



Visual Minutes

for the

**Climate Change
& Asset Management
Conference**

November 29 – December 1st, 2022

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They were produced as
visual or graphic minutes of the
2022 Climate Change & Asset Management Conference
as hosted by the
NWT Association of Communities.

ASSET LIFE CYCLE



DAY 1

- Summary Poster – focus on Climate Change
- Climate change 101
- Toolkits: Climate Change & Asset Management
- Life cycle costing
- Small Northern Communities Challenges
- Levels of Service
- Marketing Asset Management





Summary Poster – focus on Climate Change



Dec 1, 2022

Change & Management

ance



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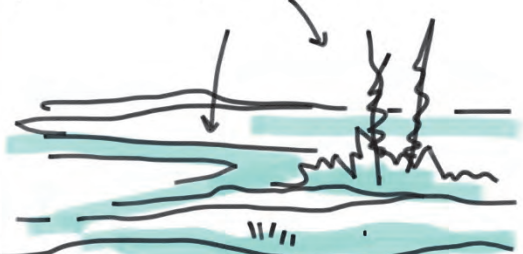
A few words about Permafrost

FROZEN GROUND THAT UNDERLIES MOST OF THE NWT.



Outside surface factors impact permafrost

Lots of different characteristics to permafrost.



- ✓ Distribution
- ✓ Temp.
- ✓ Ice content
- ✓ Thickness
- ✓ Composition

You have to understand your particular permafrost.

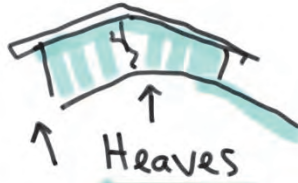
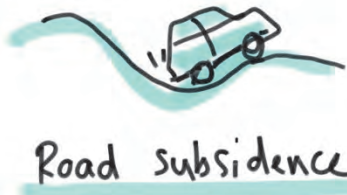
It's diverse - You can't generalize.



Permafrost is the foundation upon which most northern infrastructure is constructed,

Changes to Permafrost will impact infrastructure.

examples of impacts of permafrost changes:



Some examples of adaptation measures



No one-size fits all solution.

We need to learn more about our permafrost. It will continue to change as climate changes.

TOOLKITS

WHAT'S AVAILABLE
TO HELP WITH
ASSET
MANAGEMENT?



Nisi

INFRASTRUCTURE STANDARDS
OFFER GUIDANCE, FRAMEWORK,
SPECIFIC TO THE NORTH,

Consider changing climate
focus on adaptation and resilience

- ✓ Dealing with extreme weather
- ✓ Building in permafrost
- ✓ Designing with climate change in mind
- ✓ Community systems.

There are more coming!
Including asset management.

There are guides, videos,
infographics for all this.
(This is all available on the
Nisi website).

CANOE

- \$\$\$ BUYING GROUP \$\$\$
- ✓ Obtain discounts for members.
 - ✓ Access to lots of suppliers
(from office supplies
to fire trucks)
 - ✓ Go to tender
 - ✓ No cost to members
 - ✓ No minimum level of spending
 - ✓ Info on website

SAVE COMMUNITY
TIME AND MONEY WITH
PROCUREMENT.

THE INSURANCE PROGRAM



TOOLKIT ON THE NWTAC WEBSITE

✓ Vehicle inspection forms & VIDEOS (You need to do this daily, keep on top of things!)



✓ General inspection forms & VIDEOS (Buildings, playgrounds, drainage, permafrost, etc.)



✓ Template for asset management

- Plan
- Policy
- Playbook
- Workplans
- Working together/ to share workloads

✓ LEVEL of SERVICE template, and supporting guide



✓ LIFE CYCLE WORKBOOK.

Run scenarios. Council need to understand all the costs; not just capital costs.



THESE ARE TOOLS TO HELP ON THE ASSET MANAGEMENT JOURNEY.



IT IS A BIT OF WORK UP FRONT



THERE WILL BE A NET BENEFIT TO DOING THIS.



- Make economies of scale
- Catch Problems early!
- Save money!
- Notice patterns
- Have information

WHAT DOES SOMETHING COST THROUGHOUT ITS LIFE CYCLE?

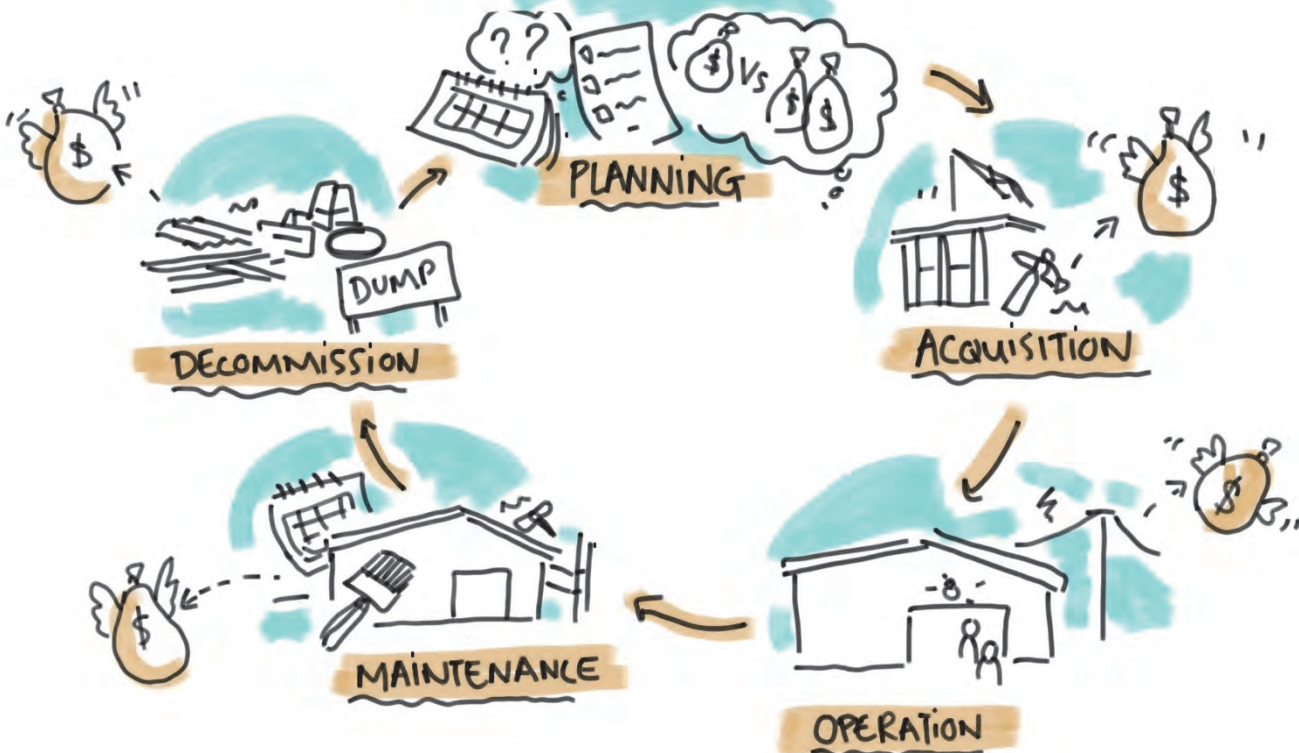
It is an investment to **Plan**

WHAT WILL THIS ASSET ACTUALLY COST?

