

An Asset Management Guide:
Lessons from BC First Nations Communities

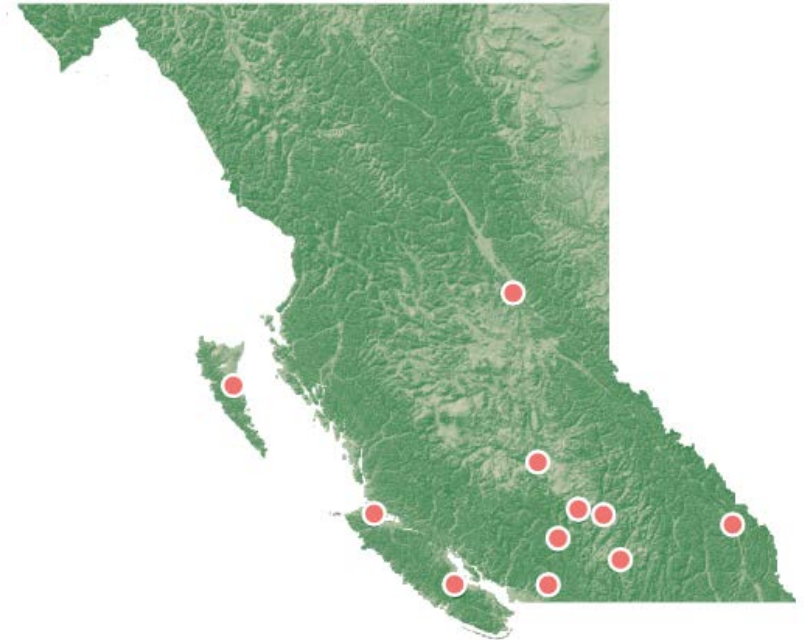


1. Asset Management in the BC Region
2. Little Shuswap Lake Indian Band Asset Management Program
3. Developing the Asset Management Guide
4. Key Outcomes from the Guide

Our Partnerships

Thank you to the following major contributors, who have helped make this Guide a valuable and relevant resource for communities across the Region and beyond:

- Esk'etemc
- Gwa'sala-'Nakwaxda'xw Nations
- Little Shuswap Lake Indian Band
- Lytton First Nation
- McLeod Lake Indian Band
- Skeetchestn Indian Band
- Skidegate
- Sts'ailes
- Tk'emlúps te Secwepemc
- Tseshaht First Nation
- Westbank First Nation



- There are **198 distinct First Nations in BC**
- Many First Nations communities in BC are already practicing elements of asset management in their communities
- Since 2010, ISC has delivered a series of Sustainable Infrastructure Workshops annually to support E-ACRS implementation by First Nation communities in BC
- **Participation in Sustainable Infrastructure Workshops**
of Communities: 111
- **Participation in Asset Management Pilot Projects**
of communities : 24

Little Shuswap Lake Indian Band

- Located in the southern interior of BC in the Thompson River Basin
- Community-driven band supporting over 300 members
- LSLIB provides residential housing, water, sewer, drainage, and solid waste and recycling services to community members
- Also manage the community road network, community buildings, and leased and commercial properties, including a 72-room hotel and conference facilities, and an 18-hole golf course



Our Asset Management Journey Thus Far ...

- Staff participation in INAC (now ISC) asset management (AM) workshops
- Demonstrated staff capacity and interest, good maintenance practices
- Expressed interest to ISC in being a pilot community
- In 2011, LSLIB was approved to take part in the AM Pilot Program
- LSLIB went on to complete a Phase 2 AM program in 2012
- AM Guide for BC First Nations participation
- A lot of visible successes and progress since initiation
 - Increased workload due to identified needs
 - Additional staff to maintain data



Inventory Review

- Determined types of assets, and which details to record

- Fleet
- Housing
- Public Buildings
- Water Systems
- Roads
- GIS

LSLIB - Fleet Info.

