nation organizations seeking to take over care and control of housing and infrastructure services.

More recently, in the December 13, 2019, mandate letter sent to the Minister of Indigenous Services, the Prime Minister requested that the following top priority be delivered, in collaboration with other departments: "continue to work with First Nation communities to ensure First Nations control over the development and delivery of services".

Figure 1 below shows the six technical components to advance First Nations self-determination defined by ISC-HISR.

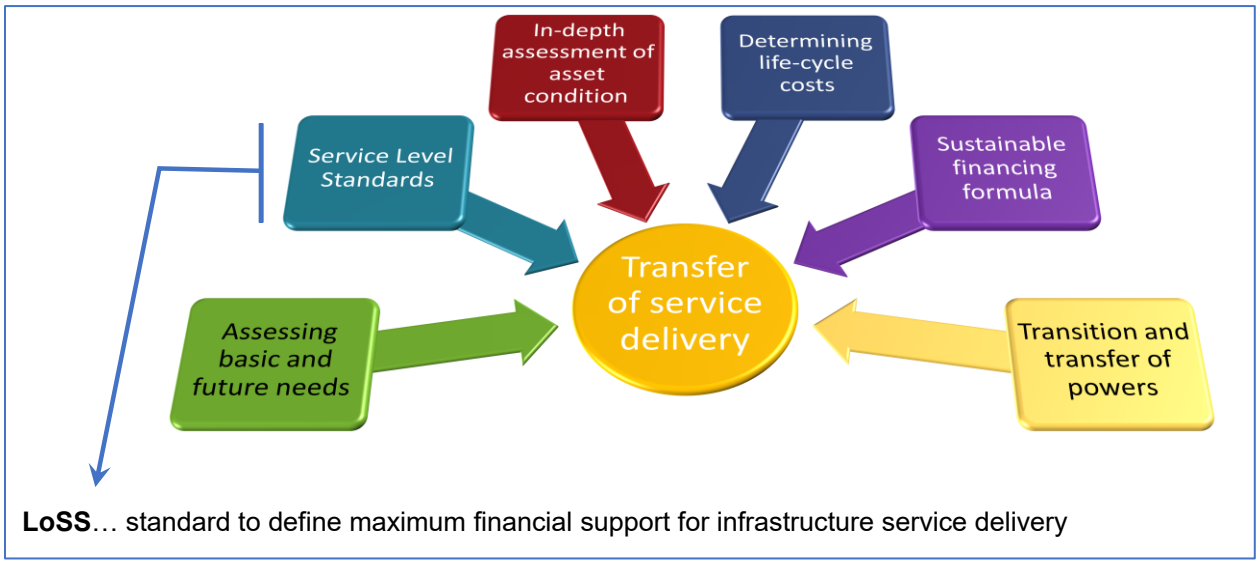

Figure 1. Technical components to advance First Nations self-determination (Source: ISC-HISR)

First Nations organizations with a mandate from their leadership are working with ISC on the development of service delivery models to transfer control to First Nations entities with the objective to advance First Nations' self-determination in housing and infrastructure

To this end, it was suggested that a regional comparison of service level standards for essential services be conducted with three First Nations communities and three municipalities of comparable size located in the same sub-region of Quebec.

The primary objective of the consulting team mandate was to develop a methodology that will allow First Nations communities, AFNQL and ISC to define the critical services being transferred and define the associated levels of service that will lay the foundation for sustainable funding.

The main project report summarizes the different stages of the process, presents the main elements that were selected and describes the methodology developed and validated using data collected from First Nations and municipalities that have agreed to participate. This Users' Guide, and an Excel file supporting the methodology are companion documents to the report.

Methodology Development Process

The work plan followed by the project team consisted of four steps with the following objectives:

1) Analyze the environment and conduct a literature review of relevant documents on essential services, critical assets and service levels.
2) Determine what constitutes essential services and identify how service level standards are defined.
3) Determine the criteria for selecting the communities to be compared and collect the data.
4) Develop a methodology for comparing levels of service identified as essential between FNs and municipalities and validate this methodology with an expanded working group from AFNQL stakeholders.

Figure 2 below illustrates the main phases of the project.

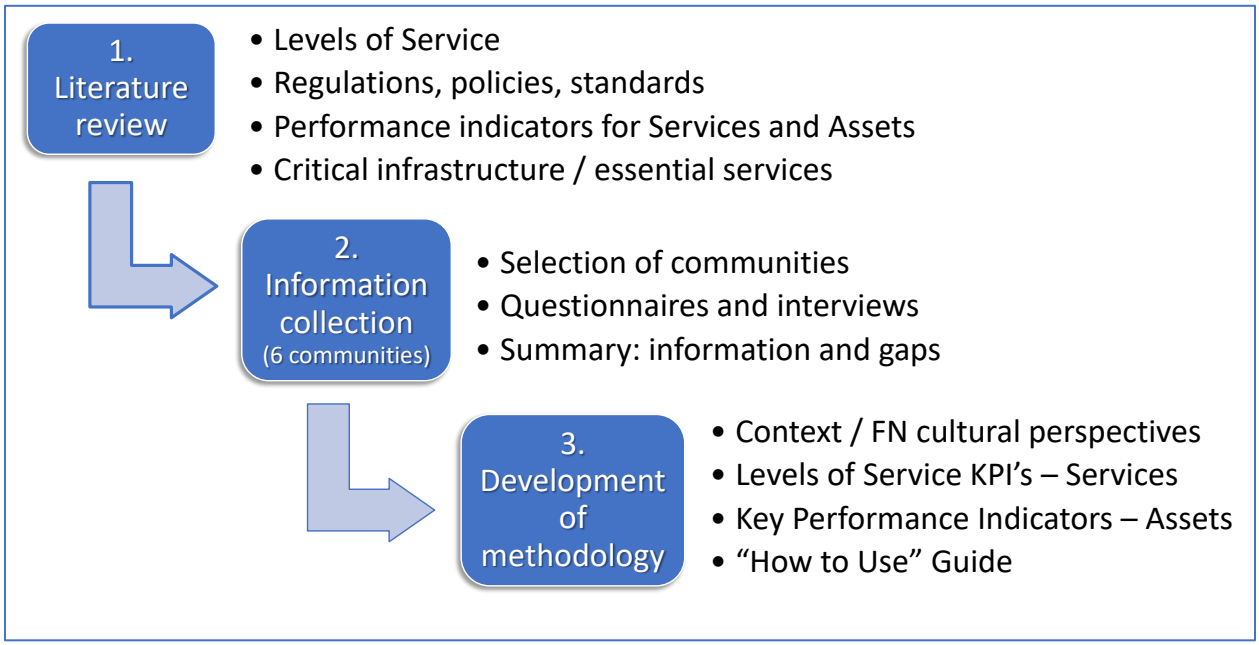

Figure 2. Main phases of the development of the comparison methodology

Limitations

This study is part of a broader approach to advancing First Nations self-determination and focuses on is one of its six technical components. This study is not intended to determine service levels for operations and maintenance activities, but it is an additional tool in the toolbox, expected to inform stakeholders in the determination of sustainable financial support for service delivery.

