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Future Proof your Projects with Asset Data Standards

Lessons from Lake Babine Nation

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Presenters:

Glynis Fleming
President
Egov Solutions

Ian Gerritsen, B.Comm. LL.B.
Senior Asset Management Advisor,
BC Team Lead
Associated Engineering

Contributions:

Rick Dobbs
Capital Infrastructure Director
Lake Babine Nation

Agenda

- LBN Lucity EAM implementation project
- Standard asset data models
  - Benefits
  - Development
- Best Practices
  - Asset Register
  - Asset Attributes
  - Asset Hierarchy
  - Data Quality
- Considerations for First Nations
  - ACRS Integration
  - Procurement
  - Alignment
- Closing Q & A

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LBN Lucity Implementation Project

What:

- Implementation of an asset management information system and collection and input of asset data in the three communities of Lake Babine Nation (Fort Babine, Tachet. Woyenne)
- Part of a larger ISC-and-nation-funded asset management program with LBN

Why:

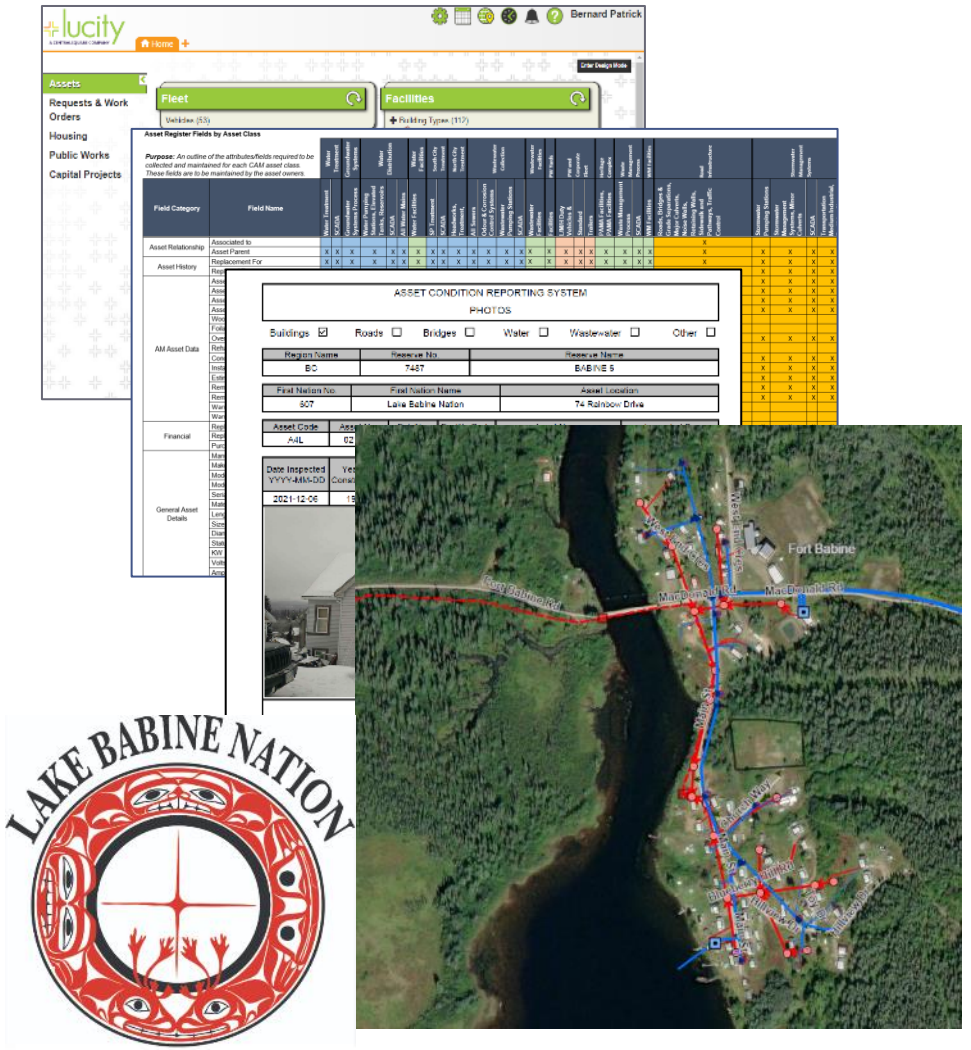
- Ensure LBN had an accurate asset register that could be compared with ongoing ACRS reports
- Capture true O&M costs to maintain assets in good condition and justify ISC maintenance funding

Who:

- Associated Engineering and Egov Solutions jointly delivering work

Status:

- Project nearing completion
- Moving from implementation to maintenance and data management



