

INTRODUCTION

As a key component of the next phase in the process of selecting sites and technologies to treat wastewater, the Westside Select Committee on Wastewater Treatment and Resource Recovery (Westside Solutions) has identified 20 feasible sites. The identified sites are located throughout the Westside of the core area of the Capital Regional District.

Working with information in and around the identified sites, Preliminary Option Sets have been developed based on technical criteria associated with the sites and consideration of the public's input into the process through Open Houses, Roundtables, survey information, and Innovations Days.

These Preliminary Option Sets present between one and four potential wastewater treatment plants for the Westside. They have been developed based on a functional approach to treatment and recovery in plausible locations. The sites have been grouped into nodes that give the public and decision makers options that are both viable and flexible. Each of the proposed option sets considers:

- site size.
- · treatment of liquids and residual solids (for example biosolids, sludge, etc.),
- · cost components,
- · engineering standards
- · treatment level, and
- maximization of resource recovery opportunities (including future growth)

These Preliminary Option Sets are based on locating wastewater treatment and resource recovery facilities on one or more of the 20 westside sites. Although the option sets identify specific sites which align particularly well with the technical criteria— no decision has been made to eliminate sites at this point as other sites within nodes are also technically feasible. Public input will help to refine the option sets and narrow the number of sites.

As this process continues to unfold, other considerations will include respect for local direction regarding certain technologies and processes, opportunities for discharge alternatives that can reduce the need for new outfalls such as stream augmentation and alternative reuse opportunities, and recognizing community values and infrastructure.

Westside Solutions has developed SiteSpeak http://fluidsurveys.com/s/WestsideSiteSpeak/ – an online feedback tool. Your input will contribute to the critical layer of community considerations that will help to narrow down this list to the best option sets and will be a critical factor in deciding which sites will be chosen for more detailed technical and financial analysis.

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INFORMATION SOURCES REFERENCE SHEET

Mapping of Greater Victoria

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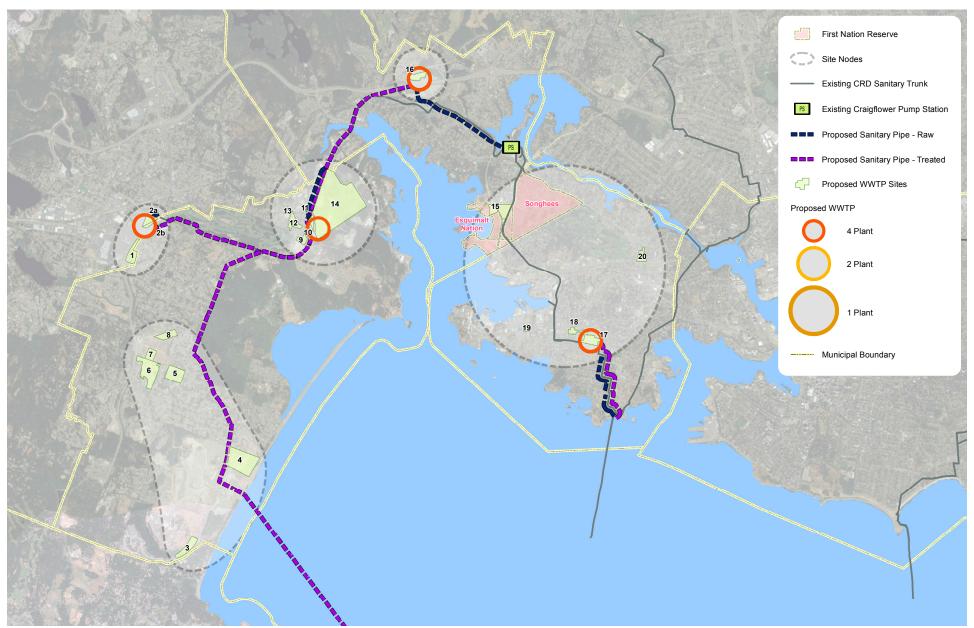
	ACCESS & INFRASTRUCTURE	CURRENT WATER REUSE POTENTIAL	CURRENT HEAT RECOVERY POTENTIAL	Evel of Treatment Suitability of sites for primary, secondary and tertiary treatment of liquids and
	Summary of proximal distances to sanitary trunk mains, truck routes, and arterial roads	Based on proximity to potential water re- use users (eg. parks or golf courses)	Based on CRD discussion paper; 'Identification and evaluation of resource opportunities' (CH2M Hill, Associated Engineering, and Kerr Wood Leidel, 2008)	residuals based on site size and land use Resource recovery based on potential reclaimed water and heat recovery along the trunk main or at the treatment facilities
Future growth potential: Future resource recovery potential based on future use and proximity to redevelopment as identified in the draft Regional				
	Sustainability Strategy			
	OCP Factors and Land Use			Cost Considerations
	 Identification of current ownership and the present use of site 			Number and types of treatment plants
	Seismic Concerns: Based on data from BC Earthquake Hazard			Number of pump stations