This study does not claim to produce a perfect tool for conducting an analysis of service level standards, nor to be the only vision of them. However, this methodology is based on fundamental principles that can

be fully applied to a wide range of communities; in particular, it provides the flexibility to take into account the specific contexts of First Nations and their values. The methodology also considers the availability of data at the local level: the comparison indicators, whether qualitative or quantitative, were defined to maximize the participation of community representatives and capture their knowledge about the services and assets.

This project focuses on communities located in the Quebec region. However, particular attention was paid to the transferability of the approach to other regions of Canada. Accordingly, it is expected that only provincially specific regulatory aspects should need to be updated when applied to other jurisdictions. The main project report for which this Users' Guide is a companion document, provides a list of general acts and regulations that apply to First Nations. The report also includes roles and responsibilities for municipalities in Quebec, as well as laws, regulations and directives issued by the various levels of government (federal and provincial) with respect to services and/or certain assets.

O&M Requirements and Levels of Service Indicators

The selection of performance indicators for the comparative analysis focused on Service level indicators (e.g., availability, safety/security) and on Asset level indicators (e.g., condition).

At the asset level, how the asset is managed over its life-cycle (maintenance, repairs, rehabilitation) and how it is used (operations) will have impacts on the levels of service provided to the community. The differentiation between operations ("O") and maintenance ("M") is important as they relate to distinct activities to keep assets providing the expected levels of service.

Operations and Maintenance (O&M) expenses are often grouped since they are paid during the fiscal year when they occur. In many instances, a facility will require similar maintenance whether it is used regularly or on an occasional basis; however, operational costs may vary greatly depending on utilisation. The following, adapted from *The Role of Operations and Maintenance in Asset* Management, Asset Management BC, 2019[1], illustrates the differences between these two expenditure activities

Operations

Operations is usually defined as the design or implementation of the programs, services, policies, or systems, and related procedures of a community. Operations refers to the day-to-day activities required to provide service delivery to residents, businesses, schools, and other users.

Operations activities use significant staff and financial resources and are often prioritized because they have a direct and immediate impact on the services provided. For example, the speed and scale of snow clearing has an immediate impact on the level of service of roads.

Operational costs will vary depending on the function and use of the facility. For example, a community centre that is open seven days / week will have higher operational costs than the facility that is only open on week-ends. Examples of operations expenses include:

[1] https://www.assetmanagementbc.ca/wp-content/uploads/The-Role-of-Operations-Maintenance-in-Asset-Management.pdf

Electricity	Fuel	Insurance premiums
Recurring inspections	Certificates of authorization	Grounds-keeping
Janitorial services	Staff salaries	Repayment of loans
Office supplies, consumables	Waste disposal	Communications, internet
Water/Wastewater charges	Flushing of hydrants	

If operations activities are cut back, the community members and staff usually notice the impacts quickly. However, there is often not enough time or resources devoted to regular review and refinement of operations activities to optimize service life. It is not uncommon for operations tasks to be done because "that's how we've always done it". The risk with this approach is that many of the conditions have changed over time.

Maintenance

Maintenance involves functional checks, monitoring, testing, measuring, servicing, repairing or replacing of necessary equipment, infrastructure, and supporting utilities so that assets can perform the required functions and achieve the intended service delivery objectives throughout the expected life of the asset.

There are two major categories of maintenance:

1. Proactive maintenance
    - Preventive (i.e., scheduled) maintenance describes activities where materials, equipment, or facilities are inspected, maintained, and protected before they breakdown or other problems arise.
    - Predictive maintenance describes the use of sensor data to monitor a system and continuously evaluate it against historical trends to predict failure before it occurs.
2. Reactive maintenance
    - Corrective maintenance describes activities where equipment is repaired or replaced because it is worn, malfunctioning, or broken.

Preventive and predictive maintenance are proactive and work to prevent breakdown, reduce wear, improve efficiency, and extend the life of asset components. Taking a proactive approach to maintenance can be more cost-effective than relying on corrective maintenance. While, corrective maintenance is necessary, it should be minimized because it creates unpredictable spikes in costs and can interrupt service delivery. Investing in proactive maintenance can help reduce the need for costly capital reinvestment by maximizing the service life of assets.

PSAB PS 3150 – *Guide to Accounting for and Reporting Capital Assets* defines:

> "Maintenance and repairs maintain the predetermined service potential of a tangible capital asset for a given useful life. Such expenditures are charged in the accounting period in which they are made."

Maintenance requirements are influenced by factors such as location and climate, design, construction quality, utilisation of equipment or asset, etc. Examples of maintenance costs include:

Lubrication of equipment	Minor repairs	Regrading gravel roads
Brush clearing of ditches	Replace outdated parts	Air duct cleaning
Window seal replacement	Interior/Exterior paint	

Industry Standards

"Industry Standards" are often referred to when discussing levels of service. In legal terms, industry standards are defined as[2]:

> "Industry Standards means those standards of care and diligence normally practiced by a majority of engineering, construction and installation firms in performing services of a similar nature in jurisdictions in which the Work will be performed and in accordance with good construction practices, Applicable Permits, and other standards established for such Work."

In regard to the wide range of assets and services provided by the community administration to its residents, levels of service standards may exist for some (e.g., water quality guidelines) but, in many instances, they are influenced by a wide range of regional or local factors and thus a "standard" does not exist or cannot be established.

The textbox below from the Standards Council of Canada describes different types of standards.

From a level of service perspective, InfraGuide[3] defines levels of service as:

> "Levels of service are a composite indicator that reflects the social and economic goals of the community and may include any of the following parameters: safety, customer satisfaction, quality, quantity, capacity, reliability, responsiveness, environmental acceptability, cost, and availability. Levels of service may also be legislated. The defined levels of service may be any combination of the above parameters deemed important by the municipality [community]."

Important in this definition is the context, that is "… reflect the social and economic goals of the community …" and "… deemed important by the municipality [community]" and the parameters used to define levels of service.

In view of the above and the literature research, the development of the comparative methodology focused on defining performance indicators that are relevant to all the services and assets the community administration is responsible for. Emphasis was also placed on ensuring either a quantitative or qualitative assessment could be achieved, without resorting to additional studies. Therefore, the performance indicators selected may or may not have a direct link to a standard.

For specific services and assets, it is possible that standards (voluntary or mandatory) may exist. The methodology, by identifying where there are differences in KPI's for Services and Assets between the First Nation and a municipality, allows exploring in more details those differences while accounting for contextual elements, and the standards that relate to the service/assets.

[2] https://www.lawinsider.com/dictionary/industry-standards
[3] https://fcm.ca/sites/default/files/documents/resources/guide/infraguide-developing-levels-of-service-mamp.pdf

Types of standards

A standard is a document that provides a set of agreed-upon rules, guidelines or characteristics for activities or their results. Standards establish accepted practices, technical requirements, and terminologies for diverse fields.

