Applications to Asset Management Planning:

Risk Assessments with a Climate Lens

TRACT

MUNICIPAL ASSET MANAGEMENT PROGRAM

Project completed in partnership with Municipalities Newfoundland and Labrador

This initiative is delivered through the Municipal Asset Management Program, delivered by the Federation of Canadian Municipalities and funded by the Government of Canada

Funded By:

FCM Federation of Canadian Municipalities / Fédération canadienne des municipalités

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"Asset management has traditionally used an asset-first perspective in risk assessments.

However, assessing risk from an event, or hazard, perspective is becoming more common. This shift in approach is key when evaluating climate risks."

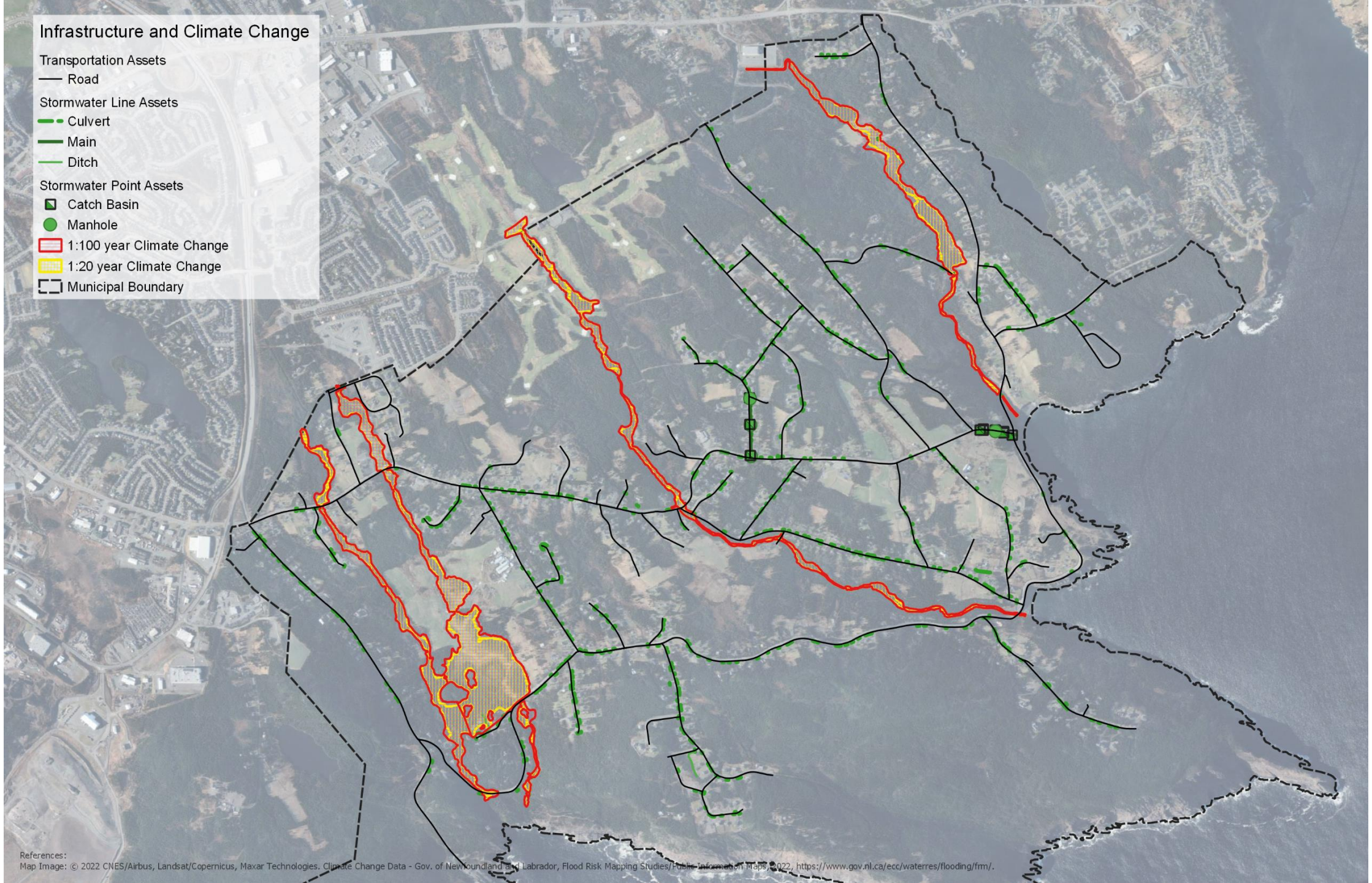
From the Guide for Integrating Climate Change considerations into Municipal Asset Management, FCM

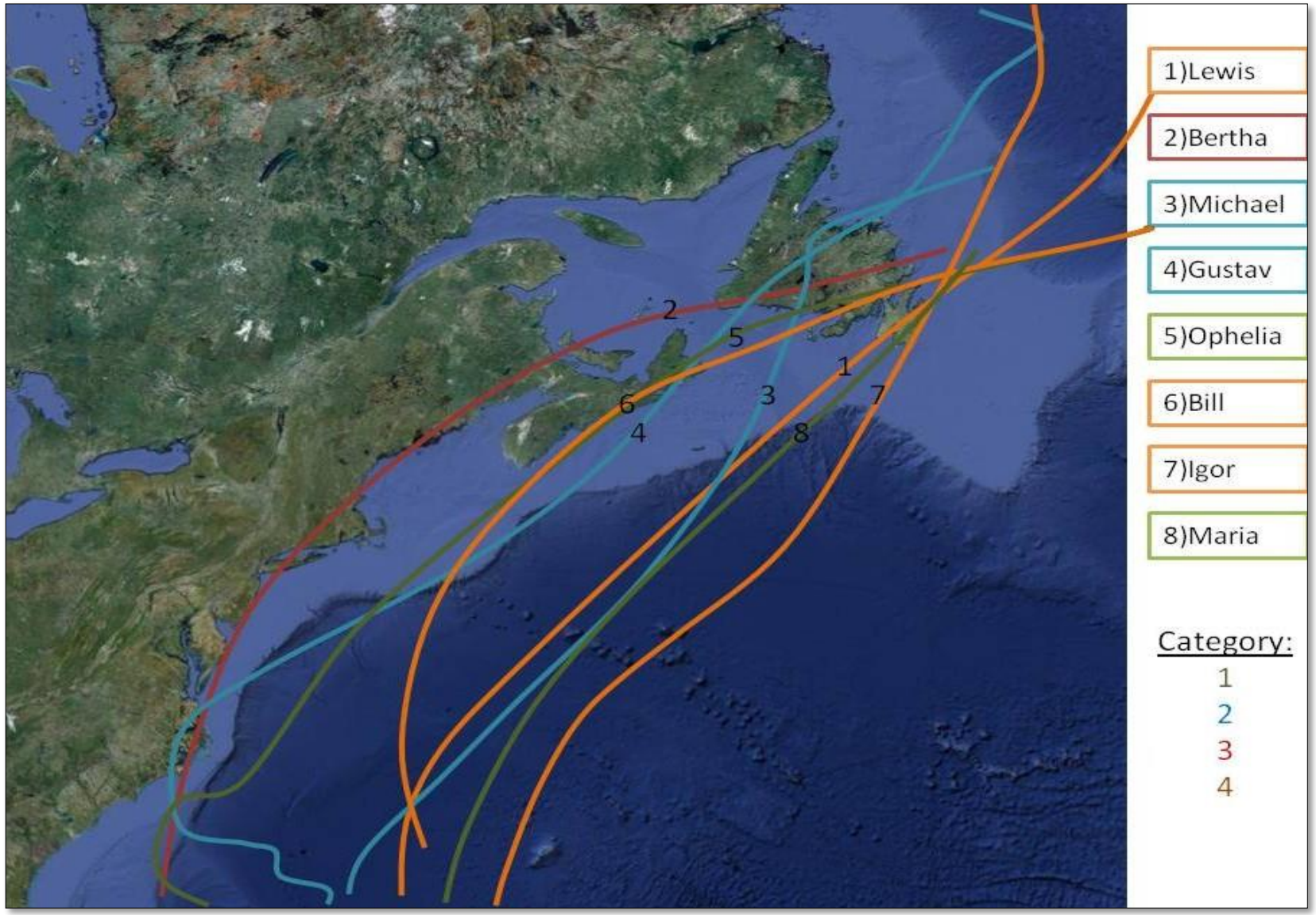
Traditional Approach: Where is the Asset in its useful life? Can it withstand what it was designed for?

New Approach: Can it withstand new stresses, and most importantly -- what will happen if it fails?

Condition / Probability of Failure
BON_SWC_Ln

- **Rare**
- **Unlikely**
- **Possible**
- **Likely**
- **Almost Certain**


Infrastructure and Climate Change
Transportation Assets
Road
Stormwater Line Assets
Culvert
Main
Ditch
Stormwater Point Assets
Catch Basin
Manhole
1:100 year Climate Change
1:20 year Climate Change
Municipal Boundary
References:
Map Image: © 2022 CNES/Airbus, Landsat/Copernicus, Maxar Technologies. Climate Change Data - Gov. of Newfoundland and Labrador, Flood Risk Mapping Studies/Public Information Maps, 2022, https://www.gov.nl.ca/ecc/waterres/flooding/frm/.


2
5
1
3
7
6
4
8
1)Lewis
1995
2)Bertha
1990
3)Michael
2000
4)Gustav
2002
5)Ophelia
2011
6)Bill
2009
7)Igor
2010
8)Maria
2011
Category:
1
2
3
4

Climate Change in NL

General trends

- Warmer summers and winters
- Rising Sea levels
- Stronger Winds
- Increased Precipitation

Climate Change in NL

Typical Hazards

Flooding

Coastal and Bank Erosion

Wildfire

High Winds

Assessing Risk

RISK = *Likelihood x Consequence*

Questions to Assess Likelihood

1. What do the most recent and authoritative studies suggest are the key changes in the future for your region?

2. How do physical characteristics of the community – both now, and in the future -- affect the hazard? Are there areas more affected than others?

3. What are the stressed points in the current system?

Questions to Identify Consequence

1. What Service areas that the Town provides are directly affected by the hazard, and how? Which are indirectly affected by it, and how?

2. What would be the result if these services were to fail? Are they critically impaired or can they operate at a lower level?

3. What is the capacity to respond?

Sample FLOODING HAZARD Risk Assessment

Service Area	Vulnerability	Implications	Consequence	Likelihood	Risk Rating
Drainage	Community buildings and housing susceptible to damage during flooding	High volume or blockage; undersized resulting in sedimentation and overtopping	Medium (2): potential flood damage to structures or pooling on properties near undersized culverts	Low (1)	Low **2**
Health/ Emergency Services	Access to emergency services could be delayed during flooding	Road washout; lack of access to services, delayed emergency response	High (3): could delay emergency response	Medium (2)	Medium **6**
Transportation	Minor thoroughfares Street are susceptible to flooding	Traffic delays; flooding and damage to road structure	Medium (2): traffic delays and rerouting to major roads	Medium (2)	Medium **4**

From the Guide for Integrating Climate Change considerations into Municipal Asset Management, FCM

Case Study

Conne River

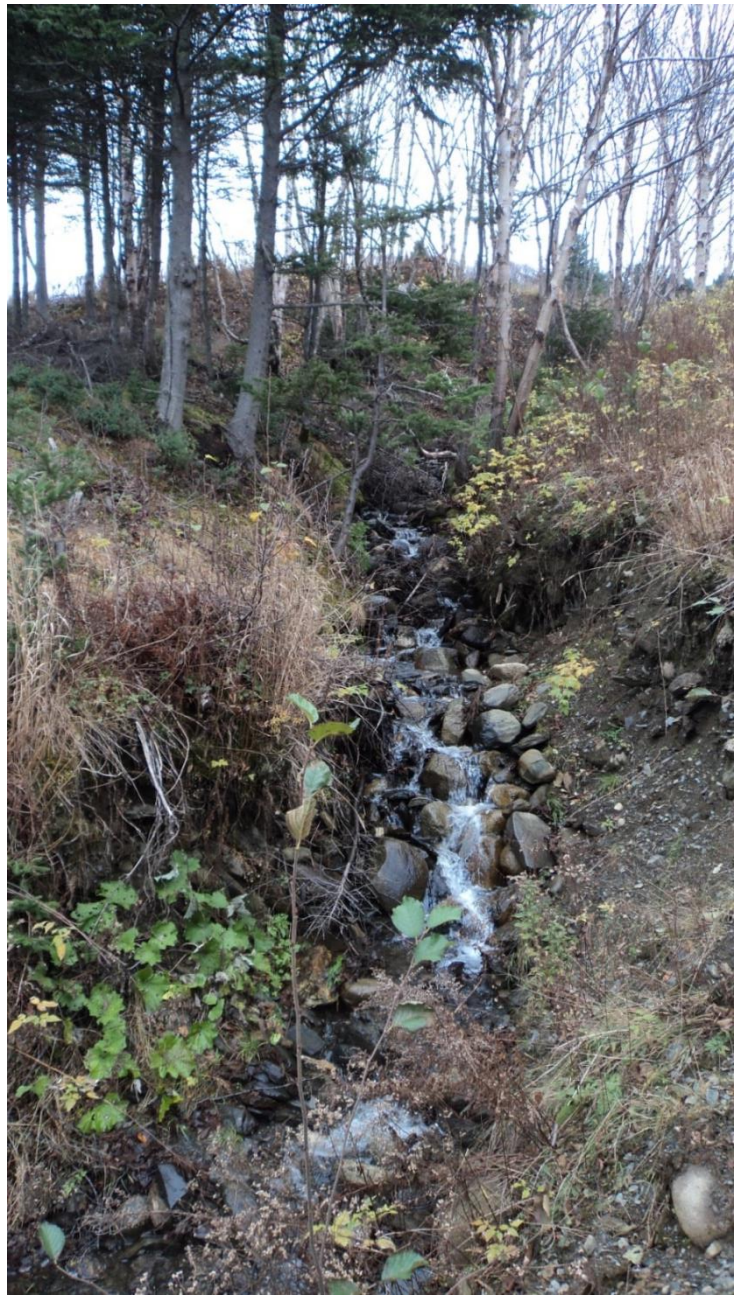
Relevant Climate Trends

Southern shore of NL

- Increased precipitation
- Higher Winds
- Higher Waves and Storm Surge
- Higher Temperatures in summer