Number of new outfalls Metres of new pipe

WESTSIDE OPTION SETS FOUR PLANT - OPTION 4A ROYAL - ESQUIMALT VILLAGE

LANGFORD / COLWOOD -**COLWOOD NORTH - VIEW**





FOUR PLANT - OPTION 4A - Langford/Colwood-Colwood North-View Royal-Esquimalt Village

ACCESS & CURRENT WATER REUSE POTENTIAL RECOVERY POTENTIAL

Future growth potential: Future resource recovery potential with Esquimalt Village identified as an Urban Centre and Future Growth Area, re-development of Colwood City Centre as a Major Centre and continued growth of Langford City Centre as a Major Centre

Level of Treatment

- All sites are suitable for tertiary treatment of liquids
- Residuals processing proposed at Colwood site node
- Option set includes flows from west Saanich and Vic West
- Heat recovery to be considered along trunk main from Langford to Esquimalt and at Victoria General Hospital
- Additional heat recovery possible at the treatment facilities

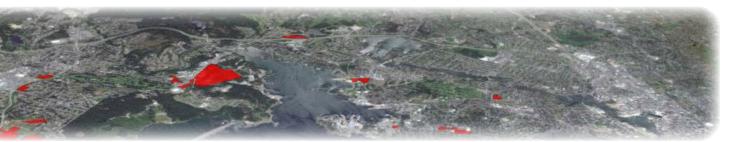
OCP Factors and Land Use

- Colwood
 - Site 11 owned by the municipality and currently operates as a Park and Ride
 - Site 14 owned by multiple jurisdictions and is a park; extent of land available for treatment is to be determined
- Langford/Colwood- Site 2a/2b
 - Privately owned
 - Currently vacant and not in use
- View Royal- Site 16
 - Owned by the Province
 - o Constraints with BC Hydro ROW
 - Ecological and archeological concerns
- Esquimalt Village- Site 17
 - Owned by the municipality
 - Current park and recreational opportunities need to be maintained; urban centre
- Moderate seismic concerns

Cost Considerations

- 3 wastewater treatment and resource recovery plants for liquids (Site 2a/2b, 16 and 17)
- 1 wastewater treatment and resource recovery plant for liquids and residuals (Site 11 and 14)
- 8 pump stations
- 1 new outfall (regulatory approval will be required)
- 19,100 m of new pipe (including pipe for new outfall)

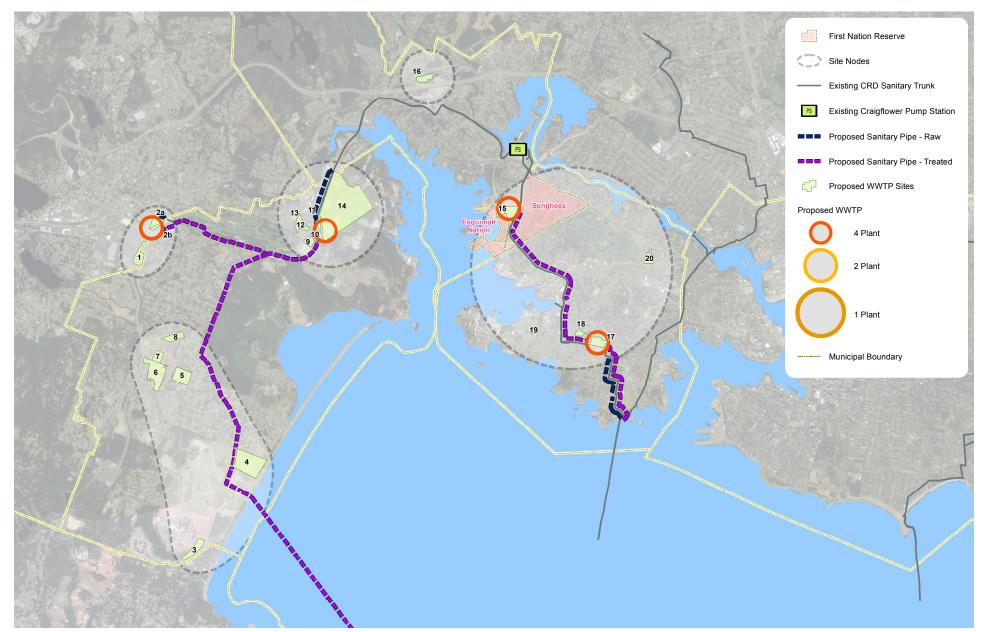
SITING OF THE WASTEWATER TREATMENT PLANT(S) IN THIS OPTION SET ARE BASED ON TECHNICAL CRITERIA. THIS OPTION SET DOES NOT EXCLUDE OTHER SITES WITHIN THE RELEVANT SITE NODES. PUBLIC INPUTWILL CONTRIBUTE TO IDENTIFYING THE MOST SUITABLE SITE(S).



