



The Seatera Program will provide wastewater treatment for Capital Regional District (CRD) core area municipalities. The Program includes:

- >> Wastewater Treatment Plant at McLoughlin Point
- >> Resource Recovery Centre (RRC) at Hartland landfill
- >> Pumping stations and connective conveyance pipes

The Seatera Program will provide preliminary, primary and secondary wastewater treatment for the core area municipalities and local First Nations: Colwood, Esquimalt, Langford, Oak Bay, Saanich, Victoria, View Royal, Esquimalt Nation, Songhees Nation.

The Seatera Program will bring the core area wastewater treatment and disposal into compliance with provincial and federal government regulations.

SEATERRA PROGRAM GOVERNANCE AND FUNDING

IN 2006, THE CRD WAS MANDATED BY THE B.C. MINISTRY OF ENVIRONMENT TO PLAN FOR AND INITIATE SECONDARY TREATMENT FOR THE REGION.

The Liquid Waste Management Plan (LWMP) Amendment No. 8 was submitted to the Ministry of Environment in June 2010 and approved by the Minister in August 2010. The plan, totalling \$783 million, was approved for funding by the Province in February 2012. Provincial and federal government funding for the program was announced in summer 2012. The funding agreements are contingent on completion of the project according to agreed on timelines.

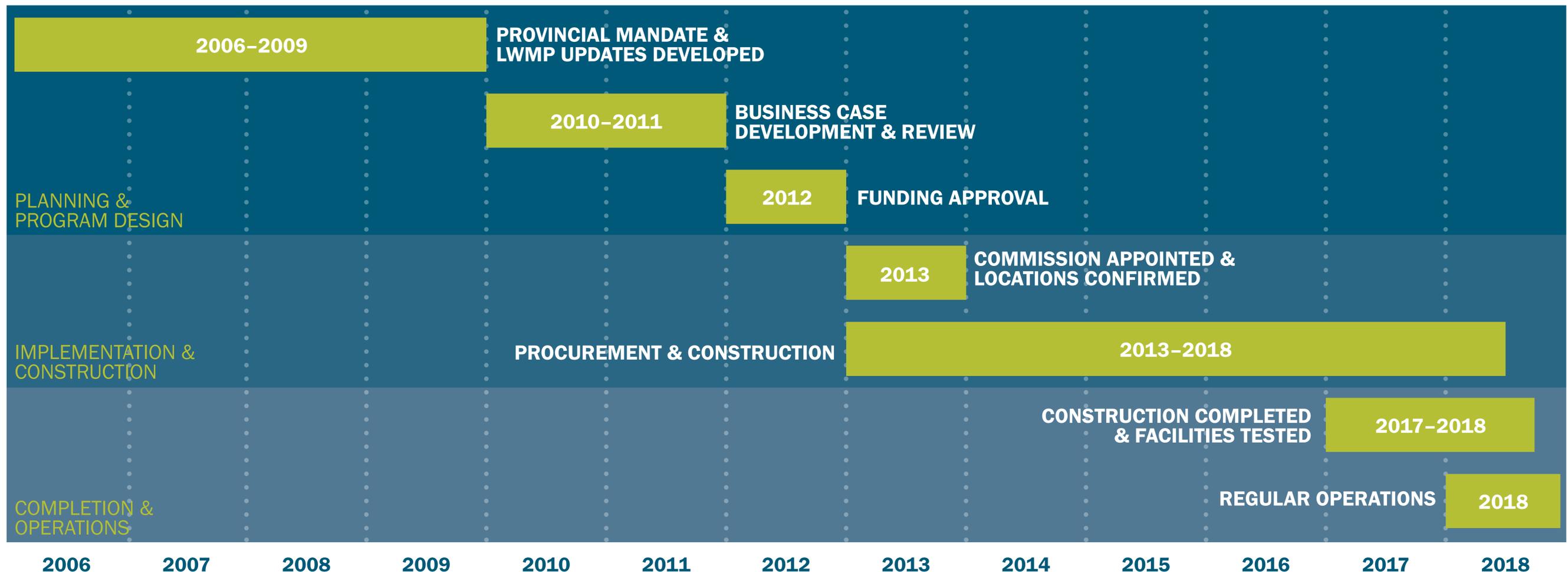
Federal contribution: \$253.4 million

- >> Building Canada Fund
- >> Green Initiative Fund
- >> P3 Canada

Provincial contribution: \$248 million

CRD contribution: \$281.3 million

The Seaterra Program Commission governs the implementation and commissioning of the Seaterra Program on behalf of the Core Area Liquid Waste Management Committee (CALWMC) and the Capital Regional District (CRD) Board.



