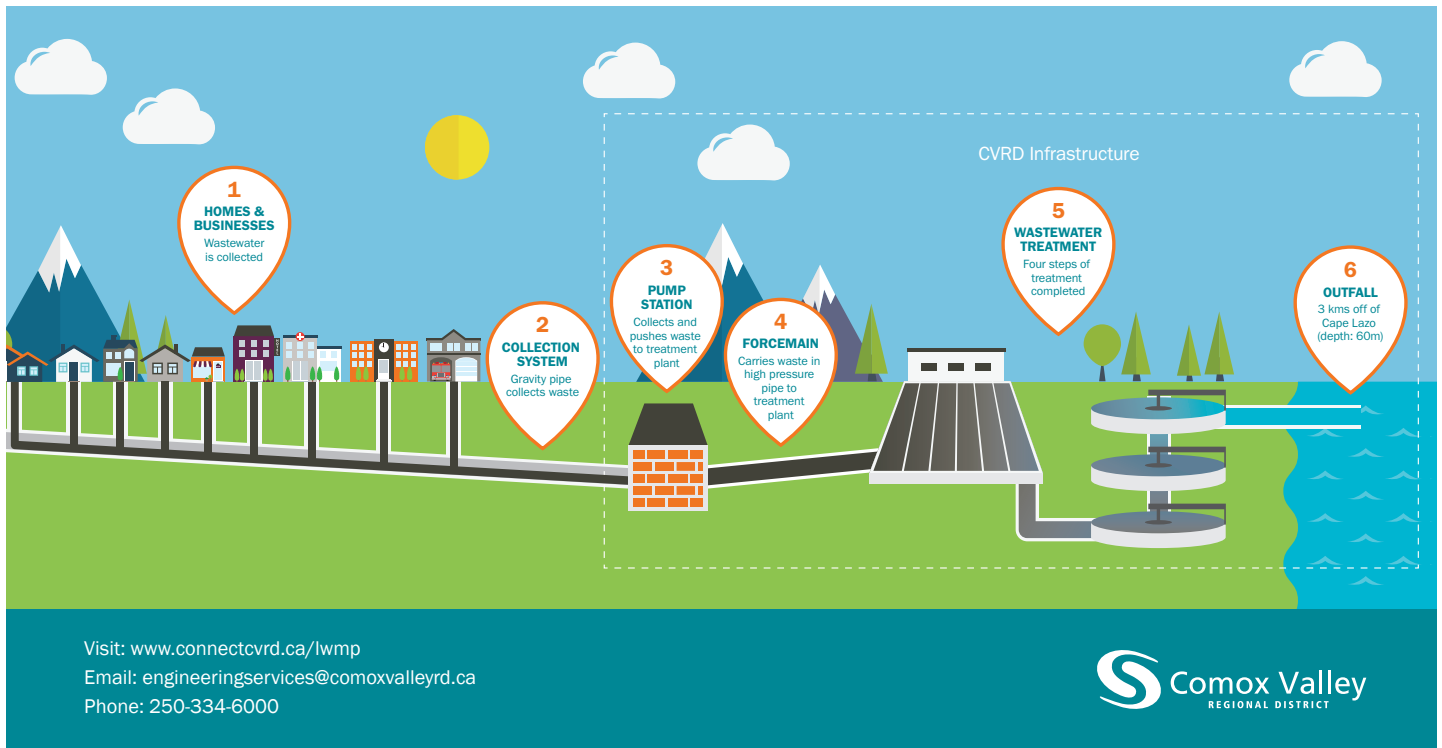


APPENDICES

APPENDIX 1 – Event Display Boards

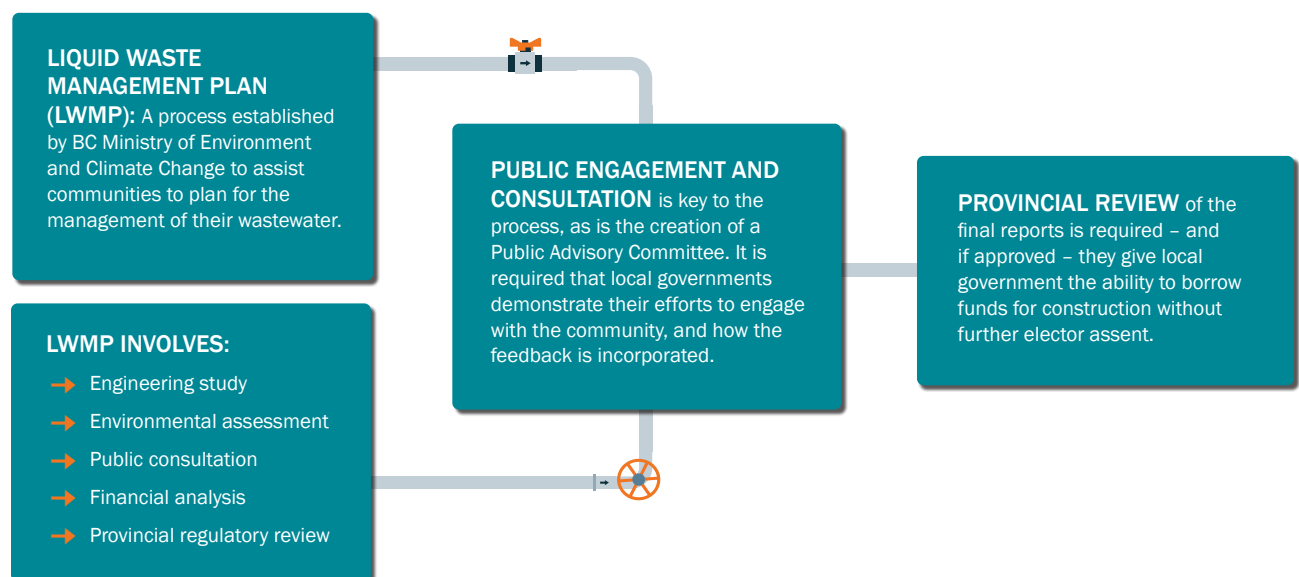
WHAT HAPPENS AFTER YOU FLUSH?

Wastewater Management in the CVRD



PLANNING A FUTURE FOR OUR LIQUID WASTE

Long-term planning for liquid waste management can be a complicated process. To help streamline these big projects and give local governments the ability to deliver agreed-on plans, liquid waste management plans are often used.



Visit: www.connectcprd.ca/lwmp
Email: engineering@comoxvalleyrd.ca
Phone: 250-334-6000

Comox Valley
REGIONAL DISTRICT
comoxvalleyrd.ca

PLANNING AND PUBLIC ENGAGEMENT: TIMELINE

The Liquid Waste Management Plan process includes distinct stages that require public input.



Visit: www.connectcvrd.ca/lwmp

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Phone: 250-334-6000



REVIEWING THE LONG LIST: WHAT WE HEARD

In January 2019, a long-list of six options for conveyance were presented to the community via an online survey and through two facilitated sessions.



GOAL OF FEEDBACK

The CVRD was looking for feedback on:

- Whether there were other options that should be considered/reviewed
- Any other information about proposed options that should be considered

CONSIDERING WHAT WE HEARD

Community members provided a range of comments re: conveyance options, which generally aligned with three themes:



Protection of the Environment: High priority was placed on stewardship and conservation with concerns raised about the estuary, shellfish industry, groundwater and more. An interest in moving sewage pipes inland was clear.



Consider the Cost: Finding efficiencies in cost was highlighted, including an interest in seeing larger upfront investment to minimize costs over the long term.



Opposition to Comox No. 2 Pump Station: Those opposed to an option that could see a pump station around the Croteau Beach neighbourhood were well represented.

WHAT WE DID NEXT

Following that engagement, and considering what we heard, the project team:



Consulted with K'ómoks First Nation: Meaningful dialogue with KFN was undertaken regarding this key infrastructure which crosses their land.



Public/Technical Advisory Review: The committees reviewed the longlist, considering feedback and recommended a short list.



Further Assessment of Options: Options were reviewed further by technical experts to identify further challenges or limitations.



Sewage Commission Selection: On March 10, the sewage commission approved the short list of options, which are now presented to the community for review/feedback.

Visit: www.connectcvrd.ca/lwmp

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OPTION 1: OVERLAND FORCEMAIN

This option would see a trench dug along existing roadways, with a new pipe installed between the Courtenay Pump Station and the sewage treatment plant. This means installing pipe up and over the Comox Road and Lazo Road hills. It also includes:

- Replacement of the Courtenay Pump Station to accommodate the high-pressure pumps needed to push wastewater up over the two hills
- Upgrades to the K'ómoks First Nation and Jane Place pump stations
- Tunneling beneath the Lazo Marsh

*Our engineering consultants are currently reviewing whether this option could be delivered in phases.

COSTS

COST TO BUILD: \$65M

COST TO RUN AND MAINTAIN (30 YEAR): \$17M

COST PER HOUSEHOLD: \$240/household for 20 years

TRAFFIC IMPACTS

MEDIUM: Comox Road, Comox Ave, Beaufort, Stewart, Balmoral, Lazo and Morland (single-lane alternating)

LOW: Lazo/Brent Road

ARCHEOLOGICAL MITIGATION: Full alignment, especially through IR1 (Comox Rd)

BENEFITS

LOWER RISK CONSTRUCTION APPROACH: 'Cut and cover' (digging trench, laying pipe, then covering) is a standard construction practice and more predictable.

REMOVES FORESHORE PIPE: Public feedback has indicated a preference for removing the foreshore pipe along the Comox estuary, though technical studies show there is 15-20 years remaining in the pipe.

CHALLENGES

NEW COURTENAY PUMP STATION: Required to accommodate higher pressure.

HIGHER COST TO RUN: Pushing so much volume up and over the two hills requires high-powered pumps that cost more to operate.

HIGHER LIFECYCLE COSTS: Increased pressure and high energy has long-term cost and maintenance impacts.

ADDRESSING GROUNDWATER CONCERNS: Managing groundwater to ensure there is no impact to groundwater and individual wells.

ROADWAY CONSTRUCTION: Largest overall construction footprint and most traffic disruption over time, because all sections will include road work and excavation along Lazo and Balmoral roads in Area B could have more impact to vegetation in that area.

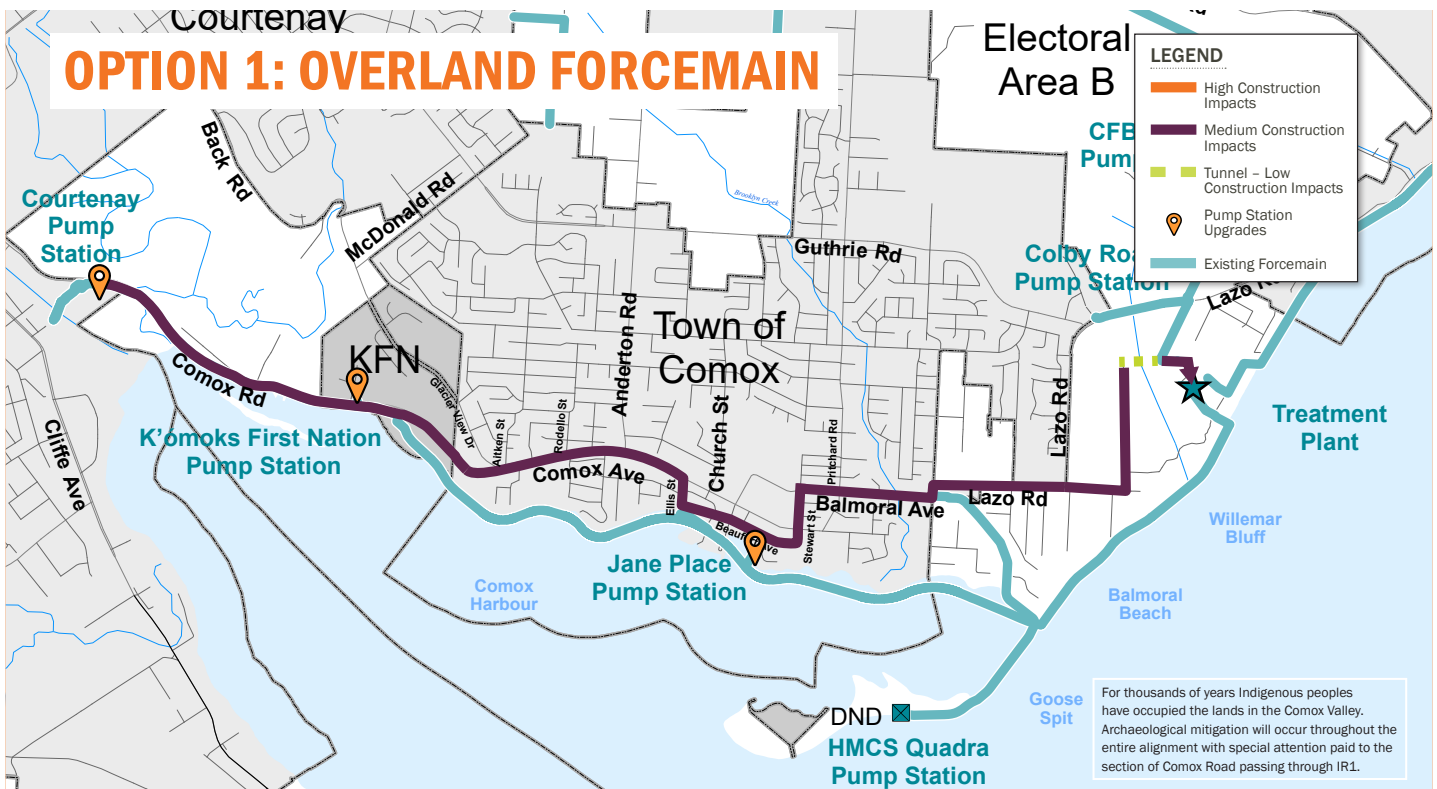
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OPTION 1: OVERLAND FORCEMAIN



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comoxvalleyrd.ca

This option combines 'cut and cover' construction (trenching) with directional drilling (a type of tunneling). The trench would be dug, with pipe installed, along existing roadways for much of the route, but tunneling would be used to go through rather than over the Comox and Lazo Road hills. It also includes:

- \$ COSTS**

COST PER HOUSEHOLD: \$210/household for 20 years

TRAFFIC IMPACTS

ARCHEOLOGICAL MITIGATION: Full alignment, especially through IR1 (Comox Rd)

 BENEFITS

REMOVES FORESHORE PIPE: Some public feedback has indicated a preference for removing the foreshore pipe along the Comox estuary, though technical studies show there is 15-20 years remaining in the pipe.







CHALLENGES

ADDITIONAL LAYDOWN AREA: A portion of Comox Rd and Balmoral Rd (Stewart to Port Augusta) will be heavily impacted due to the need to assemble and lay down pipe before it is fed underground.

Phone: 250-334-6000



LEGEND

-  High Construction Impacts
-  Medium Construction Impacts
-  Low Construction Impacts
-  Tunnel – Low Construction Impacts
-  Pump Station Upgrades
-  Existing Forcemain

For thousands of years Indigenous peoples have occupied the lands in the Comox Valley. Archaeological mitigation will occur throughout the entire alignment with special attention paid to the section of Comox Road passing through IR1.

Phone: 250-334-6000



OPTION 3: PHASED TUNNEL

This option uses the combined trench-and-tunneling route of Option 2 but breaks the project into two phases. Phase 1 would include the stretch between Marina Park and the treatment plant. Phase 2 would replace the pipe between Courtenay Pump Station and Marina Park in 15-20 years. It also includes:

- Upgrades to all three pump stations on the route
- A temporary line from a tie-in at Marina Park to the new forcemain on Beaufort Ave for 15-20 years until Phase 2 of the project is introduced
- A new line from Jane Place to new forcemain
- Lowest immediate cost to build
- Tunneling beneath the Lazo Marsh

COSTS

COST TO BUILD: \$43M

COST TO RUN AND MAINTAIN (30 YEAR): \$13M

COST PER HOUSEHOLD: \$160/household Until Phase 2

PHASE 2 CAPITAL COST (TO BE IMPLEMENTED IN 15-20 YEARS): \$18M

TRAFFIC IMPACTS (PH.1)

HIGH: Balmoral (from Stewart) and Lazo/Morland (local traffic), Marina Park

MEDIUM: Jane Place/Wilcox and Morland (single-lane alternating)

LOW: Lazo/Curtis Road

ARCHEOLOGICAL MITIGATION: Full alignment, especially through IR1 (Comox Rd)

BENEFITS

ADDRESSES URGENT ENVIRONMENTAL RISK: The at-risk pipe at Willemar Bluffs would be replaced as part of the first phase of construction.