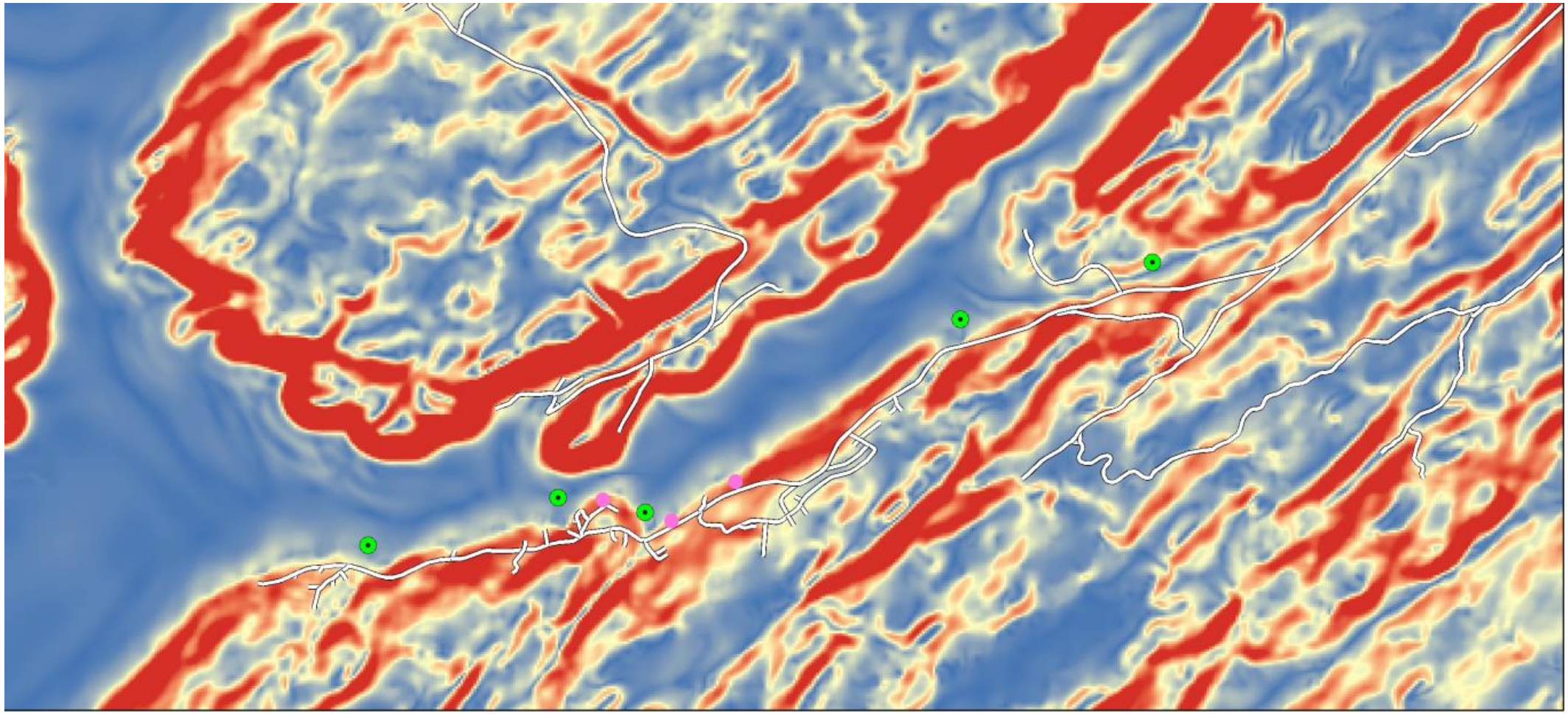
Likely associated Hazards

- Increased precipitation
  Flooding
- Higher Winds
  Wind damage
- Higher Waves and Storm Surge
  Coastal Erosion and landslides
- Higher Temperatures in summer
  Wildfire



Factors contributing to adverse likelihood

- Highly Saturated soil w/ high water table
- Certain river banks erodible
- Development occurring on sensitive lands, steep terrain
- Simple Open Drainage system



LEGEND

- Main Drainage Corridors
- Low Lying Areas
- Road Network

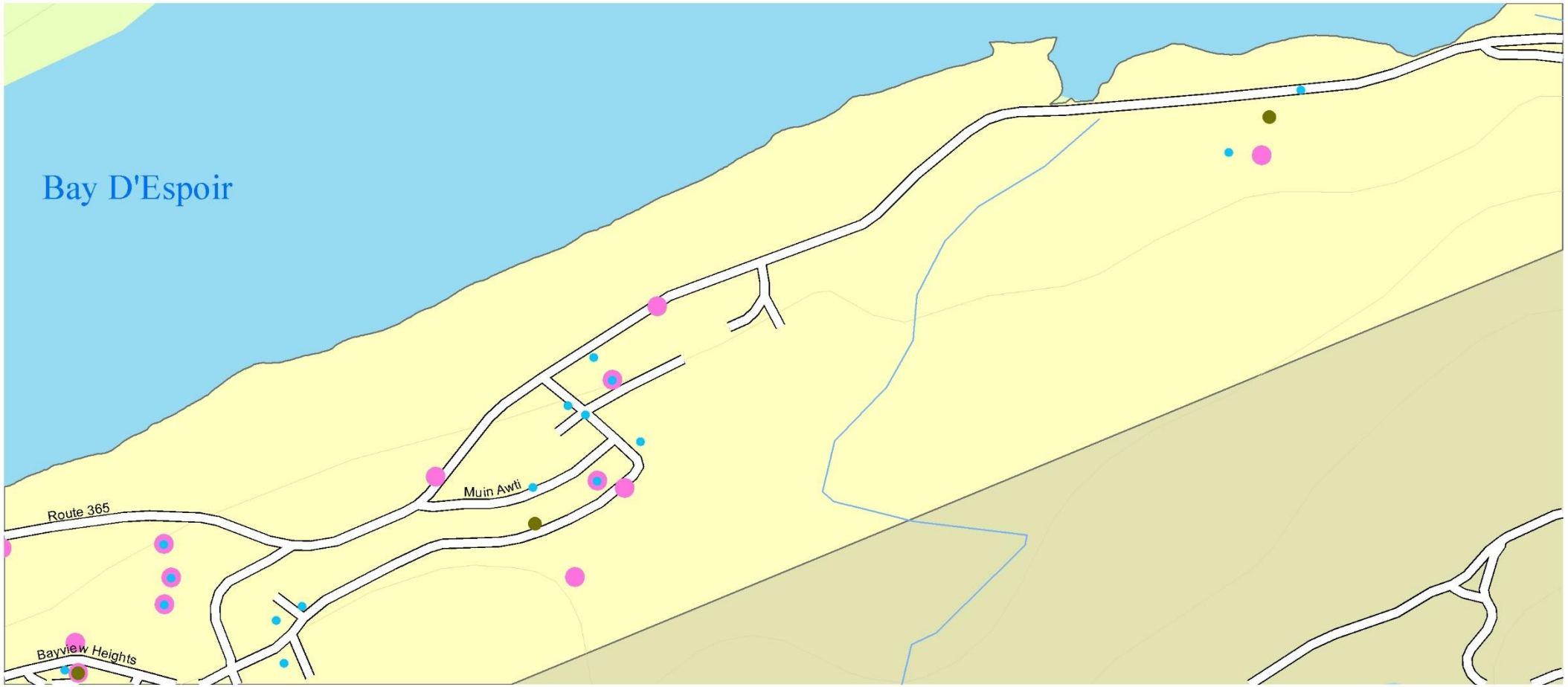
Slopes

High : 44.6359

Low : 0.00173774

N

0 1 2 3 4 Kilometers



LEGEND

- Fire Damage
- Wind Damage
- Water Damage
- Erosion - Drainage Damage
- River or Stream

0 100 200 300 400 Meters

N

TRACT | conach consulting

PROJECT Climate Change Assessment and Adaptation Plan	MAP TITLE Map 13c: Natural Hazards	DATE February, 2013	
		PROPONENT Miawpukek First Nations of Conne River	

Adverse Consequences Identified

Increased:

- Road washouts
- Power Outages
- Property damage

Hazards by Prioritized Risk	
• Localized flooding and Road washouts (increased precipitation) • Oceanic Flooding and property damage (higher winds, sea level rise) • Failure of Sanitary system (increased runoff) • Power Outages (higher winds)	1st Priority
• Failure of Potable water system (increased runoff, higher temperatures) • Failure of Sanitary system (due to power outage) • Road failure from erosion (increased precipitation)	2nd Priority
• Forest fire (higher temperatures, higher wind) • Localized landslides (increased precipitation, coastal erosion and storm surge)	3rd Priority

Localized flooding Risk Assessment

Risk		**Over capacity of Stormwater drainage systems and corridor resulting in localized floods or washouts**
Risk Evaluation Criteria	**Consequence**	High
	Likelihood	High
	Adaptive Capacity	Medium
Suggested Adaption Action		• Conduct comprehensive mapping inventory of all storm water management and natural drainage systems, including all piped systems and culvert locations ; • Continue ongoing inspection and maintenance of all storm water ditches, culverts, drainage corridors and discharge locations, including removal of sedimentation and impediments; • Prepare an Engineered Infrastructure Standards Manual to establish standards and requirements in the construction and operation of the storm water management system, and all other engineered infrastructure of water, sewer, roads and utilities.
Overall Priority Level		First Priority
Lead Partner		Department of Public Works
Support Partners		Band Council

Alignment with AMP

- Revise previous Risk assessment (Pof, Cof maps) in the Asset Management Plan.
- Is capital planning encouraging or discouraging development pressure on sensitive or hazard-prone lands?
- Is critical infrastructure given the necessary priority?
  - Ie. those assets that cannot fail or must be available during an emergency

Trends Emerging from Climate Change Risk Assessment

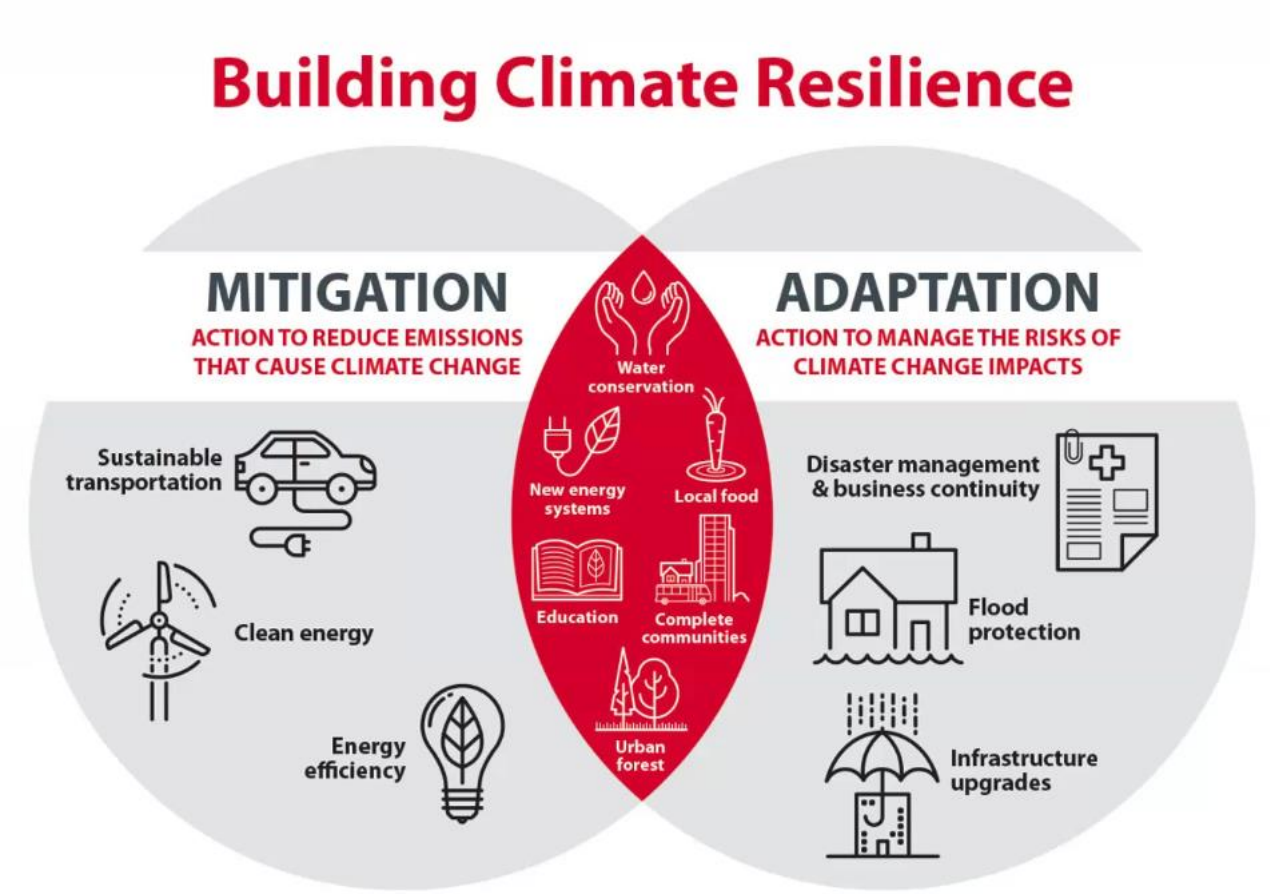
- Updates to the Municipal Zoning regulations
    - New and improved Setback and buffer requirements
    - Natural infrastructure preservation and promotion

