Comox Valley REGIONAL DISTRICT

Agenda

Notice of meeting of the
LIQUID WASTE MANAGEMENT PLAN
JOINT TECHNICAL AND PUBLIC ADVISORY COMMITTEES (TACPAC)
Tuesday, December 11, 2018
Native Sons Hall, Lower Lodge Room, 360 Cliffe Ave, Courtenay
9:00 a.m. -12:00pm

ITEM, TIME	DESCRIPTION	OWNER
3.1 9:00	Call to Order	Allison
3.2 9:00-9:10	Review of Minutes of Meeting #2	Allison
3.3 9:10-9:30	Technical Update • Planning horizons • Effluent quality targets • Other	WSP
3.4 9:30 – 9:50	Goal Setting – Review of meeting #2 results • How the goals were sorted and voted • Discussion of results	Paul
3.5 9:50-10:00	Public Feedback on Goals • Feedback from November 27 and 28 sessions	Christianne
3.6 10:00-11:40	Turning the goals into an evaluation system • Sorting the goals for actions, and non-specific goals • Proposed evaluation system and weightings for each LWMP component: o Conveyance o Treatment o Resource Recovery • Example evaluation • Review and discussion ***Make a recommendation to the Comox Valley Sewage Commission about goals and evaluation***	Paul
3.7 11:40-11:50	Preview of TACPAC Meeting #4, 24th January 2019 • Developing the long list of options • Example of an option description	Paul
3.8 11:50- 12:00	Round table discussion	Allison
3.9 12:00	Adjournment	Allison

Attachments
Minutes of TACPAC Meeting #2, November 23
LWMP Goals Report – **Note:** this report will be distributed upon completion
Public Feedback Report – **Note:** this report will be distributed upon completion

Comox Valley REGIONAL DISTRICT

Minutes

Minutes of the meeting of the Liquid Waste Management Plan (LWMP) Joint Technical and Public Advisory Committees (TACPAC) Meeting #2 held on Friday, November 23, 2018 in the Comox Valley Regional District Boardroom located at 600 Comox Road, Courtenay, BC, commencing at 9:00am

PRESENT:

A. Habkirk, Chair and Facilitator	
P. Nash, LWMP Project Coordinator	
M. Rutten, General Manager of Engineering Services	CVRD
K. La Rose, Senior Manager of Water/Wastewater Services	CVRD
M. Imrie, Manager of Wastewater Services	CVRD
C. Wile, Manager of External Relations	CVRD
J. Boguski, Branch Assistant – Engineering Services	CVRD
A.Idris, Engineering Analyst	CVRD
A. Bennett,	WSP
W. Cole-Hamilton, City of Courtenay Councillor	PAC
K. Grant, Town of Comox Councillor	PAC
A. Hamir, Lazo North (Electoral Area B) Director	PAC
C. McColl, K'ómoks First Nation	PAC/TAC
T. Ennis, Comox Valley Conservation Partnership	PAC
D. Winterburn, BC Shellfish Growers Association	PAC
S. Wood, Comox Business Improvement Association	PAC
S. Carey, Courtenay Resident Representative	PAC
T. Serviz, Courtenay Resident Representative	PAC
K. Niemi, Courtenay Resident Representative	PAC
K. vanVelzen, Comox Resident Representative	PAC
D. Jacquest, Comox Resident Representative	PAC
R. Craig, Comox Resident Representative	PAC
M. Holm, Area B Resident Representative	PAC
M. Lang, Area B Resident Representative	PAC
L. Aitken, Area B Resident Representative (Observer)	PAC
J. Steel, Area B Resident Representative (Observer)	PAC
D. Cherry, VIHA	TAC
P. Kumar, VIHA	TAC
R. O'Grady, City of Courtenay Engineering	TAC
S. Ashfield, Town of Comox Engineering	TAC
G. Bonekamp, Department of National Defence Engineering	TAC
A. Bissinger, Department of National Defence (Observer)	TAC

ITEMS:

ITEM	DESCRIPTION	OWNER
2.1	Call to Order. Opening remarks by Kris La Rose: • CVRD respects and honors the time commitment that each member of the committee is making to participate in our process and that in return, we are committed to sincere engagement and a transparent planning process.	Allison, Kris

ITEM	DESCRIPTION	OWNER
2.1	• There has been a lot of study work, analysis and design done for certain elements of the possible works, our intention is for that work to support rather than constrain the planning process.	Allison, Kris
2.2	Review of Minutes of Meeting #1 & LWMP Roadmap Clarification of minutes; • Section 1.8: change "How the recommendation got to the Comox Valley Sewage Commission for *adoption*" to "How the recommendation got to the Comox Valley Sewage Commission for *consideration*". (K. van Velzen). Paul reviewed the roadmap, noting the Ministry of Environment position that proper managing of wastewater is "not optional".	Allison & Paul
2.3	Wastewater 101 – Fundamentals of Wastewater Treatment. • Aline gave a thorough outline of wastewater treatment.	WSP
2.4	Regulatory Framework. • Treatment standards for different discharge environments was included in the wastewater 101 presentation. • Of note that standards for some reclaimed water uses align with standards for ocean discharge.	WSP
2.5	Goals – what are they and how will we use them? Paul outlined the framework of the evaluation system and definitions of: • LWMP components (conveyance, treatment, resource recovery), • Objectives – functions which **must** be achieved for each component, • Options – different projects that can achieve the objectives, • Goals – aspirational goals for things other than the objectives, • "Low Cost" is an aspirational goal, • Actions – ways to meet or move towards the goals, • Evaluation – how well does an option address the goals? The "best" option is the one that achieves all the objectives and as many of the goals as possible.	Paul
2.6	Initial public feedback; Christianne presented results of Phase 1 public consultation conducted over summer and fall: • 22 participants at the summer workshops, • 104 responses to online survey, • Excellent attendance at the November 6 and 8 Open House at the Comox Valley Water Pollution Control Centre (CVWPCC) – 110 people. Major themes: • Concern about negatively impacting the environment, • Importance of long term planning and making sound decisions now, • Importance of moving forward quickly due to risks of ageing infrastructure.	Christianne