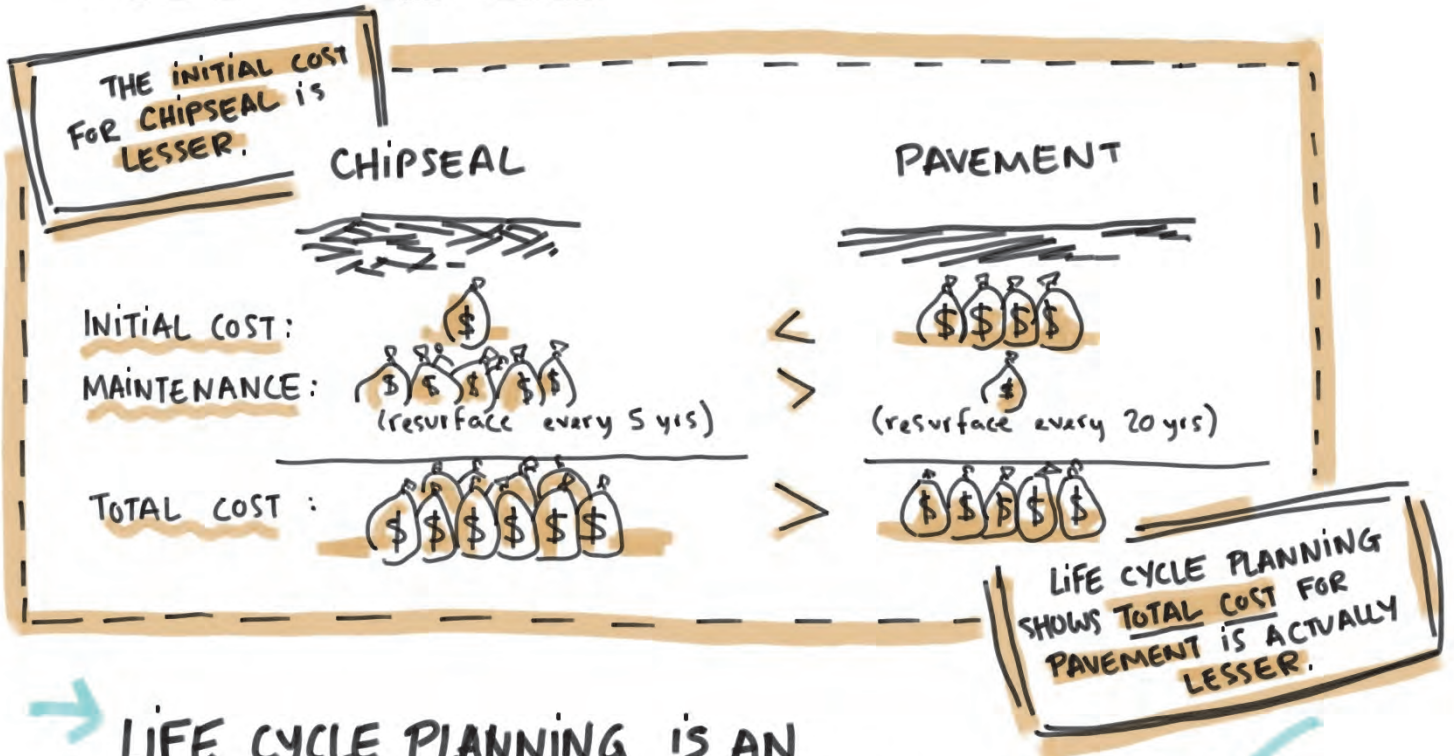
DO WE NEED a new asset?
Can we use an asset we already have?



ASSET LIFE CYCLE



Example:
Types of road surface



LIFE CYCLE PLANNING IS AN IMPORTANT TOOL FOR ASSET MANAGEMENT,

ASSET MANAGEMENT HELPS MAKE BETTER DECISIONS.

CONSIDER NEED vs WANT

YOU NEED TO KNOW WHAT YOU CAN AFFORD.



Consider all **ASPECTS** when making decisions.

PUTTING NUMBERS IN FRONT OF RESIDENTS TO HELP UNDERSTAND DECISIONS.



Oh. Okay, then.

X NORTHERN CHALLENGES &

✓ HOW ASSET MANAGEMENT CAN HELP!

X CHALLENGE: LONG LEAD TIME FOR PARTS



✓ SCHEDULE ORDERS, TRACK INVENTORY & SUPPLIERS

X CHALLENGE: SHORT STAFFED



✓ JUSTIFY BUDGET FOR STAFF INCREASE (SAVE TIME!)

X CHALLENGE: EXPERTS/TRADES NOT AVAILABLE QUICKLY OR LOCALLY



✓ MAINTENANCE IS PLANNED, LEADING TO FEWER EMERGENCIES.

X CHALLENGE: TURNOVER



✓ KNOWLEDGE IS TRACKED, NOT LOST

X CHALLENGE: EXPENSIVE



✓ PREVENTATIVE MAINTENANCE MAKES ASSETS LAST LONGER.

X CHALLENGE: CLIMATE CHANGE



✓ TRACK CHANGES IN MAINTENANCE PRACTICES



TO HAVE DATA
 (and reap the benefits of ASSET MANAGEMENT) you will
 NEED TO **LOG & TRACK** what you are doing.

This may seem "OVERWHELMING"

I can't do this!

We can't start documenting EVERYTHING we do!

You don't have to.

Take baby steps. Start **SMALL**.

You don't need to include all assets right away.

HOT TIP:
 START WITH ONE OR TWO FACILITIES OR SERVICES.



* MACA IS HERE TO HELP COMMUNITIES WITH ASSET MANAGEMENT

→ THEY ARE SPECIALIZED IN THE AZZIER SOFTWARE, WHICH SERVES TO TRACK & BUILD REPORTS

→ BUT THEY WILL HELP EVEN IF YOU USE DIFFERENT SOFTWARE. (or no software at all).

Visual Summary © Alison McCreesh 2022

Levels of Service

ARE
GENERALLY
SET BY COUNCIL.



TO MAKE INFORMED DECISIONS,
THEY NEED INFORMATION LIKE :



AS VARIABLES CHANGE,
LEVELS OF SERVICE CAN BE REVISITED.

ex: It is SNOWING MORE AND MORE FREQUENTLY AND ABUNDANTLY



Levels of Service

SNOW CLEARING

Scenario

Clear main streets as priority, but Residents want side streets cleared faster.

Round table
CHAT



What do you need to consider?

Check bylaws. Who is responsible for clearing what? Are there specific priorities?

What if this amount of snow is the new normal?

What about getting trucked water to people?

- ↳ Top everyone up before the storm?
- ↳ Get people to get bigger tanks?

Safety of residents is a priority?

Ambulances - firetrucks.

Climate Change Forecasting says precipitation will be increasing.

You can't please everyone! They are always wanting more and better service.



Can you have a reserve in your budget for snow clearing? Save on some years, have more on others.

We only have one plow
We only have one operator
↓
Do we have the budget to hire contractors to help?

Levels of Service

Recreation

Scenario

Building a new youth centre
what should you consider?
There is Fed funding,
but just for capital cost.

Round table
CHAT



What do you need to consider?

Can you get your existing
staff to work different
shifts?

Could you use an
existing facility?
Retrofit?

How flexible is
the funding pot?

Does your staff need
any specialised training
to work at the youth
centre?

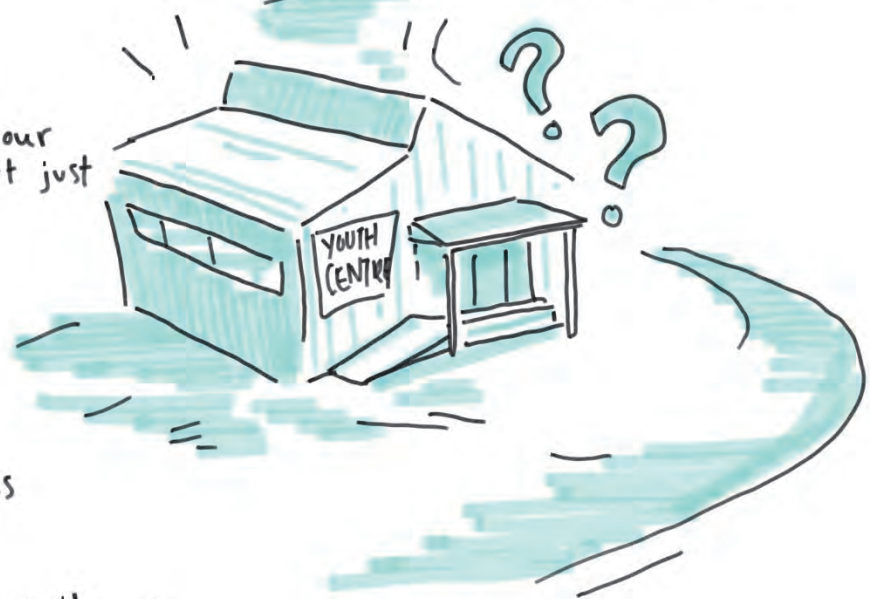


Using a smaller space
for small groups.

- Cheaper to light
- Cheaper to heat

If you can't
staff your facility,
it must close.

BUT you still
have costs for your
facility, you can't just
let it freeze.



Rec facilities are
used quite a bit,
but numbers not
tracked (harder to track
when no user fees
are collected.)

If we provide one
level of service in one
place, we may have to
decrease level in
another.

