Naut'sa mawt
TRIBAL COUNCIL

Updated 2021

Preparing a Community Infrastructure Services Plan

User Manual and Sample Plan

Contents

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Acknowledgements

This User Manual was conceived and originally produced by Consensus Infrastructure Solutions Ltd. for Indigenous Services Canada (ISC). I thank the Tsleil-Waututh Nation for participating in the pilot Community Infrastructure Services Plan. I also thank the staff from the Naut'sa Mawt Tribal Council member Nations who participated in many discussions and workshops to refine the pilot document into its current form.

- Hew McConnell P.Eng.
President, Consensus Infrastructure Solutions Ltd.

Abbreviations List

- ACRS = Asset Condition Reporting System
- CCP = Comprehensive Community Plan
- CISP = Community Infrastructure Services Plan
- FN = First Nation
- FNIIP = First Nation Infrastructure Investment Plan
- ICMS = Integrated Capital Management System (formerly CAIS)
- ISC = Indigenous Services Canada
- ISWMP = Integrated Storm Water Management Plan
- LCM = Life-cycle management
- KPI = Key performance indicator
- LOS = Levels of Service
- MMCD = Master Municipal Construction Document
- MMP = Managed Maintenance Plan
- MTSA = Municipal Type Service Agreement
- O&M = Operations and maintenance
- PW = Public Works or Public Works Department
- ROW = Rights of way
- SFN = Sample First Nation (used in ***Appendix B – the Sample CISP***)
- SWOT = Strengths, weaknesses, opportunities and threats

Community Infrastructure Services Planning – Overview

This User Manual provides a step-by-step "how to" approach for preparing a Community Infrastructure Services Plan (CISP).

A CISP supports First Nations in achieving their Comprehensive Community Plan (CCP) through the successful and efficient delivery of community infrastructure services such as: water supply and distribution; sewage collection and treatment; storm drainage; roads; solid waste management; and community buildings.

The CISP is more comprehensive than and distinctly different to the process described in the Infrastructure Planning Guide (IPG) published by the Naut'sa Mawt Tribal Council in 2019. The IPG is high-level, and is intended to promote infrastructure discussions during preparation of a Comprehensive Community Plan (CCP).

By contrast, as shown in ***Figure 1***, the CISP supports the CCP by incorporating all strategic, tactical and operational aspects of delivering Community Infrastructure Services. The CISP provides the context for strategic, administrative, financial, operational and capacity building activities. It also provides the basis for getting the right balance between the quantity and quality of service (levels of service), risk and cost.

The CISP process is performance based - as the saying goes, "you can't manage what you don't measure." Performance based planning and management involves: establishing measurable, feasible performance targets; monitoring and measuring actual performance; and developing and implementing strategies and action plans to resolve performance gaps.

The CISP is a cyclical, continuous improvement process that should be updated regularly (at least yearly) to accommodate current year results and new or changing circumstances. In effect, the process represents a rolling 5- to 10-year infrastructure service business plan in which a year is dropped and a year is added with each annual update.

The structure of a CISP is set out in ***Table 1***, with sample inputs and outputs shown in ***Table 2***. The structure and key CISP elements are common to all First Nations, regardless of size. The scope and complexity of the Plan, however, will increase with the scale and capacity of the First Nation. For example, the Plan could be only a few pages for a small First Nation but be considerably more comprehensive for larger First Nations with more complex conditions.

Standardizing on a common CISP format enables consistency, knowledge sharing and capacity building.

The Role of Life Cycle Management

Effective Life Cycle Management (LCM) should underpin all aspects of the CISP. LCM identifies the best combination of activities – policies, planning, construction, operations and maintenance (O&M) – that deliver the highest quality service at the lowest initial cost, the lowest sustainable operating cost and the longest service life attainable.

For context, the O&M cost of an asset over its life represents over 80% of the total cost of ownership. So, choosing the lowest capital cost is not always the least expensive approach over the long term.

Rather, optimizing the 80% is usually the key to long term efficiency. For example, when the cost of maintaining an asset is high, it may be more cost-effective to replace it. Conversely, a change in policy or O&M practice (e.g., demand management strategies such as water conservation) may be more cost-effective than constructing a new facility.

Figure 1. CISP Structure & Content

Comprehensive Community Plan (CCP)

- A Community led Roadmap to sustainability, self-sufficiency and improved governance
- High level master plan that sets out Community vision, objectives, guiding principles and concepts for planning and development – including lifestyle, economic, social, environmental and cultural expectations

Community Infrastructure Services Plan (CISP)

- Strategic and high level business plan for delivering infrastructure services to enable the Community Plan; CISP projects:

  "How much should a FN spend, on what, when and why to ensure sustainable delivery of enough, good quality infrastructure services for the Community at the lowest life cycle cost?"

Service Delivery

What type, quantity & quality of services do we deliver & how?

- Services to be delivered
- Service delivery policies & practices
  - » Levels of service
  - » In-house or contract out
- Service risk management
- Demand forecasts
- Service regulation
- Customer service
- Communications & education
- Capacity Building
  - » Organization structure
  - » HR policies & practices
  - » Staffing & contracting out
  - » Training
- Emergency response
- Insurance
- Service delivery monitoring & reporting
- Service delivery information management

Financial Management

How much money do we need & when? Where will money come from & on what terms & conditions?

- Financial policies & practices
  - » Financial Administration Law
  - » Tangible capital assets
- O&M expenditure projections
- Capital expenditure projections
  - » Existing assets
  - » Future assets
- Financing – amounts, sources, terms & conditions
- Revenues – amounts & sources
- Operating & capital reserves
- Financial risk management
- Financial monitoring & reporting
  - » Income
  - » Balance sheet
    - » Tangible Capital Asset report
  - » Cash flow
- Financial information management

Infrastructure Management

What infrastructure do we require, where & when? How will we manage our infrastructure?

- Infrastructure management policy
  - » Asset management policy
    - » Own vs. rent/contract-out
  - » O&M policies
  - » Safety & security policies
  - » Infrastructure standards
- Asset Management
  - » Asset inventory
  - » Asset monitoring, inspections
  - » Asset replacement forecast
    - » Service life forecasts
- Infrastructure operations & maintenance
- Projected infrastructure additions, deletions, alterations
- Infrastructure risk management
- Infrastructure monitoring & reporting
- Infrastructure information management
  - » O&M
  - » Assets

Table 1. Community Infrastructure Services Plan (CISP) Structure

CISP Table of Contents	Purpose
1. Introduction	Describes the purpose and scope of the Plan
2. Strategic Framework	
Vision	▪ Describes how services should be perceived by users and other stakeholders ▪ Provides the basis for identifying specific service outcomes to be achieved.
Mission	▪ Describes the purpose of the organization providing services
Levels of Service	▪ Provides metrics on the quantity and quality of service
3. Service Scope & Responsibilities	▪ Describes the type and extent of service provided and by whom
4. Policy, Legal & Regulatory Requirements	▪ Describes what policy, legal and regulatory requirements impact services and how
5. Service Demand – Current & Forecast	▪ Describes the quantity and quality of service required to meet current and future development
6. Asset Management	▪ Provides details on the quantity, type, age, condition and cost of assets
7. Stakeholder Expectations	▪ Lists key stakeholders and their interest in service delivery – how and why they are involved and what the outcomes they expect
8. Current Performance, Gaps & Issues	▪ Identifies extent to which targets are met under current and future development ▪ Identifies performance gaps
9. Key Issues	▪ Identifies key policy, planning, operations, financial, environmental, customer service and organization issues
10. Financial Implications	▪ Identifies short- and long-term capital and O&M funding requirements ▪ Identifies revenues and other sources of funding
11. Discussion	▪ Provides a summary of Sections 1 to 10 to focus the Action Plan
12. Action Plan	▪ A list of actions and their relative priority
13. Critical Success Factors	▪ A list of actions and their relative priority
14. Implementation	▪ The process for implementing the CISP and for keeping it up to date

Table 2. Community Infrastructure Services Plan (CISP) – Sample Inputs & Outputs

CISP Table of Contents	Sample Inputs	Sample Outputs
1. Introduction		
2. Strategic Framework		
Vision	▪ Comprehensive Community Plan	▪ Service outcomes to be achieved
Mission		▪ Service mission
Levels of Service	▪ Federal & Provincial requirements ▪ Federal & Provincial requirements	▪ Adopted Levels of Service (LOS) ▪ Other key performance indicators
3. Service Scope & Responsibilities	▪ Service areas ▪ Service agreements ▪ Asset ownership status ▪ Service contracts	
4. Policy, Legal & Regulatory Requirements	▪ Federal & Provincial requirements ▪ ISC LOS ▪ First Nation policies	
5. Service Demand – Current & Forecast	▪ Comprehensive Community Plan ▪ Land Use Plan ▪ Economic Development Plan	▪ Multi-year demand forecasts ▪ Changes in service scope and responsibilities
6. Asset Management	▪ Asset Management Plan ▪ O&M Plans ▪ Operating performance results ▪ Regulatory performance results	▪ Updated asset management plan ▪ Performance report ▪ Tangible Capital Asset reporting ▪ Updated O&M Plans
7. Stakeholder Expectations	▪ Customer surveys	▪ Stakeholder involvement process ▪ Communications and education materials
8. Current Performance, Gaps & Issues	▪ ACRS ▪ Asset Management Plan ▪ Customer surveys ▪ Operating performance results ▪ Regulatory performance results	▪ Performance results and reports
9. Key Issues	▪ Performance results and reports	▪ Key issues to be addressed by work plan and budget ▪ Considerations in setting priorities ▪ Stakeholder involvement needs ▪ Communication and education needs ▪ Input to capacity building ▪ Risk identification

CISP Table of Contents	Sample Inputs	Sample Outputs
10. Financial Implications	▪ ISC funding programs – e.g. MTSA, ACRS & ICMS ▪ Other funding programs ▪ External revenue sources ▪ First Nation policies on user charges	▪ Annual budget ▪ Capital Plan ▪ FNIIP ▪ MTSA application ▪ ICMS updating
11. Discussion	▪ All the above	▪ Context for the action plan
12. Action Plan		▪ Task based, prioritized action plan to guide management and operations
13. Critical Success Factors		▪ Assessment of strengths, weaknesses, opportunities and threats
14. Implementation		▪ Up to date key strategies ▪ Prioritized task list

Preparing an CISP – A Step-by-Step Approach

The following summarizes the approach to preparing a CISP. ***Appendix A*** sets out the steps in more detail, while ***Appendix B*** provides a Sample CISP to clarify process terms and to provide a better understanding of how the CISP works. Readers are encouraged to use all these resources together for best results.

A Community Infrastructure Services Plan (CISP):

- Adopts for direction, the Community Vision and Objectives (outcomes to be achieved).
- Establishes, for each objective (outcome), one or more measurable, key performance indicators (KPIs) and performance targets.
- Identifies the scope and cost of infrastructure services to achieve target performance, including how those services should be delivered.
- Identifies and scopes capacity building requirements.
- Identifies multi-year financial requirements (capital and O&M), sources of funds and necessary financial policies and strategies (e.g. debt; user charges; reserves).
- Documents key strategies and a prioritized action plan for implementing recommendations.

First and foremost, the scope and cost of services, as well as how they are delivered, need to align with the Comprehensive Community Plan (CCP). To accomplish that, service objectives need to be linked to their related CCP objectives.

Please refer to ***Figure 2: Community Infrastructure Services Plan – Practice Template***. CCP and service objectives fit on the top line of the Template in Figure 2, and provide a context for service delivery – what, how, when and at what cost.

Once established, objectives should be relevant for 5 to 10 years and should provide a sound basis for short, medium and long term planning and decision making.

To be useful, objectives must be measurable. ***Appendix A*** provides guidance on how to select Levels of Service (LOS) and other key performance indicators.

With the objectives and LOS in place, ongoing management and operational activities will identify key service issues. Differences between actual and target performance represent gaps – line 4 in ***Figure 2*** – to be addressed in work plans.

Strategies and actions (lines 5 and 6 of ***Figure 2***) are undertaken to address these gaps and to move performance closer to the target. Usually, the most cost-effective work plan involves a combination of actions involving new policies, capacity building, new or upgraded facilities, new technology, and changes in operations and maintenance practices.

In effect, all infrastructure service strategies and actions – policy, technical, legal, financial and operational – should be identified and addressed through the CISP. The degree to which an individual strategy or action improves performance provides a basis for its cost effectiveness and priority.

At any point in time, there is usually insufficient funding to meet all needs. So, the CISP process provides the means for deciding the most cost effective program within available resources; appropriate trade-offs have to be made between service quality, cost and risk.

For example, if there are insufficient funds, either the LOS must be reduced, some services must be cancelled and/or some investments must be delayed. Alternatively, if the LOS is to be increased, then there must first be sufficient money to pay for both the capital and ongoing O&M costs.

Capacity Building Implications

A prescribed, structured, and consistent approach to preparing CISPs provides a sound basis for capacity building and knowledge sharing.

For example, consistent terminology can significantly improve communications among stakeholders. It can also significantly improve clarity and understanding of service management practices, issues and decision making. A sample list of key terms and definitions is in ***Table 3***.

Further, preparing and implementing an CISP requires special skills and tools as illustrated in ***Table 4***. Many of these tools may already exist as "stand-alone" modules that can be refined and interlinked to provide a more integrated CISP "toolkit." First Nations can expand the "toolkit" and establish capacity building initiatives over time as required to support the CISP process.