ITEM	DESCRIPTION	OWNER
2.7	Examples of award winning, goal-driven projects (videos) Conveyance – Marwayne, AB • Noted that while this was a conveyance project, the funding and FCM award received were for the "neighborhood redevelopment" that took place in concert with the conveyance project Treatment – Sechelt BC • Noted that this project was the result of community-set goals to treat to high standards and pursue resource recovery. The reclaimed water is not yet being used. • Resource Recovery – Cranbrook BC (video) (case study)	Paul
2.8	Committee Exercise – brainstorming the goals. PAC, TAC and Staff • Categories for the goals: o Technical/functional, o Cost/affordability, o Economic benefit, o Environmental benefit, o Social benefit. A five minute "written brainstorming" session was held for each of the three LWMP components, with goals being written on sticky notes and posted to the flip charts. The final count was 168 goals distributed as: • Conveyance 67, • Treatment 54, • Resource Recovery 47. The goals were sorted and grouped ready for voting over the lunch break.	Allison
2.9	Comparison of committee goals to official plan goals. CVRD Staff reviewed the major planning documents for goals and policies related to wastewater: • Official Community Plan's, • Regional Growth Strategy, • Comox Valley Sustainability Strategy, • Climate Action Revenue Incentive Program. Results of this are attached to the minutes as Table 1(A) through Table 1 (C).	Paul
2.10	Turning the goals into the evaluation system. Explanation of the evaluation matrix as a guide for decision making. **Note for clarity that the example scoring shown for the Comox No.2 Pump Station Project was merely to illustrate how the evaluation system functions. It does not represent the actual evaluation of this project.*	
	Lunch Break	
2.11	Prioritising the goals. • Ranking of the cost and benefit goals by PAC members, • Ranking of the functional goals by the TAC members. Ranking was performed by a numerical voting system, with different colours representing PAC and TAC members.	Allison

	There were too many goals and votes to be tallied at the meeting, this was done offline.	
ITEM	DESCRIPTION	OWNER

2.12	Preview of;
	• Public Workshops (Phase 2 of consultation) on November 27 and 28, 2018:
	  o Public review of draft goals and objectives.
	• TACPAC #3 on December 11, 2018:
	  o Review of public feedback, make recommendation on goals.
		Allison

2.13	Round Table discussion and Q&A.
	The following summarises the pertinent questions and answers for the meeting:
	• Water use at the CVWPCC was reduced by a third over the last two years due to recycling water at enclosed water uses. However, we recognize there is still room for improvement (M. Imrie).
	• How are pathogens disinfected at the CVRD Compost Facility? (W. Cole-Hamilton)
	  ➢ The composting process and the disinfection is controlled by controlling the temperature. High temperature for a set period of time kills pathogens. (M. Imrie)
	• Are the categories set in stone or is there room for making changes in them? Is there an opportunity for committee members to come up with more goals? (R. O'Grady)
	  ➢ These are starting points to focus our ideas and save the committee some time. However, if there are good goals to be added, there is room for change. We would like to make the December 11 meeting the deadline for coming up with new goals unless a 'game changer' idea comes up later than that date. This is to ensure the process stays focused and on schedule. (A. Habkirk and P. Nash)
	• What was the basis to create the categories? Surprised to see "economic benefits" in the list. (A. Hamir)
	  ➢ These categories are a variation of standard practice. The 'economic benefits' category is there to identify potential economic benefits that are typically not directly associated with wastewater systems. (P. Nash)
	  ➢ Economic benefits can also include economic impacts such as impacts of options that may potentially hinder economic benefits would be evaluated. (K. La Rose)
	• What is the point of achieving advanced levels of treatment (such as the one by Sechelt) if no opportunities for use exist? (W. Cole-Hamilton)
	  ➢ The main value is only achieved if the water is indeed reused. The opportunities do exist, but have not yet been pursued, for various reasons. Nevertheless, significant grant funding (up to 50 per cent) was achieved in part due to setting high
		Allison

	goals for innovation and treatment performance and then meeting them. (P. Nash)	

ITEM	DESCRIPTION	OWNER
2.13	• Does this goal setting exercise include future/potential service areas in the region (e.g. South Sewer)? (R. O'Grady) ➢ Let us focus on existing service areas for now. (K. La Rose) • Is there collaboration between the municipalities on the sewer plans/projects? (S.Carey) ➢ Yes, member municipalities and the CVRD work together collaboratively in different levels (Sewage Advisory Committees, Advisory groups on staff level…etc.). (K. La Rose) • Social Health context can be considered as social benefit from a public health needs perspective. (R. O'Grady) • Is there a second chance for these rankings? (K. VanVelzen) ➢ Yes, options ranking can be reviewed if members feel the need for reconsideration. (A.Hebkirk and P. Nash) • High quality effluent is important because of the especially sensitive nature of the local environment. (T. Ennis) In addition to the main requirements for achieving a certain level of effluent quality, the province asks for an Environmental Impact Study to determine the impact of effluent discharge to the local environment. (A. Bennet)	Allison
2.14	Meeting Schedule Change. Note schedule change for TACPAC Meeting # 4, from Thursday, January 17, 2019 to Thursday, January 24, 2019, 9:00 am to 2:00pm, at the CVRD Boardroom.	
2.15	CVRD Wastewater Facilities Tour for PAC members. A familiarization tour of the CVRD facilities will be held on two dates; 1. Tuesday 3 Dec, 9am -12, starting at CVRD office 2. Friday 7th Dec 9am -12, starting at CVRD office	
2.16	Next Meeting. The next LWMP Joint TACPAC meeting will be held on December 11, 2018 commencing at 9:00am at the Native Sons Hall, Lower Lodge Room, 360 Cliffe Ave, Courtenay, BC.	
2.17	Adjournment The meeting adjourned at 2:00pm	Allison

Attachments

Tables 1(A) – 1(C) were consolidated from the major planning documents listed below;

- City of Courtenay Official Community Plan (Courtenay OCP)
- Town of Comox Official Community Plan (Comox OCP)
- Comox Valley Regional Growth Strategy (Comox Valley RGS)
- Comox Valley Sustainability Strategy (Comox Valley SS)
- CVRD Climate Action Revenue Incentive Public Report for 2017(CVRD CARIP)

