



Future Proof your Projects with Asset Data Standards

Lessons from Lake Babine Nation

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LBN Lucity EAM implementation project

Standard asset data models

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Egov Solutions



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

The screenshot displays the Lucity software interface. At the top, there's a navigation bar with 'Home' and 'Bernard Patrick'. Below it, a sidebar lists various asset categories like 'Assets', 'Requests & Work Orders', 'Housing', 'Public Works', and 'Capital Projects'. The main area shows an 'Asset Register Fields by Asset Class' table with columns for different asset types and their corresponding fields. Below the table, there's an 'ASSET CONDITION REPORTING SYSTEM' form with sections for 'PHOTOS', 'Region Name', 'Region No', 'Region Name', 'First Nation No', 'First Nation Name', and 'Asset Location'. A map of the Fort Babine area is overlaid on the bottom right, showing roads and landmarks like 'Fort Babine' and 'MacDonnell Rd'.



A scenic landscape photograph featuring a wide river or lake winding through a forest of bare, deciduous trees. The trees are mostly without leaves, suggesting a late autumn or winter setting. In the background, a range of mountains is visible under a cloudy, overcast sky. The foreground is dominated by the trunks and branches of trees, some of which are in sharp focus. The overall tone is somewhat muted and atmospheric.

Standard Asset Data Models

Standard Asset Data Models

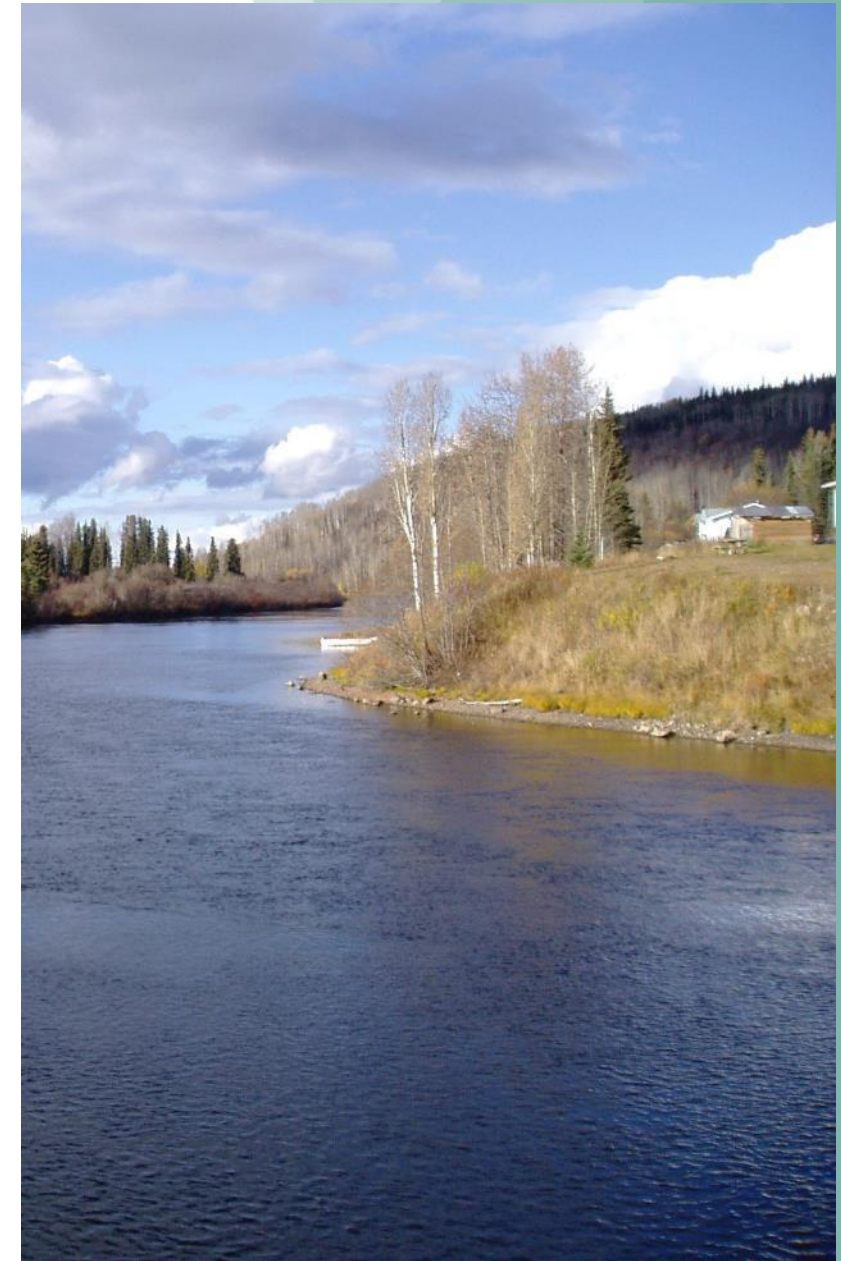
A documented structure for your asset data