WESTSIDE OPTION SETS FOUR PLANT - OPTION 4B COLWOOD NORTH - ESQUIMALT VILLAGE

LANGFORD / COLWOOD -





FOUR PLANT - OPTION 4B - Langford/Colwood-Colwood North-Esquimalt Nation-Esquimalt Village

ACCESS & CURRENT WATER REUSE POTENTIAL RECOVERY POTENTIAL

Future growth potential: Future resource recovery potential with Esquimalt Village identified as an Urban Centre and Future Growth Area, re-development of Colwood City Centre as a Major Centre and continued growth of Langford City Centre as a Major Centre; Land use planning to be confirmed based on Esquimalt Nation authority

Cost Considerations

Level of Treatment

- 3 wastewater treatment and resource recovery plants for liquids (Site 2a/2b, 11/14 and 17)
- 1 wastewater treatment and resource recovery plant for liquids and residuals (Site 15)
- 8 pump stations
- 1 new outfall (regulatory approval will be required)
- 17,400 m of new pipe (including pipe for new outfall)

All sites are suitable for tertiary treatment of liquids

Option set includes flows from west Saanich and Vic West

Additional heat recovery possible at the treatment facilities

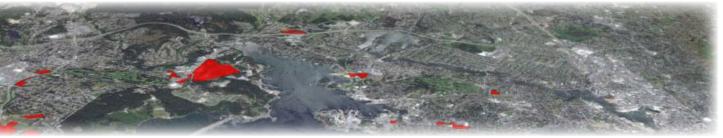
Residuals processing proposed to occur at Esquimalt Nation Site 15

Heat recovery to be considered along trunk main from Langford to Esquimalt

OCP Factors and Land Use

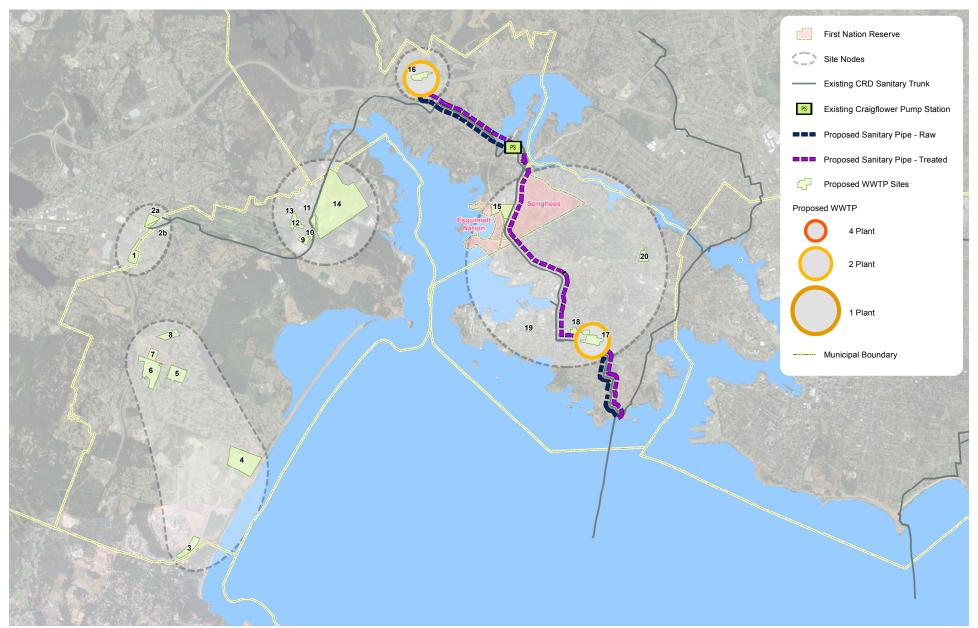
- Colwood
 - Site 11 owned by municipality and currently operates as a Park and Ride
 - Site 14 owned by multiple jurisdictions and is a park; extent of land available for treatment is to be determined
- Langford/Colwood- Site 2a/2b
 - Privately owned
 - o Currently vacant
- Esquimalt Nation- Site 15
 - o Owned by the Esquimalt Nation
 - Adjacent to Songhees Nation, Town of View Royal and Township of Esquimalt
 - o Currently vacant
- Esquimalt Village- Site 17
 - Owned by the municipality
 - Current park and recreational opportunities need to be maintained