Most standards aim to achieve an optimum degree of order in a given context. Because they are easy to recognize and reference, standards enable organizations to ensure that their products or services can be manufactured, implemented and sold around the world.

Standards can be either voluntary or mandatory:

- Standards are **voluntary** when organizations are not legally required to follow them. Organizations may choose to follow them to meet customer or industry demands.
- Standards are **mandatory** when they are enforced by laws or regulations, often for health or safety reasons.

A standard is distinct from an Act, a regulation or a code:

- An **Act** is a statute that establishes control or directives based on legal authority.
- A **regulation** is a statutory instrument made by exercising a legislative power conferred by an Act of Parliament. Regulations have binding legal effects. If a voluntary standard is referenced in a regulation, it becomes mandatory.
- A **code** is broad in scope and is intended to carry the force of law when adopted by a provincial, territorial or municipal authority. A code may include any number of referenced standards.

There are many types of standards:

- **Performance standards** test products by simulating their performance under actual service conditions.
- **Prescriptive standards** identify product characteristics, such as material thickness, type, and dimension.
- **Design standards** identify specific design or technical characteristics of a product.
- **Management system standards** define and establish an organization's quality policy and objective.
- **Service standards** specify the requirements that are to be fulfilled by a service and establish its fitness for purpose. Service standards may be prepared in fields such as laundering, hotel-keeping, transportation, car-servicing, telecommunications, trading, and insurance and banking.

Source: https://www.scc.ca/en/types-standards

Framework

The objective of the comparative analysis is to identify variances in levels of service between a First Nation community and one or more municipalities. The methodology provides the process to analyze whether the variance is related to differences in context (e.g., social, economic, cultural, etc.) or due to physical assets' characteristics (e.g., condition, capacity to meet demand, etc.).

The methodology is founded on the contextual profile of the communities selected for the comparative analysis as illustrated in Figure 3 below.

Services to community residents, how they are provided and at what level of service can be:

- Mandated by the legislative context of the community (regulations, responsibilities and authorities); and
- Community choices established by the community administration and its decision-makers to reflect the vision and values of the community.

The list of services offered to community residents was established from the literature review and interviews with the representatives of the six communities that were part of the initial development of the methodology. It is possible for the Comparison Project Team to add or subtract from the list of services, and the assets that provide these services as needed.

Consideration of mandated Levels of Service

The comparison methodology considers that levels of service that are mandated by legislation, regulations, codes or other instruments are met by the service provider, and are not included in the comparison.

The key performance indicators (KPI's) were selected to cover a broad range of services and assets; KPI's in the methodology are a mix of:

- Quantitative indicators for which statistical data is readily available for First Nations and municipalities (e.g., Statistics Canada); and
- Qualitative indicators for which the knowledge and professional judgement of the community representatives and the Comparison Project Team.

Services to residents of a community can be provided by various providers, public and/or private. Amongst those will be several levels of government (Federal, Provincial, regional and local), public agencies (government owned such as electricity), and the private sector. A service may be provided in one community by the administration while in the other by the private sector.

Consideration of third-party services

The methodology is not intended to compare levels of service for those provided by third parties, although the Comparison Project Team, with input from the community representatives, may be able to provide an appreciation of differences in LoS for third-party services in the communities.

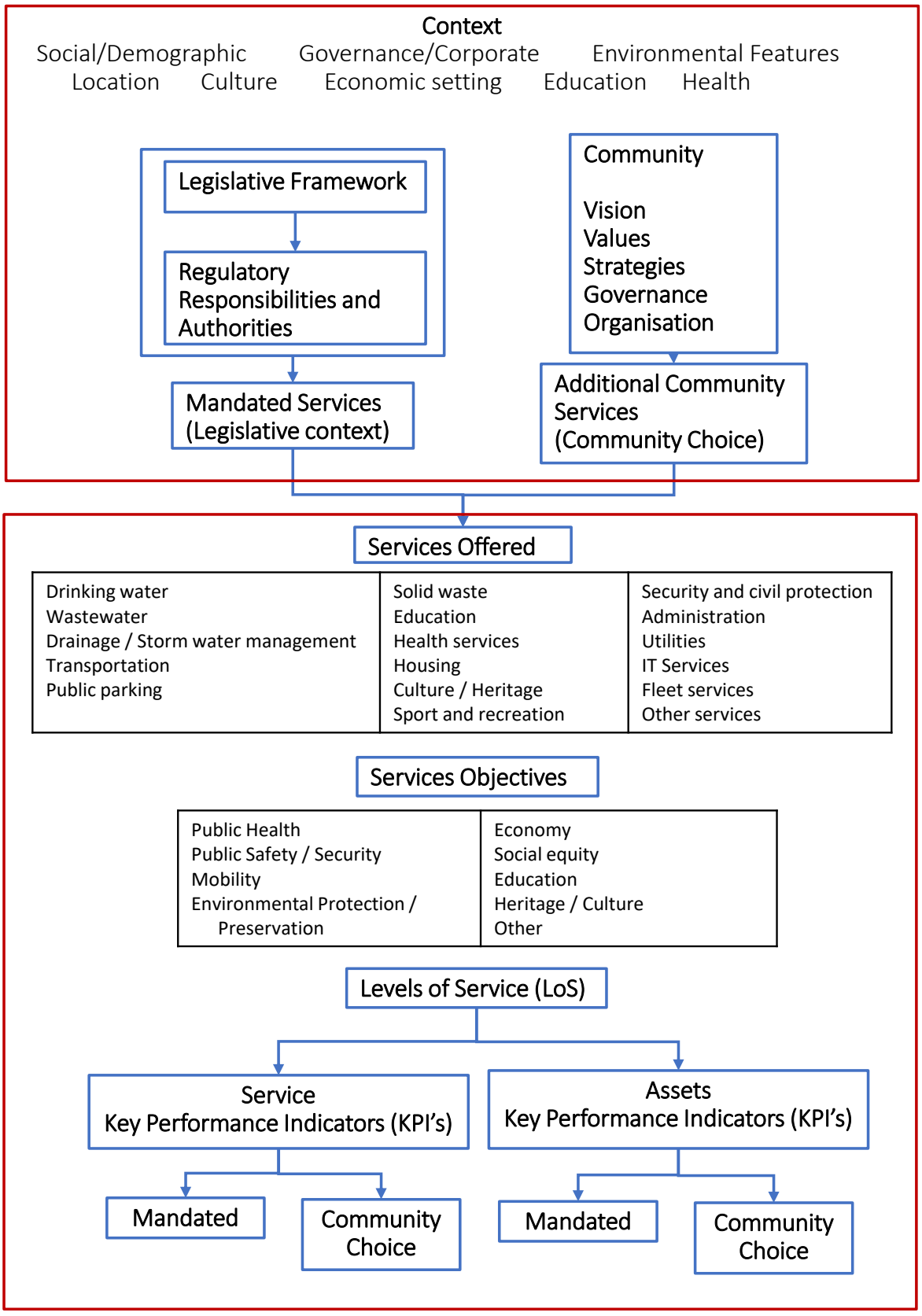

Figure 3. Comparative analysis framework

Methodology

The methodology requires the involvement of representatives from the communities to be compared. However, it is expected that an individual or team will lead the application of the methodology and the comparative analysis. In this document, the person or persons responsible for the comparison are referred as the "Comparison Project Team".