TABLE 1: SUMMARY OF WASTEWATER RELATED GOALS FROM MAJOR PLANNING DOCUMENTS

Category	Goal
Technical/Functional	Alternate Trunk Sewer Networks
	Treatment to Tertiary or Reuse Level
	Waste to Resources
Affordability	Reduce Capital Costs
	Low Operating Costs
	Funding through DCC's
Economic Benefits	Vibrant Local Economy
	Increased Agriculture, Reclaimed Water for Agriculture
Environmental Benefits	Reduce Greenhouse Gases
	Energy Conservation
	Renewable Energy, Energy from Waste Sources
	Green Buildings
	Protect, Conserve and Restore Ecosystems
Social Benefits	Public Health Needs
	Recreation Trails as part of New Developments

TABLE 1(A): CONSOLIDATED REFERENCE POLICY FROM MAJOR PLANNING DOCUMENTS, CONVEYANCE

Conveyance		
Technical/Functional Goals	**Environmental Goals**	**Affordability/Economic Benefits/Social Benefits Goals**
Courtenay OCP Sec 6.3. (Page 65): For major new developments, the City shall consider the downstream capacity of existing sewer mains to ensure adequate capacity.	*Courtenay OCP Sec 10.2. (Page 139) Goals:* To reduce the City's annual community-wide greenhouse gas emissions 20 per cent below the 2007 levels by 2020, with an incremental reduction target of two per cent per year between 2010 and 2020 by: reducing average energy demand per home by 20 per cent and reduce energy demand for businesses by nine per cent per square meter by 2020, making public sector buildings (and other operations) carbon neutral by 2012.	*CVRD RGS (Page 56) Objective 5D-2:* New development will replace and/or upgrade aging sewer infrastructure or provide cash-in-lieu contributions for such upgrades through Development Cost Charges or similar financial contributions.
Courtenay OCP Sec 6.3. (Page 65): The City through the development of a Master Sewer Strategy will develop strategies to facilitate providing alternative trunk networks and systems to transport effluent to treatment facilities.	*Courtenay OCP Sec 10.3. (Page 144) Objective 4:* To use and promote a 'design with nature' approach in the provision of energy and design of buildings and infrastructure to make use of ecological processes before employing heavily engineered approaches. This includes minimizing the use of non-renewable energy and resources by increasing the use of low GHG emitting and efficient renewable energy supply systems and resources.	*Courtenay OCP Sec 2.2.2. Goal 5 (Page 22):* Provide affordable, effective and efficient services and infrastructure that conserves land, water and energy resources.
Comox OCP Sec 2.4.5. (Page 95) Policy: The Town will operate a sewerage collection system that will discharge into the main trunk sewers and waste water treatment operated by the CVRD. The Town does not envision the need for waste water treatment or disposal within the Town's boundaries.	*Town of Comox OCP Sec 1.7. Table 2 (Page 19):* Encourage reduced energy consumption and greenhouse gas emissions as a long term sustainability community value.	*Courtenay OCP Sec 4.11.1 (Page 54):* Moving forward, the City must balance its traditional roles with new pressures to continue to expand and increase its responsibilities for community programs within a budget that is accepted by the taxpayers of the City.

Conveyance		
Technical/Functional Goals	**Environmental Goals**	**Affordability/Economic Benefits/Social Benefits Goals**
CARIP (Page 9): Community-Wide Actions Proposed for 2018: Install updated odour control measures at the Comox Valley Water Pollution Control Centre; Construction of Hudson and Greenwood Trunk gravity sewer mains.	*Town of Comox OCP Sec 2.3.11 (Page 76):* Under the BC Climate Action Charter, the town of Comox agreed to develop strategies and take actions to achieve the following goals: Being Carbon neutral in respect of their operations by 2012; Measuring and reporting on their community's GHG emissions profile	*Courtenay OCP Sec 2.1.7. (Page 13):* Design with nature, employing energy-conservation principles, emphasizing sustainability, enhancing the natural beauty, and protecting wildlife habitat; and support agriculture as an industry in the Valley.
	CVRD RGS Sec 3.2 Goal5 (Page 21): provide affordable, effective and efficient services and infrastructure that conserves land, water and energy resources.	*CVRD RGS Sec 3.1 Vision (Page 20):* As stewards of the environment, local governments, the K'omoks First Nation, public agencies, residents, businesses and community and non-governmental organizations will work collaboratively to conserve and enhance land, water and energy resources and ensure a vibrant local economy and productive working landscapes.
	CVSS (Page 5): Climate sustainability target: The Comox Valley will reduce overall Greenhouse Gas Emissions by 80 per cent from 2007 levels by 2050. Rationale: This target calls for action on reducing use of fossil fuels and increasing the use of alternative energy sources.	*CVRD RGS (Page 56) Objective 5-D:* Encourage sewage management approaches and technologies that respond to public health needs and maximize existing infrastructure.
	CVSS (Page 45) Goal 3.1: Reduce energy consumption and greenhouse gas emissions in municipal infrastructure. Objective 3.1.1: Increase energy efficiency in public works infrastructure systems and equipment.	
	CVSS (Page 86) Goal 5.2, CARIP (Page 86- 90) Goal 5.2: Conserve and restore ecosystems.	
	CARIP (Page 3): Current GHG reduction Targets: 20 per cent reduction in corporate GHG emissions by 2020;	