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

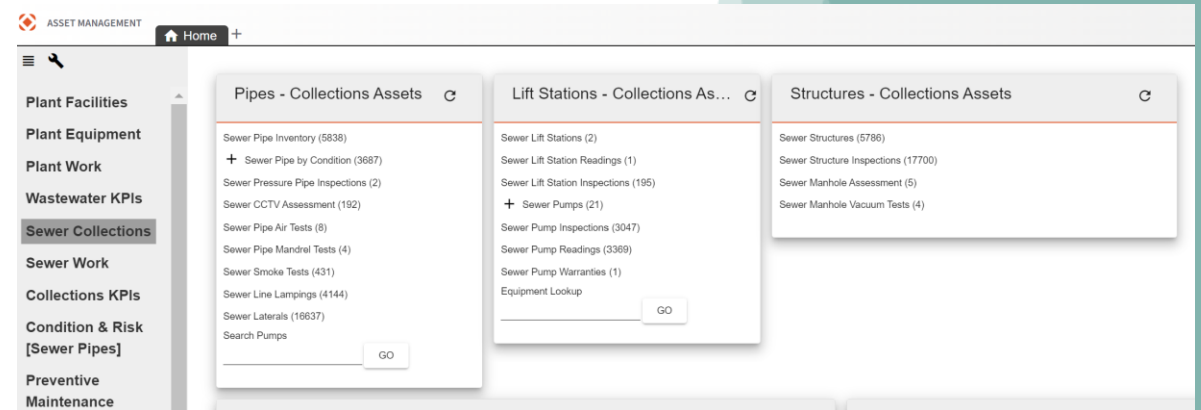
- What is the **purpose** of your data?
- What **decisions** are you going to make with your data?
- What systems do you need to **integrate** your data with?
 - For FNs, the ACRS data requirements and structure are a key consideration
 - Align with your GIS data model
- What outside **influences** or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

A wide-angle photograph of a residential street. The street is paved and runs from the foreground towards the background. On either side of the street are houses of various styles, including single-story and two-story homes. Utility poles with power lines are visible along the street. The sky is filled with large, white, fluffy clouds, and the overall lighting is somewhat dim, suggesting an overcast day. The text "Best Practices for Asset Data Standards" is overlaid in white, bold font across the middle of the image.