SITING OF THE WASTEWATER TREATMENT PLANT(S) IN THIS OPTION SET ARE BASED ON TECHNICAL CRITERIA. THIS OPTION SET DOES NOT EXCLUDE OTHER SITES WITHIN THE RELEVANT SITE NODES. PUBLIC INPUTWILL CONTRIBUTE TO IDENTIFYING THE MOST SUITABLE SITE(S).



WESTSIDE OPTION SETS TWO PLANT - OPTION 2A VILLAGE - VIEW ROYAL





TWO PLANT - OPTION 2A - Esquimalt Village-View Royal

INFRASTRUCTURE		

ACCESS &

CURRENT WATER REUSE POTENTIAL

CURRENT HEAT RECOVERY POTENTIAL



Level of Treatment

- All sites are suitable for tertiary treatment of liquids
- Residuals processing proposed to occur at an alternative site due to size and land use consideration of Sites 16 and 17
- Includes flows from west Saanich and Vic West
- Heat recovery to be considered along trunk main from Langford to Esquimalt and for Victoria General Hospital
- Additional heat recovery possible at the treatment facilities

Future growth potential: Future resource recovery potential with Esquimalt Village identified as an Urban Centre and Future Growth Area

OCP Factors and Land Use

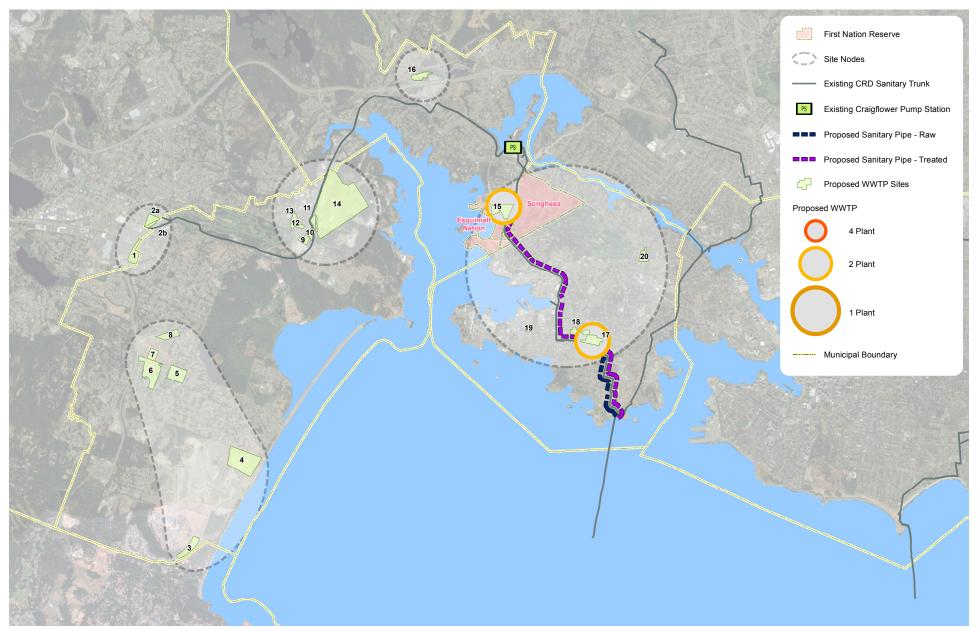
- View Royal- Site 16
 - Owned by the Province of BC
 - Constraints with BC Hydro Right of Way
 - o Ecological concerns and potential archeological concerns
- Esquimalt Village- Site 17
 - Owned by the municipality
 - Current park and recreational opportunities need to be maintained
- Moderate seismic concerns