TABLE 1(B): CONSOLIDATED REFERENCE POLICY FROM MAJOR PLANNING DOCUMENTS, TREATMENT

Treatment		
Technical/Functional Goals	**Environmental Goals**	**Affordability/Economic Benefits/Social Benefits Goals**
Comox OCP Sec 2.4.5. (Page 95) Policy c: The Town will operate a sewerage collection system that will discharge into the main trunk sewers and waste water treatment operated by the CVRD. The Town does not envision the need for waste water treatment or disposal within the Town's boundaries.	*Courtenay OCP Sec 10.3. (Page 144) Objective 4:* To use and promote a 'design with nature' approach in the provision of energy and design of buildings and infrastructure to make use of ecological processes before employing heavily engineered approaches. This includes minimizing the use of non-renewable energy and resources by increasing the use of low GHG emitting and efficient renewable energy supply systems and resources.	*CVRD RGS (Page 56) Objective 5D-2:* New development will replace and/or upgrade aging sewer infrastructure or provide cash-in-lieu contributions for such upgrades through Development Cost Charges or similar financial contributions.
CARIP (Page 9): Community-Wide Actions Proposed for 2018: Install updated odour control measures at the Comox Valley Water Pollution Control Centre; Construction of Hudson and Greenwood Trunk gravity sewer mains	*Town of Comox OCP Sec 1.7. Table 2 (Page 19):* Encourage reduced energy consumption and greenhouse gas emissions as a long term sustainability community value.	*Courtenay OCP Sec 2.2.2. Goal 5 (Page 22):* Provide affordable, effective and efficient services and infrastructure that conserves land, water and energy resources.
CVSS (Page 7) Water sustainability target: The Comox Valley will reduce Non-Agricultural water use by 50 per cent per capita by 2050. All wastewater treatment in the Comox Valley will be to tertiary or reuse level by 2050. Rationale: Tertiary wastewater treatment provides a higher level of environmental protection and creates opportunities to reuse water rather than further use of the fresh water supply	*CVSS (Page 8):* Ecosystems sustainability target: 100 per cent sensitive ecosystems and riparian areas are protected and managed to maintain stable health and productivity by 2050. Rationale: The Courtenay Estuary and the Region's rivers are ecologically significant. This target reflects the importance of protecting green space for habitat and ecosystem services. 70 per cent of degraded ecosystems that are critical for the health of watersheds. Riparian areas and endangered species habitats are restored by 2050	*Courtenay OCP Sec 4.11.1 (Page 54):* Moving forward, the City must balance its traditional roles with new pressures to continue to expand and increase its responsibilities for community programs within a budget that is accepted by the taxpayers of the City.

Treatment		
Technical/Functional Goals	**Environmental Goals**	**Affordability/Economic Benefits/Social Benefits Goals**
CVSS (Page 58) Goal 3.5: Liquid waste is handled to minimize negative impacts and to turn wastes into resources. Objective 3.5.1: All wastewater is treated to standards that protect the environment and facilitate non-potable reuse where appropriate. Target: 100 per cent of new or upgraded wastewater treatment plants that provide reclaimed water for non-potable uses by 2050.	*CVSS (Page 45) Goal 3.1:*Reduce energy consumption and greenhouse gas emissions in municipal infrastructure.	*Courtenay OCP Sec 2.1.7. (Page 13):* Design with nature, employing energy-conservation principles, emphasizing sustainability, enhancing the natural beauty, and protecting wildlife habitat; and support agriculture as an industry in the Valley.
CVSS (Page 66) Goal 3.8: Principles of industrial or business ecology networks are integrated into mixed-use and industrial areas through planning and infrastructure design as a way of turning wastes into resources.		*CVRD RGS Sec 3.1 Vision (Page 20):* As stewards of the environment, local governments, the K'omoks First Nation, public agencies, residents, businesses and community and non-governmental organizations will work collaboratively to conserve and enhance land, water and energy resources and ensure a vibrant local economy and productive working landscapes.
		CVRD RGS (Page 56) Objective 5-D: Encourage sewage management approaches and technologies that respond to public health needs and maximize existing infrastructure.

TABLE 1(C): CONSOLIDATED REFERENCE POLICY FROM MAJOR PLANNING DOCUMENTS, RESOURCE RECOVERY

Resource Recovery		
Technical/Functional Goals	**Environmental Goals**	**Affordability/Economic Benefits/Social Benefits**
CVSS (Page 7): Water sustainability target: The Comox Valley will reduce Non-Agricultural water use by 50 per cent per capita by 2050. All wastewater treatment in the Comox Valley will be to tertiary or reuse level by 2050. Rationale: Tertiary wastewater treatment provides a higher level of environmental protection and creates opportunities to reuse water rather than further use of the fresh water supply.	*Courtenay OCP Sec 10.3. (Page 144) Objective 4:* The City will work towards integrating infrastructure systems to address multiple low-environmental impact objectives. This includes exploring how to maximize opportunities for harvesting waste heat or generating energy from water and/or wastewater and promote the use of grey water reuse systems in new construction and rainwater capture in all homes.	*CVRD RGS (Page 56) Objective 5D-2:* New development will replace and/or upgrade aging sewer infrastructure or provide cash-in-lieu contributions for such upgrades through Development Cost Charges or similar financial contributions.
CVSS (Page 58) Goal 3.5: Liquid waste is handled to minimize negative impacts and to turn wastes into resources. Objective 3.5.1: All wastewater is treated to standards that protect the environment and facilitate non-potable reuse where appropriate. Target: 100 per cent of new or upgraded wastewater treatment plants that provide reclaimed water for non-potable uses by 2050.	*CVRD RGS (Page 76): Objective 8E:* Plan for renewable energy generation; Policy 8E-1. Encourage efforts to increase the use of cost competitive renewable energy. Policy 8E-2. Encourage efforts to increase the use of cost competitive district energy systems. Policy: 8E-3. In reviewing OCPs consider inclusion of cost competitive renewable energy generation policies and development permit guidelines.	*Courtenay OCP Sec 2.2.2. Goal 5 (Page 22):* Provide affordable, effective and efficient services and infrastructure that conserves land, water and energy resources. Courtenay OCP Sec 4.11.1 (Page 54): Moving forward, the City must balance its traditional roles with new pressures to continue to expand and increase its responsibilities for community programs within a budget that is accepted by the taxpayers of the City.
CVSS (Page 66) Goal 3.8: Principles of industrial or business ecology networks are integrated into mixed-use and industrial areas through planning and infrastructure design as a way of turning wastes into resources.	*CARIP (Page 2): Corporate Actions Taken in 2017:* Corporate carbon neutral commitment to purchase credits to offset emissions. Corporate Actions Proposed for 2018: Assessment of additional energy conservation measures at recreation facilities; Initiate update of 2011 Corporate Energy Plan.	*CVRD RGS (Page 56) Objective 5D-3:* Promote eco-industrial development that turns wastes into resources.