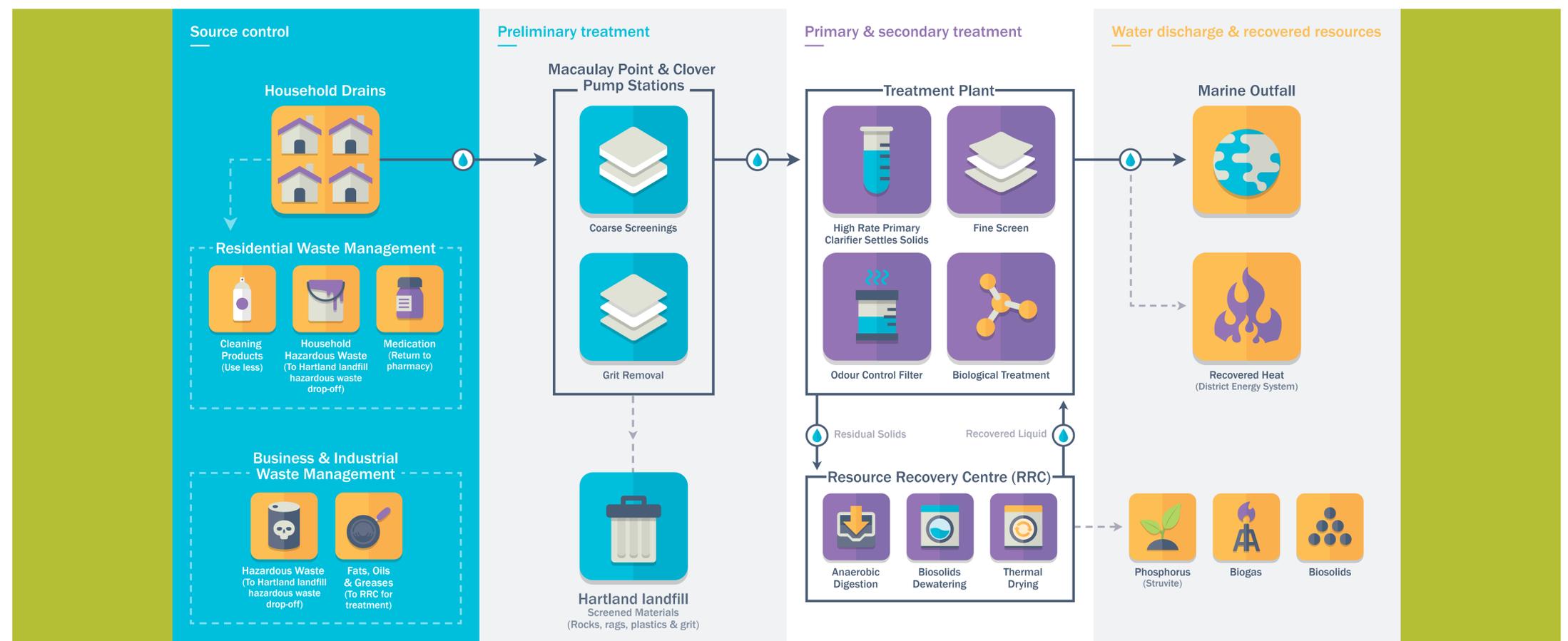
Wastewater refers to liquid waste collected from homes, businesses, industries and institutions via a system of sewer pipes. Wastewater treatment includes a number of physical and biological processes to significantly reduce the impact of wastewater discharges to the environment. The Seaterra Program will provide:

- >> **Preliminary treatment:** Preliminary treatment is the removal of coarse solids (rocks, rags, plastics, etc.) and grit (sand and gravel), which are screened out and sent to landfill.
- >> **Primary treatment:** Primary treatment is a physical process which uses gravity to settle solids in the wastewater in order to remove them.

>> **Secondary treatment:** Secondary (or biological) treatment involves the removal of dissolved oxygen-demanding organic substances and suspended solids. The treated effluent is discharged through a marine outfall.

>> Residual solids removed by the primary and secondary processes are directed to the Resource Recovery Centre for treatment where they are prepared for use as a fuel substitute.

The Treatment Plant at McLoughlin Point will allow for the addition of UV disinfection and advanced oxidization if required at a later date.



Preliminary treatment will take place at Clover and Macaulay Point pump stations and the Treatment Plant at McLoughlin Point will provide primary and secondary treatment for the region's core area wastewater.

Conveyance system upgrades (e.g. pump stations and pipes), will direct wastewater from the Clover and Macaulay Point pump stations to the Treatment Plant at McLoughlin Point. Once the wastewater has been treated it will be released into the ocean through a new 2.1 kilometre marine outfall at McLoughlin Point. Residual solids produced at the Treatment Plant from the primary and secondary treatment process will be piped to the Resource Recovery Centre at Hartland landfill, where resources such as phosphorus, biogas and biosolids will be recovered.

The proponents' designs for a high capacity treatment plant will meet the design guidelines developed through a public engagement process. The plant will be designed to handle flows past 2040 and its capacity can be further extended as required through the installation of minor treatment processes and operating modifications.



>> **High Rate Primary Clarifier:** Wastewater flows through a tank while suspended solids in the wastewater settle to the bottom where they are removed.



>> **Fine Screen:** The liquid is then passed through a fine screen to further reduce the amount of solids in the wastewater.



>> **Odour Control:** Odour control systems could include a combination of bio-filters, wet chemical scrubbing systems, and dry scrubbing systems such as activated carbon.



>> **Biological Treatment:** This is where microorganisms are introduced to the process during which bio-degradation occurs. The microorganisms are then removed from the treated effluent prior to it being discharged through the marine outfall.



>> **Biosolids:** Residual solids will be piped to the Resource Recovery Centre (RRC) where valuable resources such as methane (biogas) and phosphorous (fertilizer) will be collected and biosolids will be produced for a beneficial use.