The flowchart of the methodology is shown in the Figure below.

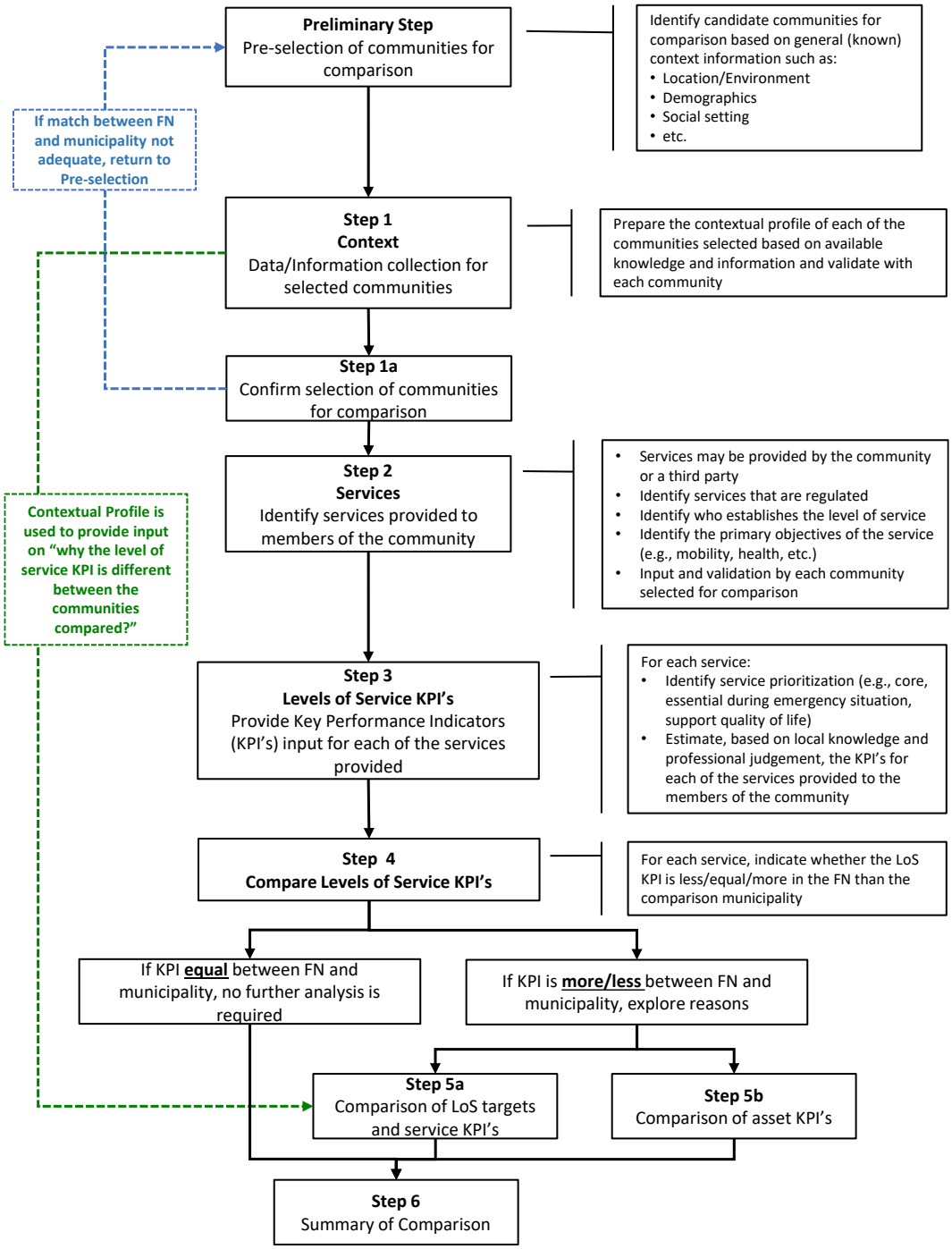

Figure 4. Comparison methodology flowchart

Preliminary Step – Pre-selection of communities for comparison

Identify candidate communities for comparison based on general (known) context information such as:

- Location/Environment
- Demographics
- Social setting
- Etc.

> Example:
>
> 1. **Small First Nation community** (population of approximately 400 members on-reserve) near a small municipality but relatively close to a small city (population 2,500). Possibly members of the FN have access to services offered by both municipalities; may be service agreements in place between the communities.
> 2. **Mid-size First Nation** located near a municipality and a larger urban centre. Both are crossed by provincial roads.
> 3. **Remote First Nation** and municipal mid-size (population approximately 1,500) communities. Urban services accessible but far from the communities requiring more than 1h30m road travel.

Some contextual information may be obtained by the Comparison Project Team from publicly available sources such as:

Statistics Canada census profiles: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E

Government of Canada First Nations profiles: https://fnp-ppn.aadnc-aandc.gc.ca/fnp/Main/Index.aspx?lasng=eng

Financial profile of Quebec municipalities: https://www.donneesquebec.ca/recherche/dataset/profil-financier-des-municipalites-locales-edition-2019#

Google Earth and Google Maps

Contact the individual communities (First Nation and municipality) to describe the objectives of the comparison and obtain their agreement and engagement in participating in the process.

It is recommended that a single point of contact be identified in each community; this person would then access other members of the organization, as needed, to participate in the comparison.

Step 1 – Collection of Context Data and Information

The Comparison Project Team starts the process, based on their knowledge of the communities and publicly available information and data, of answering as many questions in the Context worksheet as appropriate.

Using the partially completed Context worksheet, each community is asked to validate the input from the Team, and answer, to the best of the knowledge of the respondents, the contextual questions. This can be done through virtual meeting interviews with representatives of each community who have been provided the worksheet ahead of time to ensure the knowledgeable staff in the respective areas of the context questions is participating in the interviews.

Part of the context information relates to general information on the community as a whole:

- Demographics
- Governance / Corporate setting
- Environmental features
- Location features

The remaining contextual elements relate to the community emphasis in the following categories (note that when referring to activities or emphasis on particular community issues, the response is from **the point of view of the administration** of the community and relates to its **programs, initiatives and policies)**.

- Social
- Cultural
- Economic
- Education
- Health
- Justice

In many communities, it is typical to find groups or non-government organizations that support specific causes or vulnerable segments of the population - these are not included in this contextual framework).

Figure 5 next page shows a portion of the Contextual Profile worksheet (Excel file); the respondent puts a checkmark (X or ✓) in the cells for statements that are relevant to or are most representative of the community and the focus of the administration. The respondent can, as necessary, add other contextual statements.