Trends Emerging from Climate Change Risk Assessment

- Review of Engineering Design standards
    - Re-evaluation of threshold criteria for design failure
        - PIEVC engineering protocols
- New emergency response procedures and communications protocols

Trends Emerging from Climate Change Risk Assessment

- Mitigative Strategies, ie. Greenhouse Gas reduction
    - Greener energy sources
    - Demand reduction and efficiency



Applications for Asset Management Planning:
Assessing Vacant Lands

Presented by Anna Myers, MCIP

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Land is an important **economic and community** resource

Vacant lands are quite common throughout municipalities in this province

No mandatory registration in NL: ownership hard to determine

Vacant land hinders economic and community development and represents **lost opportunities**

Comprehensive land ownership mapping for small Towns too expensive

Need to **priorize vacant lands** that are of economic or community interest to the Municipality and focus on them

An **Asset Management program** with digital mapping capabilities is a key tool to identifying land for future development

Example of Asset Management Overlays in New Perlican:

Municipal Services and Land Use zoning

Need to know ownership of land potentially suitable for development
(black arrows point to vacant land that could be considered for services)

4-phase Process

Objective:
To identify which vacant lands are available **for acquisition** by the Town or prospective developer

Phase 1: Inventory Potential Areas of interest

Phase 2: Identify areas for focused investigation

Phase 3: Ownership research

Phase 4: Acquisition

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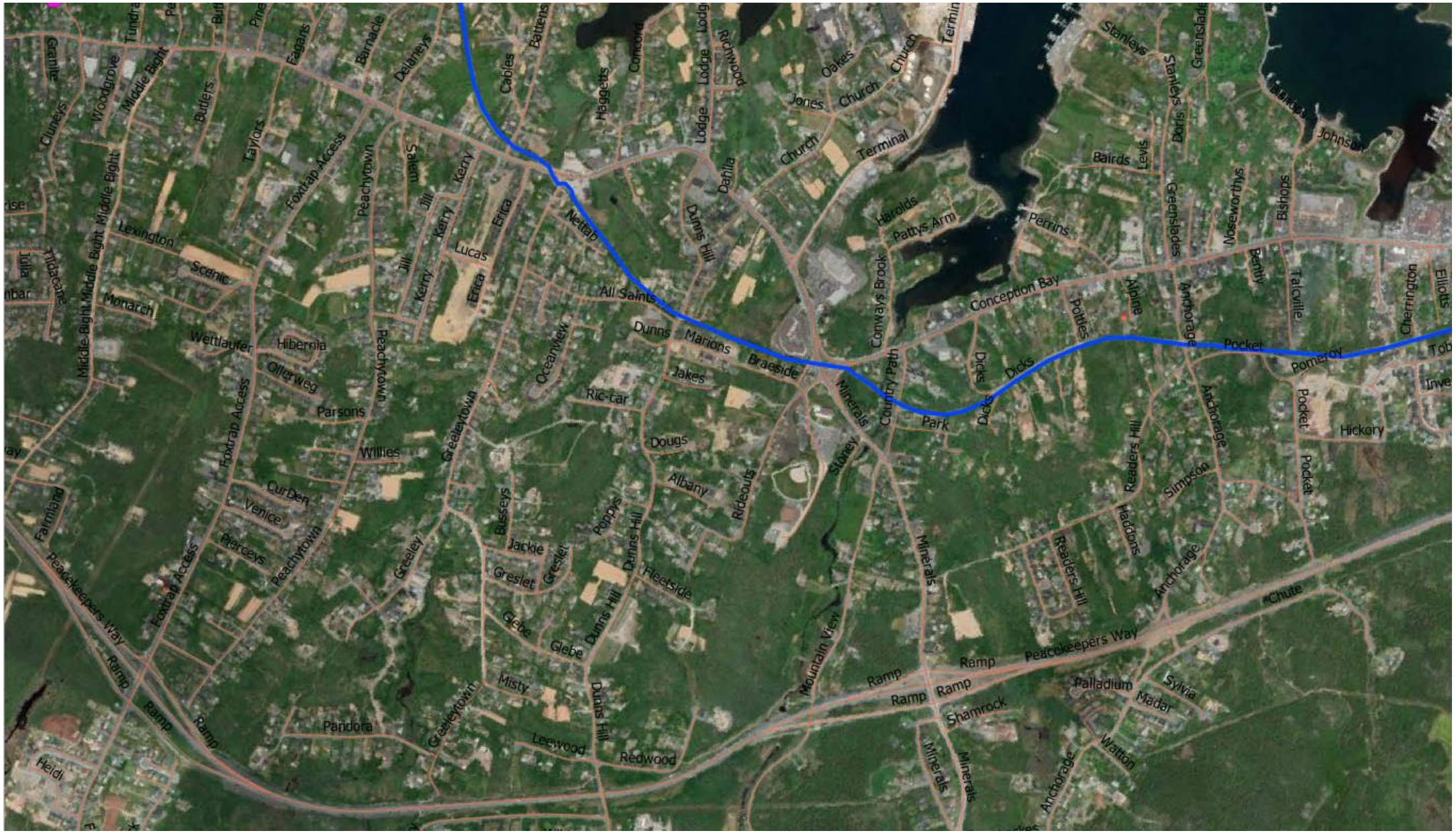
4-phase Process

Phase 1: Inventory all Potential Areas of Interest

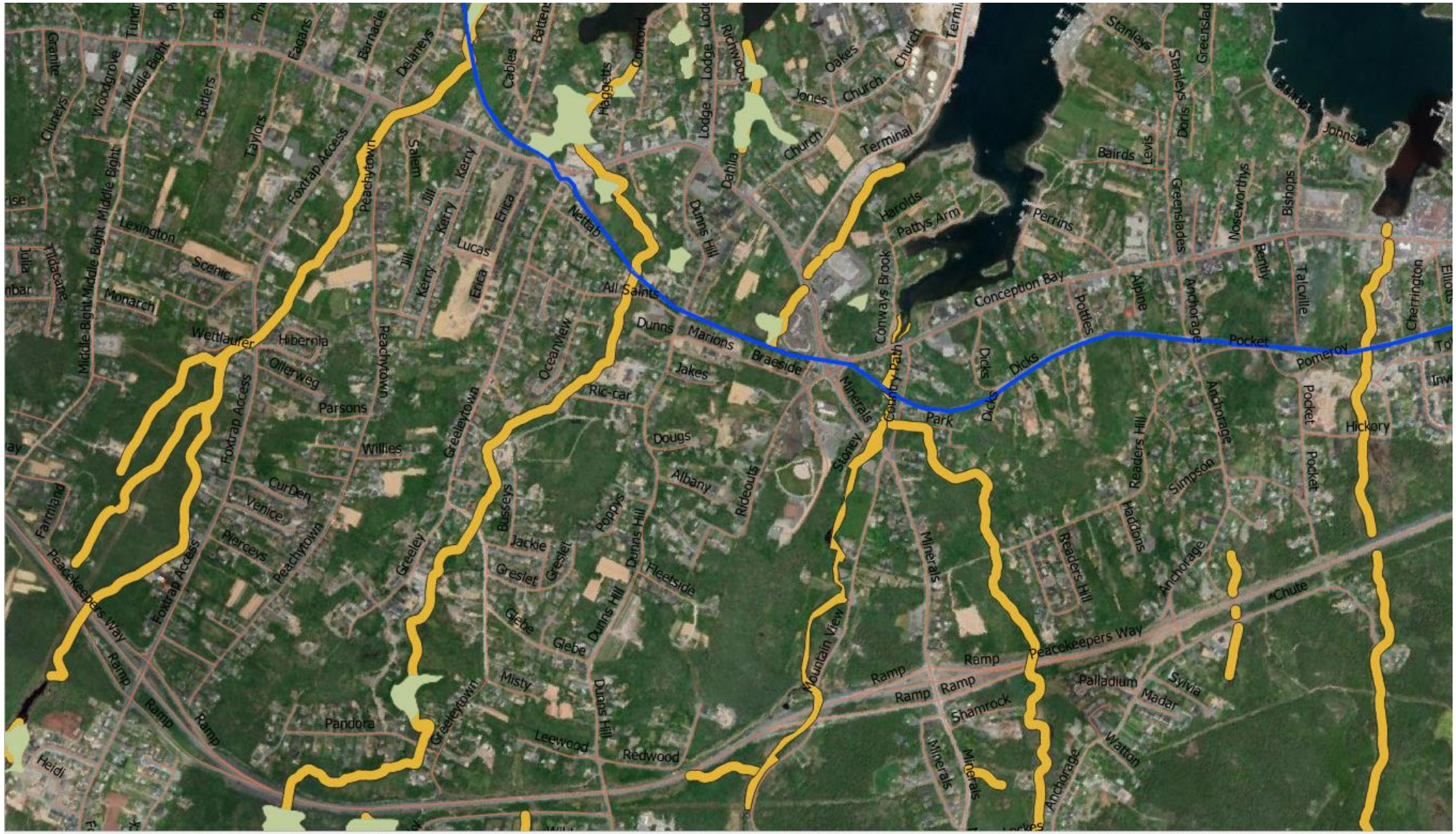
Example: Conception Bay South (Long Pond/CBS Hwy/Peacekeepers Way)

As it appears in QGIS in Asset Management Plan

Map encumbrances, such as Right-of-Ways

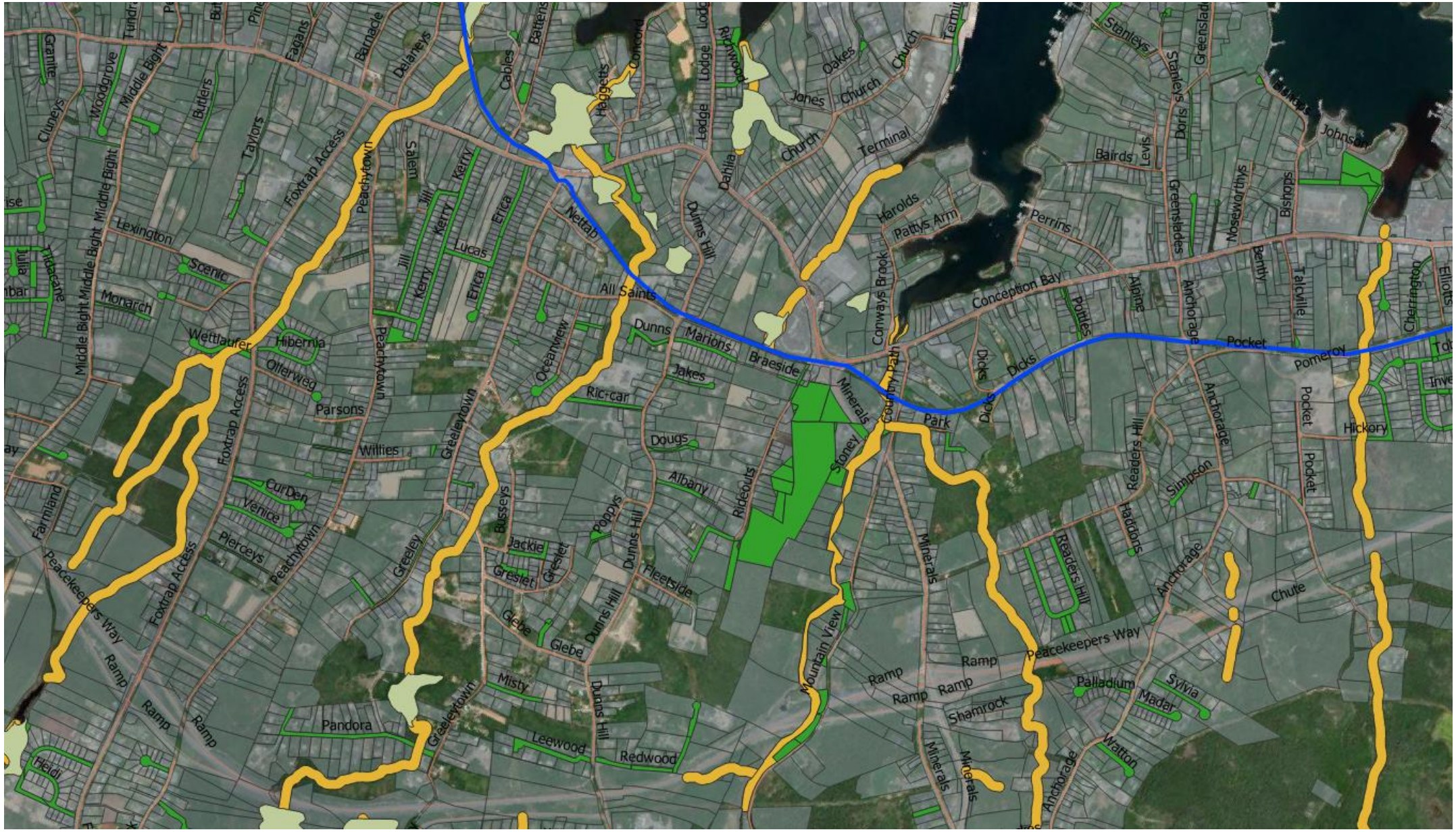


Map environmental reserves (rivers + wetlands)