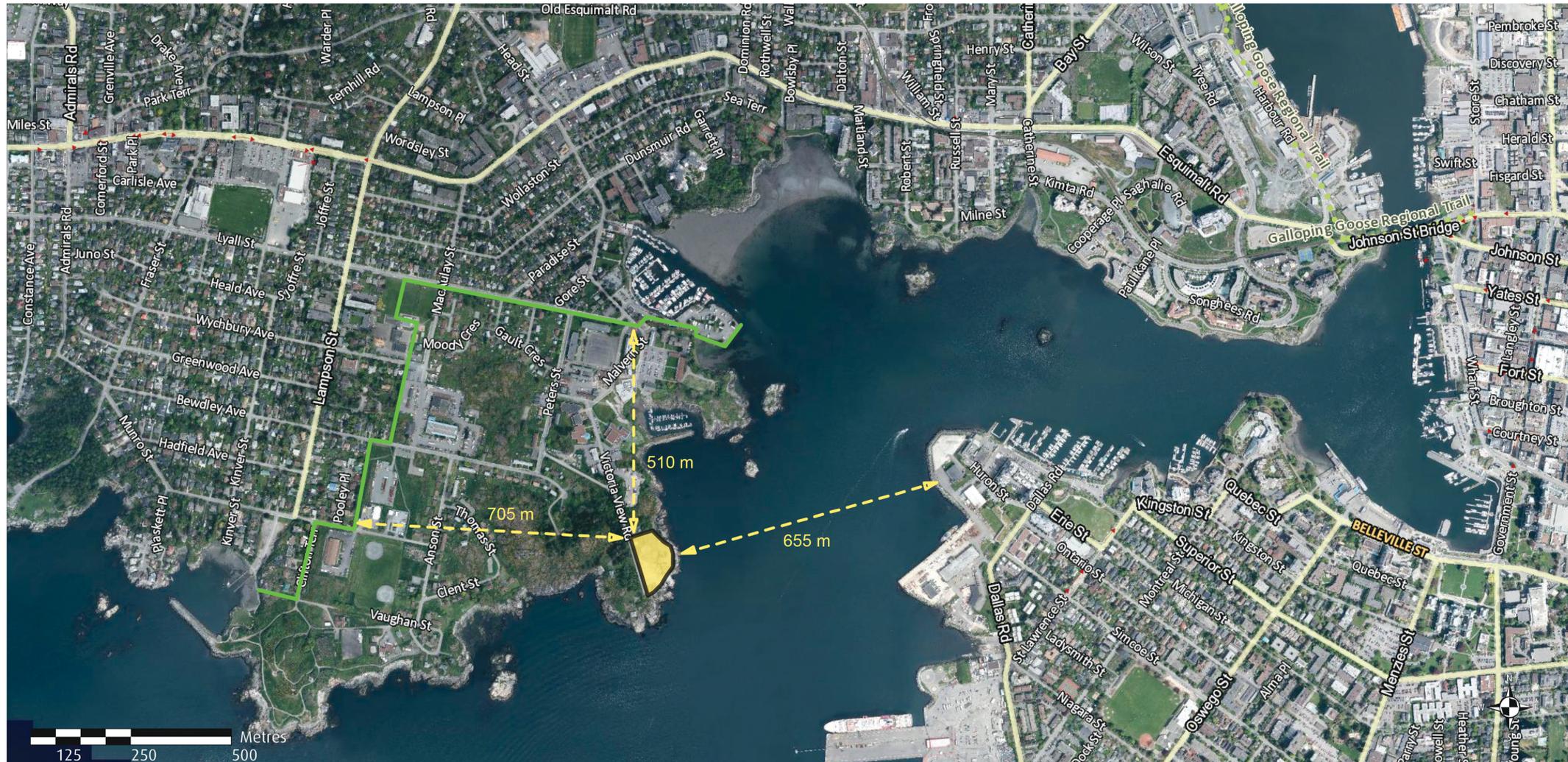
MCLOUGHLIN POINT IS IDENTIFIED AS THE SITE FOR THE TREATMENT PLANT IN THE CORE AREA LIQUID WASTE MANAGEMENT PLAN (LWMP) WHICH WAS APPROVED BY THE B.C. MINISTRY OF ENVIRONMENT IN 2010.



>> Proposed site at McLoughlin Point.

The McLoughlin Point site was considered suitable for a number of reasons:

- >> Zoned industrial and formerly used for a fuel storage facility.
- >> Vacant, no other uses/activities will be displaced to accommodate the Treatment Plant.
- >> Surrounded by Department of National Defence (DND) lands and located away from residential neighbourhoods (the nearest DND residence is located about 70 metres away and the nearest Township of Esquimalt residence about 500 metres away).
- >> A central location relative to the population it will serve.
- >> Located between, and at the same elevation as, the two main pumping facilities (Macaulay Point and Clover) that will collect untreated wastewater and deliver it to the site.
- >> Will allow for relatively easy construction of a marine outfall due to waterfront location.