TABLE 2(A): GROUPED GOALS AND VOTING RESULTS, FOR CONVEYANCE

Component	Conveyance	PAC Voting						TAC Voting					
		Green Dots	Pink Dots	Yellow Dots	Total Dots	Score	% of Total	Green Dots	Red Dots	Yellow Dots	Total Dots	Score	% of Total
Category	**Grouping as Voted**	**5**	**3**	**1**				**5**	**3**	**1**			
Technical	Resiliency to Climate Change, Natural Disasters and Seasonal Impacts	7	3	1	11	45	10.7%	3	2	0	5	21	12.1%
	Enhance operational resilience	4	5	4	13	39	9.2%	5	0	1	6	26	15.0%
	Maximize use of existing infrastructure	5	3	2	10	36	8.5%	2	2	2	6	18	10.4%
	Plan for long term	3	5	0	8	30	7.1%	6	2	0	8	36	20.8%
	Innovation in Design	0	2	6	8	12	2.8%	0	0	4	4	4	2.3%
	Technical Total				***50***	***162***	**38.4%**				***29***	***105***	**60.7%**
Affordability	Minimize lifecycle costs	5	3	3	11	37	8.8%	2	1	1	4	14	8.1%
	Long Term financial Implications	5	2	3	10	34	8.1%	0	1	0	1	3	1.7%
	Affordability Total				***21***	***71***	**16.8%**				***5***	***17***	**9.8%**
Economic Benefits	Maximize local economic benefits	0	3	4	7	13	3.1%	0	0	2	2	2	1.2%
	Economic Total				***7***	13	**3.1%**				***2***	2	**1.2%**
Environment Benefits	Minimize impacts to sensitive environment	8	3	1	12	50	11.8%	0	4	0	4	12	6.9%
	Mitigate climate change impacts	2	6	3	11	31	7.3%	1	3	1	5	15	8.7%
	Environmental Total				***23***	***81***	**19.2%**				***9***	***27***	**15.6%**
Social Benefits	Minimize noise and odour impacts	8	3	2	13	51	12.1%	0	1	2	3	5	2.9%
	Maximize community and recreational infrastructure	2	5	8	15	33	7.8%	0	0	4	4	4	2.3%
	Maximize public health benefit	0	2	5	7	11	2.6%	2	0	3	5	13	7.5%
	Social Total				**35**	**95**	**22.5%**				**12**	**22**	**12.7%**
All Categories	**Grand Total**				**136**	**422**	**100.0 %**				**57**	**173**	**100.0%**

TABLE 2(B): GROUPED GOALS AND VOTING RESULTS, FOR TREATMENT

Component	Treatment	PAC Voting						TAC Voting					
		Green Dots	Pink Dots	Yellow Dots	Total Dots	Score	% of Total	Green Dots	Red Dots	Yellow Dots	Total Dots	Score	% of Total
Category	**Grouping as Voted**	5	3	1				5	3	1			
	Minimize risk of failures/spills	8	7	0	15	61	15.2%	3	3		6	24	13.9%
	Plan for future - population, technology, climate	9	7	1	17	67	16.7%	5	1	0	6	28	16.2%
Technical	**Technical Total**				**32**	**128**	**31.9%**				**12**	**52**	**30.1%**
	Minimize lifecycle costs	4	6	8	18	46	11.5%	3	5	0	8	30	17.3%
	Asset management			2	2	2	0.5%	2	2	2	6	18	10.4%
	Allocation of costs between existing and new users	1	1	4	6	12	3.0%	1	2	3	6	14	8.1%
	Maximize Opportunity for Grants	2	9	6	17	43	10.7%	0	4	1	5	13	7.5%
Affordability	**Affordability total**				**43**	**103**	**25.7%**				**25**	**75**	**43.4%**
Economic Benefits	*no goals written*						0.0%						0.0%
	Economic Total				**0**	**0**	**0.0%**				**0**	**0**	**0.0%**
	Public awareness about what" not to flush"			1	1	1	0.2%	0	0	0	0	0	0.0%
	Maximize opportunity for partnership	0	4	5	9	17	4.2%	0	0	3	3	3	1.7%
Environment Benefits	Maximize effluent quality	11	6	4	21	77	19.2%	4	1	0	5	23	13.3%
	Environmental Total				**31**	**95**	**23.7%**				**8**	**26**	**15.0%**
	Reduce odour from plant	8	2	2	12	48	12.0%	3	0	2	5	17	9.8%
	Only use existing location - no multiple treatment facilities		1		1	3	0.7%	0	0	0	0	0	0.0%
Social Benefit	Maximize opportunity for community amenity at plant	1	3	10	14	24	6.0%	0	0	3	3	3	1.7%
	Social Total				**27**	**75**	**18.7%**				**3**	**20**	**11.6%**
All Categories	**Grand total**				**133**	**401**	**100%**				**48**	**173**	**100%**

TABLE 2(C): GROUPED GOALS AND VOTING RESULTS, FOR RESOURCE RECOVERY

Component	Resource Recovery	PAC Voting						TAC Voting					
		Green Dots	Pink Dots	Yellow Dots	Total Dots	**Score**	**% of Total**	Green Dots	Red Dots	Yellow Dots	Total Dots	**Score**	**% of Total**
Category	**Grouping as Voted**	**5**	**3**	**1**				**5**	**3**	**1**			
Technical	Focus on technologies that are reliable	3	0	1	4	16	4.4%	0	1	0	1	3	2.1%
	Meet Prov. regulatory requirements	0	1	0	1	3	0.8%	2	1	0	3	13	9.0%
	Anticipate future demand for RR	0	0	4	4	4	1.1%	0	0	1	1	1	0.7%
	Ostara (struvite) nutrient recovery	0	1	0	1	3	0.8%	0	0	0	0	0	0.0%
	Build capacity for options, partnerships for future R. Recovery	2	1	4	7	17	4.7%	0	0	0	0	0	0.0%
	Invite medical cannabis greenhouses on-site public-private-partnership	0	1	2	3	5	1.4%	0	0	3	3	3	2.1%
	Microbial lab /research centre	1	1	3	5	11	3.0%				0	0	0.0%
	Technical Total				**25**	**59**	**16.2%**				**8**	**20**	**13.8%**
Affordability	To be cost neutral as a minimum	0	1	0	1	3	0.8%	2	0	0	2	10	6.9%
	Use life cycle costs/NPV	5	4	0	9	37	10.2%	4	2	2	8	28	19.3%
	Energy/Heat recovery	12	5	4	21	79	21.7%	2	2	0	4	16	11.0%
	Productive Use of reclaimed water	12	5	1	18	76	20.9%	2	1	1	4	14	9.7%
	Reduce costs, efficiency in operations, reuse resources at plant	1		1	2	6	1.6%	0	0	0	0	0	0.0%
	Grant Funding eligibility	2	7	1	10	32	8.8%	2	1	0	3	13	9.0%
	Affordability Total				**61**	**233**	**64.0%**				**21**	**81**	**55.9%**
Economic Benefits						0	0.0%					0	0.0%
	Economic Total				**0**	**0**	**0.0%**					**0**	**0.0%**
Environment Benefits	Reduce GHG/carbon neutrality	1	6	0	7	23	6.3%	1	1	0	2	8	5.5%
	Recovery for bio-plastics and resins	0	2	2	4	8	2.2%	0	1	0	1	3	2.1%
	Third party utilization (EOI requests)	0	0	7	7	7	1.9%	1	1	2	4	10	6.9%
	Environmental Total				**18**	**38**	**10.4%**				**7**	**21**	**14.5%**
Social Benefit	Public health issues considered for any reclaimed water	0	0	1	1	1	0.3%	2	0	1	3	11	7.6%
	Partnership with university for research	2	4	2	8	24	6.6%	0	2	0	2	6	4.1%
	Educate public on Skyrocket (composted biosolids)	1	0	4	5	9	2.5%	1	0	1	2	6	4.1%
	Social Total				**14**	**34**	**9.3%**				**7**	**23**	**15.9%**
All	**Grand Total**				**118**	**364**	**100%**				**43**	**145**	**100%**

