Myths and Facts

On April 7, 2014, Esquimalt council voted not to approve the 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 This includes construction already underway, procurement processes for several facilities and community engagement efforts. We will provide any updates at Open Houses and on the Seaterra website as we move forward.

Myth: Building multiple plants similar in size to the $33 million Blaine wastewater treatment is more cost effective than the Seaterra Program.

Fact: The Blaine wastewater treatment plant, with a half-acre footprint on a one-acre site, has an average dry weather flow capacity of 3.4 million litres per day (MLD). This represents about three per cent of the treatment capacity planned for the Seaterra Program.

The CRD would need 32 one acre parcels of land to construct 32 wastewater treatment plants similar in size to Blaine, costing at least $1.06 billion. This amount does not include other costs estimated in the Seaterra Program budget such as land, interest during construction, administration and engineering and it does not include effluent disposal or residual solids treatment. Therefore, the total cost of implementing a plan using multiple wastewater treatment plants similar to Blaine to provide the same treatment capacity as the Seaterra Program would be more than $1.5 billion.

These 32 plants will require at least 48 more fulltime employees to operate compared to the Seaterra Program, resulting in additional operating costs of approximately $5m per year.

Myth: The Seaterra Program will not provide a high level of treatment for our wastewater.

Fact: The Seaterra Program will provide preliminary, primary and secondary wastewater treatment for the core area and allow us to end the practice of dumping raw sewage into the ocean. This is an important step forward from the current level of preliminary wastewater treatment provided in the core area. By 2018, Greater Victoria will no longer be releasing untreated wastewater into the Strait of Juan de Fuca.

Secondary treatment is the federal standard for a marine discharge. The treatment process will include an advanced oxidation process to kill pathogens and reduce pharmaceuticals and chemicals of concern as well as many other compounds found in wastewater. Secondary treatment combined

with an advanced oxidation process is capable of providing better treatment of pharmaceuticals and chemicals than tertiary membrane treatment processes.

The Seaterra Program does not include tertiary treatment because there is little demand for water-reuse, there is no infrastructure in place to distribute reused wastewater and these facilities are more expensive to build and operate. Successful CRD water demand management and conservation efforts have contributed to decreased water usage in the Core Area, which led the provincial government to remove the requirement for tertiary treatment and water re-use for the Seaterra Program. Simply put, there is no significant demand for recycled water and there is no business case for recycled water in our region considering the significant cost to produce it.

Myth: The CRD never properly examined a decentralized model of wastewater treatment.

Fact: The CRD completed a comprehensive analysis of a decentralized approach to wastewater treatment in 2008 - 2009. Three options for tertiary treatment were explored with 4, 7 and 11 treatment plants. Each option was examined to develop detailed capital and operating costs and potential revenues.

The analyses concluded that more treatment plants resulted in significantly higher capital and operating costs while the revenues from resource recovery did not increase at the same rate. The analyses also concluded that the residual solids from treatment provided the greatest opportunity for resource recovery. A central location for residual solids treatment also provided the most cost-effective approach to resource recovery.

The 11 treatment plant option resulted in capital costs of approximately $2 billion with annual operating costs at $33 million, both over 225 per cent more than the current plan.

In 2009, the Peer Review Team concluded that a centralized treatment plant would result in the lowest capital and operating cost option for the CRD.

Myth: A distributed wastewater system is cheaper, easier, and more effective than a centralized model.

Fact: The advocates of distributed systems have stated that: “You make a pit, add some pumps and some UV disinfection units and various things that you need to make the system work.”
In fact, a plant such as the one at Dockside Green (also called a Membrane Bioreactor (MBR) tertiary treatment plant), at the scale for CRD requires several steps in the treatment process:

- **Coarse screens** to remove the inorganic material that is in sewage e.g. plastic bags
- **Grit Removal** to remove the sand and gravel that ends up in the sewer system that would settle in the process tanks
- **Primary treatment** to reduce the biological solids that would cause premature clogging of the membranes
- **Fine screens** to remove any coarse solids that pass through the primary treatment process

- **Membrane bioreactor** to reduce the remaining biological material from the liquid
- **Disinfection** if the effluent is to be reused
- **Dewatering** if residual solids are trucked to a centralized residual solids treatment plant
- **Residual solids pumping** if pumped to centralized residual solids treatment plant

Material from the coarse screens is transported to landfill for disposal. Residual solids are trucked or pumped to a central treatment process.

The advocates of distributed systems have ignored the fact that decentralized facilities also require outfalls for effluent disposal and residual solids treatment facilities as well as the need to transport residual solids. In fact, tertiary plants will require 10 per cent more residual solids treatment capacity since more residual solids are generated with tertiary treatment facilities. The residual solids treatment for the Seaterra Program represents approximately 35 per cent of the total budget.

Constructing a central plant takes advantage of the economies of scale and reduced operating and maintenance costs compared to multiple, decentralized plants. In 2009, the Peer Review Team concluded that a centralized treatment plant would result in the lowest capital and operating cost option for the CRD.

Myth: A Dockside Green style wastewater system is infinitely scalable. Once you build one you can easily increase capacity.