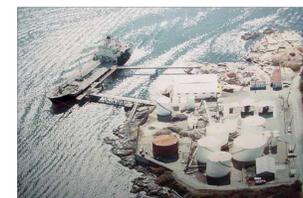
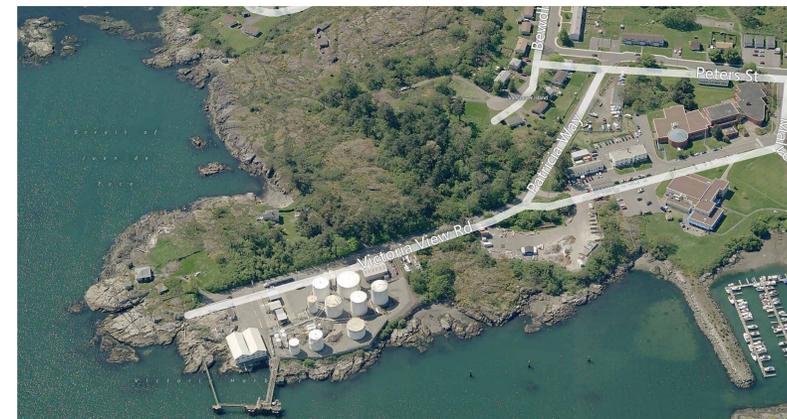
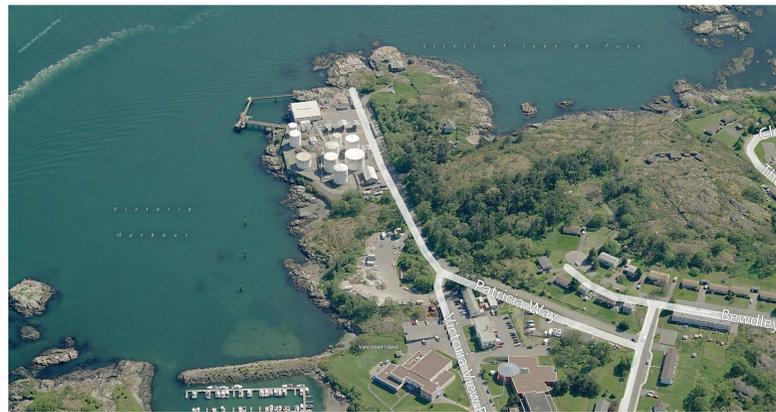
McLoughlin Point – Site Context

Core Area Wastewater Treatment Program

- Distance to site from nearest municipal boundaries
- DND/municipal Boundary

THE SITE HAS BEEN ZONED FOR INDUSTRIAL USE AND UNTIL RECENTLY WAS ACTIVELY USED AS AN OIL STORAGE FACILITY (ZONED I-3 – BULK PETROLEUM STORAGE).

Historic photos show how extensively the site was used for industrial activities, including docking facilities.



RISK ASSESSMENT

TSUNAMI

All available modeling of a tsunami surge from a large (magnitude 9) earthquake off the coast of Vancouver Island have been reviewed in order to develop a design that would withstand a tsunami. A 2.5 metre tsunami wave height was identified in an Emergency Planning study for an earthquake on the Cascadia fault. A 6.1 metre high tsunami wall will be established for the Treatment Plant. The height of the tsunami wall incorporates a safety factor and allows for storm surge and projected sea level rise due to climate change.

Critical electrical and mechanical equipment will be installed at elevations above 6.1 metres.

EARTHQUAKE

Vancouver Island is in the Cascadia Subduction Zone and is susceptible to major earthquakes. In response, current building codes require that facilities be designed to withstand at least a one in 2,000 year earthquake (magnitude 9). The Treatment Plant will be built to this standard.

FIRE PROTECTION

The Treatment Plant will be constructed using fire resistant and non-combustive materials. When in operation the Treatment Plant is considered a low fire hazard and will not be producing any flammable materials.

The designs of the Treatment Plant will include an internal roadway, nearby fire hydrants, and complete and easy access for emergency vehicles on the site.

QUESTIONS?

1. SUSTAINABILITY

- >> The treatment system will support environmental, social and economic sustainability, and be considered part of CRD climate action initiatives.
- >> Wastewater should be treated as a resource and, wherever possible and practical, provide opportunities for resource recovery and reuse.
- >> The McLoughlin Point facility should meet, or exceed the CRD's and the Township of Esquimalt's policies on sustainability and building excellence.

2. RESPECT FOR THE SITE

- >> Respect the site as a gateway location.
- >> Respect the natural shoreline.
- >> Respect the site context, and respond to the site and its surroundings.

3. PLAN FOR THE FUTURE

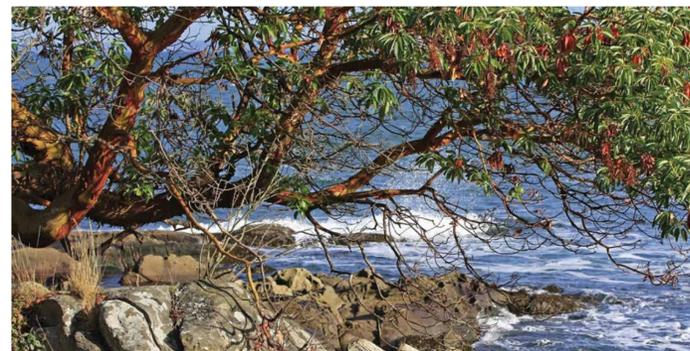
- >> Acknowledge and plan for major tsunami events, climate change effects, and earthquake/tsunami resiliency.
- >> Incorporate durable, long-lasting, and timeless materials, and design strategies.

4. LIVABILITY

- >> Provide a design solution that meets, or exceeds, Township of Esquimalt and City of Victoria noise bylaw requirements.
- >> Provide a design solution that restricts odours to a maximum of five (5) odour units, or less (not detectable by humans).
- >> Respect view impacts from all sides, and from above.

5. SENSE OF PRIDE

- >> Incorporate designs that ensure the highest standards of materials and workmanship, and are aesthetically pleasing.
- >> Incorporate public art into the design.