Plate	VIN	Yr	Make	Model	Dept	2013 amount			Imp. Req.
						net prem.	lic. fee	Amount	
EC3046	1HTWCA08BJ13480	2011	International	Fire Pumper	Fire Dept	1188	680	1868	yes
1269N4	F81EVC0904	1977	Ford	Fire Pumper	Fire Dept	679	416	1095	yes
10739Y	2H9B1HW0R0003068	1994	Highliner	boat trailer	Fisheries	152	32	184	no
HG2187	1FDE48P2H080964	2005	Ford	E450 Econo	Village O&M	979	230	1209	no
7669BH	1FTHS24L7VH483749	1997	Ford	E350 Econo	Village O&M	713	108	821	no
AT6111	4CAAJN43C2620662	2012	Bobcat	3400	Village O&M	31	12	43	no
CG1580	1FTYR4H4479A72476	2007	Ford	Ranger	Village O&M	1147	85	1232	no
ULJ65G	28LLC1168R091533	2008	Cass	trailer (8'x10')	Village O&M	86	23	109	no
UPW30B	28911180AN126602	2010	Spill Fire	wood splitter	Village O&M	33	23	56	no
XO7614	LV3108132545	1998	John Deere	S310 tractor	Village O&M	204	45	249	no
0955KJ	1F1DUFSH1CE082612	2012	Ford	F550 (garb.)	Village O&M	1454	12	1466	yes
47774C	5P1B12828101821	2008	Snake River	trailer (bobcat)	Village O&M	133	32	165	yes
5088JE	1F1DWF3799E056240	2006	Ford	F350	Village O&M	1059	395	1454	yes
290FXG	2F1M2AS0276AA8911	2006	Ford	Freestar (van)	O. Lodge	1069	61	1130	no
5829N	1F1YR18X2K0271572	1999	Ford	Ranger	O. Lodge	1462	921	2383	no
0327DP	2F1K14E48C0618276	2011	Toyota	Matrix	Wellness	1322	53	1375	no
4152HB	1F1B831L13A832680	2003	Ford	E350 Econo	Wellness	870	230	1100	yes
28175D	2H9B1Y0W2D8063038	2013	Highliner	CL21-2B	Wellness	?	?	?	no



- Collecting Asset Details in the Field (ongoing)
- Data Entry of Assets in Asset Management System




Status	Asset ID	Type	Description	Category
IN REPAIR	1515-D1.LSLR	BAND OWNED - RENTAL UNIT	1515-D1 LITTLE SHUSWAP LAKE RD	HOUSING
ACTIVE	1515-D1-CARPORT	CARPORT/GARAGE	1515-D1 LSLIB WEST - CARPORT	OUT BUILDINGS
ACTIVE	1515-D1-STORAGE	STORAGE UNIT	1515-D1 LSLIB WEST - STORAGE	OUT BUILDINGS
ACTIVE	DISHWASHER0020	DISHWASHER	DISHWASHER - 1515-D1 LSLR	APPLIANCE
ACTIVE	DRYER0033	DRYER	DRYER - 1515-D1 LSLR	APPLIANCE
ACTIVE	FRIDGE0061	FRIDGE	FRIDGE - 1515-D1 LSLR	APPLIANCE
ACTIVE	HOODFAN0031	VENTILATION - HOOD FAN	HOOD FAN - 1515-D1 LSLR	HVAC
ACTIVE	HOTWATERTANK0065	HOT WATER TANK	HOT WATER TANK - 1515-D1 LSLR	APPLIANCE
ACTIVE	HVAC0011	HVAC	HVAC - OUTDOOR UNIT - 1515-D1 LSLR	APPLIANCE