Note: User fees don't
ever cover all costs.
Don't count on
them.

Partnerships &
SPONSORSHIPS can
help cover costs.



Levels of Service

Firefighting

Examples of varying levels of service:

COMMUNITIES ARE NOT OBLIGATED TO HAVE A FIRE DEPT.

→ THERE CAN BE A VARIETY OF LEVELS OF SERVICES FOR FIRE FIGHTING.

Level 1:

No fire dept.

Prevention based

Have extinguishers
Service boiler
But regular citizens will jump in... and then hamlet will be liable.



Level 2:

Standard

Defensive
(fight from exterior)



Level 3

Advanced

Offensive
(can go in)



Level 4

Professional

NFPA 1001
(Nationally recognized)



MARKETING ASSET MANAGEMENT

LEANNE BRANNIGAN

Asset Management is part of everything

- ✓ Strategies and Policies
- ✓ Levels of Service
- ✓ Decision Making
- ✓ Risk
- ✓ Life Cycles
- ✓ New integration

It is an investment.
There will be benefits.

But how do
you ensure

Buy-In?

We should
do This!

Tell a story

Make it meaningful
WHAT'S IN IT
FOR THEM?

Connect

① Understand the VALUE of Asset Management.

It may not seem like a priority, but it will pay off. There will be less emergencies if we move it to the "urgent" pile.

② Sell asset management to your organization.

Know your org., their priorities. Believe in it and demonstrate value. Find relevant examples.

③ Sell asset management to council.

Find a champion
Understand their need
Tell the story
What's In It For Them.

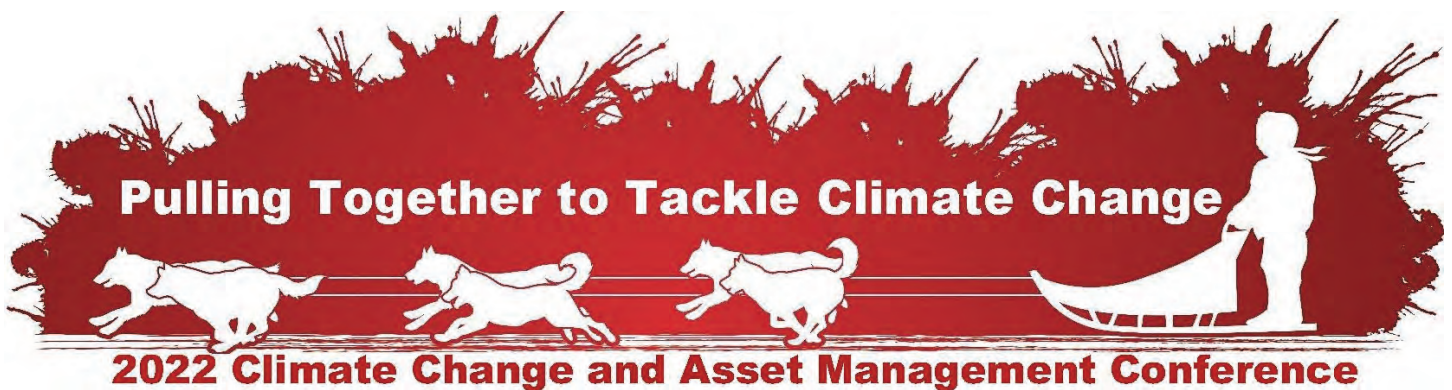
④ Create the Environment

Make the purpose known
Know the tools for you
Encourage collaboration
Think outside the box.
Be excited about it.



DAY 2

- Summary Poster – focus on Asset Management
- Integrating CC into Asset Management
- Case studies
- Risk Based Tables



Nov 29 to Dec 1, 2022

Climate Change & Asset Management Conference

WE OWN ASSETS TO DELIVER SERVICES TO OUR COMMUNITIES

ASSET MANAGEMENT IS AN INTEGRATED APPROACH TO WHAT WE ALREADY DO.



KEYS TO MANAGE ASSETS IN AN EFFECTIVE WAY.

UNDERSTAND THE SERVICES YOU DELIVER - HOW ARE THEY CONNECTED.

THINK ABOUT WHOLE LIFE CYCLE COSTING

BE PROACTIVE, THINK ABOUT MAINTENANCE

HAVE FULL PICTURE INFORMATION OF THE SERVICES YOU ARE OFFERING

COSTS =
WHAT SERVICE ARE WE WILLING ABLE TO FULFILL?
WHAT WILL THE WHOLE COST BE OVER TIME?



Collect DATA (Who? What? How much? When?)
TRACK LOG
Don't just throw money at EMERGENCIES BEING REACTIVE COSTS WAY MORE \$\$\$



Start SMALL Pick a Priority asset (or two)

MAKE EVIDENCE BASED DECISIONS (and have the numbers to justify!)

SUSTAINABLE



ment



WHAT ARE WE SPENDING TO MAINTAIN OUR SERVICES? IS IT ENOUGH?
ARE WE VULNERABLE?

WHAT MIGHT/WILL HAPPEN?
RISKS

VICES NG AND FUND?
THE COST TIME?

COSTS



finding the Balance

SERVICE DELIVERY = SUSTAINABLE COMMUNITIES

WHAT DOES OUR COMMUNITY WANT & NEED, NOW and IN THE FUTURE?
WHAT CAN WE AFFORD?



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INTEGRATING CLIMATE CHANGE INTO ASSET MANAGEMENT

Catherine Simpson

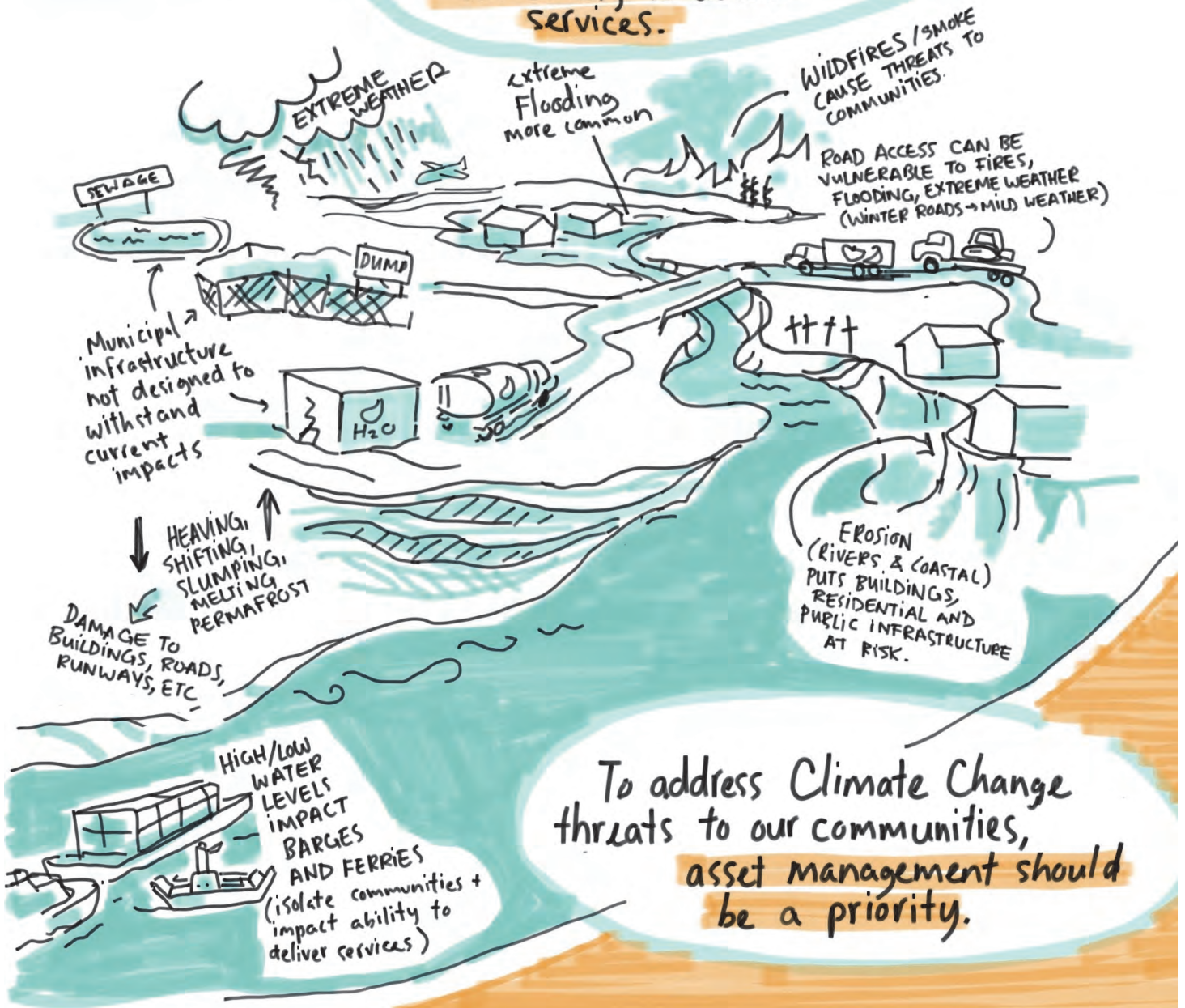
Climate Change

OUCH! INFRASTRUCTURE

Temp warming more than 4x faster in the North



The impacts of the Changing Climate are already causing hazards and impacting our infrastructure and our ability to deliver services.