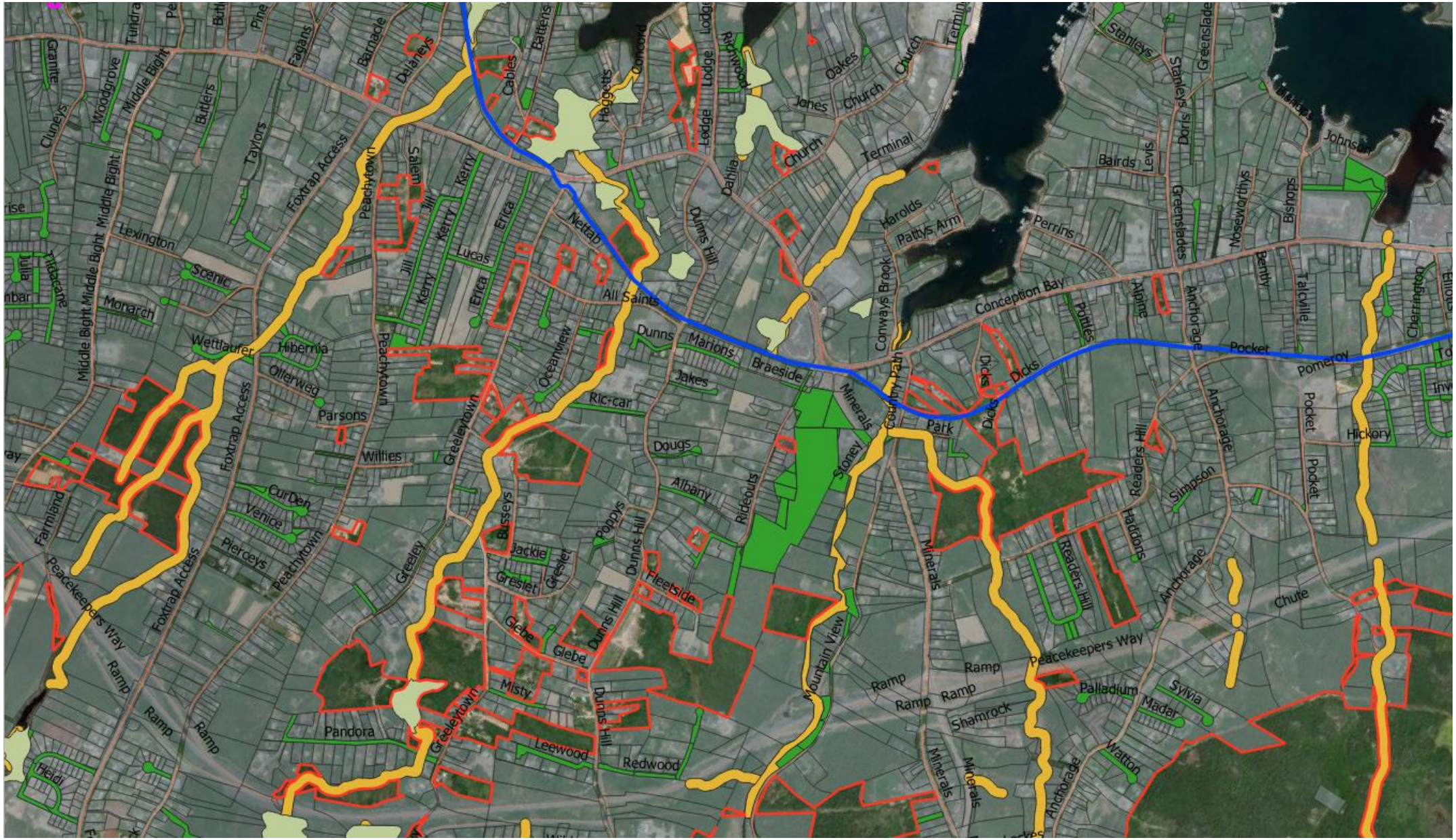


Map known privately-owned land and lands that have structures

Map Town-owned land



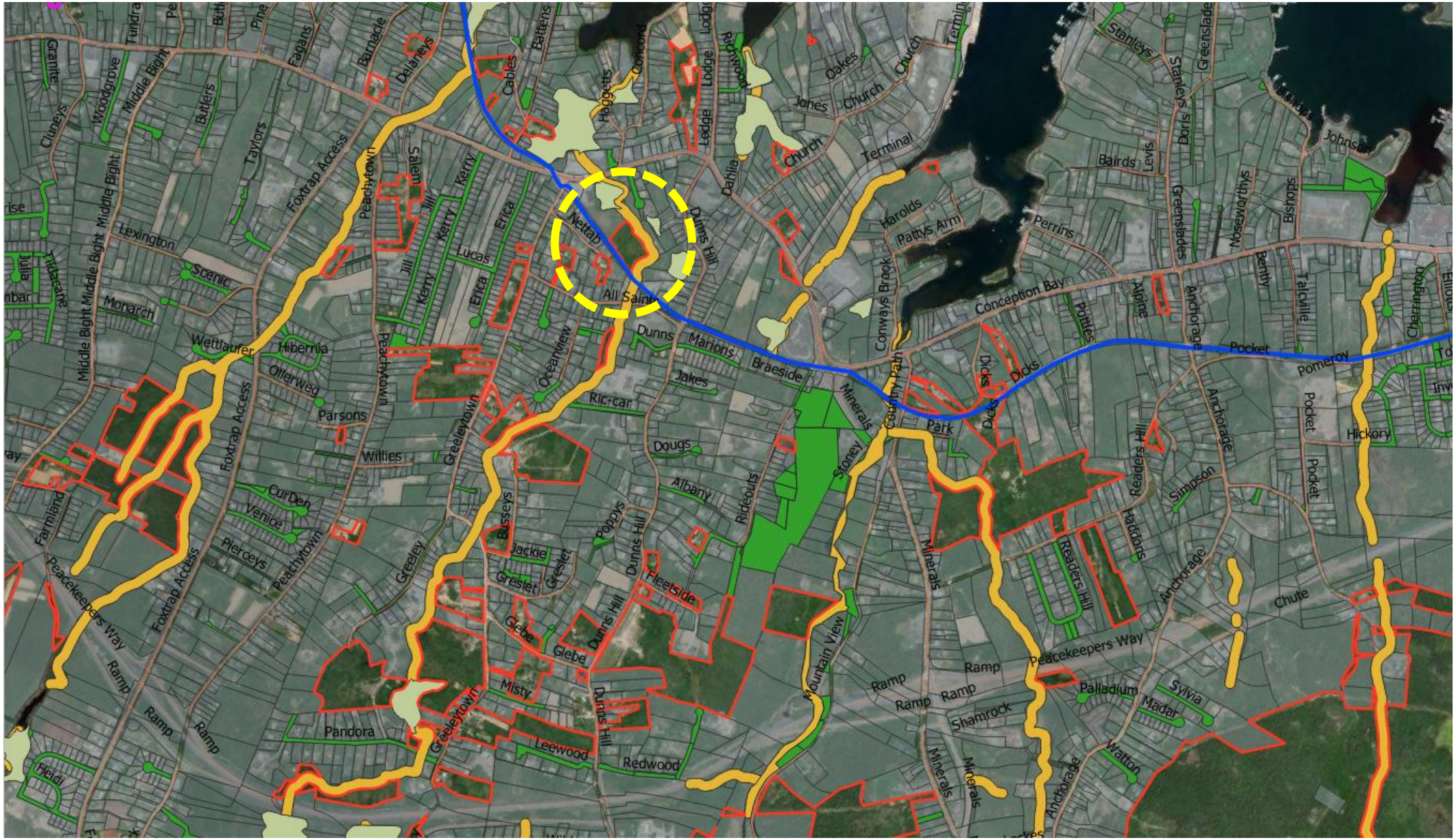
What is left is Potential Areas of Interest



4-phase Process

Phase 2:Identify areas for focussed investigation

Phase 2: Focused investigation



Phase 2

Phase 2


Greeleytown
Nettab
All Saints
Very obviously occupied; ***Check municipal Tax Rolls***

Phase 2

4-phase Process

Phase 3: Ownership Research

Phase 3

Identify property of interest for acquisition

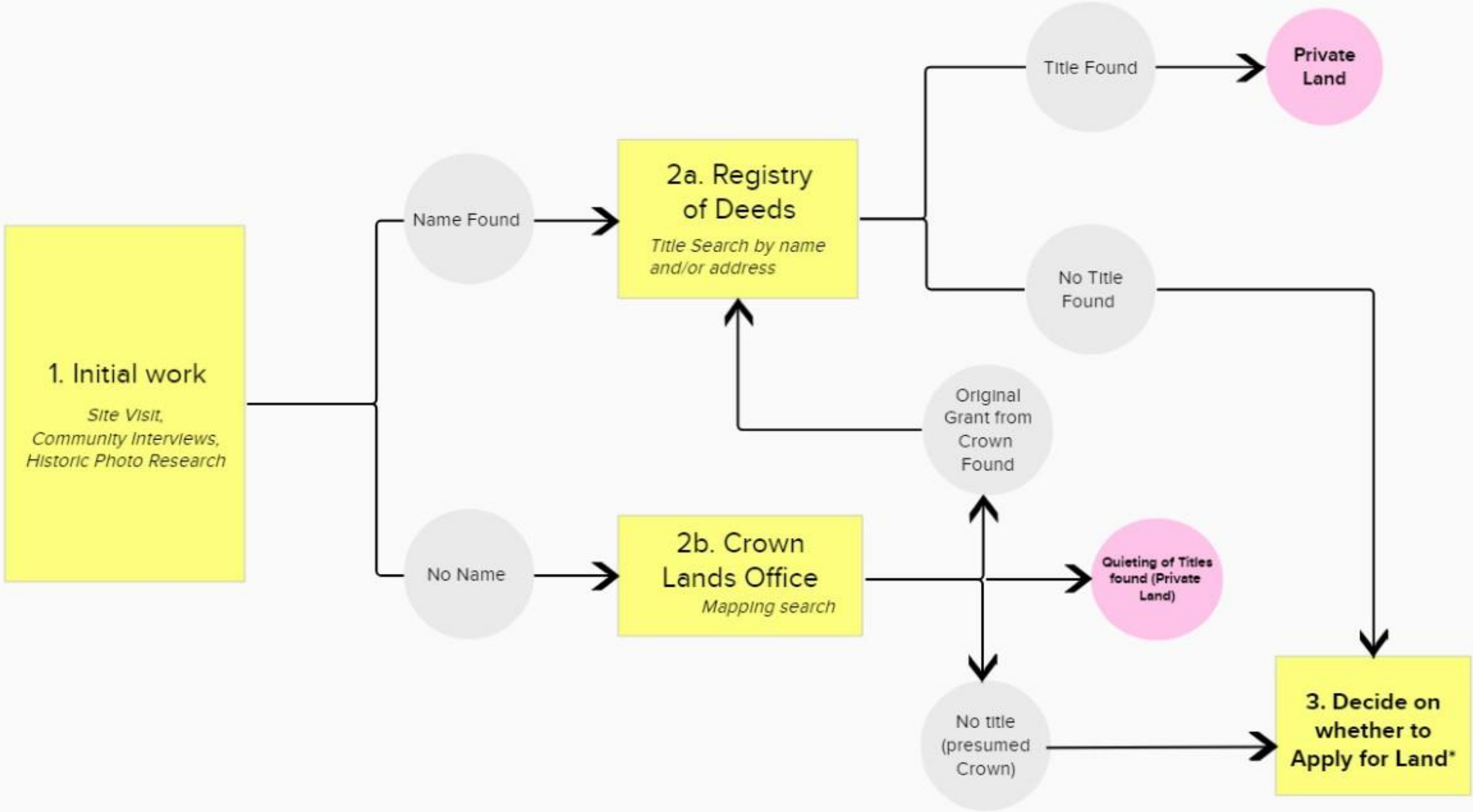
Follow step-by-step process, as set out in Flow Chart

Some Definitions to remember:

Squatter's Rights:

- *Adverse Claim* under Section 36, the Lands Act;
- *Quieting of Title* which is an application to Supreme Court under Quieting of Titles Act;

Registry of Deeds: Government registry of Property records-voluntary registration;

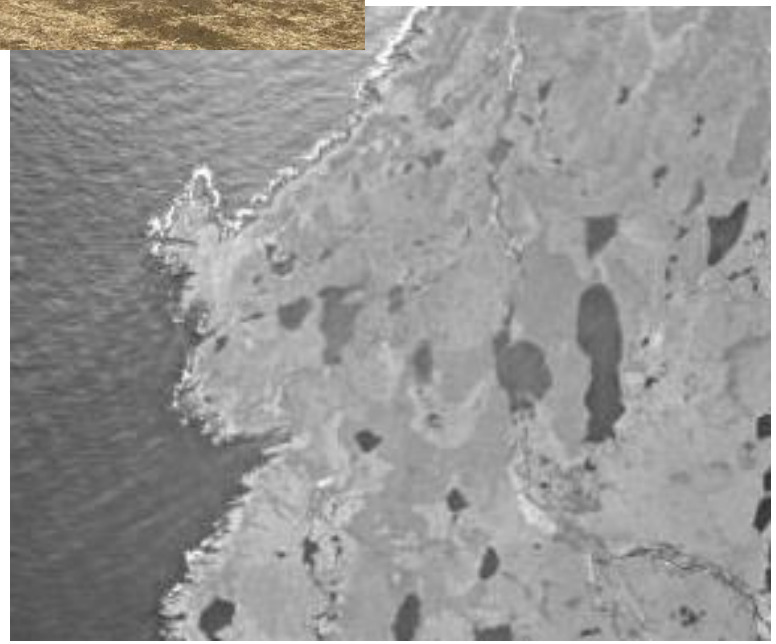

1. Initial work
Site Visit, Community Interviews, Historic Photo Research
Name Found
No Name
2a. Registry of Deeds
Title Search by name and/or address
2b. Crown Lands Office
Mapping search
Title Found
Private Land
No Title Found
Original Grant from Crown Found
Quieting of Titles found (Private Land)
No title (presumed Crown)
3. Decide on whether to Apply for Land*

Historical Photo search

Phase 3

Step 1:

- Visit site. Talk to neighbours. Try to find a name or names.
- Check Local tax records to see if any tax is being paid on property
- Look at Historical Air photos if they exist, for evidence of occupation
- If we have a name, we can proceed to Registry of Deeds to **search for Deed**



Phase 3

Step 2a: *Registry of Deeds*

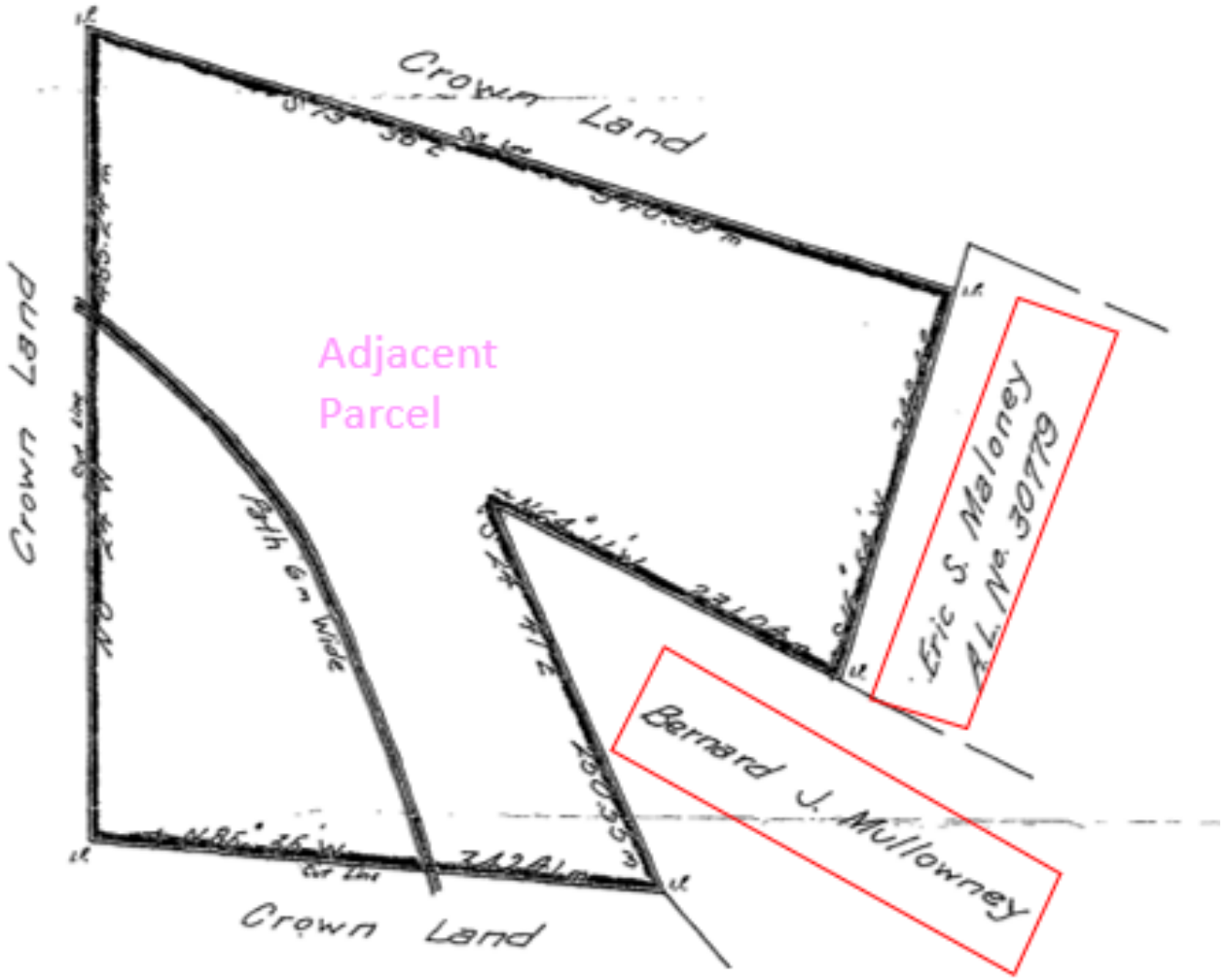
Undertake a Title Search using the name from Step 1 to find any and all of the following:

- A Survey of the owned land and/or a written description of its boundaries
- A Deed of title to the land
- Any other Declaration of interest in the land

Phase 3

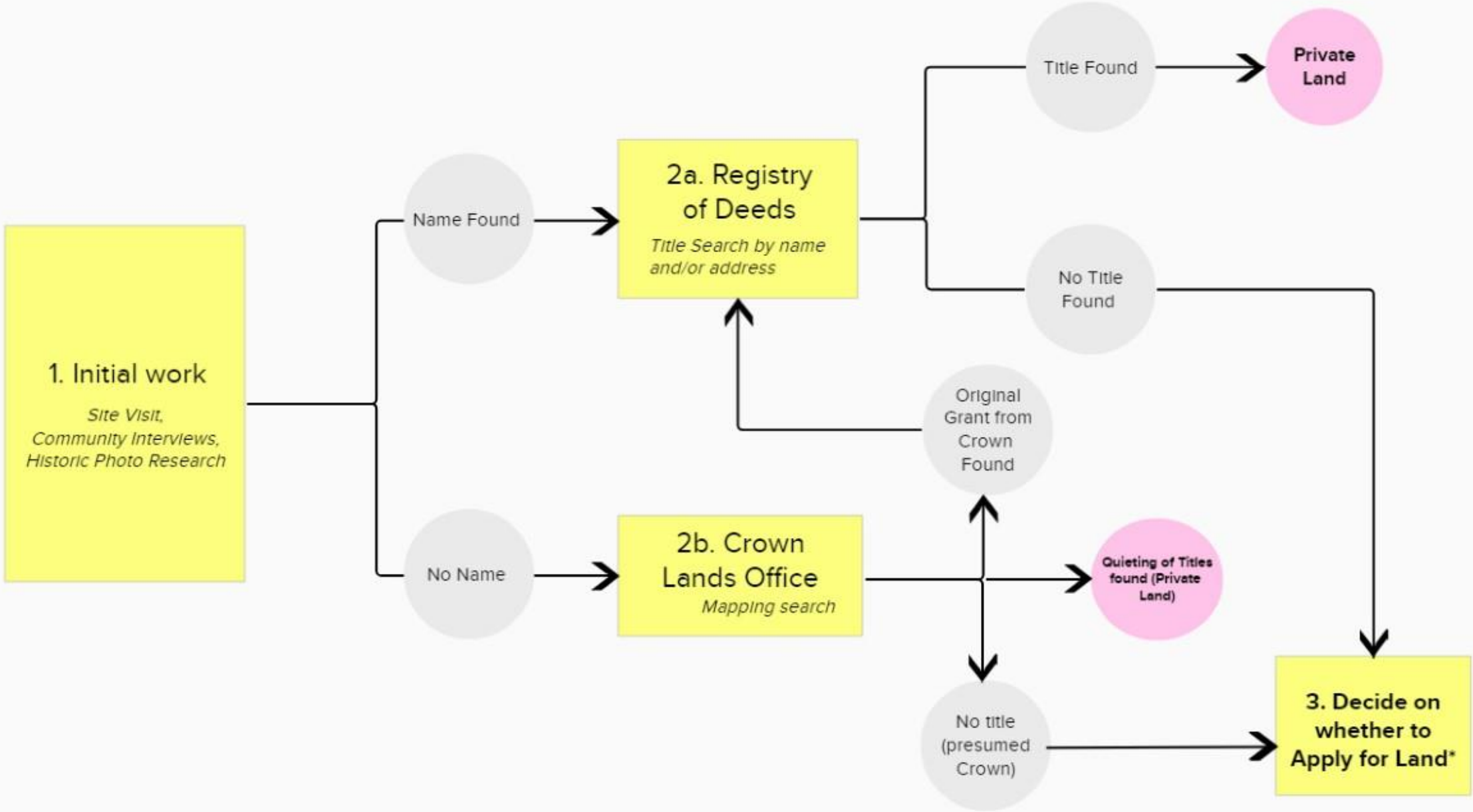
Step 2a: *Registry of Deeds*

Note that if no name or address could be found, it is often worth conducting a Title Search on one of the adjacent landowners which might also provide a name of potential owner.



Phase 3

But what if we couldn’t find a record of ownership based on the name(s) used in the title search at the Registry of Deeds?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Mapping search
Title Found
Private Land
No Title Found
Original Grant from Crown Found
Quieting of Titles found (Private Land)
No title (presumed Crown)
3. Decide on whether to Apply for Land*

Phase 3

Step 2b: Crown Lands office

Crown Lands research of the area.
Findings may indicate:

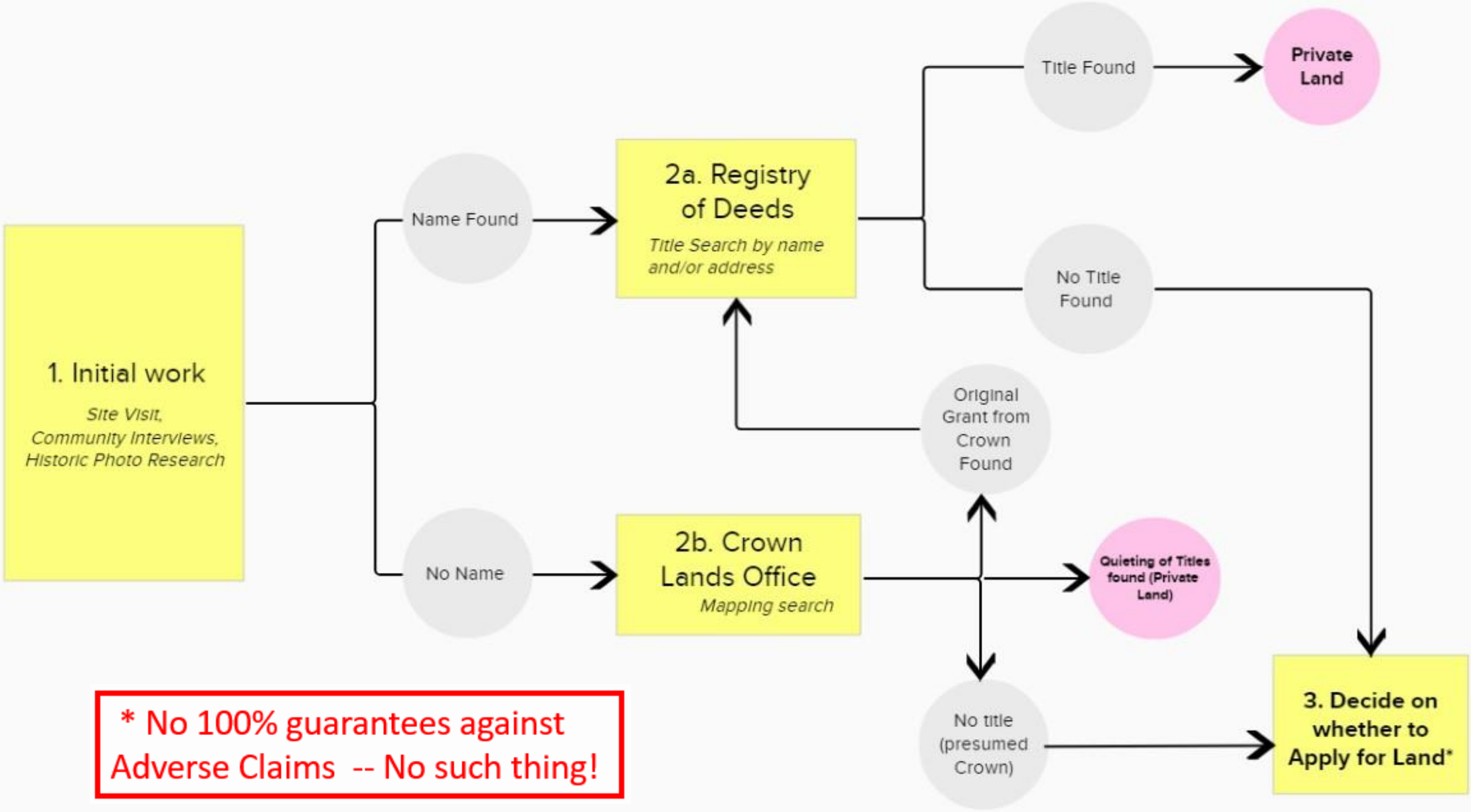
- A Survey of the Original Crown Grant for the area of interest (*This provides another name to search at the Registry of Deeds)*
- Quieting of Titles (privately owned)
- No title in the area of interest (indicating it is very likely Crown land)

Phase 3: Risk Assessment before Application for Crown lands

- Evidence of structures or use of the land, taxes paid on the site, or strong association with a family name are indications that an Adverse claim might be put forward.

- Town should now have a good idea of whether the parcel of interest is privately owned or Crown Land, and some idea of the RELATIVE risk of Adverse claims.

- If parcel is deemed too risky, the Town can, repeat Phases 1-3 on more parcels identified until a total inventory of all vacant parcels is made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Title Found
Private Land
No Title Found
Original Grant from Crown Found
Quieting of Titles found (Private Land)
No title (presumed Crown)
3. Decide on whether to Apply for Land*
* No 100% guarantees against Adverse Claims -- No such thing!

