

Resource Recovery Centre (RRC) at Hartland Landfill

### MCLOUGHLIN POINT

As you may know, on April 7, 2014, Esquimalt council voted not to approve the Capital Regional District's (CRD's) request for changes to the zoning of the McLoughlin Point site for the Wastewater Treatment Plant. This decision does not change the requirement for the CRD to comply with provincial and federal regulations that stipulate the CRD must provide secondary sewage treatment for Core Area municipalities prior to the federal deadline of 2020.

The CRD Board will determine the next steps concerning the siting of the Wastewater Treatment Plant at McLoughlin Point. Until directed otherwise by the CRD Board, the Seaterra Program will continue with the implementation of the approved Liquid Waste Management Plan, including the development of the Residual Solids Conveyance Pipe and Pump Stations. Program construction is already underway and procurement for several other facilities is ongoing. We will provide any updates on our website as we move forward.

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

- Residual Solids Conveyance Pipe
- Conveyance Pipe
- Marine Outfall Pipe
- Existing Sewer Infrastructure

Wastewater Treatment Plant at McLoughlin

Arbutus Road Attenuation Tank

Currie Road Pump Station Upgrades

Currie Conveyance Pipe

Trent Siphon/ECI Extension

Clover Pump Station

Clover Conveyance Pipe

Macaulay Point Pump Station

Macaulay Point Conveyance Pipe

Craigflower Pump Station

# 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.

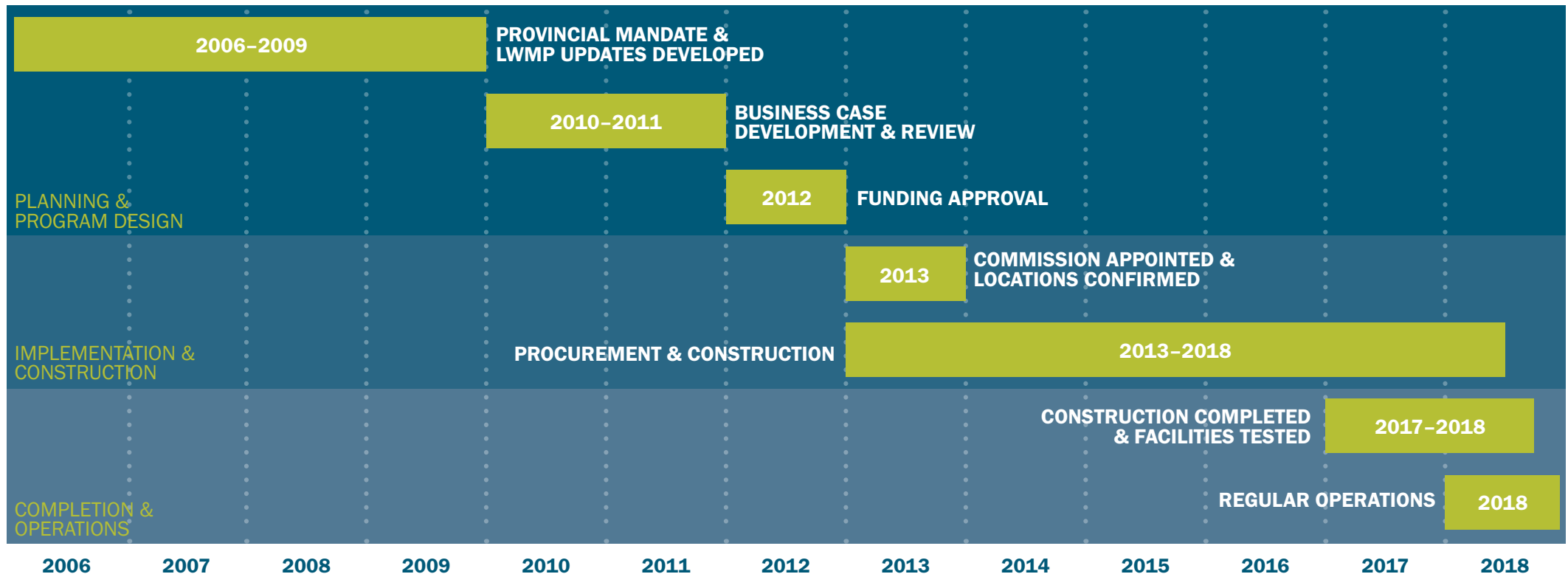
**Federal contribution:** \$253.4 million