To address Climate Change threats to our communities, asset management should be a priority.

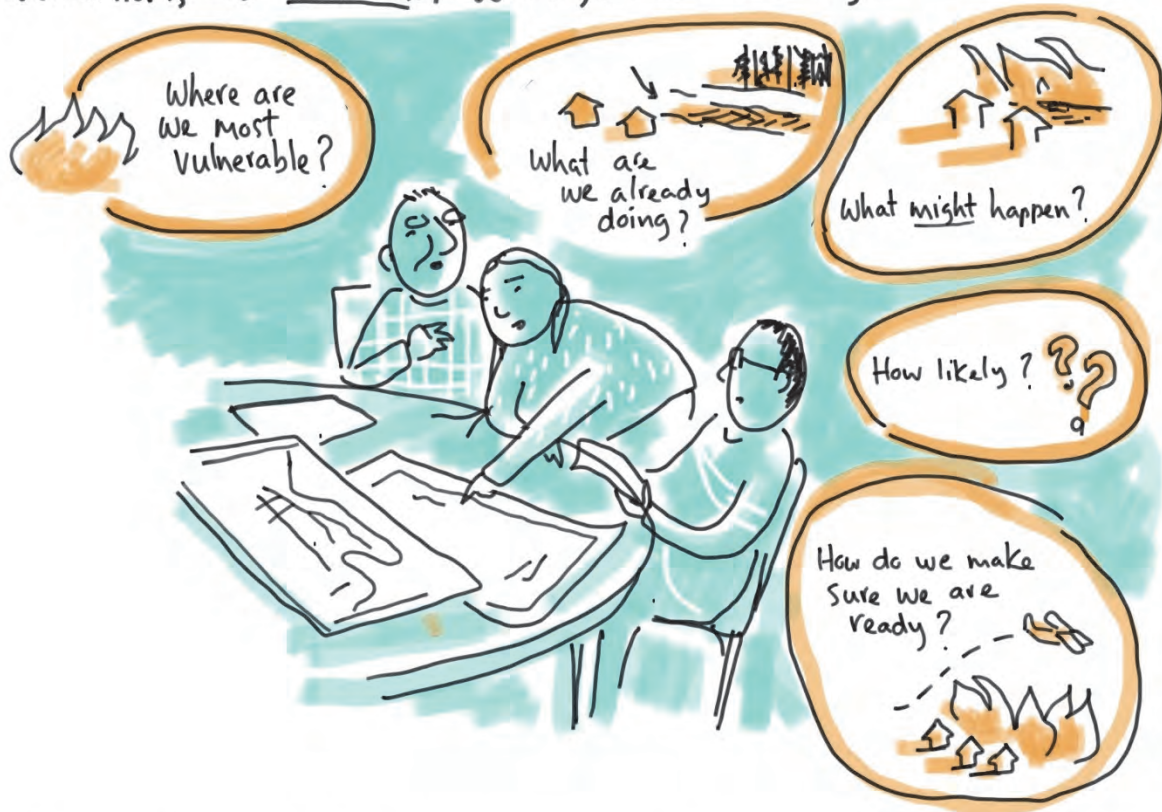




IDENTIFICATION → ASSESSMENT → PRIORITIZATION → MANAGEMENT

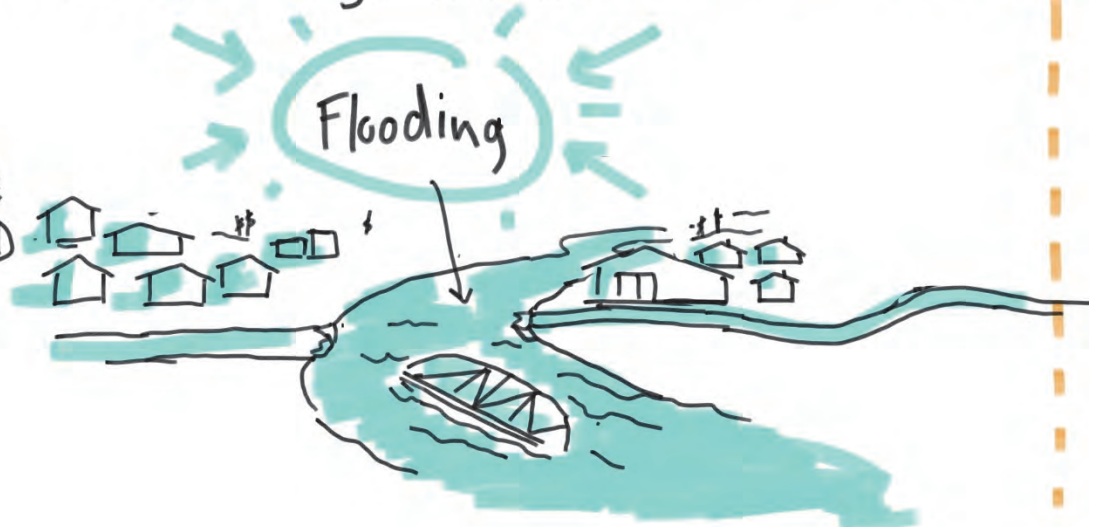
Climate Vulnerability Assessment

Sit down together and have these conversations AS A GROUP, with your Community.



Example of a climate change THREAT.

What is the **MOST IMMEDIATE CLIMATE RELATED THREAT** to my COMMUNITY?



Example of a climate change THREAT (continued)

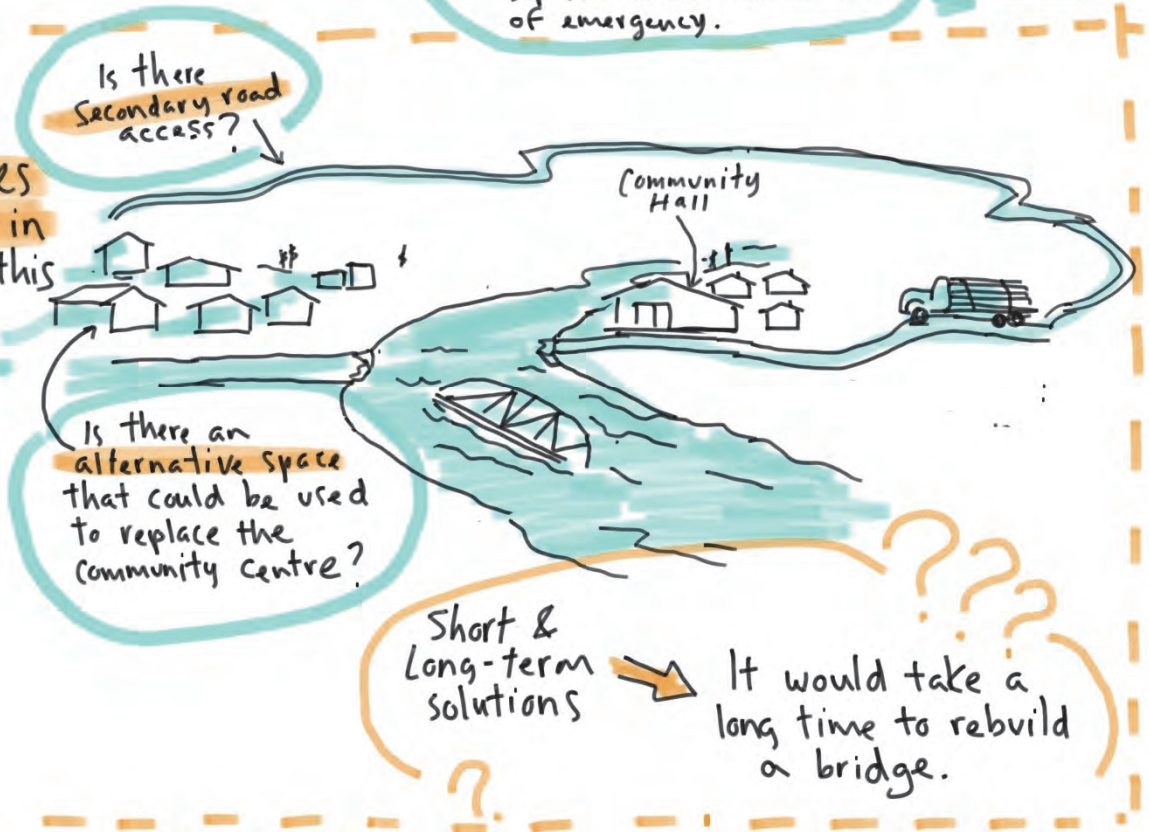
What are the **IMPACTS** on my Community?