- 2 wastewater treatment and resource recovery plants for liquids (Site 16 and 17)
- 1 resource recovery plant for residuals (site to be determined)
- 4 pump stations (not including residuals pump stations)
- 10,700 m of new pipe (not including residuals pipe)



WESTSIDE OPTION SETS TWO PLANT - OPTION 2B ESQUIMALT NATION - ESQUIMALT VILLAGE





TWO PLANT - OPTION 2B - Esquimalt Nation – Esquimalt Village

ACCESS &

INFRASTRUCTURE

CURRENT WATER REUSE POTENTIAL

CURRENT HEAT RECOVERY POTENTIAL



Future growth potential: Future resource recovery potential with Esquimalt Village identified as an Urban Centre and Future Growth Area; land use planning to be confirmed based on Esquimalt Nation authorities

OCP Factors and Land Use

- Esquimalt Nation- Site 15
 - Owned by the Esquimalt Nation and adjacent to Songhees Nation, Town of View Royal and Township of Esquimalt
 - o Currently vacant
- Esquimalt Village- Site 17
 - Owned by the municipality
 - Current park and recreational opportunities need to be maintained
- Moderate seismic concerns

Level of Treatment

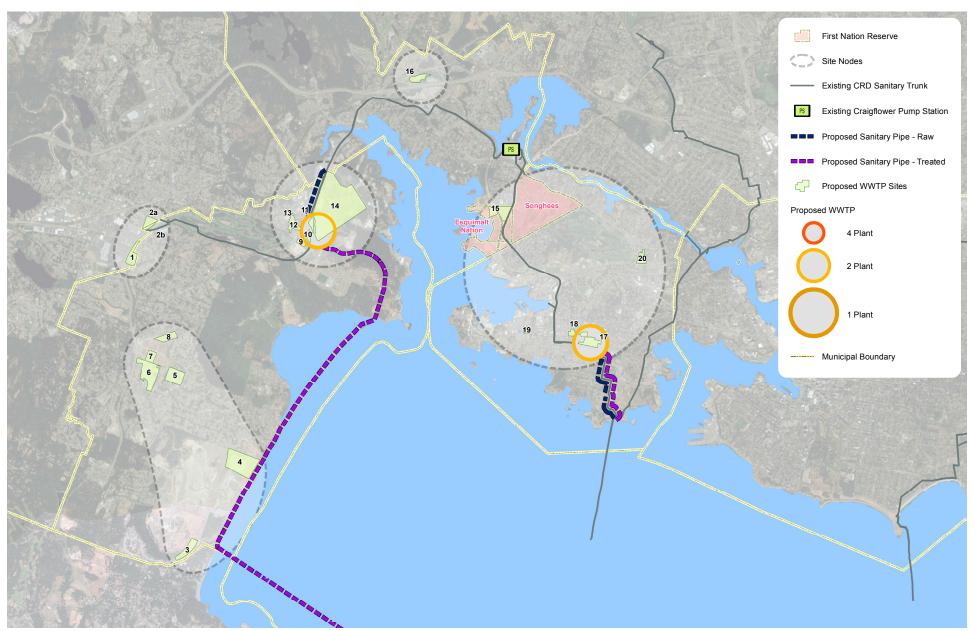
- Site 15 and 17 are suitable for tertiary treatment of liquids including potential reclaimed water for multiple uses in proximity to either facility
- Residuals processing proposed to occur at Esquimalt Nation Site 15
- Option set includes flows from west Saanich and Vic West
- Heat recovery to be considered along trunk main from Langford to Esquimalt
- Additional heat recovery proposed at treatment facilities

- 1 wastewater treatment and resource recovery plant for liquids (Site 17)
- 1 wastewater treatment and resource recovery plant for liquids and residuals (Site 15)
- 4 pump stations
- 6,200 m of new pipe