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Standard Asset Data Models

Standard Asset Data Models

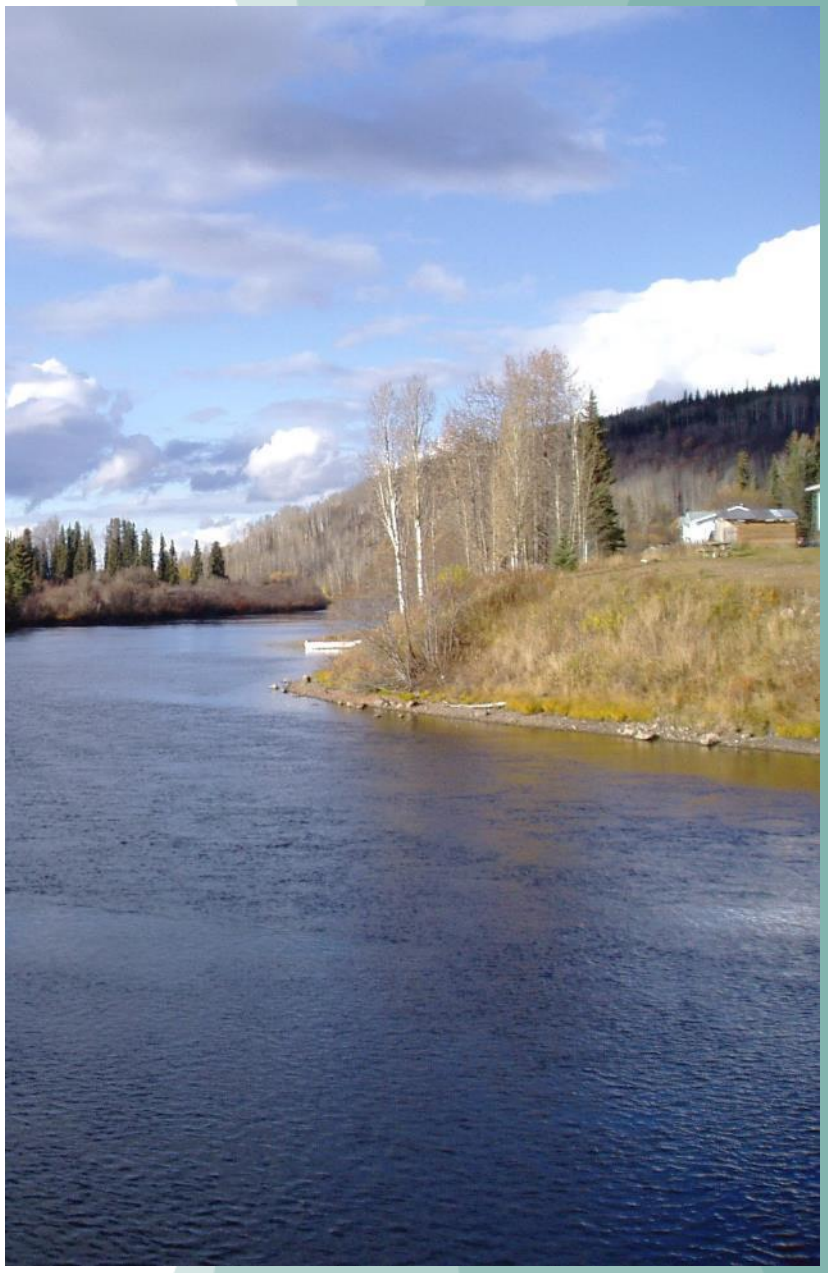
A documented structure for your asset data

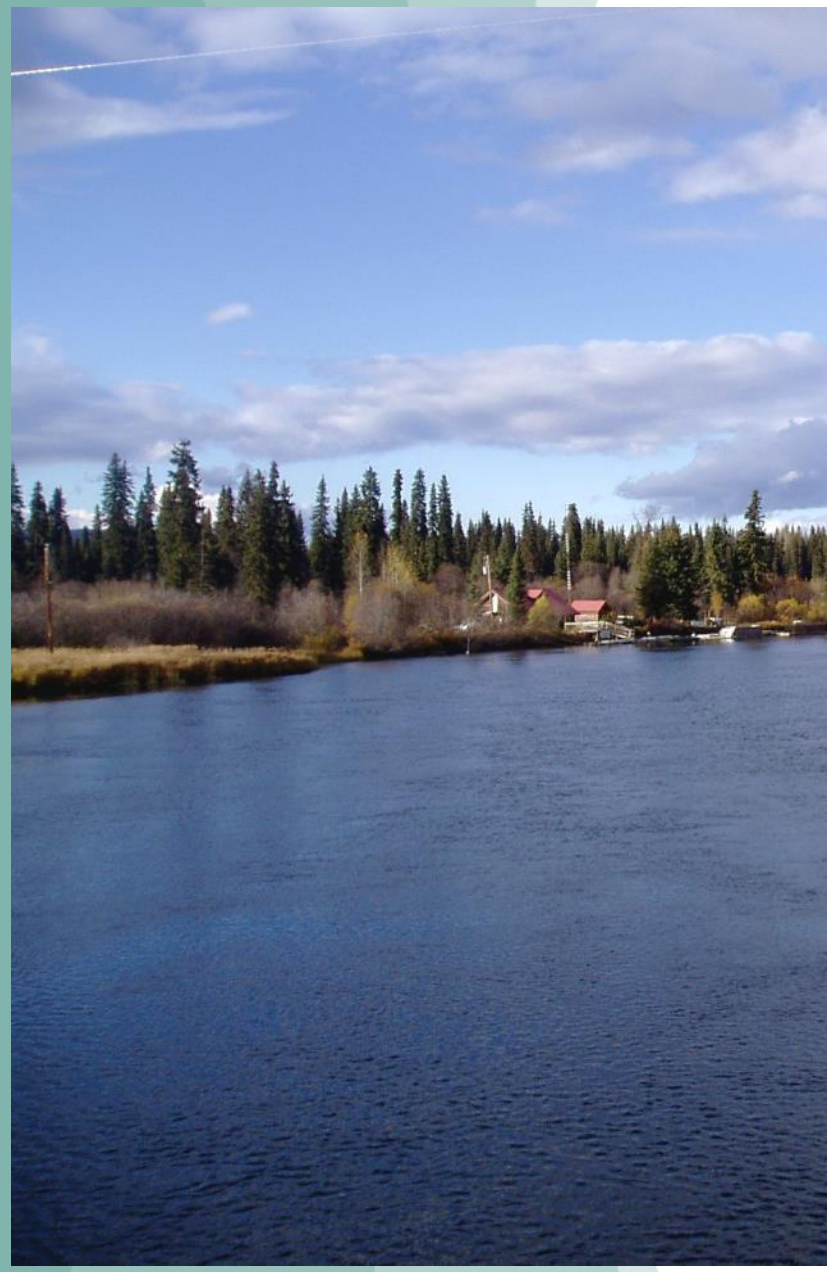
Includes corporate asset naming conventions, hierarchy, and asset-classification-specific attribution