TABLE 3(A): ALL GOALS AND GROUPINGS AS WRITTEN, FOR CONVEYANCE

Category	Goals As Written	Grouped Goal
Technical	Long Term Solutions	Plan for long term
	Incorporate capacity for future growth	
	Think to the next 50 years	
	Ensure capacity for long term growth	
	Must be able to incorporate future government requirements	
	Eliminate need for Comox #2 Pump Station at planned location	
	Consider the entire region	
	Consider Climate Change over 75 years (rising sea level, Puntledge water flows, …etc.) impact on all new construction	Resiliency to Climate Change, natural disasters and seasonal impacts
	Conveyance is reliant to natural disasters (flood, earthquakes, etc.)	
	Consider seismic impacts	
	Consider climate change impacts	
	Innovation in design	Innovation in Design
	Efficiency	
	Gravity if possible, sustainable and reduced energy	Optimize Use of Existing Infrastructure
	Growth/capacity	
	Maximize opportunity for resource recovery (in conveyance)	
	Build to enhance current infrastructure	
	Maximize use of existing infrastructure that is deemed in good condition and minimal risk (reduced costs)	
	Minimize damage to existing infrastructure (example avoid cutting up recently paved roads) when installing new conveyancing.	
	use existing roads/ROW's to convey to new regional treatment and disposal facilities	
	Reduce infiltration and inflow so that Courtenay and Jane Place pump stations have longer lives before the next upgrade is needed	
	Flow buffering capacity	
	Reduce flow in existing conveyance system by introducing regional treatment facilities	
	Decentralize treatment in outlying areas to limit conveyance to centralized system (e.g. in south and north)	
	Eliminate risks	Enhance operational resilience
	Increase redundancy (decrease critical points of failure)	
	Ensure ability to maintain	
	Redundancy	

Category	Goals As Written	Grouped Goal
Technical	Maximize reliability	Enhance operational resilience
	Enhance reliability	
Affordability	Cost effective with high level of efficiency	Consider Lifecycle Costs
	Value vs cost - use value to quantify decisions	
	Minimize life cycle costs	
	Lifecycle budgeting adhered to	
	Full lifecycle costs	
	Minimize life cycle costs	
	Asset management planning for all conveyance	Develop Asset Management Plan
	Asset management considerations	
Economic Benefits	Economic benefit to the community	Maximize local economic benefits
	Local employment in installation	
Environmental Benefits	Forcemain (regardless of useable life left) out of estuary	Minimize impacts to sensitive environment
	Relocate all conveyance from everywhere in K'omoks Estuary	
	Relocate conveyance away from Willemar bluffs	
	Minimise environmental risk	
	Consider the environment	
	Protect Baynes Sound from discharge	
	Use abandoned Willemar bluff line to reduce shoreline erosion	
	Relocate conveyance lines from beneath Courtenay River	
	Energy Efficient	Mitigate climate change impacts
	Consider sustainability	
	No net-negative climate change impacts in building and operating conveyance	
Social Benefit	No infrastructure in well-dependent neighborhoods	Minimize infrastructure and operating impacts to residents
	Lowest possible noise and odour	
	Least disruption to residences	
	Minimize disruption to neighborhoods/communities due to new infrastructure	
	Combine new "pipe" with foot/bike bridge	Maximize community and recreational infrastructure
	Contribute to trails/parks/green spaces for public use	
	Bike trails when any new roadwork on main thoroughfares required	
	Bike/walking trails on right of way	
	Multi-use trail/sidewalk if conveyance requires road reconstruction. e.g. sidewalk on Comox Hill	
	Leave amenities like trails and sidewalks after construction e.g. Dryden Hudson trails	
	Net positive benefit for residents e.g. bike/walk lanes	

Category	Goals As Written	Grouped Goal
Social Benefit	Maximize opportunity for community benefit	Maximize community and recreational infrastructure
	Connect the sewer system to densely populated areas, small lots with poor soil conditions and old failing septic fields. It provides a health benefit. Areas Croteau beach, Arden, Mission Hill, Royston and South region	Consider public health benefits

TABLE 3(B): ALL GOALS AND GROUPINGS AS WRITTEN FOR TREATMENT

Category	Goals As Written	Grouped Goal
Technical	Reduce risk of failure	Ensure system integrity
	Take proactive approach to maintenance to eliminate [accidental] discharge to ecosystem	
	Maximize reliability	
	Ensure timely, realistic actions are plausible	
	Don't go much higher than provincial and federal regulatory standards	Avoid achieving effluent quality much higher than currently required
	Meet required standards	
	Add disinfection to the current plant	
	Divert flows from Courtenay and Comox pump stations and create tertiary (MBR) facilities at Bill Moore Park and Comox golf course	Plan for future - population., technology, climate
	Resilient to changing conditions/events	
	Have capacity to absorb doubling of population	
	Incorporate best practices	
	Plan for accommodating future technologies	
	Invest in quality processes and technologies for long term value	
	Plan for future demand	
	Like Cranbrook, use proven technology in innovative ways since leading edge tech can be troublesome	
	Consider new technology and do away with current plant	
	Innovation to achieve GMF grants	
Affordability	Long term lifecycle costs	Minimize lifecycle costs
	Efficiency	
	Capacity/growth	
	Net Present Value (NPV)	
	Sustainable for long term	
	Ensure fairness of costs between new and future users (DCC/CICC)	Allocation of costs between existing and new users
	Asset management	Asset management
	Maximum opportunity for grants	Maximum opportunity for grants
Economic Benefits	Residents in Area B receive economic partnership with shellfish industry (treatment opportunity for boating polluters)	Consider economic partnership and eco-asset approach
	Treatment relies on an eco-asset approach to achieve better treatment at a lower cost with environmental benefits.	