Condition Inspections

- Extended Asset Condition Reporting System
- Consultants
- Staff Capacity

Item	Comments	Estimated costs
1. Site. 	Reducing hazardous trees and remove brush on the property to help with this low lying lots drying ability.	\$2,000.00 for the property
2. Roof Coverings. 	Moisture noted on the underside of the sheathing. More notably around the avalanche guards. Suspect the avalanche guards are retaining ice/snow in these areas. Replace failing metal roof fasteners c/w neoprene or rubber washer in these areas. The roof coverings are 14 years old. It is not an uncommon requirement to replace the metal roof covering fasteners as these rubber washers fail. Note: Standing seam metal roofs with hidden fasteners provides a higher quality metal roof and are becoming industry standard.	\$2,000.00 for both units
3. Gutters & Downspouts. 	The roof water is being distributed to an underground distribution system. It is not uncommon for these systems to get clogged with debris from the gutters over time and at times be connected to the foundation perimeter drainage systems. This system should scoped with a camera and cleaned to ensure they are functioning as intended. Additional downspouts are recommended to correlate with the total length of gutter on this complex. There are visible water marks on the gutters where water has been overflowing. Remove downspouts and extend away from the structure a minimum of 6 feet as an interim solution.	High priority. \$2,000.00 for both units

#4. Exterior Claddings & Vent hoods. 	The exterior claddings and plastic vents for the crawspace ventilation, dryers vents and the Humidex ventilation system(s) generally requires replacement as they are brittle and have exceeded their useful life cycle. Total number: 4 to be replaced Note: There are 2- 6-inch vents on each side of the duplex (4 total) that provide ventilation to the (heated) crawspace. <i>Unit # 1 screen is missing which appears to be allowing vermin access into the dwelling. Repair broken vinyl siding trims and seal off the crawspace vents x 4.</i> Soffit damage note & requires replacement.	High priority \$1,500.00 For both units
#5. Stairs & Landings. 	There are no handrails on the front stairs and landings. Handrails are required on exterior stairs having more than 3 risers. Total number: 2 sets of handrails, one for each unit	High priority \$1,600.00 for both units
#6. Crawspace. 	There is an extensive amount of rodent feces in unit #1, which correlates with the open vents to the crawspace and demonstrates the need for draft proofing/ sealing of the buildings. Due to amount of feces and efflorescence worker protection, controlling dust, controlling air flow upwards and into the HVAC system is recommended. Cleaning procedures and worker protection is recommended prior to commencing this work in these crawlspaces. Total: both crawlspaces require cleaning.	High priority \$6,000.00 + for both units



Financial Planning and Prioritization

- Determine Asset Lifecycles
- Determine Funding Options
 - ISC
 - CMHC
 - Own Source

Replacement Value of LSLIB's Assets		
Engineering Assets	Water System	\$9,875,000
	Sanitary Sewer System	\$3,796,000
	Roads & Drainage	\$5,046,000
	Electrical System	\$1,000,000
	Solid Waste	\$100,000
Other Assets	Buildings & Facilities	\$7,500,000
	Housing	\$7,900,000
	Fleet & Equipment	\$396,000
		to be determined
	Land Improvement	to be determined
	Golf Course	
Total		\$35,613,000

Theoretical Annual Investment: \$ 1,097,000



- Leadership and Management Engagement
- Employee Buy-in
- Community Involvement

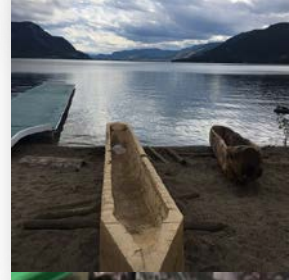
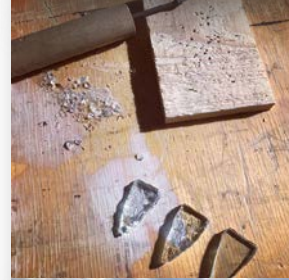
WORK-ORDER PRIORITIZING

Have you found yourself wondering when your maintenance request will be completed? Perhaps you are left wondering if you will ever get any kind of response from your work-order request, yet you've seen your neighbour has had our maintenance request. Next month's issue will include a detailed article on how requests are prioritized.