- >> Building Canada Fund
- >> Green Infrastructure Fund
- >> P3 Canada

**Provincial contribution:** \$248 million

**CRD contribution:** \$281.3 million

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



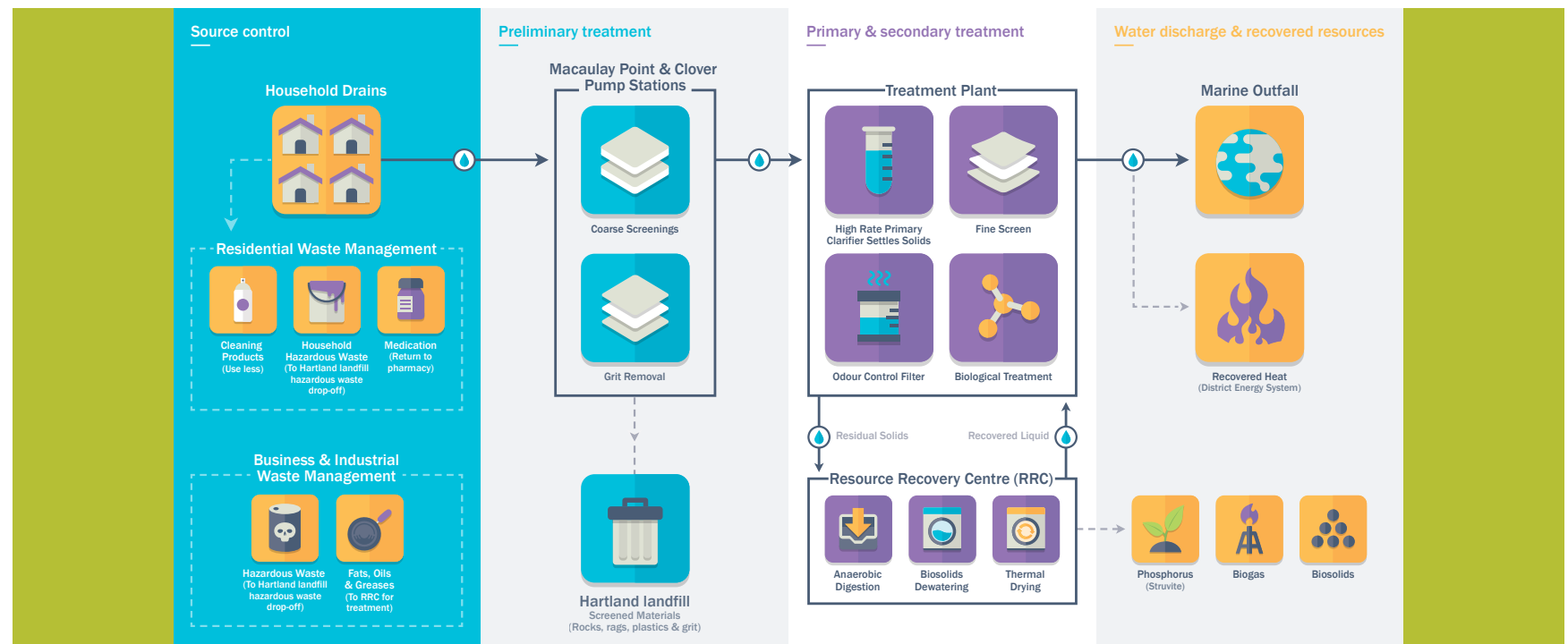
Wastewater refers to liquid waste collected from homes, businesses, industries and institutions via a system of sewer pipes. Wastewater treatment includes a number of physical and biological processes to significantly reduce the impact of wastewater discharges to the environment. The Seaterra Program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

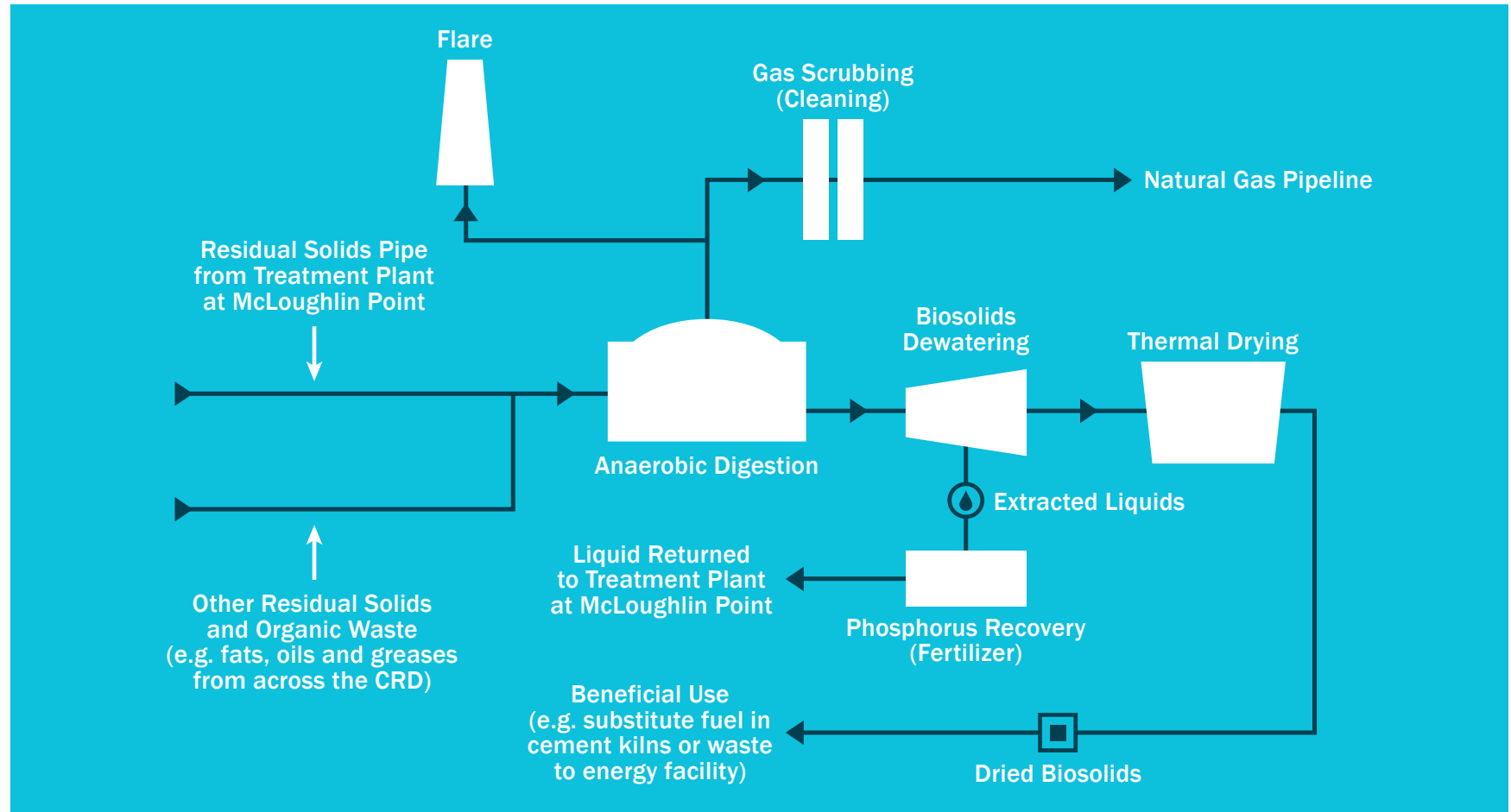
>> **Secondary treatment:** Secondary (or biological) treatment involves the removal of dissolved oxygen-demanding organic substances and suspended solids. The treated effluent is discharged through a marine outfall.