REDUCED SHORT TERM CAPITAL COST: By splitting the work into phases, a significant portion of cost is postponed/spread out over a longer timeframe with more users to contribute.

LOWER OPERATING AND LIFECYCLE COSTS: Reduced pressure requirements means it costs less to operate.

MAXIMIZES LIFE OF EXISTING INFRASTRUCTURE: The existing foreshore pipe in Comox estuary - which has been assessed and is still in good condition - remains in place for another 15-20 years.

REDUCED CONSTRUCTION IMPACT: By completing half of the route at a time, the short-term construction impact is smaller.

CHALLENGES

FORESHORE PIPE REMAINS: While assessment shows this pipe in good condition, some community members want it removed.

CHALLENGING CONNECTION AT MARINA PARK: High construction impacts at Marina Park, limited impact to boat ramp access, as new system is connected to existing.

INCREASED CONSTRUCTION RISK: Though preliminary assessments show favourable ground conditions, tunneling work introduces more risk to the construction phase.

ADDRESSING GROUNDWATER CONCERNS: Managing groundwater along tunneled sections to ensure there is no impact to groundwater levels and individual wells.

ADDITIONAL LAYDOWN AREA REQUIRED: Long stretches of roadway will need to be used as for the pipe to be assembled- including a portion of Balmoral (Stewart to Port Augusta).

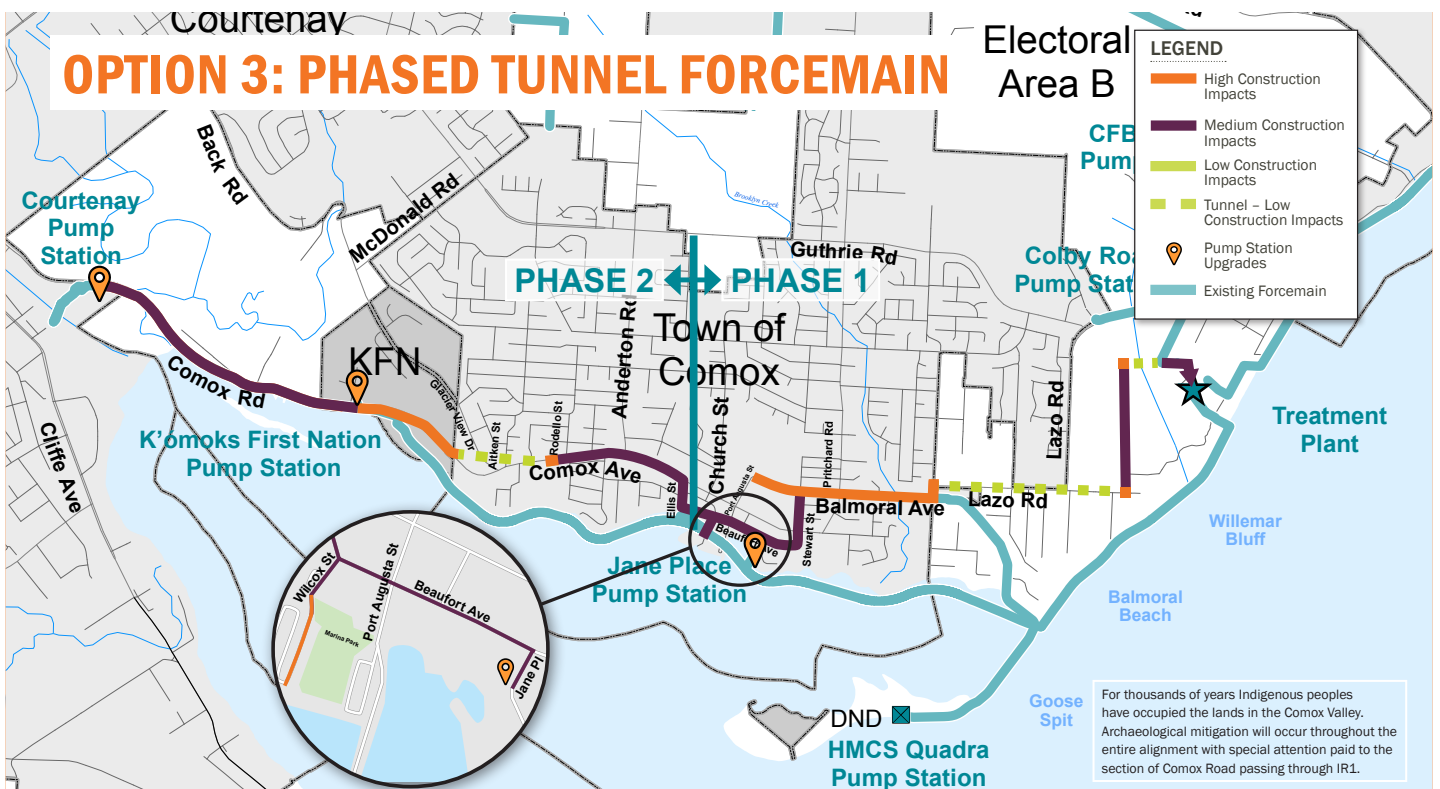
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OPTION 3: PHASED TUNNEL FORCEMAIN



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PROTECTING GROUNDWATER AND WELLS

As part of a technical assessment for regional sewer system improvements in the Comox Valley, the Comox Valley Regional District (CVRD) is undertaking geotechnical investigatory work and hydrogeological data assessment in the Lazo Road and Comox Hill areas. The results of this work will provide information about ground conditions and groundwater levels to help assess the viability of options. Once data from this work is analyzed, reports will be made available to the public.

Protecting groundwater as we consider sewer options involves a number of different approaches, including:



Recognizing the importance of protection:

The CVRD understands that for those who rely on wells – and for widespread environmental protection, groundwater must be protected. Protection has been identified as a priority.



Working with experts:

The project team is working closely with local contractor GW Solutions who is well-informed on the area, to understand the aquifer and highlight possible challenges. Long term protection of groundwater will be through robust engineering design and construction practices.



On-the-ground investigations:

More than desktop assessments, the projects engineers are also monitoring groundwater on location, using equipment called piezometers, placed in the exploratory bore holes completed in the summer.



Drilling equipment like this has been used to assess geotechnical conditions and groundwater in the area.



LOCAL KNOWLEDGE

We understand that residents in the area hold a lot of personal information with their experiences on their property. If you have details that you feel we should know, please connect with a member of the project team, or send us a message at engineering@comoxvalleyrd.ca.

Visit: www.connectcprd.ca/lwmp

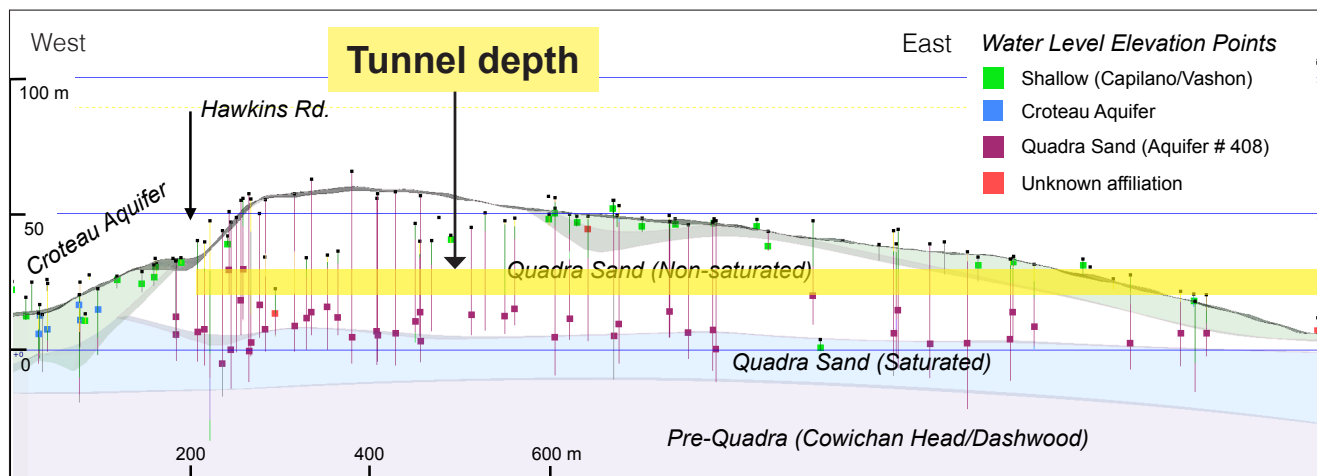
Email: engineering@comoxvalleyrd.ca

Phone: 250-334-6000

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AQUIFER ASSESSMENT

As part of the technical assessment underway for these options, groundwater has been an important focus. Surveys have shown so far that the tunnel location will not interfere with groundwater significantly, as it is located outside of aquifers or saturated sands. Below is an image to demonstrate.



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Phone: 250-334-6000

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YOUR CONCERNS: CULTURALLY SENSITIVE AREAS

For thousands of years Indigenous peoples have occupied the Comox Valley including lands along the proposed conveyance route. We understand there is risk of encountering archaeological remains in this area. Making plans to manage this risk will be a key part of our construction planning.

WHAT WE KNOW:

The designated archeological site labelled DkSF-19 – a shell midden and habitation site – conflicts with the western half of the proposed sanitary sewer line. Reviewing records for six other building projects have shown that within the conflicting area previous findings have ranged from nothing (at the western edge) to intact midden deposits and human burials.



WE ARE COMMITTED TO:

- **Using the information we have:**
 - » A preliminary route can be selected that avoids areas where intact archaeological findings have been made to date.
 - » Staying within the existing roadway – a previously disturbed area – can reduce the potential impact. The most intact remains reported are off of the roadway.
- **Following direction from experts:**
 - » Our plans will be approved by KFN Chief and Council and our work will be supervised by a Guardian Watchman or other representatives appointed by KFN.
 - » We will receive permitting from the BC Archaeology Branch.
 - » We will conduct geotechnical testing to gather information about any archaeological remains below the road – including depths/size and in some cases, condition.
- **Planning ahead for unexpected finds:**
 - » If archaeological deposits are found to be in conflict, we can pre-dig the trench ahead of the pipe laying crew, allowing for the proper treatment of anything that is found.



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NEXT STEPS FOR SEWER PLANNING

This stage of consultation on the Comox Valley Sewer Service Liquid Waste Management Plan is critical to informing the next steps for the Comox Valley Regional District's Sewage Commission and project team.

Here's what's happening next:



Ready to Provide Feedback?

Visit www.connectcvrd.ca/lwmp to fill out the survey






Visit: www.connectcvrd.ca/lwmp

Email: engineering@comoxvalleyrd.ca

Phone: 250-334-6000



comoxvalleyrd.ca   

APPENDIX 2 – Advertisement Samples

Print Ad



We Need to Make Some Tough Decisions

Protecting our beaches and waters means relocating the sewer pipe along the Willemar Bluffs and making some difficult decisions about the future of our sewer system. Now's the time to weigh in on cost, construction impacts and environmental protection measures.

Three ways to have your say:

- 1 Fill out the Survey (before Oct. 14):**
www.connectcvrd.ca/lwmp
- 2 Join a Zoom Webinar:**
Wednesday, Sept. 30
12:00 pm to 1:00 pm
- 3 Sign up to Attend an Open House:**
Thursday, Oct. 1 or Wednesday, Oct. 7
12:00 pm to 2:00 pm
Comox Rec Centre, 1855 Noel Ave, Comox OR
Thursday, Oct. 8
4:00 pm to 6:00 pm
CVRD Civic Room, 770 Harmston Ave, Courtenay
*Registration is strongly encouraged due to limited capacity. Face masks are required.

To register for the webinar or open house:

Visit: www.connectcvrd.ca/lwmp and follow links.
Having trouble registering? Phone: **250-871-6271**

For more information:

Call: **250-334-6000**

Visit: connectcvrd.ca/lwmp



Social Media Ad



We need to make some tough decisions to protect our beaches and waters. Weigh in now.

APPENDIX 3 – Digital Ad Campaign Report

CVRD LWMP CAMPAIGN

FACEBOOK/INSTAGRAM CAMPAIGN SUMMARY

COST

\$1,015.50

LINK CLICKS

1,018

REACH

44,686

IMPRESSIONS

267,935













| PERFORMANCE BY PLATFORM | Reach | Impressions | Link Clicks |
|-------------------------|--------|-------------|-------------|
| facebook | 33,172 | 203,829 | 673 |
| instagram | 16,114 | 56,851 | 322 |
| audience_network | 1,240 | 7,254 | 23 |
| messenger | 0 | 1 | 0 |

| REACH | Reach | Impressions | Link Clicks |
|------------|--------|-------------|-------------|
| mobile_app | 41,958 | 245,083 | 968 |
| desktop | 2,704 | 15,018 | 42 |
| mobile_web | 1,376 | 7,834 | 8 |

| PERFORMANCE BY AGE | Reach | Impressions | Link Clicks |
|--------------------|-------|-------------|-------------|
| 18-24 | 4,841 | 30,182 | 30 |
| 25-34 | 9,225 | 49,262 | 76 |
| 35-44 | 8,113 | 53,921 | 130 |
| 45-54 | 7,305 | 41,262 | 156 |
| 55-64 | 7,857 | 49,898 | 272 |
| 65+ | 7,345 | 43,408 | 354 |
| Unknown | 0 | 2 | 0 |

| PERFORMANCE BY GENDER | Reach | Impressions | Link Clicks |
|-----------------------|--------|-------------|-------------|
| female | 23,131 | 144,004 | 594 |
| male | 20,339 | 115,992 | 392 |
| unknown | 1,216 | 7,939 | 32 |

FACEBOOK/INSTAGRAM AD BREAKDOWN

| ENGAGEMENT BY AD (WITH IMAGE) | | Reach | Impressions | Link Clicks | Post Reactions |
|---|----------------------------------|-------|-------------|-------------|----------------|
|  | C001-Pipe-1 (id : 6158218978902) | 270 | 381 | 5 | 1 |
|  | C001-Pipe-1 (id : 6163876272102) | 175 | 256 | 3 | 0 |
|  | C001-Pipe-1 (id : 6165680939502) | 1,121 | 2,933 | 2 | 0 |
|  | C001-Pipe-1 (id : 6165680939702) | 1,824 | 4,363 | 4 | 0 |
|  | C001-Pipe-1 (id : 6168407517102) | 29 | 32 | 0 | 0 |
|  | C001-Pipe-1 (id : 6168407519102) | 55 | 56 | 0 | 0 |
|  | C001-Pipe-1 (id : 6207226381102) | 38 | 40 | 0 | 0 |
|  | C001-Pipe-1 (id : 6207226381502) | 1,296 | 2,735 | 2 | 1 |
|  | C001-Pipe-1 (id : 6207226384702) | 1,808 | 3,322 | 2 | 0 |
|  | C001-Pipe-1 (id : 6207226385502) | 93 | 97 | 0 | 0 |
|  | C001-Pipe-1 (id : 6207226386302) | 387 | 565 | 2 | 1 |
|  | C001-Pipe-1 (id : 6207226386702) | 625 | 980 | 6 | 0 |

ANALYSIS

After pausing the Liquid Waste Management Plan ad campaign for several months during COVID-19, the campaign picked up where it left off fairly instantly. Over the course of just under one month, the second phase of the campaign was able to reach over 44,000 Comox Valley residents. In total, the LWMP ads were seen over 250,000 times. The result of these reach and impression numbers were over 1,000 link clicks through to the CVRD web properties.

With a focus on ensuring that the ads weren't seen too many times by each person reached, we employed a strategy to ensure that the 'Reach' metric remained reasonable. The results were positive, and the highest frequency number experienced during the campaign was 5. This means that, at most, one user saw the LWMP ads 5 times over the course of a month.