Lessons Learned

- Go slow – Getting the info is the biggest battle.
- Collect as much info as possible BEFORE attempting to use an AM program. Fill it up prior to using it – if possible.
- It will take several people many months (or even years) to identify, gather, sort, input asset data – the ‘gather-ers’ should not start to use the program as it is not yet set up. Identify one (1) person to practice using the new system until they are confident the program is ready for use.
- Make sure that everyone on the ‘team’ knows what their role is early on. Everyone will have a part in the creation/upkeep of Asset Management.
- You’re going to go down the wrong path at least a couple of times. Don’t get discouraged – go back to Step 1 and try again using your recent experience as a guide.
- There are no shortcuts to building an AM system; it is a time consuming and tedious process. The more people who understand the benefits of recording and keeping AM records up to date, the easier it will be to continue moving forward with building and maintaining the AM system.

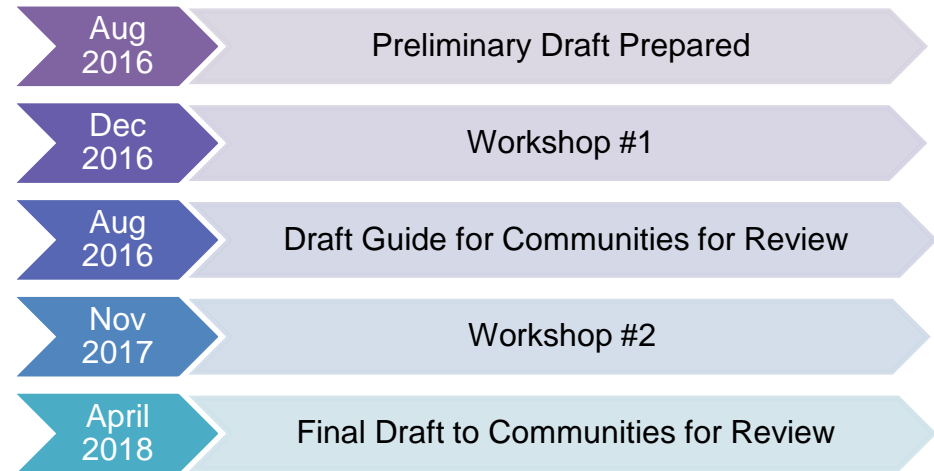


The Asset Management Guide is designed to help First Nations communities sustainably manage their infrastructure assets over their full lifecycles. It introduces concepts, systems and tools to start a new Asset Management Program, or to further develop an existing one. KWL's role was to act as facilitators to support the development of a guide that:

- Introduced **key** asset management **concepts**;
- Provided a **framework for designing** your community's Asset Management Program;
- Identified resources to support program **implementation**; and,
- Shared **lessons learned** from communities across all stages of the asset management process.



- Online & Print document with hands-on tools and techniques to support communities as they develop and maintain their asset management system
- Tailored to the unique context of Indigenous communities in BC
- Culturally-responsive and developed with ongoing input from BC Indigenous communities
- Designed to build on stories and examples of asset management programs that Indigenous communities have already developed





Asset Management Guide for BC First Nations

This Guide Belongs to

Community

Weytkp

(Shushwap)

Tanshi

(Michif)

Ahnee

(Ojibwe)

'Nit

(Nisga'a)

Dännch'e

(Athapascan)

Yawc

(Haisla)

Wotziye

(Dene)

Hin dahl willa win?

(Gitksan)

dahooja

(Dakelh)

Tansi

(Cree)

Yo

(Kwakwala)

k'alhwá Tacw?

(Lilwat)

Oki

(Blackfoot)

With Gratitude

The Guide has been developed by British Columbia (BC) First Nations, for BC First Nations – with ongoing input from community representatives across all stages of their own asset management journey. These communities have shared their time, experiences, and hard work to support improvements to the quality of life of their members through asset management. Stories profiled throughout this Guide detail their programs with the hope that other communities will build on these experiences and lessons learned.