>> 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.

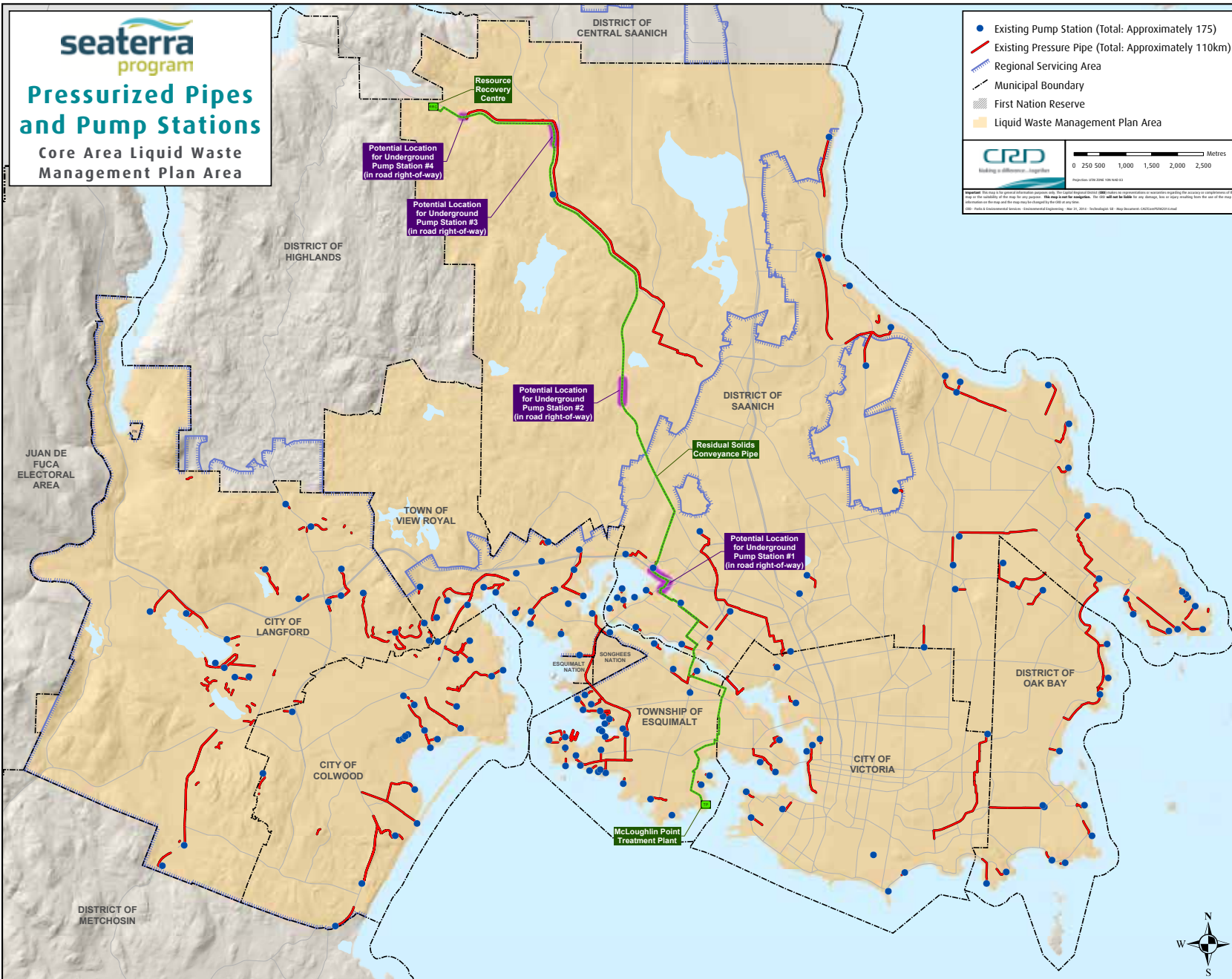


## RESIDUAL SOLIDS TREATMENT AT RESOURCE RECOVERY CENTRE



Biosolids are treated wastewater residual solids, which must be used in accordance with regulatory requirements. Biosolids are comprised mostly of water, nutrients and organic matter (also called humus).