Environmental Benefits	Public awareness about what" not to flush"	Public awareness about flushing habits
	Increase service area to include homes in Area B Croteau Beach and Arden	Extend service boundary to include select new areas
	Treat to the highest quality	Maximize effluent quality
	Treat to the highest standard available	
	Achieve highest possible standards for post-treatment	
	Incorporate most up to date technologies	
	Treatment to eliminate pharmaceuticals	
	Treatment to eliminate micro plastics	
	Eliminate viruses	
	Disinfection	
	Surpass minimum regulatory requirements by 10 per cent	
	Treat to exceed minimum standards	
Social Benefit	Stop being sued due to odours	Resolve odour issues at the plant
	Use the highest level of technology to deal with noise and odour	
	No odours	
	No odours	
	Examine affordable ways to reduce impacts of plant - like odours- on neighbours	
	No negative impacts on neighbours that don't receive sewer service	
	Reduce odours to neighbour standards	
	Odours	
	Only use existing location - no multiple treatment facilities	No multiple treatment facilities
	Social determinants of health	Health
	Think of the plant area as a park, a destination	Maximize opportunity for community amenities at plant
	Look for amenities that can be offered the neighborhood, to ease conflict. E.g. water for irrigation or fire protection	
	Enhanced relationships with community (school trips/parkland)	Engage in educating the public about the treatment System
	Partner with SD 71 for k-12 educational training (childhood leads to behavioural change and appreciation of what taxes are used for)	
	Increase public access and education opportunities	
	Education/skills training opportunities	
	Improve public perception of BC's wastewater treatment practices	

TABLE 3(C): ALL GOALS AND GROUPINGS AS WRITTEN FOR RESOURCE RECOVERY

Category	Goals As Written	Grouped Goal
Technical	Like Cranbrook, focus on technologies that are reliable	Focus on technologies that are reliable
	Meet provincial regulatory requirements	Meet provincial regulatory requirements
	Anticipate future demand for recovered resources	Anticipate future demand for recovered resources
	Ostara (struvite) nutrient recovery	
	Build capacity for options and partnerships to recover in future	
	Microbial lab that could conduct research (research centre)	Research opportunities
Affordability	To be cost neutral as a minimum	Use life cycle costs/NPV
	Minimise life cycle costs	
	Reduce capital cost	
	Life cycle costing to factor in potential benefits in future marketing of recovered resource	
	Use energy generated to reduce operational costs	Energy/Heat recovery
	Use to lower our energy footprint	
	Heat recovery for plant	
	Solar panels for power	
	Recover heat to reduce heating costs for buildings at the treatment plant	
	Reclaim heat to reduce operations costs	
	Energy recovery	
	Capture heat energy in conveyance	
	Capture kinetic energy in conveyance	
	Use recovered heat for commercial greenhouses	
	Could treated water be diverted from outfall to market farms along the Queen's Ditch during growing season?	Economically productive use of reclaimed water
	Encourage agricultural activity in Comox Lazo Area B close to the plant from treated water	
	Use the water for purple pipe irrigation	
	Deliver reclaimed water to agriculture	
	Reclaimed water for agricultural use rather than drawing more irrigation water from the Tsolum	
	Research options for using treated water for agriculture	
	Water golf courses	
	Use reclaimed water in municipal parks areas	
	Ducks Unlimited/Comox Bay Farm	
	Recover water to standard that prevents facility from using potable water	
	Water municipal holdings	

Category	Goals As Written	Grouped Goal
Affordability	Restoration of wetlands/water reuse	Economically productive use of reclaimed water
	Reclaim as much of the resource as possible	
	Maximum use of all final product water and solids	
	Groundwater disposal can be supplemental by resource recovery to irrigate Bill Moore park and Comox golf course	
	Maximize plant water recovery, reduce costs	
	reclaimed water to residential and agriculture	
	Use public spaces with reduced site footprints for groundwater disposal opportunities and resource recovery use	
	Reduce costs, efficiency in operations, reuse at plant	
	Funding eligibility	Funding eligibility
Economic Benefits	Invite medical cannabis greenhouses on-site public-private-partnership	PPP
	Compost tourism	Tourism
Environmental Benefits	Reduce GHG/ carbon neutrality	Reduce GHG/ carbon neutrality
	Incorporate plans that work in our climate (for storage)	
	Recovery for bio-plastics and resins	
	Third party utilization (EOI requests)	third party utilization (EOI requests)
Social Benefit	Public health issues considered for any reclaimed water	Consider public health
	Social determinants of health	
	Partnership with university for research recovery	Public outreach and education
	Educate public on skyrocket (composted biosolids)	

Comox Valley REGIONAL DISTRICT

Report to Committee

DATE: December 10, 2018

FILE: 360-20/LWMP

TO: LWMP Technical and Public Advisory Committees (TACPAC)

FROM: Paul Nash
LWMP Project Coordinator

Supported by:
Marc Rutten, P.Eng.
General Manager of Engineering Services

RE: **LWMP Goals and Evaluation System**

Purpose

The purpose of this report is to present the consolidation of the Liquid Waste Management Plan (LWMP) goals into an evaluation system to the Technical and Public Advisory Committee (TACPAC), for their consideration and recommendation to the Comox Valley Sewerage Commission. These goals have been developed by the TACPAC and reviewed by members of the public. This evaluation system will be used to guide decision making about inclusion of options on the long list, the short list and eventual selection of the preferred option(s) for each of the LWMP components of conveyance, treatment and resource recovery.