WESTSIDE OPTION SETS TWO PLANT - OPTION 2C ESQUIMALT VILLAGE





TWO PLANT - OPTION 2C - Colwood North-Esquimalt Village

ACCESS &

INFRASTRUCTURE

CURRENT WATER REUSE POTENTIAL

CURRENT HEAT RECOVERY POTENTIAL



Future growth potential: Future resource recovery potential with Esquimalt Village identified as an Urban Centre and Future Growth Area and redevelopment of Colwood City Centre as a Major Centre

OCP Factors and Land Use

- Colwood North
 - Site 11 owned by the municipality and currently operates as a Park and Ride
 - Site 14 owned by multiple jurisdictions and is a park; extent of land available for treatment is unknown
- Esquimalt Village- Site 17
 - Owned by the municipality
 - Current park and recreational opportunities need to be maintained
- Moderate seismic concerns

Level of Treatment

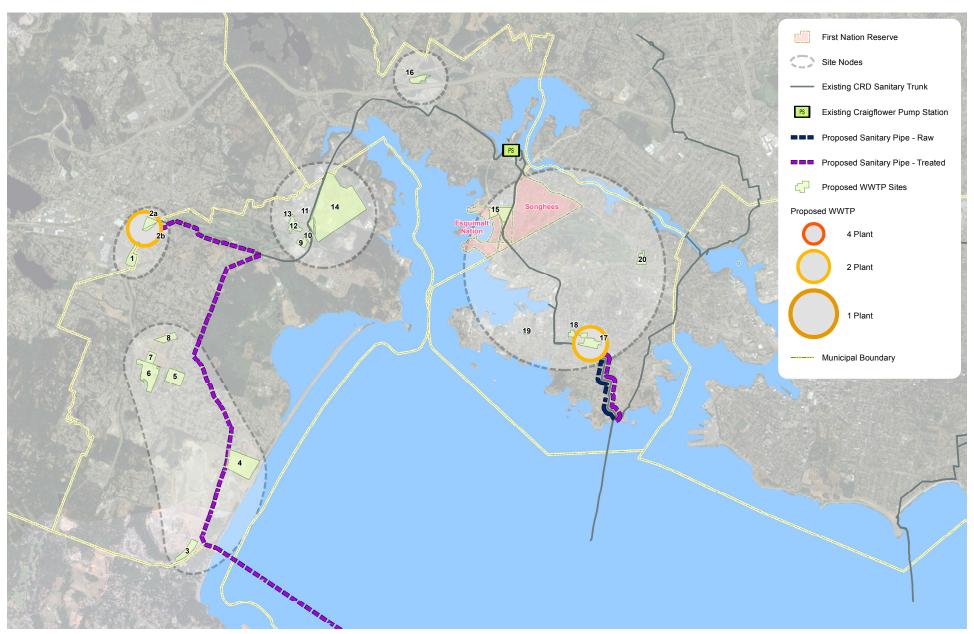
- Sites are suitable for tertiary treatment of liquids including potential reclaimed water for multiple uses in proximity to either facility
- Residuals processing proposed to occur at Colwood site node
- Option set includes flows from west Saanich and Vic West
- Heat recovery to be considered along trunk main from Langford to Esquimalt
- Additional heat recovery proposed at treatment facilities

- 1 wastewater treatment and resource recovery plant for liquids (Site 17)
- 1 wastewater treatment and resource recovery plant for liquids and residuals (Site 11 and 14)
- 4 pump stations
- 1 new outfall (regulatory approval will be required)
- 12,500 m of new pipe (including for new outfall)

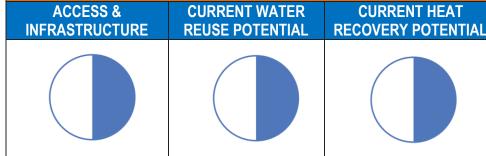


WESTSIDE OPTION SETS TWO PLANT - OPTION 2D - ESQUIMALT VILLAGE





TWO PLANT - OPTION 2D - Langford/Colwood-Esquimalt Village



Future growth potential: Future resource recovery potential with Esquimalt Village identified as an Urban Centre and Future Growth Area and Langford City Centre as a Major Centre

OCP Factors and Land Use

- Langford/Colwood- Site 2a/2b
 - Privately owned
 - Currently vacant
- Esquimalt Village- Site 17
 - Owned by the municipality
 - Current park and recreational opportunities need to be maintained
- Moderate seismic concerns