4-phase Process

Phase 4: Acquisition

- Crown land
- Private land

Phase 4:
Acquisition of Crown land

- Usual process: **Crown lands application** and purchase at market rates (according to zoning)
- Municipal **Lease to Own Program** (2016): Towns allowed to lease land from the Crown for various terms until revenue becomes generated. After term, Town has the option to buy land with lease payments contributing to total
- If use is not intensive and simply recreational, a **License-to-Occupy** might be suitable

Phase 4:
Acquisition of Private Land

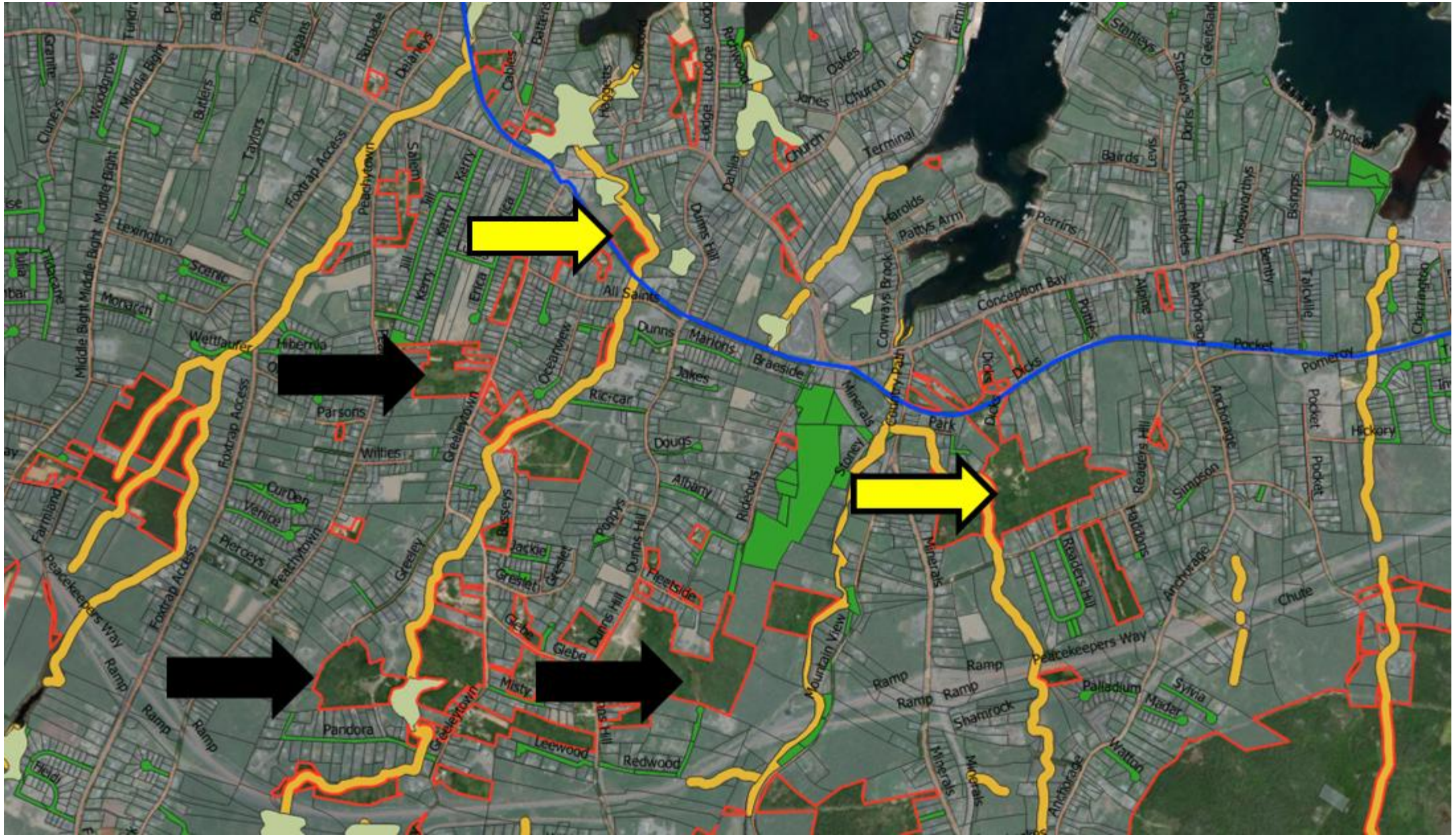
- Approach Owner with offer to Purchase
- If Municipal Taxes are in arrears, this could result in an Tax Sale by auction (Municipalities Act)
- Expropriation (Urban & Rural Planning Act) for a public purpose which could including economic purpose for the benefit of the community

Example of Asset Management Overlays in New Perlican:

Municipal Services and Land Use zoning

Need to know ownership of land potentially suitable for development
(black arrows point to vacant land that could be considered for services)

Example of Vacant Land availability to add to **Asset management mapping**



Example of success: Town of Appleton Industrial Park

- The Town of Appleton has strategically acquired Crown land under the 2016 Municipal Acquisition policy

- When Tract recently updated the Municipal Plan, 2020, the Municipal Planning area was expanded and land was zoned for Industrial Park use

- The Industrial Park continues to expand in a controlled manner

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Climate Mitigation

Municipalities
Newfoundland and Labrador

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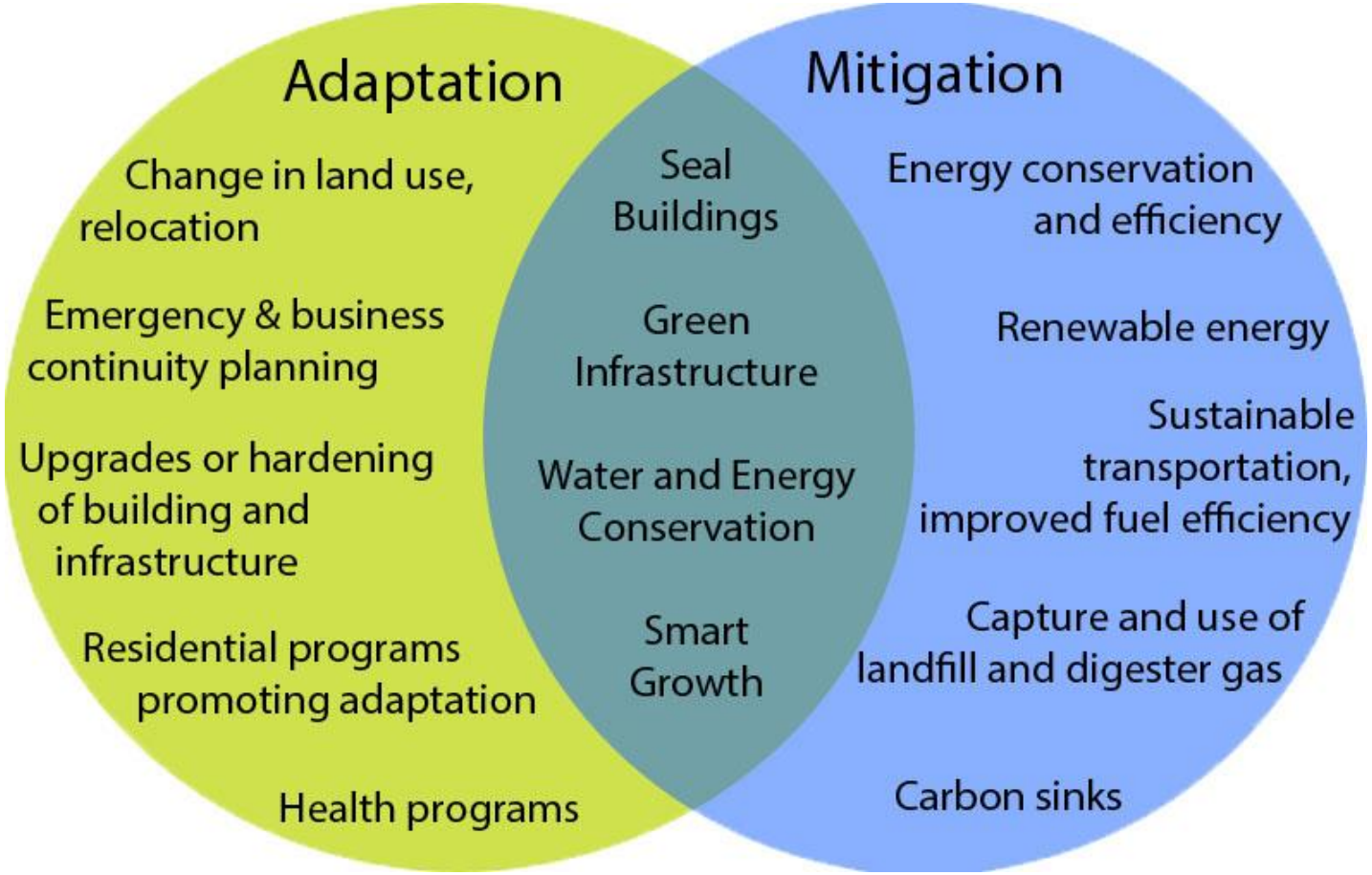
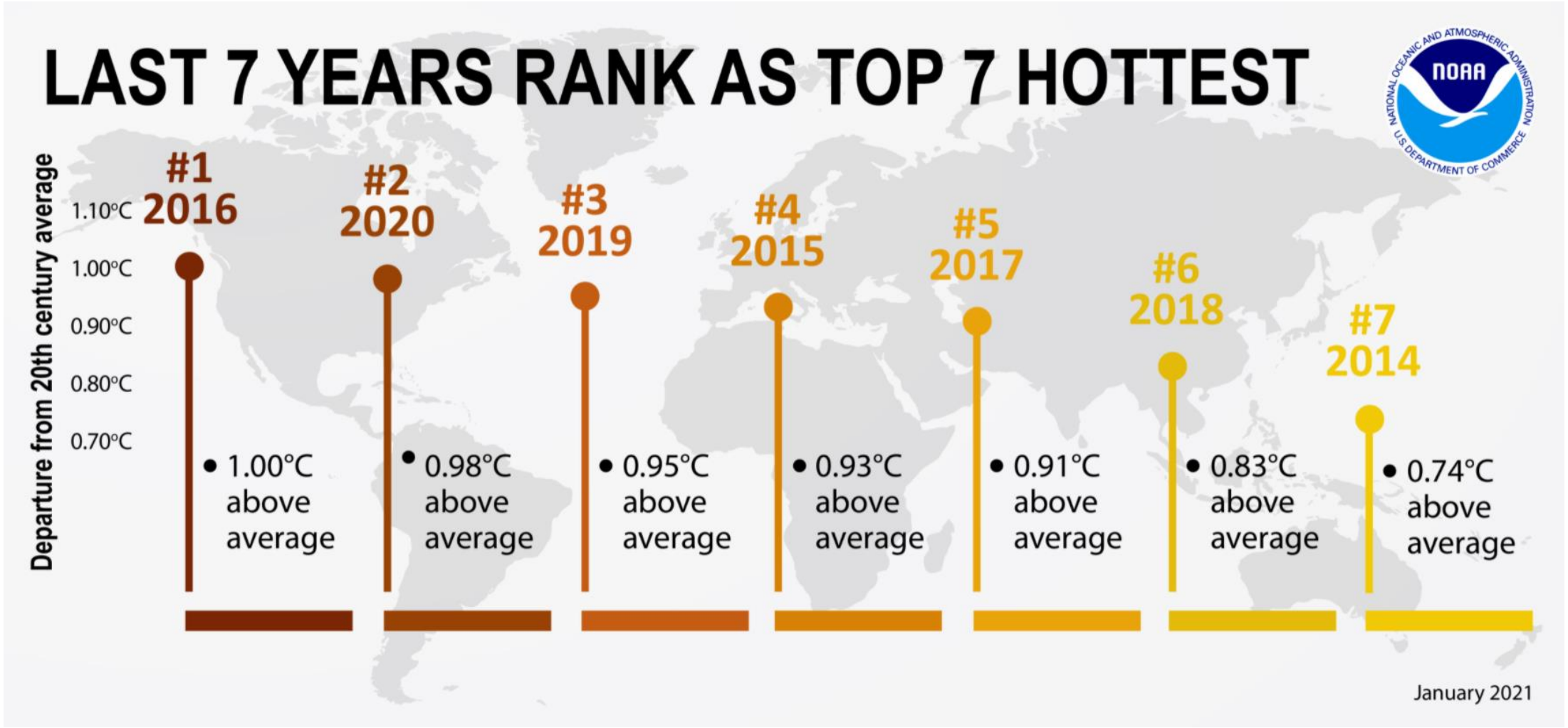
Adaptation versus Mitigation

Climate Adaptation – *creating solutions (engineered, social, procedural, etc.) to maintain levels of service under long-term climatic change.*

Climate Mitigation – *creating solutions for the root causes of climate change.*

Adaptation versus Mitigation




LAST 7 YEARS RANK AS TOP 7 HOTTEST
NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE
Departure from 20th century average
1.10°C
1.00°C
0.90°C
0.80°C
0.70°C
#1 2016
• 1.00°C above average
#2 2020
• 0.98°C above average
#3 2019
• 0.95°C above average
#4 2015
• 0.93°C above average
#5 2017
• 0.91°C above average
#6 2018
• 0.83°C above average
#7 2014
• 0.74°C above average
January 2021

