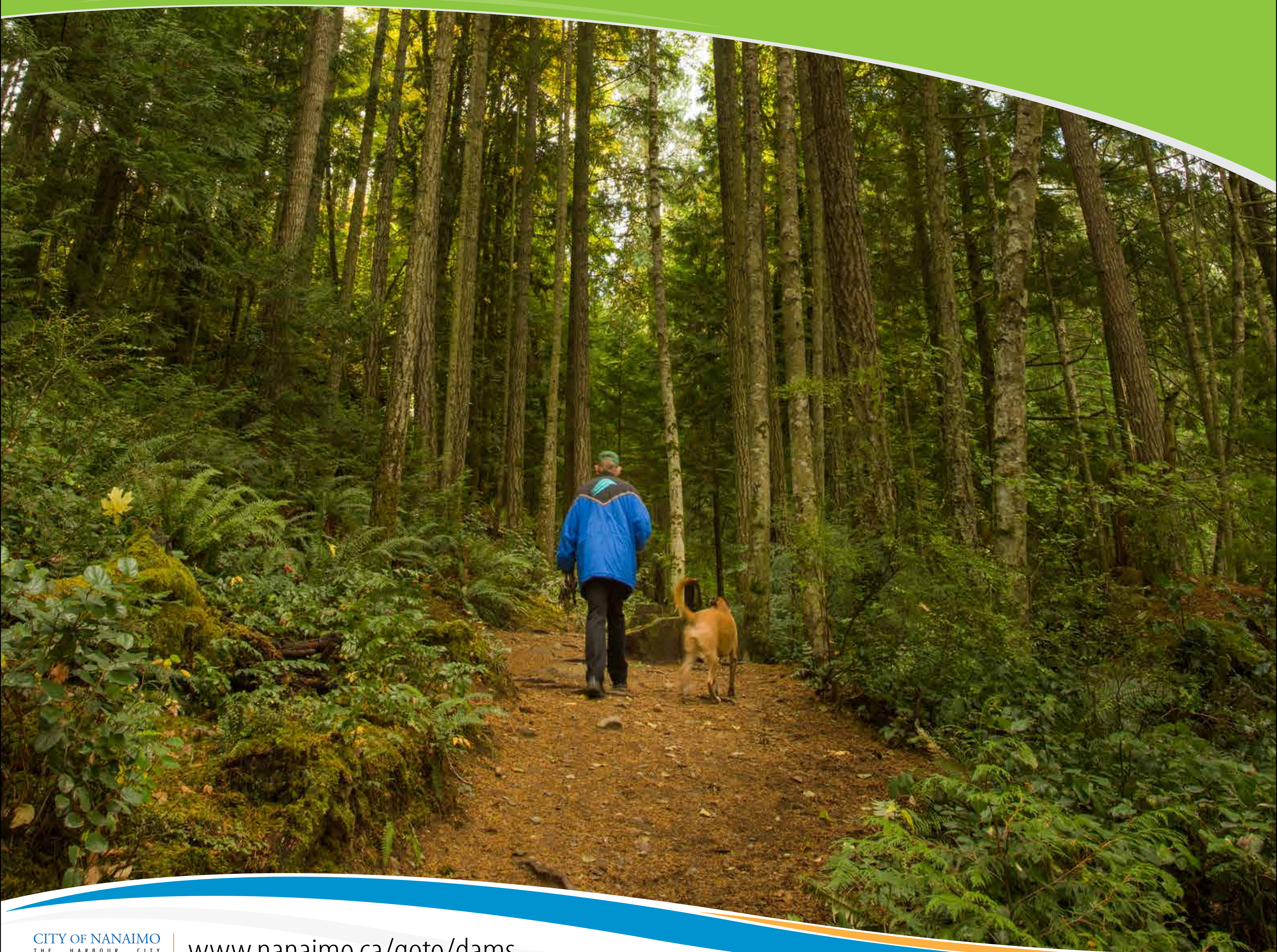


Open House

Colliery Dam Removals & Park Naturalization

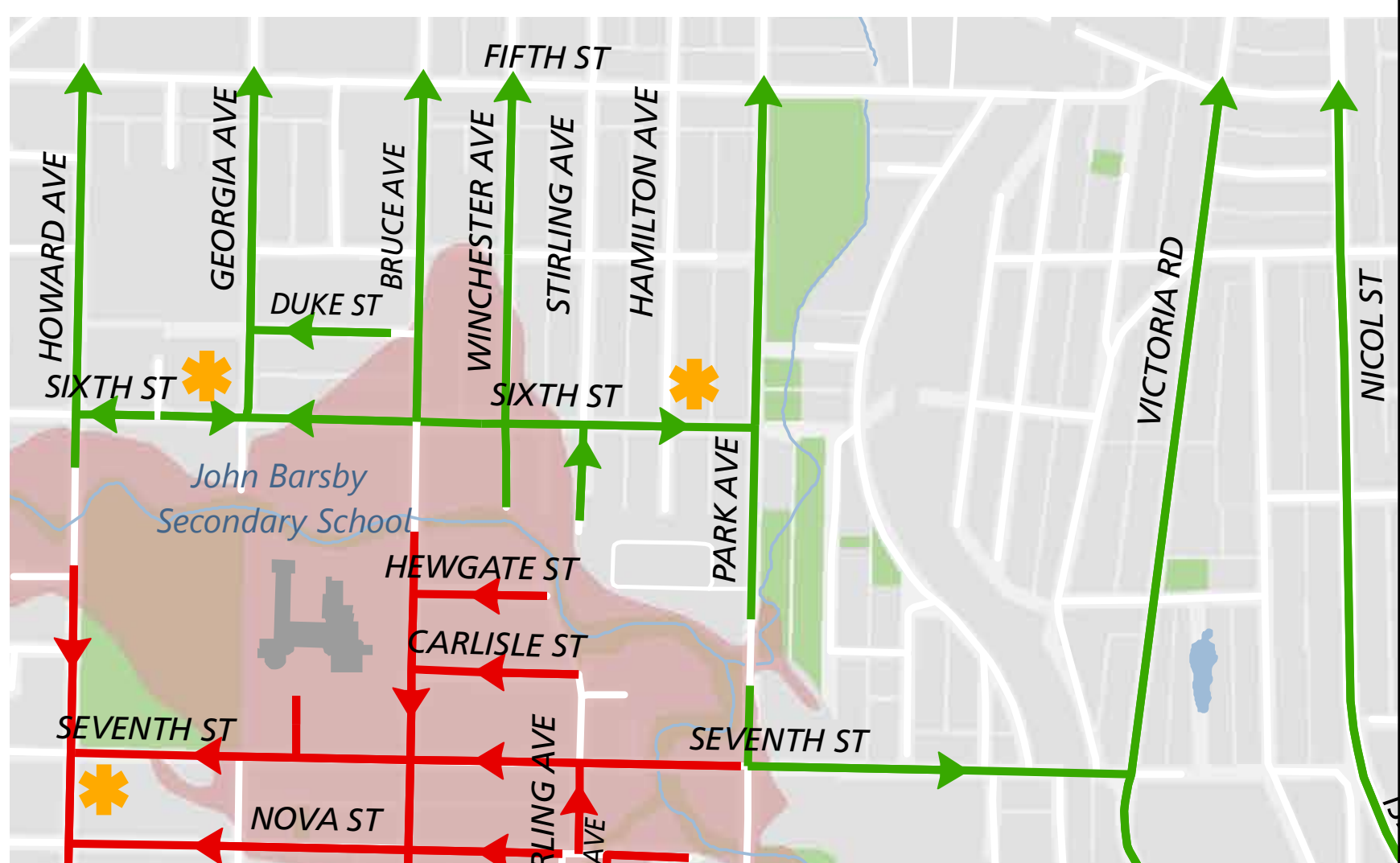


Purposes of Open House

1. Dam Removal
Rationale



2. Emergency Planning
for Evacuation Area



3. What will the Park
look like after the
dams are removed
(Park Naturalization)



Introduction...

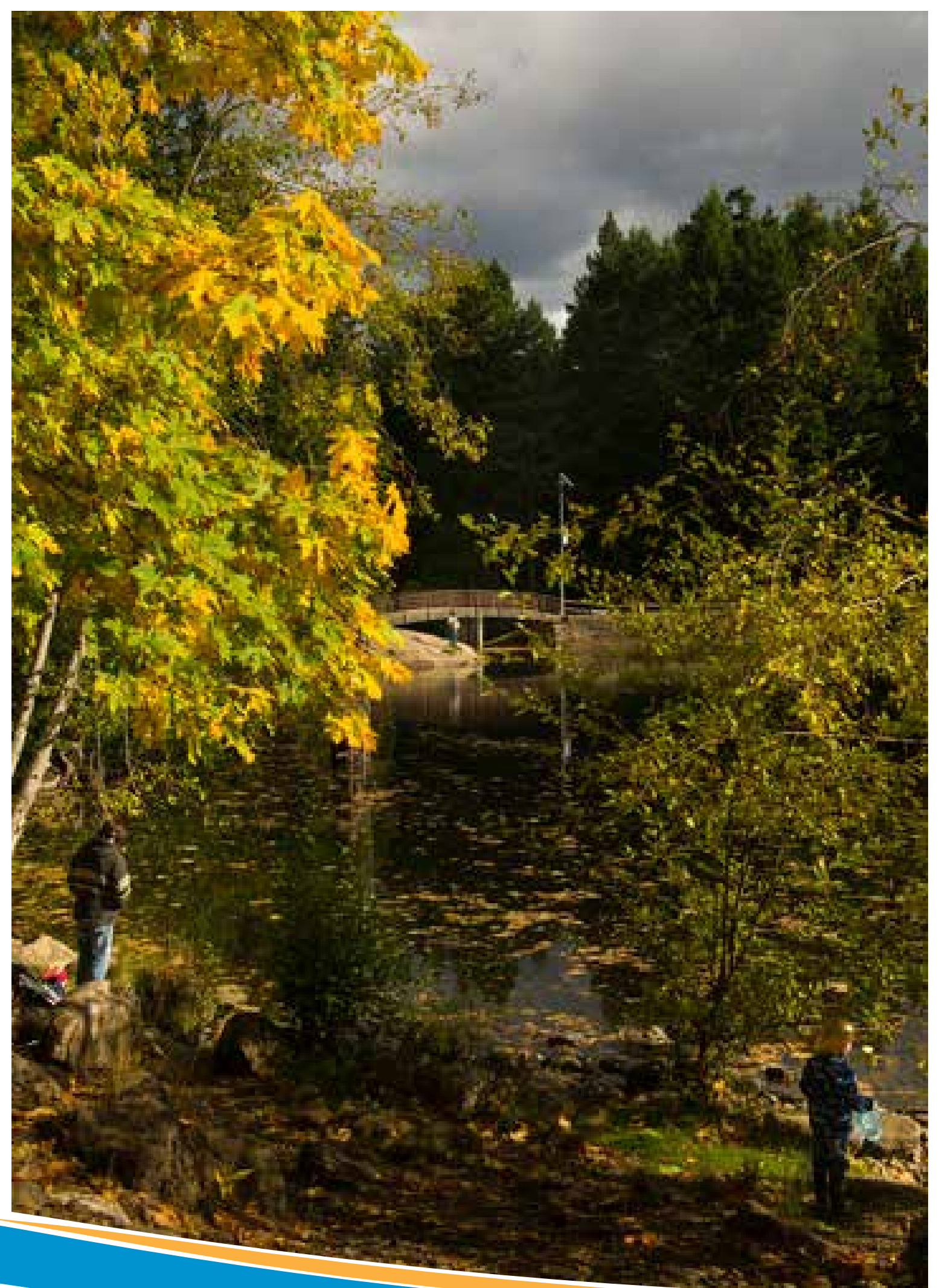
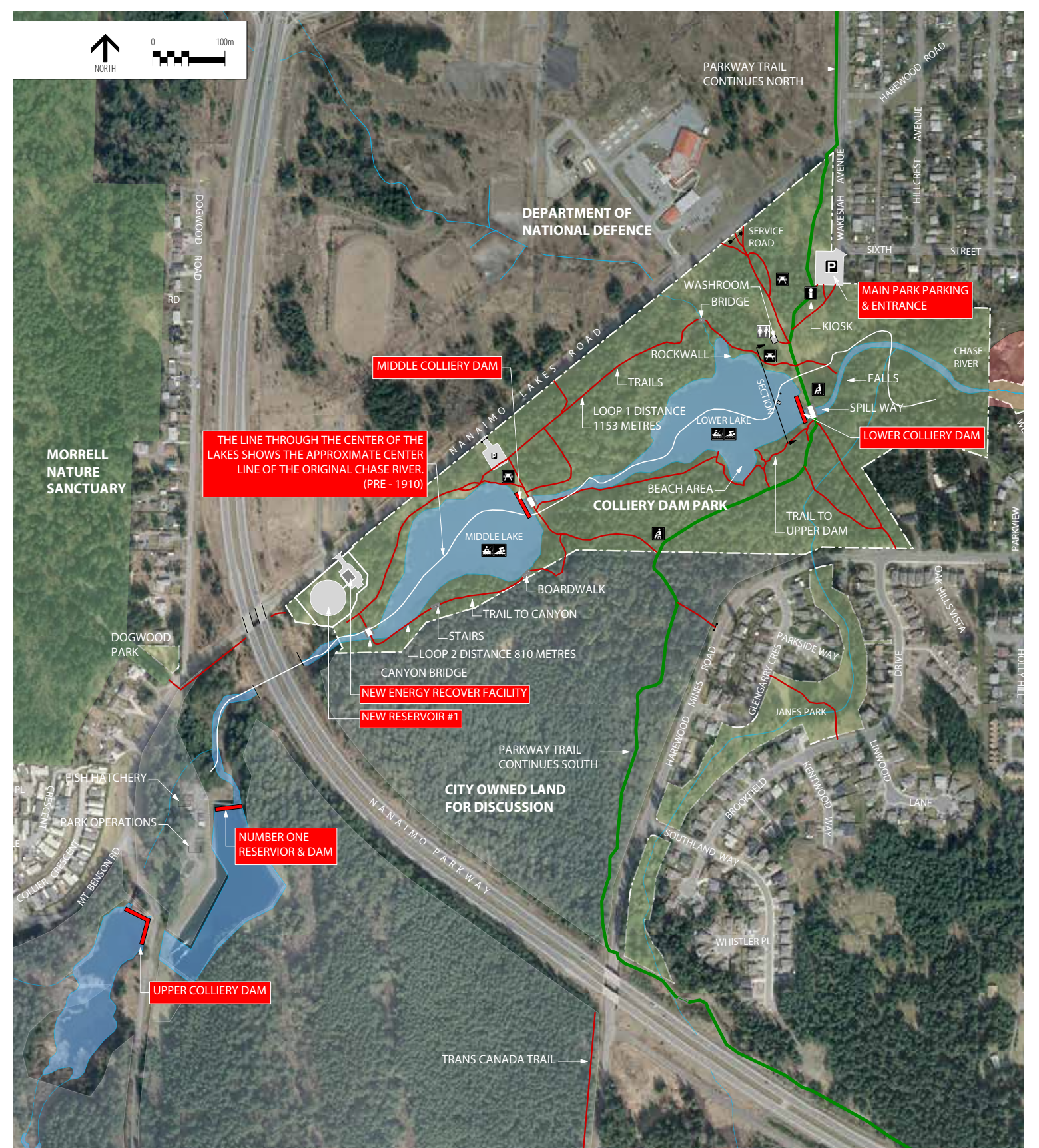
The need to remove the Lower & Middle Colliery Dams