The engagement came from a predominantly older demographic; over half of the clicks registered were from an audience over the age of 55. With that said, we did see a fairly even distribution of clicks among the remaining younger demographics. Across all age ranges, engagement was skewed towards a female audience, which is quite common and aligns with previous CVRD social media campaigns.

Unsurprisingly the majority of the engagement came via mobile device, with desktop engagement only accounting for a very small percentage of reach, impressions and clicks. With a mobile-friendly animation as well as succinct messaging and calls-to-action, we were able to capitalize on the mobile heavy trend that we are seeing.

In total, the CVRD LWMP campaigns reached a substantial number of local users and drew a high amount of engagement - prompting them to click through with high intent to the LWMP specific materials online.



APPENDIX 4 – Direct Mail

File: 5330-20/CVSS LWMP

September 11, 2020

Dianne Hawkins, CEO
Comox Valley Chamber of Commerce
2040 Cliffe Ave
Courtenay, BC V9N 2L3

Dear: Ms. Hawkins,

Re: Public Consultation re: Comox Valley Sewer Service Planning

The Comox Valley Regional District (CVRD) is set to re-launch public consultations related to the long-term planning for the Comox Valley Sewer Service.

The Comox Valley Sewer Service provides the regional collection and treatment for raw sewage (wastewater) from Comox as well as Courtenay and K'ómoks First Nation. This system currently includes a sewer pipe located along Balmoral Beach (Willemar Bluffs) that is vulnerable to damage by waves, rocks and logs – and poses an environmental risk to the beaches and waters throughout Baynes Sound.

A long-term plan that will accommodate the community's growth and enable this at-risk pipe to be relocated is required. We are reaching out because we know this topic will be of interest to members of the Comox Valley business community, and we want to invite your members' participation.

Project Background

The long-term sewer service plan the CVRD is working on is called a Liquid Waste Management Plan (LWMP) and public input is key to its successful delivery. This stage of the process is looking at conveyance options – the pipes and pump stations that collect and move wastewater to the treatment plant.

A short list of these options has been approved by the CVRD's Sewage Commission and is now under consideration. The CVRD launched public consultation on the shortlist in March 2020 but that was postponed due to COVID-19. The consultation plan has been revised to implement health and safety measures for public consultation during the pandemic.

How to Participate

On September 14, we will relaunch consultation on the three shortlisted conveyance options for the location of new and upgraded pipes and pump stations. There are three ways to participate and we are hopeful you will reach out to your community contacts and encourage participation.

- **Complete the Online Survey:** Visit connectcvr.ca/lwmp to learn about the three options and complete the survey. The survey will be live from **September 14 – October 12**. Results from this survey will be summarized for the Sewage Commission as they consider which of the three options is preferred.

- **Join a Lunch Hour Webinar:** The project team will host an online info session on Zoom to explain the options and answer your questions before filling out the online survey. This session takes place on **September 30 from 12 pm – 1 pm** and registration is required. Please visit www.connectcvrld.ca/lwmp for more info and to register.
- **Attend an In-Person Info Session:** We will be hosting limited-size, in-person info sessions following COVID-19 safety protocols. Pre-registration is encouraged, please visit www.connectcvrld.ca/lwmp to reserve your spot or call 250-871-6271 for assistance.

October 1 - Comox

12 pm – 2 pm

Comox Rec Centre, 1855 Noel Ave

October 7 - Comox

12 pm – 2 pm

Comox Rec Centre, 1855 Noel Ave

October 8 - Courtenay

4 pm – 6 pm

CVRD Civic Room, 770 Harmston Ave

Questions?

Thank you for your interest in this important topic. If you have any questions about the options, or about how to participate, please contact us at engineering@comoxvalleyrd.ca or 250-334-6056.

We would also be pleased to set up an online meeting with the Chamber of Commerce. If this is something that you would like to coordinate with us, please have your staff contact Christianne Wile, Manager of External Relations at cwile@comoxvalleyrd.ca or 250-334-6066.

Sincerely,

K. La Rose

Kris La Rose, P.Eng.
Manager of Water and Wastewater Services
250-334-6083
klarose@comoxvalleyrd.ca

File: 5330-20/CVSS LWMP

September 11, 2020

Haeley Dewhirst, Executive Director
Comox Business in Action
305 Glacier View Drive
Comox BC V9M 1G6

Dear: Ms. Dewhirst,

Re: Public Consultation re: Comox Valley Sewer Service Planning

The Comox Valley Regional District (CVRD) is set to re-launch public consultations related to the long-term planning for the Comox Valley Sewer Service.

The Comox Valley Sewer Service provides the regional collection and treatment for raw sewage (wastewater) from Comox as well as Courtenay and K'ómoks First Nation. This system currently includes a forcemain located along Balmoral Beach (Willemar Bluffs) that is vulnerable to damage by waves, rocks and logs – and poses an environmental risk to the beaches and waters throughout Baynes Sound.

A long-term plan that will accommodate the community's growth and enable this at-risk pipe to be relocated is required. We are reaching out because we know this topic will be of interest to members of the Comox Business in Action Association, and we want to invite your members' participation.

Project Background

The long-term sewer service plan the CVRD is working on is called a Liquid Waste Management Plan (LWMP) and public input is key to its successful delivery. The planning process has already identified preferred paths forward for the treatment plant and resource recovery and is currently looking at conveyance options – the pipes and pump stations that collect and move wastewater to the treatment plant.

A short list of conveyance options has been approved by the CVRD's Sewage Commission and is now under consideration. The CVRD launched public consultation on the shortlist in March 2020 but that was postponed due to COVID-19. The consultation plan has now been adapted, and it's time to restart the process.

How to Participate

Comox residents have additional reasons to pay attention to these options. As service members, Comox taxpayers will contribute to the cost of any upgrades. However, all potential routes will pass through downtown Comox which means an added burden of construction impacts for those moving through, living and doing business in this area.

On September 14, we will relaunch consultation on the three shortlisted conveyance options for the location of new and upgraded pipes and pump stations. There are three ways to participate and we are hopeful you will reach out to your community contacts and encourage participation.

- **Complete the Online Survey:** Visit www.connectcvrld.ca/lwmp to learn about the three options and complete the survey. The survey will be live from **September 14 – October 12**. Results from this survey will be summarized for the Sewage Commission as they consider which of the three options is preferred.
- **Join a Lunch Hour Webinar:** The project team will host an online info session on Zoom to explain the options and answer your questions before filling out the online survey. This session takes place on **September 30 from 12 pm – 1 pm** and registration is required. Please visit www.connectcvrld.ca/lwmp for more info and to register.
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12 pm – 2 pm

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October 7 - Comox

12 pm – 2 pm

Comox Rec Centre, 1855 Noel Ave

October 8 - Courtenay

4 pm – 6 pm

CVRD Civic Room, 770 Harmston Ave

Questions?

Thank you for your interest in this important topic. If you have any questions about the options, or about how to participate, please contact us at engineering@comoxvalleyrd.ca or 250-334-6056.

We would also be pleased to set up an online meeting with Comox Business in Action. If this is something that you would like to coordinate with us, please have your staff contact Christianne Wile, Manager of External Relations at cwile@comoxvalleyrd.ca or 250-334-6066.

Sincerely,

K. La Rose

Kris La Rose, P.Eng.
Manager of Water and Wastewater Services
250-334-6083
klarose@comoxvalleyrd.ca

File: 5330-20/CVSS LWMP

September 11, 2020

LETTER FOR COMOX RESIDENTS

Dear:

Re: Public Consultation re: Comox Valley Sewer Service Planning

The Comox Valley Regional District (CVRD) is set to re-launch public consultations related to the long-term planning for the Comox Valley Sewer Service.

The Comox Valley Sewer Service provides the regional collection and treatment for raw sewage (wastewater) from Comox, Courtenay and K'ómoks First Nation. This system currently includes a sewer pipe located along Balmoral Beach (Willemar Bluffs) that is vulnerable to damage by waves, rocks and logs – and poses an environmental risk to the beaches and waters throughout Baynes Sound.

A long-term plan that will accommodate the community's growth and enable this at-risk pipe to be relocated is required. You're invited to weigh in on the options being considered and the significant tax/cost implications and risks inherent to each.

Project Background

The long-term sewer service plan the CVRD is working on is called a Liquid Waste Management Plan (LWMP) and public input is key to its successful delivery. This stage of the process is looking at conveyance options – the pipes and pump stations that collect and move wastewater to the treatment plant.

A short list of these options has been approved by the CVRD's Sewage Commission and is now under consideration. The CVRD launched public consultation on the shortlist in March 2020 but that was postponed due to COVID-19. The consultation plan has been revised to implement health and safety measures for public consultation during the pandemic.

How to Participate

Comox residents have additional reasons to pay attention to these options. Along with the other service members, Comox taxpayers will contribute to the cost of any upgrades. However, all potential routes will pass through downtown Comox which means an added burden of construction impacts for those moving through and living in this area

On September 14, we will relaunch consultation on the three shortlisted conveyance options for the location of new and upgraded pipes and pump stations. There are three ways to participate:

- **Complete the Online Survey:** Visit www.connectcvrld.ca/lwmp to learn about the three options and complete the survey. The survey will be live **from Sept. 14 - Oct. 12**. Results from this survey will be summarized for the Sewage Commission as they consider which option to pursue.

- Join a Lunch Hour Webinar: The project team will host an online info session on Zoom to explain the options and answer your questions before filling out the online survey. This session takes place on **September 30 from 12 pm – 1 pm** and registration is required. Please visit www.connectcvrld.ca/lwmp for more info and to register.
- **Attend an In-Person Info Session:** We will be hosting limited-size, in-person info sessions following COVID-19 safety protocols. Pre-registration is encouraged, please visit www.connectcvrld.ca/lwmp to reserve your spot or call 250-871-6271 for assistance.

October 1 - Comox

12 pm – 2 pm

Comox Rec Centre, 1855 Noel Ave

October 7 - Comox

12 pm – 2 pm

Comox Rec Centre, 1855 Noel Ave

October 8 - Courtenay

4 pm – 6 pm

CVRD Civic Room, 770 Harmston Ave

Questions?

Thank you for your interest in this important topic. If you have any questions about the options, or about how to participate, please contact us at engineering@comoxvalleyrd.ca or 250-334-6056.

Sincerely,

Kris La Rose, CVRD
Manager of Water and Wastewater Services
250-334-6083
klarose@comoxvalleyrd.ca

File:5330-20/CVSS LWMP

September 11, 2020

Sent via email only: Email

LETTER FOR STAKEHOLDERS

Dear: Contact Name,

Re: Public Consultation re: Comox Valley Sewer Service Planning

The Comox Valley Regional District (CVRD) is set to re-launch public consultations related to the long-term planning for the Comox Valley Sewer Service.

The Comox Valley Sewer Service provides the regional collection and treatment for raw sewage (wastewater) from Comox as well as Courtenay and K'ómoks First Nation. This system currently includes a sewer forcemain located along Balmoral Beach (Willemar Bluffs) that is vulnerable to damage by waves, rocks and logs – and poses an environmental risk to the beaches and waters throughout the Comox Estuary, Point Holmes and Goose Spit coastline, as well as Baynes Sound. Other sections of the sewer forcemain run along the Comox Harbour foreshore – and while their condition is sound, it is the long-term goal to remove them from this sensitive area.

A long-term plan that will accommodate the community's growth and improve protection of the environment is required. We are reaching out to your organization because of the urgent need to take action on a solution that will allow us to safely and effectively manage sewage, reducing risks to the environment.

Project Background

The CVRD is working on a Liquid Waste Management Plan (LWMP) and public input is key to its successful delivery. This stage of the process is looking at conveyance options – the pipes and pump stations that collect and move wastewater to the treatment plant.

A short list of these options has been approved by the CVRD's Sewage Commission and is now under consideration. The CVRD launched public consultation on the shortlist in March 2020 but that was postponed due to COVID-19. The consultation plan has now been adapted, and it's time to restart. The urgency around the Balmoral Beach sewer forcemain only increases as time passes and we are hopeful you will reach out to your community contacts and encourage participation.

How to Participate

On September 14, we will relaunch consultation on the three shortlisted conveyance options for the location of new and upgraded pipes and pump stations. There are three ways to participate and we hope you will share this information among your networks:

- **Complete the Online Survey:** Visit www.connectcvr.ca/lwmp to learn about the three options and complete the survey. The survey will be live **from September 14 - October 12**. Results from this survey will be summarized for the Sewage Commission as they consider which option to pursue.

- **Join a Lunch Hour Webinar:** The project team will host an online info session on Zoom to explain the options and answer your questions before filling out the online survey. This session takes place on **September 30 from 12 pm – 1 pm** and registration is required. Please visit www.connectcvrd.ca/lwmp for more info and to register.
- **Attend an In-Person Info Session:** We will be hosting limited-size, in-person info sessions following COVID-19 safety protocols. Pre-registration is encouraged, please visit www.connectcvrd.ca/lwmp to reserve your spot or call 250-871-6271 for assistance.

October 1 - Comox

12 pm – 2 pm

Comox Rec Centre, 1855 Noel Ave

October 7 - Comox

12 pm – 2 pm

Comox Rec Centre, 1855 Noel Ave

October 8 - Courtenay

4 pm – 6 pm

CVRD Civic Room, 770 Harmston Ave

Questions?

Thank you for your interest in this important topic. If you have any questions about the options, or about how to participate, please contact us at engineering@comoxvalleyrd.ca or 250-334-6056.

Sincerely,

K. La Rose

Kris La Rose, P.Eng.

Manager of Water and Wastewater Services

250-334-6083

klarose@comoxvalleyrd.ca

File: 5330-20/CVSS LWMP

September 11, 2020

LETTER FOR AREA B RESIDENTS

Dear: «Owner_1»«Owner_2»,

Re: Public Consultation re: Comox Valley Sewer Service Planning

The Comox Valley Regional District (CVRD) is set to re-launch public consultations related to the long-term planning for the Comox Valley Sewer Service.

The Comox Valley Sewer Service provides the regional collection and treatment for raw sewage (wastewater) from Comox as well as Courtenay and K'ómoks First Nation. This system currently includes a sewer pipe located along Balmoral Beach (Willemar Bluffs) that is vulnerable to damage by waves, rocks and logs – and poses an environmental risk to the beaches and waters throughout Baynes Sound.

A long-term plan that will accommodate the community's growth and enable this at-risk pipe to be relocated is required. You're invited to weigh in on the options being considered.

Project Background

The long-term sewer service plan the CVRD is working on is called a Liquid Waste Management Plan (LWMP) and public input is key to its successful delivery. This stage of the process is looking at conveyance options – the pipes and pump stations that collect and move wastewater to the treatment plant.

A short list of these options has been approved by the CVRD's Sewage Commission and is now under consideration. The CVRD launched public consultation on the shortlist in March 2020 but that was postponed due to COVID-19. The consultation plan has been revised to implement health and safety measures for public consultation during the pandemic.

What does this mean for my property?

While you may not live within the boundaries of these communities, or pay into the sewer service, we are inviting you to participate in the public consultation process because all three options under consideration include a proposed sewer pipe to be constructed in the Lazo Road area. We expect residents will have questions about traffic, noise and other construction impacts. We also know the protection of groundwater is of critical importance, in particular for residents around Lazo Road who rely on wells for their drinking water supply.

The CVRD conducted geotechnical investigatory work over the summer that has helped us to better understand ground conditions in the area. Before moving forward with any option it is important we confirm that the project won't impact these resources. The CVRD will continue to communicate with

homeowners about the outcomes of this investigatory work. Once data from this work is analyzed, all reports about ground conditions and groundwater will be made available to the public.

How to Participate

On September 14, we will relaunch consultation on the three shortlisted conveyance options for the location of new and upgraded pipes and pump stations. There are three ways to participate:

- **Complete the Online Survey:** Visit www.connectcvrld.ca/lwmp to learn about the three options and complete the survey. The survey will be live **from September 14 - October 12**. Results from this survey will be summarized for the Sewage Commission as they consider which option to pursue.
- **Join a Lunch Hour Webinar:** The project team will host an online info session on Zoom to explain the options and answer your questions before filling out the online survey. This session takes place on **September 30 from 12 pm – 1 pm** and registration is required. Please visit www.connectcvrld.ca/lwmp for more info and to register.
- **Attend an In-Person Info Session:** We will be hosting limited-size, in-person info sessions following COVID-19 safety protocols. Pre-registration is encouraged, please visit www.connectcvrld.ca/lwmp to reserve your spot or call 250-871-6271 for assistance.