- ✓ Asset, system, and portfolio-level inventory data
- ✓ Cost, LOS, risk, lifecycle, and condition information
- ✓ Asset operations and maintenance planning information
- ✓ Budget and investment planning information
- ✓ Current and forecast data

Benefits of Using a Standard Asset Data Model

- Structured approach to managing asset data
  - Aligns with current and future asset management plans and processes
  - Informs data governance plans (i.e., “who is responsible for what”)
- Streamlined opportunity to keep data current via capital projects and condition assessment
  - Contractor procurement deliverables include a data model to be followed
  - Avoids additional conversion steps
  - Clearer requirements – more certainty





Benefits of Using a Standard Asset Data Model

- Single source of truth:
  - Avoid duplication of data and of effort
  - Avoid differences in data and data structure
  - Easier internal sharing of information
  - Simpler validation process
  - Allows for automated data sharing and system interoperability
  - Increased level of confidence in asset data
  - Clearer data update processes and roles and responsibilities
  - Easier to identify and fill gaps in the asset register

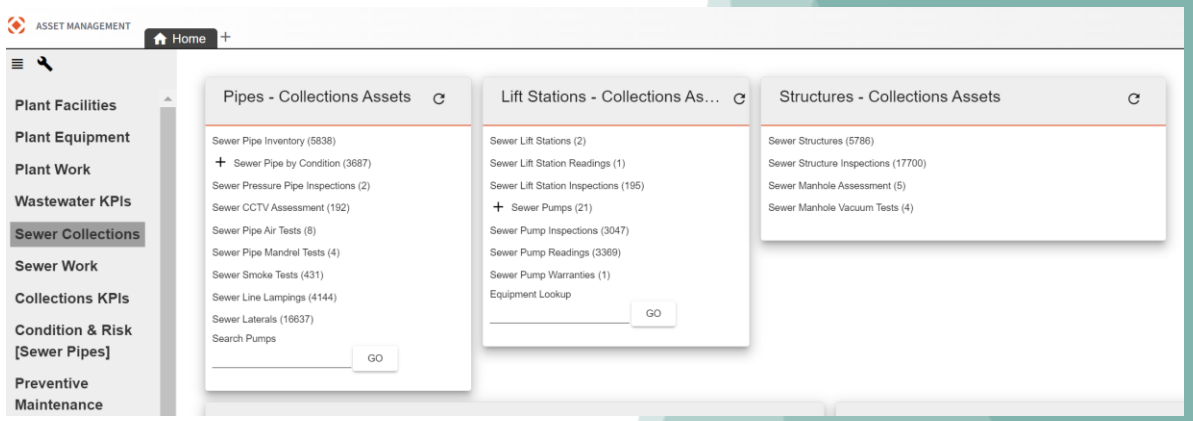
Developing your Asset Data Standard

- What is the **purpose** of your data?
- What **decisions** are you going to make with your data?
- What systems do you need to **integrate** your data with?
  - For FNs, the ACRS data requirements and structure are a key consideration
  - Align with your GIS data model
- What outside **influences** or inputs will impact your data standard?
  - What is the cost in time of not being aligned?

Best Practices for Asset Data Standards

Best Practices – Asset Register

- Include all assets or components that:
  - Require inspection and preventative maintenance
  - Have significant monetary value
  - Are critical to the organization
- The register should cover 100% the replacement value of all assets