> The person or group completing the context profile has the option to add other contextual elements in each of the above categories to present a more complete portrait of the community, its challenges, and priorities. This additional information can be used, as appropriate, to explain differences in services' performance indicators.

Cultural		Economic		Education		Health		Justice	
Language, Heritage, Culture		**Economic Development Employment**		**Education and Lifelong Learning**		**Health Care**		**Justice**	
General		**General**		**General**		**General**		**General**	
	Traditional community w/ activities to sustain cultural values		Economic reliance on traditional hunting & fishing activities		Strong emphasis on children learning (pre- and kindergarten, primary school)		Strong emphasis on homecare services		Local (community) justice system
	Urbanized community w/ activities to sustain cultural values		Economy based on local business activities		Strong emphasis on youth learning (middle- and high-school)		Strong emphasis on detection of hereditary conditions		Local access to and application of principles of restorative justice
	Urbanized community integrated with non-traditional activities (underlying cultural values)				Primary and middle school education available within the community		Strong emphasis on programs to manage and control infectious deceases (e.g., influenza, COVID, etc.)		
	Protection and preservation and promotion of nature and of the environment	**Employment**			High-school education available in community		Strong emphasis on programs to monitor and support pregnancies at risk		
	Support of vulnerable members of the community (e.g., snow clearing of Elders' entrances)		Primary employment reliant on opportunities from businesses not located within community		Strong culture and heritage emphasis in education		Strong emphasis on healthy eating awareness		

Figure 5. Community contextual profile (Extract from worksheet)

The worksheet also presents, for additional context and information, the linkages between the categories for the profile and the First Nations Wellness Continuum Framework (Health Canada, 2014).

> **The context profile is an important step in the comparative analysis since it will serve to confirm the selection of the communities for the comparison and, as appropriate, to explain why there might be differences in levels of service between the communities.**

Prepare the contextual profile of each of the communities selected based on available knowledge and information

Validate information with each community and request to fill in gaps.

Once the contextual profiles for the two communities have been completed, the Team will review and confirm the selection of the communities to proceed with the next steps of the comparative analysis. If the Team, based on the responses, decides the match between the First Nation and the municipality is not adequate, they will return to Step 0 of the process to identify another municipality for the comparison.

> It is possible that the Comparison Project Team may not find the "perfect" match between the First Nation community and a municipality for the comparison. In this case, the Team may consider including two or more municipalities in the analysis.

The Comparison Project Team confirms the selection of the communities for the analysis and progresses to Step 2 of the comparison.

Step 2 – Services

The objective of Step 2 is to identify which services are provided to the respective members of the two communities being compared.

In general, questions regarding the services relate to:

- Is the service provided to the community members?
- Who provides the service?
- Is the service required under legislation (mandated) or by community choice?
- Who establishes the level of service?
- What are the primary service objectives?

Figure 6 next page shows a portion of the Services worksheet (Excel file); the respondent puts a checkmark (X or ✓) in the cells for statements that are applicable to or are most representative of the community.

Services to residents (that require infrastructure / assets)	Is service provided to the community members?	Who provides the service?				Is the service required under legislation (mandated) or by community choice (corporate, Council decision)			Who establishes the level of service?			
		Community	Individual Residents	Third Party (Public agency)	Third Party (Private Sector)	Legislation		Community choice	Legislation		Council decision	Third party that provides service
						Federal	Provincial		Federal	Provincial		
◆ **Drinking water**												
Communal supply & piped distribution												
Communal supply & trucked delivery												
Individual on-site systems												
◆ **Wastewater**												
Piped collection & communal treatment												
Trucked collection & communal treatment												

Services to residents (that require infrastructure / assets)	Relevance for Contextual Profile *Please indicate which elements of the Contextual Profile directly relate to and/or impact the service provided*	Primary Service Objectives *(Answers the question: "Why is the service offered/needed)*								
		Public Health	Public Safety / Security	Mobility	Environment Protection / Preservation	Economy	Social Equity	Education	Heritage / Culture	Other (define)
◆ **Drinking water**										
Communal supply & piped distribution										
Communal supply & trucked delivery										
Individual on-site systems										
◆ **Wastewater**										
Piped collection & communal treatment										
Trucked collection & communal treatment										

Figure 6. Service providers and organizations that establish LoS and service objectives (Extract from worksheet)

Each of the communities involved in the comparison is requested to fill the Services worksheet.

This can be done by sending the worksheet to each community and following up with virtual meetings with each community. The contact person in each community should ensure access to knowledgeable staff to provide input in the service categories under consideration.

After validation of the input, the Team moves to the next step of the assessment.

Step 3 – Services - Levels of Service Indicators

This step involves the community representatives to rate, **to the best of their knowledge**, the levels of service (for services their organization provides), with respect to eight (8) Key Performance Indicators (KPI's):

- Availability of / Access to Service
- Safety/Security of Service
- Reliability of service
- Cost of providing service
- Affordability of service to residents
- Capacity to meet demand
- Support of community well-being
- Responsiveness

The definition of each indicator is provided in the worksheet.

The objective of this step is not to require an in-depth analysis for the services with respect to each of the performance indicators, but to use the knowledge and professional judgement of the respondents to gain an appreciation of the levels of service in each category. They are encouraged to input comments, as appropriate, on uncertainty or challenges with rating the indicator, sources of data used, etc.

The respondents are also requested to identify, as applicable, if the service has been prioritised by the administration of the community, as it relates to:

- Core service;
- Essential service (during an emergency situation); or
- Quality of Life service

Figure 7 next page shows a portion of the Community KPI's worksheet (Excel file); the respondent fills in the KPI fields and adds comments, as appropriate, regarding the estimate of the KPI rating .

Services to residents (that require infrastructure / assets)	Step 3 - Individual Community Level of Service KPI's for SERVICES *Note: assume service in compliance with regulatory requirement*								
	KPI-S #1 **Availability of / Access to Service** (% of coverage of service in community)			KPI-S#2 **Safety/Security of Service** (# of user illnesses / fatalities per 100 population)			KPI-S #3 **Reliability of service** (% of time service is not available in community)		
	Service meets established LoS (Y/N)	**Estimated %**	**Comments**	**Service meets established LoS (Y/N)**	**Indicate #**	**Comments**	**Service meets established LoS (Y/N)**	**Estimated %**	**Comments**
◆ Drinking water									
Communal supply & piped distribution									
Communal supply & trucked delivery									
Individual on-site systems									
◆ Wastewater									
Piped collection & communal treatment									
Trucked collection & communal treatment									
Individual on-site systems									
◆ Drainage / storm water									
Roadside drainage system									

Figure 7. Individual community SERVICE key performance indicators (Extract from worksheet)

In all cases, the comparison considers that the service complies with the applicable regulatory (mandated) LoS requirements.

Levels of Service which are defined by regulation are not included in the comparison. The comparison analysis spreadsheet contains a list of regulations and policies (First Nations specific, Federal and Provincial) related to the services provided by communities. The Comparison Project Team can use this list to verify compliance; it is recommended the team add other references to complete the list as needed.