Figure 2. Community Infrastructure Services Plan - Practice Template

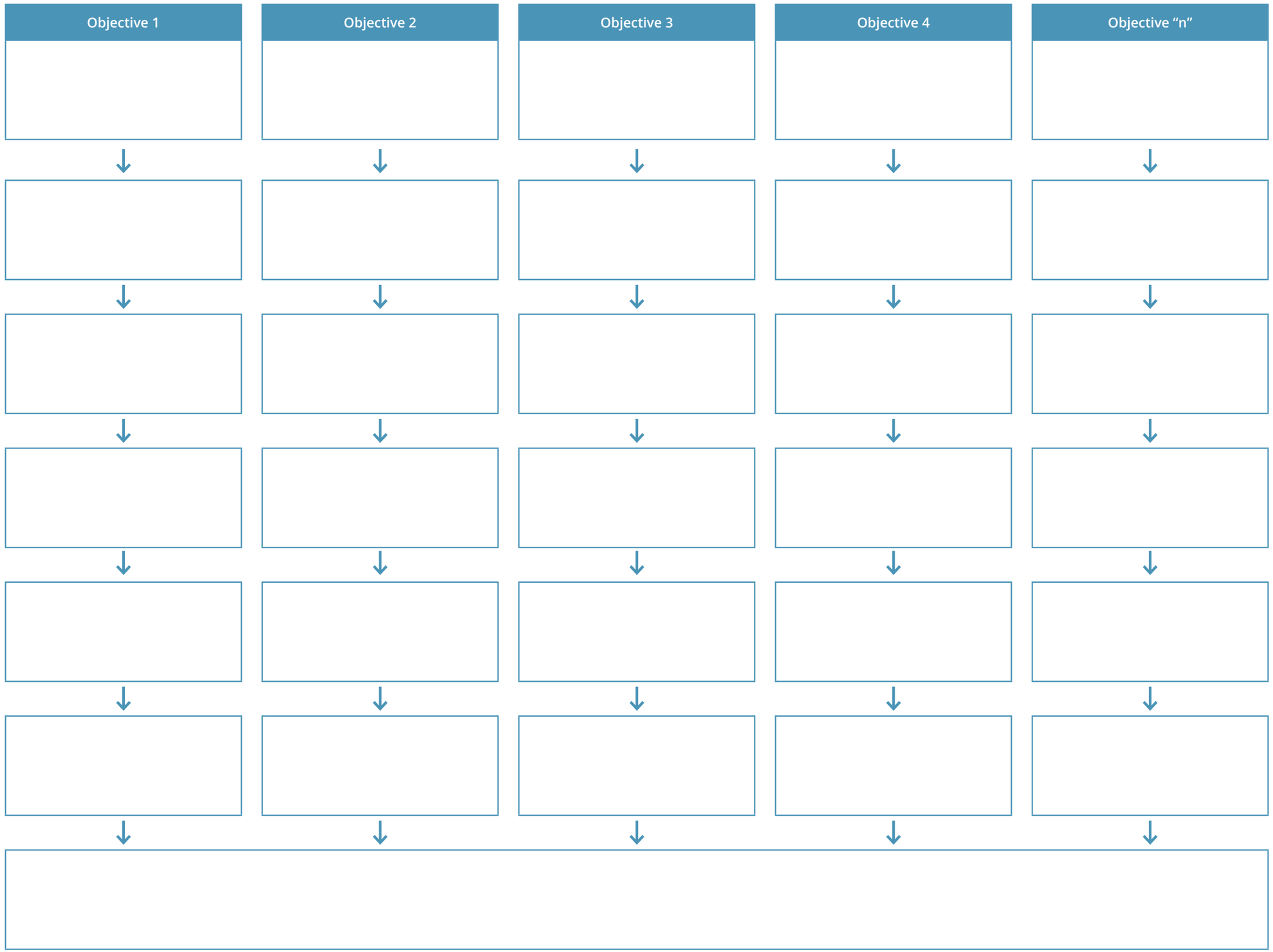

Table 3. Glossary of Infrastructure Service Delivery Terms

Term	Definition
Action	An individual project or program, which implements a strategy to realize a specific result.
Asset	A combination of components that have value and enable services to be provided. ▪ Dynamic assets have moving parts (e.g. pumps, generators). ▪ Passive assets have no moving parts (sewers, water mains).
Asset management	Activities (e.g. technical, financial, policy, regulatory etc.) that use resources to develop, operate and maintain infrastructure to achieve the highest possible life cycle returns (economic, environmental, and social).
Asset management plan	A plan for managing one or more assets over their life cycle.
Backlog	The cumulative value of work, at a point in time, which is required to restore all assets in the inventory to their required level of service.
Condition monitoring	Periodic measurement and recording of asset condition.
Condition assessment	Periodic interpretation and evaluation of condition monitoring information to determine the need for preventative or remedial action, and to determine the asset's remaining service life at its intended level of service.
Critical assets	Assets for which the financial, business or service level consequences of failure are severe. Critical assets have a higher priority for action than non-critical assets.
Deferred maintenance	Maintenance that is conducted after the planned, optimal schedule. Maintenance conducted beyond the optimal schedule will generally cost more and will generally cause reductions in service quality.
Economic service life	The length of time during which an asset performs efficiently at its planned level (quality) of service. For example, the time period until the cost for maintenance and repairs exceeds the cost of replacement.
Life cycle cost	The cumulative cost of an asset (capital and O&M) over its service life.
Maintenance	All actions necessary to keep an asset performing at its required level of service, but excluding repairs, rehabilitation or renewal. Sample types of maintenance are: Planned maintenance: Falls into three categories: ▪ *Periodic* – necessary to ensure reliability or sustain the design life of an asset ▪ *Predictive* – condition monitoring activities used to predict failure ▪ *Preventative* – maintenance that can be initiated without routine or continuous checking and is not condition-based (e.g. using information from maintenance manuals, etc.). *Unplanned maintenance:* generally involves repairs under unplanned or emergency conditions

Term	Definition
Maintenance plan	A plan that sets out the optimum policies, practices and schedules for asset maintenance.
Objective	The intended outcome/result of specific strategies and actions
Operation	The active process of using assets to deliver a service.
Performance measurement	Quantitative and/or qualitative assessment of actual performance in terms of specific objectives, targets, or standards.
Rehabilitation	Actions that restore the condition of an asset and extend its service life. Rehabilitation is generally an option to asset replacement. Examples include: machining of rotating surfaces, comprehensive replacement of parts, resurfacing roads, slip-lining sewers).
Repair	Actions that restore the operability of an asset after failure. Repairs may include replacement of selected parts but generally do not significantly extend the asset's service life.
Replacement	Renewal of an asset that has reached the end of its economic service life; renewal provides the same type and quality of service but can incorporate alternative, more efficient or effective technologies and approaches.
Replacement cost	The total cost (direct and indirect) for asset replacement.
Service Life	The length of time during which an asset performs at its planned level (quality) of service. This includes: planning, designing, commissioning, operating and maintaining, repairing, decommissioning or disposal. Service life can be measured as time, number of cycles, distance intervals, etc.
Strategy	An overall approach involving multiple actions to achieve a specific objective.

Table 4. Sample Capacity Building Toolkit

CISP Structure	Sample CISP "toolkit"
1. Introduction	
2. Strategic Framework Vision Mission Objectives Levels of Service	▪ Strategic Planning ▪ Business Planning ▪ Performance management
3. Service Scope & Responsibilities	▪ Comprehensive Community Planning ▪ Land use planning ▪ Services master planning
4. Policy, Legal & Regulatory Requirements	▪ Governance ▪ Laws, regulations, codes, policies ▪ Enforcement
5. Service Demand – Current & Forecast	▪ Service needs assessment ▪ Demand forecasting ▪ Demand management ▪ Service levels
6. Asset Management	▪ Asset inventory ▪ Asset valuation ▪ Condition assessment ▪ Capacity assessment ▪ Life cycle assessment – cost and service life ▪ Maintenance planning & management ▪ Records management ▪ Software
7. Stakeholder Expectations	▪ Stakeholder involvement ▪ Customer relations ▪ Communications & education
8. Current Performance, Gaps & Issues	▪ Performance management ▪ Performance measurement ▪ Benchmarking
9. Key Issues	▪ Risk identification & risk management ▪ Priority setting

CISP Structure	Sample CISP "toolkit"
10. Financial Implications	▪ Business casing – feasibility assessmen » Cost benefit assessment » Life cycle cost assessment » "Full cost" assessment » Investment planning ▪ Financial Planning & Budgeting » Capital planning » Financial projections – capital and O&M » Public Sector Accounting Board (PSAB), including tangible capital asset re-porting » Financial strategies and financing » Revenue planning and management ▪ Accounting » Financial accounting » Management accounting » Activity based accounting ▪ Cost assessment and control » Monitoring financial performance » Cost control ▪ Financial reporting ▪ Value management ▪ Service pricing
11. Discussion	
12. Action Plan	▪ Options assessment ▪ Decision making ▪ Priority setting
13. Critical Success Factors	
14. Implementation	▪ Work planning & scheduling ▪ Progress monitoring and reporting ▪ Communications ▪ Selecting and managing consultants & contractors ▪ Leadership ▪ Labour relations ▪ Change management ▪ Conflict resolution

Critical Success Factors

The following factors are critical to achieving best results from the CISP process:

- First Nation Council and Administration should use the CISP daily to manage their infrastructure services.
- Council and Administration should proactively engage in the CISP process.
- The CISP process should integrate and enhance existing activities vs. creating additional work for staff and Administration.
- The CISP should be considered a "living" process. Service and infrastructure status, assumptions, priorities and work plans should be regularly adjusted based on new information and circumstances.
- First Nations should refine and continually improve their CISP process through capacity building based on results and experience.
- First Nations should look to achieve early wins, thereby enhancing commitment to the CISP process and providing incentive for continued efforts.
- There is much to be gained through collaboration. ISC and First Nations should pursue opportunities for partnerships, knowledge sharing and joint capacity building.

Implementing the CISP

First Nations should adopt the following, ongoing approach to implementing and expanding the CISP process:

- The Public Works Department (PW) should submit a draft, up-to-date CISP to Council annually to reflect new service information, changing circumstances and the results of experience gained from the prior year. The updated CISP should address financial performance, the status of infrastructure service activities and projects, and should identify key issues to be addressed.
- Council should provide input on the draft CISP in November (for example) each year.
- PW should prepare its budget and capital funding request for the following year using Council input on the CISP.
- Council should adopt the up-to-date CISP, PW budget, and capital funding request by March each year.
- PW should implement the CISP through its day-to-day activities; PW should routinely monitor and assess the performance of its programs, projects and activities and should make necessary adjustments to meet performance targets and budget.
- PW should use the approved CISP to apply for ISC and other funding – ICMS, MTSA, FNIIP and other funding initiatives.
- PW should report to Council routinely (at least quarterly) on CISP implementation.

Active CISP users should also participate in an ongoing process to enhance and expand the overall CISP process to other interested First Nations. As part of that process, First Nations should contribute to CISP knowledge sharing and capacity building.

Appendix A

Preparing a Community Infrastructure Services Plan (CISP)

Step-by-Step Approach

STEP 1: Introduction

Purpose

- Describes the purpose and scope of the Plan

Approach

Document a brief statement that describes what the Plan covers and what it is intended to accomplish. For example, the Sample CISP in ***Appendix B*** includes the following:

This Community Infrastructure Services Plan (CISP) provides important context for planning and managing the First Nation's Community Services. The Plan identifies key issues and priorities, identifies necessary resources, and sets out the most cost effective service delivery approach.

This CISP covers services related to water, sanitary sewer, drainage, solid waste, roads and bridges and Community buildings.

This CISP is for the period 2020 to 2029 but also looks out longer term where appropriate. It is intended to be a rolling 10-year Plan that is updated annually to reflect current year results and to incorporate new information.

Tips and Tricks:

- Keep the Introduction concise and to the point; there is more than enough relevant information throughout the rest of the Plan.

STEP 2: Strategic Framework

Purpose:

- Describes how services should be perceived by users and other stakeholders.
- Provides the basis for identifying specific service outcomes to be achieved.
- Identifies metrics on the quantity and quality of service.

Approach

See ***Appendix B*** for examples.

a. Start with the Community Vision, Mission and Objectives from the Comprehensive Community Plan – these should be stated verbatim to provide an effective link between the CCP and the CISP.

b. Establish a Service Vision that links directly to its CCP counterpart.
The Service Vision describes how services should be perceived by users and other stakeholders and provides the basis for identifying specific service outcomes to be achieved. The Vision usually has Economic, Social and Environmental components.

For example, the Service Vision in ***Appendix B*** is:

"Community Infrastructure Services provide good value for money; the Public Works Department is recognized for excellence in customer service, environmental stewardship and for applying good service delivery practices."

c. Establish Service Objectives – at least one for each Community Objective.

Objectives are the desired outcomes ("ends") to be achieved through the work plan. To align with the Vision, there are usually economic, social and environmental objectives.

Care should be taken to distinguish between "ends" and "means" when setting objectives. For example:

- Meeting discharge standards is a "means" towards the "end" of achieving a healthy environment.
- Effective asset maintenance is a "means" towards the "end" of achieving lowest life cycle cost.

Objectives are often competing and cannot all be completely achieved. Decision making must balance the needs for one objective against another to get the most cost-effective result.

A sample strategic framework is as follows (CO = Community Objective; IO = Infrastructure Services Objective):

- CO #1 – Services are viable and sustainable over the long term
- CO #2 – Services enable sustainable economic development and prosperity
- CO #3 – A thriving community
  - IO #1 - Sufficient Infrastructure services
  - IO #2 - Reliable Infrastructure services
  - IO #3 - Meet infrastructure service levels at the lowest sustainable cost
  - IO #4 – Infrastructure services are financially viable long term
  - IO #5 - Protect public health
  - IO #6 – Protect public safety
  - IO #7 - Strong management organization and practices
- CO #4 – Services sustain lands and the environment over the long term
  - IO #1 – Infrastructure services meet land management policies and standards
  - IO #2 – Infrastructure services meet environmental standards
- CO #5 – The Community is pleased with community services
  - IO #1 – The community is satisfied with infrastructure services
  - IO #2 – The community is knowledgeable and current on infrastructure services
  - IO #3 – The community is actively engaged in key infrastructure service decisions

d. Establish Levels of Service

Levels of Service (LOS) are key performance indicators (KPIs) that relate to the quantity and quality of services delivered to customers. LOS are the core of an effective performance-based management practice and can be set by policy and/or by regulation.

Usually, there are one or more specific, measurable LOS for each service objective.

- Output LOS measure service quantity and quality – e.g. costs, compliance record, water pressures delivered, reliability and safety record.
- Input LOS measure the quantity and quality of service inputs – e.g. frequency of asset inspections; maintenance; safety training; capacity building; enhanced technology; and improved business practices and systems.

Effective management involves an appropriate mix of output and input LOS.

To promote effectiveness, there is typically a nested structure of LOS as follows:

- Strategic – for use by senior management for the whole business; typically, a dashboard with 1 to 3 outp LOS for each objective.

- Asset Specific (Tactical) – for use by managers and operations staff; mainly output with some input LOS that "roll up" to the Strategic Level.
- Operational – for use by managers and operations staff; mainly input with some output LOS that "roll up" to the Tactical Level.

LOS should meet the following six criteria:

- Accuracy – should accurately measure performance.
- Practicality – data for the measure should be objective and easy to obtain.
- Understandability – the measure should have a clear meaning to customers, regulators, management and staff.
- Relevance to Work Tasks – the measure should adequately describe the effects of a broad range of tasks so that the relative costs and benefits can be assessed.
- Scalability – the measure should be meaningful at a variety of scales.
- Resistant to undesirable behaviour – the measure should not be vulnerable if people try to "beat the system."

e. Set appropriate targets for each performance measure.

Inputs:

- Comprehensive Community Plan (CCP).
- Economic Development Plan.
- Land Use Plan.
- Asset management plan.
- Stakeholder surveys.