Municipal Climate Mitigation

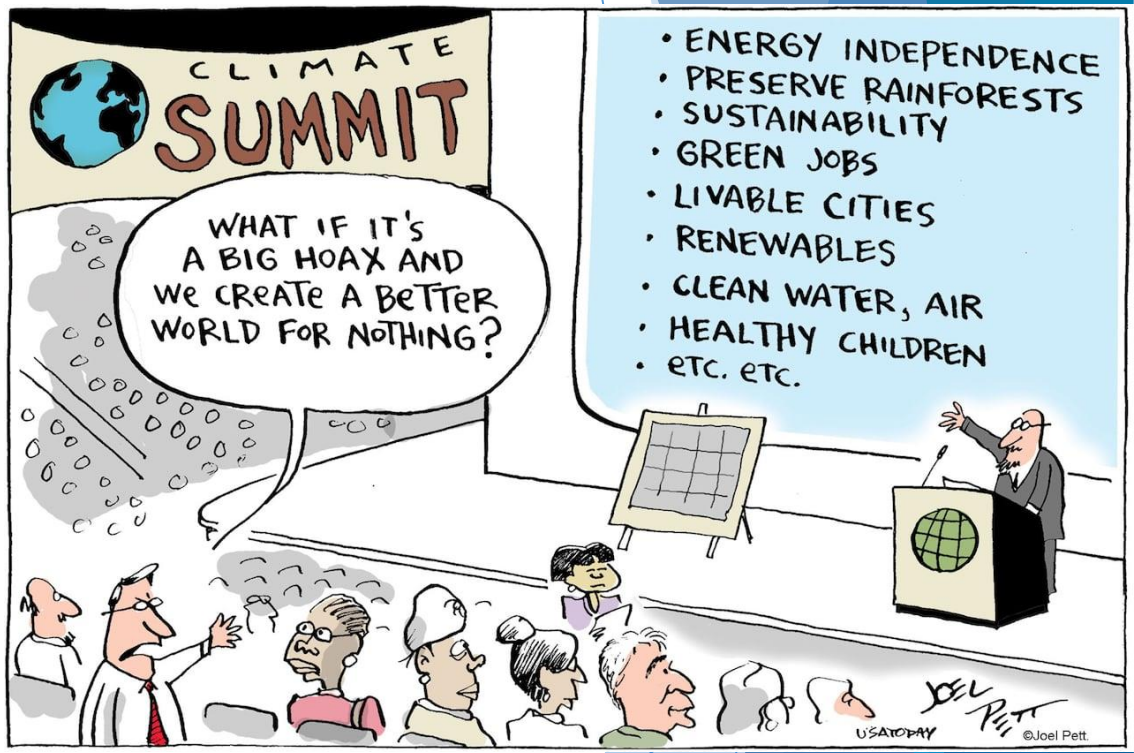
- *44% of climate change emissions are under direct or indirect control of municipalities (FCM 2009)*
- *26% of climate change emissions are from industry, half from the oil and gas sector.*
- ***YOU have the power!***

Climate Mitigation and Asset Management

- Historically, climate mitigation is not considered an “Asset Management” activity
- The change in recent years stems from considering climate mitigation as critical to providing services in the long-term
- Many municipalities are starting to adopt policies that consider mitigation targets a key “level of service”
- Climate mitigation decisions affect life cycle cost (higher AND lower) and durability / lifespan
- **Resilient Design** is an approach that meets levels of service while preparing for and mitigating future impacts (Example: Variable Frequency Drive pumps)

Climate Mitigation Benefits from Asset Management

- Inventory to understand and track your GHG sources
- Track projects, capital costs, O&M savings
- Track progress over time
- Coordinate mitigation projects with critical upgrades to maintain service levels
- Define service level targets
- Incorporate cost over all assets for service delivery
- Access to funding



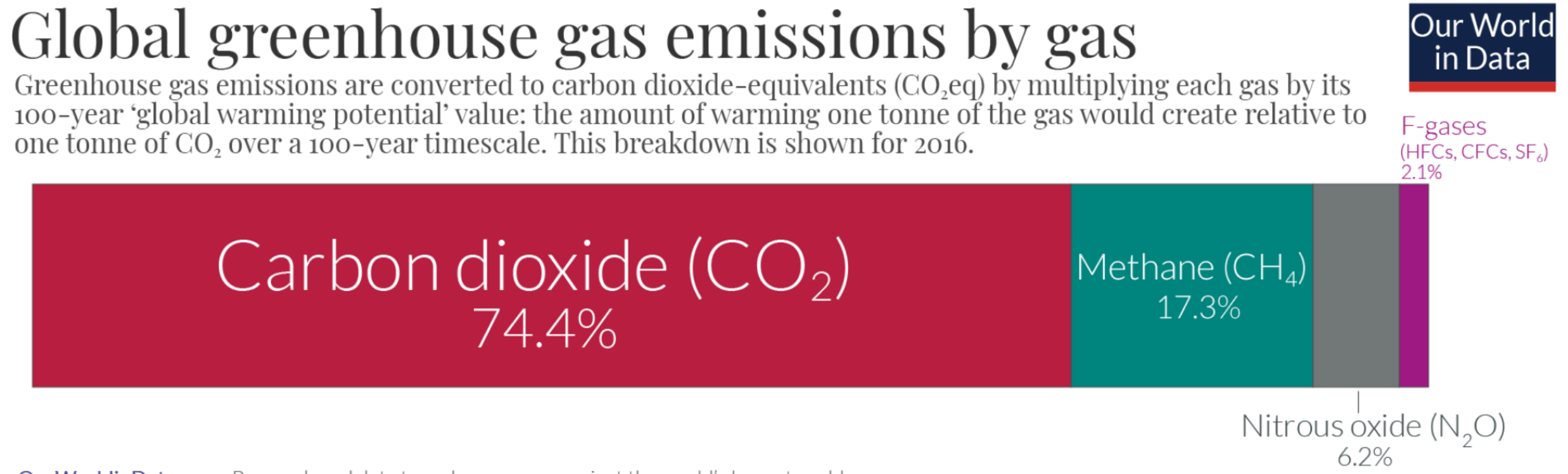
Co-Benefits

- Help avoid a global catastrophe
- Greater active transportation opportunities
- Improved community health outcomes
- Reduced air and water pollution

Measuring Climate Mitigation

Carbon Dioxide = 36 Billion tonnes

Methane = 570 Million tonnes



Sources of Anthropogenic Climate Change

Energy Use:
- Consider sources, NL has mostly hydropower
- 0.000027 t CO2 per kWh (NL)
- 0.000180 t CO2 per kWh (NS)

Furnace Oil
- Switching to electric reduces GHG production
- 0.003000 t CO2 per litre

Vehicle Fuel
- Reduce travel distance
- Switch to hybrids or electric
- 0.002300 t CO2 per litre

Liquid and Solid Waste
- Emissions from Landfill
- Emissions from Liquid Waste
- Quantify by tonne CO2 per tonne of gas

Document Your Findings

Climate Mitigation Activity Plan

Percentage GHG Emitting Energy Sources	**19.60%**	
Cost of Power	**$0.136**	**per kWh**
Tonnes CO2 per kWh (unadjusted)		**Tonnes**
Discount rate for Net Present Value Calculati	**1.00%**	
Annual KWh Per Vehicle Formula	**Average km per year * kWh per km**	
Annual kWh Per Unit Formula	**Average Watts Power * Days in Service per Year * Average Hours in Service Per Day**	

Location	Current System	Quantity	Units	Annual kWh/unit	Proposed System	Annual kWh/unit	Unit Cost	System Cost	Annual O&M Savings / Cost	Timeframe (years)	Annual kWh Savings	Annual Savings	Net Present Value Savings	Percentage GHG Reduction	Notes
City Hall	100W Equivalent Flourescent Light Ballast	80	Ea	87.6	100W Equivalent LED Light Ballast	52.6	$100.00	$8,000.00	$100.00	20	2803.2	$381.24	$684.16	7.8%	% GHG Reduction adjusted by % power from emitting sources
Public Works	F150 Diesel	20000	km	0.70	F150 Hybrid	0.51	N/A	$6,000.00	$1,403.00	10	3877.9	$527.39	$12,283.31	27.7%	F150 Hybrid 9.4 L/100 km combined + balance of kWh energy from electrical grid at low demand hours so assume 100% non-emitting. Hybrid Power Boost approximate upgrade of $6,000. O&M costs include reduced maintenance and gasoline cost savings.
WWTP	5HP Gorman Rupp Pump	1500	hours	5.40	Add Variable Frequency Drive	3.24	N/A	$4,500.00	$500.00	20	3240.0	$440.64	$12,474.37	40.0%	Main input pump is a good candidate: high run time per day, long pipe runs with much of TDH in friction loss and ease of install close to the pump at the lift station. Estimated power savings 60%. Prmiary run times at peak hours so 100% energy savings is GHG emitting
City Hall	R-20 Insulation	20000	Sq Ft	7.48	R-24 Insulation	6.21	$6.00	$120,000.00	$0.00	40	25433.1	$3,458.91	-$6,427.91	17.0%	20,000 square foot buidling c/w natural gas heat. Estimate of 0.68 cubic metres nat gas per sq ft. annually


EXIT

Applications for Asset Management Planning:

Green Energy Case Study

Town of Brigus

TRACT

MUNICIPAL ASSET MANAGEMENT PROGRAM

Project completed in partnership with Municipalities Newfoundland and Labrador

This initiative is delivered through the Municipal Asset Management Program, delivered by the Federation of Canadian Municipalities and funded by the Government of Canada

Funded By:

FCM Federation of Canadian Municipalities / Fédération canadienne des municipalités