Best Practices for Asset Data Standards

Best Practices – Asset Register

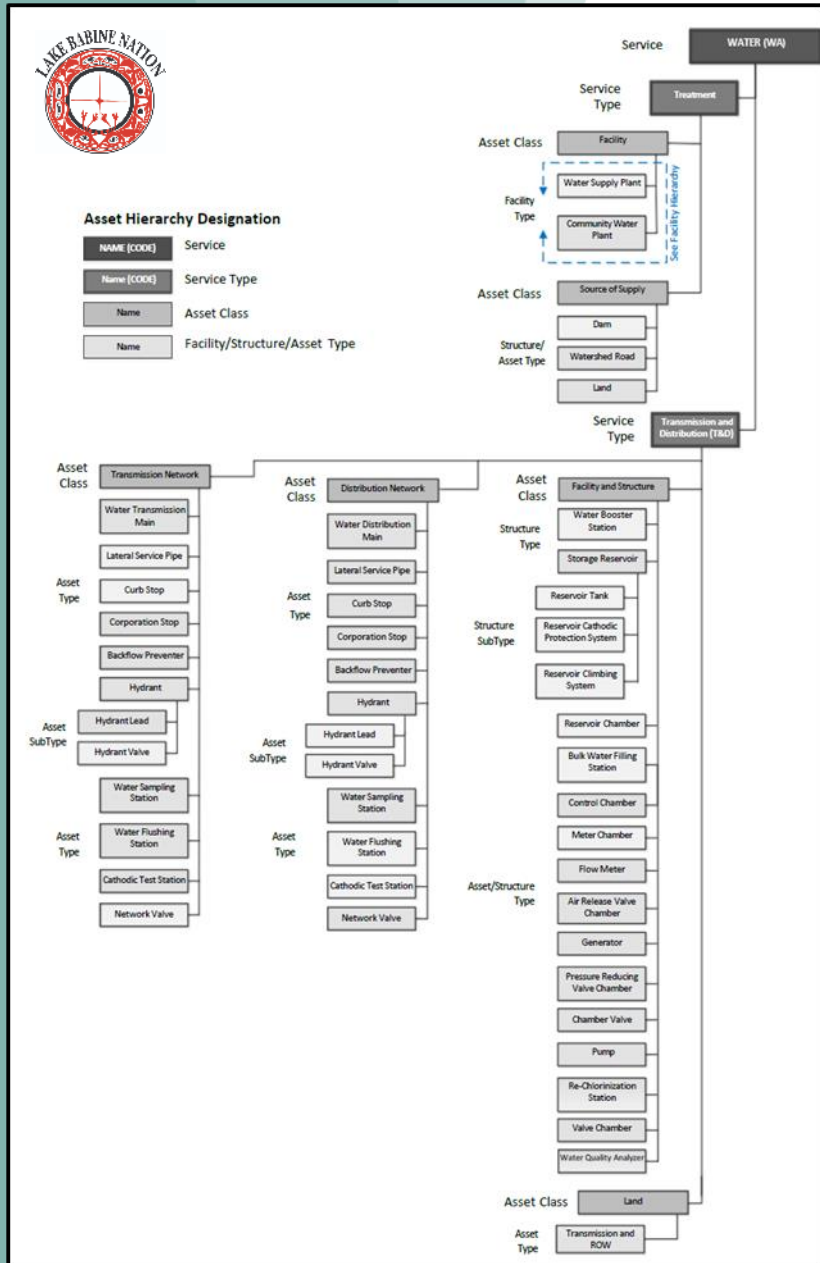
- Include all assets or components that:
 - Require inspection and preventative maintenance
 - Have significant monetary value
 - Are critical to the organization
- The register should cover 100% the replacement value of all assets



Asset Code	Asset Number & Extension	Asset Name	Deficiency Number	Description	Identified Year	Status	Completion/Can cellation 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 Year
D1B	601000-01	Gravel Road	22	Add base and subbase gr	2006	0 - Outstanding		A1.10	2 - Maintenance	2 - Major Repairs	2 - Restore Utility	2 - Current Fiscal Year
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 Year
D1B	601000-01	Gravel Road	29	Brush (machine)	2009	0 - Outstanding		D11.18	2 - Maintenance	2 - Major Repairs	4 - Operational	1 - Current Fiscal Year
D1B	601000-01	Gravel Road	30	Grade	2012	0 - Outstanding		D11.1	1 - O&M	1 - Minor Repairs	4 - Operational	1 - Current Fiscal Year
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 Year



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	Water Treatment Groundwater Systems	Water Pumping Stations, Elevated Tanks, Reservoirs	Water Distribution	Water Facilities	Water Facilities South City	Water Facilities North City	Water Facilities North City	Wastewater Collection	Wastewater Pumping Stations	Wastewater Facilities	Wastewater Facilities	Wastewater Facilities	Wastewater Facilities	Wastewater Facilities	Wastewater Facilities	Wastewater Facilities	Wastewater Facilities		
Asset Relationship	Associated to	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Asset History	Asset Parent	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Replaced For	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
AM Asset Data	Replaced By	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Asset Criticality	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	
	Asset Risk	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	
	Woody Condition																				
	Foliage Condition																				
	Overall Condition	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Rehaph 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 Description																					
Financial	Replacement Cost	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Replacement Cost Date	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Purchase/ Installation Cost	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
General Asset Details	Manufacturer	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Make	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Model Year	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Model	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Serial No.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Material	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Length	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Ownership & Responsibility Who legally owns and maintains the asset

Service Area What Service area does it 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