Outputs:

- Service vision
- Service objectives - specific service outcomes to be achieved.
- Adopted levels of service and other key performance targets to be met.

Tips and Tricks:

- Where there is no established Community Vision, establish a Service Vision anyway along the lines of the example provided here, that will get the process started on the right track. The Service Vision can be tweaked later if needed when a Community Vision is adopted.
- Always start simply with, at least, Strategic (whole business) LOS to ensure an effective link to the CCP; once a basic performance management approach is well established, the structure can be expanded to include tactical and operational LOS.
- Starting with a structure that is too complicated can be discouraging.
- When starting off, carefully select meaningful performance targets but don't overthink the process; when underway, users will see what works and doesn't and can adjust accordingly – including adding, deleting or changing performance measures.
- When starting off, set initial performance targets that seem reasonable to test the process; if the targets are too high or too low they can be adjusted over time through experience.

STEP 3: Service Scope and Responsibilities

Purpose:

- Lists infrastructure services to be provided – mandatory and discretionary services.
- Describes the type and extent of service provided and by whom.

Approach:

a. Identify the infrastructure services to be provided within the community; for example:

- Fire protection
- Water supply
- Water distribution
- Sewage collection
- Sewage treatment
- Street lighting
- Solid waste collection
- Solid waste disposal
- Storm drainage
- Recycling
- Buildings
- Recreation facilities
- Roads
- Other (specify)

b. Identify, for each infrastructure service:

- The service area.
- Specifics on the service – what, where, by whom?
- Is the service mandatory or discretionary?
- Existing assets used to deliver the service – what and how; who owns the assets?
- Who funds services and related assets?

Inputs:

- Service area descriptions.
- Service agreements and contracts – e.g. Municipal-Type Service Agreements (MTSAs).
- Asset management plan.
- Asset ownership status.
- Funding arrangements.

Outputs:

- A list of services to be provided, where and to whom.

Tips and Tricks:

- Be brief and concise. See ***Appendix B*** for examples.

STEP 4: Policy, Legal and Regulatory Requirements

Purpose:

- Describes policy, legal and regulatory requirements that impact services and how.
- Describes what must be met vs. where discretion can be applied.

Approach:

- Identify all relevant requirements that apply to delivering the First Nation's Community infrastructure services, including the planning, funding, building, operating and maintaining of related infrastructure assets.
- Identify which requirements take precedence over others.
- Identify which are mandatory

Inputs:

- Federal, Provincial and Municipal laws, by-laws, regulations, codes and standards.
- ISC policies and LOS.
- First Nation Resolutions, bylaws, policies, codes and standards.

Outputs:

- A list of regulations, policies and standards to be met when planning and implementing infrastructure services.
- CISP implications.

Tips and Tricks:

- Take care to clarify relevant jurisdiction between Federal, Provincial, Municipal and FN; there can be different and sometimes conflicting requirements; take care to select the right ones.
- Requirements for ISC funded infrastructure are set out in detail in the Protocol for ISC-Funded Infrastructure (PIFI). The PIFI provides an up-to-date listing of applicable statutes, regulations, policies, codes, directives, standards, protocols, specifications, guidelines, and procedures.

STEP 5: Service Demand – Current and Forecast

Purpose:

- Describes the quantity and quality of service required to meet current and future development.

Approach:

For each service:

- Identify existing demand – total and per/unit or per/person.
- Project new development – the nature of development (residential/commercial/other); the amount of development (# of units by type); and the scheduling of development (how much by when?).
- Project service consumption – e.g. will water use increase or decrease over time?; will the number of people/unit

change over time?; will the expected quality of service change over time?; will more or less service be required over time?

- Project service demand by period – e.g. 5 yearly increments.
- Test and report on sensitivity of projections to changing assumptions.

Inputs:

- Comprehensive Community Plan (CCP).
- Economic Development Plan.
- Land Use Plan.
- Federal, Provincial, Municipal and First Nation policies and standards.
- Metrics on service use.
- Asset management plan.
- Stakeholder expectations.

Outputs:

- The quantity and quality of existing and projected demand for each service.

Tips and Tricks:

- Often, Community, Economic, and Land Use Plans do not provide sufficient detail to calculate service demand; in such cases, calculate reasonable projections for the CISP and always clearly state assumptions.
- Often, development projections can be relatively short term (say 5 to 10 years). However, infrastructure planning can require a much longer horizon (30 to 100 years). Again, in such cases, calculate reasonable projections for the CISP and clearly state assumptions.

  Also do sensitivity analysis on assumptions to provide better information for decision making. For example, significantly varying assumptions may not significantly affect outcomes; on the other hand, they may. It's important to know which applies.

STEP 6: Asset Management

Purpose:

- Provides details on the quantity, type, age, condition and cost of infrastructure assets.

Approach:

For all (ISC and Non-ISC) existing assets:

a. Develop a summary of key, relevant asset information – for example: name; construction date; quantity/size; replacement cost; remaining service life; and condition. Note ISC funded assets.

b. Document information gaps and their implications for the CISP.

c. Determine asset upgrading and expansion required to handle future development.

d. Determine asset upgrading required to meet regulatory requirements.

e. Document asset related issues and their implications for the CISP.

Inputs:

- Asset management plan.
- O&M plans.
- Operating performance results.
- Asset Condition Reporting System (ACRS) reports.
- ICMS records.

Outputs:

- Updated asset management plan.
- Updated O&M plans.
- Updated ICMS records.
- Backlog of deferred capital maintenance to be done.
- Projected requirements for asset replacement or upgrading.
- Projected requirements for new or expanded assets.
- Information for tangible capital asset reporting.

Tips and Tricks:

- Where asset information is lacking, document gaps and their implications for the CISP; where necessary (e.g. replacement cost), make assumptions and state them clearly.
- Where the condition of assets is unknown, make assumptions and clearly state them and their implications for the CISP; recommend implementing appropriate condition assessments to confirm status.
- Where practical, identify the different service lives and costs for key asset components – e.g. surface, base and sub-base of roads; mechanical, electrical and civil components of treatment plants; various building components and systems.

STEP 7: Stakeholder Expectations

Purpose:

- Lists key stakeholders and their interest in service delivery – how and why they are involved and what outcomes they expect.

Approach:

A good understanding of stakeholders and their expectations is critical to successful service planning and delivery.

For example, what do customers value and what are they willing to pay for; what are they willing to trade off to reduce costs? Given a choice among options, what would they select and why? What is a priority and what is important but can be deferred until later?

Consultation for Community, Economic and Land Use Plans can provide valuable insight and should be carefully considered. Topic-specific customer surveys can also provide valuable input.

All relevant, available stakeholder input should be considered when preparing the CISP; gaps in necessary information and opinion should be identified and either addressed during preparation of the CISP or included as a recommendation for follow up.

Inputs:

- Comprehensive Community Plan - consultation results.
- Stakeholder surveys.
- Chief and Council input.
- Regulatory requirements.
- First Nation policies

Outputs:

- A summary of stakeholder expectations for each infrastructure service.
- A list of "must haves" and "like to haves".
- A good understanding of the trade-offs that people are willing to make to balance expectations with available resources.

Tips and Tricks:

- Be sure to carefully solicit and consider stakeholder input. The effort is well worth the time and money in terms of achieving Community satisfaction with services.
- Avoid misunderstandings by being as specific as possible.
- Distinguish between "must haves" vs. "like to haves".
- Be honest about feasibility/practicality to promote balance between expectations & reality.

STEP 8: Current Performance, Gaps and Issues

Purpose:

- Identifies the status of existing services (if any).
- Identifies performance gaps both in terms of existing and planned service requirements.
- Identifies the First Nation's capacity to deliver services – existing and planned.
- Identifies availability and capacity of services for existing and future demand.

Approach:

For each service and for each performance measure:

f. Document actual performance.

g. Quantify and explain performance – good and bad.

h. Document CISP implications of current service conditions and performance.

i. Identify information and knowledge gaps to be addressed.

j. Identify performance issues to be addressed for current and projected service demands.

k. Evaluate service delivery options – scope, costs and costs/benefits in terms of the service vision and objectives.

l. Identify feasibility, organizational capacity and other implementation issues, constraints and opportunities.

m. Document CISP implications for future service conditions and performance.

n. Consult stakeholders within the overall CISP process on infrastructure service implications – confirm necessary adjustments to LOS and other service assumptions to balance expectations with available resources.

Iterate through steps (f) to (i) above to achieve the right balance between service expectations and available resources.

See ***Appendix B***, ***Table 6*** for a sample performance assessment.

Inputs:

- ACRS
- National Water and Wastewater Performance Assessment.
- First Nation financial performance.
- First Nation operating performance results.
- First Nation asset management plan.
- Customer surveys.

Outputs:

- A list of performance gaps.
- A list of operating and other issues to be addressed.
- A high-level list of strategies and actions for implementation.

Tips and Tricks:

- Confess to things that are not going as well as expected – it's not reasonable to expect to be 100% on all points.
- If there is insufficient information to make a performance assessment, state that fact and make a recommendation to collect information going forward.
- Be as specific as possible about performance gaps – what, why, who; operating and cost implications; risks.
- Document any actions already underway to address the gaps.

STEP 9: Key Issues

Purpose:

- Identifies key policy, planning, operations, financial, environmental, customer service and organization issues.

Approach:

- Identify key management categories within which to document issues – e.g. policy/legal, service planning, operations and maintenance, financial, environmental/public health, customer service, organizational structure/capacity.
- Document, within each category, all relevant issues; be as specific as possible about issues and gaps and their implications for service delivery – what, why, who, operating and cost implications; risks.

Inputs:

- Information from Steps 1 to 8, above.

Tips and Tricks:

- Confess to things that are not going as well as expected – it's not reasonable to expect to be 100% on all points.
- Be honest about what or who (agencies or people) are causing or contributing to issues.
- If there is insufficient information to make a valid assessment, state that fact and make a recommendation to collect information going forward.
- Document any actions already underway to address issues and their expected outcome.

STEP 10: Financial Implications

Outputs:

- A list of all key infrastructure service delivery issues and their implications.

Purpose:

- Identifies short- and long-term capital and O&M funding requirements.
- Identifies revenues and other sources of funding.
- Identifies funding shortfalls and how they can be addressed.
- Identifies financial issues.
- Identifies financial management strategies and policies.

Approach:

a. Develop multi-year financial projections for O&M – say 5 to 10 years – the longer the better within reason:
  - » Account for revenues and costs by service.
  - » Account for revenues by source.
  - » Account for costs by key activity for each service – see sample in ***Table 7***, ***Appendix B***.
  - » Include cost increases or reductions where prices or levels of service will change over time.
  - » Include costs for new or expanded facilities from their commissioning date.
  - » Include costs for addressing performance gaps and service issues

b. Develop a multi-year capital plan – at least 10 to 20 years – the longer the better within reason:
  - » Document expenditures for infrastructure replacement, expansion, and upgrading.
  - » Document the backlog of deferred capital maintenance.
  - » Document requirements for capital reserves.

c. Identify capital and O&M funding gaps – including for ICMS and MTSA funding.

d. Identify and discuss alternative strategies to address funding gaps – recommend the preferred approach.

e. Recommend the service delivery budget and capital funding request for the following year.

f. Upon approval of the budget and capital funding request.

  - » Make a request to ISC to address ICMS funding gaps.
  - » Submit the updated FNIIP to ISC.

» Submit the MTSA funding request to ISC.
» Submit/confirm any other funding requests.

Inputs:

- Information from Steps 1 to 9 above.
- Previous financial projections (capital and O&M).
- Financial performance results.
- Asset management plan.
- MTSAs and other service agreements.
- ISC and other funding programs – e.g. ICMS, MTSA, FNIIP.
- External revenue sources.
- First Nation policies on user charges.

Outputs:

- Annual Budget.
- Updated Capital Plan, including the FNIIP.
- MTSA application and ICMS updating.
- Updated user charges/fees.
- Updated financial strategies and policies.

Tips and Tricks:

- Where financial information is either not available at all or is not available in the required form, state that fact and recommend that financial practices be amended accordingly.
- Ensure that the capital and O&M budgets are adequately linked to enable effective life cycle cost management.
- Where capital expenditures are expected to realize O&M savings, record the savings in the financial projections.
- Where O&M costs are expected to increase over time due to depreciating assets, record the extra costs in the financial projections.

STEP 11: Discussion

Purpose:

- Provides a summary of Steps 1 to 10 to focus the Action Plan.

Approach:

In less than one page, provide a high-level summary of what the knowledge gained from Steps 1 to 10 means – the "so what?"

The intent is to provide a brief, concise statement of the status of services, trends and issues in a way that informs the process for developing and prioritizing the Action Plan.

Inputs:

- Information from Steps 1 to 10.

Outputs:

- Context for the action plan.

Tips and Tricks:

- Be brief and concise.

STEP 12: Action Plan

Purpose:

- Describes the process for implementing the CISP and for keeping it up to date.

Approach:

a. Identify key management categories within which to document actions – e.g. policy/legal, service planning, operations and maintenance, financial, environmental/public health, customer service, organizational structure/capacity.

b. Document a list of actions to address performance gaps and issues identified in Steps 1 through 11.

c. Adopt a rating matrix to ensure consistent priority setting - see example in ***Appendix B***, Schedule C.

d. Prioritize actions using the rating matrix.

e. List actions by key category in order of priority.

Inputs:

- Information from Steps 1 to 11 above.

Outputs:

- A task based, prioritized action plan to be implemented.

Tips and Tricks:

- Make sure that everything to be done is on the same list – promotes ease of use and avoids having to keep track of multiple documents.

STEP 13: Critical Success Factors

Purpose:

- A list of key factors that influence success.

Approach:

a. Develop a high-level assessment of strengths, weaknesses, opportunities and threats (SWOT) using the information from Steps 1 to 12 above.

b. Document key factors and how they will affect the success of infrastructure service delivery.
Appendix B provides the following examples:

- » The First Nation should use the CISP daily for managing its PW activities.
- » The CISP should be considered a "living" process. Service and infrastructure status, assumptions, priorities and work plans should be regularly adjusted based on new information and circumstances.Council and Administration should actively engage in the CISP process and should use the Plan for day-to-day PW decision making.
- » The First Nation should refine and continually improve its CISP process based on results and experience.
- » The First Nation should look for early wins, thereby enhancing commitment to the process and providing incentive for continued efforts.

Inputs:

- Information from Steps 1 to 12 above.

Outputs:

- A high-level SWOT analysis.

Tips and Tricks:

- While lots of things will impact success, focus on the key, strategic ones that will have the greatest impact – positive or negative.