Contributing Communities

Thank you to the following major contributors, who have worked together to make this Guide a valuable and relevant resource for communities across the BC Region and beyond:

- Esk'etemc
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- Tseshah First Nation
- Westbank First Nation



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A Note about Artwork

We offer our thanks to the following artists for sharing their work and allowing us to feature it within this Guide:

- Jamin Zuroski – 'Namgis First Nation
- Darcy Deneault – Skeetchestn Indian Band
- Sam Mountain – Gwa'sala-'Nakwaxda'xw Nations



TOP: Asset Management Guide Working Group

BOTTOM: Guide Development workshops





Content

- PART 1 – Carving our Future: Understanding Asset Management** 10
 - The Journey Thus Far 11
 - What are Assets?..... 12
 - What is Asset Management?..... 13
 - Why Practice Asset Management? 14
 - How Do We Get Started?..... 16
 - The Asset Management Framework..... 17

- PART 2 – Weaving the Pieces: Developing Your Program** 18
 - Your Asset Management Journey** 19
 - Community** 25
 - Working with Chief and Council..... 28
 - Communicating with Members..... 29
 - Information** 31
 - Inventory 32
 - Valuation 36
 - Life Expectancy and Condition..... 37
 - Systems and Processes** 41
 - Vision and Strategy 42
 - Levels of Service 46
 - Maintenance Management 48
 - Risk and Prioritization..... 51
 - Money** 55
 - Financial Planning 56
 - Long Term Financial Planning..... 58
 - Annual Budgeting..... 64
 - Funding 65

- PART 3 – Paddling Together: Implementing and Keeping Momentum**..... 66
 - Ongoing Staff and Council Support..... 67
 - Planning for Staff Turnover 68
 - Keeping Information Current..... 68
 - Monitoring Performance..... 70
 - Community Contact List..... 74

Guide Overview

This Asset Management Guide is designed to help First Nations communities sustainably manage their infrastructure assets over their full lifecycles. It introduces concepts, systems and tools to start a new asset management program, or to further develop an existing one. This Guide reflects the unique context and needs of the BC Region, recognizing the small rural context that makes up the majority of the 198 distinct First Nations. It is intended to serve as a reference for Chief and Council, staff, and community members who are interested in learning about management of their Nation's infrastructure.

Purpose of this Guide:

- Introduce **key** asset management **concepts**;
- Provide a **framework for designing** your community's Asset Management Program;
- Identify resources to support program **implementation**; and
- Share **lessons learned** from communities across all stages of the asset management process.

This Guide is made up of three parts:

Part 1: Carving our Future

A reference guide for understanding *what* asset management is and *why* asset management principles are essential to community sustainability. This section also includes an overview of the core concepts, terminology, local context, and framework.

Part 2: Weaving the Pieces

A technical guide, or *how to* for developing your asset management program, with a step-by-step process, case studies, and sample resources.