Once operating, the Resource Recovery Centre will receive residual solids from across the CRD for processing into biosolids. The approved plan for the Seaterra Program is to produce biosolids for a beneficial use. Biosolids may be temporarily stored on site in the landfill, exported as a substitute fuel or used in a waste to energy facility.



## PIPES AND PUMPS ARE A COMMON METHOD OF TRANSPORTING RESIDUAL SOLIDS. FOR EXAMPLE:

### National

>> Edmonton: *digested biosolids pipe* - 12km

### North America

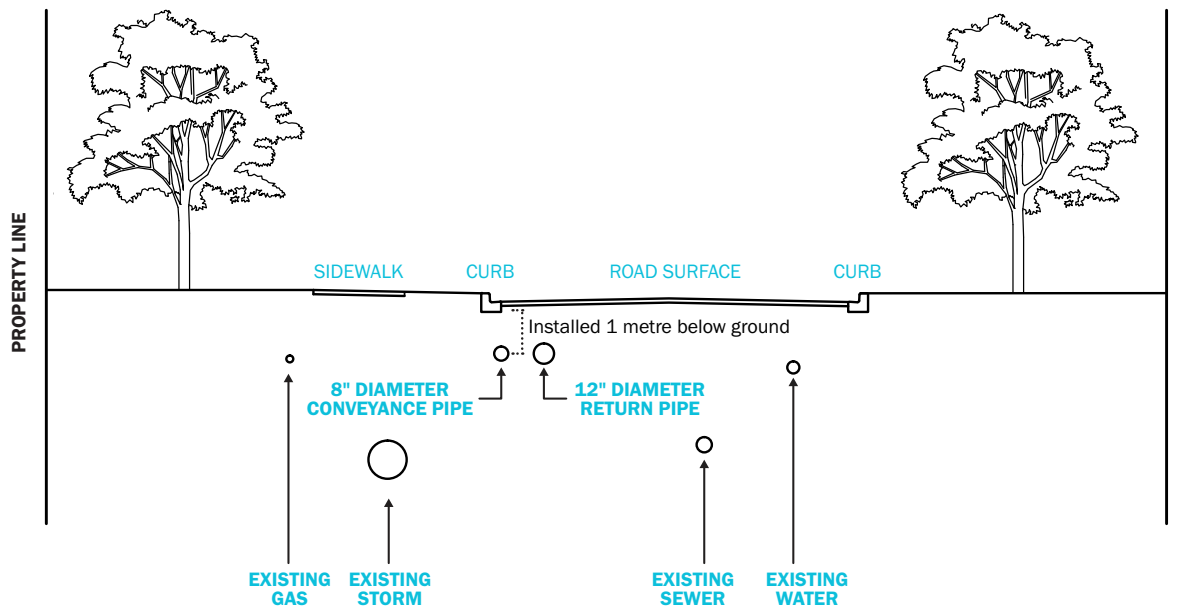
- >> McAlpine Creek, NC: *residual solids pipe* - 12km
- >> San Diego, CA: *digested biosolids pipe* - 27km;  
*residual solids pipe* - 8km
- >> Colorado Springs, CO: *residual solids pipe* - 29km

### International

- >> Estoril, Spain: *residual solids pipe* - 4km
- >> Palma, Spain: *residual solids pipe* - 10km

## DID YOU KNOW?

There are over 175 pump stations and 110 kilometres of existing sanitary sewer pipe in the Core Area similar to the proposed Residual Solids Conveyance Pipe. The pump stations and pipes are located in every municipality in the Core Area and transport wastewater to the regional collection system.



**TYPICAL RESIDENTIAL STREET SECTION**

**THE RESIDUAL SOLIDS CONVEYANCE PIPE WILL CONVEY RESIDUAL SOLIDS REMOVED AT THE WASTEWATER TREATMENT PLANT AT MCLOUGHLIN POINT TO THE RESOURCE RECOVERY CENTRE (RRC) AT HARTLAND LANDFILL.**

The Residual Solids Conveyance Pipe will transport the residual solids – made up of two per cent solids (98 per cent water), in an underground 8-inch diameter, pressurized pipe to the RRC for treatment. A second underground return line (installed in the same, common trench), will transport extracted water from the RRC back to the existing regional sewer system at Marigold Pump Station. The return line will also be used to accommodate leachate from the landfill to provide redundancy and better reliability for this service.

All work will be completed within existing road right-of-ways. This includes all watercourse crossings where the residual solids pipe will cross over top of existing culverts or hang underneath existing bridges. A double-walled pipe may be used at critical watercourse crossings for added protection.



>> Typical twin-pipe common-trench installation.



>> Pipe installation on Lambourn Drive.



>> Trench backfilled with gravel prior to final restoration.



>> A sewer pipe crossing on Admirals Road Bridge.

## UP TO FOUR PUMP STATIONS WILL BE CONSTRUCTED TO MOVE THE RESIDUAL SOLIDS UP TO THE RESOURCE RECOVERY CENTRE.

Pump stations will be constructed in the road right-of-ways and be located mostly underground. Some small above ground components will be required, including a control kiosk and standby generator.