When services are known to be non-compliant with applicable regulations or policies, the Comparison Project Team should make a note of these issues in the summary of the comparative analysis.

Once completed, the Team may be required to follow-up with each community for clarifications.

Step 4 – Services - Levels of Service Comparison

The information collected from the communities being compared is consolidated to compare the LoS in the communities. The LoS comparison worksheet consists of:

- The transcription of the Service KPI's from the First Nation and the municipality; and
- Highlighting the First Nation Service KPI cells to indicate if the rating is (significantly) **better**, **equal** (within the same order of magnitude) or (significantly) **worse.**

The Comparison Project Team will also indicate if the LoS meets the established KPI for the community, if it has been established, and may include observations in the **comments** field. Figure 6 below illustrates the process.

Figure 8 below illustrates an example of Level of Service KPI comparison for transportation services (complete list in the "Service LoS Comparison" spreadsheet).

Services to residents (that require infrastructure / assets)	Step 4 - Comparison of Level of Service (LoS) KPI's for SERVICES of the FN Community compared to Municipality *Note: assume service in compliance with regulatory requirement*								
	KPI-S #1 **Availability of / Access to Service** (% of coverage of service in community)				KPI-S#2 **Safety/Security of Service** (# of user illnesses / fatalities per 100 population / year)				KPI-S #3 **Reliability of service** (% of time service is not available in
	Service meets FN established LoS (Y/N)	**First Nation**	**Municipality**	**Comments**	**Service meets FN established LoS (Y/N)**	**First Nation**	**Municipality**	**Comments**	**Service meets FN established LoS (Y/N)**
◆ **Drainage / storm water**									
Roadside drainage system									
SWM system (community wide)									
◆ **Transportation and Mobility**									
Vehicular mobility					N/A	5	1		
Pedestrian mobility					N/A	1	1.5		
Water mobility					N/A	0.5	3		
Air transport & medivac mobility									

In addition to the rating of the KPI, highlight the cell to indicate if the SERVICE level of service in the First Nation community is:
Better Equal Worse

Figure 8. Example of comparison of service KPI's between First Nation and municipality

The Comparison Project Team transcribes, based on the responses from the communities involved in the comparison, the KPI data into the Services LOS Comparison worksheet.

The next step in the process involves identifying the causes for Service KPI's to significantly differ from the communities being compared. The term "**significant differences**" is used since, in many instances, the KPI ratings will be based on qualitative information (e.g., professional judgement or local knowledge) as opposed to quantitative measures (e.g., such as obtained from statistical surveys). Nonetheless, qualitative measures are valid and recognised input in scientific approaches where field data is not available.

The analysis of the comparisons of Service KPI's will result in[4]:

- If the Service KPI is considered "**Equal**", no further action is required.
- If the Service KPI is "**Better**" or "**Worse**" , the Team will explore the causes of the differences in the next step.

[4] An important element raised by a partner in the approach when presenting the draft methodology was the use of the terms **"better, equal or worse"** to point out differences when comparing performance indicators for services and assets. The project team had already explored the use of the terms "more, equal or less". However, this rating did not ensure consistency of interpretation for all indicators. For example, "more road deaths" is considered "worse" while "more access to service" is considered "better". The use of the term "more" would lead to confusion as to the interpretation of these results.

Step 5 – Assets and Services - LoS Comparison

This step consists of two tasks, both aimed and explaining the differences between the Service KPI's in the communities being compared. Differences may be due to community choices, but also due to the performance of the assets that provide these services.

Step 5a – Comparison of LoS targets and Service KPI's

Differences in Service KPI's may be related to a number of reasons, including community choices, for example, emphasis may be on:

- Economic development
- Environmental protection and preservation
- Employment
- Vulnerable or other segments of the population
- Culture and heritage
- Housing
- Etc.

The community focus on one or more of the above is likely to result in activities, programming, and possibly investments that may have an impact on the Service LoS.

The Comparison Project Team uses the Contextual Profile to identify and document the sources (see example in textbox below) that may be responsible for the differences in KPI's.

Example of use of Contextual Profile to explain differences in KPI's

Sports and Recreation – Winter sports programming

KPI-S #4 – Cost of providing service
First Nation: $$$
Municipality: $
Context elements that relate to / explain the difference
- Population – demographic distribution: larger percentage of youth
- Location feature – absence of nearby (proximity) service requiring the administration to provide services to residents
- Social – strong emphasis of administration on youth issues and programming (may also relate to a Health contextual element)

Asset elements that relate to / explain the difference (evaluated in Step 5b)

Step 5b – Comparison of Asset KPI's

As indicated earlier, the source of differences between the communities levels of service may be related to the assets that provide the service. For example, a recreational complex that is recent may have the capacity to maintain an adequate indoor air quality during extreme heat events – and therefore remain available to members, while an older facility with an inadequate cooling system may have to be closed to the public during these weather events.

The LoS comparison spreadsheet Tab 5b – Assets LoS KPI's is used by the Comparison Project Team to collect information on the assets used to provide services in the selected categories for which Service KPI's were defined.

> **In all cases, the assets are considered to comply with relevant codes and standards.**
>
> When assets are known to be non-compliant with applicable codes or standards, the Comparison Project Team should make a note of these issues in the summary of the comparative analysis.

Five general KPI's have been selected for this comparison and are described in the textboxes below. They are rated on a scale of 1 to 5:

- Condition
- Functionality
- Capacity to meet demand
- Expected service life
- Sustainable life-cycle investment

KPI-A #1 - General Condition rating of assets
(Source: Canadian Infrastructure Report Card)

1. **Very poor**: The asset is unfit for sustained service. It is near or beyond its expected service life and shows widespread signs of advanced deterioration. Some assets may be unusable.
2. **Poor**: There is an increasing potential for its condition to affect the service it provides. The asset is approaching the end of its service life, the condition is below the standard and a large portion of the system exhibits significant deterioration.
3. **Fair**: The asset requires attention. The asset shows signs of deterioration and some elements exhibit deficiencies.
4. **Good**: The asset is adequate. It is acceptable and generally within the mid-stage of its expected service life.
5. **Very Good**: The asset is fit for the future. It is well maintained, in good condition, new or recently rehabilitated.

KPI-A #2 - General Functionality rating of assets
(Source: City of Edmonton)

1. **Very poor**: The element is critically deficient and does not meet program/service delivery and is neither efficient nor effective.
2. **Poor**: The element has a limited ability to meet program/service delivery needs.
3. **Fair**: The element meets most program/service delivery needs and some inefficiencies and ineffectiveness present.
4. **Good**: The element meets program/service delivery needs in an acceptable manner.
5. **Very Good**: The element meets all program/service delivery needs in a fully efficient and effective manner.