What are the **BROADER** effects of this?



What **measures** have been put in place should this occur?



Case Studies

In Conversation



Ka'a'gee Tu First Nation

Lloyd Chicot

Working with Wilfrid Laurier University.
 Students Community Researchers

Innovative initiative



MAPPING COMMUNITY ATLAS.

If you notice a change, something unsafe on the land,



IT TAKES A LOT OF PEOPLE AND PARTNERSHIPS

BE INNOVATIVE at a COMMUNITY Level.

You don't need to wait for Gov. INITIATE LOCALLY.

Take the bull by the Horns!

Take aerial pics with drone to understand where flooding is coming from.

There are ideas

You need to find Creative Ways to access funding, to purchase equipment.



ADAPTATION PLAN

Despite having one, we are always needing to play catch up.

Planting food in fire breaks.



We now have a better idea of what materials and equipment to use for roads and construction.



Study Soil, take samples, work with students

GROUND UNDER COMMUNITY IS SWAMPY

Instead of just clear cutting, we could plant potatoes or berries, or wild plants like mint.

We must do things in ways that have less impact on the land.

This location was chosen by the government



FORT SMITH · Cynthia White

EROSION

We have studies, but data too OLD.

WE NEED TO MONITOR, KNOW WHAT THE MOVEMENT IS.

SLUMPING

is becoming dangerous.

EROSION OF RIVERBANK

landslide Risk.

Concerns this will impact the waste water / SEWAGE LAGOON. (And other critical infrastructure)

What do we do?

VERY expensive to move.



IMPACTS THE COMMUNITY'S ABILITY TO SAFELY GET OUT ON THE LAND.



IDEA

- Have a library to share information:
- Not duplicating research
- Take each others' great ideas.
- Pool knowledge

STUDY WE HAVE DONE:

COULD WE CHANGE THE SLOPE TO REDUCE IMPACT?



Reduce to 6°



NOPE! Not possible.

... and the GOVs?

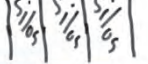
FEDS WE NEED MULTI-YEAR FUNDING!

In BC, every year, every community, gets stable core funding to do climate change work. Not waste so much time on applications.

GNWT CREATING REPORTS WITHOUT TALKING TO THE COMMUNITY.

GNWT

Good relationship with MACA, but they can't get the info internally



WE SHOULD ALL BE HELPING EACH OTHER TO MOVE FORWARD

ARE THE GNWT INVESTIGATING THE SINKHOLES THAT ARE NEAR THE COMMUNITY BUT ON COMMISSIONERS LAND?? WE NEED TO IMPROVE INTERGOVERNMENTAL COMMUNICATIONS!

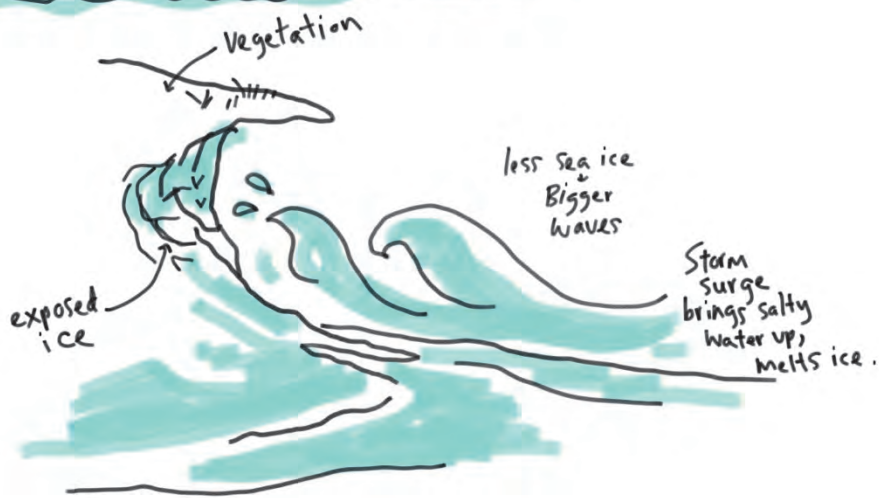
WE ALSO NEED TO CURRENTLY BE ADAPTING because we can't wait.

WE NEED TO HAVE SHOVEL READY PROJECTS.

READY AS SOON AS FUNDING IS AVAILABLE

READY-GO!

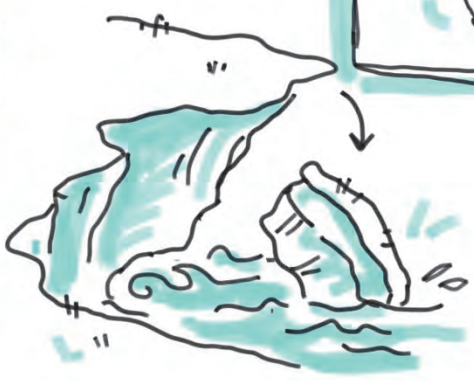
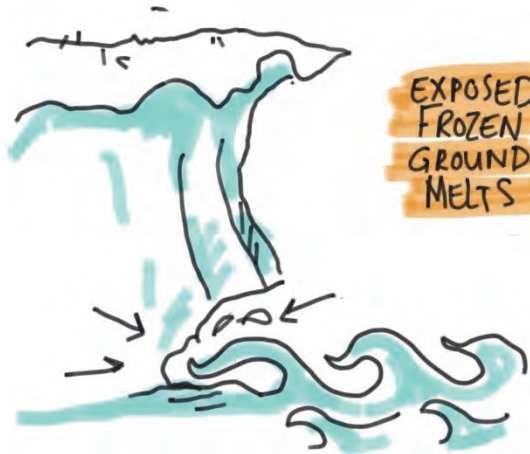
Discussion on COASTAL EROSION



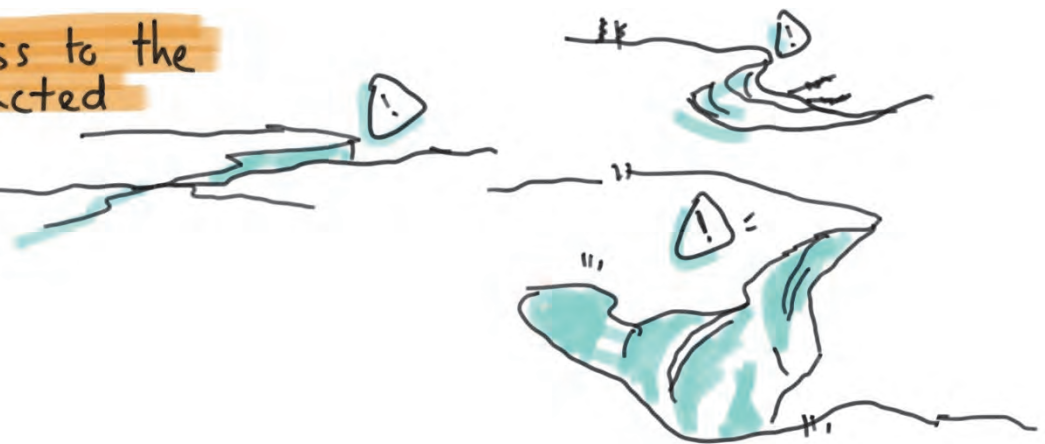
ICE IS HOLDING/GLUEING EVERYTHING TOGETHER.