Part 3: Paddling Together

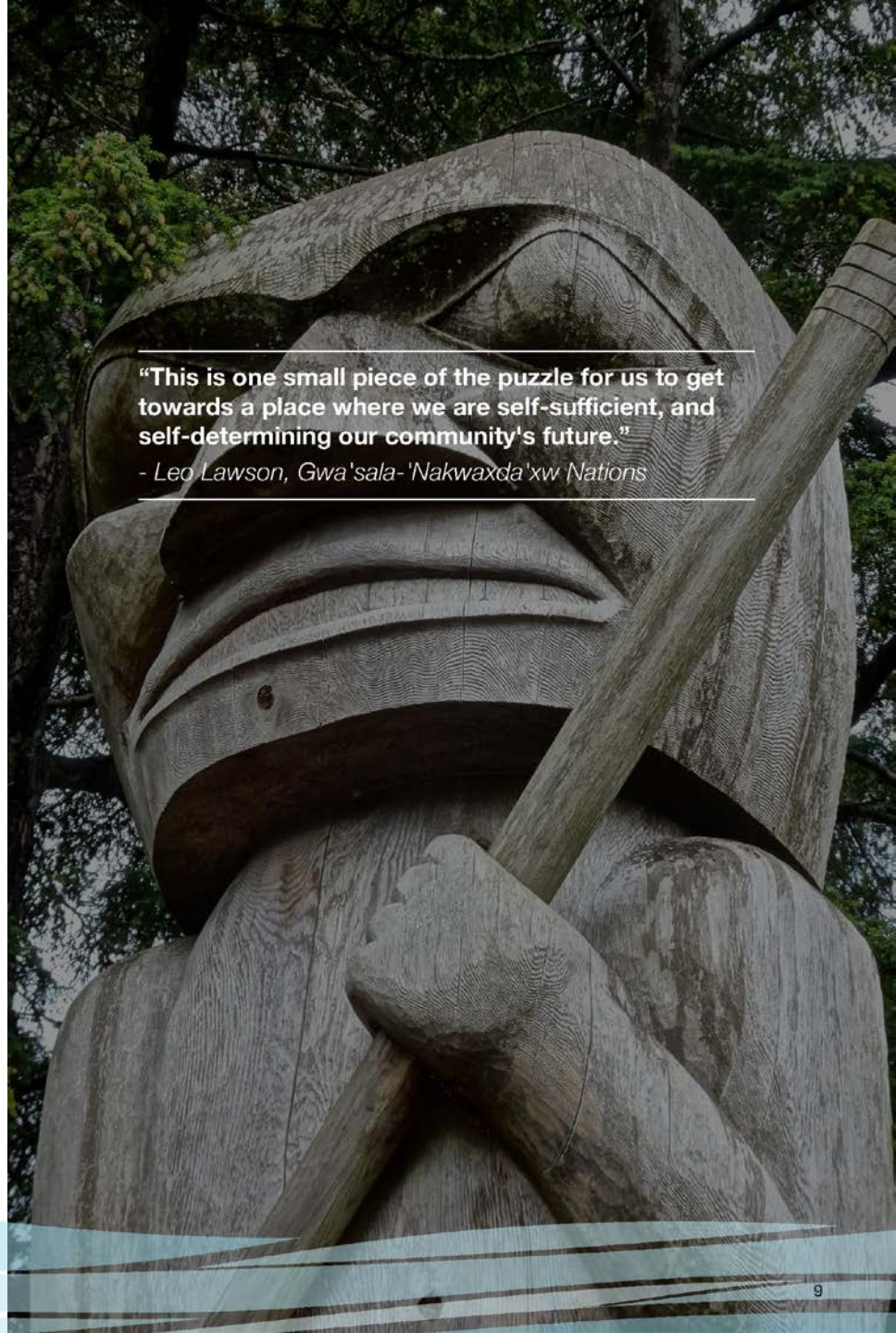
An implementation guide for *how to use* your program, or evolve it over time with tools to achieve critical success factors.

A **digital package** has been developed to accompany the Guide, including supplementary details online, and social media material. Any references to this digital package will be illustrated throughout the document with this symbol.



“This is one small piece of the puzzle for us to get towards a place where we are self-sufficient, and self-determining our community's future.”

- Leo Lawson, Gwa'sala-'Nakwaxda'xw Nations



PART

1

Carving Our Future: Understanding Asset Management

**What is an Asset?
What is Asset Management?
Why Practise Asset Management?**

The Journey Thus Far

Many First Nations in BC are already practicing elements of asset management in their communities through systems to record and store information about community assets, to manage maintenance of infrastructure, and to make decisions about building new community infrastructure.

Since 2010, Indigeous Services Canada (ISC) has delivered a series of Sustainable Infrastructure Workshops annually to support the implementation of Extended Asset Condition Reporting System (E-ACRS) outcomes by First Nation communities in BC. These workshops, the first of which was held at Quaaout Lodge, have been the catalyst for growing interest, awareness, programs, and skills in managing infrastructure within communities across the Region.

After participating in these workshops, a number of First Nations communities have taken the next step and developed their own asset management programs as part of a cost-shared project with ISC. Many lessons have been learned from these experiences, and some consistencies have emerged that are helpful for other communities choosing to initiate a program.

Providing for the Heart of the Community

A core function of every First Nations government is providing services to the community. These services, from fire protection to clean water to housing, affect the quality of life for community members, and often enable economic development. All of these services rely on the Nation's infrastructure assets.



How Do We Get Started?

Asset management is a living and cyclical process that takes time. You're already practicing elements of asset management, even if no formal process is in place.