Asset Code	Asset Number & Extension	Asset Name	Deficiency Number	Description	Identified Year	Status	Completion/Cancellation Ye	Component Code	Group	Category	Type	Urgency
B2B	401000-01	Storm Main	3	Locate stormceptor	2006	0 - Outstanding		A1.10	3 - Other	4 - Study	4 - Operational	0 - Immediate
B2B	401000-01	Storm Main	4	Storm Main	2012	0 - Outstanding		B21.1	1 - O&M	1 - Minor Repairs	4 - Operational	1 - Current Fiscal Yea
D1B	601000-01	Gravel Road	22	Add base and subbasse gr	2006	0 - Outstanding		A1.10	2 - Maintenance	2 - Major Repairs	2 - Restore Utility	2 - Current Fiscal Yea
D1B	601000-01	Gravel Road	26	Add stop sign	2006	0 - Outstanding		A1.10	1 - O&M	1 - Minor Repairs	1 - Health and Safety	0 - Immediate
D1B	601000-01	Gravel Road	27	Mow (hand)	2006	0 - Outstanding		A1.10	1 - O&M	1 - Minor Repairs	4 - Operational	1 - Current Fiscal Yea
D1B	601000-01	Gravel Road	29	Brush (machine)	2009	0 - Outstanding		D11.18	2 - Maintenance	2 - Major Repairs	4 - Operational	1 - Current Fiscal Yea
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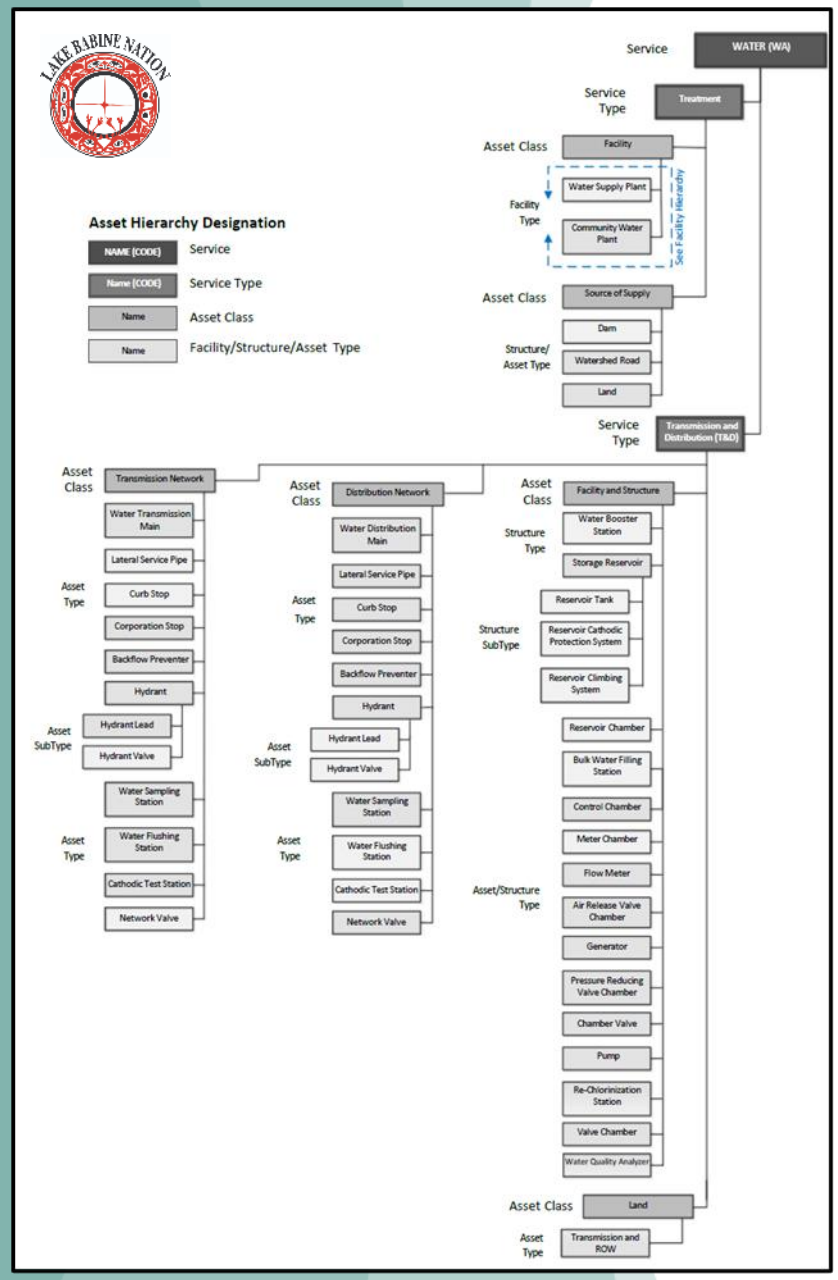
A3H	005000-01	Fire Hall	7	Install weather stripping on OH door	2009	0 - Outstanding		A2.8	1 - O&M	1 - Minor Repairs	4 - Operational	1 - Current Fiscal Yea



Best Practices – Asset Hierarchy

- # of levels should be dictated by:
  - Reporting
  - Work management
  - Decision-making needs
- Type of breakdown can differ by asset class (i.e., network vs process)
- Utilize categorization to reduce # of levels in your hierarchy while maintaining effective attribution

Best Practices – Asset Attributes

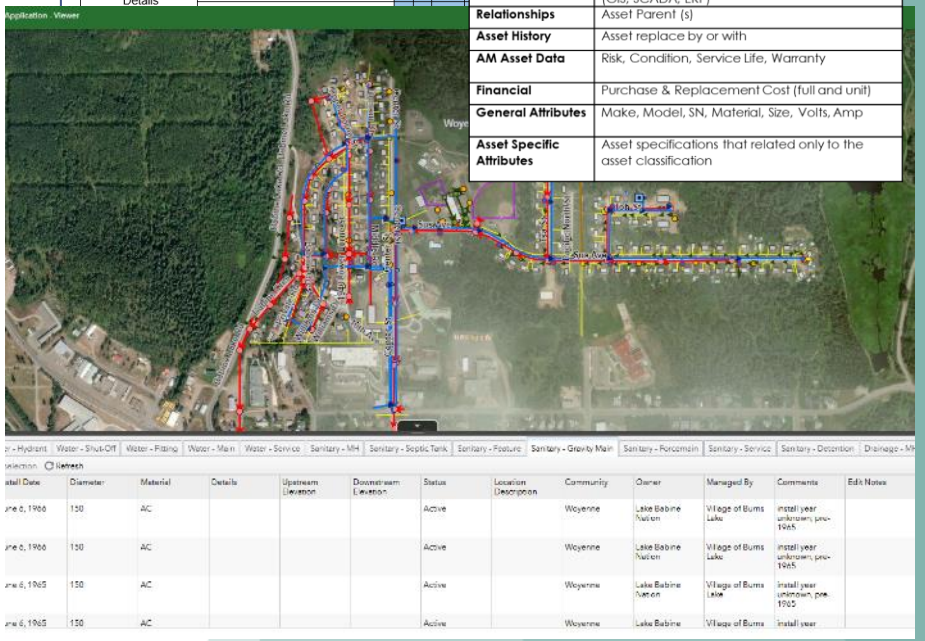
- Support asset management and other business processes
- Determine what attribute fields are applicable for each asset class
- Information in other systems should be accessible through use of common asset IDs (e.g., GIS, SCADA, TCA)
- Define ownership and management to inform Data Governance strategies