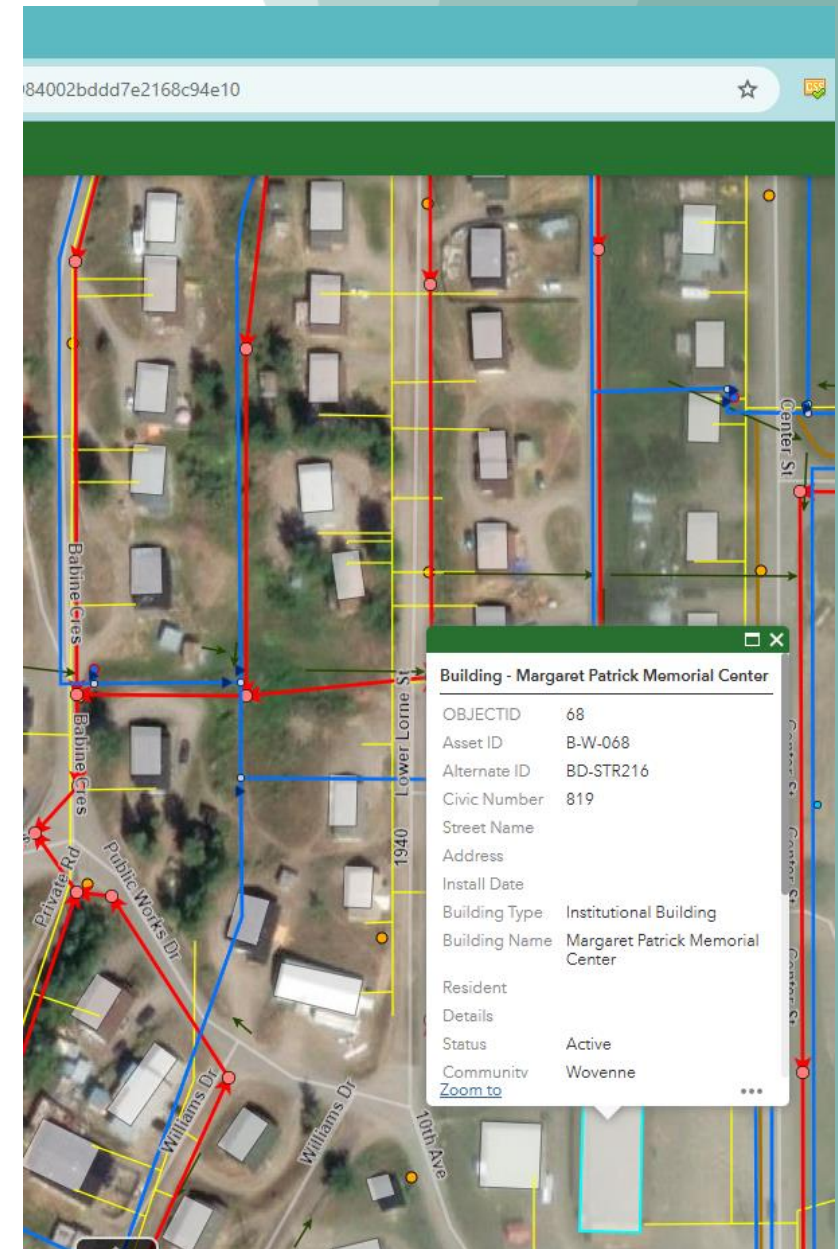
Asset Specific Attributes Asset specifications that related only to the asset classification

Instl Date	Diameter	Material	Details	Upstream Location	Downstream Location	Status	Location Description	Community	Owner	Managed By	Comments	Est. Notes
Jan 6, 1966	120	AC				Active		Weyenne	Lake Babine Nation	Village of Burns Lake	instal year unknown, pre-1965	
Jan 6, 1966	120	AC				Active		Weyenne	Lake Babine Nation	Village of Burns Lake	instal year unknown, pre-1965	
Jan 6, 1965	150	AC				Active		Weyenne	Lake Babine Nation	Village of Burns Lake	instal year unknown, pre-1965	
Jan 6, 1965	120	AC				Active		Weyenne	Lake Babine Nation	Village of Burns Lake	instal year	



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 be utilized
- Apply to specific assets for execution and tracking, including completion and cost