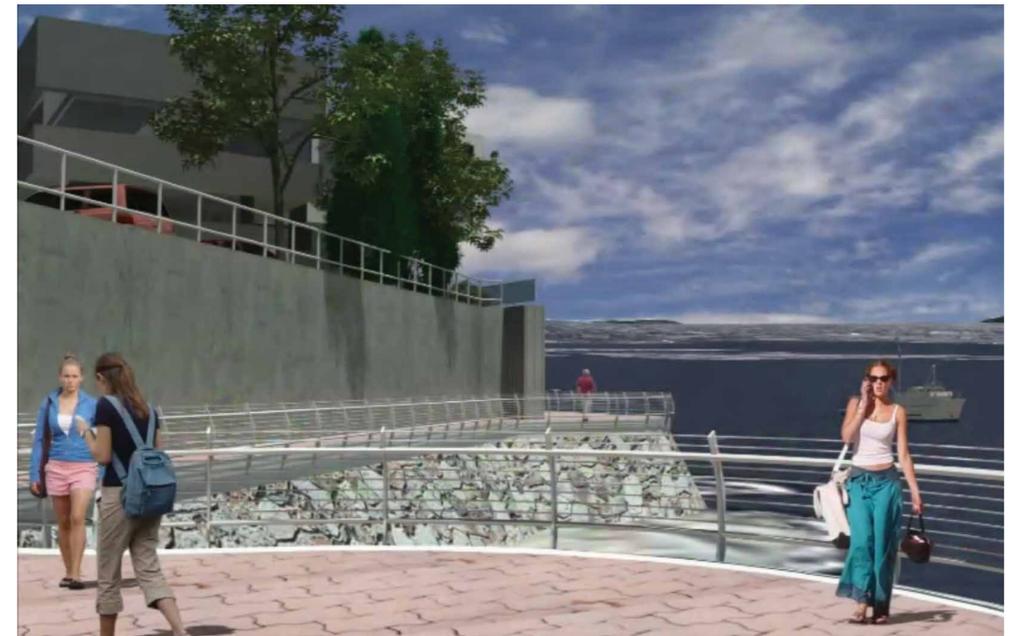


WHY DO YOU NEED TO REZONE THE SITE?

The McLoughlin Point site in the Township of Esquimalt was zoned for industrial use, which limited the use of the site as storage for bulk oil tanks, its historic use. In July 2013, Esquimalt Council amended their Official Community Plan and adopted a Zoning Bylaw that would permit a Wastewater Treatment Plant at McLoughlin Point. However, the Bylaw contained conditions and limitations that would prevent the CRD from meeting the commitments in the CRD's approved LWMP. As a result, a revised application has been submitted to the Township that consists of:

- >> A revised zoning bylaw
- >> Two agreements, a Host Community Impact 5-Year Agreement and a Community Impact Mitigation and Operating Agreement

The bylaw and the two agreements describe the zoning terms, the proposed amenities to be provided to the Township for hosting the Treatment Plant and mitigation measures to address impacts.



>> Final design will be completed by the successful proponent of the RFP. This is a generic representation of how the pedestrian path and observation point may look.

>> This is a massing model diagram which is a generic representation of how the Treatment Plant may fit into the McLoughlin site. It does not represent the final architectural design.



WHY DO YOU HAVE TO GO BACK TO ESQUIMALT COUNCIL AGAIN?

The CRD is presently conducting a competitive procurement process for the Treatment Plant at McLoughlin Point. The revised zoning bylaw was developed to address the design solutions of the three proponents who are responding to the Treatment Plant Request for Proposals (RFP). Because the procurement process legally requires confidentiality, the bylaw has to define height and setbacks that can accommodate all three proponent designs.

The designs proposed by the three proponents have been reviewed by the Esquimalt Design Review Committee. The Design Review Committee has indicated that all three proponent designs provided supportable design solutions in compliance with the Design Guidelines developed through a public process, approved by the Esquimalt Council and contained in the Official Community Plan.

The changes in the revised rezoning application requested by the CRD will enable the construction of a Treatment Plant that will meet the commitments in the CRD's approved Liquid Waste Management Plan (LWMP). Any of the three compliant designs will then be able to be constructed on the McLoughlin Point site, subject to a development permit from Esquimalt. These changes include:

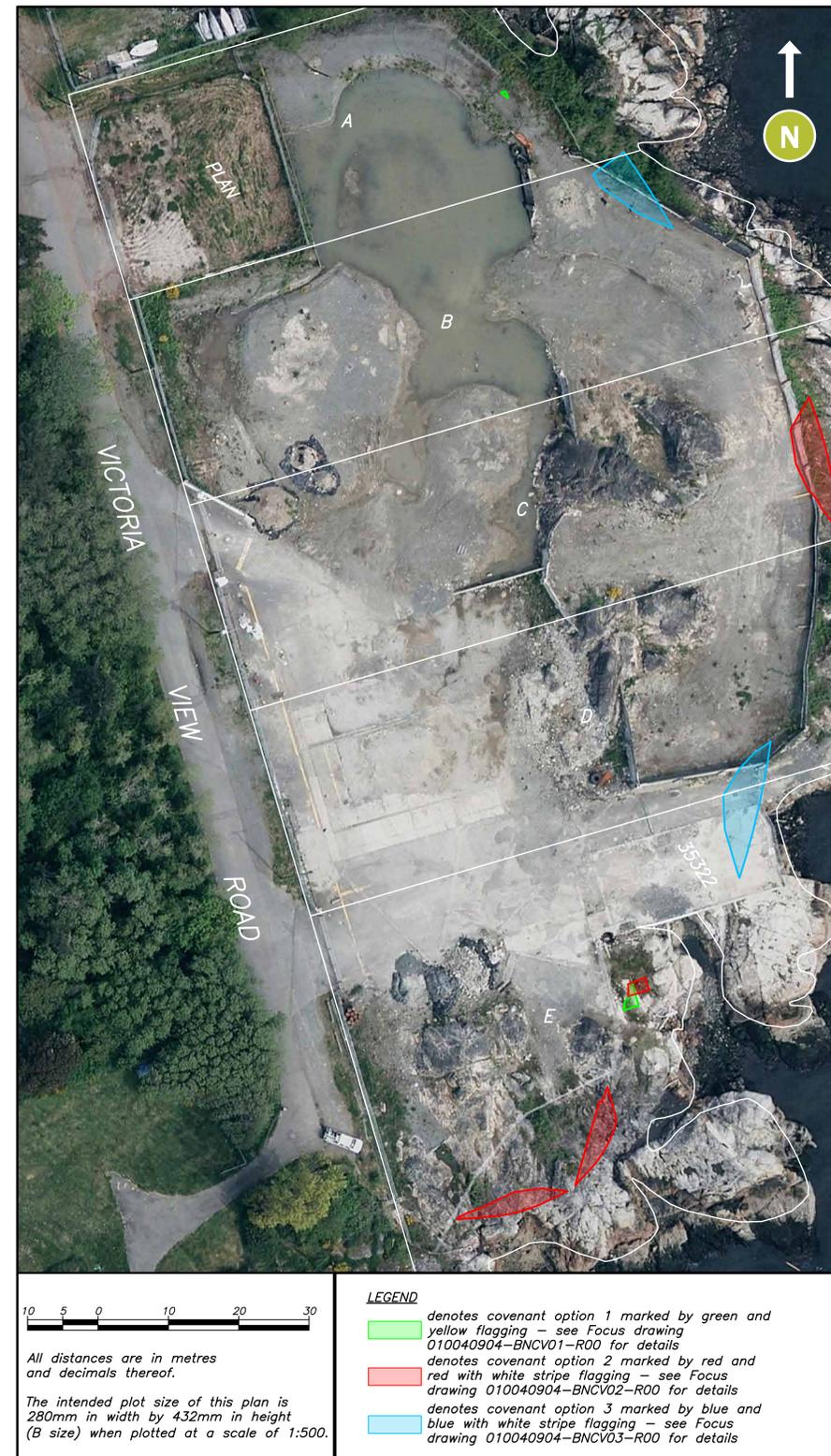
- >> Minor encroachments into the 7.5 metre setback from the high water mark
- >> Site coverage and building heights in setback zones established for the McLoughlin Point property
- >> Inclusion of two small parcels of land not previously rezoned

The current bylaw states that the Treatment Plant must include 7.5 metres of space between the building and the shoreline. All three designs have minor encroachments into that space due to the irregularity of the shoreline (less than four per cent encroachment into the setback zone).

The setback negotiated and supported by Esquimalt and CRD staff allowed limited encroachment into the 7.5 metre setback area not to exceed 10 per cent of the total area in the 7.5 metre zone.

Minor encroachments support:

- >> Optimal capacity on the site
- >> Optimal process efficiency
- >> Design innovation
- >> Diversity of technology solutions
- >> Architecturally significant design
- >> Least cost to taxpayers



WHAT'S IN IT FOR OUR COMMUNITY AS HOST OF THE FACILITY?

Some of the mitigation measures negotiated between the CRD and the Township of Esquimalt staff in the overall rezoning application package submitted by the CRD include:

- >> Payment of a Community Impact Mitigation Fee in the amount of \$55,000 per year, adjusted annually for inflation. This annual payment will continue as long as the wastewater treatment plant is in operation, unless Esquimalt elects to assume ownership of the District Energy System (Heat Loop) as described below.
- >> Provision of \$200,000 to the Township to undertake due diligence to investigate the viability of owning a District Energy System and to set up the administrative infrastructure to manage its own heat recovery utility.
- >> Subject to the outcome the investigations on the viability and advantages of using energy captured from the wastewater treatment process, the CRD will construct a District Energy System at an estimated cost of \$7.5 million.
- >> The CRD will design and install a walkway the length of the harbour side of the wastewater treatment facility which will include a public observation deck.
- >> The CRD will, subject to federal and provincial environmental approvals, construct a dock to permit public and emergency access to the public walkway.
- >> \$100,000 will be set aside to provide public art and historical interpretive signage.
- >> The CRD will provide \$950,000 for pathway and bikeway improvements along Lyall Street.
- >> The CRD will provide a meeting room and interpretive space for students and the public within the Treatment Plant.
- >> All road surfaces affected by construction will be returned to current or better condition.

IMPACT MITIGATION

THE TREATMENT PLANT WILL BE DESIGNED TO SUIT AN URBAN SETTING WITH DESIGN AND MITIGATION MEASURES THAT ADDRESS AESTHETICS, NOISE AND ODOUR WHICH WILL BE IN PLACE FOR BOTH CONSTRUCTION AND OPERATION OF THE PLANT.

CONSTRUCTION

It is anticipated that construction on the Treatment Plant will begin in 2014 and be completed in 2018. All construction activities will comply with the applicable Township of Esquimalt bylaw for hours of work and noise levels. Work will typically occur on weekdays from 7 a.m. to 6 p.m.