On Monday, October 29, Nanaimo City Council informed the community of their approval of an administrative recommendation to undertake the *removal of the Lower and Middle Colliery Dams* located in Colliery Dam Park along with the *naturalization* of the Chase River through the park. This decision was based on engineering assessments which concluded the dams have reached the end of their service life.

The public is advised:

- Each dam is currently stable; however, should the region experience a significant earthquake or extreme rainfall event, the dams may fail resulting in a short notice evacuation of Harewood.
- The Province's Dam Safety Branch regulations accordingly require the City of Nanaimo to remedy this risk.

Considered all options, including reinforcing or rebuilding the dams, *removing each structure* and *re naturalizing the Chase River Valley* were deemed the *safest long-term solutions*.



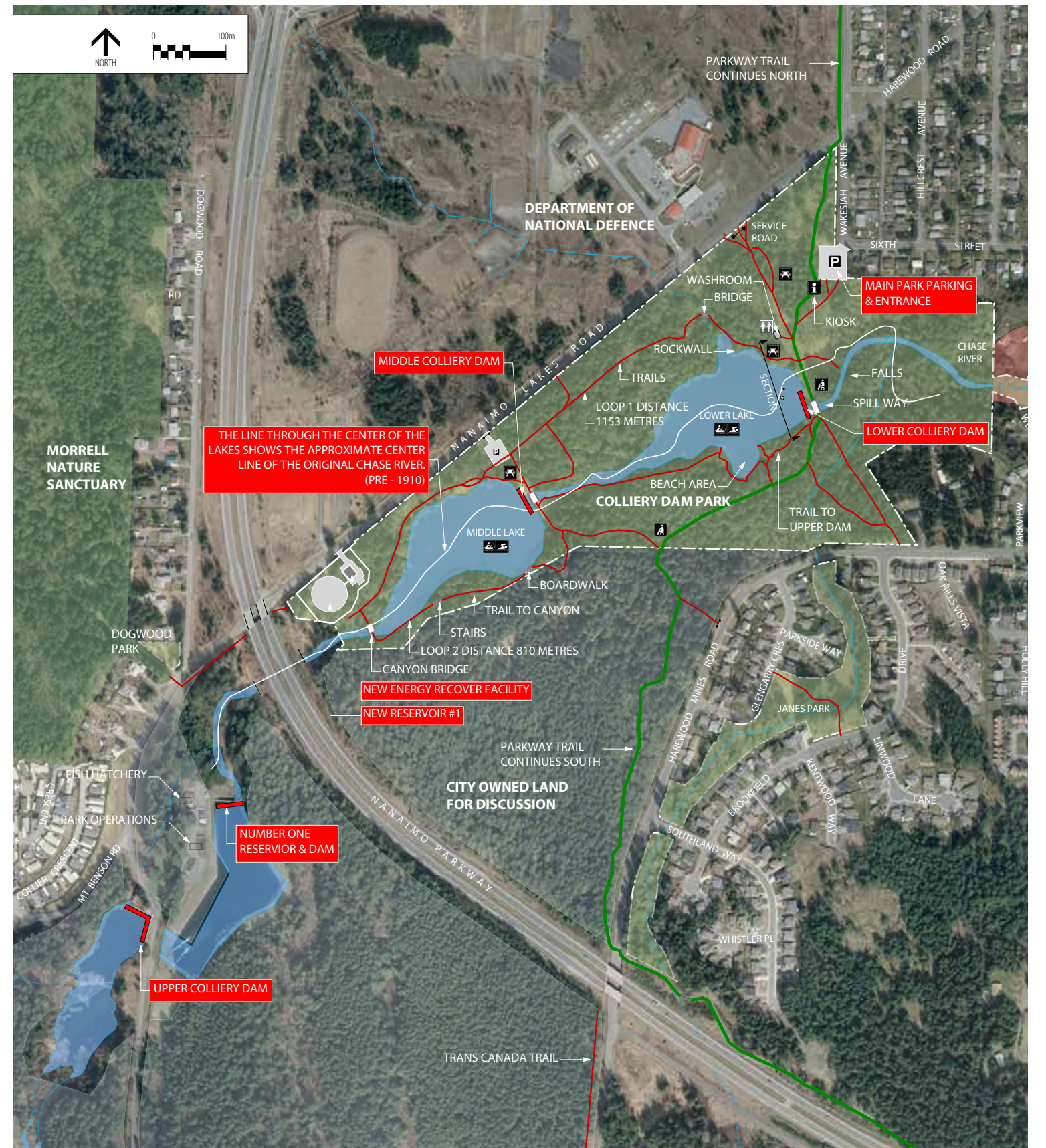
Removing the dams

The City of Nanaimo's Engineering and Public Works Department has initiated steps to remove the Lower and Middle Colliery Dams.

The current target date to commence deconstruction is *summer 2013*.

The steps are as follows:

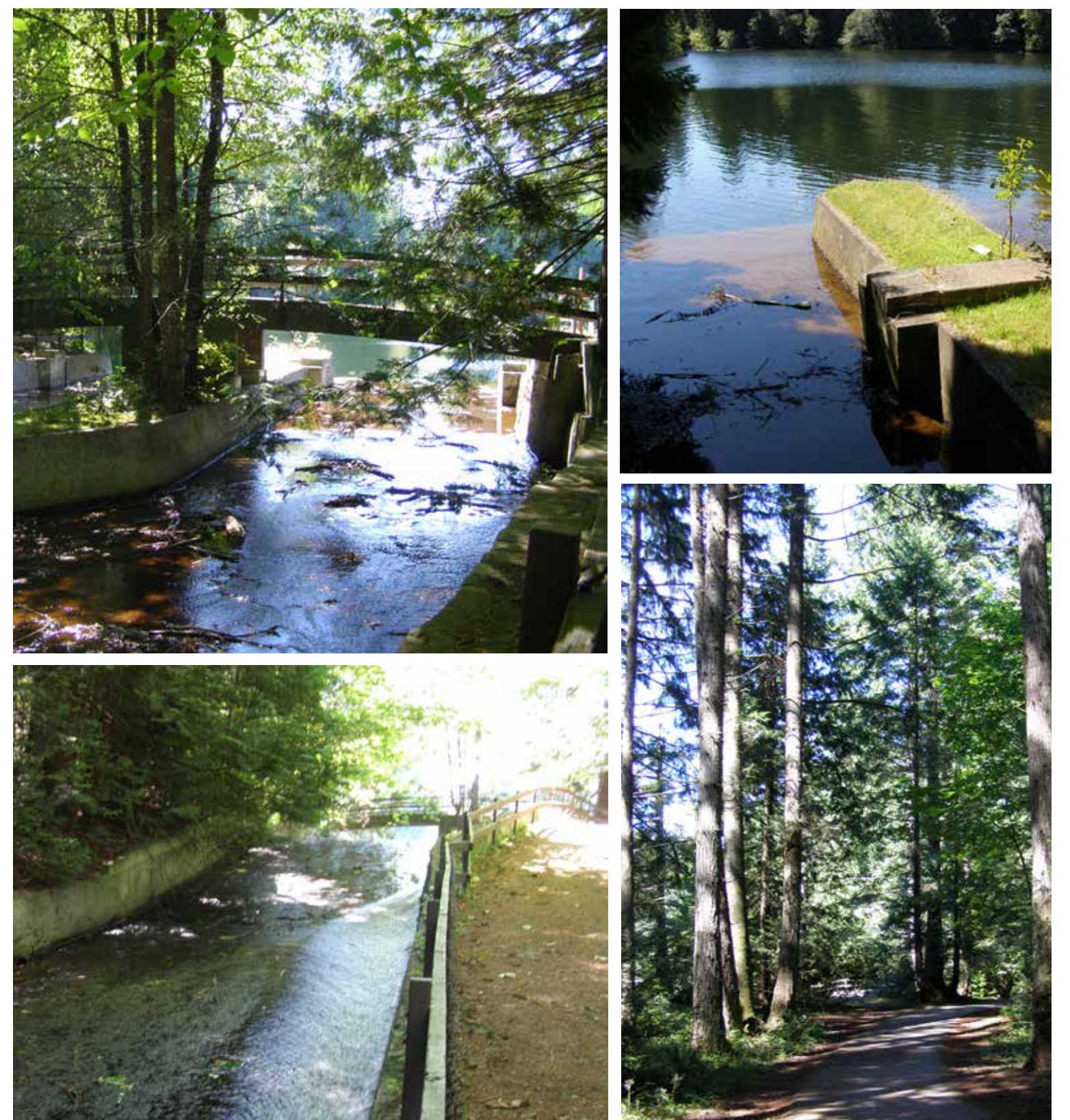
- Drain the water
- Dam Removals
- Re naturalization & Planting



Background on the dam structures

The Lower and Middle Colliery Dams were built by the mining industry in 1911 to provide a supply of water to wash coal. When coal mining ceased operation in Nanaimo, the dam lakes became recreational amenities.

These dams are over 100 years old and no longer meet safety standards and must be removed.



Dam Removal...