Asset Register Fields by Asset Class

Purpose: *An outline of the attributes/fields required to be collected and maintained for each CAM asset class. These fields are to be maintained by the asset owners.*

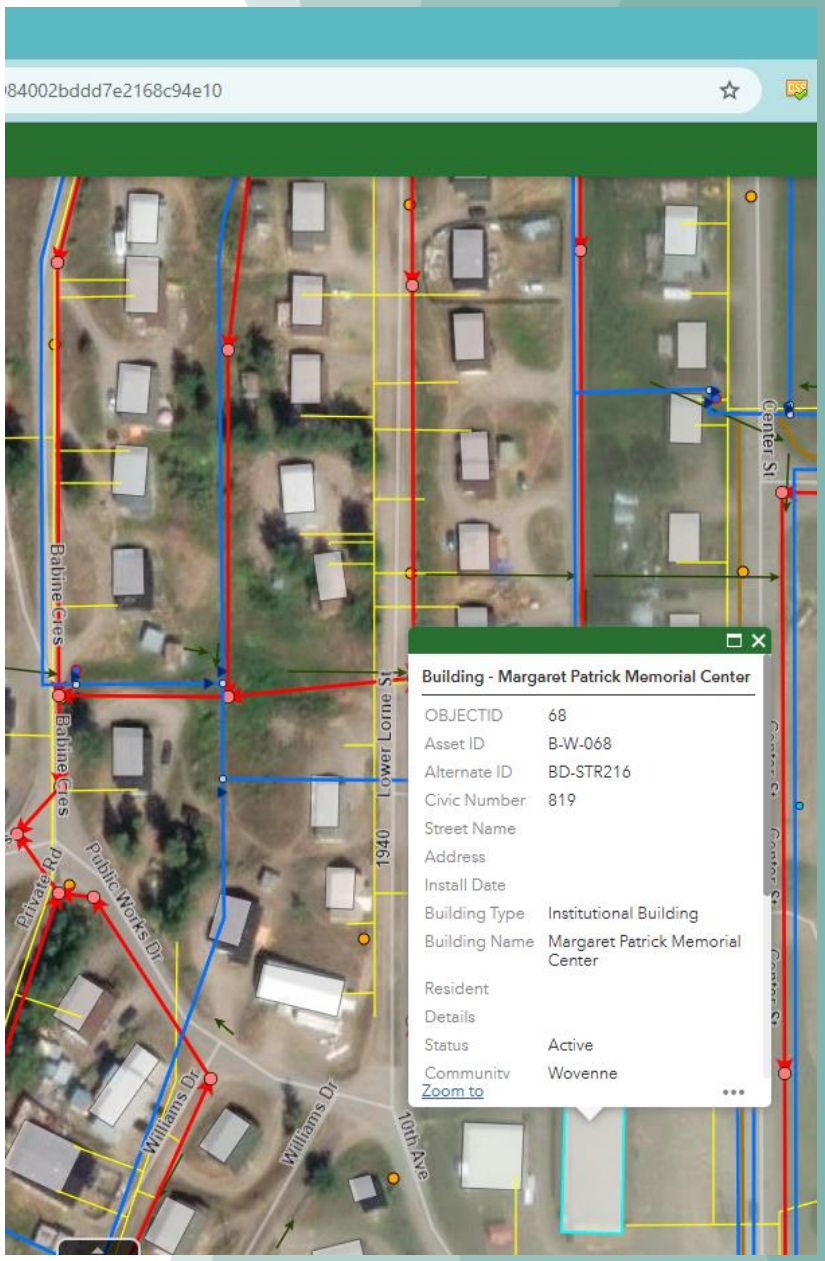
Field Category	Field Name	Water Treatment		Groundwater Systems Process	Water Distribution			Water Facilities	South City Treatment		North City Treatment		Wastewater Collection			Wastewater Facilities		PW Yards	PW and Corporate Fleet		
		Water Treatment	SCADA	Groundwater Systems Process	Water Pumping Stations, Elevated Tanks, Reservoirs	SCADA	All Water Mains	All Water Facilities	SP Treatment	SCADA	Headworks, Treatment,	All Sewers	Odour & Corrosion Control Systems	Wastewater Pumping Stations	SCADA	Wastewater Facilities	Facilities	L/M/H Duty Vehicles &	Standard	Trailers
Asset Relationship	Associated to																				
	Asset Parent	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Asset History	Replacement For	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Replaced By	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AM Asset Data	Asset Criticality	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Asset Criticality Date	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Asset Risk	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Asset Risk Date	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Woody Condition																				
	Foilage Condition																				
	Overall Condition	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Rehap Date																				
	Condition Date	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Installation/Purchase Date	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Estimated Service Life	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Remaining Service Life	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Remaining Service Life Date	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Warranty Expiration Date																				
	Warranty Expiration Descripton																				
Financial	Replacement Cost	X	X	X																	
	Replacement Cost Date	X	X	X																	
	Purchase/ Installation Cost	X	X	X																	
General Asset Details	Manufacturer	X	X	X																	
	Make	X	X	X																	
	Model Year																				
	Model	X	X	X																	
	Serial No.	X	X	X																	
	Material																				
	Length																				