This Guide focuses on the basic pieces of asset management to help you build a program that is right for your community. Whether you are just getting started, or re-igniting your program, there are ideas here to help you take the next step. The Guide also makes note of more advanced steps you can take as your journey progresses, referring to tools and other resources available in the digital package.



Lesson Learned: *Start simple and build complexity over time. It's not about doing everything perfectly at the beginning; it's about making meaningful and incremental changes to best meet the needs of your community.*



The Asset Management Framework

At its core, asset management is made up of four essential elements. It involves gathering important **information** about community assets, creating **systems and processes** for managing and making decisions about infrastructure, and developing tools to help your community make the most efficient use of **money**, and its effectiveness ultimately depends on your **community**; and support (staff, Chief and Council, and community members).

These elements serve as a framework for an asset management program, which will be discussed in the next section of this Guide. They can also be used as a basis for assessing the current state of your community's asset management practices and help to identify areas you may choose to focus on to strengthen your program over time.

Asset Management Framework





Systems and Processes

What Levels of Service are We Providing?

How Do We Assess Risk?

How Will We Maintain Our Assets?



Levels of Service

We know that asset management is about service delivery. What services do you provide to community members? Are these services meeting their needs, falling below expectations, or exceeding expectations?

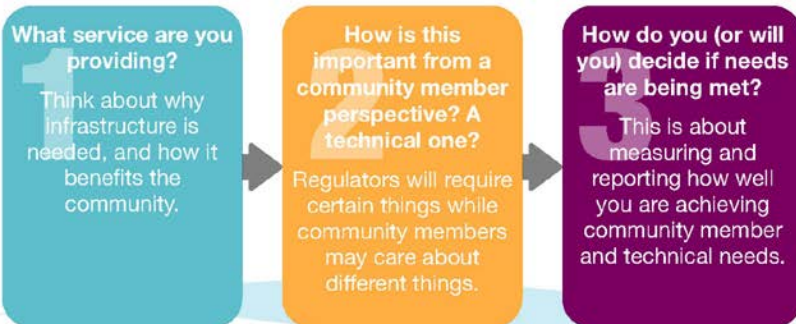
Consider what level of service is required to meet your Community Vision, establish asset management priorities, maximize functionality while minimizing the cost of maintenance, and reduce the number of repairs while providing that level of service.

This area of asset management can be quite difficult and is arguably where the least progress has been made to-date across the Region, and in fact across the Country. However, it is also one of the most important areas. This guide focuses on a process for documenting (or establishing) existing service levels. Just like with the inventory, start small and add detail over time.



Action: Document Existing Service Levels

The process for documenting (or establishing) existing service levels for each asset category is shown in the figure below.



There are two perspectives, or types of service levels to consider:

- **Technical Service Levels** – based on the physical characteristics of an asset (eg. “water meets Canadian Drinking Water Standards”)
- **Customer Service Levels** – based on the experience and expectations of the community (eg. “water doesn’t have a bad taste or smell”)

For each asset category, identify how the service you are providing is important from a community member and technical perspective. This could be one or more level of service.

ASSET CATEGORY	LEVEL OF SERVICE EXPECTED	
	TECHNICAL	CUSTOMER
Water System	eg. Meets Canadian Drinking Water Standards. -Lead < 0.010 mg/L	eg. no bad taste or odour

A sample list of service levels for each major asset category is included in the supplementary material.



Details regarding procedures for measuring the performance of service levels, once established, are provided in the supplementary material.



“It’s important for the future of the community, for the next generation to still have housing and infrastructure that has been maintained for them, and they’re not left with worrying about how to fix or replace it once it’s handed over to them.”

- Carrie Danczak, Little Shuswap Lake Indian Band

Managing Risk and Prioritizing Projects

Risk refers to the potential for undesirable outcomes resulting from an incident, event, or occurrence. It can be determined by the likelihood and the associated consequences to an asset if a risk was to occur. A risk assessment is a tool for helping communities prioritize which existing assets most urgently need to be repaired or replaced.