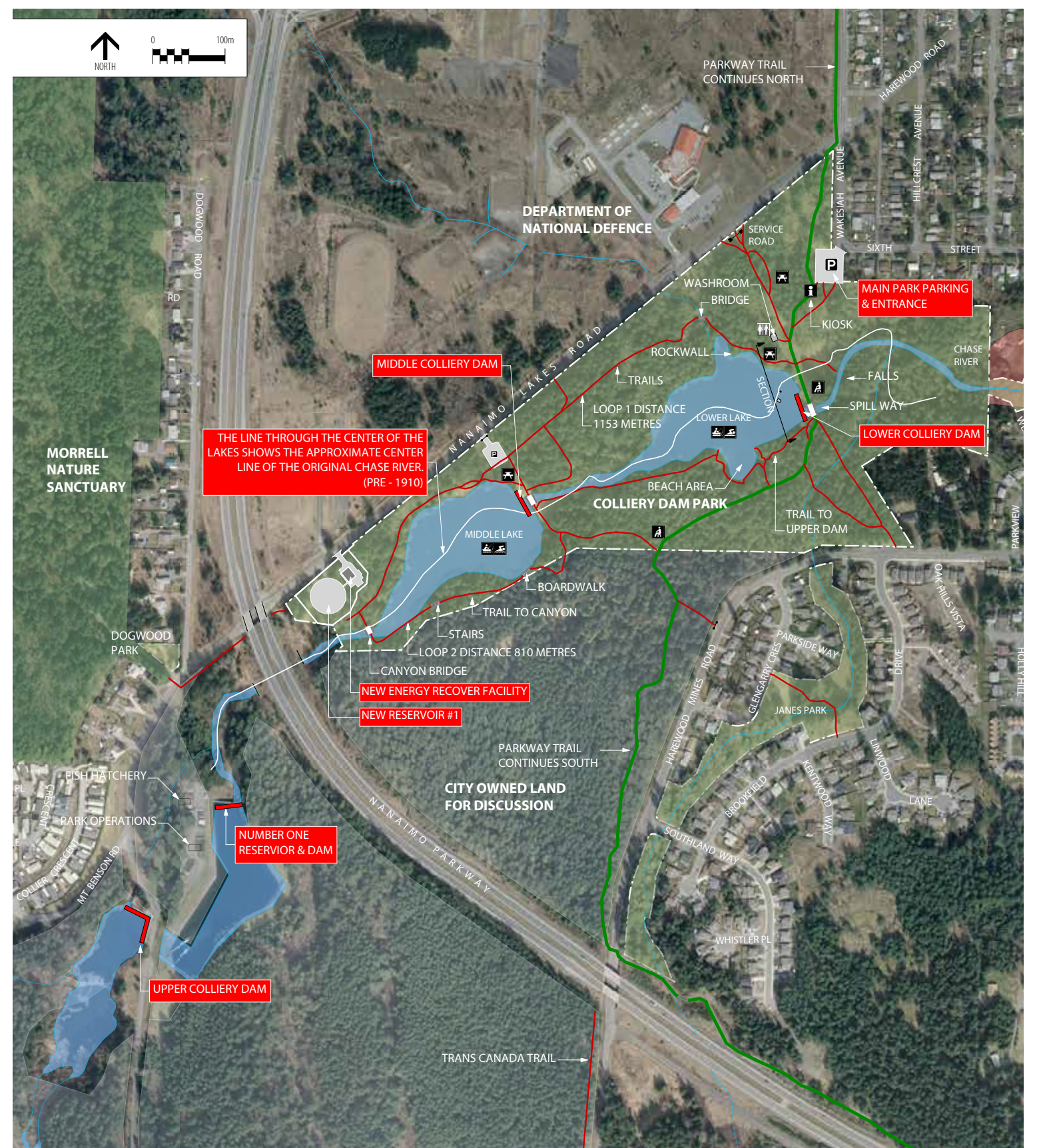
Questions & Answers

Where are the Middle and Lower Colliery Dams located?

The Lower and Middle Colliery Dams, also known as the Chase River Dams, are located in Colliery Dam Park, adjacent to Nanaimo Lakes Road, south of Sixth Street and north of Seventh Street. The Park is best accessed from the parking lot at Sixth and Wakesiah.

Why do we need to remove the dams?

The dams are at the end of their service life - they are one hundred years old. Recent studies have shown that they pose an unacceptable risk to the community living downstream during a significant earthquake or extreme rainfall event.



What are the future uses of Colliery Dam Park once the dams are removed?

Colliery Dam Park is currently used as a natural recreational area. This use is not anticipated to change in any way. The park is a well loved area and a jewel of south Nanaimo. With input from residents, the City will return the Chase River within the park to its natural state.

What is the current condition of the dams?

The dams are stable in their current state; however a disturbance due to a significant earthquake or extreme rainfall event could negatively affect them. As noted, the dams have reached the end of their service life; hence it's prudent to remove them before they degrade.

Questions & Answers

What measures are in place to alert the community should the dams show signs of breaching?

The City has implemented an Emergency Action Plan that would see the Emergency Command Centre activated in the event of a possible breach. The City will order an evacuation of the downstream area should the dams appear to be in imminent danger of failure. Also, public education using letters, maps, website, social media, question and answers, open houses and school liaison are currently being carried out.

Is it still safe to use Colliery Dam Park?

Colliery Dam Park is still safe to use. As noted, the dams are stable in their current condition; in the event of a significant earthquake or extreme rainfall event, it would be prudent to stay clear of the Park.

In addition to the Lower and Middle Colliery dams, are there other dam structures in or near Colliery Dam Park? If so, what is the status of these structures?

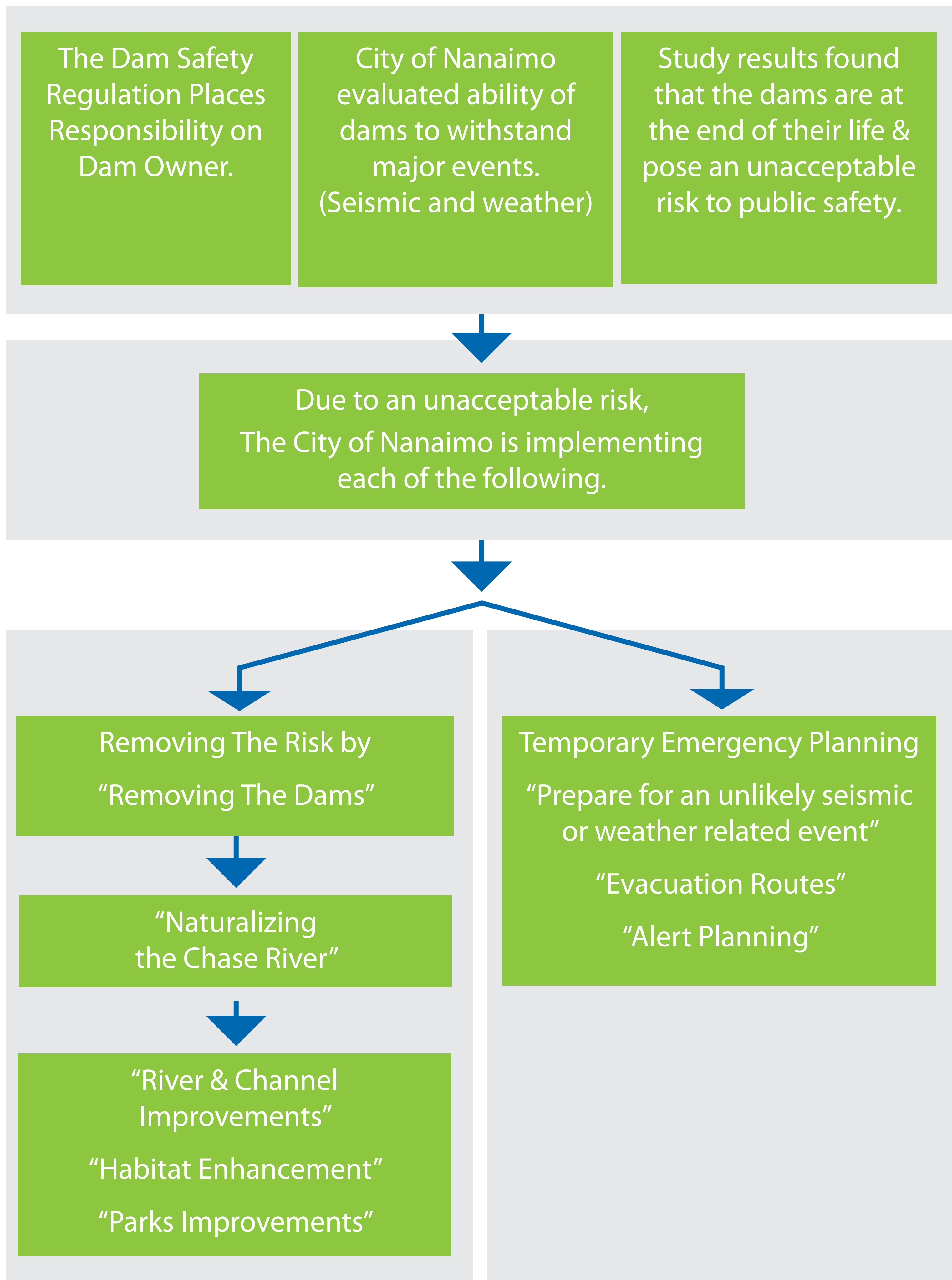
A third dam – the Upper Colliery Dam – is in a secure state and poses no risk to the public. This structure will remain in place. Also, Water Reservoir #1 has been seismically upgraded to current standards and poses no risk to the public. Only the Lower and Middle Colliery dams must be removed.

Where do I get more information?

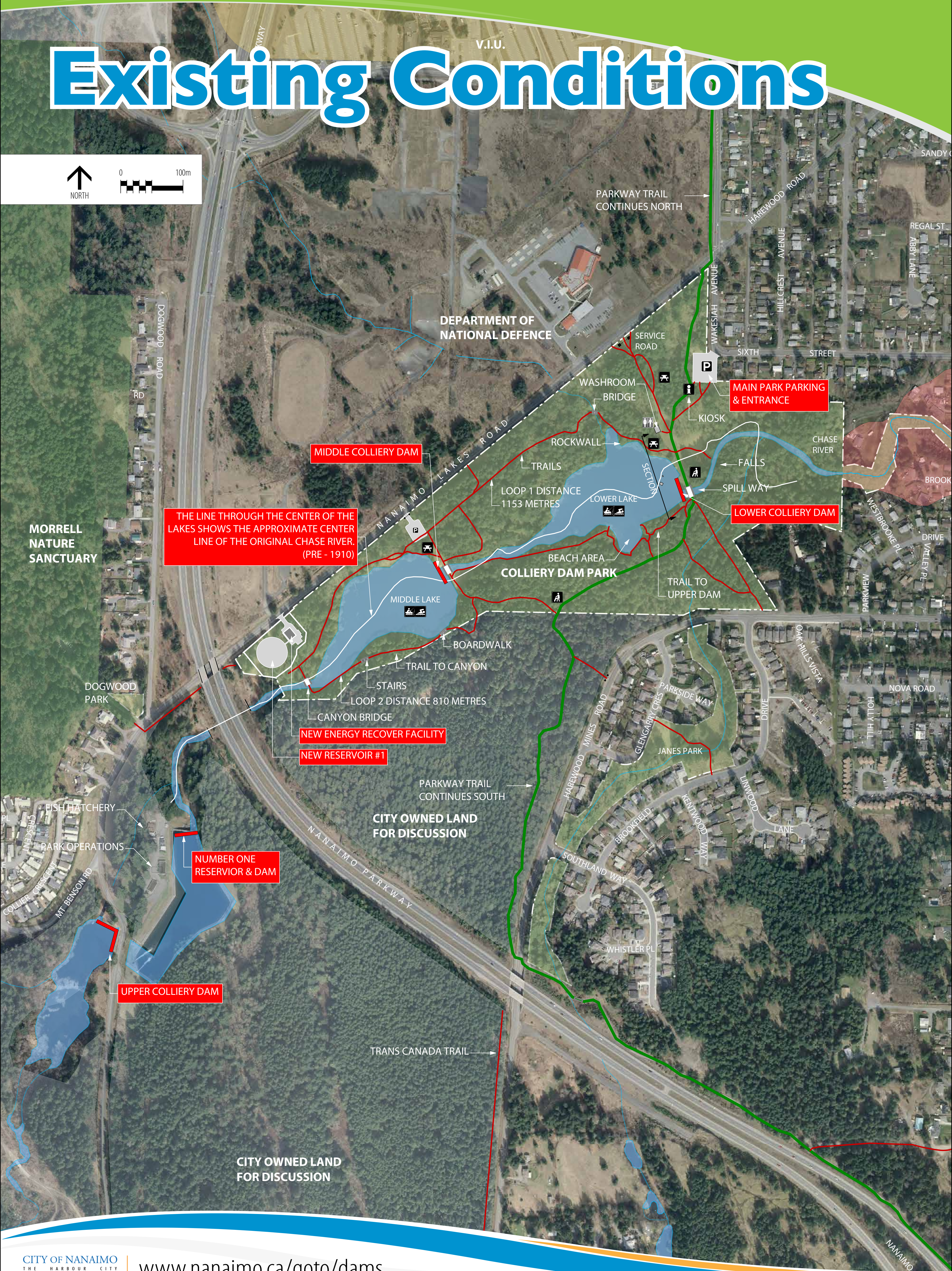
The City has prepared additional questions and answers on its website. Topics include: dam safety, emergency preparedness, the environment, legal and administrative matters, community concerns, costs, public involvement and decision making. To review these questions and answer, as well as other information,