MOST COASTAL EROSION HAPPENS DURING STORMS.

BIG CHUNKS CAN BE LOST AT ONCE.



Safe access to the land impacted (by melting ice and permafrost)



Tuk is a traditional community. Location chosen based on traditional activities like whaling. We need to find a new location that allows for this.

FEEDING OUR FAMILIES FROM THE LAND.



OCEAN PEOPLE



Fishing



TUK ISLAND IS PROJECTED TO GET ERODED/FLOODED MORE AND MORE.

MANY THINGS ARE BEING DONE :

- Move houses
- Raise Roads
- Move rocks and sand to beach
- Restrictions on where people can build.



- THREATS:
- RAISING SEA LEVELS
 - INCREASE IN STORM SURGES
 - BIGGER STORMS

In the future :

- Move Cemetary → Very upsetting
- Move entire community



LONG-TERM PLANNING

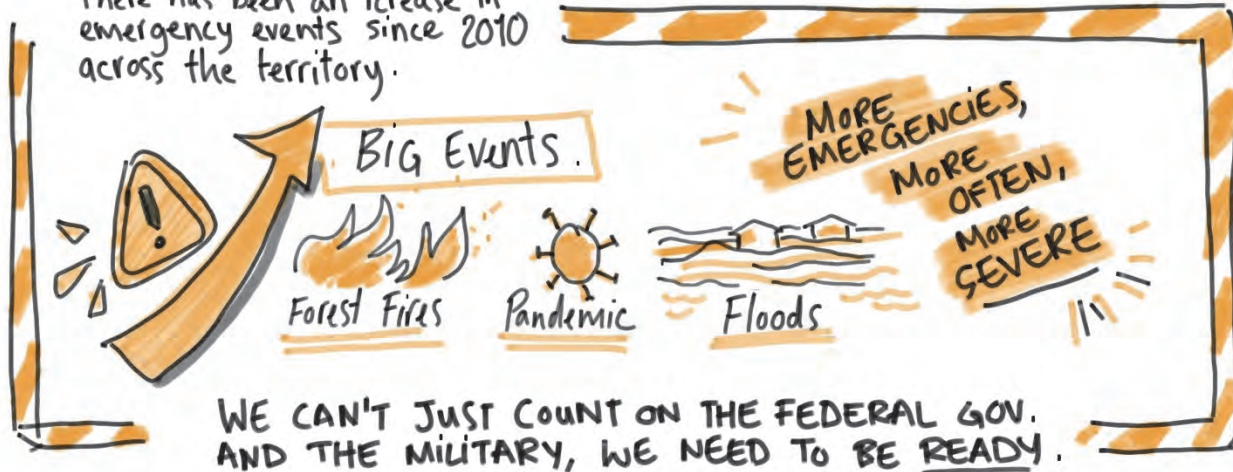
- Where to build new infrastructure?
- What happens to sewage lagoon and dump?
- We need to think 50yrs ahead.



EMERGENCY PREPAREDNESS AND RESPONSE

Breakout group conversation



There has been an increase in emergency events since 2010 across the territory.



MACA can come in help create an emergency plan. Walk through scenarios as a group. Do a 3HR practice run.

- ex:
- Winter power outage
 - Evacuation
 - Pandemic
 - Blizzard

These are examples of things we can test or plan ahead:

- See how long it would take to notify everyone door to door.  1-2-3-4-5-6-7
- Get the gov. to issue phone alert to all residents. 

Book a workshop with MACA - And book **AHEAD**.

(There is also an Emergency Plan Template, an Alert Template, a State of Emergency Template, a form to request GNWT help.)



PERMAFROST : Practical Action

Breakout group conversation



What we do impacts the permafrost,
The permafrost impacts what we do.

A garage wall collapsed in Sachs. It's been 6 years. Takes years to plan anything new.



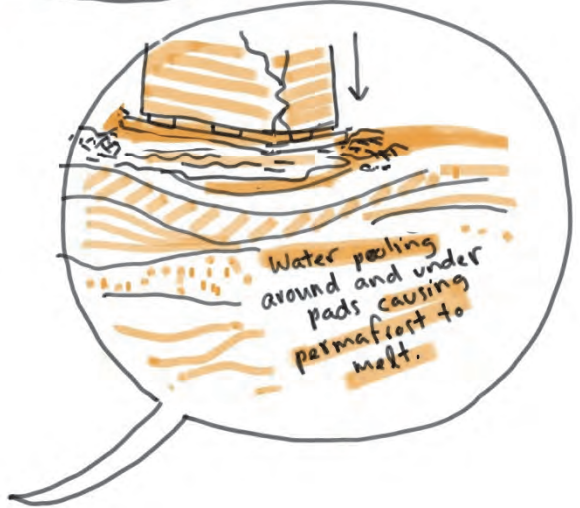
IMPACTS VISIBLE FASTER ON GROUND INFRASTRUCTURE LIKE ROADS AND RUNWAYS.



Mapping where is good to build. Identify risky areas to avoid.

Zoning bylaws can restrict or recommend where to build

For Tuk and Fort MacPherson you need to plan where buildings will be moved to.