A traffic management plan will identify measures to mitigate traffic effects on surrounding neighbourhoods, maintain safety, maintain access to nearby residences and reduce fuel use and emissions. Fencing and warning signs will be installed around construction areas. When required, flag persons will direct vehicles and pedestrians around construction areas.

Other construction mitigation measures include:

- >> A construction plan that includes the use of barges to remove excavated materials and bring aggregates and concrete to the site.

- >> Coordination with the nearby Macaulay Elementary School staff and Parent Advisory Council and the implementation of crossing guards during school hours.
- >> A Community Liaison Committee involving representatives from neighbourhood groups, schools, Esquimalt, the contractor and the CRD.

OPERATION

During normal operations noise levels will not be audible to Esquimalt residents. Employees who are currently working out of Macaulay Pump Station will be relocated to the McLoughlin facility.

ODOUR

Odour control systems will reduce odour emissions to a level not detectable by humans at the property line. The plant specifications in the Request for Proposals (RFP) require the design of a comprehensive odour control system to contain and suppress odour. These systems have been successfully operating at other CRD facilities, including the Currie Road and Trent pump stations.

WHAT ELSE SHOULD BE CONSIDERED?

THE TREATMENT PLANT AT MCLOUGHLIN POINT WILL BE CONSTRUCTED THROUGH A “DESIGN-BUILD-FINANCE” PROCESS, IN WHICH THE DESIGN, CONSTRUCTION, AND PARTIAL FINANCING SERVICES ARE PROVIDED BY THE SAME CONTRACTOR.

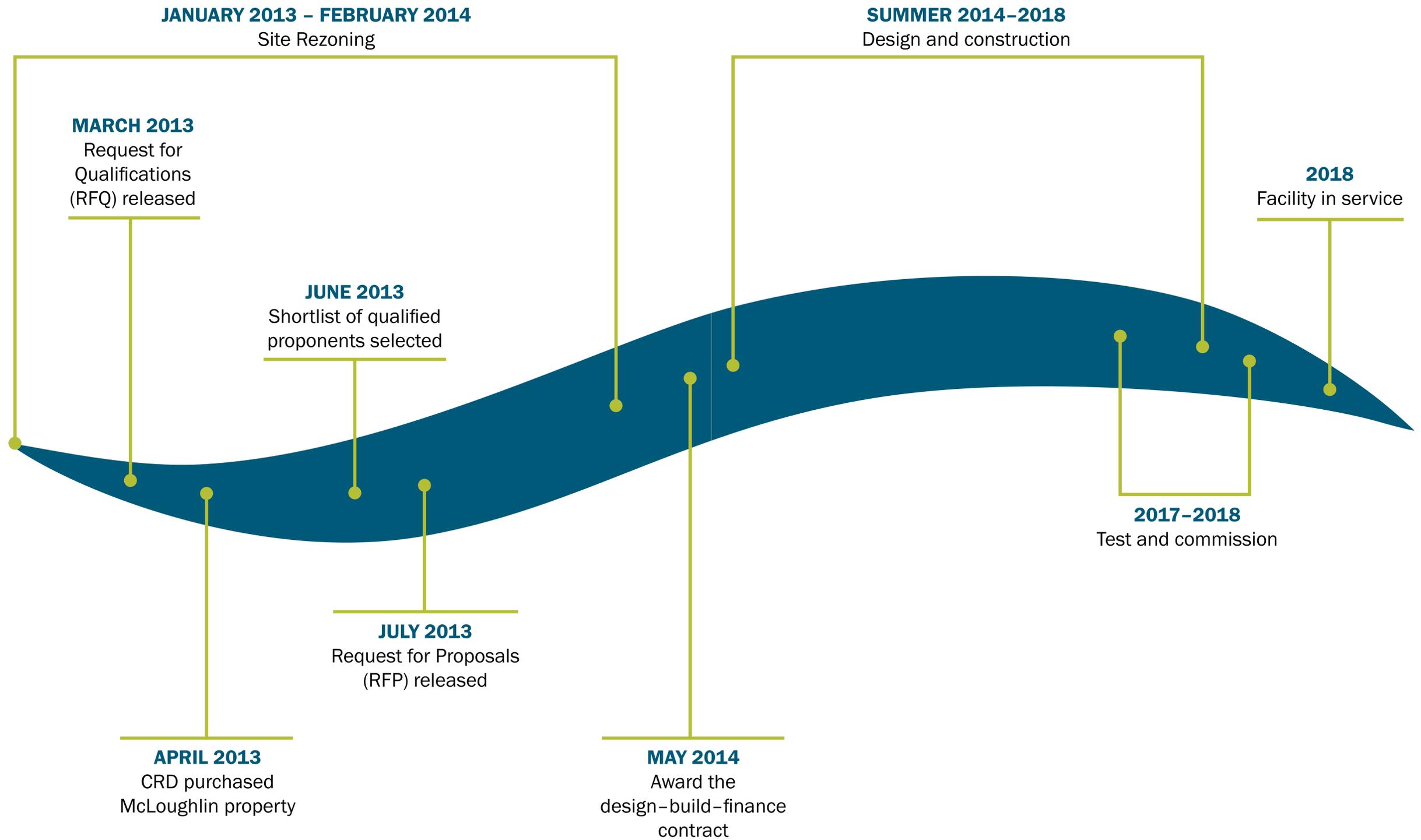
The Treatment Plant will be operated by the CRD.

The selected contractor will create a building design that adheres to the Design Guidelines approved by the Township of Esquimalt.