Fact: The Dockside Green facility can only be upsized from its current size of 180 cubic metres per day to 360 cubic metres (servicing approximately 1,800 people) as all of the components required for tertiary treatment were considered in the initial plant design. Additional space and major modifications to all components of the Dockside Green facility would be required to increase the capacity beyond servicing 1,800 people. There is much more to increasing a plant capacity than just adding membrane cassettes.

It is also necessary to keep facility scale in perspective – Dockside Green at its current capacity will treat 180 cubic metres per day – which services approximately 900 people. The Core Area needs treatment capacity of 108,000 cubic metres per day – to service over 400,000 people. That's 600 times the current capacity of Dockside Green. The new Craigflower pump station will receive over 7,000 cubic metres per day – 40 times the current capacity of Dockside Green.

Myth: A decentralized layout will better plan for future needs.

Fact: The Seaterra Program lays the foundation for wastewater treatment in the region for the next century. The capacity was developed based on historical growth rates for the region and current liquid flows, system loading and volume.

As the region grows, the Program will be able to grow with it. Process modifications can be made in the future to increase the capacity of the Wastewater Treatment Plant at McLoughlin Point. Plants could also be built on the Westshore or other areas to accommodate future growth beyond 2065. A

centralized system will create the foundation that will allow for the opportunity for other new developments similar to Dockside Green to provide future capacity and will allow the CRD to progressively treat wastewater for the next 60 to 80 years.

Myth: We could easily just convert the existing pump station into tertiary treatment plants. That would save us most of the cost of the plants!

Fact: All of CRD's major pump stations are sized appropriately to accommodate the components to pump sewage. There is no additional room in any of the existing pumping facilities to accommodate tertiary treatment facilities.

As an example, the Currie Road and Trent pump stations each have the capacity to receive an average of approximately 13,500 cubic metres of sewage per day. This is over 70 times larger than Dockside Green's current capacity and it is erroneous to suggest that the CRD could retrofit these stations with tertiary treatment components without a major expansion to the facility footprint. An expansion of this magnitude could not be accommodated in the current residential locations of these existing pump stations.

Myth: The Seaterra Program is not innovative and is not recovering resources from wastewater.

Fact: The Seaterra Program is maximizing resource recovery from the residual solids using proven technology, which is practiced in many other jurisdictions. Resources will be recovered economically and effectively from the residual solids using anaerobic digestion. The resources that will be recovered include biogas, struvite (phosphorous) and dried biosolids. The biogas will be used on-site at the Resource Recovery Centre and any excess gas will be cleaned and injected into the natural gas system. The struvite (phosphorous) will also be extracted from the residual solids treatment process and can be used for fertilizer. The dried biosolids will be put to a beneficial use, potentially as a fuel substitute.

The Treatment Plant at McLoughlin Point will include heat recovery facilities to heat on-site buildings and a District Energy System which will provide energy to some buildings in Esquimalt.

The Seaterra Program is using Advanced Oxidation for wastewater treatment to kill pathogens and reduce pharmaceuticals and chemicals of concern as well as many other compounds found in wastewater (very few wastewater treatment plants utilize this innovative treatment process).

Myth: Once the residual solids are removed at McLoughlin Point they will need to be 're-watered" in order to pump them to the Resource Recovery Centre at Hartland landfill.

Fact: Re-watering is not required with the current plan. The residual solids removed as part of the treatment process will be 2 per cent solids and 98 per cent water. The residual solids will be pumped to the RRC where the residual solids will be thickened prior to digestion.

Myth: The biosolids can only be used in a land application otherwise there is no point in having the Resource Recovery Centre.

Fact: Whether they can be used on land or not, biosolids are the end product in the treatment process. Once the wastewater treatment system is in place biosolids will be generated and the need for processing and end use or disposal will be continuous. There must be someplace to put the resulting biosolids at all times.

The processed biosolids are safe for a variety of uses but the end use of biosolids produced at the RRC must comply with CRD policy. The approved plan for the Seaterra Program is to produce biosolids for a beneficial use.

In October 2013, the CRD Board upheld the policy to not use biosolids produced in the CRD for land application. The CRD and Seaterra Program are exploring alternative options for the end use of biosolids. Bisolids may be temporarily stored on site in the landfill, exported as a substitute fuel or used in a waste to energy facility.

Myth: Every time it rains we are going to be flushing raw sewage into the ocean.

Fact: The approved Liquid Waste Management Plan has been developed to stop flushing 82 million litres of raw sewage from being dumped into our ocean every day. When the Seaterra Program is complete, overflows along the East Coast Interceptor (from overflow outfall pipes at Finnerty, Humbert, Rutland and McMicking) will only happen during significant storms, which are anticipated to only occur once every five years.

The Seaterra Program will also ensure that Clover Point will only have brief overflows during heavy rain when the sewage flows are greater than three times the average. In total the overflows will be less than 200 hours per year. When all commitments in the Liquid Waste Management Plan are complete, including renewal of storm drain and sewer pipes the overflows will be virtually eliminated.

Myth: If a tsunami ever hit McLoughlin Point the Treatment plant would be destroyed.

Fact: 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 large 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.