STEP 14: Implementation

Purpose:

- The process for implementing the CISP and for keeping it up to date.
- Identifies key considerations such as:
  - » Priorities.
  - » Potential partners.
  - » Funding programs.
  - » Capacity building requirements.
  - » Program and project implementation approaches.
  - » Monitoring and evaluation framework.

Approach:

CISP implementation should be an ongoing, cyclical process. For example, First Nations should consider adopting the following process:

- PW should submit a draft, up-to-date CISP to Council annually to reflect new service information, changing circumstances and the results of experience from the prior year. The updated CISP should address financial performance, the status of infrastructure service activities and projects and should identify key issues to be addressed.
    a. Council should provide input on the draft CISP in November (for example) each year.
    b. PW should prepare its budget and capital funding request for the following year using Council input on the CISP.
    c. Council should adopt the up-to-date CISP, PW budget and capital funding request by March each year.
    d. PW should implement the CISP through its day-to-day activities; PW should routinely monitor and assess the performance of its programs, projects and activities and should make necessary adjustments to meet performance targets and budget.
    e. PW should use the approved CISP to apply for ISC and other funding – ICMS, MTSA, FNIIP and other funding initiatives.
    f. PW should report to Council routinely (at least quarterly) on CISP implementation.

Active CISP users should also participate in ISC's ongoing process to enhance and expand the overall CISP process to other interested First Nations. As part of that process, First Nations should contribute to CISP knowledge sharing and capacity building.

Inputs:

- The action plan.

Outputs:

- A realistic approach and schedule for implementing the action plan.
- A process for monitoring and adjusting the action plan to address changing circumstances and to keep activities on schedule and budget.

Tips and Tricks:

- Be sure to always work on actions for all key management categories – for example, acting only on operations and maintenance could ignore major risks, costs or benefits of addressing issues in other categories.
- Be sure to keep track of progress regularly and adjust as needed. Doing only annual reviews and updates is not effective.

Appendix B

Sample Community Infrastructure Services Plan (CISP)

NOTE: This CISP Example is based on actual FN and non-FN CISPs and on the judgement and experience of Consensus Infrastructure Solutions Ltd. The Example does not represent a specific community and is intended only to illustrate the CISP process set out in the CISP User manual.

1. Introduction

This Community Infrastructure Services Plan (CISP) provides important context for planning and managing the Sample First Nation's (SFN's) Community infrastructure services. The Plan identifies key issues and priorities, identifies necessary resources and sets out the most cost effective service delivery approach.

This CISP covers services related to water, sanitary sewer, drainage, solid waste, roads and bridges and Community buildings.

This CISP is for the period 2020 to 2029 but also looks out longer term where appropriate. It is intended to be a rolling 10-year Plan that is updated annually to reflect current year results and to incorporate new information.

2. Strategic Framework

2.1 Vision

The Vision describes how services should be perceived by users and other stakeholders and provides the basis for identifying specific service outcomes to be achieved.

SFN's service Vision is:

"Community Infrastructure Services provide good value for money; the SFN Public Works Department is recognized for excellence in customer service, environmental stewardship and for applying good service delivery practices."

Within the Vision, "stewardship" means doing more than the minimum to protect and enhance the environment.

2.2 Mission

SFN's service Mission is:

"Provide efficient, effective and sustainable Community Infrastructure Services."

Within the Mission:

- The term "efficient" means that activities are carried out at the lowest life cycle cost.
- The term "effective" means that activities meet service objectives.
- The term "sustainable" means that there are enough resources to maintain the adopted quality of service (level of service) long term.

In combination, doing things efficiently and effectively means doing the "right things," the "right way" and at the lowest life cycle cost.

2.3 Objectives and Performance Measures

SFN Community Objectives, Service Objectives and performance targets are in ***Table 1***.

Table 1. SFN Community Infrastructure Service Objectives

CO #1 – Services are viable and sustainable over the long term
CO #2 – Services enable sustainable economic development and prosperity
CO #3 – A thriving community

Sufficient infrastructure services	▪ 100% of residents and businesses are connected to water and sewer ▪ Water and sewer assets have capacity to handle > 5 years of planned growth in the Community ▪ Drainage has capacity for the 10-year storm without property damage ▪ Garbage pickup once/two weeks ▪ Green waste pickup once/week ▪ Recycling pickup once/week ▪ Buildings are aesthetically pleasing ▪ Buildings provide the right amount and quality of space to meet current and future demand ▪ All development is readily accessible by road
Reliable infrastructure services	▪ Assets for each service have a combined condition index > 7 ▪ < 7 water main breaks/100km ▪ < 3 blocked sewers/100km ▪ Potholes > 8 cm repaired once/year ▪ Cracks > 5 cm sealed once/year ▪ Street lights repaired within 1 month of failure ▪ Buildings may be occupied 364 days/year ▪ Assets are protected against damage, unwanted access and theft ▪ All community infrastructure meets current earthquake standards
Meet infrastructure service levels at the lowest sustainable cost	▪ Unplanned maintenance costs < 15% of total maintenance costs ▪ Water O&M < $450/residential unit/year ▪ Sanitary sewer O&M < $260/residential unit/year ▪ Drainage O&M < $90/residential unit/year ▪ Garbage disposal < $160/residential unit/year ▪ Road maintenance < $9,000/lane km/year ▪ Street light O&M < $TBD/head/year ▪ Building maintenance < $160/sq.m/year ▪ Building energy < $TBD/sq.m/year
Infrastructure services are financially viable long term	**Cost Recovery Ratio (CRR):** (total annual revenues eligible for O&M / total annual infrastructure operating costs) > 1.0 ▪ Revenues are from all sources and must be eligible for O&M expenditures ▪ Costs are all annual infrastructure direct & indirect expenses plus depreciation

Infrastructure services are financially viable long term	**Debt Service Ratio:** (total annual revenues / (total annual infrastructure operating + debt service costs)) > 1.0 ▪ Revenues are from all sources and must be eligible for O&M and capital expenditures ▪ Costs are all annual infrastructure operating direct & indirect expenses plus interest and principal repayments for long-term debt ▪ Ratio value depends on debt policy and should be adjusted accordingly
	Capital Investment Ratio: (total annual capital investment/total replacement cost of existing infrastructure) – 5-year rolling average > 0.02 ▪ Capital investment is total amount of capital spent, or contributed to reserves, for the current, or future, repair, rehabilitation or replacement of existing infrastructure ▪ Total replacement cost is the estimated current cost of replacing all existing infrastructure today to an equivalent standard The value – 0.02 – represents a 50-year weighted average infrastructure service life.
	Deferred Capital Maintenance Ratio: (total net book value of existing infrastructure + total committed funding for repairing/replacing existing infrastructure) / total replacement cost of existing infrastructure) – 5-year rolling average > 0.95 ▪ Deferred capital maintenance (commonly known as "backlog") is the total, accumulated liability (in current dollars) for the repair, rehabilitation or replacement of existing infrastructure. ▪ Total replacement cost is the estimated current cost of replacing all existing infrastructure today to an equivalent standard ▪ In terms of Tangible Capital Asset (TCA) accounting: » Net book value is the undepreciated capital cost of existing infrastructure (net of any impairment recorded) measured relative to original construction cost (i.e. "cost base") » Accumulated depreciation is the proportion of existing infrastructure capital cost "consumed" in providing services to the current date, measured in terms of service life and "cost base" ▪ The difference between total book value and total replacement cost of existing infrastructure represents an accumulated liability to be funded as and when infrastructure repairs, rehabilitation or replacement are required ▪ Total Committed Funding means the amount of secure capital that SFN can readily access as and when required for infrastructure repairs, rehabilitation and replacements – e.g. capital reserves; access to approved debt For context: ▪ DCM Ratio in the range 0.95 to 1.00 is good ▪ DCM Ratio in the range 0.90 to 0.95 is fair ▪ DCM Ratio in the range 0.70 to 0.90 is poor ▪ DCM < 0.70 is critical

Protect public health	▪ 100% compliance with public health standards ▪ Zero health hazards
Protect public safety	▪ Lost hours due to field accidents < 5/1000 field labour hours ▪ 100% compliance with Worksafe BC ▪ Zero safety hazards
Strong management organization and practices	▪ Effective organization structure ▪ Effective service policies and practices ▪ Effective working relationships among relevant Depts. ▪ Effective capacity building ▪ Staff are qualified for their jobs ▪ > 60% of service labour hours are by SFN Members

CO #4 – Services sustain lands and the environment over the long term

Infrastructure services meet land management policies and standards	▪ 100% compliance with land management policies and standards
Infrastructure services meet environmental standards	▪ 100% compliance with environmental standards

CO #5 – The Community is pleased with community services

The community is satisfied with infrastructure services	▪ Surveys show > 75% satisfaction with Infrastructure Services
The community is knowledgeable and current on infrastructure services	▪ Community members can readily access up-to-date information on infrastructure services
The community is actively engaged in key infrastructure service decisions	▪ Key infrastructure serve policies and projects are subject to sufficient community input

3. Service Scope and Responsibilities

3.1 Water

The Municipality supplies water to the SFN Reserve through three existing connections to the SFN distribution system:

- Connection 1 – *writer should describe connection and service area.*
- Connection 2 – *writer should describe connection and service area.*
- Connection 3 – *writer should describe connection and service area.*

SFN owns all water distribution assets (pipelines, valves, hydrants, etc.) on-Reserve from the point of connection to the municipal watermains to the property line of individual properties.

The Municipality operates the SFN water system on a fee-for-service basis. SFN owns the water meters and related chambers.

SFN pays the Municipality for water supply in accordance with the Municipal Service Agreement.

ISC funds the construction of SFN water system assets to serve Member housing and buildings; SFN directly funds water system assets to serve non-Members.

3.2 Sanitary Sewer

The SFN sanitary collection system connects to the municipal interceptor at three locations:

- Connection 1 – *writer should describe system and service area.*
- Connection 2 – *writer should describe system and service area.*
- Connection 2 – *writer should describe system and service area.*

SFN owns the sanitary sewerage assets (pipelines, manholes, the pumping station, etc.) on-Reserve from the point of connection at the property line to the building sewer to the point of connection to municipal facilities.

The Municipality operates the SFN system on a fee-for-service basis.

SFN pays the Municipality for sewage collection and treatment services in accordance with the Municipal Service Agreement.

ISC funds the construction of SFN sanitary sewerage assets to serve Member housing and buildings; SFN directly funds sanitary sewerage assets to serve non-Members.

3.3 Drainage

The SFN storm drainage system discharges to receiving waters through a network of pipes, ponds, ditches, and swales, some of which are connected to creeks that cross the Reserve. The creeks also carry significant flows from municipal lands upstream of the Reserve.

SFN owns the storm drainage assets (pipelines, manholes, etc.) on-Reserve from the point of connection at the property line to the building storm drain to the point of discharge to the receiving water.

The SFN and municipal storm drainage systems are not connected.

The Municipality operates the SFN system on a fee-for-service basis. SFN pays the Municipality for drainage services according to the Municipal Service Agreement.

ISC funds the construction of SFN storm drainage assets to serve Member housing and buildings; SFN directly funds storm drainage assets to serve non-Members.

3.4 Solid Waste

The Municipality provides solid waste management and recycling services to single family residences on-Reserve on a fee-for-service basis.

SFN pays the Municipality for solid waste management and recycling services according to the Municipal Service Agreement.

SFN provides solid waste management and recycling services to Member multi-family residential developments.

Non-Member multi-family and non-residential developments contract for and pay separately for solid waste management services.

3.5 Roads and Bridges

SFN owns the roads and bridges on-Reserve.

The Municipality maintains SFN roads on a fee-for-service basis. SFN pays the Municipality for these services according to the Municipal Service Agreement.

ISC funds the construction of SFN roads and bridges to serve Member housing and buildings; SFN directly funds roads and bridges to serve non-Members.

3.6 Community Buildings

SFN owns its Community Buildings.

ISC funds a portion of the O&M for some Community Buildings. SFN funds the others.

4. Policy, Legal and Regulatory Requirements

Requirements for non-ISC funded assets are uncertain and should be confirmed.

Requirements for ISC funded infrastructure are set out in detail in the Protocol for ISC-Funded Infrastructure (PIFI). The PIFI provides an up-to-date listing of applicable statutes, regulations, policies, codes, directives, standards, protocols, specifications, guidelines and procedures.

5. Service Demand – Current and Forecast

5.1 Existing and Planned Development

SFN is considering a Draft Master Development Plan for its Reserve. While the process is still evolving, the Draft provides important context for the CISP.

Key assumptions (see ***Table 2)*** are:

- Area 1 is already developed for Members.
- Area 2 is reserved for new Member housing and amenities.
- Areas 3 and 4 are primarily geared to development for revenue generation.

On this basis:

a. The number of residential units is projected to increase from 1,158 existing to 1,758 by 2030 and to 6,715 by 2100. Of these, the non-Member proportion will increase from 91% existing to 93% in 2030 and then decline to 90% in 2100.

b. Population is projected to increase from 2,530 existing to 4,097 in 2030 and to 12,184 in 2100. Of this, the non-Member proportion will increase from 85% existing to 89% in 2030 and then decline to 80% in 2100.

Table 2. Development Projections

	Gross Area (ha)	Total Units			Type
		2020	2030	2100	
Area 1	16.1				
SFN Members		105	105	105	SF/MF
Area 2	14.0				
SFN Members		0	25	592	SF
Area 3	22.7				
Dev. Cell 1	6.5	0	75	291	Apt
Dev. Cell 5	6.1	0	0	1,123	SF/MF
Area 4	53.9				
Dev. Cell 2	6.1	0	0	1,123	Apt
Dev. Cell 3	4.9	0	0	899	Apt
Dev. Cell 4	4.5	0	0	824	Apt
Dev. Cell 6	1.2	0	20	225	Apt
Dev. Cell 7	0.8	Currently not considered for development			
Dev. Cell 8	1.2				
Development in progress		0	480	480	SF/MF
Existing development		969	969	969	Apt & T/ house
Total Units		**1,158**	**1,758**	**6,715**	
Population		**2,530**	**4,097**	**12,184**	

5.2 Water

Existing and projected water demand are based on the Municipality's design criteria:

	2020	2030	2100
Max day demand (l/sec)	29.3	51.0	179.3
Max day demand (cu.m/d)	2,531	4,406	15,491
Peak hour demand (l/sec)	58.6	102	358.6

The Municipality's off-Reserve water system has sufficient capacity for the projected SFN water demand through 2100.

On-Reserve, the existing water system will be extended and enhanced in conjunction with proposed development and according to the Master Servicing Plan.

5.3 Sanitary Sewage

Existing and projected demands are based on the Municipality's design criteria:

	2020	2030	2100
Peakwetweather flow (l/sec)	45.0	70.0	228.8

The extent to which municipal interceptors can handle additional SFN flows is unknown. The SFN should request input from the Municipality on the timing and extent of upgrading required.