October 1 - Comox

12 pm – 2 pm

Comox Rec Centre, 1855 Noel Ave

October 7 - Comox

12 pm – 2 pm

Comox Rec Centre, 1855 Noel Ave

October 8 - Courtenay

4 pm – 6 pm

CVRD Civic Room, 770 Harmston Ave

Questions?

Thank you for your interest in this important topic. If you have any questions about the options, or about how to participate, please contact us at engineering@comoxvalleyrd.ca or 250-334-6056.

Sincerely,

K. La Rose

Kris La Rose, P. Eng.
Manager of Water and Wastewater Services
250-334-6083
klarose@comoxvalleyrd.ca

APPENDIX 5 – Groundwater Webinar – Letter, Map and Infosheet

File: 5330-20/CVSS LWMP

October 20, 2020

[REDACTED]

Dear: [REDACTED],

Re: Webinar Invitation: Lazo-Area Groundwater and Sewer Planning

The Comox Valley Regional District (CVRD) is completing public consultation on a shortlist of conveyance options for the future of the Comox Valley Sewer Service. These options – for the pumps and pipes that move liquid waste to the sewage treatment plant on Brent Road – all propose new infrastructure through the Lazo Hill area.

During consultation events earlier this month, we heard specifically about potential impacts and/or mitigation measures regarding groundwater in the Lazo Area. We agree with comments we've received that protection of groundwater must be a top priority and we would like to take the time to provide more information and collect further comment on this issue.

To provide more opportunity for this discussion, we will be hosting an online webinar, using Zoom, to share information about groundwater investigations in the area and how this work is informing planning and design. We will also be able to answer questions from attendees. If you have questions or would like to learn more about this topic, you're invited to join us:

Groundwater & Sewer Planning Webinar

November 5, 4:30-5:30 pm

To register, email communications@comoxvalleyrd.ca and provide your name and email address.

A few more important details:

- Pre-registration is required (use email above)
- Questions can be emailed in advance, or posted using the chat function during the webinar
- The recorded webinar will be posted to the CVRD webpage after the event is complete

The comments we receive at this meeting will be included in the public consultation results that will help to inform the CVRD's Sewage Commission about a preferred option. Staff will bring forward a recommendation in late 2020/ early 2021 and an Alternative Approval Process will likely be held in 2021 to approve borrowing so that work can begin as soon as possible on a new conveyance system.

Project Background

The CVRD is undertaking a Liquid Waste Management Plan process (LWMP) for the Comox Valley Sewer Service – and public input is key to creating a successful long-term plan. A high-priority concern for the CVRD is the need to relocate the ageing sewer pipe on Balmoral Beach that is vulnerable to damage by waves, rocks, and logs and creates an environmental risk for our beaches and waters. As part of the LWMP process, a short list of new conveyance options (pipes and pump stations) has been approved by the CVRD's Sewage Commission and is now under consideration.

Questions?

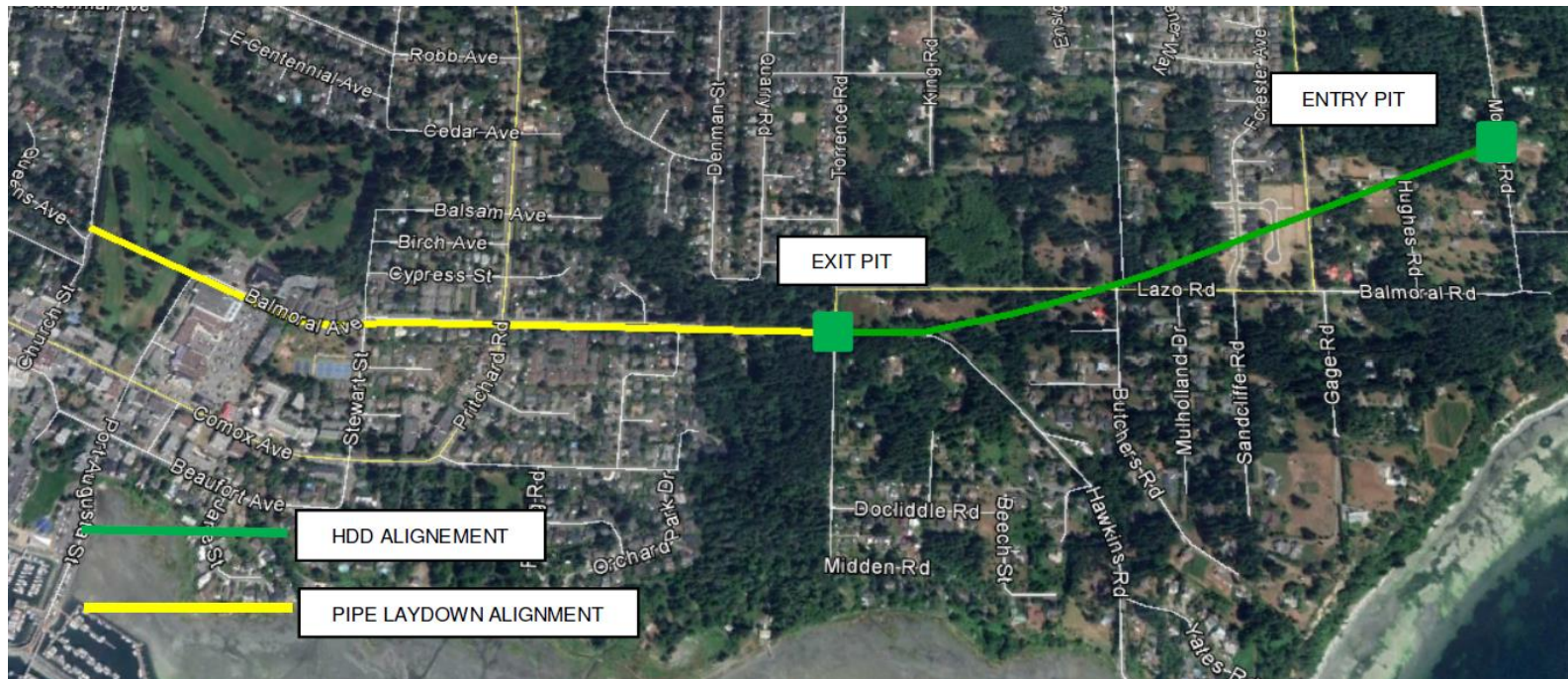
Thank you for your interest in this important topic. If you have any questions, please contact us at engineeringservices@comoxvalleyrd.ca or 250-334-6083.

Sincerely,

K La Rose

Kris La Rose, P.Eng.
Senior Manager of
Water/Wastewater Services

Lazo tunnel – approximate alignment



Sewer Planning and Groundwater

Assessment for Tunneling InfoSheet

Protecting groundwater and wells

As part of a technical assessment for regional sewer system improvements in the Comox Valley, the Comox Valley Regional District (CVRD) is undertaking geotechnical investigatory work and hydrogeological data assessment in the Lazo Road and Comox Hill areas. The results of this work will provide information about ground conditions and groundwater levels to help determine viable options for relocating the ageing sewer pipe at Balmoral Beach (Willemar Bluffs), which is at a high risk of failure.

The planning process

The CVRD is in the process of developing a Liquid Waste Management Plan (LWMP) for the Comox Valley Sewer Service, which currently services Courtenay, Comox and K'ómoks First Nation. A high-priority concern is the need to relocate the ageing sewer pipe on Balmoral Beach that is vulnerable to damage by waves, rocks, and logs and creates an environmental risk for our beaches and waters.

Three options for conveyance (pipes and pump stations that move wastewater to the treatment plant on Brent Road) have been shortlisted. Two of those options include tunneling through Comox Hill and Lazo Road hill. All three options are undergoing further technical assessment.

Protecting groundwater

The CVRD recognizes that the protection of groundwater is of critical importance, in particular for residents around Lazo Road who rely on wells for their drinking water supply. Before moving forward with any option it is important we confirm that the project won't impact these sources.

- **External Experts:** The project team is working closely with local contractor GW Solutions to understand the aquifer in the area and highlight any possible challenges, and with WSP engineering to develop a design that will protect groundwater.
- **Investigations:** WSP is also undertaking geotechnical investigations with a first phase of exploratory boreholes drilled in June 2020 and a second phase in August 2020. As part of these phases, piezometers have been installed to monitor groundwater levels.

The information collected from onsite assessment and external experts will inform the project team of ground conditions and water locations, allowing for a plan to be developed that protects existing resources.

Questions? Please get in touch:

Phone: 250-334-6000

Email: engineeringervices@comoxvalleyrd.ca



COMING UP NEXT

A public engagement period will be open in September to collect feedback on the conveyance options that are currently being considered. All CVRD residents are invited to provide their feedback and comments at www.connectcvr.ca/lwmp

The CVRD will also continue to communicate with homeowners about the outcomes of this investigatory work. Once data from this work is analyzed, any reports regarding ground conditions and groundwater will be made available to the public.



comoxvalleyrd.ca   

APPENDIX 6 – Online Survey

Help shape the future of our Sewer Service

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Plunging in: Reviewing Options

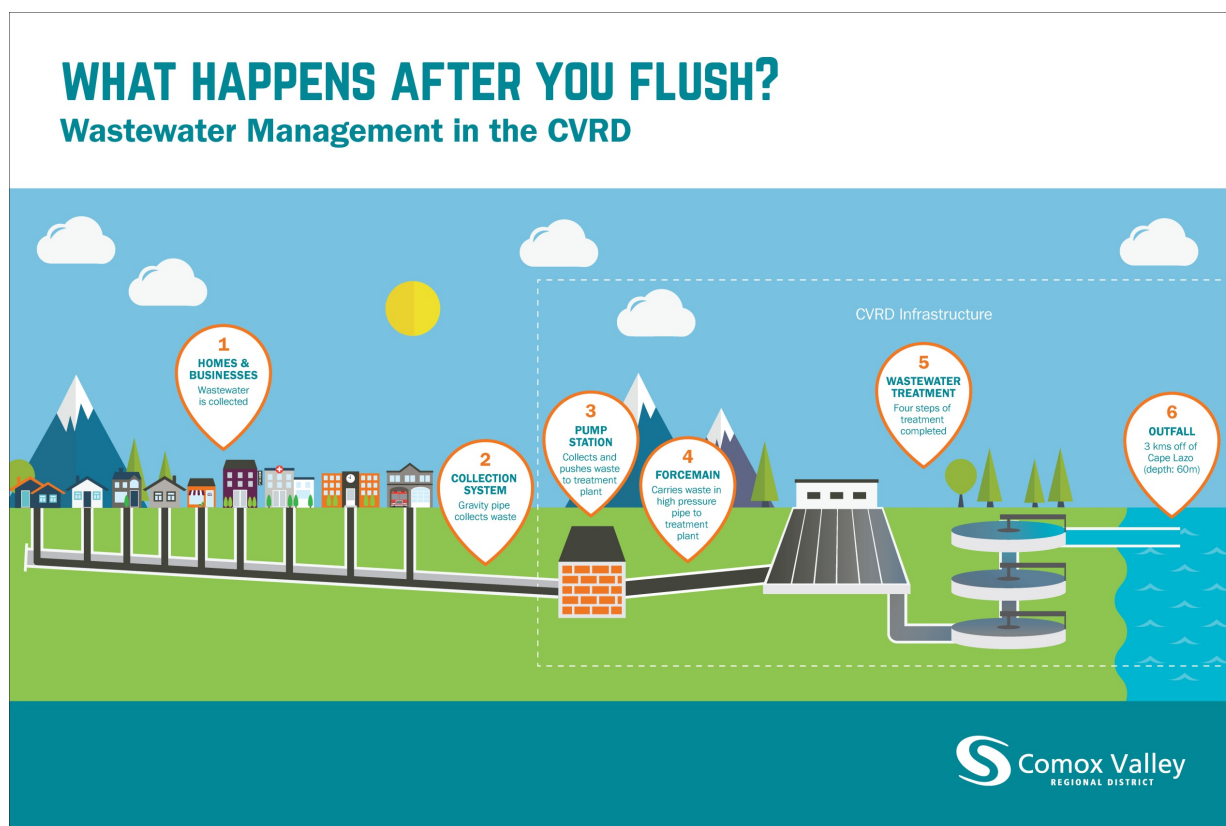
A critical part of the Comox Valley's sewer service is the 'conveyance system' – the series of pipes and pump stations that moves raw sewage (wastewater) to the treatment plant for processing.

Making a long-term plan for this system is critical to reducing environmental risks that currently exist along Willemar Bluffs (Balmoral Beach). It's also important that we design and build infrastructure that will serve the community for the long term. Any plan has an effect on the community—like costs to the taxpayer, as well as traffic, noise and other construction impacts – and while we understand there will be impacts, addressing the environmental risk and building for future growth is required. Leaving it 'as is' is not an option.

The cost estimates included in this survey are at a class C level, which means the project is at a preliminary design phase. Cost estimates at this stage are based on current market conditions. When a preferred option is chosen, the project will enter the next stage, the detailed design phase, at which point costs will be further refined.

A shortlist of options has been identified based on stakeholder and public feedback collected in January 2019. Each of these options presents its own challenges and opportunities and we want to know how you feel about the potential impacts.

Note: All survey responses remain anonymous.



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About You

Answers to this survey are anonymous. The below questions help us understand communities of interest.

Are you a?

(Choose all that apply)

- ☐ Resident
- ☐ Business Owner
- ☐ Visitor

Which community do you live in?

(Choose any 1 options) (Required)

- ☐ Courtenay
- ☐ Comox
- ☐ Cumberland
- ☐ Area A
- ☐ Area B
- ☐ Area C
- ☐ Other

Please proceed to questions/overview of three shortlisted options. We'll ask about the benefits and risks to each to determine what is most important to you.

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Option 1: Overland Forcemain

Overview:

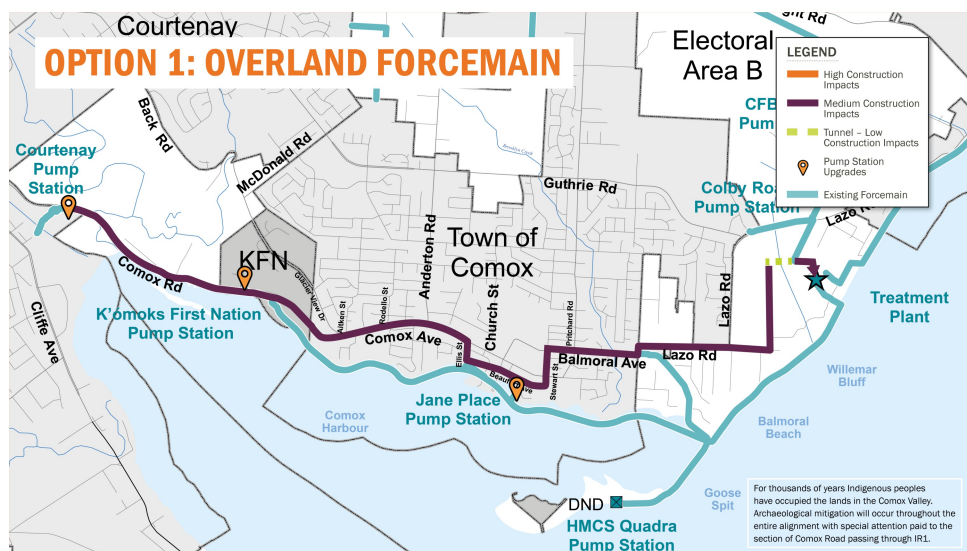
This option would see a trench dug along existing roadways, with a new pipe installed between the Courtenay Pump Station and the sewage treatment plant (see image below for route). This means installing pipe up and over the Comox Road and Lazo Road hills. It also includes:

- Replacement of the Courtenay Pump Station to accommodate the high-pressure pumps needed to push wastewater up over the two hills
- Upgrades to the K'ómoks First Nation and Jane Place pump stations
- Tunneling beneath the Lazo Marsh

*Our engineering consultants are currently reviewing whether this option could be delivered in phases.