please visit - **www.nanaimo.ca/goto/dams**

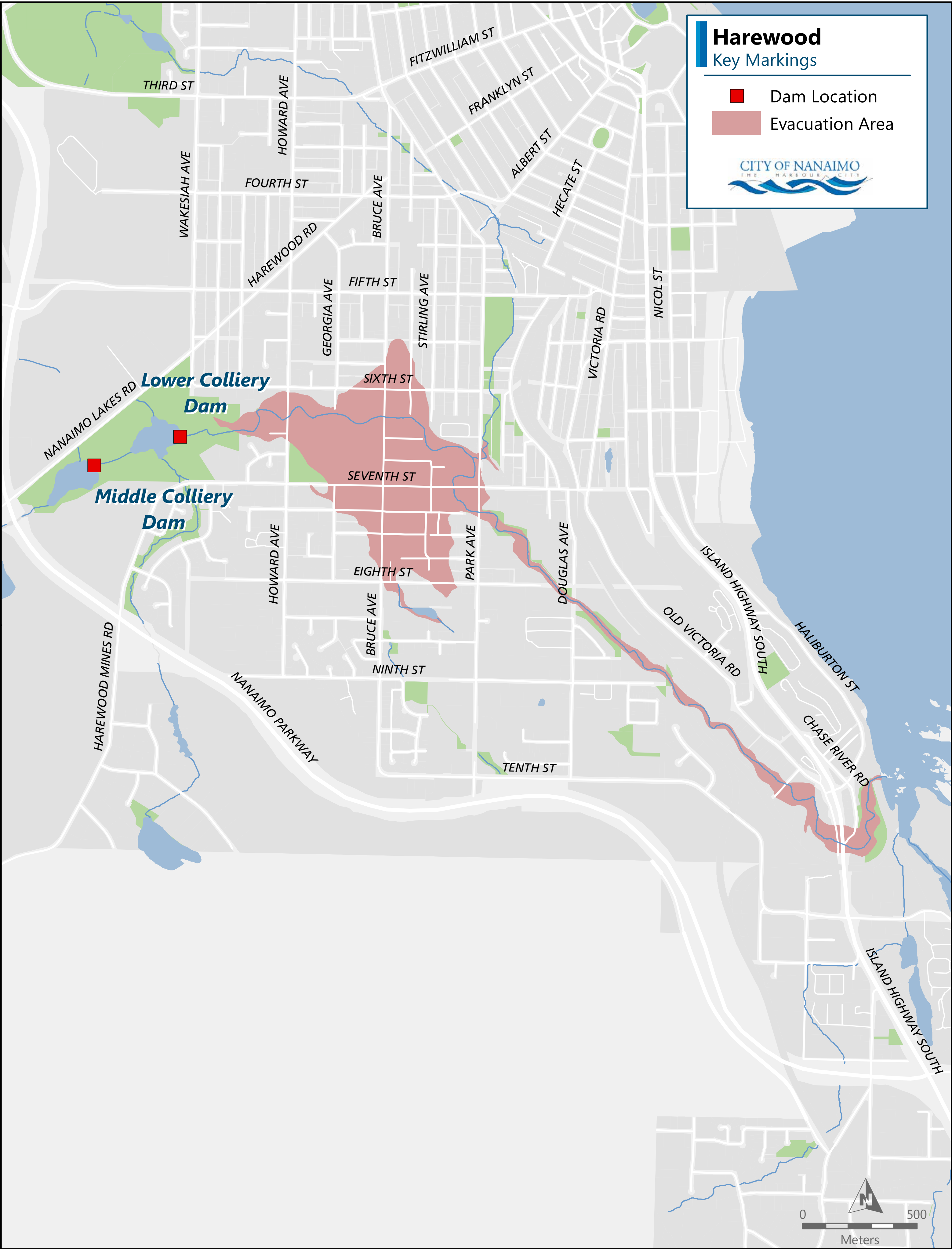
Colliery Dam Removal Process



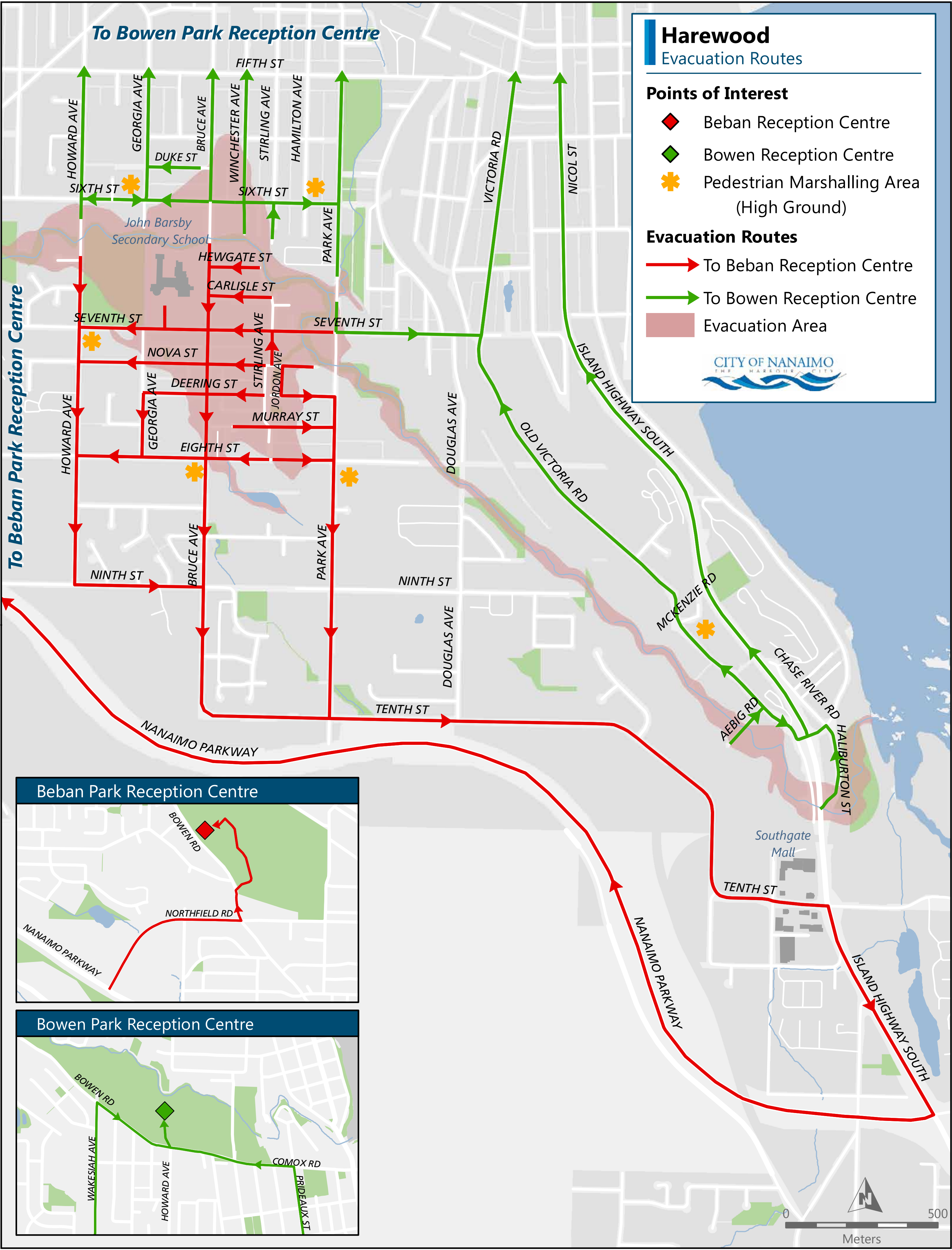
Existing Conditions



Evacuation Area



Emergency Planning



Emergency Planning...

Sign up for the City of Nanaimo Emergency Alert System

In the event of emergency...

In the event of emergency, the Emergency Alert System will be used to alert citizens as soon as possible, and provides a short message to your home or cell phone, or e-mail address that you specify. It was tested during a Boil Water Advisory a few years ago, and worked well in letting people know the Advisory was in place, as well as when the Advisory was lifted.

New technology delivers the message to you by phone...

The City of Nanaimo set up a voice broadcast system using new telephone technology capable of making thousands of telephone calls, or e-mails in a very short time period. This system uses a simple list of telephone numbers or e-mails to send a message stating what the alert is about, and what people should do about it. Now it's up to everyone in Nanaimo to make sure they are on the list.

Sign up on-line, or by telephone...

This is a secure database and the information collected will only be used for emergency notification. We urge you to go to the City's website and fill in our easy on-line form - it only takes a minute. If you don't have a computer with Internet service, or require assistance, you can call the number below and staff will be happy to assist you to sign up.

Think of this as an important part of your emergency preparedness program. We need you to sign up to make this new service work.

*Please sign up online at **www.nanaimo.ca**
(click on the **"PHONE ALERT"** icon on the front page)
or call 758-1311 Monday to Friday 8am to 4:30pm*



Naturalization of the Chase River...

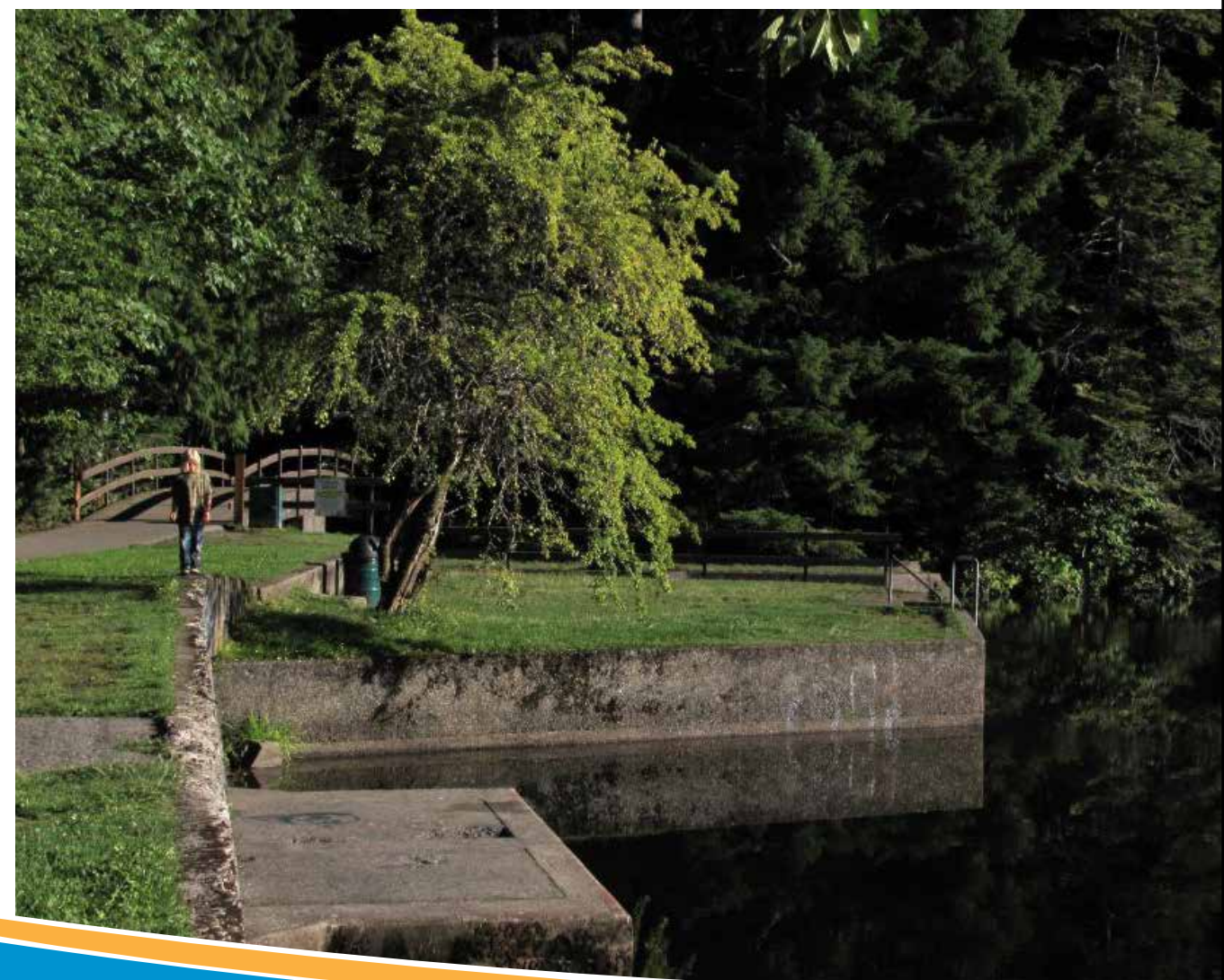
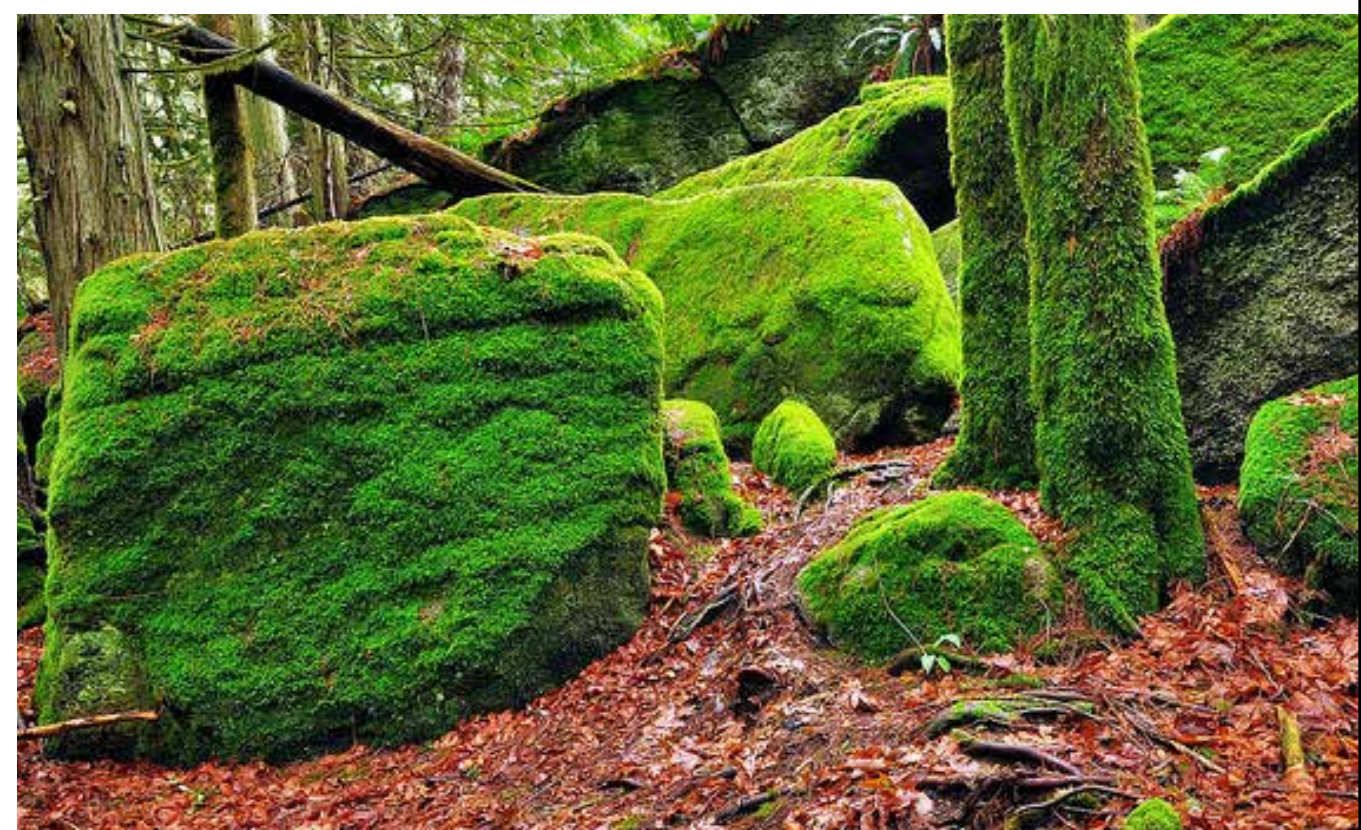
Historically the Park was:



- Dammed in 1910 to provide water and power to Coal mining operations in Harewood.
- The City of Nanaimo assumed park ownership in 1975 through amalgamation.
- Colliery Dam Park was dedicated as park by public referendum in 1980.
- Park is zoned **PRC-1 / Natural Park** which conserves natural parks in the city and allows uses such as **nature enjoyment, walking, hiking, cycling and dog walking**.

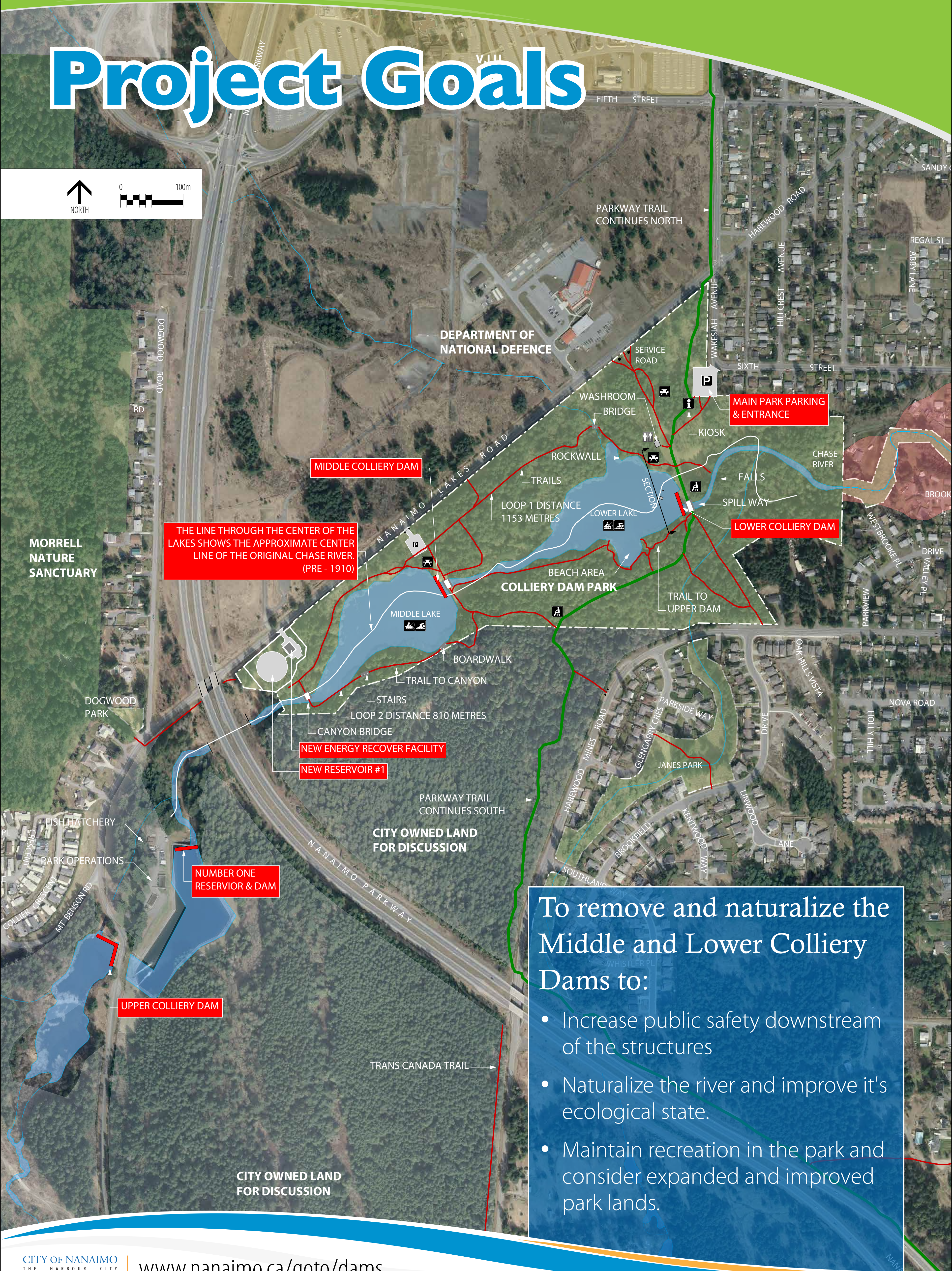
Today the Park is:

- 68 acres.
- Trail network is almost 2km.
- Trail is connected into the Parkway and Trans Canada multi-purpose trails.
- Dog off leash park in the upper loop opened in 2010.
- Trail Counter statistics 2006-2008 suggest a daily average of about 188 visitors.



Naturalization of the Chase River...

Project Goals



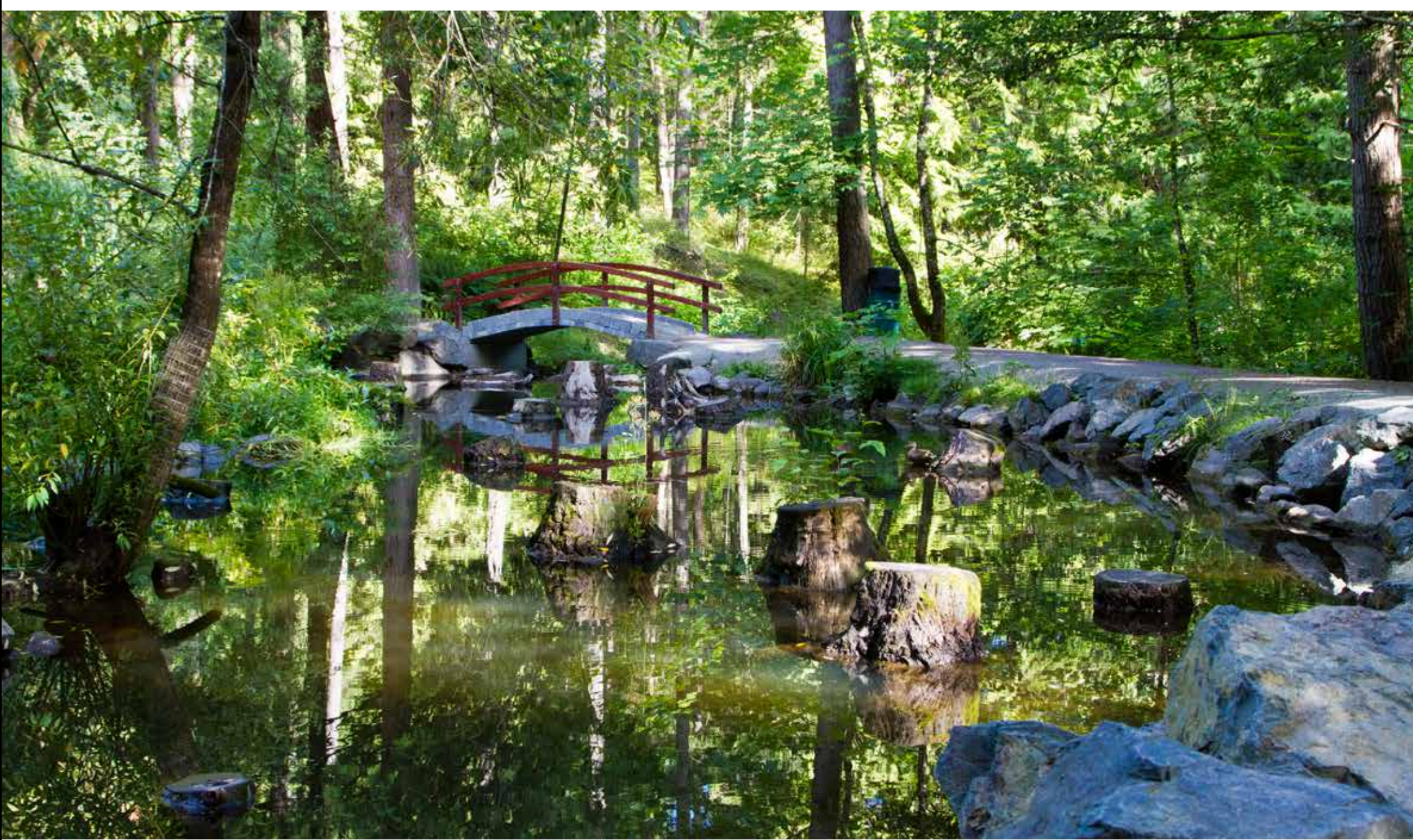
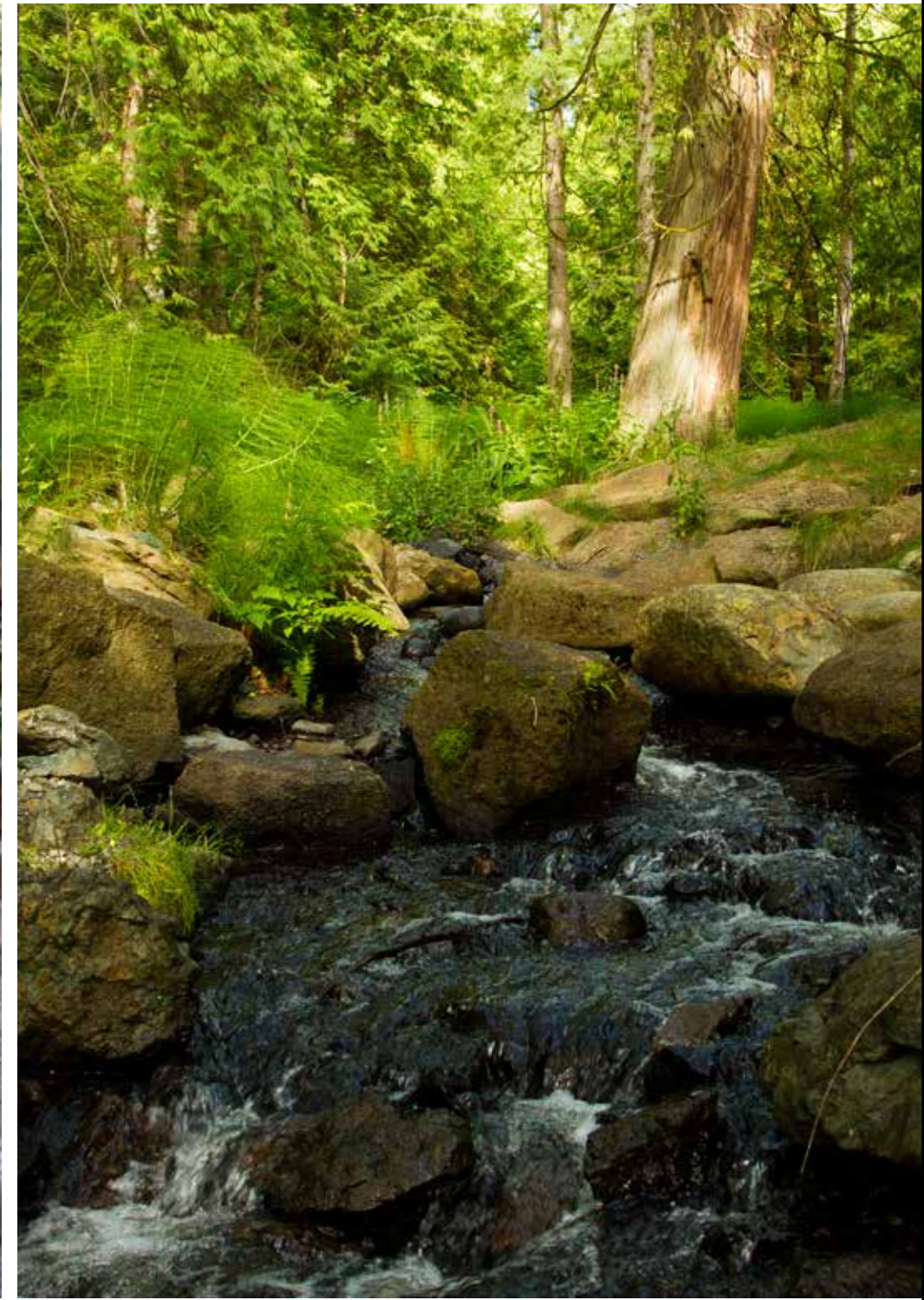
To remove and naturalize the Middle and Lower Colliery Dams to:

- Increase public safety downstream of the structures
- Naturalize the river and improve it's ecological state.
- Maintain recreation in the park and consider expanded and improved park lands.