The existing on-Reserve sanitary sewer system has the following deficiencies:

- A downstream sewer segment that connects to the municipal interceptor is undersized.
- A section of sewer may need to be upgraded post-2030.
- The existing Area 4 sanitary system may need to be upgraded post-2030.

The existing sanitary sewer system will be extended and enhanced in conjunction with proposed development and according to the Master Servicing Plan.

5.4 Storm Drainage

Previous studies show that the main creeks that cross the Reserve are already stressed during heavy runoff.

The Municipality, in consultation with SFN, is preparing an Integrated Stormwater Management Plan (ISWMP) for the watershed. A master drainage plan, including required upgrades to the existing system, should be developed with consideration to the ISWMP recommendations.

5.5 Solid Waste

SFN can expect a 50% increase in solid waste by 2030 and a five-fold increase by 2100.

5.6 Roads and Bridges

The existing road network is sufficient for the existing development.

The existing road network will be extended and enhanced in conjunction with proposed development and according to the Master Servicing Plan.

5.7 Community Buildings

The new Administration building, to be commissioned in the Fall of 2020, should meet SFN's needs for the next 30 years.

The existing SFN school is insufficient for current needs. Future needs will be determined through the ongoing land use planning process.

Additional daycare space is required.

A new Health Centre will meet SFN's needs for the next 15 years.

Future recreational space and facilities will be determined through the ongoing land use planning process.

6. Asset Management

Schedule A provides a high-level assessment of SFN Asset Management practices.

Information on ISC funded assets is based on the most recent ACRS report. Age, replacement cost, and remaining service life information are in ***Table 3***. Summary details from the ACRS are in ***Table 4***.

Key considerations for asset management are:

- The estimated replacement cost of SFN infrastructure is $15.5 million; of this, about 55% is for buildings; 12% for roads; 11% for water; 8% for drainage and 15% for sewer.
- An estimated $320,000/year would have to be put to a capital reserve to have sufficient money to replace these assets when required.

- Water, sewer, drainage and road systems are generally in good condition; most assets have a remaining service life > 50 years; the sewage lift station needs to be replaced in around 40 years.
- Some components of the sewer, water, drainage and road systems have shorter life cycles than the overall system and ongoing capital will be required for major repairs and replacement. For example, mechanical/electrical equipment; road signs; ditching; and access features.
- While the Municipality provides O&M services under contract (MTSA), SFN is responsible for all capital expenditures; as a result, SFN should work hard to minimize unnecessary capital expenditures arising from deficient O&M practices by the Municipality.
- Performance of the storm drainage system relies heavily on the capacity and performance of the creeks that discharge to receiving waters. The system is heavily impacted by off-Reserve discharges to those creeks. A comprehensive drainage system condition and capacity assessment is required to confirm system performance and upgrading needed.
- The new Band Administration Building will be commissioned in 2020, at which time the existing offices will become redundant; only essential investment will be made to the existing building until its future use is decided.
- The total backlog of deferred capital maintenance is unknown; the ACRS report identifies a total of $750,000 of minor repair work to be done now on ISC funded infrastructure.
- The ACRS report only identifies condition and projected service life for ISC funded assets; for underground assets (such as water and sewer), ACRS projections seem to be based on age vs. actual condition assessments. The condition of non-ISC funded assets is unknown.
- The projected service lives are significantly different (and longer) in the 2016 ACRS report when compared to the 2010/11 ACRS report – a more consistent condition and service life rating system is required to improve certainty for planning.
- The Municipality has not supplied SFN with maintenance records, so the status of maintenance vs. good practice is unknown.
- A detailed asset inventory should be prepared to reconcile data gaps on quantities, ownership, age, etc. The existing ICMS inventory seems to understate the actual quantities of some ISC funded assets.

Table 3. SFN Infrastructure Assets - Age, Cost & Service Life

	Built	Quantity	Unit	Unit cost	Replacement Cost	Remaining Service Life (years)	ICMS status	ISC Condition Rating	Avg Annual Cost
Sanitary Sewer System									
Area 1 – Main Village									
Sanitary sewers	1965	1,772	m	$541	$958,652	60	Y	7	$15,978
Connection to Municipality	2005	10	m	$1,694	$16,940	94	Y	7	$180
Forcemain 1	1965	200	m	$264	$52,800	49	Y	6	$1,078
Forcemain 2	2005	300	m	$264	$79,200	90	Y	8	$880
Sanitary sewer	?	50	m	$550	$27,500	50	N	?	$550
Sanitary sewer	2001	47	m	$550	$25,850	50	N	?	$517
Sewage lift station	1991	1			$468,000	42	Y	7	$11,143
Area 4									
Sanitary sewer	1995/ 6	726	m	$550	$399,300	75	N	?	$5,324
Sanitary sewer	?	117	m	$550	$64,350	75	N	?	$858
Sanitary sewer	1993	307	m	$550	$168,850	75	N	?	$2,251
Total Sewer System		**3,529**	**m**		**$2,261,442**				**$38,758**

	Built	Quantity	Unit	Unit cost	Replacement Cost	Remaining Service Life (years)	ICMS status	ISC Condition Rating	Avg Annual Cost
Storm Drainage System									
Area 1 - Main Village									
Storm sewers	2001	441	m	$844	$372,204	90	Y	7	$4,136
Area 4									
Storm sewers	1995/ 6	1,306	m	$700	$914,200	75	N	?	$12,189
Total - storm drainage		**1,747**	**m**		**$1,286,404**				**$16,325**
Water System									
Area 1 - Main Village									
Water mains	1965	1,956	m	$484	$946,704	60	Y	7	$15,778
Water mains	2004	84	m	$500	$42,000	70	N	?	$600
Water mains	1992	60	m	$500	$30,000	70	N	?	$429
Water meter chamber	2001	19	m	$4,424	$85,826	40	Y	9	$2,146
Area 4									
Water mains	1995/ 6	1,198	m	500.00	$599,000	75	N	?	$7,987
Total Water System		**3,317**	**m**		**$1,703,530**				**$26,939**

	Built	Quantity	Unit	Unit cost	Replacement Cost	Remaining Service Life (years)	ICMS status	ISC Condition Rating	Avg Annual Cost
Roads									
Road 1	2001	110	m	$1,073	$118,030	85	Y	8	$1,389
Road 2	2001	280	m	$1,115	$312,200	87	Y	8	$3,589
Road 3	1987	200	m	$1,088	$217,600	72	Y	7	$3,022
Road 4	1999	400	m	$1,075	$430,000	82	Y	8	$5,244
Road 5	1999	580	m	$1,234	$715,720	82	Y	8	$8,728
Total Roads		**1,570**	**m**	**$1,142**	**$1,793,550**				**$21,972**
Buildings									
Band Office	2001	503	sq.m	$3,676	$1,849,028	38	Y	7	$48,659
Ancillary Building	2001	90	sq.m	$4,294	$386,460	40	Y	8	$9,662
Community Building	2002	1,266	sq.m	$4,201	$5,318,466	40	Y	9	$132,962
Day Care Centre	2003	223	sq.m	$4,200	$936,600	40	N	?	$23,415
Total Buildings		**2,082**	**sq.m**		**$8,490,554**				**$214,697**
Total Assets					**$15,535,480**				**$318,691**

Table 4. Status - SFN Infrastructure Assets

Sanitary Sewers

Asset Status	Comments
▪ The SFN sanitary sewer system drains to the municipal interceptor ▪ The 200 unit residential complex at the NE corner drains to the municipal lift station and then to the municipal sewers ▪ SFN has 3,500 m of gravity and pumped mains	▪ The Municipality operates and maintains the SFN sewer system according to the MTSA ▪ SFN pays all capital expenditures ▪ The Municipality has not supplied SFN with maintenance records so the status of maintenance vs. good practice is unknown ▪ Most ISC funded assets are rated in good condition; the 300 m forcemain is assumed to be in fair condition but its location is unknown ▪ The condition of sewers in Area 4 is unknown ▪ Sewers should be flushed every 5 years

Water

Asset Status	Comments
▪ The Municipality supplies water according to the MTSA ▪ SFN has 3,300 m of water distribution main ▪ The water meter chamber is in good condition	▪ ISC funded assets are rated in good condition ▪ The condition of water mains in Area 4 is unknown ▪ The Municipality operates and maintains the SFN water system according to the MTSA ▪ SFN pays all capital expenditures ▪ The Municipality has not supplied SFN with maintenance records so the status of maintenance vs. good practice is unknown ▪ Vegetation around hydrants should be cleared

Storm Drainage

Asset Status	Comments
▪ SFN has 1,740 m of storm mains ▪ The system drains to natural creeks at various points	▪ FN pays all capital expenditures ▪ ISC funded assets are rated in good condition ▪ The condition of the drainage system in Area 4 is unknown ▪ The system depends on natural creeks – the capacity and performance of the creeks are unknown

Roads

Asset Status	Comments
▪ SFN has 1,570 m of two-lane paved roads	▪ SFN pays all capital expenditures ▪ All ISC funded roads are rated in good condition with remaining service lives > 50 years ▪ Some crack sealing is required ▪ Culverts need to be cleaned ▪ Brush removal is required

Buildings

Asset Status	Comments
▪ Band Office and Ancillary Admin Building	▪ Transition to the new Band Administration Building will occur in 2020 ▪ Only essential investment will be made in existing buildings until their future is decided
▪ Community Building	▪ High quality facility that has been maintained to a high standard
▪ Day Care Centre	▪ Not listed on ICMS ▪ Condition is unrated
▪ School	▪ The existing school is in serviceable condition but is insufficient for current needs

7. Stakeholder Expectations

Key stakeholders and their related interests in Community Infrastructure Services are in ***Table 5***.

Table 5. Key Stakeholders & Interests

Stakeholder	Key Interests
First Nation Council	**Provides policy and direction** ▪ Promote Community self-sufficiency ▪ Protect public health and the environment ▪ Provide effective, affordable, and sustainable services ▪ Allocate available resources per the First Nation's economic, social and environmental priorities
ISC	**Provides national policy and direction related to First Nations – supplies some financing** ▪ To support First Nations in achieving their self-government, economic, educational, cultural, social, and community development needs and aspirations ▪ To ensure fulfillment of Canada's constitutional and statutory obligations and responsibilities to Indigenous people ▪ To provide for policy direction and sound management of Indigenous Services Canada's programs and for efficient and effective planning, accounting, personnel, communications and other administrative support
ISC Community Infrastructure Service Delivery	**Provides infrastructure related services, including:** ▪ Interpretation of Level of Service standards ▪ Technical evaluation and prioritization of projects submitted by First Nations for ISC funding ▪ Funding for First Nation contracted services for: water supply & distribution; sewage collection & treatment; solid waste management & recycling; street lighting ▪ Maintenance and updating of the inventory of First Nation assets (ICMS) and allocation of maintenance funding ▪ Development and implementation of design guidelines ▪ Undertaking tri-annual asset condition assessments (ACRS) for all First Nations ▪ Provision of general technical advice ▪ Circuit rider program: assists First Nations on operations and maintenance, condition reporting and training at the operations level
Adjacent Local Governments	**Adjacent Local Governments** ▪ Manage impacts on local government plans and services ▪ Manage impacts on local government businesses and residents ▪ May provide some services to First Nations on a fee-for-service basis
First Nation Members	**Service User** ▪ Want reliable, high quality service ▪ Want low cost service ▪ Want prompt and effective response to service concerns

8. Current Performance and Gaps

Current performance versus SFN level of service targets is in ***Table 6***.

Table 6. SFN Community Infrastructure Service Performance

	Level of Service
100% of residents and businesses are connected to water and sewer	▪ Met
Water and sewer assets have capacity to handle > 5 years of planned growth in the Community	▪ Not met ▪ Additional water and sewer infrastructure is required for new development in Areas 3 and 4
Drainage has capacity for the 10-year storm without property damage	▪ Not met ▪ Creek drainage is stressed in heavy rainfall ▪ The capacity of the highway culverts is uncertain and may be stressed during heavy rainfall ▪ Capacity and other issues to be identified through the ISWMP
Garbage pickup once/two weeks	▪ Met for municipal service ▪ Met for Member multi-family residential ▪ Private service (lessees) unknown but not a SFN responsibility
Green waste pickup once/week	▪ Met for municipal service ▪ Met for Member multi-family residential ▪ Private service (lessees) unknown but not a SFN responsibility
Recycling pickup once/week	▪ Met for municipal service ▪ Met for Member multi-family residential ▪ Private service (lessees) unknown but not a SFN responsibility
Buildings are aesthetically pleasing	▪ Met
Buildings provide the right amount and quality of space to meet current and future demand	▪ Not met ▪ New Administration building and Health Centre under construction ▪ Daycare expansion is required
All development is readily accessible by road	▪ Met
Assets for each service have a combined condition index > 7	▪ Met for most ISC funded assets; 200 metres of sewer forcemain is rated 6 ▪ The condition of non-ISC funded assets is unknown
< 7 water main breaks/100km	▪ Met
< 3 blocked sewers/100km	▪ Met
Potholes > 8 cm repaired once/year	▪ Met

Level of Service	
Cracks > 5 cm sealed once/year	▪ Met
Street lights repaired within 1 month of failure	▪ Met
Buildings may be occupied 364 days/ year	▪ Met
Assets are protected against damage, unwanted access and theft	▪ Generally met – some security systems need to be upgraded
All community infrastructure meets current earthquake standards	▪ Not met
Financial	
Unplanned maintenance costs < 15% of total maintenance costs	▪ Unknown
Water O&M < $450/residential unit/ year	▪ Not met ▪ Water cost is $520/unit ▪ Reasons for increasing water consumption urgently need to be addressed
Sanitary sewer O&M < $260/residential unit/year	▪ Met
Drainage O&M < $90/residential unit/ year	▪ Met
Garbage disposal < $160/residential unit/year	▪ Met for leaseholds ▪ Not met for Member units – current cost is $238/unit – waste reduction efforts should be implemented
Road maintenance < $9,000/lane km/ year	▪ Met
Street light O&M < $/head/year	▪ Unknown
Building maintenance < $160/sq.m/ year	▪ Met
Building energy < ?/sq.m/year	▪ Unknown
Cost Recovery Ratio (CRR) > 1.0	▪ Not met ▪ Budget does not include depreciation or contribution to capital reserves
Debt Service Ratio (DSR) > 1.0	▪ Not applicable ▪ No infrastructure related debt