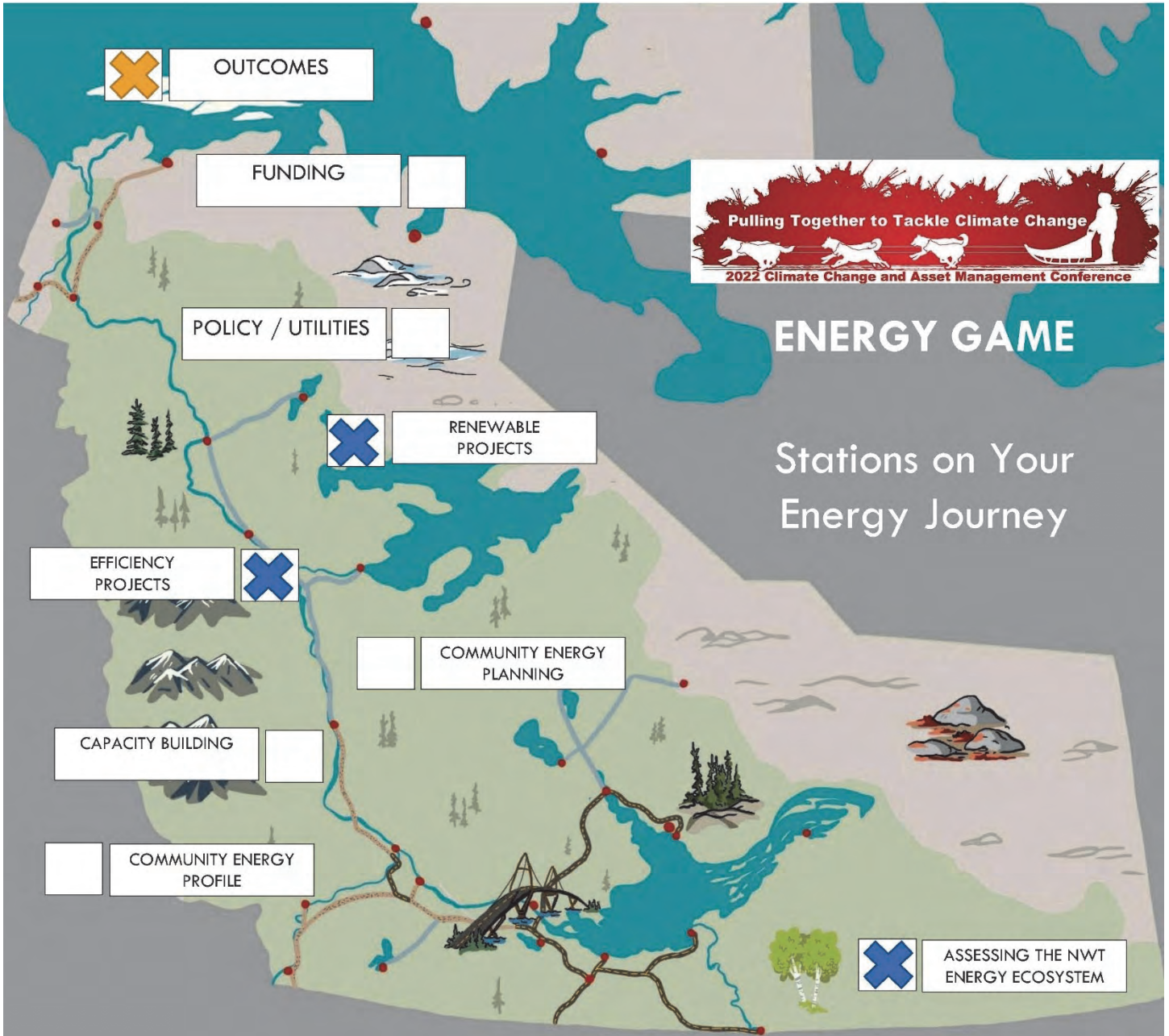


DAY 3

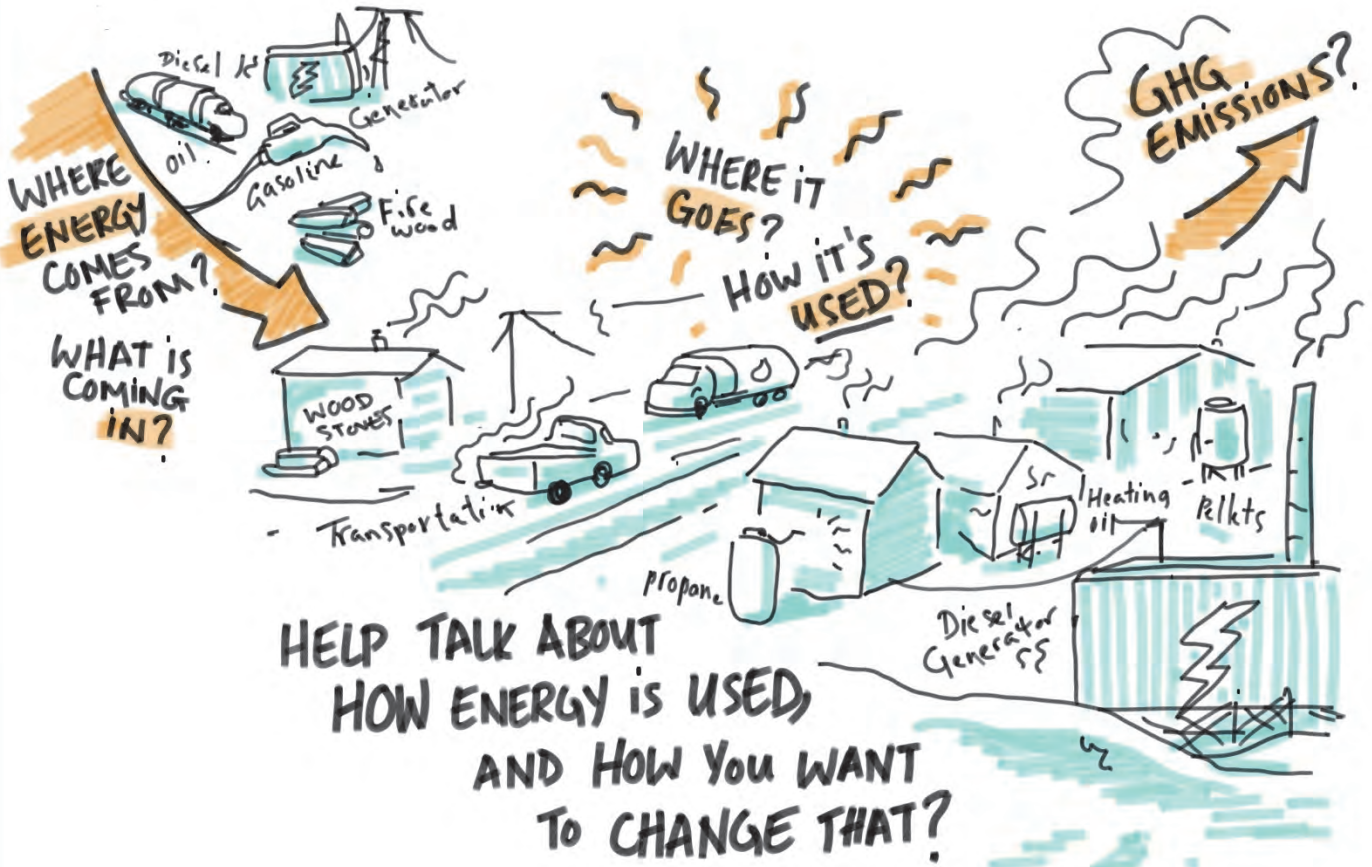
Energy Journey Game

- Community Energy Profile
- Funding
- Community Energy Planning
- Energy Efficiency
- Capacity building

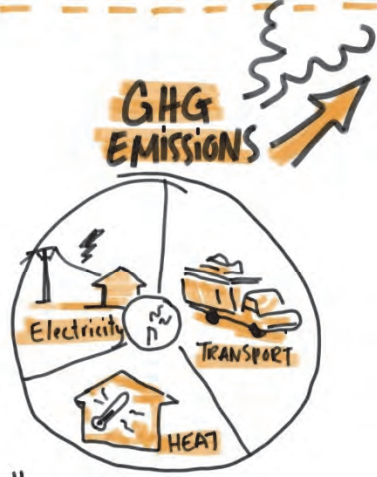
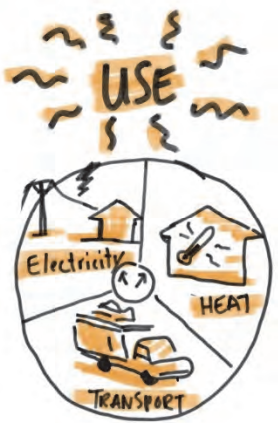
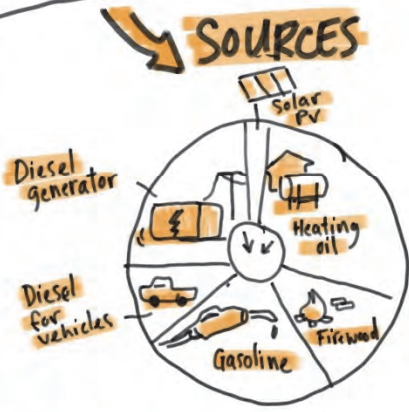




Community Energy Profile



See it broken down



Generally similar

WHAT SHOULD OUR COMMUNITY FOCUS ON?



Funding

In Conversation
Some Thoughts



FEDERAL GOV.

Single Window Approach for all federal funding

Prioritize Indigenous led projects

1 person no deadline

GNWT

Applying for funding can be cumbersome, GNWT can assist.

We want to see projects happen!

ARCTIC ENERGY ALLIANCE

for "smaller" projects.

- Retrofits
- Project Coordination (conceptualization)

Hands on Partnerships

- Renewables projects in non-hydro communities

Implementation



Inuvik applied for a federally funded project 4 years ago...

... but just heard back now!

In the future, it should be better.

In between time, other projects, other funding, has been obtained.

Not in silos, not talking to each other.

Can we go back and change the details of the project? the scope?

NORTHERN CHALLENGE :

Green Fund is a loan. Getting a loan is complicated for a municipality.



Community Energy Plan



Community Energy Plan

(Continued - In Conversation
Some Thoughts



In smaller communities, often easier to see where to focus or efforts

There are funding opportunities for retrofitting. Homeowners (privately owned) need support for transition to energy efficiency. - Technical support needed.



Power in NWT needs to be:
Reliable
Affordable
Secure

We need alternatives we can TRUST.
We learn with the first attempts & Technology improves

Biomass Boilers (pellets) → More maintenance but less cost than oil → And reduces GHGs → Now all city of YK uses at all facilities



Include timelines and implementation in action plan. What? When? How? How much?



Community needs to have building codes

& Community energy efficiency guidelines

If you are building a NEW BUILDING, there are standards and guidelines - You can include in RFP (Avail. in resource section of AEA website)



Sharing between communities is key!