The exact location of the pump stations is still to be determined, but will be located in the vicinity of:

- >> Grange/Portage Road at the Trans-Canada Highway
- >> Interurban Road near to the BC Hydro Substation
- >> Wallace Road at West Saanich Road
- >> Willis Point Road across from Hartland Landfill

### Key Considerations for the Pump Station Locations:

- >> Must meet technical requirements for pumping head pressure, around 700-850 kPa/100-120 psi (pounds/square inch)
- >> Must be located within existing road right-of-ways (no acquisition of private property)
- >> Where possible, located in low visual impact areas (similar distance from residential properties as other typical pump stations)
- >> Must be close to a power supply
- >> Must have good operational access (easy to service and maintain throughout the year)

### Existing Municipal Pump Stations:



>> Uganda Ave. Pump Station

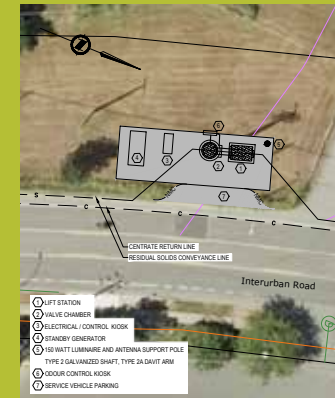


>> Cooperage Place Pump Station (above and right)



>> Lampson Street Pump Station

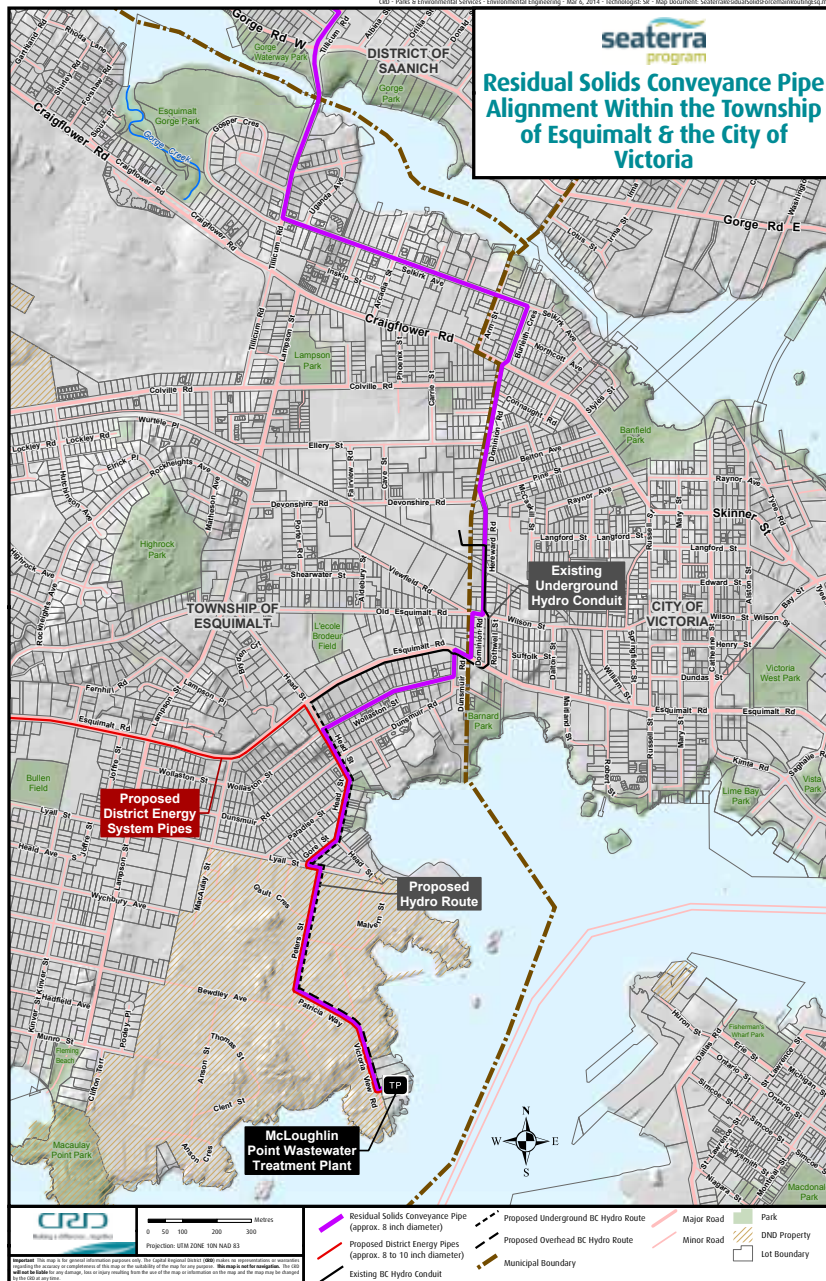
### Potential Pump Stations:



>> Interurban Site Plan



>> Willis Point Road Pump Station



## THE SEATERRA PROGRAM WORKED WITH MUNICIPAL STAFF IN ESQUIMALT AND VICTORIA TO REVIEW THE ROUTE FOR THE RESIDUAL SOLIDS CONVEYANCE PIPE.