The Seaterra Program Commission oversaw the development of the procurement plan for the plant’s design-build-finance contract. The Commission shortlisted three proponents to submit full proposals following a comprehensive Request for Qualifications (RFQ) process in spring 2013.

The full proposals are due in spring 2014, after which the Commission will review and evaluate the submitted proposals prior to awarding the contract. Once the design-build-finance contract is awarded, the selected proponent is expected to commence construction on the wastewater treatment facility.





MYTHS AND FACTS

MYTH:

A distributed tertiary wastewater treatment system will be cheaper, easier and more effective and the CRD never properly examined this option when choosing the current Wastewater Treatment Plan.

FACT:

- >> The CRD completed a comprehensive analysis of a decentralized approach to wastewater treatment in 2008 - 2009.
- >> Three options for distributed tertiary treatment were initially explored with four, seven and 11 treatment plants.
- >> The 11 treatment plant option capital costs = \$2 billion. Annual operating costs = \$33 million. Both over 225 per cent more than the current plan.
- >> Each option was examined to develop detailed capital and operating costs and identify potential revenues.
- >> In 2009 an independent Peer Review Team concluded a centralized treatment plant would result in the lowest capital and operating cost option for CRD.

MYTH:

You are not even treating the wastewater to remove all the toxins and pharmaceuticals. You're still dumping 'dirty' water into the ocean.

FACT:

- >> The CRD will be providing preliminary, primary and secondary level wastewater treatment for the core area allowing us to eliminate dumping raw sewage into the ocean.
- >> Secondary treatment is the federal standard for marine discharge.
- >> Secondary treatment is safe and does not pose a risk to public health.
- >> No treatment eliminates ALL the trace contaminants (pharmaceuticals, personal care products, etc.)
- >> Levels of contaminants are measured in parts per billion or parts per trillion—these are significantly lower numbers than can be found in your common cleaning or beauty products that you use in your home today.
- >> The Treatment Plant at McLoughlin Point will allow for the addition of UV disinfection and advanced oxidization.

The CRD has been conducting a public involvement program specific to wastewater management since 2006. The CRD created videos, media kits, newsletters, website updates and mall displays and used paid advertising to inform the public and receive input on how the plan should move forward.

The CRD held over 160 public and stakeholder meetings, open houses and consultation sessions, including:

- >> In 2006, the CRD conducted Sewage Forums in Victoria, Esquimalt and Colwood.
- >> In 2007, stakeholder and community association meetings were held and a telephone survey was used to gather feedback on wastewater treatment from Core Area Residents.
- >> In 2008, open houses were held across the CRD core area municipalities with presentations describing the project background and outlining the steps forward in developing the Liquid Waste Management Plan (LWMP).
- >> In 2009, the CRD held Community Dialogue Sessions and hosted Speaker Symposiums focusing on clarifying the public's understanding of wastewater and wastewater treatment.
- >> In 2010, after hosting more open houses and public consultation sessions throughout the core area, the CRD submitted the LWMP Amendment No. 8 to the Ministry of Environment. Once the LWMP Amendment No. 8 was approved the main focus surrounded updating the business plan with the centralized system approach. The final plan totalling \$783 million was approved for funding by the Province in February 2012.

The Seatterra Program is now in the implementation and construction phase of the program. The major siting decisions have been made and communication during this phase is focused on affected neighborhoods to inform and engage local residents on the planned facilities.

The opportunities for consultation during this phase of the Program will come in the form of construction and impact reduction measures around noise, safety, air quality, traffic etc. In addition, there will be an opportunity for consultation during the design phase of the major infrastructure projects as is the case with the Design Guidelines for the Treatment Plant at McLoughlin Point.

RECENT COMMUNITY ENGAGEMENT INCLUDES:

Wastewater Treatment Plant at McLoughlin Point:

- >> April to June 2013:
Community Meetings and Open Houses for Esquimalt Residents

Craigflower Pump Station:

- >> September 2013:
Esquimalt and Songhees Nations ground blessing ceremony

Clover Pump Station and Conveyance Pipe:

- >> October to December 2013:
Community meetings for Fairfield Gonzales and James Bay
- >> January 2014:
Open House for Fairfield Gonzales and James Bay

Hartland Resource Recovery Centre:

- >> November to December 2013:
Community meetings for Willis Point, Prospect Lake and Highlands

Seatterra Program staff are committed to ensuring that residents and businesses are informed about the Treatment Plant at McLoughlin Point as it moves through the planning stage and into design and construction stages. Local residents will be notified about information sessions for the design and construction, as well as construction impacts and mitigation.

A Community Liaison Committee will be established once a successful proponent has been selected to ensure community concerns are addressed during construction and operation of the Treatment Plant.

Local residents will have the opportunity to provide input and feedback to inform facility planning.

- >> Contact Seatterra Program staff with questions or concerns
- >> Learn more about the project at community meetings or online at www.seatterraprogram.ca

REZONING PUBLIC HEARING

You are invited to take part in the Township of Esquimalt public hearing of the rezoning application

>> **Date:** Tuesday, February 18, 2014

>> **Time:** 7:00 p.m.

>> **Location:** Esquimalt Recreation Centre Gymnasium
(across from the swimming pool),
527 Fraser Street, Esquimalt

Any questions about the public hearing process can be directed to Anja Nurvo at the Township of Esquimalt, **250.414.7135**.

Additional information about the Treatment Plant at McLoughlin Point is available at www.seatterraprogram.ca

QUESTIONS?

CONTACT INFORMATION

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