Ownership & Responsibility	Who legally owns and maintains the asset
Service Area	What Service area does is fall under (for reporting)
TCA	TCA Category (for aggregation)
Location	Detailed location information: community, building, road, address
Classification	Type of asset – main class the asset is grouped by (hierarchy)
Asset ID	Unique Identifier for asset and related assets (GIS, SCADA, ERP)
Relationships	Asset Parent (s)
Asset History	Asset replace by or with
AM Asset Data	Risk, Condition, Service Life, Warranty
Financial	Purchase & Replacement Cost (full and unit)
General Attributes	Make, Model, SN, Material, Size, Volts, Amp
Asset Specific Attributes	Asset specifications that related only to the asset classification



Best Practices – Data Quality

- Make sure:
  - Data is complete and accurate and corresponds with the requirements identified by your asset hierarchy
  - Data collection processes are documented along with supporting metadata, as required
- Data update frequency and methods are driven by decision-making needs



Considerations for First Nations Communities

ACRS Integration – Issues and Needs

ACRS data is **not sufficient** for many First Nations needs, including:

- Infrastructure management
- GIS data / visualization
- Investment planning
- Treaty negotiations and due diligence
- Identification and communication of funding gaps to funding agencies

ACRS Integration - Assessments

- ACRS assessments often have gaps and\or incomplete data sets

BUT…

- Capital project and operational maintenance recommendations from ACRS reports can still utilized
  - Apply to specific assets for execution and tracking, including completion and cost

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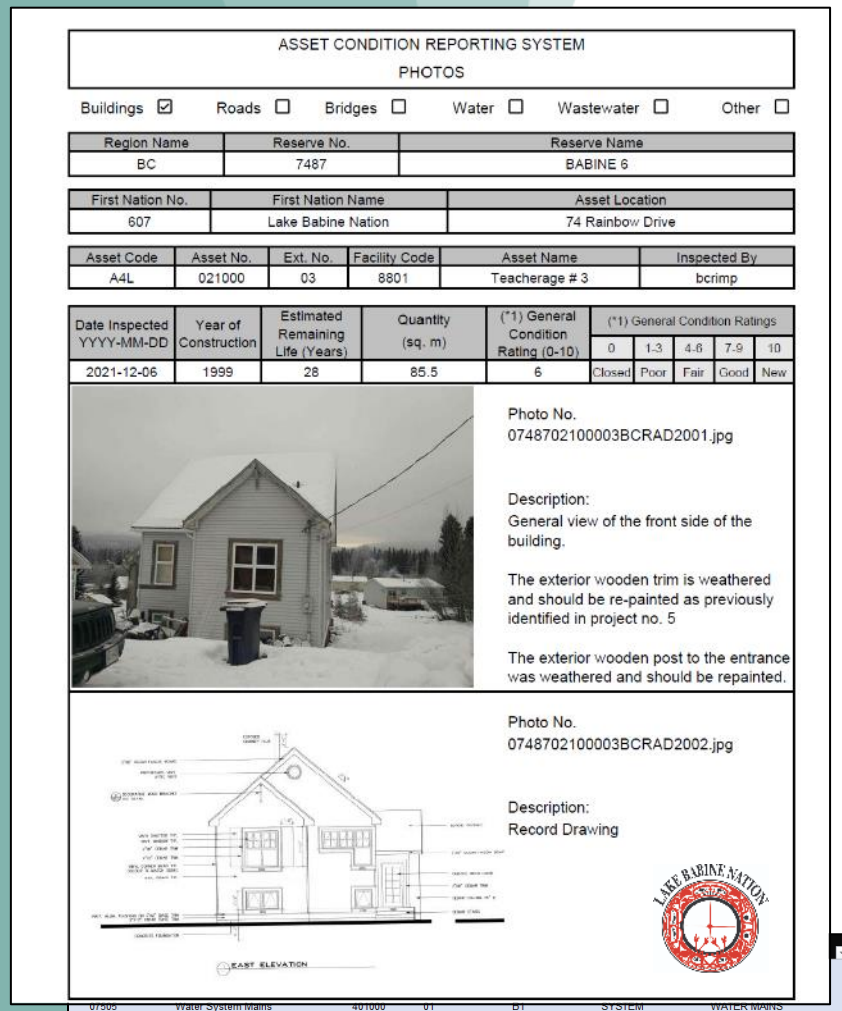
ACRS Integration – Asset List and Condition Data



ASSET CONDITION REPORTING SYSTEM
PHOTOS

Buildings ☑ Roads ☐ Bridges ☐ Water ☐ Wastewater ☐ Other ☐

Region Name	Reserve No.	Reserve Name
BC	7487	BABINE 6

First Nation No.	First Nation Name	Asset Location
607	Lake Babine Nation	74 Rainbow Drive

Asset Code	Asset No.	Ext. No.	Facility Code	Asset Name	Inspected By
A4L	021000	03	8801	Teacherage # 3	bcrimp

Date Inspected YYYY-MM-DD	Year of Construction	Estimated Remaining Life (Years)	Quantity (sq. m)	(*1) General Condition Rating (0-10)	(*1) General Condition Ratings				
					0	1-3	4-6	7-9	10
2021-12-06	1999	28	85.5	6	Closed	Poor	Fair	Good	New

Photo No.
0748702100003BCRAD2001.jpg

Description:
General view of the front side of the building.