Level of Service	
Capital Investment Ratio (CIR) – 5-year rolling average > 0.02	▪ Not met ▪ Budget does not include depreciation or contribution to capital reserves ▪ No existing capital reserves for infrastructure
Deferred Capital Maintenance Ratio (DCMR) > 0.95	▪ Not met – DCMR is 55% ▪ No existing capital reserves for infrastructure ▪ No ready ability to borrow funds
Health and Safety	
100% compliance with public health standards	▪ Met
Zero health hazards	▪ Met
Lost hours due to field accidents < 5/1000 field labour hours	▪ Met
100% compliance with Worksafe BC	▪ Unknown ▪ Analysis of standards and performance is required
Zero safety hazards	▪ Met
Organizational Capacity	
Effective organization structure	▪ Not met ▪ Require a Public Works O&M Superintendent
Effective service policies and practic-es	▪ Not met
Effective working relationships among relevant Depts.	▪ Not met ▪ Require better integration of finance department ▪ Unclear about connection with other departments
Effective capacity building	▪ Not met
Staff are qualified for their jobs	▪ Unsure yet
> 60% of service labour hours are by SFN Members	▪ Not met ▪ Standard may not be achievable, given the local labour market and on-Reserve salaries

Level of Service	
Land and Environmental	
100% compliance with land management policies and standards	▪ Met
100% compliance with environmental standards	▪ Generally met ▪ Some water quality issues in local streams due to runoff
Customer Service	
Surveys show > 75% satisfaction with Infrastructure Services	▪ Not met ▪ Never surveyed
Community members can readily access up-to-date information on infrastructure services	▪ Not met ▪ More regular communications required
Key infrastructure service policies and projects are subject to sufficient community input	▪ Not met ▪ Expanded community engagement required

9. Service Status and Key Issues

9.1 Policy/legal

c. To provide a sound basis for PW service planning and policy making, Council needs to adopt, as policy, a comprehensive land use plan that sets out sufficient detail on the scope and nature of development.

d. To enable effective Member and economic development, Council needs to establish a sound basis for long-term access to municipal services. While current arrangements with the Municipality have worked well to date, servicing for economic development is proving to be controversial and expensive.

e. Current PW funding is insufficient to sustain even existing infrastructure over the short and long term. There is no structured funding for major repairs or replacements; there is also no capital reserve for PW. A sustainable funding strategy and policy is required.

f. There are no consistent standards for design and construction of First Nation infrastructure. Consistency of parts, materials and construction standards can be very beneficial in promoting efficiency and effectiveness. First Nation standards for all types of infrastructure should be developed and adopted. The MMCD standards should be a primary reference to avoid "reinventing the wheel."

g. The PW Director should have greater authority and accountability for financial management – e.g. accounting, financial projections, cost management and reporting – the technical, operational and financial aspects of PW need to be fully integrated to achieve objectives for efficiency and effectiveness.

h. Council and Administration should adopt an improved liaison process for PW; for example: annual submission of long-range strategic and business plans (this CISP is a good start); routine reporting on PW performance; routine (e.g. monthly or quarterly) meetings with Council and/or a Committee of Council.

9.2 Service Planning

a. The number of residential units is projected to increase from 1,158 existing to 1,758 by 2030 and to 6,715 by 2100. Population is projected to increase from 2,530 existing to 4,097 in 2030 and to 12,184 in 2100.

b. **Water:** The municipal off-Reserve water system has sufficient capacity for the projected SFN water demand through 2100.

On-Reserve, the existing water system will be extended and enhanced in conjunction with proposed development and according to the Master Servicing Plan.

c. **Sanitary sewer:** The extent to which the municipal interceptor sewers can handle additional SFN sewage flows is unknown. The SFN should request input on the timing and extent of upgrading required.

On-Reserve, the existing sewer system will be extended and enhanced in conjunction with proposed development and according to the Master Servicing Plan.

d. **Storm drainage: The Municipality, in consultation** with SFN, is preparing an Integrated Stormwater Management Plan for the watershed. A comprehensive drainage system condition and capacity assessment is required to confirm system performance.

Performance of the SFN storm drainage system relies heavily on the capacity and performance of creeks that discharge to receiving waters. The system is also heavily impacted by off-Reserve discharges to those creeks. The capacity of the highway culverts is uncertain.

While this is an urgent planning, operational and financial issue for SFN, it does not seem to be as high a priority for the Municipality. From SFN's perspective, impacts of existing, excess flows (mostly arising from the municipal land adjacent to the Reserve) urgently need to be addressed. The drainage system for future development, starting now, needs to be based on overall watershed requirements.

A master drainage plan, including required upgrades to the existing system and consideration of the ISWMP recommendations, should be developed.

e. **Roads: The existing road network is sufficient for** existing development. The network will be extended and enhanced in conjunction with proposed development and according to the Master Servicing Plan.

f. **Buildings: The new Administration building, to be** commissioned in 2020, should meet SFN's needs for the next 30 years.

The new Health Centre will meet SFN's needs for the next 15 years.

The existing school is insufficient for current needs. Future needs will be determined through the ongoing land use planning process.

Additional daycare space is required.

g. **Recreation: Future recreational space and facili**ties will be determined through the ongoing land use planning process.

h. The water, sewer, drainage and road systems are generally in good condition and most assets have a remaining service life > 50 years; the sewage lift station will need to be replaced in around 40 years.

9.3 Operations and Maintenance

a. Most service performance targets are met. Current, key performance gaps are: The need for additional and/or expanded infrastructure to handle future development.

- Deficiencies in the drainage system for current and future development.
- The need for new or expanded Community buildings.
- The lack of information on PW assets.
- The lack of maintenance management plans for existing infrastructure.
- The lack of necessary financial information on PW operations.

b. The Municipality has not supplied SFN with maintenance records so the status of maintenance vs. good practice for water, sewer, storm drainage and roads is unknown.

c. The ACRS report only identifies condition and projected service life for ISC funded assets; for underground assets (such as water and sewer), ACRS projections seem to be based on age vs. actual condition assessments so the validity of the ratings is questionable.

The condition of non-ISC funded assets has not been assessed. For example, the condition of the water, sewer and storm drain systems in Area 4 is unknown.

d. The projected service lives are significantly different (and longer) in the 2016 ACRS report when compared to the 2010/11 ACRS report – a more consistent condition and service life rating system is required to improve certainty for planning.

e. A detailed asset inventory should be prepared to reconcile data gaps on quantities, ownership, age, etc. The existing ICMS inventory seems to understate the actual quantities of some ISC funded assets.

f. Comprehensive maintenance plans are required for all First Nation infrastructure – water, sewer, drainage, roads and buildings. Current maintenance by the Municipality should be compared to good practice and gaps addressed.

g. Compliance with Worksafe BC should be assessed and gaps addressed.

h. A comprehensive risk assessment should be developed; appropriate risk management strategies should be implemented.

i. Water

» Vegetation around hydrants should be cleared.

j. Sanitary Sewer

» SFN requires rights-of-way for sewers and drains that cross municipal land.

» The location of the sewer forcemain should be confirmed.

» Sewers should be flushed every 5 years.

k. Storm Drainage

» The hydraulic capacity of the creeks that cross the Reserve is stressed during heavy runoff.

» The status and capacity of the highway culverts are unknown.

» Drainage culverts need to be cleaned; brush removal is required.

l. Roads

» Some road crack sealing is required.

m. Solid Waste Management

» SFN should investigate the costs and benefits of using a contractor rather than the Municipality for garbage collection and disposal.

9.4 Financial

a. There is insufficient information to assess performance against some cost/metrics – financial record keeping and reporting should be adjusted accordingly.

b. SFN urgently needs a comprehensive capital funding strategy to sustain existing infrastructure and to fund infrastructure required for economic development:

» The Deferred Capital Maintenance Ratio is 55% - which is critical. While the full extent of urgent deferred capital maintenance is unknown, ACRS identifies $750,000 of work on ISC funded infrastructure, alone, that should proceed now.

» The extent of ongoing capital required for major repairs and replacement of existing infrastructure is unknown. For context, an estimated average of $320,000/year is required to replace SFN water, sewer, storm drainage, road and

building assets when required.

- Capital is also required to support economic development in the period 2020-2030:
  - $5.2 million for additional water and sewer infrastructure in Areas 3 and 4.
  - $10.9 million for additional road infrastructure.
  - $3.5 million for a daycare expansion and school upgrade.
- The Municipality is requesting around $10 million for off-Reserve infrastructure upgrading to handle growth on-Reserve.
- Typically, there is insufficient ISC funding to meet all capital funding requests; the First Nation needs to address ISC funding gaps.

c. Higher than expected costs for water and solid waste should be addressed.

d. PW revenue from the Housing Dept. represents only 15% of the cost of providing infrastructure services to Member housing; consideration should be given to a policy that requires the full cost of infrastructure services to be charged to Housing – PW Band subsidy could be reallocated to Housing.

9.5 Environmental/public health

a. Environmental and health performance targets are met. Efforts should focus on continued compliance.

9.6 Customer Service

a. SFN has no structured way of communicating with or receiving input from its customers. An appropriate customer service strategy should be implemented, including improved communication on PW services and customer surveys.

9.7 Organizational Structure/Capacity

To handle planned growth in the Community and increased complexity of PW infrastructure, PW needs significantly enhanced capacity for planning and managing PW services. An initial, high-level capacity assessment is in Schedule A; a corresponding high-level capacity building plan is in Schedule B.

Key capacity requirements are:

a. Additional staff and consultant time will be needed to support the PW Director. The PW Dept. also needs to develop core competency in:

- Strategic and master planning.
- Project planning, project management and project design.
- Performance management.
- Asset management.
- Financial management.

Even if some or most of the specialist and day-to-day activities continue to be contracted out, the Dept. needs sufficient, skilled resources to monitor and direct those contractors.

b. Better integration is required between PW and Finance. For example, increased resources should be made available in the Finance Dept. to support ongoing PW financial management.

c. A PW capacity building and training plan should be developed, adopted and implemented including:

- Appropriate targets for Member employment.
- Relevant training in PW matters for staff in PW support departments to promote integration, efficiency and effectiveness.
- Periodic orientation workshops for Council.

d. PW needs new or improved business practices.

10. Financial Implications

The current PW budget is in ***Table 7***. The cost of service by residential household is in ***Table 8***. The 10 year Capital Plan is in ***Table 9***.

The total PW budget is $2,772,250; of this, $1,881,500 (68%) is for service charges according to the Municipal Service Agreement.

Key budget assumptions are:

- Non-PW Services (police, fire, animal control and library) are booked to the PW accounts to centralize all Municipal service charges and related revenues.
- PW administration costs are allocated among the PW service accounts (except Non-PW services) according to the budget for each service.
- Most city charges are allocated to the Leaseholds based on the cost/residential unit; city flat rate water and sewer charges and solid waste charges are billed separately for Member and Leasehold units and are accounted for accordingly.
- ISC funding applies only to services to Members.

  The following items apply to all PW activities and are centralized to PW Administration for convenience:

  - » Capacity building, including training and travel.
  - » All vehicle maintenance and insurance.
  - » All cellular phones.

Key budget issues are:

a. The Municipality (rather than the First Nation) decides the cost of Municipal charges; as a result, 68% of the PW budget (the Municipal charge component) is essentially non-discretionary. Except for volume-based sewer, water and solid waste, the First Nation can only reduce Municipal costs by cancelling one or more services; typically, the Municipality will not reduce service to the First Nation below its regular off-Reserve level of service.

b. The cost of water is higher than target; water consumption has been increasing significantly in recent years.

c. The cost of garbage disposal for Members is significantly higher than for the Leaseholds.

d. The First Nation receives no funding for police; other First Nations do receive such funding.

e. While the net cost to provide infrastructure services to Member housing is $1,506, PW receives only $190/unit from the Housing Dept.; First Nation subsidy makes up the balance.

Table 7. SFN PW Budget

Public Works Budget	PW Admin	Non-PW Services	Water	Sanitary Sewer	Drainage	Solid Waste	Buildings	Grounds	Roads	**Total**
Revenues										
ISC Funding										
Community Buildings							$42,000			**$42,000**
Roads and Bridges									**$0**	**$0**
Wastewater Systems				$0						**$0**
Water Systems			$0							**$0**
Electrical systems				$0						**$0**
Municipal Services		$1,750	$43,017	$21,743	$0	$20,000	$0	$0	$1,500	**$88,010**
Sub-total ISC		**$1,750**	**$43,017**	**$21,743**	**$0**	**$20,000**	**$42,000**	**$0**	**$1,500**	**$130,010**
Leasehold charges										
City Police		$406,006								**$406,006**
City Fire		$225,559								**$225,559**
City Animal Control		$2,256								**$2,256**

Public Works Budget	PW Admin	Non-PW Services	Water	Sanitary Sewer	Drainage	Solid Waste	Buildings	Grounds	Roads	**Total**
City Library		$61,352								**$61,352**
City water			$496,229							**$496,229**
City sanitary sewer				$250,821						**$250,821**
City solid waste						$150,000				**$150,000**
City roads									$18,045	**$18,045**
City storm sewer					$79,397					**$79,397**
Grounds								**$244,957**		**$244,957**
Sub-total		$695,172	$496,229	$250,821	$79,397	$150,000	$0	$244,957	$18,045	**$1,934,620**
Band Subsidy		$73,578	$108,073	$55,274	$25,425	$35,549	$293,632	$73,937	$22,152	**$687,620**
From Housing Dept.		$0	$7,500	$7,500	$5,000	$0	$0	$0	$0	**$20,000**
Misc. revenue		$0	$0	$0	$0	$0	$0	$0	$0	**$0**
Total Revenues		$770,500	$654,819	$335,338	$109,822	$205,549	$335,632	$318,894	$41,697	**$2,772,250**

Public Works Budget	PW Admin	Non-PW Services	Water	Sanitary Sewer	Drainage	Solid Waste	Buildings	Grounds	Roads	**Total**
Expenditures										
Central admin	$50,000									**$50,000**
City bills										
Police		$450,000								**$450,000**
Fire		$250,000								**$250,000**
Animal control		$2,500								**$2,500**
Library		**$68,000**								**$68,000**
Water - flat rate			$120,000							**$120,000**
Water - metered			$430,000							**$430,000**
San sewer - flat rate				$83,000						**$83,000**
San sewer - metered				$195,000						**$195,000**
Storm sewer					$88,000					**$88,000**
Solid waste						$175,000				**$175,000**
Roads									$20,000	**$20,000**
Sub-total City bills	**$0**	**$770,500**	**$550,000**	**$278,000**	**$88,000**	**$175,000**	**$0**	**$0**	**$20,000**	**$1,881,500**