Process of Naturalization of the Chase River...

Bowen Park Success Story

- The Millstone Side Channel and trail system in Bowen Park was constructed in 2008 and has regenerated as a public recreational and ecological amenity.
- The Goal is to create a similar atmosphere at Colliery Dam Park.



What is your favourite...

- Place in Colliery Dam Park?
- Thing to do in Colliery Dam Park?

What would you most like to achieve

- Through Park Naturalization?

• *Please give us
your feed back.*



Process of Removal & Naturalization...

Drain Lakes...



- Drawing a reservoir down is the first step in dam deconstruction.
- This picture of a dam in Mill Bay being drawn-down.
- This dam was smaller than Colliery Dams with dam height of 5-8m.

Remove Dams...



Middle Dam - Colliery Dam Park

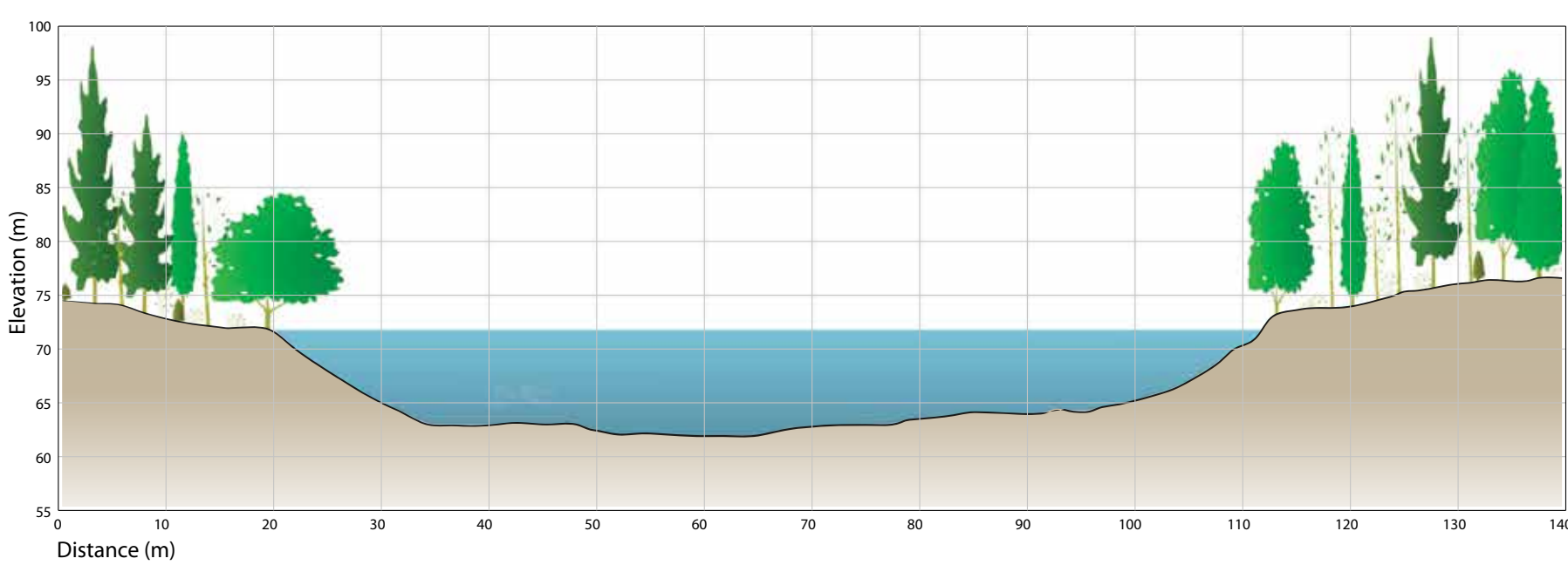
Decommissioned Heber Dam
near Gold River, BC

- Illustrative comparison of the existing reservoir with a reclaimed river channel at a decommissioned dam in Gold River. The Heber Dam in Gold River is a comparable project to Colliery Removals. Similar project footprint and equipment required.

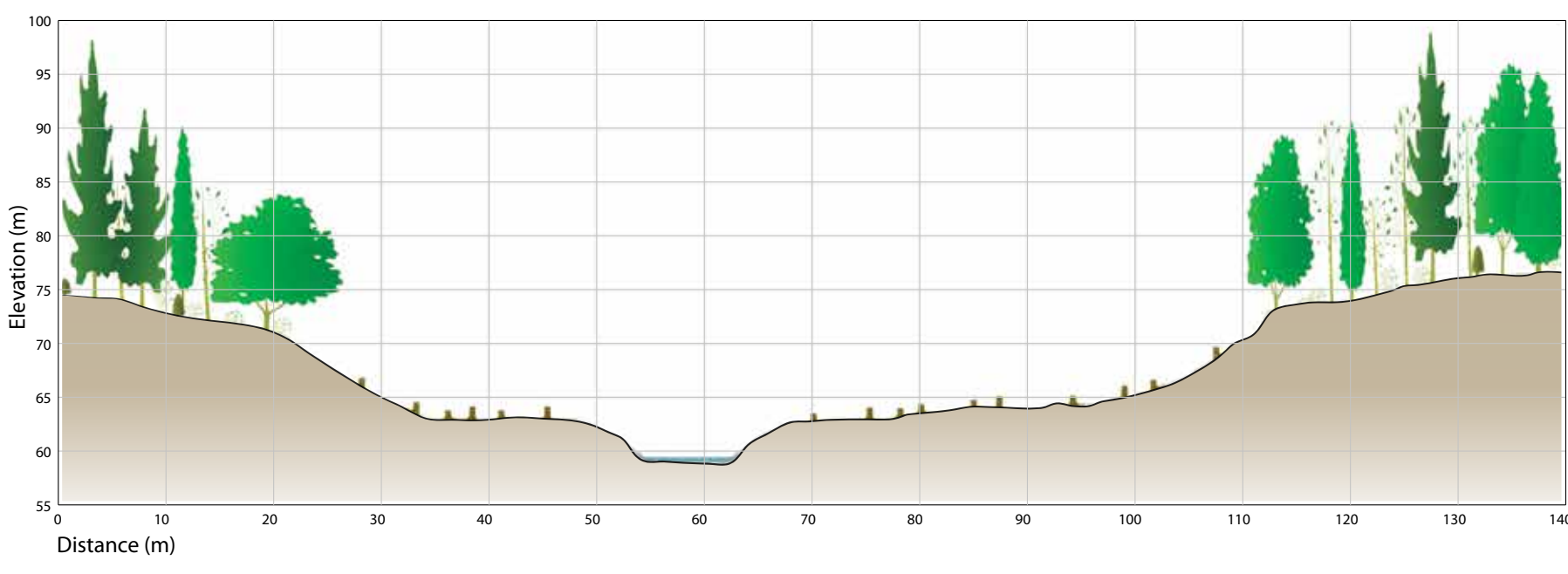
Followed by Naturalization Planting...

Process of Naturalization of the Chase River...

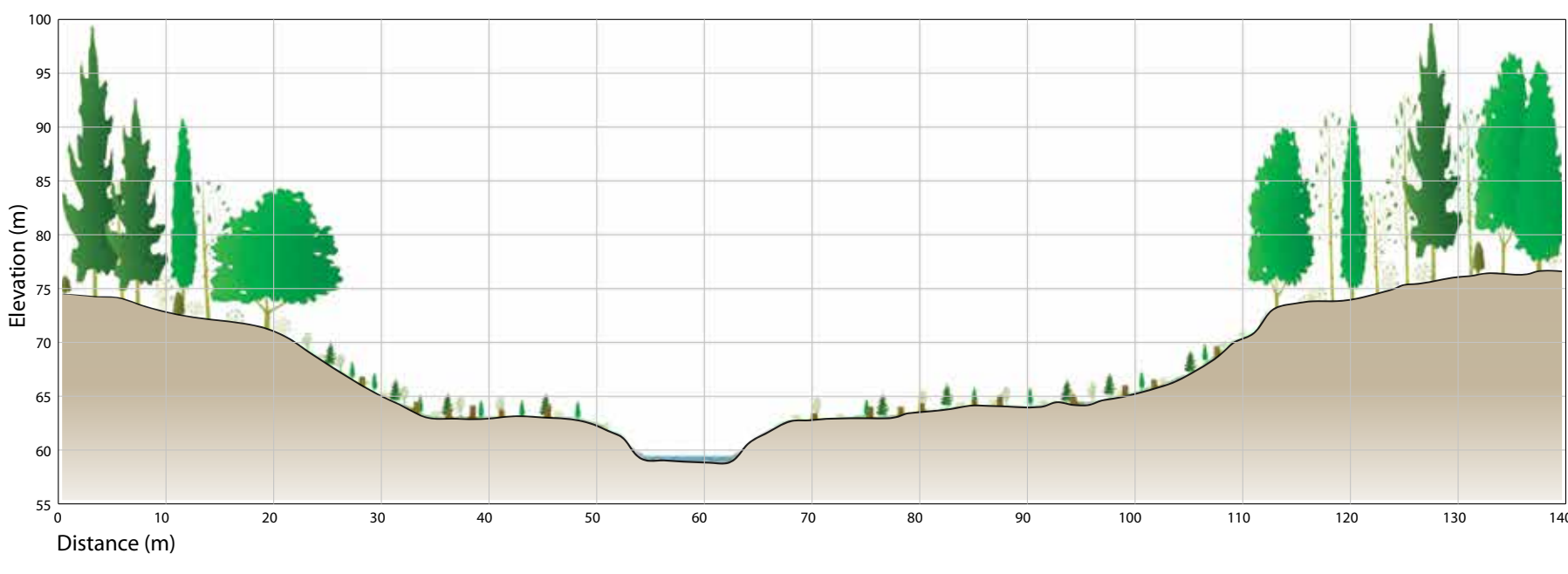
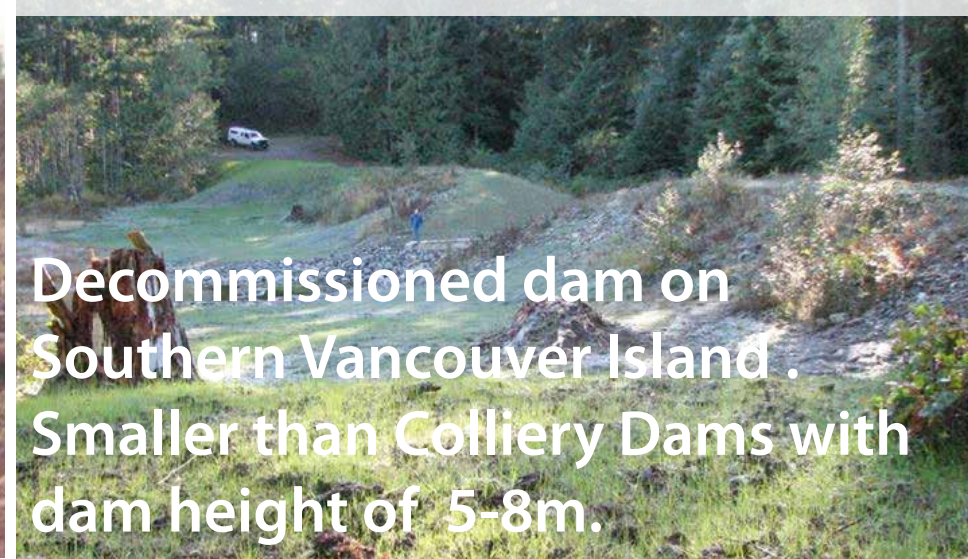
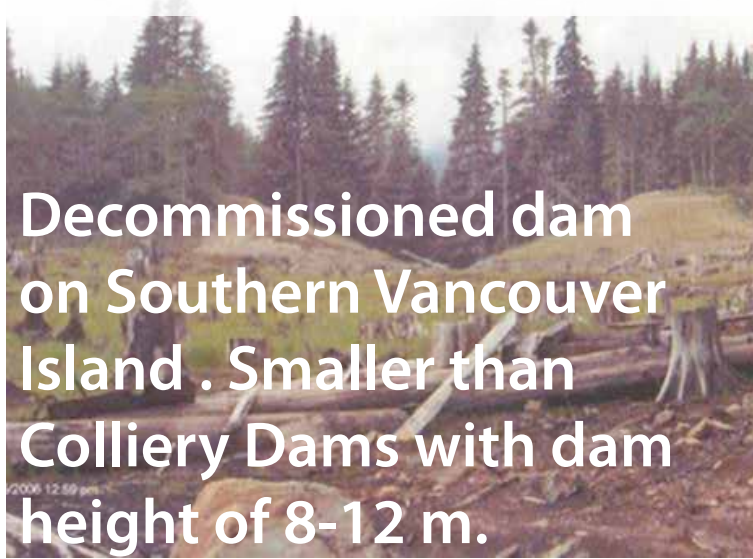
Naturalization Time Line...