The exterior wooden trim is weathered and should be re-painted as previously identified in project no. 5

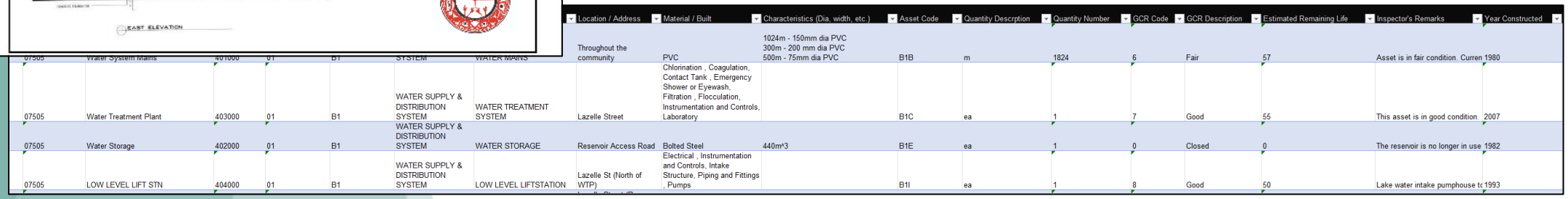
The exterior wooden post to the entrance was weathered and should be repainted.

Photo No.
0748702100003BCRAD2002.jpg

Description:
Record Drawing

EAST ELEVATION

LAKE BABINE NATION

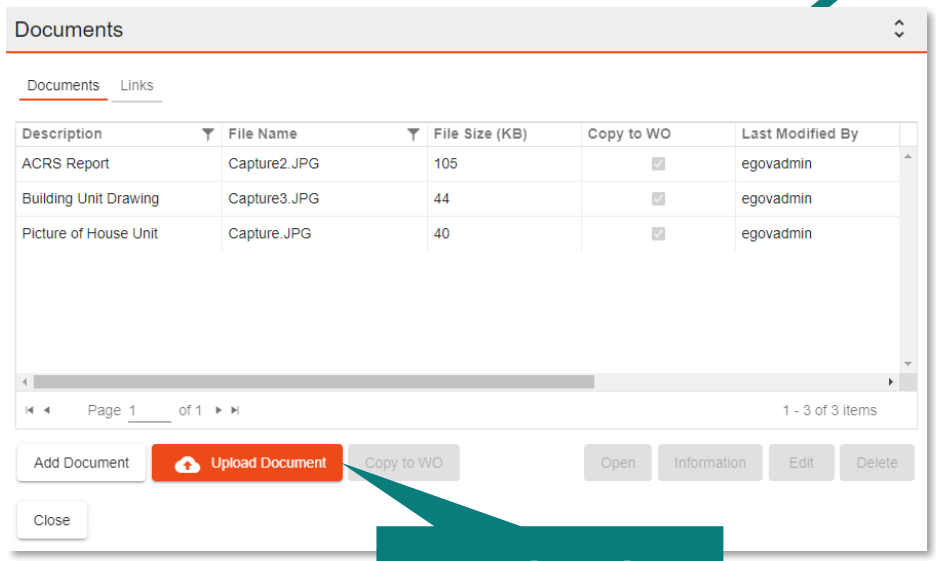


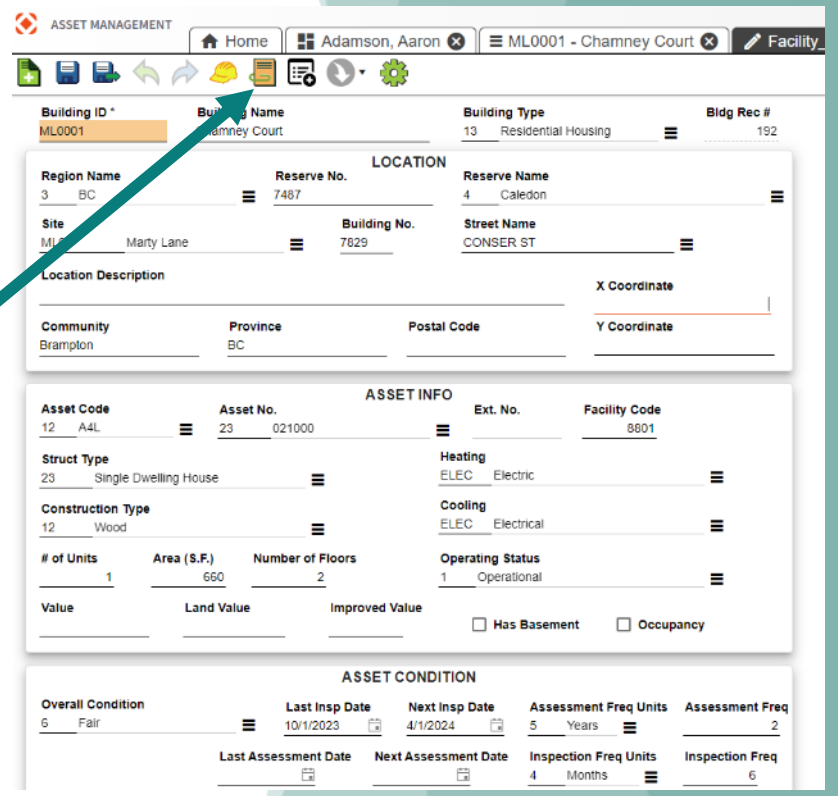
07505	Water System Mains	401000	01	B1	SYSTEM	WATER MAINS	Throughout the community	PVC	1024m - 150mm dia PVC 300m - 200 mm dia PVC 500m - 75mm dia PVC	B1B	m	1824	6	Fair	57	Asset is in fair condition. Curren	1980
07505	Water Treatment Plant	403000	01	B1	WATER SUPPLY & DISTRIBUTION SYSTEM	WATER TREATMENT SYSTEM	Lazelle Street	Chlorination , Coagulation, Contact Tank , Emergency Shower or Eyewash, Filtration , Flocculation, Instrumentation and Controls, Laboratory		B1C	ea	1	7	Good	55	This asset is in good condition.	2007
07505	Water Storage	402000	01	B1	WATER SUPPLY & DISTRIBUTION SYSTEM	WATER STORAGE	Reservoir Access Road	Bolted Steel	440m^3	B1E	ea	1	0	Closed	0	The reservoir is no longer in use	1982
07505	LOW LEVEL LIFT STN	404000	01	B1	WATER SUPPLY & DISTRIBUTION SYSTEM	LOW LEVEL LIFTSTATION	Lazelle St (North of WTP)	Electrical , Instrumentation and Controls, Intake Structure, Piping and Fittings , Pumps		B1I	ea	1	8	Good	50	Lake water intake pumphouse to	1993

- ✓ Quickly and easily migrate ACRS asset data into EAM
- ✓ Single, centralized database to query & analyze asset data
- ✓ Attach photos, drawings, (anything) to assets and asset components
- ✓ Subsequent ACRS reports will already be mapped to EAM for easy updates

ACRS Integration – Reports and Asset Records

- Configure EAM system to include ACRS fields that map directly to assets
- Attach photos, as-builts





Upload Documents

ACRS Integration –
Maintenance and Project Tracking

ASSET CONDITION REPORTING SYSTEM
NEEDS IDENTIFICATION

Building ☐ Roads ☐ Bridges ☑ Water ☐ Wastewater ☐ Other ☐

Region Name	Reserve No.	Reserve Name
BC	07487	BABINE 6

First Nation No.	First Nation Name	Asset Location
607	Lake Babine Nation	MacDonald Road and Lake Babine

Asset Code	Asset No.	Ext. No.	Facility Code	Asset Name	Inspected By
D2A	801000	01		Vehicular Bridge	akennedy

Date Inspected YYYY-MM-DD	Year of Construction	Estimated Remaining Life (Years)	Quantity (sq. m)	(*1) General Condition Rating (0-10)	(*1) General Condition Ratings				
					0	1-3	4-6	7-9	10
2022-08-11	1986	17	445.1	5	Closed	Poor	Fair	Good	New