Level of Treatment

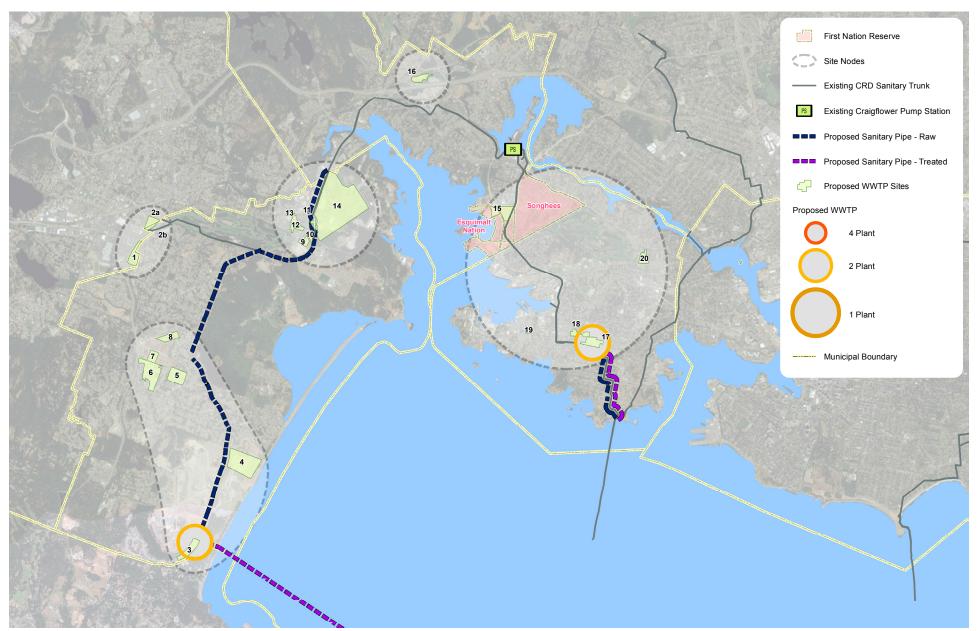
- All sites are suitable for tertiary treatment of liquids, including potential reclaimed water for multiple uses in proximity to either plant
- Residuals processing proposed to occur at Langford/Colwood Site 2a/2b
- Option set includes flows from west Saanich and Vic West
- Heat recovery to be considered along trunk main from Langford to Esquimalt
- Additional heat recovery proposed at treatment facilities

- 1 wastewater treatment and resource recovery plant for liquids and residuals (Site 2a/2b)
- 1 wastewater treatment and resource recovery plant for liquids (Site 17)
- 4 pump stations
- 1 new outfall (regulatory approval will be required)
- 12,700 m of new pipe (including for new outfall)



WESTSIDE OPTION SETS TWO PLANT - OPTION 2E COLWOOD SOUTH - ESQUIMALT VILLAGE





TWO PLANT - OPTION 2E - Colwood South-Esquimalt Village

ACCESS & INFRASTRUCTURE	CURRENT WATER REUSE POTENTIAL	CURRENT HEAT RECOVERY POTENTIAL	

Future growth potential: Future resource recovery potential with Esquimalt Village identified as an Urban Centre and Future Growth Area and development of Royal Bay

OCP Factors and Land Use

- Colwood South- Site 3
 - Owned by the municipality
 - Currently vacant
- Esquimalt Village- Site 17
 - Owned by the municipality
 - Current park and recreational opportunities need to be maintained
- Moderate seismic concerns