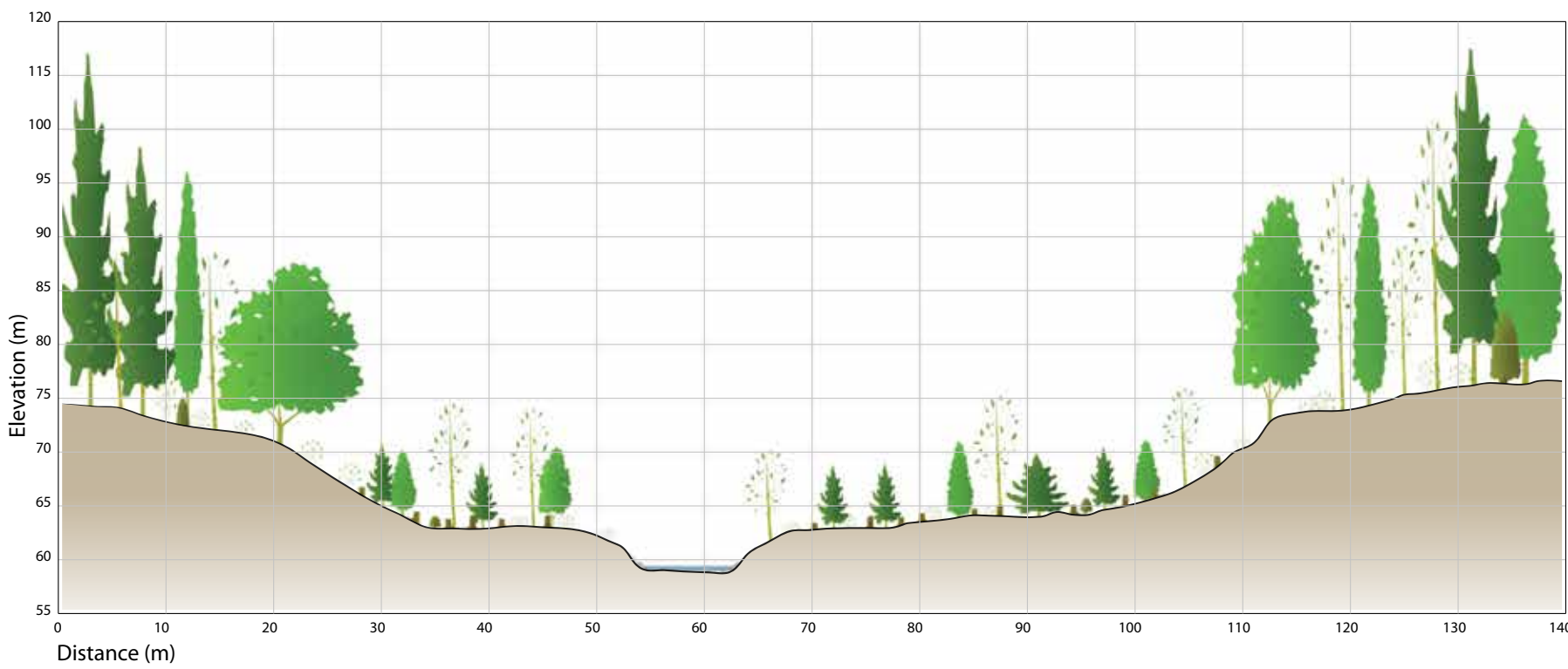
Immediately After Removal



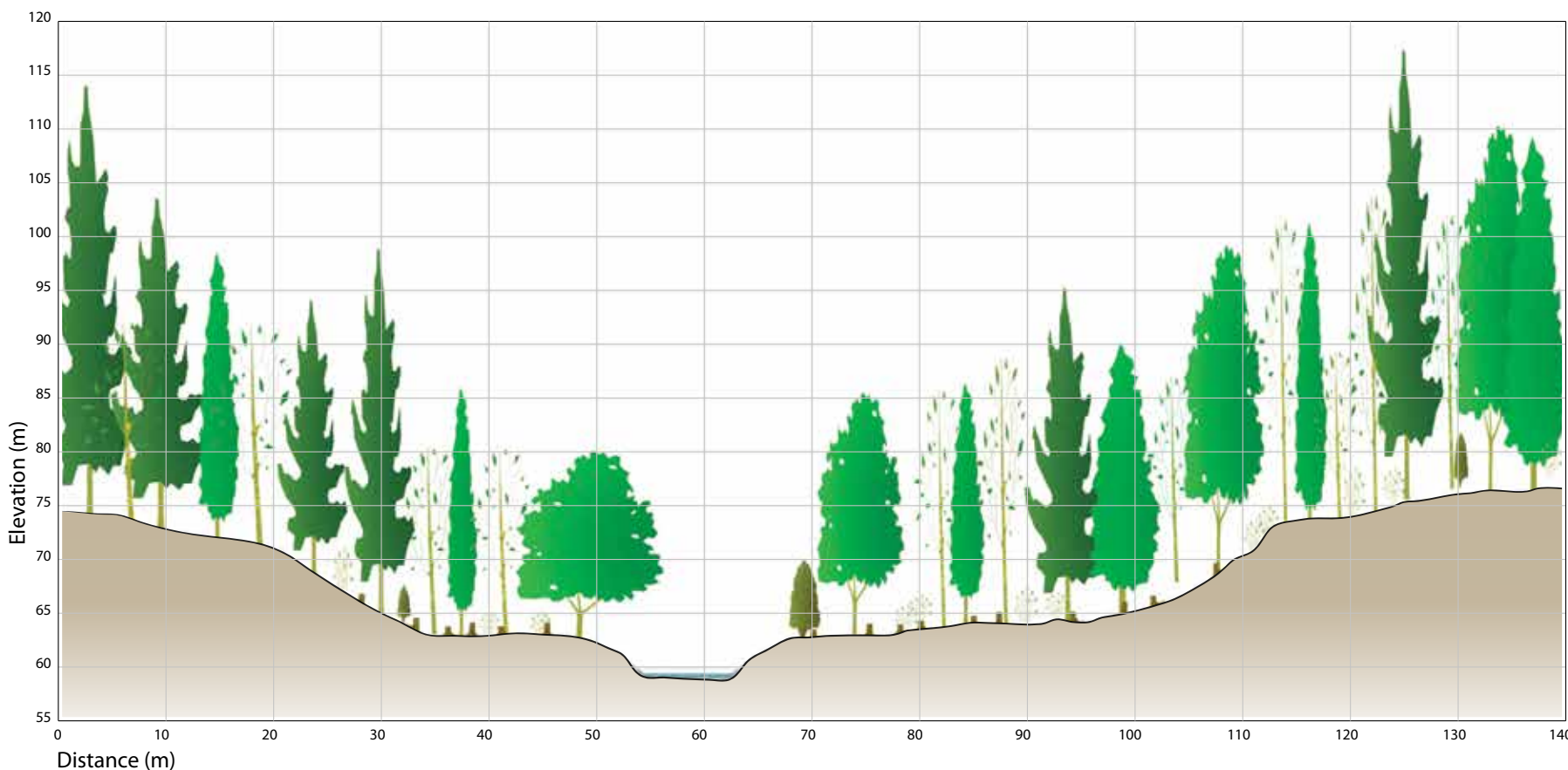
1 Year Later



5 to 10 years Later



Mature Regeneration



Process of Naturalization of the Chase River...

Examples of Planting and Naturalization projects in Nanaimo...

Before or during construction...



Completed...