Costs (Class C Estimate):

- Cost to Build: \$65M
- Cost to Run and Maintain (30-Year): \$17M
- Cost Per Household: \$240/household for 20 years



[VIEW LARGER IMAGE](#)

Route Impacts

The proposed route for Option 1 would follow Comox Road through K'ómoks First Nation IR1 land and into the Town of Comox, where it would continue along Comox Ave, turning south on Ellis, then east on Beaufort Avenue, north on Stewart St, and then east on Balmoral and Lazo Road, and up Moreland Road to connect to the treatment plant on Brent Road.

Anticipated construction impacts include:

- **Medium impact:** The entire construction route would see single lane alternating traffic at multiple locations through route.
- **Archaeological Mitigation:** Along the entire alignment but especially on Comox Road through IR1.
- **Low impacts:** Tunnelling in Lazo Marsh has the potential for increased traffic, noise in surrounding areas.

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Benefits for Option 1: Overland Forcemain

The project team has identified these benefits to Option 1: Overland Forcemain:

Rank the BENEFITS below from most important to you (1) to least important (2)

(Rank each option)

_____ Lower risk construction approach: 'Cut and cover' (digging trench, laying pipe, then covering) is a standard construction practice and more predictable.

_____ Removes foreshore pipe: Some public feedback has indicated a preference for removing the foreshore pipe along the Comox estuary, though technical studies show there is 15-20 years remaining in the pipe.

Are there other benefits – or positives – that should be considered for this option? What do you like about it?

Challenges for Option 1: Overland Forcemain

These are some of the challenges and risks for Option 1: Overland Forcemain:

Rank the CHALLENGES/RISKS below from most concerning to you (1) to least concerning (5)

(Rank each option)

_____ New pump station: A new Courtenay pump station may be required to accommodate higher pressure.

_____ Higher cost to run: Pushing so much volume up and over the two hills requires high-powered pumps that are more challenging and costly to operate.

_____ Higher lifecycle costs: Increased pressure and high energy has long-term cost and maintenance impacts.

_____ Addressing groundwater concerns: Managing groundwater through Comox Hill and Lazo Hill areas to ensure there is no impact to groundwater levels and individual wells.

_____ Roadway construction: Largest overall construction footprint and most traffic disruption over time, because all sections will include road work and excavation along Lazo and Balmoral roads in Area B could have more impact to vegetation in that area

Are there other challenges or risks that we should be considering for this option?

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Option 2: Tunnel Forcemain

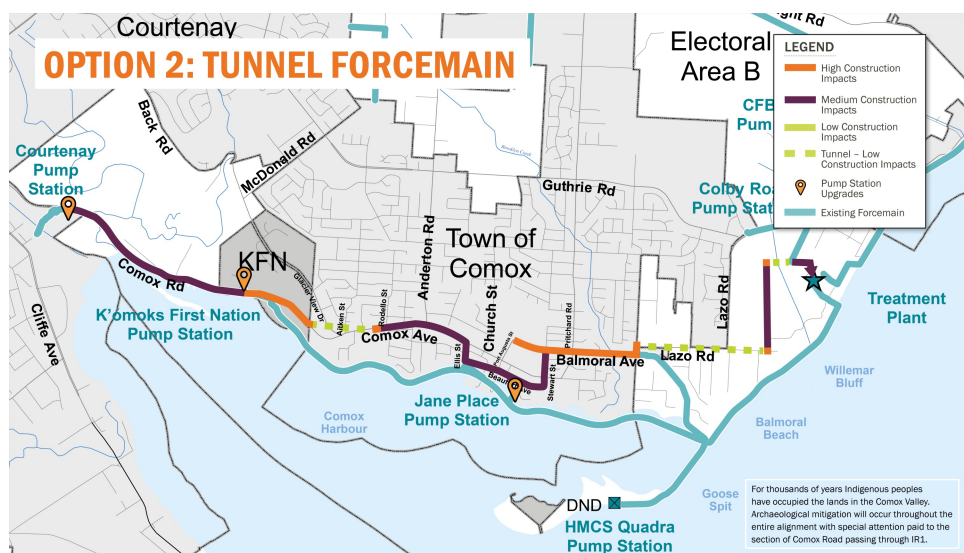
Overview:

This option combines 'cut and cover' construction (trenching) with directional drilling (a type of tunneling). The trench would be dug, with pipe installed, along existing roadways for much of the route, but tunneling would be used to go through rather than over the Comox and Lazo Road hills. It also includes:

- Upgrades to all three pump stations on the route: Courtenay, K'ómoks First Nation and Jane Place.
- Tunneling beneath the Lazo Marsh.

Cost (Class C Estimate):

- Cost to Build: \$58M
- Cost to Run and Maintain (30-Year): \$13M
- Cost Per Household: \$210/household for 20 years



[VIEW LARGER IMAGE](#)

Route Impacts:

The proposed route for Option 2 would follow a similar route as Option 1 – however the work at Comox Hill and Lazo Hill would include tunneling, rather than trenches. This would mean reduced roadway work in those areas, but additional impacts in areas around the tunnel entry/exit locations.

Anticipated construction impacts include:

- **High impact:** Comox Road (Dyke Road) from K'ómoks First Nation pump station to the bottom of Comox Hill due to single lane alternating traffic for an extended period. Balmoral (from Port Augusta to Pritchard) and small sections at the top of Comox Hill and the end of Lazo and Moreland would see periods of local traffic only.
- **Medium impact:** Comox Road (Dyke Road) from Courtenay Pump Station to K'ómoks First Nation pump station and on Comox Ave, Ellis, Beaufort, Stewart, Moreland and Brent Road – single lane alternating as work progresses.
- **Archaeological Mitigation:** Along the entire alignment but especially along Comox Road through IR1.
- **Low impact:** Tunnel areas at Comox Hill, Lazo Hill and Lazo Marsh with Increased traffic, noise in surrounding areas.

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Benefits for Option 2: Tunnel Forcemain

The project team has identified these benefits for Option 2: Tunnel Forcemain:

Rank the BENEFITS below from most important to you (1) to least important (4)

(Rank each option)

_____ Lower operating costs: By tunneling through the two hills instead of pushing waste up and over, there is reduced pumping demands on the system, making it cheaper to operate.

_____ Lower lifecycle costs: This reduced demand is easier on equipment and the smaller pumps will be cheaper to replace when needed.

_____ Less construction footprint: While construction impacts would still occur, tunneled sections would mean reduced impacts around Comox and Lazo Hills.

_____ Removes foreshore pipe: Some public feedback has indicated a preference for removing the foreshore pipe along the Comox estuary, though technical studies show there is 15-20 years remaining in the pipe.

Are there other benefits – or positives – that we should be considering for this option?

Challenges for Option 2: Tunnel Forcemain

These are some of the challenges identified for Option 2: Tunnel Forcemain:

Rank the CHALLENGES/RISKS below from most concerning to you (1) to least concerning (4)

(Rank each option)

_____ Increased construction risk: Though preliminary assessments show favourable ground conditions, tunneling work introduces more risk to the construction phase.

_____ Addressing groundwater concerns: Managing groundwater along tunneled sections through Comox Hill and Lazo Hill to ensure there is no impact to groundwater levels and individual wells.

_____ Additional rights-of-way required: Because this route moves off already established road right-of-ways, new agreements would have to be negotiated with landowners.

_____ Additional laydown area: A portion of Comox Rd and Balmoral Rd (Stewart to Port Augusta) will be heavily impacted due to the need to assemble and lay down pipe before it is fed underground.

Are there other challenges or risks that we should be considering for this option?

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Option 3: Phased Tunnel Forcemain

Overview:

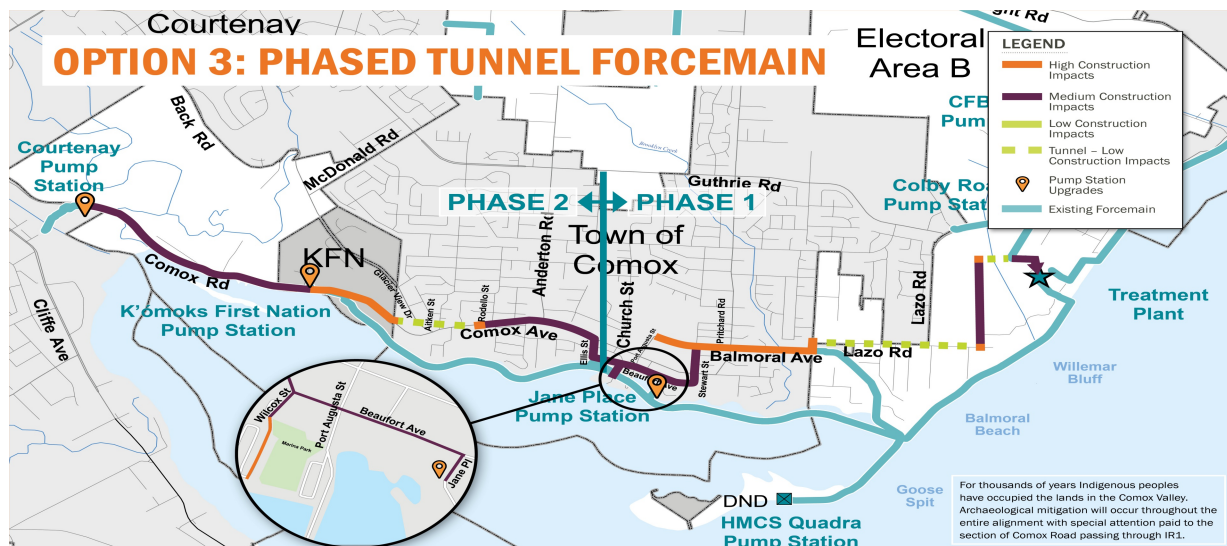
This option uses the combined trench-and-tunneling route of Option 2 but breaks the project into two phases. Phase 1 would include the stretch between Marina Park and the treatment plant. Phase 2 would replace the pipe between Courtenay Pump Station and Marina Park in 15-20 years. It also includes:

- Upgrades to all three pump stations on the route: Courtenay, K'ómoks First Nation and Jane Place
- A temporary line from a tie-in at Marina Park to the new forcemain on Beaufort Ave for 15-20 years until Phase 2 of the project is introduced
- A new line from Jane Place to new forcemain
- Lowest immediate cost to build
- Tunneling beneath the Lazo Marsh

Phase 1 Cost (Class C Estimate):

- Cost to Build: \$43M
- Cost to Run and Maintain: \$13M
- Cost Per Household: \$160/household (until Phase 2)

Phase 2 Capital Cost (to be implemented in 15-20 years): \$18M



[VIEW LARGER IMAGE](#)

Route Impacts:

The proposed route for Option 3 is the same as Option 2 – however only the work between Marina Park and the Sewage Treatment Plant would be undertaken at this time, with construction on the remainder of the route to occur in 15-20 years. Construction in the first phase would be focused between Marina Park, Jane Place/Beaufort Ave, Balmoral Ave and Lazo/Brent Roads. Construction impacts for Phase 1 include:

- **High impact:** Balmoral (from Stewart to Pritchard) and small sections at the end of Lazo and Moreland would see periods of local traffic only. Marina Park parking lot would see high impact with limited disruption to boat ramp access.
- **Medium impact:** Wilcox, Beaufort, Jane Place and Moreland Ave would see single lane alternating traffic.
- **Low impacts:** Lazo/Brent Road areas: Increased traffic, visible and active equipment, noise in surrounding areas.

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Benefits for Option 3: Phased Tunnel Forcemain

The project team has identified these benefits to Option 3: Phased Tunnel Forcemain:

Rank the BENEFITS below from most important to you (1) to least important (5)

(Rank each option)

_____ Addresses urgent environmental risk: The at-risk pipe at Willemar Bluffs would be replaced quickest as part of the first, immediate, phase of construction.

_____ Reduced short term capital cost: By splitting the work into phases, a significant portion of cost is postponed/spread out over a longer timeframe with more users to contribute.

_____ Lower operating and lifecycle costs: Reduced pressure requirements means it costs less to operate.

_____ Maximizes life of existing infrastructure: The existing foreshore pipe in Comox estuary – which has been assessed and is still in good condition – remains in place for another 15-20 years.

_____ Reduced construction impact: By completing half of the route at a time, the short-term construction impact is smaller.

Are there other benefits for this option that we should be considering?

Challenges for Option 3: Phased Tunnel Forcemain

These are some of the challenges and risks for Option 3: Phased Tunnel Forcemain:

Rank the below CHALLENGES/RISKS from most concerning to you (1) to least concerning (5)

(Rank each option)

_____ Foreshore pipe remains along the Comox Estuary: While condition assessment shows this pipe in good condition, some community members want to see it removed.

_____ Challenging connection at Marina Park: To complete a challenging connection between the new system and existing, there will be high construction impacts at Marina Park, limited impact to boat ramp access, and medium impacts along Wilcox Street

_____ Increased construction risk: Though preliminary assessments show favourable ground conditions, tunneling work introduces more risk to the construction phase.

_____ Addressing groundwater concerns: Managing groundwater along tunneled sections through Comox Hill and Lazo Hill to ensure there is no impact to groundwater levels and individual wells.

_____ Additional laydown area required: Because the pipe needs to be assembled before feeding underground, long stretches of roadway will need to be used as 'laydown' areas – including a portion of Balmoral between Stewart and Port Augusta.

Are there other challenges or risks that we should be considering for this option?

APPENDIX 7 – Online Survey Responses

Plunging in: Reviewing Options

SURVEY RESPONSE REPORT

11 September 2020 - 13 October 2020

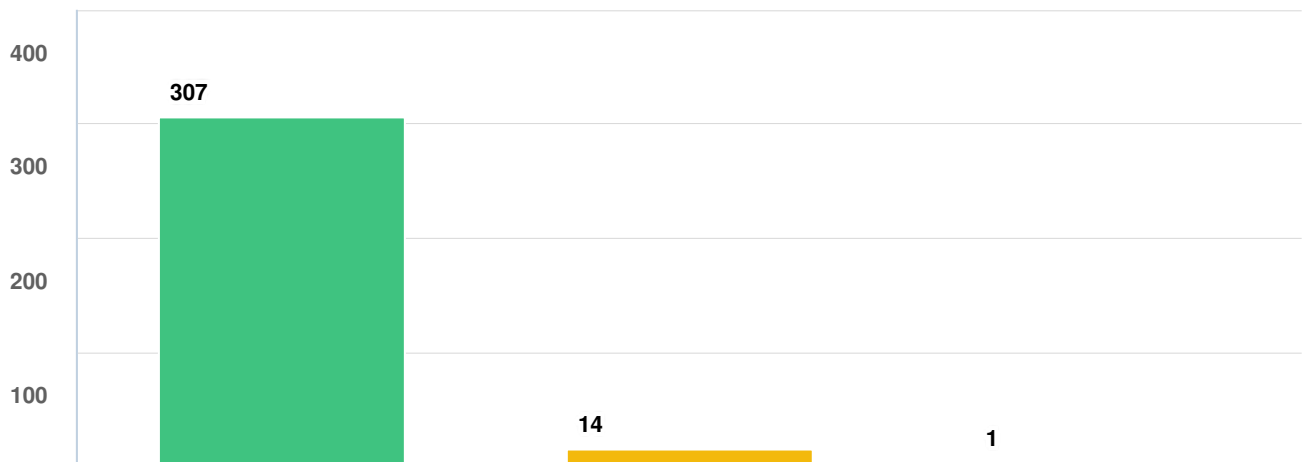
PROJECT NAME:

Help shape the future of our Sewer Service



SURVEY QUESTIONS

Q1 Are you a?