Public Works Budget	PW Admin	Non-PW Services	Water	Sanitary Sewer	Drainage	Solid Waste	Buildings	Grounds	Roads	**Total**
Band Maintenance										
Materials & supplies	$0		$0	$0	$0	$0	$57,500	$40,000	**$0**	**$97,500**
Capacity building	$17,500									**$17,500**
Office expenses	$2,500									**$2,500**
Equipment rental	$500		$0	$0	$500		$1,250	$10,000	$0	**$12,250**
Equipment purchase	$1,000		$0	$0	$0		$5,000	$20,000	$0	**$26,000**
Travel	$2,500									**$2,500**
Vehicles & insurance	$20,000									**$20,000**
Cellular phone	$3,500									**$3,500**
Utilities	$0		$0	$0	$0	$0	$55,000	$5,000	$4,500	**$64,500**
Consultants	$50,000		$0	$0	$0	$0	$0	$0	$0	**$50,000**
Contracts	$0		$0	$0	$0	$0	$85,000	$25,000	$0	**$110,000**
Insurance	$0		$7,500	$7,500	$5,000	$0	$50,000	$1,500	$11,000	**$82,500**
Salaries & benefits	$150,000		$0	$0	$0	$0	$32,000	$170,000	$0	**$352,000**
Sub-total	**$247,500**	**$0**	**$7,500**	**$7,500**	**$5,500**	**$0**	**$285,750**	**$271,500**	**$15,500**	**$840,750**
PW Admin allocation	**$297,500**		$97,319	$49,838	$16,322	$30,549	$49,882	$47,394	$6,197	**$0**
Total expenditure	**$0**	**$770,500**	**$654,819**	**$335,338**	**$109,822**	**$205,549**	**$335,632**	**$318,894**	**$41,697**	**$2,772,250**

Table 8. SFN Community Infrastructure Service Costs/household

PW Services		Leasehold Housing Services		Member Housing Services		Band Buildings	Total
		Budget	$/unit	Budget	$/unit	Budget	
		Units	969	Units	105		
PW Administration		**$223,410**	**$231**	**$24,209**	**$231**	**$49,882**	**$297,500**
City Services	Fire, police, library,animal control	$695,172	$717	$75,328	$717		**$770,500**
	Garbage disposal	$150,000	$155	$25,000	$238		**$175,000**
	Water	$496,229	$512	$53,771	$512		**$550,000**
	Sewer	$250,821	$259	$27,179	$259		**$278,000**
	Storm sewer	$79,397	$82	$8,603	$82		**$88,000**
	Roads	$18,045	$19	$1,955	$19		**$20,000**
	Sub-total	$1,689,663	$1,744	$191,837	$1,827		**$1,881,500**
Infrastructure Maintenance	Water	$6,767	$7	$733	$7		**$7,500**
	Sewer	$6,767	$7	$733	$7		**$7,500**
	Storm sewer	$4,962	$5	$538	$5		**$5,500**
	Solid Waste	$0	$0	$0	$0		**$0**
	Grounds	$244,957	$253	$26,543	$253		**$271,500**
	Roads	$13,985	$14	$1,515	$14		**$15,500**
	Sub-total	$277,437	$286	$30,063	$286		**$307,500**
	Community Buildings					$285,750	**$285,750**
	Total	**$2,190,511**	**$2,261**	**$246,108**	**$2,344**	**$335,632**	**$2,772,250**
		ISC Funding		-$88,010	$838		
		Net Member unit cost		**$158,098**	**$1,506**		

Table 9. Sample First Nation Capital Plan ($'000s)

	Expenditure	Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Water, Sewer, Drainage	ACRS - deferred maint	$250	$175	$75									
	Other - deferred maint	unknown											
	Repairs & replacement	$750	incl	$75	$75	$75	$75	$75	$75	$75	$75	$75	$75
System upgrading	Project 1 - water	$775	$50	$125	$300	$300							
	Project 2 - water	$535			$35	$100	$200	$200					
	Project 3 - sewer	$625	$35	$90	$250	$250							
	Project 4 - sewer	$775			$50	$125	$300	$300					
	Drainage	$1,500	$50	$200	$250	$250	$250	$250	$250				
	Sub-total	**$5,210**	**$310**	**$565**	**$960**	**$1,100**	**$825**	**$825**	**$325**	**$75**	**$75**	**$75**	**$75**
Roads	ACRS - deferred maint	$150	$75	$75									
	Other - deferred maint	unknown											
	Repairs & replacement	$250	incl	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25
	System upgrading												
	Project 1	$2,500	$50	$250	$900	$900	$400						
	Project 2	$3,750		$150	$200	$1,100	$1,200	$1,100					
	Project 3	$4,250				$250	$250	$1,400	$1,400	$950			
	Sub-total	$10,900	$125	$500	$1,125	$2,275	$1,875	$2,525	$1,425	$975	$25	$25	$25
Buildings	ACRS - deferred maint	$350	$175	$175									
	Other - deferred maint	unknown											
	Repairs & replacement	$3,200	incl	$320	$320	$320	$320	$320	$320	$320	$320	$320	$320
	System upgrading												
	Admin & Health Centres	$2,000	$2,000										
	School & Daycare	$3,500		$500	$1,000	$1,000	$1,000						
	Sub-total	**$9,050**	**$2,175**	**$995**	**$1,320**	**$1,320**	**$1,320**	**$320**	**$320**	**$320**	**$320**	**$320**	**$320**
	Total projected expenditure	**$25,160**	**$2,610**	**$2,060**	**$3,405**	**$4,695**	**$4,020**	**$3,670**	**$2,070**	**$1,370**	**$420**	**$420**	**$420**

In addition to the regular PW budget, ongoing capital is required for repairing and replacing existing infrastructure when needed. Effective asset management should be implemented to establish the extent of capital requirements including any backlog of unfunded, deferred capital maintenance to be addressed.

The Draft Master Servicing Plan identifies around $15 million of on-Reserve infrastructure expansion to handle growth to 2030. In addition, SFN needs to address around $10 million in costs for off-Reserve infrastructure upgrades. SFN is considering a development cost charge structure to address this funding. However, managing cash flows and financial risk will be a critical issue for the First Nation given that much of the expense is up-front with revenues following as development occurs.

SFN urgently needs a comprehensive financial plan and related funding strategy that addresses all operating and capital requirements.

11. Discussion

SFN's existing PW infrastructure performs reasonably well and is in good condition. Most operational performance targets are routinely met. The new Administration building and Health Centre will meet the First Nation's needs for many years.

Looking forward, SFN is poised for further, major Member- and Economic-related development. The population on-Reserve could double by 2030 and reach almost 12,000 by 2100. The non-Member proportion is already over 80% and is projected to expand.

SFN infrastructure systems and services will expand accordingly. However, while current service arrangements with the Municipality have worked well to date, servicing for future development is proving to be controversial and expensive for SFN. Issues on securing access to municipal services have already led to uncertainty and opportunity cost.

Much of the required infrastructure expansion will be funded by the First Nation's own revenues and will not be subject to ISC requirements. As a result, SFN urgently needs to enhance its own institutional structure, policies and standards for infrastructure funding, planning, design, construction and operations.

For example, PW urgently needs to increase its capacity and to improve its transparency, accountability and efficiency. For example:

- Like many small community organizations, PW focuses on day-to-day operations.
- Current resources are already stretched to handle existing programs and facilities.
- PW has limited capacity for strategic planning or financial management.
- PW has limited technical core competency.
- There is limited, useful information for asset management.
- There is no capital funding strategy to sustain infrastructure.
- PW operational and financial management practices urgently need to be expanded and enhanced.

12. Action Plan

Table 10 presents a Public Works Improvement Action Plan that is geared to addressing, over time, the issues and challenges identified in this CISP. Each action is scored and prioritized according to the rating matrix in Schedule C. As presented, Community objectives for service viability/sustainability and for promotion of economic development are rated higher than sustaining SFN lands and informing Community members. The resulting scores for individual actions are biased accordingly.

Changing the weighting of individual Community Objectives will change the relative priority of individual actions.

The Action Plan is a roadmap for setting priorities and focusing resources.

- Actions with scores higher than 175 should be considered urgent and important.
- Actions with scores between 100 and 174 should be considered important but less urgent.
- Actions with scores less than 100 should proceed but their deferral represents no significant strategic, financial, or operational risk.

The Action Plan should be considered as a "living" process. Prior to implementation, each action should be scoped in detail and its priority should be reassessed before proceeding with work. New issues and resulting actions will be identified over time; those actions should be added to the list and priorities adjusted accordingly. Some actions may become obsolete due to new information or circumstances; again, the Action Plan should be refined accordingly.

13. Critical Success Factors

The following factors are critical to achieving the best results from the CISP:

a. SFN should use the CISP daily as the basis for managing its PW activities.

b. The CISP should be considered a "living" process. Service and infrastructure status, assumptions, priorities and work plans should be regularly adjusted based on new information and circumstances.

c. Council and Administration should actively engage in the CISP process and should use the Plan for day-to-day PW decision making.

d. SFN should refine and continually improve the CISP process based on results and experience.

e. SFN CISP should look for early wins, thereby enhancing commitment to the process and providing incentive for continued efforts.

14. Implementation

Steps to successfully implement the CISP involve the following:

a. PW should submit a draft, up-to-date CISP to Council annually to reflect new information, changing circumstances and the results of experience gained from the prior year. The updated CISP should address financial performance, the status of PW activities and projects, and key issues to be addressed.

b. Council should review and provide input on the draft CISP in November each year.

c. PW should prepare its budget and capital funding request using Council input.

d. Council should adopt the up-to-date CISP, PW budget, and capital funding request by March each year.

e. PW should implement the CISP through its day-to-day activities; PW should routinely monitor and assess the performance of programs, projects and activities and make necessary adjustments to meet targets and to meet budget.

f. PW should use the approved CISP to make annual applications for ISC funding – ICMS, MTSA, FNIIP and other funding initiatives.

g. PW should report to Council routinely (at least quarterly) on CISP implementation.

Table 10. SFN PW Action Planhold

	Public Works Improvement Action Plan	Community Services are Viable & Sustainable	Promote Sustainable Economic Development	Sustain SFN Lands	Community Members are Informed	Sub-total	Urgency	Total
		3	3	2	2			
Policy/Legal	Adopt 2020 CISP - process & plan	5	5	5	5	50	5	250
	Adopt an improved, more integrated operational/financial PW/Council liaison & reporting process	5	5	5	5	50	5	250
	Adopt high level development projections for service planning and funding	5	5	5	5	50	4	200
	Adopt an SFN PW asset management policy	5	5	2	2	38	5	190
	Monitor and continually refine terms for Municipal services	5	5	1	3	38	5	190
	Adopt SFN specific standards for infrastructure planning, design & construction	3	3	2	1	24	5	120
	Secure committed access to PW services that enable SFN's long term development	5	5	2	1	36	3	108
Service Planning	Adopt a Reserve-wide Integrated Stormwater Management Plan	5	5	5	5	50	5	250
	Confirm SFN jurisdiction/role in regulating/controlling Stormwater discharges entering the Reserve	5	5	5	5	50	5	250

	Public Works Improvement Action Plan	Community Services are Viable & Sustainable	Promote Sustainable Economic Development	Sustain SFN Lands	Community Members are Informed	Sub-total	Urgency	Total
		3	3	2	2			
Service Planning	Confirm capacity of highway culverts; address deficiencies	5	5	5	5	50	4	200
	Improve the CISP and keep it up to date continually.	5	5	5	5	50	4	200
	Confirm available capacity in municipal sewage interceptors	5	5	2	2	38	5	190
	Adopt & routinely update a Reserve-wide master services plan & funding strategy	5	**5**	**3**	**3**	**42**	**4**	**168**
Operations and Maintenance	Establish SFN asset inventory & management/updating process	5	5	4	3	44	5	220
	Confirm location of all PW assets	5	5	3	3	42	5	210
	Adopt PW operational risk management plan	5	5	5	3	46	4	184
	Adopt PW safety monitoring, management & reporting plan	5	2	2	3	31	5	155
	Establish maintenance management plan (MMP) & life-cycle budget for the new Administration Building	5	2	2	3	31	5	155
	Adopt "good practice" maintenance program for water, sewer, drainage & road systems	4	3	2	3	31	5	155

	Public Works Improvement Action Plan	Community Services are Viable & Sustainable	Promote Sustainable Economic Development	Sustain SFN Lands	Community Members are Informed	Sub-total	Urgency	Total
		3	3	2	2			
Operations and Maintenance	Adopt SFN condition & service life rating process	5	3	3	3	36	4	144
	Establish MMP & life-cycle budget for the Health Centre	5	2	2	3	31	4	124
	Address gaps between good practice & Municipal O&M under MTSA	4	3	2	3	31	4	124
	Confirm condition & projected service life for all PW assets	5	3	3	3	36	3	108
	Secure rights-of-way for all SFN infrastructure as required	3	3	2	1	24	4	96
	Develop comprehensive maintenance plans for all Band -owned Buildings	5	2	2	3	31	3	93
	Confirm feasibility of changing O&M & solid waste service providers	4	3	2	3	31	3	93
	Establish maintenance records for all SFN infrastructure	4	3	2	3	31	3	93

	Public Works Improvement Action Plan	Community Services are Viable & Sustainable	Promote Sustainable Economic Development	Sustain SFN Lands	Community Members are Informed	Sub-total	Urgency	Total
		3	3	2	2			
Financial	**Implement a structured PW financial management & performance reporting process**	5	5	1	5	42	5	210
	Minimize cross subsidies to improve transparency	5	5	1	5	42	4	168
	Monitor & report on cost of service	5	5	1	5	42	3	126
	Adopt multi-year PW capital & O&M financial projections	5	5	1	4	40	3	120
	Adopt a capital funding strategy for PW infrastructure	5	5	1	4	40	3	120
	Quantify the backlog of deferred capital maintenance	5	5	1	4	40	3	120
	Align SFN & ISC ICMS records	3	2	1	3	23	4	92
	Pursue funding for Police	5	2	1	2	27	3	81
	Adopt integrated PW/Finance process for tangible capital asset reporting	3	2	1	2	21	3	63

Public Works Improvement Action Plan		Community Services are Viable & Sustainable	Promote Sustainable Economic Development	Sustain SFN Lands	Community Members are Informed	Sub-total	Urgency	Total
		3	3	2	2			
Environmental / Public Health	**Continue monitoring & reporting on environmental & public health performance**	5	2	3	3	33	4	132
Customer Service	Develop public information & education tools.	3	3	3	5	34	3	102
	Assess customer satisfaction.	3	3	3	5	34	3	102
Organizational Structure/Capacity	Enhance PW business practices on a priority basis	5	5	5	5	50	5	250
	Enhance level of integration between PW & Finance	5	5	1	4	40	5	200
	Implement a PW Capacity Building Plan (& related training plan); keep up to date	5	5	2	3	40	5	200
	Hire a PW Business Assistant	5	5	1	3	38	5	190
	Hire a PW Superintendent	5	5	1	3	38	5	190

Schedule A: Asset Management – SFN Practice Review

Introduction: As part of the recent ISC report "Enabling Sustainable Operations and Maintenance Practices", ISC and FN staff reached consensus on a description of "Good O&M related Asset Management Practices."