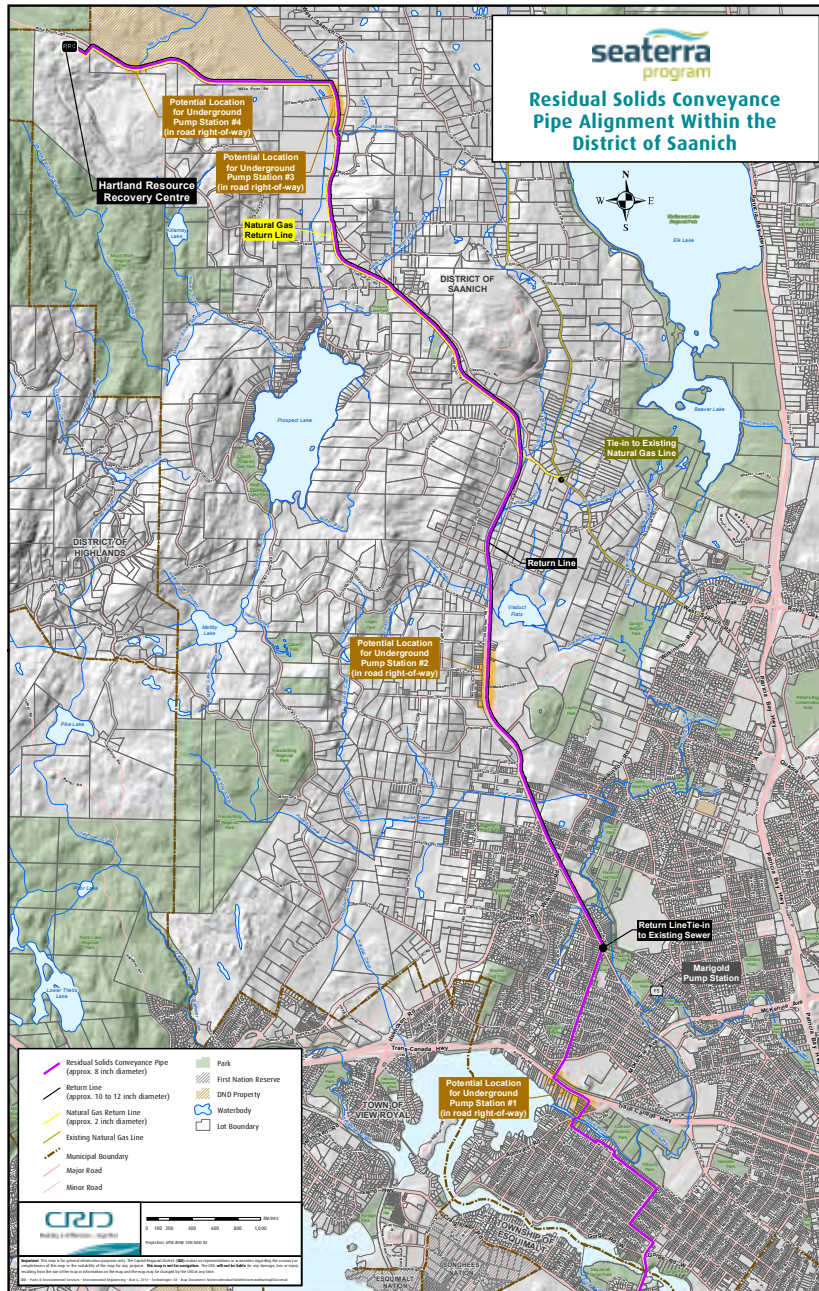
The selected route took into consideration technical, environmental, social and economic impacts, including:

- >> Stay within existing road right-of-ways (no private property acquisition).
- >> Use common corridor for proposed multiple utilities (ie. watermains, BC Hydro, gas, District Energy Pipes, etc.) so fewer streets are impacted.
- >> Where possible, avoid busy commuter routes along Lyall, Lampson, Esquimalt, and Craigflower Roads (less impact with idling cars, bus delays, cyclist safety, etc.).
- >> Where possible, use less congested roads to increase production rates (less time to complete the work).

- >> Avoid Macaulay Elementary and L'Ecole Victor Brodeur Schools.
- >> Avoid pumping up to the top of the hill on Lampson which reduces pressure in that section of pipe and optimizes the number and location of pump stations.
- >> Minimize rock removal area at top of Head and Lampson Streets.
- >> Avoid at grade railway crossing on Lampson Street (would result in significant disturbance to Lampson Street and/or the railway). Hereward Street crosses underneath the railway.
- >> Where possible, avoid newly paved roads (ie. Dunsmuir and Craigflower Roads).

## QUESTIONS?





## THE SEATERRA PROGRAM WORKED WITH MUNICIPAL STAFF IN SAANICH TO REVIEW THE ROUTE FOR THE RESIDUAL SOLIDS CONVEYANCE PIPE.

The selected route took into consideration technical, environmental, social and economic impacts, including:

- >> Stay within existing road right-of-ways (no private property acquisition).
- >> Where possible, avoid busy commuter routes along Tillicum, Burnside, and West Saanich Roads (less impact with idling cars, bus delays, cyclist safety, etc.).
- >> Where possible, use less congested roads to increase production rates (less time to complete the work).
- >> Potential to utilize old watermain alignment along Grange Road or combine work with new watermain at the same time (ie. upgrades already planned for Grange).

>> Avoid congested high-risk utility areas along Burnside/Interurban in close proximity to Colquitz Creek, which already hosts:

- > Two large CRD watermains
  - > One large CRD pressure sewer
  - > High-pressure gas main
  - > BC Hydro oil-filled conduit
  - > An old bridge crossing of Colquitz Creek near McKenzie
- >> Look for opportunities to improve roads and trails (ie. Interurban Trial – multi-use surfacing).