Component Code No.	Project Description	Project Remarks	*2 - Group	*3 - Category	*4 - Type	*5 - Urgency	Amount ($)	Existing Project No.	*6 - Status
Existing Projects in ICMS Database Still Outstanding - Provide Current Status									
A1.10	Install additional rails	n/c	2	2	1	0	6500	26	0
D22.4	Install additional rails and welding	Install additional rails and welding	2	2	1	0	7500	30	0
D22.4	Pedestrian Railing.	The openings in the galvanized pedestrian railing are too large. This is a safety concern as small children could crawl through the openings and fall into the river. Method of repair is to install link fencing on the inside surface of each hand rail and fasten it to the existing framework. Clamps can be used to attach chain link to galvanized railing. Measure the length and height of each rail and order the material to that size. Install and clamp.	2	2	1	0	8500	41	0

- ✓ Quickly and easily migrate project lists and maintenance ‘needs” from ACRS reports
- ✓ Prioritize and track all recommended maintenance & projects
- ✓ Track all related maintenance costs; labour, materials, equipment, contractors
- ✓ Project Management module with contractor management and full financial tracking

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B2B	401000-01	Storm Main	3	Locate stormceptor	2006	0 - Outstanding		A1.10	3 - Other	4 - Study	4 - Operational	0 - Immediate
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A3H	005000-01	Fire Hall	7	Install weather stripping on OH door	2009	0 - Outstanding		A2.8	1 - O&M	1 - Minor Repairs	4 - Operational	1 - Current Fiscal Yea

Considerations - Procurement Processes

Dictating data standards in your procurement documentation:

- ✓ Provides more certainty for consultants
- ✓ Avoids additional re-formatting or clean up
- ✓ Improves data consistency
- ✓ Ensures proper collection of project data
- ✓ Ensures proper ownership and management of project data
- ✓ Enables smoother project commissioning and hand-off

Considerations - Other Alignment

- Align with regulatory and/or reporting requirements
- Align with inputs / outputs of other service partners and providers
- Align with other community strategic plans or decision-making processes (land use/development, climate resiliency, housing, education, community engagement, etc.)
- Align with other organizational data systems (finance/accounting, permitting, BIM, decision support)

Questions?

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