ACRS Integration – Asset List and Condition Data

ASSET CONDITION REPORTING SYSTEM									
PHOTOS									
Buildings <input checked="" type="checkbox"/>	Roads <input type="checkbox"/>	Bridges <input type="checkbox"/>	Water <input type="checkbox"/>	Wastewater <input type="checkbox"/>	Other <input type="checkbox"/>				
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)	(*) General Condition Rating (0-10)	(*) 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					

- ✓ 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

Location / Address	Material / Built	Characteristics (Dia, width, etc.)	Asset Code	Quantity	Description	Quantity Number	GCR Code	GCR Description	Estimated Remaining Life	Inspector's Remarks	Year Constructed
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	
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	
Reservoir Access Road	Bolted Steel Electrical , Instrumentation and Controls, Intake Structure, Piping and Fittings , Pumps	440m³	B1E	ea		1	0	Closed	0	The reservoir is no longer in use 1982	
Lazelle St (North of WTP)			B1I	ea		1	8	Good	50	Lake water intake pumphouse to 1993	

ACRS Integration – Reports and Asset Records

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

The screenshot displays the 'ASSET MANAGEMENT' interface for Building ID ML0001. It is divided into several sections: LOCATION, ASSET INFO, and ASSET CONDITION. A green arrow points from the 'Upload Documents' button in the lower-left screenshot to the 'Building Name' field in this interface.

LOCATION			
Building ID	Building Name	Building Type	Blgd Rec #
ML0001	Chamney Court	13 Residential Housing	192
Region Name	Reserve No.	Reserve Name	
3 BC	7487	4 Caledon	
Site	Building No.	Street Name	
MI Marty Lane	7629	CONSER ST	
Location Description		X Coordinate	
Community	Province	Postal Code	Y Coordinate
Brampton	BC		

ASSET INFO			
Asset Code	Asset No.	Ext. No.	Facility Code
12 A4L	23 021000		8801
Struct Type		Heating	
23 Single Dwelling House		ELEC Electric	
Construction Type		Cooling	
12 Wood		ELEC Electrical	
# of Units	Area (S.F.)	Number of Floors	Operating Status
1	660	2	1 Operational
Value	Land Value	Improved Value	<input type="checkbox"/> Has Basement <input type="checkbox"/> Occupancy

ASSET CONDITION				
Overall Condition	Last Insp Date	Next Insp Date	Assessment Freq Units	Assessment Freq
6 Fair	10/1/2023	4/1/2024	5 Years	2
	Last Assessment Date	Next Assessment Date	Inspection Freq Units	Inspection Freq
			4 Months	6

The screenshot shows a 'Documents' window with a table of files and a prominent 'Upload Document' button. A green arrow points from this button to the 'Upload Documents' callout box below.

Description	File Name	File Size (KB)	Copy to WO	Last Modified By
ACRS Report	Capture2.JPG	105	<input checked="" type="checkbox"/>	egovadmin
Building Unit Drawing	Capture3.JPG	44	<input checked="" type="checkbox"/>	egovadmin
Picture of House Unit	Capture.JPG	40	<input checked="" type="checkbox"/>	egovadmin

Buttons: Add Document, Upload Document, Copy to WO, Open, Information, Edit, Delete, Close.

Upload Documents





ACRS Integration – Maintenance and Project Tracking

- ✓ 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

ASSET CONDITION REPORTING SYSTEM NEEDS IDENTIFICATION										
Building <input type="checkbox"/> Roads <input type="checkbox"/> Bridges <input checked="" type="checkbox"/> Water <input type="checkbox"/> Wastewater <input type="checkbox"/> Other <input type="checkbox"/>										
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				
2022-08-11	1986	17	445.1	5		0	1-3	4-6	7-9	10
						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	

Asset Code	Asset Number & Extension	Asset Name	Number	Description	Identified Year	Status	Completion/Cancellation Year	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 Year
D1B	601000-01	Gravel Road	22	Add base and subbase gr	2006	0 - Outstanding		A1.10	2 - Maintenance	2 - Major Repairs	2 - Restore Utility	2 - Current Fiscal Year
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 Year
D1B	601000-01	Gravel Road	29	Brush (machine)	2009	0 - Outstanding		D11.18	2 - Maintenance	2 - Major Repairs	4 - Operational	1 - Current Fiscal Year
D1B	601000-01	Gravel Road	30	Grade	2012	0 - Outstanding		D11.1	1 - O&M	1 - Minor Repairs	4 - Operational	1 - Current Fiscal Year
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 Year



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?