Government of Canada / Gouvernement du Canada

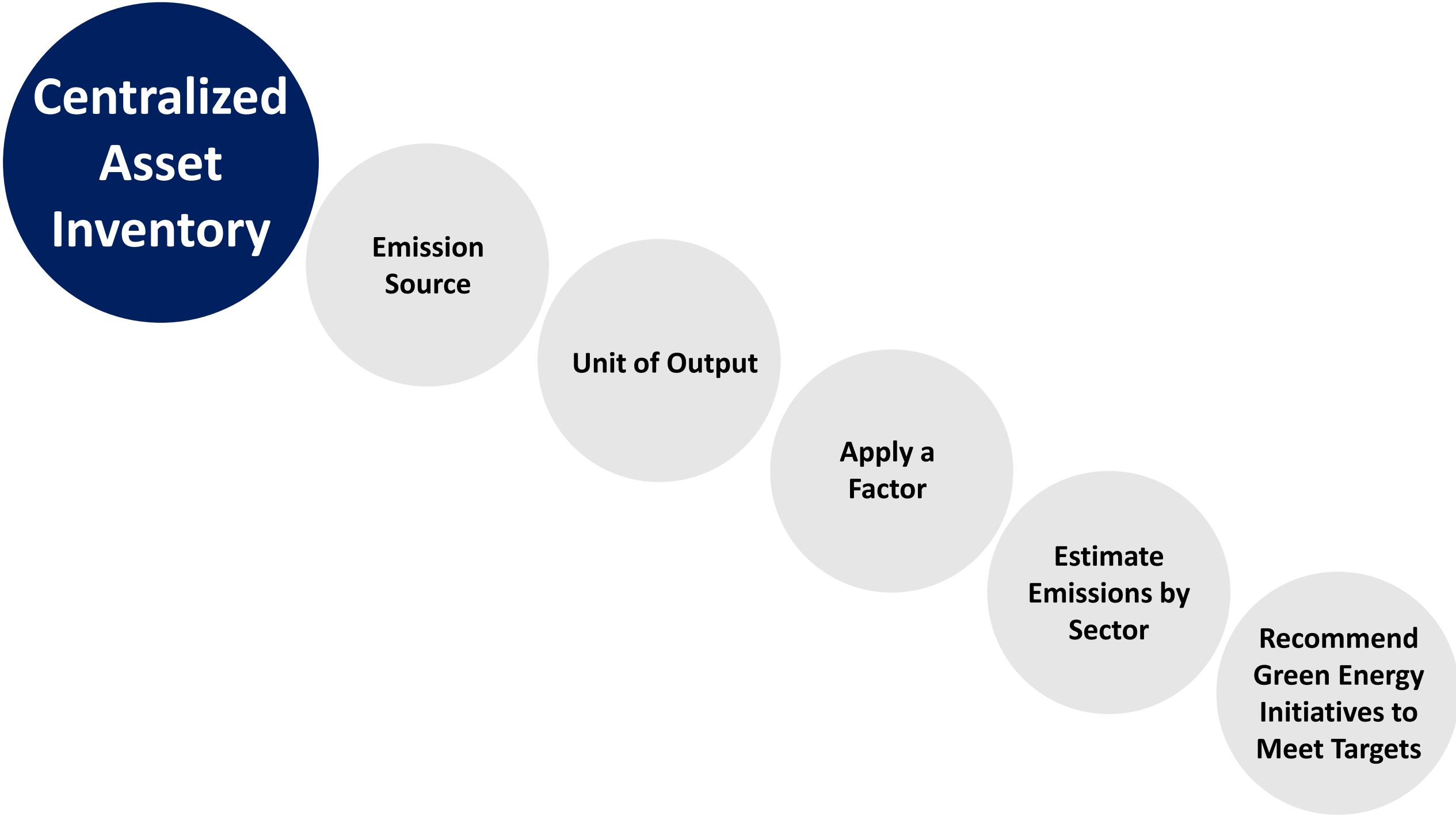
Overview

- Climate Change Adaptation
- Land Use Planning
- Green Energy
- Case Studies

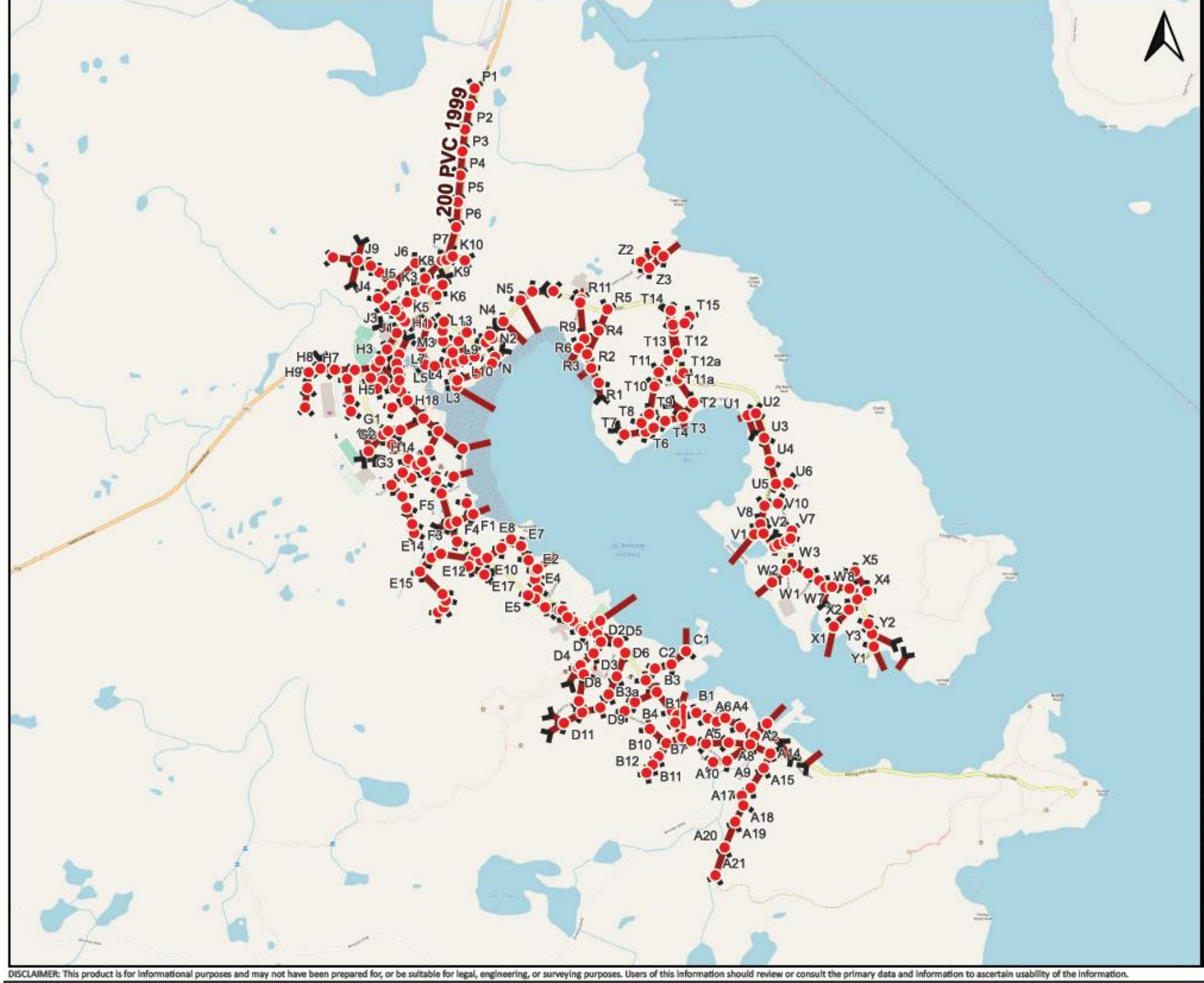
Town of Brigus

How does reducing GHG emissions help my town?

- Could help reduce your electricity bills
- Improves air quality
- Economic growth
- Regulatory compliance
- Increase quality of life


Centralized Asset Inventory
Emission Source
Unit of Output
Apply a Factor
Estimate Emissions by Sector
Recommend Green Energy Initiatives to Meet Targets

Sample GIS Mapping



Centralized Asset Inventory

Emission Source

Unit of Output

Apply a Factor

Estimate Emissions by Sector

Recommend Green Energy Initiatives to Meet Targets

Sector	Description	Emissions sources	Scope
Buildings & Facilities	Emissions caused by the operation of Town buildings and facilities not included in the other Sectors.	Electricity Furnace Oil	Scope 2 Scope 1
Fleet	Emissions produced by operation of fleet vehicles	Gasoline & Diesel Fuels	Scope 1
Lighting	Emissions caused by the operation of public lighting infrastructure	Electricity	Scope 2
Water & Wastewater	Emissions released due to the operation of water and wastewater infrastructure, and decomposition of wastewater effluent	Electricity Septic systems Marine outfall	Scope 2 Scope 3 Scope 3
Solid Waste	Emissions from the decomposition of solid waste sent to RHB	Solid waste decomposition	Scope 3

All information from the *Town of Brigus Corporate Greenhouse Gas Emissions Inventory, (Prepared for the 2019 Baseline year)*

Study prepared by Conservation Corps, Newfoundland and Labrador

Centralized Asset Inventory

Emission Source

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Estimate Emissions by Sector

Recommend Green Energy Initiatives to Meet Targets

Buildings and Facilites Emissions

Building	Energy source	Quantity	Unit	Emissions (t CO_2e)	Cost	Scope
Fire Hall/Rec Centre	Electricity	21,910	kWh	0.59	$3,402	2
	Furnace Oil	4,680	L	12.89	$4,074	1
Town Garage*	Electricity	-	kWh	-	-	2
	Furnace Oil	4,786	L	13.19	$4,073	1
Post Office	Electricity	10,621	kWh	0.29	$1,655	2
	Furnace Oil	7,684	L	21.17	$6,488	1
Park Washrooms	Electricity	214	kWh	0.01	$116	2
Town Hall	Electricity	14,659	kWh	0.40	$2,181	2
Totals:				**48.5**	**$21,988**	

Source: NL power, Town Accounts,

Centralized Asset Inventory

Emission Source

Unit of Output

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Estimate Emissions by Sector

Recommend Green Energy Initiatives to Meet Targets

Examples of emission factors

EMISSIONS SOURCE	DATA QUALITY	VARIABLE	DATA TYPE	EMISSION FACTOR/COST	UNIT	SOURCE
Electricity	H	Consumption	Measured consumption	0.000027	t CO_2e/kWh	Newfoundland Power; Canada National Inventory Report (NIR) 2020[11]
	H	Cost	Direct from utility	0.12	$/kWh	Newfoundland Power
Furnace oil	H	Consumption	Measured data	0.00275	t CO_2e/L	Canada NIR 2020
	H	Cost	Direct from supplier	0.85*	$/L	Town of Brigus, Irving, Western Petroleum
Motor gasoline	H	Consumption	Measured data	0.0023	t CO_2e/L	Town of Brigus; Canada NIR 2020
	H	Cost	Direct from supplier	1.23*	$/L	Town of Brigus, Irving
Diesel	H	Consumption	Measured data	0.00277	t CO_2e/L	Town of Brigus; Canada NIR 2020
	H	Cost	Direct from supplier	0.97*	$/L	Town of Brigus, Western Petroleum
Solid waste	M	Waste output	Contractor's bid	0.6251	t CO_2e/t waste	Town of Brigus; Ridge G & P Services Ltd; IPCC 2006 Guidelines
	M	Post-flare emissions	Measurements at landfill	0.0027	t CO_2e/t LFG	City of St. John's; Canada NIR 2020
	H	Cost	Contractor's bid	173.25	$/t	Town of Brigus; Ridge G & P Services Ltd
Water delivery	H	Treatment emissions	Measured consumption	0.000027	t CO_2e/kWh	Newfoundland Power, Town of Brigus, Canada NIR 2020
Wastewater (septic)	L	Estimated GHG venting	Modelled data	0.13	t CO_2e/capita/yr	2016 census profile[12], Canada NIR 2020, IPCC 2019 Guideline Refinement[13]
Wastewater (ocean outfall)	M	Estimated GHG generation	Modelled and estimated data	0.036	kg CH_4/kg BOD	2016 census profile; Canada NIR 2020; IPCC 2019 Guideline Refinement

Building Emissions

Building	Energy source	Quantity	Unit	Emissions (t CO_2e)	Cost	Scope
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Quantities are multiplied by the emission factor to get the total emissions

Centralized Asset Inventory

Emission Source

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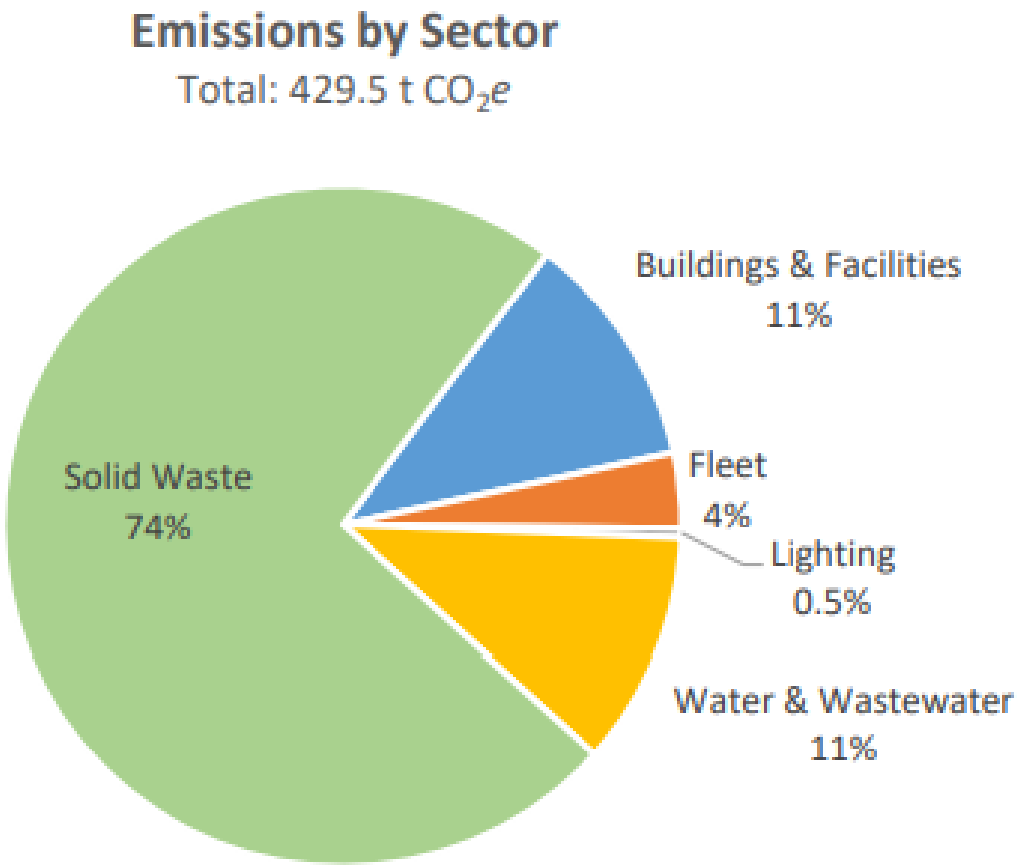


Figure 2: Total corporate emissions by Sector for Brigus in 2019.

Centralized Asset Inventory

Emission Source

Unit of Output

Apply a Factor

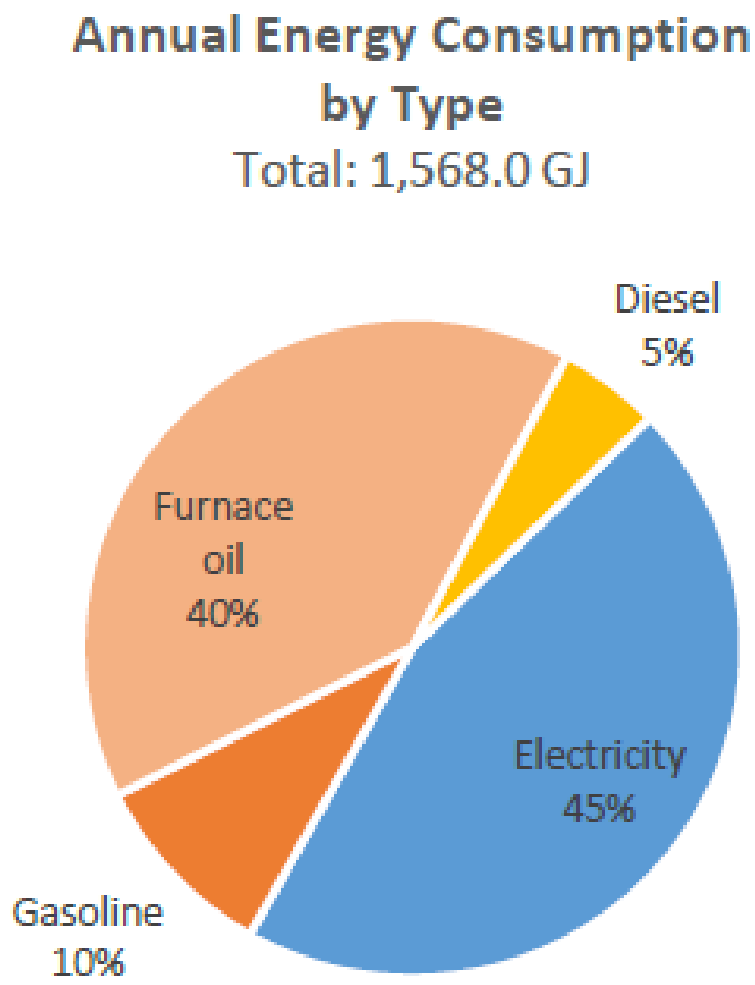
Estimate Emissions by Sector

Recommend Green Energy Initiatives to Meet Targets

Recommendations For Brigus

- Waste Diversion
  - Monitoring waste
  - Curbside recycling
  - Backyard composting
  - Awareness campaigns
- Buildings
  - Monitoring electricity
  - Electrification

[1]


Annual Energy Consumption
by Type
Total: 1,568.0 GJ
Diesel
5%
Furnace
oil
40%
Electricity
45%
Gasoline
10%

Other Recommendations

- Preserving greenspace
- Rain Barrels
- Covering ditches with plants
- Integrated community planning

Existing Development Pattern

- Isolates developments disconnected from amenities
- Greater dependence on automobile

Safe and Interconnected Roadways

- Consistent with rural character
- Multiple travel routes reduced congestion
- Promotes walking and cycling
- Undertake advanced street network plan

Subdivision Design Guidelines

Street Network Planning

Existing Subdivision Design and Construction Standards

- Very urban form
- 2 sidewalk requirement
- Wide streets give priority to vehicles meaning faster traffic
- Parking lanes both sides
- Poor pedestrian environment

Alternate Development Standards

- Narrower streets, slower traffic
- Additional right of way for walking
- Amenities and storm water management

Thank You!