The assessment below compares that Good Practice to current practice at SFN. It focuses on Operations because:

- O&M typically represents > 80% of life cycle costs.
- Planning, design and resulting capital expenditures should be geared to achieving cost-effective Operations.

System Planning – establishes overall capital and operating requirements for infrastructure

- Inadequate links between the SFN Community and Capital/O&M Plans:
- The Community Plan is very high level and is not "grounded" to the feasibility/cost of implementing it.
- No structured process for PW system long term master planning and budgeting.
- Limited ISC funding or other support for PW master planning – focus is at project vs. system level.
- Growing need for FN vs. ISC funding is not well addressed at the system level – most major SFN infrastructure needs are driven by Economic Development and is not funded by ISC.
- Effective planning and informed decision making processes are needed.

Design – establishes scope of asset; materials, equipment and construction specifications

- SFN relies on consultants for infrastructure design.

Consultants' Technical vs. O&M focus:

- Design process typically focuses on technical vs. O&M aspects of capital works.
- Operators typically have little to no say in the asset design process.
- Consultants tend to focus on best market technology vs. best technology for the First Nation application – local factors often require a less complex, less expensive approach.
- Many consultants lack practical O&M experience.

Life Cycle Cost (LCC) Assessment:

- The life cycle evaluation process is not well defined or understood; up to individual consultants to determine approach; no consistency.
- Value/usefulness of LCC assessment can be limited by lack of consideration of First Nation capacity to handle a project – can result in significantly higher than expected O&M costs and unexpected issues.
- No systematic process for checking O&M estimates against actual ISC/First Nation funding available at the feasibility stage – so, capital projects can proceed without adequate funding in place for O&M.

Limited, if any, application of "design to cost" approach; typically, design drives cost rather than the other way around.

Commissioning & Handover – ensures that the asset complies with and works according to specifications; ensures that O&M staff are fully familiar with new assets and are trained accordingly

Limited Handover Process:

- O&M staff are typically brought in at the time of handover vs. during design.
- Limited effort at orienting/training staff at handover.
- Consultants may lack the necessary O&M knowledge to conduct effective handover.

Manuals and O&M Plans:

- Consultants often hand over the project completion report and supplier manuals with little explanation or orientation of First Nation staff.
- Often, manuals are overly complicated.
- Typically, detailed preventative maintenance plans for a new facility are not provided; typically, there is no ISC requirement to deliver task-based O&M plans – only Original Equipment Manufacturer (OEM) materials.
- Need a process to integrate project O&M needs with overall system O&M plans/processes.
- Troubleshooting guide would be useful – not typically provided at handover.
- Better communication/explanation on warranties is needed.

Tools/Parts:

- Necessary tools and parts are not typically provided as part of handover.

Operations & Maintenance

- The Municipality provides O&M services for the water, sewer and roads systems.
- SFN provides O&M services for drainage and Community buildings.

Reactive Approach to O&M:

- SFN is usually reactive vs. proactive on O&M issues.
- No detailed, comprehensive inventory of "as built" drawings.
- No detailed O&M plans for assets.
- No maintenance records for most SFN assets – need to transfer data from the Municipality.
- O&M is not monitored/measured and compared to KPIs.

ACRS:

- ACRS only applies to ISC funded assets.
- ACRS provides good information but only for asset components that can be assessed visually; ACRS does not adequately address, for example, the condition of underground water and sewer mains; underground components of structures.
- Comprehensive asset management requires a more extensive condition assessment process.

Financial Management

Adequacy of O&M funding:

- The true costs of O&M only become evident after commissioning.
- ISC only funds O&M for ISC funded assets.
- SFN lacks the necessary processes for proactively tracking actual costs vs. budgets, so issues of inadequate funding usually go unaddressed.
- One size fits all ICMS approach can result in underfunding of larger facilities.
- ISC funding typically does not change with asset condition.
- Growing need for First Nation vs. ISC funding is not well addressed.
- Inadequate planning/funding for asset repairs and replacement.
- No Reserve funds in place for repairs and replacement.

Budget and Cost Tracking:

- SFN does not budget for and track revenues and costs against the key O&M categories, so it is difficult to track costs for specific activities and to identify issues with sufficiency of funding.
- SFN does not keep good records for O&M costs.
- Current SFN financial information is not well suited to managing financial performance – focus is on accounting vs. financial management.
- Usually, O&M receives financial information too late to be useful in managing costs.

Inadequate Link between Capital and O&M:

- No accountable link between capital and O&M.
- Inadequate O&M funding promotes increased capital costs for repair and replacement (often prematurely) – link is not quantified and followed up on.

Annual vs. Long Term Funding:

- Current annual funding approach is a barrier to effective asset management.
- Capital and O&M funding silos are a barrier to optimizing life cycle costs.
- Inability to carry over funding year over year prevents establishing funding reserves.
- Annual vs. long-term funding makes it difficult to buffer high and low years.

Limited ISC Funding Available:

- ISC typically funds projects for health and safety as a priority – limited funding for other capital work.
- Focusing efforts on ISC funding can be a barrier to effective asset management.

Business Practices and Systems

- Limited use of structured practices and systems for asset management – mostly reactive.
- Except for the PW Director, SFN has no dedicated staff for PW asset planning and management – reliance on consultants.

Council/Senior Management (SM) Involvement

- Limited Council engagement in PW planning, management and operations.
- Limited Council understanding of impacts of poor asset management.

Schedule B: SFN PW Capacity Building Plan

Introduction

This section provides suggestions for building capacity within the SFN Public Works (PW) Department. The assessment considers both current and future conditions and provides a basis for planning and implementing organizational development including:

- Key PW functions.
- Key PW roles and responsibilities.
- Organizational structure.
- Staffing – number and type.
- Business processes, practices and systems.
- Training and other skill development.

SFN Public Works Management – Strategic Considerations

Operational Factors

Significant expansion of existing infrastructure systems is underway to support Member and Economic related development. For context, plans are for growth from around 1,150 residential units in 2020 to around 1,750 by 2030 and to around 6,700 by 2100.

In addition to significantly expanding the inventory of more traditional water, sewer and road infrastructure, SFN is also implementing much more complex and comprehensive maintenance for major new buildings. SFN is also considering First Nation Owned and/or operated storm water management facilities, including detention and treatment.

To handle such growth and increased complexity, the SFN PW Dept. needs significantly enhanced capacity for planning and managing PW services and infrastructure.

Capacity Building - Guiding Principles and Criteria

The following principles and criteria should guide capacity building:

a. Responsibility, accountability and authority should be aligned. People should have decision making authority over matters for which they are responsible and that affect their performance.

b. Efficiency and effectiveness should be promoted – the organizational structure and allocation of roles and responsibilities should promote efficiency and productivity.

c. Flexibility should be promoted to accommodate changing conditions.

d. All core PW functions should be adequately resourced (staff, money, equipment, business processes, practices, systems, and relevant skills).

e. Staff retention and succession planning should be promoted.

Capacity Assessment – Current PW Management at SFN

Typical core PW functions include:

f. Effective Liaison with Council – keeping Council sufficiently informed and involved.

g. Strategic and Master Planning – thinking, planning and acting ahead.

h. Project Planning – developing the feasibility, scope and priority of projects.

i. Project Management – keeping projects on track.

j. Project Design – detail technical design and construction management.

k. Financial Management – ensuring that PW is efficient and financially viable.

l. Operations Management – ensuring that PW services function well.

m. Business Support – ensuring that PW activities are adequately supported.

Table B1 presents a typical breakdown of PW responsibilities to enable these core functions.

Table B1: Typical Key PW Management Responsibilities

Function	Responsibilities
Public Works Director	Responsible to Council and Band Administration for all matters related to planning and delivering PW services and resulting performance including ▪ Liaison with Council and Band Administration, the Community and with internal and external agencies ▪ Strategic planning ▪ Business planning and management ▪ System master planning ▪ Project leadership ▪ Staffing, including training and development ▪ Financial management ▪ Performance management and reporting
	Time allocation: 65% on Strategic/Business level issues; 20% on Tactical issues; and 15% on day-to-day activities
O&M Superintendent **(Utilities; Buildings & Roads)**	Reporting to the PW Director, responsible for all aspects of System Operations including: ▪ Staff supervision ▪ Maintenance planning and management ▪ O&M input to project planning and implementation ▪ Stores ▪ Operational safety planning and safety management ▪ Day-to-day asset management ▪ Development (with support from Finance) and management of O&M budgets ▪ Management of related sub-contracts ▪ Quality management ▪ Sampling and analysis – e.g. air quality, water and wastewater ▪ Monitoring and reporting on compliance with environmental and contractual standards ▪ Performance assessment and reporting
	Time allocation: 15% on Strategic/Business level issues; 85% on Tactical and day-to-day activities

Function	Responsibilities
Manager – Engineering and Technical Services	Reporting to the PW Director, responsible for technical matters related to the planning, design, and construction of PW facilities and to the delivery of PW services, including: ▪ Technical support for asset management » System master planning » Condition and capacity assessments » Service life assessment based on life cycle factors » Failure assessment » Capital planning » Optimizing efficiency and effectiveness – capital and O&M » Project identification and appraisal » Developing multi-year, integrated financial projections – capital and O&M ▪ PW systems monitoring and assessment ▪ Project management » Supervision of engineering » Contract preparation and management » Construction management » Project liaison
	Time allocation: 15% on Strategic/Business level issues; 85% on Tactical and day-to-day activities

After reviewing conditions at SFN in terms of these core functions, key conclusions are:

- Like many other small community organizations, the SFN PW Dept. focuses most of its effort on day-to-day needs for building, operating and maintaining infrastructure.
- Current resources, with some consulting support, are already stretched for operating and maintaining existing facilities.
- The Dept. has limited capacity for strategic and business management, system master planning, project design and management and financial management.
- The Dept. urgently needs additional technical and O&M resources to provide the PW Director with more time to manage.

The following high-level Capacity Building Plan is geared to addressing these issues:

a. Organization Structure

- The PW Director, appropriately resourced, has the skills and capacity to lead strategic and business planning and management.
- The Dept. needs to develop core competency in:
  - » Strategic and master planning.
  - » Project planning; project management; and project design.
  - » Construction management.
  - » Contract management.
  - » Performance management.
  - » Asset management.
  - » Financial management.

Even if some or most of the specialist and day-to-day activities continue to be contracted out, the Department needs sufficient, skilled resources to monitor and direct those contractors.

- The PW Director should have greater authority and accountability for financial management – e.g. accounting, financial projections, cost management and reporting – the technical, operational and financial aspects of PW need to be fully integrated to achieve efficiency and effectiveness.
- The Department should have separate PW functions, each with its own budget, account structure and performance reporting – e.g. Utilities, Buildings, Grounds, Roads. One person may be responsible for more than one of these functions.

b. Staff & Support Resources

- Enhanced PW management will increase the PW Director's workload by 30% to 50%, possibly more if sufficient support resources are not available.
- Improved system and project planning, project design, and project management requires specialist skills not currently available within the PW Department.
- Additional staff and consultant time will be needed to support the PW Director.
- PW needs additional input by support Depts. – e.g. the Department needs a dedicated part- or full-time staff person to handle PW related financial management; while reporting to PW day-to-day, such staff should be part of the Finance Department to ensure consistency in financial practices and availability of resources for peak workload, vacation, etc.
- Comprehensive operations and maintenance plans should be prepared for all PW infrastructure; O&M staffing or input by the Municipality should be adjusted accordingly.
- Support resources (temporary staff and contractors) should be hired as needed.
- The Department should routinely liaise with support departments on performance and on the scope of support required.

c. Business Processes and Practices

- Council and Administration should agree an improved liaison process for PW; for example: annual submission of long-range strategic and business plans; routine reporting on PW performance; routine (e.g. monthly or quarterly) meetings with Council and/or a Committee of Council.
- PW needs new or improved (documented) business practices for:
  - » Strategic/Business planning and management.
  - » Master planning.
  - » Design and operating policies and standards.
  - » Asset management.
  - » Maintenance planning and management.
  - » Performance management.
  - » Decision making (including setting priorities).
  - » Sustainable funding including multi-year financial projections – capital and O&M.
  - » Ensuring the least life cycle cost.
  - » Budgeting and accounting based on PW activities.
  - » Cost management and variance assessment.
  - » Performance (incl. Financial) reporting.

d. Training and Skill Development

- Formal training and staff development plans should be adopted and routinely updated – at least annually – based on operational needs.
- The PW budget should provide funds for at least 9 days of training for each of the PW staff – at least for the next 5 years – a minimum of 5 to 6 days per person should be provided over the long term.
- Staff in support departments should receive sufficient, relevant training in PW matters to promote efficiency and effectiveness
- Periodic orientation workshops should be provided for Council.

e. Equipment

- O&M equipment should be acquired according to the MMPs.
- PW will require routine or periodic access to:
- Project planning and management tools – including software.
- Infrastructure planning tools – e.g. hydraulic models; asset management software; improved GIS and MIS.

The decision to buy or rent equipment should be based on cost, complexity and workload.

Schedule C: Action Plan Rating Matrix

Rating	Community Services are Viable & Sustainable	Promote Sustainable Economic Development	Sustain SFN Lands	Community Members are Informed
	Extent to which action contributes to: ▪ Establishing long-term strategy & plans ▪ Improving scope or availability of services ▪ Improving efficiency ▪ Reducing costs ▪ Improving reliability ▪ Reducing risk	Extent to which action contributes to: ▪ Improving scope or availability of services ▪ Securing access to services ▪ Improving efficiency	Extent to which action contributes to: ▪ Environmental protection ▪ Compliance with land use objectives	Extent to which action contributes to: ▪ Improving customer knowledge ▪ Improving customer satisfaction ▪ Promoting appropriate customer behavior – e.g. water conservation
1	**No meaningful contribution**	**No meaningful contribution**	**No meaningful contribution**	**No meaningful contribution**
2				
3	Significant contribution	Significant contribution	Significant contribution	Significant contribution
4				
5	Substantial contribution	Substantial contribution	Substantial contribution	Substantial contribution

Rating	Priority
1	No real urgency; no significant strategic, financial or operational risk of action is deferred
2	Should be completed within 60 months; limited strategic, financial or operational risk of not proceeding now
3	Should be completed within 24 months; major strategic, financial or operational risk of not proceeding now
4	Should be completed within 12 months; major strategic, financial or operational risk of not proceeding now
5	Complete at the earliest; imminent deadline or substantial strategic, financial or operational risk of not proceeding now