## QUESTIONS?

## ENVIRONMENTAL MANAGEMENT DURING CONSTRUCTION

An Environmental Management Plan (EMP) will be prepared to mitigate any potential environmental impacts that may be encountered along the alignment during construction. The EMP will address the following:

- >> Sediment and erosion control
- >> Stormwater and groundwater drainage control
- >> Air quality and dust control
- >> Soil and Gravel Handling
- >> Solid Waste Handling
- >> Deleterious Products (ie. safe storage and handling of fuels, lubricants, etc.)
- >> Spill Prevention and Emergency Response during construction
- >> Safe working procedures when working around other utilities

All work will be completed within existing road right-of-ways. This includes all watercourse crossings where the residual solids pipe will cross over top of existing culverts or hang underneath existing bridges.

## EMERGENCY PREPAREDNESS

The Residual Solids Conveyance Pipe will be operated and continuously monitored by the CRD including a computerized monitoring system and trained staff to respond to any issues. A leak detection system will automatically shut down the conveyance system should any alarms be triggered.

Regular inspections of the system will be conducted and the pipe and pump stations will be maintained and upgraded as required.

**The first and foremost goal is to prevent spills**, but should an incident occur, an Emergency Response Plan will be immediately implemented and will include:

- >> Automatic shutdown of the pipeline and pump stations
- >> Isolation of the incident area
- >> Notification of appropriate agencies, stakeholders, and neighbouring residents
- >> Contain the incident area
- >> Immediate clean-up of the area

- >> Work closely with landowners, regulatory agencies, and other concerned stakeholders to develop any necessary remediation and monitoring plans

CRD operations staff will receive regular training and will conduct emergency response drills so that they are prepared to immediately respond to any incidents.



- >> A professional environmental monitor will oversee the work to ensure compliance with the Environmental Management Plan.



- >> Additional protection such as a double-walled pipe or extra thick pipe will be used at critical watercourse crossings for added protection.

Projects of this size and complexity will create some construction-related impacts. The Seatterra Program will work with municipal staff and the public to ensure that impacts are kept to a minimum and opportunities are identified for enhancement and mitigation. The Seatterra Program will follow municipal standards for returning roadways to the same, or better condition as before construction.



## TRAFFIC AND SAFETY

The Residual Solids Conveyance Pipe will be installed approximately one metre below ground similar to existing municipal sewers or watermains along existing road right-of-ways.

A Traffic Management Plan will address traffic disruptions during construction. No roads will be closed, but single lane alternating traffic may be required in some sections.

Fencing and warning signs will be installed as required around the conveyance pipe construction zones and traffic control personnel will direct vehicles and pedestrians around construction areas where required.

A Safety Inspector will be used to monitor the work on a regular basis to ensure compliance with the Traffic and Safety Management Plans.



>> Installation of a conveyance pipe in Esquimalt.



## ACCESS TO ROADS AND DRIVEWAYS

Access to local roads will be maintained for local traffic at all times. Access to driveways will also be maintained except during short periods when the work is advancing directly in front of a driveway.

Advance notice will be provided to residences and businesses prior to construction activities. Once construction work advances past a driveway, the driveway will be backfilled with gravel so that access can be re-established and finally repaved once construction is complete.

In most cases, driveway access will be re-established by the end of each working day.

## QUESTIONS?

## NOISE

Construction activities will comply with the local noise bylaw for hours of work.

No work will be planned for Sundays or holidays.

Once a contractor has been hired to undertake the work, they will be required to provide more details on the proposed work schedule, which will be communicated to the public.



>> Installation of a conveyance pipe in Port Hardy.

## CONSTRUCTION DURATION

The conveyance pipe will be installed in segments to minimize impact to residents and traffic.

Usually about 50 to 100 metres of this type of pipe can be installed per day depending on ground conditions and existing utilities. This roughly equates to one city block of pipe being installed and backfilled per day.

Construction is scheduled to commence in 2015 and will be completed by the end of 2017.

The backfilled gravel surface will enable cars to immediately drive over-top of the surface, and once there is a sufficient length backfilled the trench surface will then be permanently restored to original or better condition.

## WHAT ELSE SHOULD BE CONSIDERED?

## ONCE CONSTRUCTION IS COMPLETE, THERE WILL BE LITTLE EVIDENCE OF THE CONVEYANCE PIPE AT THE GROUND SURFACE.

The Seatererra Program will follow CRD and municipal standards for returning roadways to the same, or better condition as before construction. When the exact alignment, (within each road corridor), has been designed, the specific restoration options will be reviewed with each municipality.

The trench that is required to install the conveyance pipe is roughly 1 metre deep and quite narrow (0.6m for one pipe and 0.9m for two pipes).

The trench will be reinstated and then inspected after some time (usually around 3 months) to see if any settlement has occurred. If settlement has occurred, those areas will be repaired. In areas where the reinstatement is pavement, the new pavement is typically black, but over time will turn grey and blend in with the adjacent pavement.

Restoration standards will comply with the Master Municipal Specifications, which are used by all B.C. municipalities.