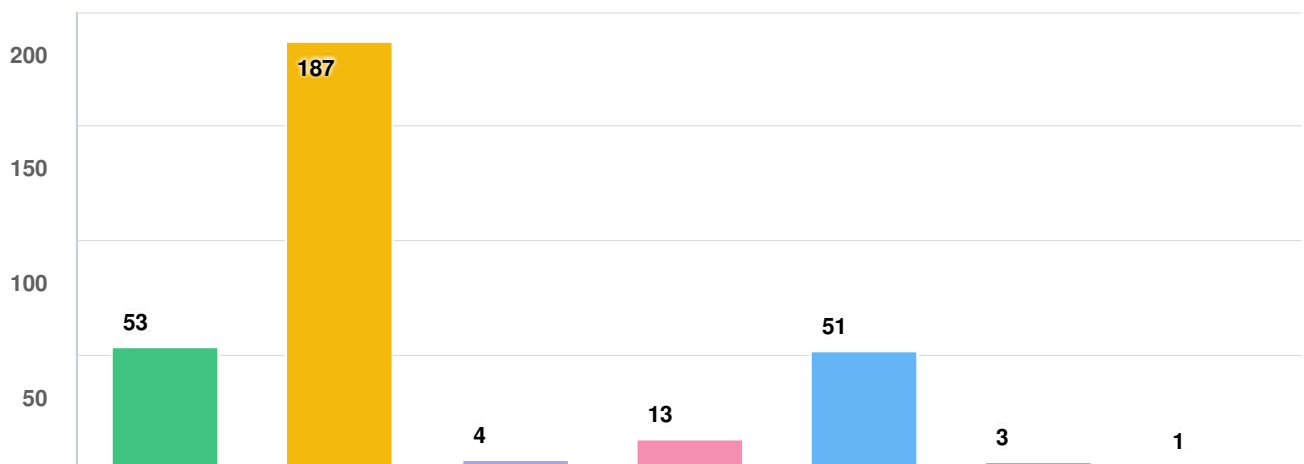
Question options

● Resident ● Business Owner ● Visitor

Optional question (312 response(s), 0 skipped)

Question type: Checkbox Question

Q2 Which community do you live in?



Question options

● Courtenay ● Comox ● Cumberland ● Area A ● Area B ● Area C ● Other

Mandatory Question (312 response(s))

Question type: Checkbox Question




Q3 Rank the BENEFITS below from most important to you (1) to least important (2)

| OPTIONS | AVG. RANK |
|--|-----------|
| Lower risk construction approach: 'Cut and cover' (digging trench, laying pipe, then covering) is a standard construction practice and more predictable. | 1.40 |
| Removes foreshore pipe: Some public feedback has indicated a preference for removing the foreshore pipe along the Comox estuary, though technical studies show there is 15-20 years remaining in the pipe. | 1.58 |

Optional question (264 response(s), 48 skipped)
Question type: Ranking Question

Q4 Are there other benefits – or positives – that should be considered for this option? What do you like about it?

| | |
|---------------------------------|--|
| Anonymous 9/14/2020 11:28 AM | More cost effective |
| Anonymous 9/14/2020 12:03 PM | Ability to upgrade roads to accommodate multi-use path; decommissioning of pipe within foreshore. |
| Anonymous 9/14/2020 05:17 PM | Keep the pipe for at least 10 yrs, with annual assessments. |
| Anonymous 9/14/2020 08:31 PM | Since we live in Area C and already have had the expense of setting up and maintaining our own household sewage treatment, I do not believe this will effect us in costs or inconvenience,! Hoping I am correct! Therefore my opinion on this project is probably moot ! Thank you |
| Anonymous 9/14/2020 10:09 PM | You have a bias questionnaire. Indicating "low risk" in the options creates bias. " though studies show there is 15-20 years remaining" also creates bias. This survey is null and void. |
| Anonymous 9/15/2020 10:01 AM | Predictable |
| Anonymous 9/15/2020 04:18 PM | proven new technology would make these options unnecessary and lower the price by 80% and could be completed by the 2022 start date, totally |

| | |
|---|---|
| | environmentally safe! |
| Anonymous 9/16/2020 12:21 AM | Phases |
|  9/16/2020 11:32 AM | Traffic concerns during construction. |
| Anonymous 9/16/2020 11:44 AM | Overland more manageable in case of problems. |
| Anonymous 9/16/2020 01:12 PM | Pipe is buried and not exposed to elements. Hopefully new pipe will be large enough to accommodate population growth for next 50 years. |
| Anonymous 9/16/2020 02:33 PM | Eventually we are going to need to move the line from the foot of the foreshore. We should do that to reduce risk, but also not to spend more money on the foreshore line, as that is eventually going to be money wasted. |
| Anonymous 9/16/2020 02:45 PM | Don't go cheap. Put in an upgrade that will last for at least 40 years to accommodate the influx of people into the valley. As we can see, our new hospital will soon be too small. Plan well. |
|  9/16/2020 04:14 PM | Having been involved in the construction of the sewer main from the Goose Spit to the Treatment plant, I think removal of the foreshore pipe is a bad idea. It. Once the pipe is not in use it should be filled and left in place. |
| Anonymous 9/16/2020 05:55 PM | The construction impact on residents who aren't serviced by the project is minimal |
|  9/17/2020 10:17 AM | Lowers construction impact along Balmoral which is critical access for locals to Goose spit and Point Holmes |
| Anonymous 9/17/2020 12:42 PM | I like using right of ways for services ... more stability! |
| Anonymous 9/17/2020 12:44 PM | I fail to see why we would put a forced main on land period. Have we considered a trenched marine pipe line. I worked a little in the offshore oil and gas area and today there are amazing modern systems of laying continuous large diameter pipe from reel barges. These pipes can withstand high pressure and are of composite construction. Trenching the pipe below the surface where required is also common and has lots of history. Disturbance to sea bed and fish habitat is small and recovery is fast. I really think that the eternal desire to dig trenches, while no doubts provides lots of jobs, is old school. ! |
| Anonymous 9/17/2020 01:28 PM | Removing all pipes and not constructing any further pipes on the foreshore or below the high water mark should be a priority for the future. |

Anonymous

9/17/2020 07:44 PM

Gets the pipe off the beach.

Anonymous

9/18/2020 01:44 PM

nothing, really. but do something to solve the problem.

Anonymous

9/18/2020 02:45 PM

no new pump house beyond jane place pmp house. upgrade both pump houses to make sure air quality remains as is or better than recommended by authorities

Anonymous

9/18/2020 03:18 PM

Upgrades Courtenay pump station and seems fairly standard construction

Anonymous

9/18/2020 06:03 PM

Protection of the environment BEFORE the foreshore pipe fails is the highest priority.

Anonymous

9/18/2020 07:02 PM

Since the community is now upgrading sewer systems, this would be a good time to bring in outlying areas that are not connected.

Anonymous

9/19/2020 08:33 AM

Lazo Rd to Brent Rd . To sewer plant ?? Where is that option ? Twin foreshore pipe but do it right this time not as cheap as possible !!

Anonymous

9/19/2020 08:58 AM

I am concerned about construction in sensitive habitat including werlands and sand dunes.

 9/20/2020 10:37 AM

Presuming that the new pipe will be in the center of Comox (Dike) Road (where I think that it should be), the 'dike' could be enhanced for climate change mitigation. it is indeed unfortunate that if this is the case, that the recent resurfacing of Dike Road will have been an a waste of Provincial money.

Anonymous

9/20/2020 04:51 PM

avoids using natural habitat areas for infrastructure and ties it in with more "industrial" / developed areas of the town.

Anonymous

9/20/2020 06:39 PM

This will directly affect us, since it runs along the road that we live on, However, we do like the low-risk construction approach. NOTE: the way this survey is constructed, we haven't yet had a chance to see the alternatives !!!!!!!!!!!

Anonymous

9/22/2020 02:52 PM

It would be assumed that commenting on Jane Place Station to the treatment plant there is the advantage of retaining the foreshore pipe as a viable backup to the main sewage line

Anonymous

9/23/2020 10:33 AM

I worry about any impact on Lazo marsh

Anonymous

9/23/2020 12:34 PM

No

Anonymous

9/24/2020 09:23 AM

Minimize environment impacts of future pipe breaks/failures; pipe is easily accessible for repairs and mitigation.

Anonymous

9/24/2020 01:26 PM

It will allow the utilization of local contractors (i.e., benefits local economy). Option 2 would require bringing in a HDD contractor from the mainland at considerable expense. Option 1 has the lowest engineering risk (i.e., less chance of major cost overruns). Option 1 gets the job done the fastest allowing the community to take advantage of historically low interest rates over the next several years.

Anonymous

9/24/2020 02:21 PM

If as a community we are concerned about the risk of sewage spillage and pollution of the estuary then we should be minimizing risk of any spill by removing pipe running by the estuary. However if this is done at a later date we may be able to better identify other environmental risks and development considerations.

Anonymous

9/25/2020 09:35 AM

more harm would be done by removing the old pipe. Empty it and leave it alone.

Anonymous

9/25/2020 05:12 PM

I don't like this option at all. It is number 3 on my list of options. Too much money.

Anonymous

9/26/2020 12:41 PM

Not much

Anonymous

9/27/2020 03:47 PM

Least impact for KFN neighbours. Projected cost for 15-20 years in the future as per option 3 can not be known. A dangerous gamble for the future of the estuary.

Anonymous

9/28/2020 09:12 AM

Takes pipe away from the ocean. Seems like straightforward process.

Anonymous

9/28/2020 07:50 PM

Having sewage line moved inland to avoid any risk of a spill into the estuary finally.

Anonymous

9/29/2020 11:03 AM

Minimal impact to residential areas, ie, Jane Place Pumping Station. Removing the JP Pumping Station entirely would be preferable. It really shouldn't be at this location and should never have been installed there in the first place.

Anonymous

9/29/2020 08:10 PM

Essentially an upgrade so predictable cost and outcome.

Anonymous

10/01/2020 01:17 PM

I would prefer protection of the foreshore pipe and including a walkway.

Anonymous

Bury telephone and power lines. Remove telephone and power poles. Retain

10/01/2020 01:54 PM

4 way traffic stops. Control pedestrian traffic across streets. Current practice of free pedestrian flows at intersection encourages 'stroller' pedestrian flow. Further, current practice has pedestrian flow in spurts rather than group especially slowing automobiles making right or left turns.

Anonymous

10/02/2020 07:15 AM

Nothing. Why not take everything South. Instead of spending all of this money to transfer sewage to a sewer treatment plant that may not have a longer life span - why not take invest the money in going South. It is mostly downhill and will all of the development that way - would that not make more sense? You will need something other than the current treatment plant to handle the volume will you not?

Anonymous

10/03/2020 09:07 AM

What pipeline control measures are being considered to capture potential leaks, process to ensure long term integrity of the pipe, what happens if there is a break?

Anonymous

10/05/2020 08:44 AM

If there is a leak, it will be far easier to detect. I would call it completely irresponsible to consider any below-ground option due to potential to sicken a nearby well user.

Anonymous

10/05/2020 10:26 AM

A two level ranking system seems a strange way to gauge support. What about other costs?

Anonymous

10/05/2020 01:53 PM

I like the removal of the foreshore pipe,

Anonymous

10/06/2020 04:55 PM

Please look at changing the route. Take the pipe from Comox Ave, Tunnel "North" on Anderton Rd, "East" on Guthrie Road to Lazo Rd straight to the Plant. Reduce going into green areas, such as Brooklyn Creek Park, or MacDonald Wood Park. Or the swamp east of Morland Road.


10/07/2020 07:15 AM

I have a question.. what happens to the spetic tanks that we have in our backyards? Who pays for removing it and filling in the hole? My spctic tank is working great for me. I pay every 3 years to have it emptied.

Anonymous

10/07/2020 12:58 PM

This option is the best of the three for the long-term sewage problems.

Anonymous

10/08/2020 03:09 PM

Single lane alternating traffic, without totally closing off the streets where the pipe will be laid.

Anonymous

10/08/2020 03:39 PM

Low impact because it can be staged along the route and no tunneling beyond the marsh would be faster and easier to do.

Anonymous

10/09/2020 07:43 AM

Why are we not building on the route to Croteau Beach and then moving inland

Anonymous

10/09/2020 01:03 PM

Benefit of completing project all at once

Anonymous

10/09/2020 02:23 PM

Leave the pipe in place

Anonymous

10/10/2020 12:19 AM

A break In the forcemain, (caused by poor pipe joints, defective materials or seismic activity) Would be more easily detected and repaired....thus providing better protection for local wells And the Quadra Sands aquifer.. Would potentially provide an opportunity to install a much needed bike path running on top of the forcemain on Lazo road...

Anonymous

10/10/2020 11:45 AM

That all urban properties not currently connected to the system, get connected.

[REDACTED]

10/11/2020 01:53 PM

If there truly is another 15 years of trustworthy pipe, then it seems inefficient to remove the pipe--which MUST be removed when it is no longer viable in the estuary.

Anonymous

10/11/2020 03:07 PM

If it is decided not to remove the foreshore pipe, there should be a plan to discontinue its use, despite the remaining life in the pipe.

Anonymous

10/12/2020 10:15 AM

removing danger of effluent spill in open ocean affecting all wildlife and shellfish industry

[REDACTED]

10/12/2020 09:15 PM

Getting the sewage infrastructure on a 100% overland route (we live on that route suggested in option 1!!), will mitigate any long term problems, if we encounter THAT somewhat overdue quake! If the system was in the Bay, fixing it could be very troublesome and exceedingly expensive. Looking long term, this option 1 HAS to be the solution.

Optional question (65 response(s), 247 skipped)

Question type: Essay Question

Q5 | Rank the CHALLENGES/RISKS below from most concerning to you (1) to least concerning (5)

| OPTIONS | AVG. RANK |
|--|-----------|
| Addressing groundwater concerns: Managing groundwater through Comox Hill and Lazo Hill areas to ensure there is no impact to groundwater levels and individual wells. | 2.34 |
| Higher cost to run: Pushing so much volume up and over the two hills requires high-powered pumps that are more challenging and costly to operate. | 2.61 |
| Higher lifecycle costs: Increased pressure and high energy has long-term cost and maintenance impacts. | 2.65 |
| Roadway construction: Largest overall construction footprint and most traffic disruption over time, because all sections will include road work and excavation along Lazo and Balmoral roads in Area B could have more impact to vegetation in that area | 3.31 |
| New pump station: A new Courtenay pump station may be required to accommodate higher pressure. | 4.01 |

Optional question (273 response(s), 39 skipped)
Question type: Ranking Question

Q6 | Are there other challenges or risks that we should be considering for this option?

| | |
|---------------------------------|------------------------------------|
| Anonymous 9/14/2020 11:28 AM | Good for how many years? |
| Anonymous 9/14/2020 12:03 PM | commuter traffic |
| Anonymous 9/14/2020 09:52 PM | Habitat destruction in Lazo Marsh. |
| Anonymous 9/14/2020 10:09 PM | Oh probably. |

Anonymous

9/15/2020 06:22 AM

Potential flooding and damage to the forcemain along Comox road due to sea level rise. Is relocating the Courtenay Pump Station further up river and running the forcemain under Lerwick/Guthrie an option?

Anonymous

9/15/2020 08:51 AM

Can you include a wildlife tunnel under Comox hill road?

Anonymous

9/15/2020 04:18 PM

investigating alternative solutions



9/16/2020 11:32 AM

Safety for ambulance and fire responses with construction.

Anonymous

9/16/2020 11:44 AM

Interference with kus kus sum project?

Anonymous

9/16/2020 01:12 PM

Pumping up over 2 hills will require high pressure , high volume pumps which will need a redundant system in case of Pump failure. The noise of these pumps and the noise of the back flow valves slamming shut has to be considered for near by residents. Larger pump stations have a larger foot print and the design of the station has to be considered to so it has minimal impact on the surrounding neighborhood. One of those impacts is the maintenance required so the pump stations can operate. The Courtenay pump station is constantly having work done and it is common to see several service vehicles outside it. It also had an electric chain hoist fastened to the beam on the outside which is used to remove the sewage pumps. This is in full public view and is not what a resident should be forced to look at.

Anonymous

9/16/2020 02:33 PM

not aware of any.



9/16/2020 04:14 PM

The prohibitive cost of construction on Comox Ave and Balmoral Ave, because of the existing infrastructure, traffic, ground conditions and disruption to residents. Having estimated and supervised some of the largest water and sewer projects in the valley in the 1980's including the Sewer you are replacing, I can see massive cost overruns.

Anonymous

9/17/2020 12:42 PM

My major concern is potential well water issues ...

Anonymous

9/17/2020 01:28 PM

Keeping the pipe and any future piping out of the ocean should be a priority.

Anonymous

9/17/2020 01:59 PM

Single lane traffic on Comox hill will result in increased traffic on Anderton Road

Anonymous

Poor air quality along Curtis Road.