Action: Undertake a Risk Assessment

Think about what could happen, what services infrastructure provides and what the impact would be of those services not being delivered to your community in terms of financial, social, and environmental cost. A four step process for evaluating risk is shown in the figure below.



Start at an asset category level or service level (eg. overall risk to the road network). This process can also be done on an asset-by-asset level. Identify potential risks, such as fire, earthquake, flooding, structural failure, power outage, etc. Remember, your services are vulnerable to climate change; this should be considered in evaluating risks.



Lesson Learned: To mitigate risks, schedule daily inspections, (e.g. water sampling), and track historical data in a long term spreadsheet. Distribute these regular tasks evenly among managers. Acknowledge that fixing one thing can lead to many subsequent responsibilities and plan for this outcome.

Closing

Key take-aways from First Nations communities across BC doing asset management include:

- Attending a **sustainable infrastructure workshop** hosted by Indigenous Services Canada is a great way to get started.
- **Start small and share the work.** You don't have to do everything at once. Use a team approach that recognizes the unique and individual strengths of your members. Pick a couple of priority areas, and begin there.
- **Know that you're not alone, stay the course and reach out.** Other communities have gone through many of the same challenges you'll encounter along the way. Connect with local champions, learn from their experiences, use their processes, and don't reinvent the wheel.
- **Keep working at it.** Asset management takes time to come together and sometimes may seem overwhelming. Be willing to make a sincere commitment to the process.
- **Asset management is an ongoing process with no end date.** Plans can grow with you, so take next steps at the pace that makes sense to you recognizing that it will continue to evolve.
- **Support from Chief and Council is critical.** Take the time to explain the benefits to your community so that they may understand 'the why' (e.g. service delivery, sustainability, future generations).
- Asset Management can seem **costly to set up, but it's worthwhile.** Think about the small steps you can take to achieve basic milestones first. Understand the **funding resources** available to you, and how initial investments can lead to longer term efficiencies and benefits.
- **Understand the full lifecycle costs** of capital projects and use this information in **decision making** (e.g. O&M, janitorial, hydro, phone, etc.)



CHECKLIST For Developing Your Asset Management Program

COMMUNITY

- ⚙️ Establish an Asset Management Team
- ⚙️ Establish a Team Terms of Reference
- ⚙️ Hold Regular Team Meetings
- ⚙️ Facilitate Training and Learning Opportunities
- ⚙️ Develop an Asset Management Policy
- ⚙️ Communication Material and Community Events
- ⚙️ Community Awareness Strategy
- ⚙️ Identify a Community Champion

MONEY

- ⚙️ Prepare a Renewal Plan
- ⚙️ Calculate Your Community's Expense
- ⚙️ Calculate Available Revenues
- ⚙️ Identify New Sources of Funding
- ⚙️ Calculate Your Target Reinvestment Rate
- ⚙️ Prepare a Long Term Financial Plan
- ⚙️ Develop a Tangible Capital Asset Policy

IMPLEMENTATION AND KEEPING MOMENTUM

- ⚙️ Establish your Asset Management Monitoring Program

INFORMATION

- ⚙️ Prepare a Consolidated Inventory
- ⚙️ Determine the Replacement Cost of Each Asset
- ⚙️ Calculate the Remaining Life of Each Asset
- ⚙️ Create Infrastructure Maps (Using GIS)
- ⚙️ Prepare a State of the Assets Summary
- ⚙️ Adjust Life Expectancies Based on Condition
- ⚙️ Data Gap Analysis
- ⚙️ Transition to a Software Tool
- ⚙️ Undertake Condition Assessments

SYSTEM AND PROCESSES

- ⚙️ Undertake a Risk Assessment
- ⚙️ Prepare a Vision for Service Delivery
- ⚙️ Prepare an Asset Management Strategy
- ⚙️ Prepare an Annual Maintenance Schedule
- ⚙️ Process Gap Analysis
- ⚙️ Document Decision-Making Processes
- ⚙️ Document Existing Service Levels
- ⚙️ Prepare a Maintenance Management Plan
- ⚙️ Prioritize New Assets and Services
- ⚙️ Process Gap Analysis



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