KPI-A #3 - General Capacity to Meet Demand rating of assets
(Adapted from: Canadian Infrastructure Report Card)

1. **Capacity insufficient for current demand** with operational problems evident.
3. **Capacity meets current demand** with occasional operational problems.
5. **Capacity can accommodate growth** and no operational problems anticipated

KPI-A #4 - General Expected Service Life rating of assets
(Adapted from: Canadian Infrastructure Report Card)

1. **Shorter** than design life
3. **Equal** to design life
5. **Greater** than design life

KPI-A #5 - General Sustainable Life-Cycle Investment rating of assets

1. **Reduces** asset condition, reliability, capacity or expected service life
3. **Maintains** asset condition, reliability, capacity or expected service life
5. **Improves** asset condition, reliability, capacity or expected service life

Figure 9 below illustrates an extract of the Step 5b worksheet; each organisation part of the comparative analysis will rate, to the best of their ability and knowledge, the performance of the assets they own and/or operate according to the scales above.

Services to residents (that require infrastructure / assets)	Step 5b - KPI's for the Levels of Services for ASSETS of the individual Community													
	ASSETS	Key Performance Indicators (KPI's) for Community ASSETS Levels of Service (LoS) *Note: Assumes assets meet relevant codes and standards*												
	Assets required to provide the service	KPI-A #1 Condition					KPI-A #2 Functionality					KPI-A #3 Capacity to meet demand		
		5 Very Good	4 Good	3 Fair	2 Poor	1 Very Poor	5 Very Good	4 Good	3 Fair	2 Poor	1 Very Poor	5 Capacity can accommodate growth and no operational problems anticipated	3 Capacity meets current demand with occasional operational problems.	1 Capacity insufficient for current demand with operational problems evident.
◆ **Drinking water**	◆ **Drinking water**													
Communal supply & piped distribution	Source / intake system													
	Treatment facility													
	System Storage (elevated, in-ground)													
	Distribution pipes (valves, hydrants, etc.)													
	Booster pumping stations													
Communal supply & trucked delivery	Source / intake system													
	Treatment facility													
	System Storage (elevated, in-ground)													
	Water delivery vehicles													
Individual on-site systems	Individual (in-house) tanks													
	Water delivery truck(s)													
	Individual w ells													
◆ **Wastewater**	◆ **Wastewater**													
Piped collection & communal treatment	Collection system (incl. MH's)													
	Treatment facility (mech / lagoons)													
	Pumping stations													
	Effluent discharge structure / system													
Trucked collection & communal treatment	Individual (on-site) septic tank													
	Communal septic systems													
	Sew age haulage trucks													
Individual on-site systems	Individual (on-site) septic tank													
	Individual septic system													
	User system (plumbing)													
◆ **Drainage / storm water**	◆ **Drainage / storm water**													
Roadside drainage system	Surface drainage (e.g., ditches / drains)													
	Stormw ater sew ers (incl. MH's & CB's)													

Figure 9. Asset level of service KPI's (Extract from worksheet)

The Comparison Project Team uses the Step 5b worksheet to collect information on assets from each of the communities involved in the comparison.

This can be done by sending the worksheet to each community and following up with virtual meetings with each community. The contact person in each community should ensure access to knowledgeable staff to provide input in the service categories under consideration.

Once the input from each community has been received, the Comparison Project Team consolidates the results to show the differences between the asset KPI's of the First Nation and the municipality using the Asset LOS KPI's comparison worksheet as illustrated in Figure 10 below.

ASSETS	Step 5b - Comparison of ASSETS Level of Service (LoS) KPI's of the FN Communitiy compared to Municipality *Note: Assumes assets meet relevant codes and standards*								
Assets required to provide the service	KPI-A #1 Condition			KPI-A #2 Reliability			KPI-A #3 Capacity to meet demand		
	First Nation	Municipality	Comments	First Nation	Municipality	Comments	First Nation	Municipality	Comments
• Drinking water									
Source / intake system									
Treatment facility									
System Storage (elevated, in-ground)									
Distribution pipes (valves, hydrants, etc.)									
Booster pumping stations									

Figure 10. Comparison of asset KPI's (Extract from worksheet)

Step 6 – Summary of Service and Assets Comparison

The Comparison Project Team compares the contextual, services' KPI's and assets' KPI's and identifies possible reasons for the differences between the First Nation and the municipality(ies) used in the comparative analysis.

The tables below show examples of a hypothetical comparison to illustrate how the information from each step of the process is used to compare Level of Service KPI's and Asset KPI's.

Table 1 shows an example (hypothetical) of elements of a context comparison.

Table 1. Example of comparison of elements of a contextual profile.

Contextual Element	First Nation	Municipality
Population		
Total	276	516
% youth (0 to 14 years)	12.70%	11.70%
% seniors and elderly (65 years and over)	14.50%	16.50%
Changes in population (youth/elderly)		
Population growth/decline	↘	↗
Governance / Corporate		
Public participation	Strong emphasis on participation in governance / consultations (e.g., advisory committees with strong public representation)	Strong emphasis on participation in governance / consultations (e.g., advisory committees with strong public representation)
Levels of decision-making	Multiple governance/decision-making levels (Elders, hereditary and elected chiefs, etc.)	
Corporate setting	Service agreements with other communities	Service agreements with other communities
	Service agreements with other suppliers (public and/or private)	Service agreements with other suppliers (public and/or private)
	Local emphasis (employment, manpower, service provision and procurement)	Local emphasis (employment, manpower, service provision and procurement)
	Emphasis on financial self-sufficiency (e.g., generation of revenues outside traditional funding arrangements such as commercial enterprises owned by administration)	
	Strong emphasis of cultural and heritage aspects in decision-making	
Environmental Features		
Geography	Adjacent water features significant to administration	Adjacent water features significant to administration
	Community vulnerable to extreme seasonal weather conditions (spring flooding, winter snow events, extreme heat and heat waves, etc.)	Community vulnerable to extreme seasonal weather conditions (spring flooding, winter snow events, extreme heat and heat waves, etc.)
Environmental stewardship	Strong emphasis by administration on the protection and preservation of natural environments	
Land and Resources	Development of land and resources knowledge	

The second element of the comparison relates to the services available to the community residents, the organization or agency that provides the services, and who defines the levels of service. Table 2 below illustrates this comparison for some services.

Table 2. Example of comparison of services, identification of service providers, and who establishes the LoS

	First Nation												Municipality											
Services to residents (that require infrastructure / assets)	Is service provided to the community members?	Who provides the service?				Is the service required under legislation (mandated) or by community choice (corporate, Council decision)			Who establishes the level of service?				Is service provided to the community members?	Who provides the service?				Is the service required under legislation (mandated) or by community choice (corporate, Council decision)			Who establishes the level of service?			
		Community	Individual Residents	Third Party (Public agency)	Third Party (Private Sector)	Legislation		Community choice	Legislation		Council decision	Third party that provides service		Community	Individual Residents	Third Party (Public agency)	Third Party (Private Sector)	Legislation		Community choice	Legislation		Council decision	Third party that provides service
						Federal	Provincial		Federal	Provincial								Federal	Provincial		Federal	Provincial		
◆ **Drinking water**																								
Communal supply & piped distribution	X	X				X			X				X	X					X			X		
Communal supply & trucked delivery																								
Individual on-site systems	X		X			X			X				X		X				X			X		
◆ **Wastewater**																								
Piped collection & communal treatment	X	X				X			X				X	X					X			X		
Trucked collection & communal treatment																								
Individual on-site systems	X		X			X			X				X		X				X			X		

In the next step, the Comparison Project Team identifies if the Service KPI's are **less**, **equal** of **more** in the First Nation than in the municipality as illustrated in Table 3 below.