9/17/2020 05:38 PM

Anonymous

overall and ongoing costs are a challenge

9/18/2020 09:08 AM

Anonymous

prospect of line breakage or seepage along Beaufort Ave, effect on residences below Beaufort, hill slippage, disturbance of stability during and after construction, effect on residences below Beaufort, effect on existing water line access, causing future breakage, leaks, to residences below Beaufort.

9/18/2020 01:44 PM

Anonymous

i would like to see your thorough risk management chart and mitigation action plans. Then maybe I can add to yours

9/18/2020 02:45 PM

Anonymous

Stay very close to the surface so leaks can be easily detected early and repaired before damage is too far advanced !

9/19/2020 08:33 AM

[REDACTED]

With a larger Courtenay pump station, why not eliminate the KFN & Jane Place pump stations for one closer to Lazo Hill? or Leave the Courtenay pump station as is (with replacement as necessary) and retro-fit the KFN pump station to accommodate the Comox Hill, replace the Jane Place pump station with a new one to accommodate the Lazo Hill. Replacing the Jane place pump station will move the line further from the shoreline.

9/20/2020 10:37 AM

Anonymous

The environment should be a top focus.

9/23/2020 03:37 AM

Anonymous

Climate change. There is no doubt that there will be major flooding of Dyke road and at some point in the future, there will be significant costs to raise the road. It would be insane not to fully consider the impact of future sea level rise.

9/24/2020 01:26 PM

Anonymous

With increasing population growth and discussion concerning the need for a potential additional bridge crossing of the estuary would this affect routing options for the pipe? Also if there is an additional bridge crossing in the future this may either contribute to traffic flow disruption or alternatively help accommodate re routing of traffic while the estuary construction phase is under way. This may be an argument for deferral of the replacement of pipe along the estuary.

9/24/2020 02:21 PM

Anonymous

too expensive in the long run

9/25/2020 05:12 PM

Anonymous

No

9/26/2020 12:41 PM

Anonymous

Unforeseen complications that could extend construction time and/or increase costs. Environmental implications of removing shoreline pipe.

9/28/2020 09:12 AM

Anonymous

9/28/2020 07:50 PM

The location of the treatment plant is far from optimal for the whole valley.

Anonymous

9/29/2020 11:03 AM

Minimal impact to residential areas, ie, Jane Place Pumping Station.
Removing the JP Pumping Station entirely would be preferable. It really shouldn't be at this location and should never have been installed there in the first place.

Anonymous

9/30/2020 09:16 PM

The archaeological impact is huge to both the cost & time if any middens are found along Comox Ave.

Anonymous

10/01/2020 04:42 PM

Power outages: generator reliability at lift station(s), enhance municipal vector truck capacities and number of them available for emergency call-outs.
Sewage dumping sites for vectors accessible / available 24/7 and as close as possible. Definitely an easily accessible (drive in and out) gravity manhole / main for vectors (to dump) to wastewater treatment plant would be ideal for emergencies.

Anonymous

10/05/2020 08:44 AM

Inconceivably - NONE of the options presented give much consideration to resident health. The potential affect on human-consumed groundwater is an incredibly serious problem that is discussed very little in available literature.

Anonymous

10/05/2020 10:26 AM

Risk to existing urban forest is of great concern to me. Construction impacts are not just in Area B.

Anonymous

10/05/2020 01:53 PM

going under Lazo Marsh could affect groundwater and wells if there is a rupture

Anonymous

10/06/2020 11:22 AM

We live near the treatment plant. We are on well water and are very concerned about potential leaks and problems with our well water.

Anonymous

10/06/2020 04:55 PM

Please look at changing the route, too many 90 degrees. Option: From Comox Ave, Tunnel "North" on Anderton Rd, "East" on Guthrie Road to Lazo Rd, straight to the Plant! Avoid 'through' Brooklyn Creek Park or MacDonald Wood Park.



10/07/2020 07:15 AM

I live across the Estuary and over the 13 years that I have been here, I see less and less water birds. Eagles want to built their nests but the noise and car run offs into the Estuary is taking away nature. Question.. which side of the road are the plans for digging and how does the growing traffic and run offs affect wildlife? I know its not relating to the pipeline but is there any studies done on car run offs into the Estuary?

Anonymous

10/07/2020 12:58 PM

If the Jane Place Pump Station must still remain, it should not be enlarged in height or in footprint and should be beautified in keeping with the residential area.

Anonymous

Why would the corridor on Lazo road not be used rather than disrupting

10/10/2020 12:19 AM

Morland ...there are some huge trees at the corner of Balmoral and Morland that this option would disrupt.

Anonymous

10/10/2020 11:45 AM

Urban properties not currently directly connected to the system should be connected due to the environmental risks of the current private systems in place.

Anonymous

10/11/2020 03:07 PM

How will this impact Marina Park and residential buildings along Beaufort? And all residences along the proposed overland route?

Anonymous

10/12/2020 10:15 AM

Damage to Lazo Marsh and impacts on all wildlife that depend on the Marsh.

Anonymous

10/12/2020 02:48 PM

Construction risks to vegetation, particularly old trees along the entire route.

10/12/2020 09:15 PM

If WE, the current occupants of the Comox Valley, are not the ones to deal with OUR shit, then who is?

Optional question (44 response(s), 268 skipped)

Question type: Essay Question

Q7 Rank the BENEFITS below from most important to you (1) to least important (4)

OPTIONS

AVG. RANK

| | |
|--|------|
| Lower operating costs: By tunneling through the two hills instead of pushing waste up and over, there is reduced pumping demands on the system, making it cheaper to operate. | 2.03 |
| Lower lifecycle costs: This reduced demand is easier on equipment and the smaller pumps will be cheaper to replace when needed. | 2.36 |
| Less construction footprint: While construction impacts would still occur, tunneled sections would mean reduced impacts around Comox and Lazo Hills. | 2.68 |
| Removes foreshore pipe: Some public feedback has indicated a preference for removing the foreshore pipe along the Comox estuary, though technical studies show there is 15-20 years remaining in the pipe. | 2.87 |

Optional question (272 response(s), 40 skipped)

Question type: Ranking Question

Q8 | **Are there other benefits – or positives – that we should be considering for this option?**

Anonymous

9/14/2020 04:47 PM

Lower pressure pumping is also less risk of pipe failure or leakage. Less pressure required for other pumping stations to tie in

Anonymous

9/14/2020 09:52 PM

Possibly less disruption to Lazo Marsh.

Anonymous

9/14/2020 10:09 PM

How about asking about the negatives instead of assuming option 2 only has positives vs option 1 only having negatives. This survey is awful.

Anonymous

9/15/2020 08:51 AM

Add a wildlife tunnel under roads

Anonymous

9/15/2020 04:18 PM

new technology



9/16/2020 11:32 AM

Future growth of the areas.

Anonymous

9/16/2020 01:12 PM

Cheaper than option 1. Less impact on residents during construction.

Anonymous

9/16/2020 02:33 PM

not aware of any.



9/17/2020 10:17 AM

Addition of biking trails where possible

Anonymous

9/17/2020 01:28 PM

Removing foreshore pipe is most important.

Anonymous

9/17/2020 05:38 PM

Poor air quality along Curtis Road.

Anonymous

9/18/2020 01:44 PM

none.

Anonymous

9/19/2020 07:54 AM

This appears to be the best solution, long term.

Anonymous

9/19/2020 08:33 AM

This survey is bullshit ! I am forced to make decisions by limiting my options !
After I make a choice I shouldn't be forced to choose a lesser degree of

| | |
|-----------------------------------|--|
| | importance for an issue that is in my opinion of equal importance ! It makes it look like I agree with something I don't ! |
| Anonymous 9/19/2020 08:58 AM | Less environmental disturbance means fewer potential problems. |
| <div></div> 9/20/2020 10:37 AM | lower cost |
| Anonymous 9/22/2020 02:52 PM | Since tunneling will be deeper , this method will potentially have far greater negative impact on the water systems that feed the wells of people living between Lazo Road and the Bay. |
| Anonymous 9/24/2020 01:26 PM | The lower operating pressure and cost is a big plus! |
| Anonymous 9/24/2020 02:21 PM | Lower construction and life cycle costs are always good but while I would support removal of the foreshore pipe, if the existing infrastructure can be safely left in place, there may be advantage to defer this work so as to coordinate or take account of future development such as a third bridge crossing of the estuary which may be a reality within the existing lifespan of the pipe. |
| Anonymous 9/25/2020 05:12 PM | I like the cheaper cost. Smaller pumps I would think means less noise. |
| Anonymous 9/26/2020 12:41 PM | No |
| Anonymous 9/27/2020 03:47 PM | Though this plan protects the estuary, we have a concern for the higher impact on KFN community. |
| Anonymous 10/02/2020 07:15 AM | How does the drilling effect vibrations on homes ie: drywall cracking etc. A neighbour used a compactor once when finishing their driveway and it cracked a bunch of drywall and loosened tiles in the kitchen and bathroom. How many trees would be effected along Lazo Road? |
| Anonymous 10/02/2020 03:50 PM | Would like an option to comment NEGATIVELY re: diverting traffic to a quiet residential street (Donovan Drive) which already is a shortcut for Town of Comox Vehicles heading back and forth the works yard, as well as many non-local traffic. |
| Anonymous 10/05/2020 08:44 AM | Installing piping below ground will make leak detection much harder. Given the critical effect of a leak, why are tunneled options even being considered? |
| Anonymous 10/05/2020 10:26 AM | Can other areas where extensive tree roots are encountered be candidates for tunneling? |

Anonymous

10/06/2020 04:55 PM

Please look at changing the route, too many 90 degrees. Option: From Comox Ave, Tunnel "North" on Anderton Rd, "East" on Guthrie Road to Lazo Rd, straight to the Plant! Avoid 'through' Brooklyn Creek Park or MacDonald Wood Park.

Anonymous

10/10/2020 12:19 AM

The route shown here is incorrect as the tunnels through Lazo do not follow established roadways but rather would go underneath private property...this should have been made clear to the public.

[REDACTED]

10/10/2020 11:33 AM

1)wells must NOT be impacted...2)you keep talking "ground water", this is different than aquifer that nobody has addressed, 3)why wasn't your hydrologist available at the meetings to ask direct questions to people attending info questions...IF in the future people in the well/septic field residences were forced to join this built sewage system can it more easily be done by this tunnelled method???

Anonymous

10/10/2020 11:45 AM

Other urban properties not currently directly connected can be joined.

[REDACTED]

10/11/2020 01:53 PM

The foreshore pipe MUST come out, but if there is truly 15-years of trustworthy life in the estuary pipe, it seems inefficient to remove it while it is still viable.

Anonymous

10/12/2020 02:48 PM

Reduced pumping pressure is very important to me.

[REDACTED]

10/12/2020 09:15 PM

All 2nd in my view.

Optional question (33 response(s), 279 skipped)


Question type: Essay Question

Q9 Rank the CHALLENGES/RISKS below from most concerning to you (1) to least concerning (4)

| OPTIONS | AVG. RANK |
|---|-----------|
| Addressing groundwater concerns: Managing groundwater along tunneled sections through Comox Hill and Lazo Hill to ensure there is no impact to groundwater levels and individual wells. | 1.93 |
| Increased construction risk: Though preliminary assessments show favourable ground conditions, tunneling work introduces more risk to the construction phase. | 2.46 |
| Additional rights-of-way required: Because this route moves off already established road right-of-ways, new agreements would have to be negotiated with landowners. | 2.54 |
| Additional laydown area: A portion of Comox Rd and Balmoral Rd (Stewart to Port Augusta) will be heavily impacted due to the need to assemble and lay down pipe before it is fed underground. | 3.01 |

Optional question (272 response(s), 40 skipped)
Question type: Ranking Question

Q10 Are there other challenges or risks that we should be considering for this option?

| | |
|---|---|
| Anonymous 9/15/2020 06:22 AM | Could the tunnels just go under the existing right of way under Lazo road and Comox road/avenue Rather than cutting underneath the residential neighborhoods? |
| Anonymous 9/15/2020 04:18 PM | new technology |
|  9/16/2020 11:32 AM | CVRD should put municipal water into those areas without it. |
| Anonymous 9/16/2020 01:12 PM | Don't go with a low bid tunnelling contractor . |
| Anonymous 9/16/2020 02:33 PM | not aware of any |

Anonymous

9/17/2020 08:44 AM

What do you mean by "Additional laydown area along Balmoral" in front of 4 condos, shopping centre entrance and golf course? Will traffic [i.e. cars from these sites] be completely shut down? How will emergency services [i.e. ambulance, fire, hydro, etc] be delivered to these sites?

[REDACTED]

9/17/2020 10:17 AM

Anderton park access needs to be maintained as it is heavily used by children, tennis players, and Berwick residents. It is also the footpath access to Comox mall. Access to Comox golf course must also be considered as they have already had access limited by condo construction for over 12 months. Consider a temporary left turn signal or lane eastbound into Comox mall from Comox Ave. Blocking the Balmoral entrance will create havoc at Comox mall.

Anonymous

9/17/2020 01:59 PM

increased traffic on Anderton Road is to be expected

Anonymous

9/18/2020 09:08 AM

overall and ongoing cost is a challenge

Anonymous

9/18/2020 01:44 PM

using a number of different construction techniques rather than just one process, make the project more complicated, less efficient, and subject to more potential variances in costs as things move along on various phases and sections. likely hood of extra construction costs increases. This will end up costing more than option 1.

Anonymous

9/18/2020 02:45 PM

the least impact to landowners the better.

Anonymous

9/19/2020 08:33 AM

I say again lazo Rd to Brent Rd to plant . Close to surface for easy leak detection clean up and repair !

Anonymous

9/19/2020 08:58 AM

I am concerned about the potential impacts to the sensitive wetland and sand dune ecosystems during and post construction.

Anonymous

9/20/2020 01:33 PM

too much ground water flowing to golf creek

Anonymous

9/20/2020 04:51 PM

Could have major impacts on businesses in the downtown area due to the construction. Also could impact Filberg Festival and tourism due to the tunnel construction in the area

Anonymous


9/20/2020 06:39 PM

I am VERY concerned that this option runs the HIGH risk of major cost increases and delays if/when undocumented underground infrastructure and/or archeological remains and/or unexpected geological features are encountered during the tunneling

Anonymous

9/24/2020 01:26 PM

Major risk of cost overruns. It looks cheaper than Option 1 now, but because of the additional risk it could end up costing a lot more. If a local HDD

| | |
|--|--|
| | contractor is used, they may not have sufficient experience. If a more experienced HDD contractor from the mainland is brought in, it may be more expensive. |
| Anonymous 9/25/2020 05:12 PM | no |
| Anonymous 9/26/2020 12:41 PM | No |
| Anonymous 9/27/2020 03:47 PM | As mentioned above, this option increases impact for KFN community. Their concerns should be well considered. |
| Anonymous 9/28/2020 07:50 PM | The unknowns of tunnelling and potential delays that might result. The route through the middle of Comox is problematic enough without increasing the disruption time. |
| Anonymous 10/01/2020 06:33 AM | That people will not choose this option because they are fixated on saving money for themselves rather than thinking about the savings for future generations. |
| Anonymous 10/02/2020 07:15 AM | What right of ways would be involved? This should be shown so people who may be impacted are advised. |
| Anonymous 10/02/2020 03:50 PM | impact of traffic on quiet residential street (Donovan Drive) which is already used as a "shortcut" by many Town of Comox vehicles and other "non-local" traffic. |
| Anonymous 10/02/2020 09:44 PM | They are all the same option, just doing it in a different way. How about offering real options? If the HMCS Quadra pump station is going to be left as is, wouldn't there still be a risk of a leak into the Comox Bay? |
| Anonymous 10/05/2020 01:53 PM | going under Lazo Marsh could put groundwater and individual wells at risk as will as if there is a rupture. |
| Anonymous 10/06/2020 04:55 PM | Please look at changing the route, too many 90 degrees. Option: From Comox Ave, Tunnel "North" on Anderton Rd, "East" on Guthrie Road to Lazo Rd, straight to the Plant! Avoid 'through' Brooklyn Creek Park or MacDonald Wood Park. |
| Anonymous 10/09/2020 01:03 PM | Stability of banks on comox hill. Drilling impacts on surrounding area and residents. |
| Anonymous 10/10/2020 12:19 AM | The Quadra Aquifer serves over 1500 wells. Any pollution of that aquifer is a major |
|  10/10/2020 11:33 AM | 1)the impact of the aquifer vs. "ground water"...i think there is a big difference |

Anonymous

10/10/2020 11:45 AM

Having urban properties not currently directly connected do so.