Level of Treatment

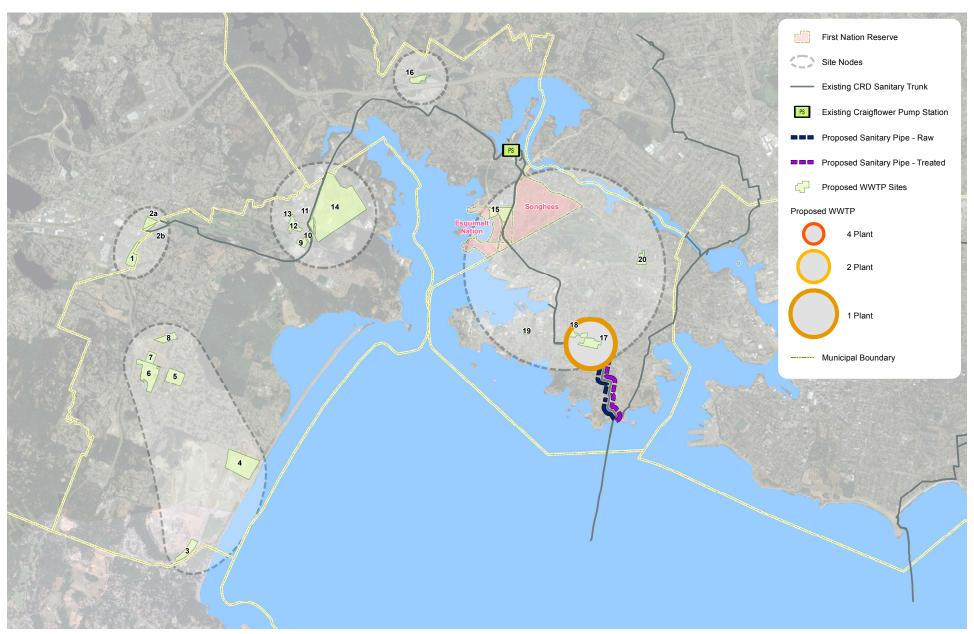
- All sites are suitable for tertiary treatment of liquids, including potential reclaimed water for multiple uses in proximity to either plant
- Residuals processing proposed to occur at Colwood Site 3
- Option set includes flows from west Saanich and Vic West
- Heat recovery to be considered along trunk main from Langford to Esquimalt
- Additional heat recovery proposed at treatment facilities

- 1 wastewater treatment and resource recovery plant for liquids and residuals (Site 3)
- 1 wastewater treatment and resource recovery plant for liquids (Site 17)
- 4 pump stations
- 1 new outfall (regulatory approval will be required)
- 12,900 m of new pipe (including for new outfall)



WESTSIDE OPTION SETS ONE PLANT - OPTION 1A ESQUIMALT VILLAGE





ONE PLANT - OPTION 1A - Esquimalt Village

INFRASTRUCTURE	REUSE POTENTIAL	RECOVERY POTENTIAL

Future growth potential: Future resource recovery potential with Esquimalt Village identified as an Urban Centre and Future Growth Area

OCP Factors and Land Use

- Esquimalt Village- Site 17
 - Owned by the municipality
 - Current park and recreational opportunities need to be maintained
- Moderate seismic concerns

Level of Treatment

- Site 17 is suitable for tertiary treatment of liquids, including potential reclaimed water for multiple uses in proximity to the central plant
- Residuals processing proposed to occur at an alternative site due to size and land use considerations of Site 17
- Option set includes flows from west Saanich and Vic West
- Heat recovery to be considered along trunk main from Langford to Esquimalt
- Additional heat recovery possible at the treatment facilities

- 1 wastewater treatment and resource recovery plant for liquids (Site 17)
- 1 resource recovery plant for residuals (site to be determined)
- 2 pump stations (not including residuals pump station)
- 3,000 m of new pipe (not including residuals pipe)



WESTSIDE OPTION SETS ONE PLANT - OPTION 1B ESQUIMALT NATION





ONE PLANT - OPTION 1B - Esquimalt Nation

CURRENT WATER

INFRASTRUCTURE REUSE POTENTIAL RECOVERY POTENTIAL

Level of Treatment

CURRENT HEAT

- Site 15 is suitable for tertiary treatment of liquids, including potential reclaimed water for multiple uses in proximity to the central plant
- Residuals processing proposed to occur on site
- Option set includes flows from west Saanich and Vic West
- Heat recovery to be considered along trunk main from Langford to Esquimalt
- Additional heat recovery possible at the treatment facility

Future growth potential: Land use planning to be confirmed based on Esquimalt Nation authority

OCP Factors and Land Use

ACCESS &

- Esquimalt Nation- Site 15
 - Land owned by the Esquimalt Nation
 - Adjacent to Songhees Nation, Town of View Royal and Township of Esquimalt
 - Currently vacant
- Moderate seismic concerns

- 1 wastewater treatment and resource recovery plant for liquids and residuals (Site 15)
- 2 pump stations
- 9,100 m of new pipe