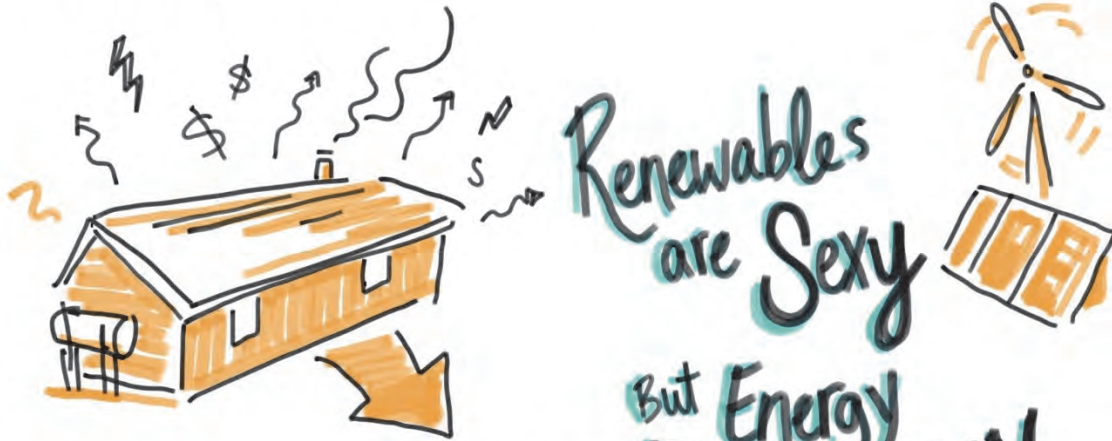
- Information exchange

You can see other communities' action plans.



Efficiency Chat

Mark Heyk and Jason Collard



Renewables
are Sexy
But Energy
EFFICIENCY
is Key



Energy efficiency
can be expensive
up front

So Deep Home
Energy Refit program
\$\$\$ incentive. \$\$\$
(up to 20K!)

Building
Energy
audits.

Advice to homeowners
on how to make homes
more energy efficient.

Kits Installed in
low income homes:

- LED lights
- Weather stripping
- Caulking
- etc.

What can
motivate
people?

Heating
and electricity
bills are high
in the north

Diesel generators
are sending up
all this smoke
↳ Big
turnoff!



Connect Communities, inspire each other, share experiences

Find ways of getting information to community members
On the land through community champions

Connect person-to-person in communities



Regional Coordinators are great resources

Contractor Outreach



New and emerging technologies, Get them comfortable with it.

Incentivize tradespeople to learn these new more energy efficient ways.

They are already so busy. Keep doing it the way it's always been done.

- Heat pumps
- Insulation
- etc.

Capacity Building

In Conversation
Some Thoughts



Community members are crucial.

They know the community better than a consultant can.

People from the community working for the community.



NWT CLEAN ENERGY CHAMPIONS!

Indigenous Clean Energy Program (ICE)

Great training, network, mentorship.

Get Youth Involved

Facilitating Coms. between Communities through youth networks.

Develop familiarity with the technology.

how do they get their voice heard?

Incentivize participation in Energy Efficiency training in Communities



I'm so busy, no time to learn a new way.

Stronger together



Small Steps - from the example - Deh Cho

Solar panel package at cabins.

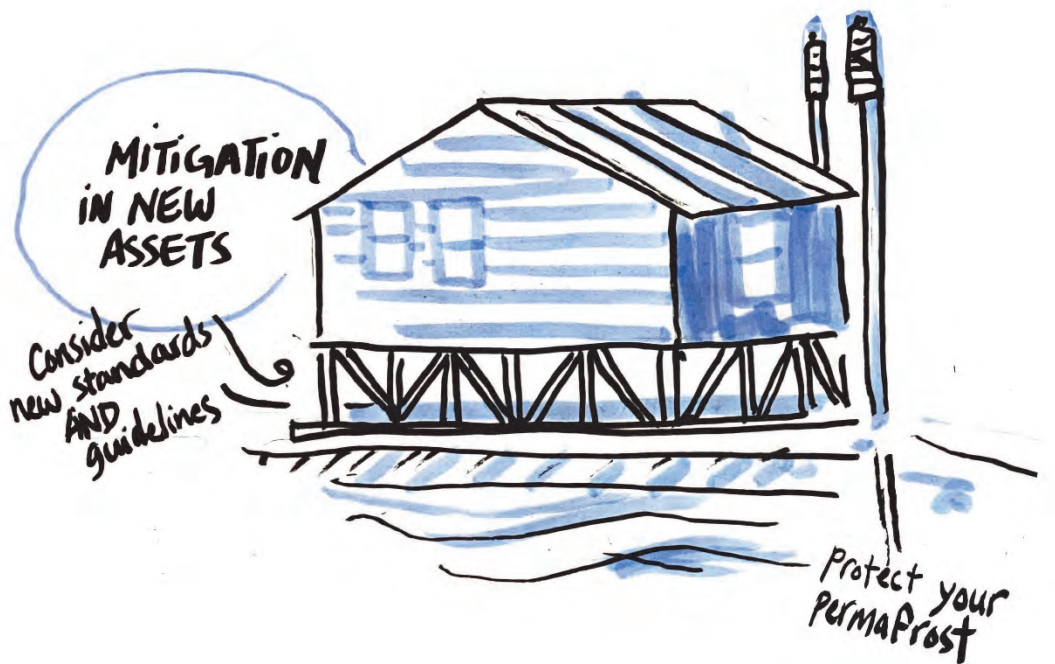
- Install them
- Train
- Follow-up again again
- To become comfortable and familiar.

Make sure people are trained and supported and use the systems and technology.

There is turnover

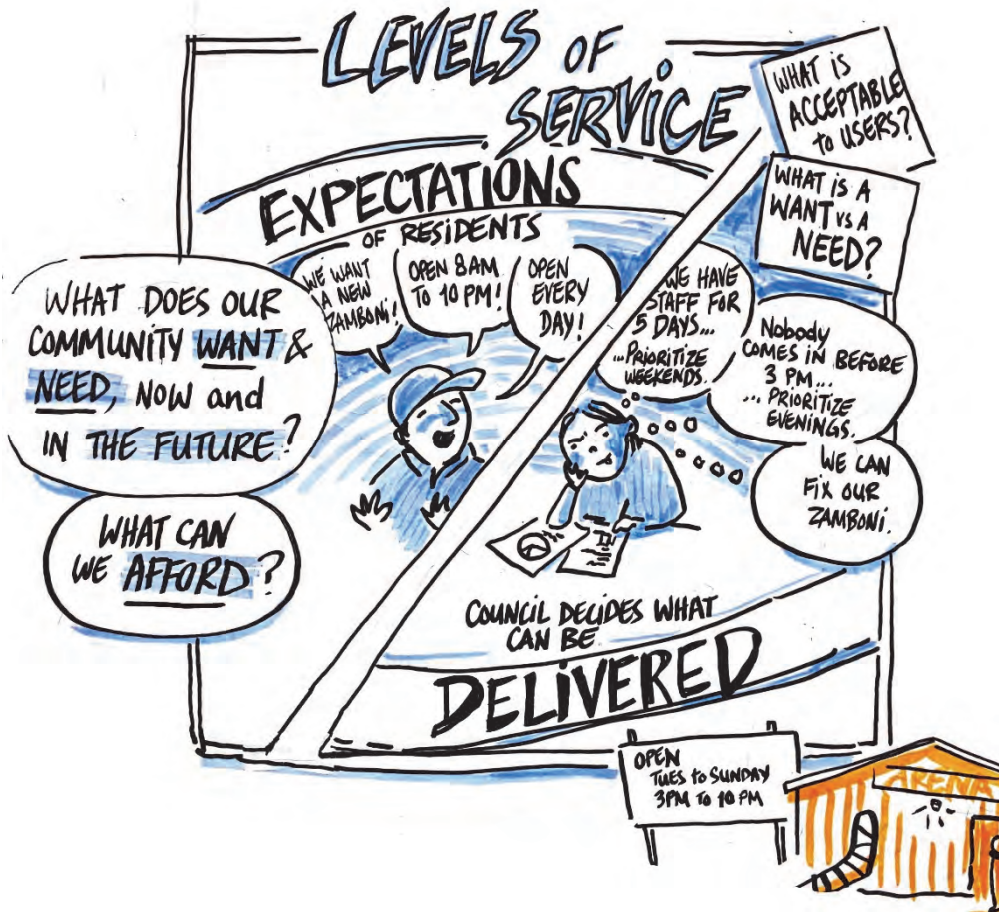
There should always be training and capacity develop. attached to initiatives.





**WE OWN
ASSETS TO
DELIVER
SERVICES TO
OUR COMMUNITIES**

ASSET MANAGEMENT
IS AN INTEGRATED
APPROACH TO WHAT WE
ALREADY DO.



We could not do it without you!

Premier Sponsor

Federation of
Canadian Municipalities
As funded by
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Northern REACHE
Climate Change Preparedness in the North
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