Maffeo Sutton Park



McGregor Park



Third Street Trail

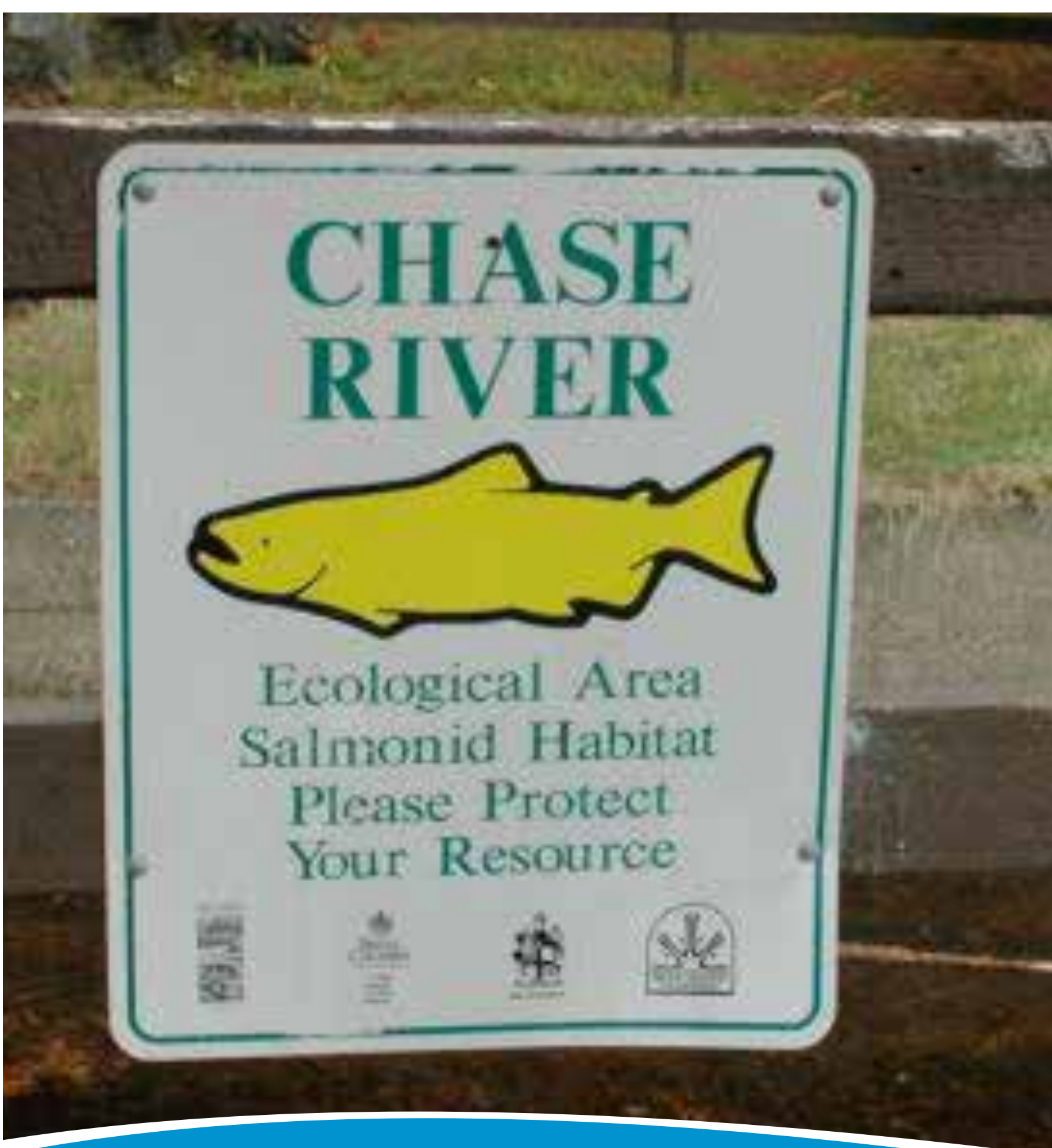


Bowen Side Channel



Potential for Salmon Habitat to be enhanced

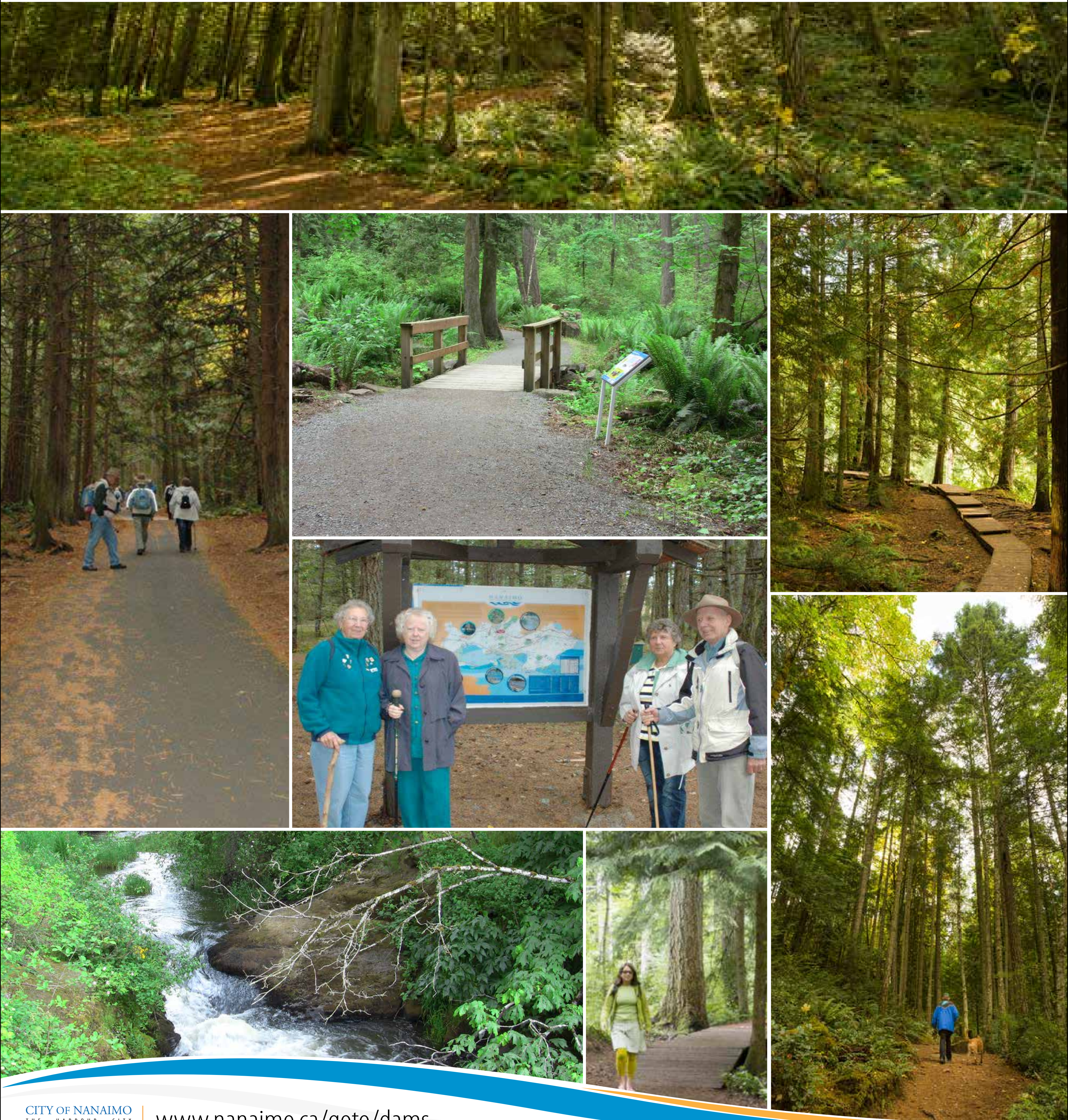
- Chase River about halfway between the lower dam and Howard Avenue.



Naturalization of the Chase River...

Trails

- The current trail system in Colliery Dam Park would be maintained and linked to new trails developed alongside the new river channel.



Bridge Options

- ▶ New bridges will be constructed to link new and old trail networks.

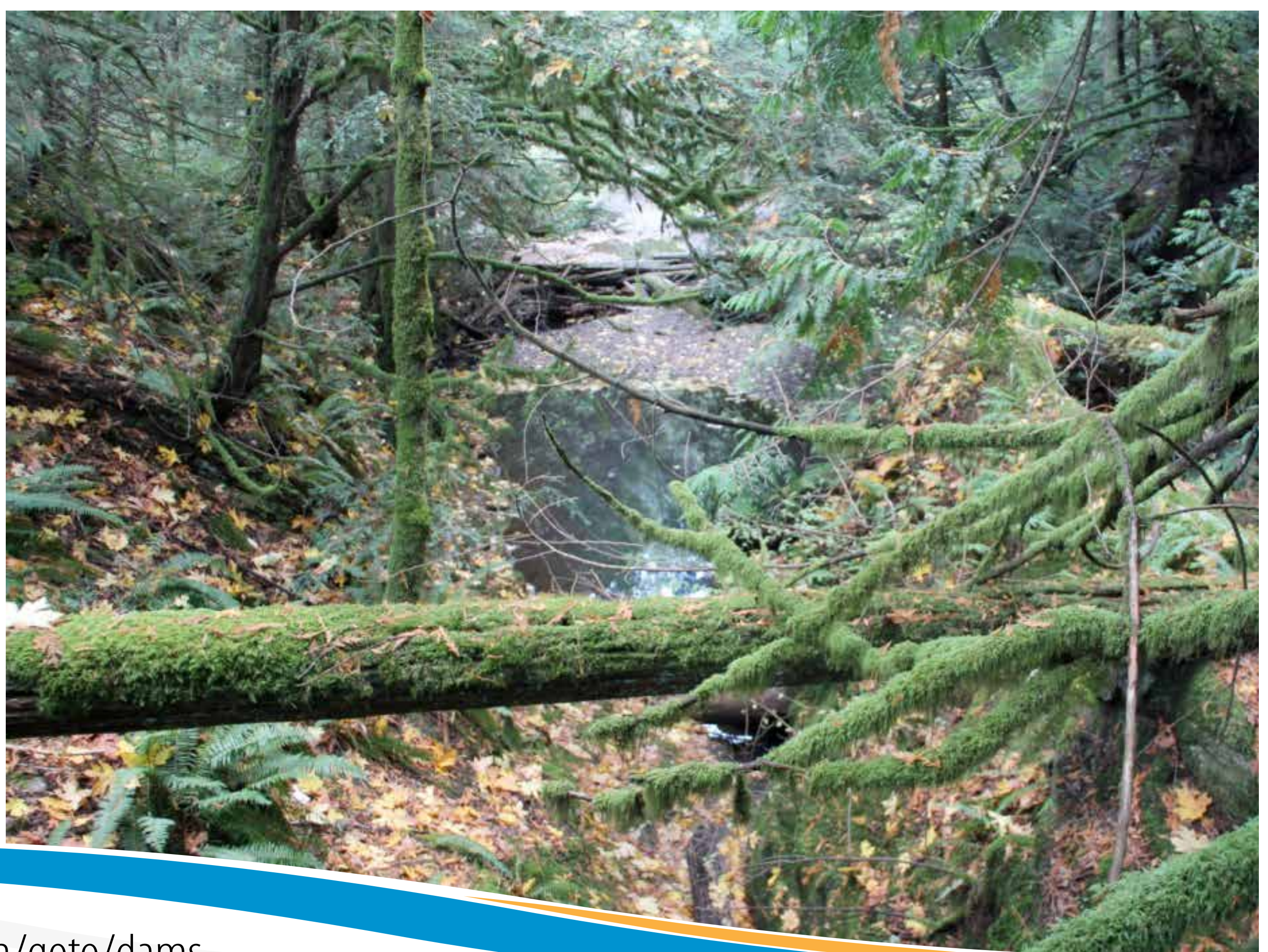


Naturalization Achieved



- Today, Chase River, upstream of Middle Chase Lake and downstream of Highway 19, showing current natural setting of the river channel.

This can be achieved through this process and Chase River Naturalization in Colliery Dam Park.



Park Improvement Process

Project Initiation

- Council Resolution that the Colliery Dams will be removed and park naturalization will proceed (October, 29th 2012)
- Information releases and open Houses introducing public to the project and process (November 2012)

Review Existing Conditions and Develop Communications (January - March 2013)

- Base survey collection
- Environmental & archaeological assessments of Colliery Dam Park and adjacent City owned land
- Use a portion of the City website as a communications forum for planning documents and surveys. In addition, use radio, face book, twitter, newspaper, and site signs for communication about the process.

Schematic Plan Preparation (March - June 2013)

- Develop schematic designs for dam removals and park naturalization
- Review naturalization options with City staff and park stakeholders
- Review naturalization options with the public at open houses
- Present naturalization options and input to Parks Recreational and Culture Commission and then City Council for review and consideration.

Detailed Design Development

- Integrate input and feedback into designs
- Develop detailed naturalization plan and improvement plans for the park
- Review naturalization plan and park improvement plans with staff and park stakeholders
- Review naturalization plan and park improvement plans with the public at open houses
- Integrate public input into draft plan

Draft Plan Review and Adoption

- Present final naturalization plan and park improvement plans and input to Parks Recreation and Culture Commission and Council for review and Consideration.

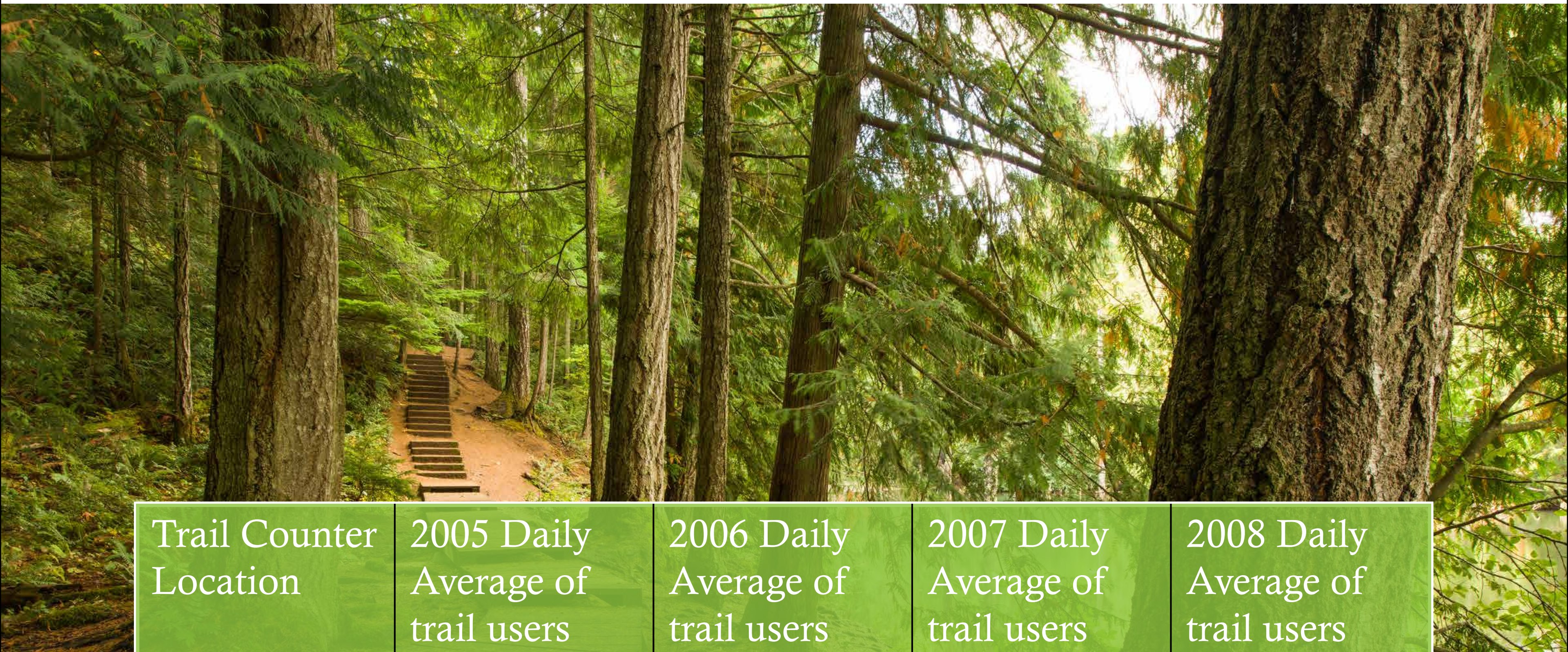
Project tendering and Implementation

- Implement naturalization and park improvement plans in conjunction with dam removal works.

Monitoring

- Monitor the viability of planted materials and the project success over time to ensure ecological function and aesthetics.

Trail Use Statistics



Trail Counter Location	2005 Daily Average of trail users	2006 Daily Average of trail users	2007 Daily Average of trail users	2008 Daily Average of trail users
Colliery Dam (Lower)	370 (May 1-15th)	345 (June)	94 (January)	133 (January)
		229 (July)	112 (February)	163 (February)
		183 (August)	153 (March)	175 (March)
		166 (September)	176 (April)	165 (April)
		159 (October)	201 (May)	235 (May)
		106 (November)	147 (June)	306 (June)
		90 (December)	161 (July)	275 (July)
			197 (August)	285 (August)
			177 (September)	227 (September)
			180 (October)	
			105 (November)	
			124 (December)	
Colliery Dam (Upper)			191 (April)	
			202 (May)	
			197 (June)	
			166 (July)	
			184 (August)	