Anonymous

10/12/2020 02:48 PM

Preservation of vegetation, particularly trees, especially old ones that cannot possibly be replaced is important to me.

[REDACTED]

10/12/2020 09:15 PM

Not our preferred option.

Optional question (33 response(s), 279 skipped)

Question type: Essay Question

Q11 Rank the BENEFITS below from most important to you (1) to least important (5)

| OPTIONS | AVG. RANK |
|--|-----------|
| Addresses urgent environmental risk: The at-risk pipe at Willemar Bluffs would be replaced quickest as part of the first, immediate, phase of construction. | 2.06 |
| Maximizes life of existing infrastructure: The existing foreshore pipe in Comox estuary – which has been assessed and is still in good condition – remains in place for another 15-20 years. | 2.97 |
| Lower operating and lifecycle costs: Reduced pressure requirements means it costs less to operate. | 3.00 |
| Reduced short term capital cost: By splitting the work into phases, a significant portion of cost is postponed/spread out over a longer timeframe with more users to contribute. | 3.08 |
| Reduced construction impact: By completing half of the route at a time, the short-term construction impact is smaller. | 3.82 |

Optional question (272 response(s), 40 skipped)

Question type: Ranking Question

Q12 Are there other benefits for this option that we should be considering?

Anonymous

9/14/2020 10:55 AM

New technology might be discovered between now and 15-20 years...which may benefit us when we are ready to replace the phase 2 pipes.

Anonymous

9/14/2020 11:28 AM

Not interested in option 3.

Anonymous

9/14/2020 11:36 AM

This seems like the best option of the three. However, if there's good grant funding opportunities from potential COVID-19 stimulus, it would be better to take advantage and get the whole project done and maximize senior level funding.

Anonymous

9/15/2020 04:18 PM

new technology as the total cost is still over 60 million when it could be done for 9 million a super saving for the taxpayer and the environment

Anonymous

9/16/2020 02:33 PM

not aware of any other benefits.

Anonymous

9/17/2020 08:44 AM

Same concerns as option 2.

[REDACTED]

9/17/2020 10:17 AM

Less aggravation for local business and community in short term. Allows more time to assess and integrate future community development plans to align with future phases while dealing with immediate concerns.

Anonymous

9/17/2020 12:44 PM

Still believe a offshore pipeline should be investigated as all this is a massive upheaval and prone to cost overruns and endless delays.

Anonymous

9/17/2020 01:28 PM

Best to deal with eliminating foreshore pipe as soon as possible. Thus, do not like this option. Do it right the first time. Anyone in private practice would not choose this option as the cost later will be significantly higher than what it is do either of the other two options now.

Anonymous

9/17/2020 07:44 PM

Better to build the whole thing asap. Postponing the second phase means there is more likelihood of running into difficulties later. Expanded future growth means it would have higher long term impacts and costs would most likely be much more than anticipated. Get it over with now, and then it's done.

Anonymous

9/18/2020 01:44 PM

Best option with least immediate impact, deals with most pressing shoreline problem.

Anonymous

9/18/2020 02:45 PM

let us take the brunt of the cost now. do the entire line. delete this option entirely. when we are ready to do phase 2 it will cost more than phase one by then

Anonymous

9/19/2020 08:33 AM

I say again lazo Rd to Brent Rd to plant ! Still think I should be able to give equal importance to certain issues . This survey forced me to put more importance on certain issues because of limiting choice .

[REDACTED]

9/20/2020 10:37 AM

None that I can think of.

| | |
|---------------------------------|--|
| Anonymous 9/20/2020 01:33 PM | work with bc hydro to remove any possible poles |
| Anonymous 9/20/2020 04:51 PM | Capital costs will likely be higher at the time of phase 2 work beginning. Perhaps if Option 1 or 2 were chosen the capital costs could be spread over a longer period to mitigate the impacts of inflation while ensuring an equitable cost for current residents vs future residents. |
| Anonymous 9/22/2020 10:14 AM | In 15 to 20 years from now, there will be more population to fund Phase 2 as well as the likelihood of better and more efficient construction technology. |
| Anonymous 9/23/2020 03:37 AM | The way this question is worded makes it seem like this is the preferred option for the survey writer. There should be more discussion about the risks of this option. |
| Anonymous 9/24/2020 09:23 AM | Not committing funds/capital until needed. Future solutions may include; local sewage treatment plants, tertiary treatment plants, increased use of gray water at the source (e.g. homes and businesses) reducing sewage volumes. |
| Anonymous 9/24/2020 02:21 PM | Phased development provides opportunity to better assess impact of future infrastructure plans (additional bridge crossing estuary?) or traffic pattern changes within the community as well as any additional or new environmental challenges to the project. |
| Anonymous 9/24/2020 02:51 PM | impossible to know the cost of phase 2 in 15 yrs time it may be too costly to complete then ,also the impact on Marina Park is unacceptable do not think this option should be considered |
| Anonymous 9/25/2020 05:12 PM | no |
| Anonymous 9/26/2020 08:17 AM | Too long of a time period - not recommended |
| Anonymous 9/26/2020 12:41 PM | No |
| Anonymous 9/27/2020 03:47 PM | We don't like this option at all. |
| Anonymous 9/28/2020 07:50 PM | I don't like this option and would prefer it to be removed. |
| Anonymous 9/29/2020 11:03 AM | Minimal impact to residential areas, ie, Jane Place Pumping Station. Removing the JP Pumping Station entirely would be preferable. It really shouldn't be at this location and should never have been installed there in the first place. |
| Anonymous | due to a large elderly population, I feel any project that has less cost to the |

10/03/2020 10:50 AM

homeowner is what would be best.

Anonymous

10/04/2020 12:17 AM

Are the 20 year lifespan accurate? is there risk phase 2 areas could need replacement sooner? What can happen in 20 years that may change perspective on plan?

Anonymous

10/04/2020 12:33 PM

Thank you for this opportunity to contribute opinion. I support options 2 and 3 for the tunnelling, and I'll vote from Option 3 because of the more immediate replacement of the Willemar Bluffs pipe.

Anonymous

10/05/2020 10:26 AM

The survey should compare the environmental risk and benefits of the three options. Which of the three would do the best job of preserving existing urban forest, for example? Comment: High impact zones along Balmoral Avenue do not agree on map compared with verbal description. Which is correct?

Anonymous

10/06/2020 04:55 PM

Please look at changing the route, too many 90 degrees. Option: From Comox Ave, Tunnel "North" on Anderton Rd, "East" on Guthrie Road to Lazo Rd, straight to the Plant! Avoid 'through' Brooklyn Creek Park or MacDonald Wood Park.

[REDACTED]

10/07/2020 07:15 AM

no

Anonymous

10/09/2020 07:43 AM

Make "doing it right" the first priority. Stand up to a few selfish landowners and get a long term sustainable system!!

Anonymous

10/09/2020 01:03 PM

Addresses primary concerns at Willemar bluffs as priority.

[REDACTED]

10/10/2020 11:33 AM

capital costs are only going to go UP as projects are delayed, we all know that...

Anonymous

10/10/2020 11:45 AM

I do not like this option because costs will only be significantly greater for phase 2; and for a project of this magnitude the entire community needs to be receiving value.

[REDACTED]

10/11/2020 01:53 PM

Assuming the viability of the pipe within the estuary is truly 15-years, then a cost deferred is a cost not incurred.

Anonymous

10/12/2020 10:15 AM

This is my preferred option. Most efficient and least impactful and utilizes existing infrastructure to its fullest life span.

[REDACTED]

10/12/2020 09:15 PM

Still not the RIGHT solution.

Optional question (40 response(s), 272 skipped)

Question type: Essay Question


Q13 Rank the below CHALLENGES/RISKS from most concerning to you (1) to least concerning (5)

| OPTIONS | AVG. RANK |
|---|-----------|
| Addressing groundwater concerns: Managing groundwater along tunneled sections through Comox Hill and Lazo Hill to ensure there is no impact to groundwater levels and individual wells. | 2.27 |
| Increased construction risk: Though preliminary assessments show favourable ground conditions, tunneling work introduces more risk to the construction phase. | 2.65 |
| Challenging connection at Marina Park: To complete a challenging connection between the new system and existing, there will be high construction impacts at Marina Park, limited impact to boat ramp access, and medium impacts along Wilcox Street | 2.82 |
| Foreshore pipe remains along the Comox Estuary: While condition assessment shows this pipe in good condition, some community members want to see it removed. | 3.45 |
| Additional laydown area required: Because the pipe needs to be assembled before feeding underground, long stretches of roadway will need to be used as 'laydown' areas – including a portion of Balmoral between Stewart and Port Augusta. | 3.74 |

Optional question (275 response(s), 37 skipped)
Question type: Ranking Question

Q14 Are there other challenges or risks that we should be considering for this option?

| | |
|---------------------------------|---|
| Anonymous 9/14/2020 10:55 AM | I am concerned that the phase 2 18M will be a much higher bill in 15-20 years due to inflation, etc... |
| Anonymous 9/14/2020 11:28 AM | Scrap option 3 |
| Anonymous 9/14/2020 11:36 AM | Best to maximize the use of the foreshore pipe if possible, unless grant funding opportunities dictates a reduced burden on tax payers today for replacement. |

| | |
|---|---|
| Anonymous 9/14/2020 03:53 PM | Future costs of the portion that would be replace 15-20 years later. Rising sea levels could make it more challenging than it is currently to replace that portion |
| Anonymous 9/14/2020 09:01 PM | will cost much more to do phase 2 in 15 - 20 years than it will now, so just passing the decision making and cost to future residents and decision makers |
| Anonymous 9/14/2020 10:09 PM | Why are we moving everything so far? |
| Anonymous 9/15/2020 04:18 PM | none of this is required if proven new technology would be used |
| Anonymous 9/16/2020 07:03 AM | This is my favored option. Why replace what still has 15 years life? Keep that till needing to be replaced. |
| Anonymous 9/16/2020 01:12 PM | How long can the existing system be shut down so the connection can be made? Do residents have to be aware that this work will be taking place so they will not flush etc? |
| Anonymous 9/16/2020 01:40 PM | I think the cost of this construction should be assumed by real estate developers in both Comox and Courtenay who are responsible for this construction. The new development areas such as Crown Isle need to bear the brunt of the costs of this construction. |
| Anonymous 9/16/2020 02:33 PM | not aware of any |
|  9/17/2020 10:17 AM | Same concerns as option #2. Additionally complexities at marina park sound like cost overruns would be more likely. |
| Anonymous 9/17/2020 01:28 PM | Remove the pipe from the foreshore. Having been here when it was installed along Willemar Bluffs, it has been an ongoing problem. |
| Anonymous 9/17/2020 01:59 PM | delaying part of the project could result in increased costs down the line. We don't know what the economic climate will be in 15 to 20 years. If we do the whole job now, there is some certainty to that. |
| Anonymous 9/18/2020 09:08 AM | overall and ongoing cost is a challenge |
| Anonymous 9/18/2020 01:44 PM | none of these are as important as the benefits of this option |
| Anonymous 9/18/2020 02:45 PM | what diameter is this new pipe? Phase 2 - after the entire line in from option 1 or 2 , remove the estuary line. |

Anonymous

9/19/2020 08:33 AM

I say again lazo Rd to Brent Rd to plant ! Close to surface for easy leak detection cleanup and repair !

Anonymous

9/19/2020 08:58 AM

Prices change. It is already more costly than the other options. By the time we commence phase 2, the costs will likely be higher. But I do like using existing infrastructure while it's still in good shape.



9/20/2020 10:37 AM

Let's get it done.

Anonymous

9/20/2020 04:51 PM

Future financial situation may be different and make infrastructure projects in 15-20 years difficult to follow up on. Could be criticized for leaving the mess for the future and so on.

Anonymous

9/23/2020 03:37 AM

The fact we are deferring work.

Anonymous

9/23/2020 10:19 PM

Why can't the route continue to be where it's at, with repairs completed. There has to be away to resolve the issues without changing the whole route.

Anonymous

9/24/2020 01:26 PM

I am not in favour of dragging the project out in phases. In my opinion, it would be best to "bite the bullet" and get the job done while interest rates are historically low. There are going to be other very demanding and expensive infrastructure projects associated with climate change coming in the next two decades. We should take care of our LWM problem now!

Anonymous

9/24/2020 02:51 PM

Marina Park should not be a part of the project

Anonymous

9/25/2020 10:34 AM

ya the #1 risk is increasing/unknown construction costs in phase #2. Construction costs increase each year and 15-20 years presents potential cost increases that have not been addressed. As someone who finances phased construction projects I am very surprised more analysis regarding the potential increased costs of phase #2 has not been shared. If we have money for a curling rink a small % of the population uses than surely we have money to complete the project now rather than phasing.

Anonymous

9/25/2020 05:12 PM

The extra cost of Labour in the second phase. As wages will have gone up and there will be new environmental rules probably which could increase cost.

Anonymous

9/26/2020 08:17 AM

Too long of a time period The never never project

Anonymous

9/26/2020 12:41 PM

No. I favour this option

Anonymous

Spreading the cost and construction over a long period of time will increase

9/28/2020 09:12 AM

costs overall and likely introduce new challenges as settlement in the area changes over time.

Anonymous

9/28/2020 07:50 PM

Losing the momentum to get the job done!

Anonymous

9/29/2020 11:03 AM

This survey is biased to Option 3. Furthermore, the survey is flawed where the the choice, once chosen, drops off the list giving only remaining options. IE, perhaps we would like to have chosen, for example #3, for more than one of the questions but it is not available. once already chosen.

Anonymous

9/30/2020 09:16 PM

Is it safe to say that the population base for the Comox Valley and/or the affordability of the project will be the same as it is now in 15-20yrs? Baby boomers will be passing away with no where close to the amount of people to replace them & help pay for the project. Construction costs rarely go down & could skyrocket by then, leaving much bigger tax implications to the remaining residents.

Anonymous

10/01/2020 06:33 AM

The risk of people choosing this option as the cheapest without considering the costs for future generations.

[REDACTED]

10/03/2020 09:32 AM

Increased future costs for Phase 2. I prefer to get the whole project done at once.

Anonymous

10/04/2020 12:17 AM

Is the plan to remove the foreshore pipe in phase 2, in 20 years?

Anonymous

10/04/2020 12:33 PM

I submit my preference for Option 3

Anonymous

10/05/2020 01:53 PM

Tunneling under Lazo Marsh is a concern as it could affect groundwater and wells in my area and if there is a rupture that could also affect the groundwater and wells.

Anonymous

10/06/2020 11:22 AM

The ground water on and around Curtis Road is a huge issue. Going under Lazo Marsh is potentially a huge problem. We do not want anything that might destroy our aquifer. Please protect our water.

Anonymous

10/06/2020 04:55 PM

Please look at changing the route, too many 90 degrees. Option: From Comox Ave, Tunnel "North" on Anderton Rd, "East" on Guthrie Road to Lazo Rd, straight to the Plant! Avoid 'through' Brooklyn Creek Park or MacDonald Wood Park.

[REDACTED]

10/07/2020 07:15 AM

no

Anonymous

10/09/2020 11:30 AM

the best option for us

Anonymous

10/10/2020 12:19 AM

These challenges apply also to option 2

Anonymous

10/10/2020 11:45 AM

Potion 3 is far too short sighted.

Anonymous

10/11/2020 12:10 PM

Inflation risk not mentioned. Inflation of construction costs can exceed general inflation. Risk that cost of second phase of construction could be significantly higher for our kids and grandkids. They won't thank us.

Anonymous

10/11/2020 03:07 PM

How can I remain in my residence while this is going on? 137 Port Augusta Street.

Anonymous

10/12/2020 02:48 PM

Preservation of vegetation, particularly trees, especially old ones along the route is very important to me.



10/12/2020 09:15 PM

We need to fix the sewage problems for generations to come, let's do the right thing, option 1!!

Optional question (48 response(s), 264 skipped)

Question type: Essay Question