## INTERURBAN TRAIL

A portion of the Residual Solids Conveyance Pipe will run along Interurban Trail from Interurban Road to Wallace Drive in Saanich. There is an opportunity to restore the 3.5 km Interurban Trail with different surfacing materials to accommodate the variety of groups who use the trail.

The restoration options could include:

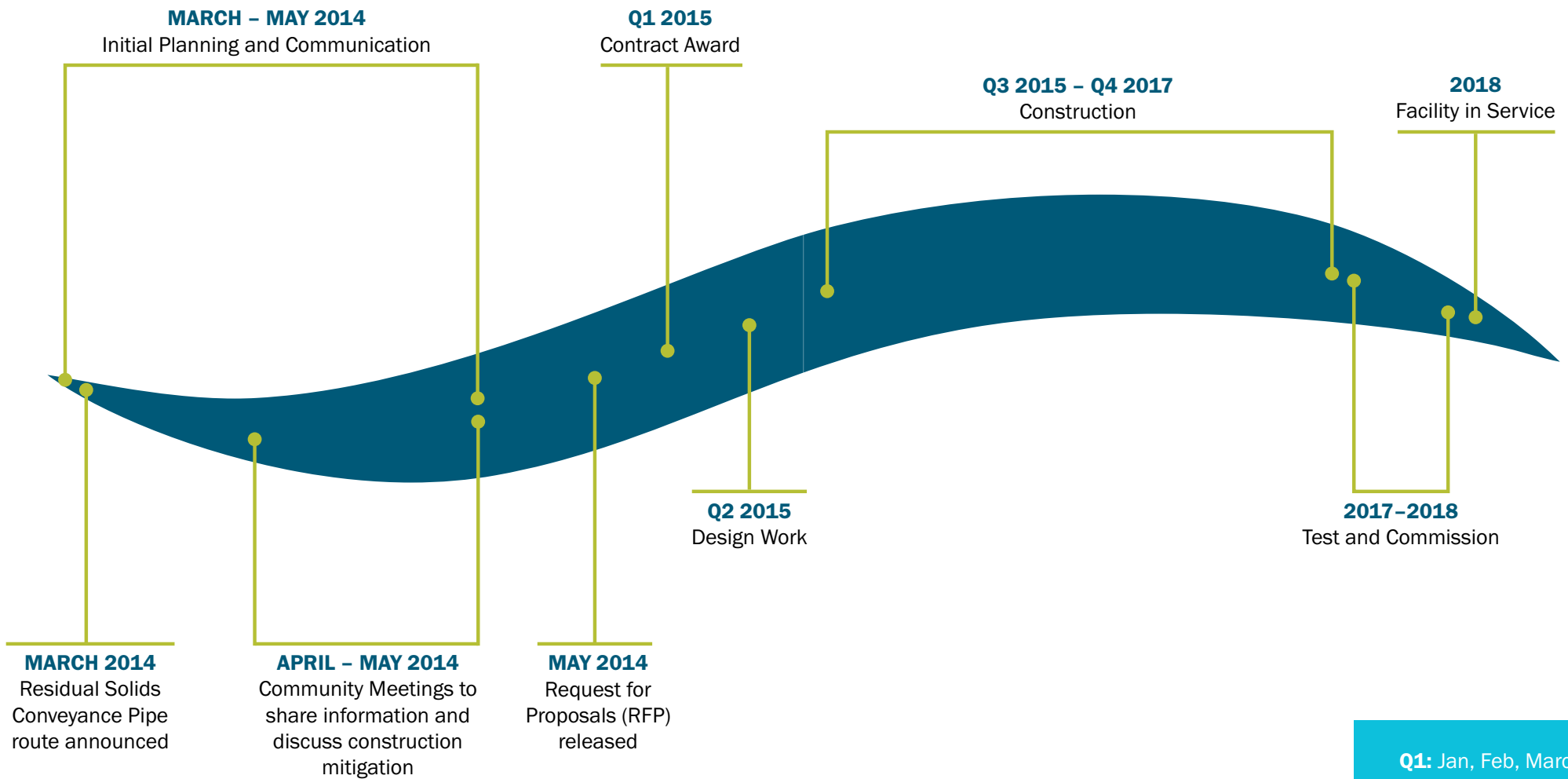
- >> Road gravel
- >> Fine gravel  
(ie. rock dust, similar to limestone)
- >> Pavement

Seatererra Program staff will work with Saanich community groups, trail users and municipal staff to discuss preferred restoration options for the Interurban Trail.



>> Potential restoration options for Interurban Trail could include road gravel, fine gravel, pavement, or a combination.

**WHAT ELSE SHOULD BE CONSIDERED?**



**Q1:** Jan, Feb, March  
**Q2:** April, May, June  
**Q3:** July, Aug, Sept  
**Q4:** Oct, Nov, Dec

The Seaterra Program is engaging impacted communities well before construction, to provide information on the project and receive community feedback to help identify concerns and potential mitigation options.

Feedback gathered from the community will help inform the design and mitigation options.

- >> Fill out a feedback form
- >> Contact Seaterra Program staff with questions or concerns
- >> Learn more about the project at community meetings or online at [www.seaterraprogram.ca](http://www.seaterraprogram.ca)

## QUESTIONS?

## CONTACT INFORMATION

**Kristin Quayle**

*Communications Coordinator*

CRD Seaterra Program

[kquayle@crd.bc.ca](mailto:kquayle@crd.bc.ca)

**T:** 250.360.3623