Table 3. Example of comparison of SERVICE KPI's

Services to residents (that require infrastructure / assets)	Step 4 - Comparison of Level of Service (LoS) KPI's for SERVICES of the FN Community compared to Municipality *Note: assume service in compliance with regulatory requirement*								
	KPI-S #1 **Availability of / Access to Service** (% of coverage of service in community)				KPI-S#2 **Safety/Security of Service** (# of user illnesses / fatalities per 100 population / year)				KPI-S #3 **Reliability of service** (% of time service is not available in
	Service meets FN established LoS (Y/N)	First Nation	Municipality	Comments	Service meets FN established LoS (Y/N)	First Nation	Municipality	Comments	Service meets FN established LoS (Y/N)
◆ **Drainage / storm water**									
Roadside drainage system									
SWM system (community wide)									
◆ **Transportation and Mobility**									
Vehicular mobility					N/A	5	1		
Pedestrian mobility					N/A	1	1.5		
Water mobility					N/A	0.5	3		
Air transport & medivac mobility									

In addition to the rating of the KPI, highlight the cell to indicate if the SERVICE level of service in the First Nation community is:

Better **Equal** **Worse**

Based on the results of the Service KPI comparison, the Team can evaluate whether the LOS difference is due to the assets used to provide the service (as illustrated in Table 4 below), or if the difference is related to contextual elements which, for example, may involve the administration emphasis on one or other aspects identified in the context profile.

Table 4. Example of Comparison of Asset KPI's

Services to residents (that require infrastructure / assets)	ASSETS	Step 5b - Comparison of ASSETS Level of Service (LoS) KPI's of the FN Communitiy compared to Municipality *Note: Assumes assets meet relevant codes and standards*								
	Assets required to provide the service	KPI-A #1 Condition			KPI-A #2 Reliability			KPI-A #3 Capacity to meet demand		
		First Nation	Municipality	Comments	First Nation	Municipality	Comments	First Nation	Municipality	Comments
◆ Drinking water	◆ Drinking water									
Communal supply & piped distribution	Source / intake system	4	4		4	4		5	3	
	Treatment facility	2	5	**First Nation:** Water Treatment Plant is in poor condition and regularly has issues with the chlorination system that are only detected after some time resulting in some users' illnesses before boil-water orders are issued. **Municipality:** Municipal WTP is recent (less than 5 years old). Turn-around time for test results is faster in the municipality than for FN due to different suppliers.	1	5	**First Nation:** Frequent repairs required in chlorination equipment; no water service available during repairs.	5	3	
	System Storage (elevated, in-ground)	4	2		4	1		5	3	
	Distribution pipes (valves, hydrants, etc.)	1	3		1	3		5	3	
	Booster pumping stations									
Communal supply & trucked delivery	Source / intake system									
	Treatment facility									
	System Storage (elevated, in-ground)									
	Water delivery vehicles									
Individual on-site systems	Individual (in-house) tanks									
	Water delivery truck(s)									
	Individual w ells									
◆ Wastewater	◆ Wastewater									
Piped collection & communal treatment	Collection system (incl. MHs)									
	Treatment facility (mech / lagoons)									
	Pumping stations									
	Effluent discharge structure / system									

In addition to the rating of the KPI, highlight the cell to indicate if the ASSET level of service in the First Nation community is:

Better **Equal** **Worse**

The Comparison Project Team focuses on Service KPI's that are "significantly" different between the First Nation and the municipality. Due to the qualitative nature of some of the indicators, it is important to concentrate on major differences between KPI's since minor variations may be due to the perception of or lack of data availability for a more accurate rating. If the Team feels the uncertainty about the rating of particular KPI's is significant, it can recommend further actions (e.g., data collection) to complete the comparative assessment of the KPI for the service or asset being considered.

Table 5 below illustrates an example of a comparative summary. The Table can include commentaries regarding the context, services or assets that can help explain the differences in performance indicators. In some cases, the comparison may not be possible because the service (First Nation or Municipal) to residents is provided by a third party (public or private) for which data or information on LoS is not available.

The Comparison Project Team may be required to contact the representatives from the First Nation or the Municipality to obtain comments on specific services and/or assets that can explain the differences in performance indicators.

Table 5. Comments related to context and assets for SERVICE KPI's differences

Services to residents (that require infrastructure / assets)	Service KPI	FN (vs. Municipality)	Are there contextual elements that can explain difference in LoS?		Are there asset elements (KPI's) that can explain the difference in LoS? Please list	
			First Nation	Municipality	First Nation	Municipality
◆ **Drinking water**						
Communal supply & piped distribution	KPI-S #2 Safety/Security of Service (# of user illnesses / fatalities per 100 population)	**Worse**	**No**		Water Treatment Plant is in poor condition and regularly has issues with the chlorination system that are only detected after some time resulting in some users' illnesses before boil-water orders are issued	Municipal WTP is recent (less than 5 years old). Turn-around time for test results is faster in the municipality than for FN due to different suppliers
	KPI-S #3 Reliability of service (% of time service is not available in community)	**Worse**	**No**		Frequent repairs required in chlorination equipment; no water service available during repairs	
Communal supply & trucked delivery						
Individual on-site systems						
◆ **Wastewater**						
Piped collection & communal treatment						
Trucked collection & communal treatment						

An illustration of a comparison summary for the recreational services example in Step 4 is shown below

Example of use of Contextual Profile and Asset information to explain differences in KPI's

Sports and Recreation – Winter sports programming

KPI-S #4 – Cost of providing service

First Nation: $$$
Municipality: $
Context elements that relate to / explain the difference

- Population – demographic distribution: larger percentage of youth
- Location feature – absence of nearby (proximity) service requiring the administration to provide services to residents
- Social – strong emphasis of administration on youth issues and programming (may also relate to a Health contextual element)

Asset elements that relate to / explain the difference

Assets:

Multi-Sport complex

- Does not exist in municipality; residents of municipality access and regularly use the facility (inter-organisation agreement)
- Provides specialty educational services for youth and children

Ice rinks

- Better asset KPIs (Condition, Functionality and Capacity
    - Utilisation of assets is greater in First Nation
    - In addition to ice rinks in Arena, the First Nation maintains local outdoor rinks with youth programming. Outdoor rinks are also used for special events and celebrations
    - First Nation uses own funds (including revenues from activities and fundraising) to maintain and improve rinks.