Recommendation(s) from the Project Coordinator

THAT the Liquid Waste Management Plan Technical and Public Advisory Committee receive and review the report on the Liquid Waste Management Plan goals and evaluation system;

AND FURTHER THAT the Technical and Public Advisory Committee approve the Liquid Waste Plan goals and evaluation system, as presented or amended by the Technical and Public Advisory Committee;

AND FINALLY THAT the Technical and Public Advisory Committee recommend the Liquid Waste Planning goals and evaluation system to the Comox Valley Sewerage Commission for consideration.

Goal Setting Process

Through a collaborative exercise at meeting number two on November 23, 2018, the TACPAC developed a set of goals for the three LWMP components of conveyance, treatment and resource recovery. These goals form the basis of a two-stage evaluation system to be used to screen and then rank the various options yet to be developed, and will eventually be used to choose the preferred option.

The goals were developed and grouped into five categories:

1. Technical
2. Affordability
3. Economic Benefit
4. Environmental Benefit
5. Social Benefit

The goals were voted on by the TACPAC using a ranked voting system and the final scores were used to assign the weightings to each goal.

The results were presented to the public at facilitated sessions on November 26 and 27, 2018, where the public also ranked the summarized goals.

The goals have also been reviewed against the major planning documents – City of Courtenay and Town of Comox Official Community Plans (OCP), the Comox Valley Regional District (CVRD) Regional Growth Strategy, and the Comox Valley Sustainability Strategy. Most of the goals developed by the Committee are referenced in one or more of these documents.

The results have been compared, and the goals further consolidated to remove ones that are not directly applicable as an evaluation criteria, though some of them are applicable as overall goals for the LWMP, regardless of the choice of options.

Evaluation System

The result is a two stage evaluation system for each option. The first stage is a set of mandatory pre-requisites that any proposed option must meet - if it fails on any one of them, it is deemed non-viable and does not make the long list for consideration.

The second stage is a numerical evaluation matrix, based on the weighted rankings of the consolidated goals. This is used to produce a numerical ranking for each proposed option, to guide the decision making for the;

a) Long list, for conceptual study,
b) Short list, for detailed study, and
c) Selecting the preferred option.

The importance of the various goal categories changes with the LWMP components. Conveyance has the main focus on technical and environmental protection, resource recovery has the main focus on affordability, and treatment is relatively balanced across the categories.

In addition to being used for evaluation, the goals and the policies behind them also serve to guide the development of the various options themselves. By knowing what the most desired outcomes are, the development of the options can be refined towards how best to achieve these outcomes.

It is recommended that the TACPAC review these goals, make amendments as appropriate, and forward to the Comox Valley Sewerage Committee for consideration at their January 2019 meeting.

If the TACPAC feels that further work is required, and is not ready to make a recommendation at this stage, then the goals can be brought back to the next scheduled meeting on January 24, 2019, and would go to the Comox Valley Sewer Select in February. Depending on the nature of the changes contemplated, this may or may not delay the start of the options development planned for January 24, 2019.

Prepared by:

P. Nash

Paul Nash
LWMP Project Coordinator

Concurrence:

M. Rutten

Marc Rutten, P.Eng.
General Manager of Engineering Services

Goal Setting and Consolidation

The TACPAC held its goal setting meeting on November 23, 2018. Through a facilitated brainstorming session, committee members put forward their various goals for each of the three LWMP components of conveyance, treatment and resource recovery.

The process for developing and consolidating the goals is as follows:

1. Goals were put forward by the TACPAC members, for each component;
2. Where there were numerous similar goals, they were grouped, and placed into the categories of technical, affordability, economic, environmental benefits and social benefits;
3. The TACPAC members assigned the grouped goals scores of five, three and one, where five is the most important and one is the least important goal;
4. The scores were tallied to get the initial weighting for each goal, and for each category;
5. The goals have been reviewed by the technical consultants, who recommended some changes and consolidations;
6. Some of the goals were not directly usable as an evaluation criteria, or were outside the scope of the LWMP, and these goals were removed, leaving a consolidated set of goals;
7. The consolidated goals were taken to the public sessions on November 26 and 27, 2018, and were ranked by the public;
8. The public rankings have been compared with the TACPAC rankings, and further consolidations and adjustments made to the weightings as appropriate;
9. A final set of proposed goals and weightings has been produced for each LWMP component.

In all consolidation efforts, the intention is to preserve the relative weightings of the five categories, as determined by the TACPAC. This is the primary reflection of the importance of these categories, even if the goals within them may change.

The 'removed' goals may still be valid for consideration as part of the LWMP, but do not form part of the evaluation system.

Evaluation system

The evaluation system has two stages:

1. A screening stage, with a set of pass/fail pre-requisites;
2. A numerical evaluation matrix, based on the consolidated and weighted goals.

Stage 1 is used to "screen" all the proposed options that are to be considered for inclusion on the long list. Any option must pass all of these criteria or it is deemed not viable, and is removed from further consideration.

Mandatory pre-requisites for screening potential Long List options	**Determined by:**
Meet minimum planning horizon	To be set by technical consultants and TACPAC
Meet the Ministry of Environment and Climate Change Strategies (MoE) standards	As set by MoE in existing regulations
Meet public health protection standards	As set by MoE (and Ministry of Health (MoH)) in existing regulations
Technically feasible	As determined by technical consultants
Follows good engineering practice	As determined by technical consultants
Is not astronomical cost	As determined by technical consultants

Stage 2 is used to derive a numerical score for each option, which is used to guide the decision making on which options:

- Are placed on the long list for conceptual study;
- Are then placed on the short list for detailed study;
- Are selected as the preferred option for each LWMP component. Note that resource recovery is not limited to a single option.

The tables that follow represent, for each component:

1. the consolidated goals, results of all rankings, and proposed final goal set and rankings,
2. the set of mandatory pre-requisites, and
3. the final proposed set of goals and weightings

These tables represent the working summary of the information developed goal setting process. The TACPAC can adjust the weightings, or add or remove goals, as appropriate. This should be viewed as an exercise to refine the goals and evaluation, rather than making wholesale changes. However, contemplation of wholesale changes suggests that something has been missed, or mis-interpreted in the goal setting or consolidation process.

CONVEYANCE – Consolidation of Goals

Category	Goals and Category	PAC %	TAC %	Proposed Revised Goals	Public %	Online %	Proposed Final %	Description, Comment
Technical	Resiliency to climate change, natural disasters and seasonal impacts	11%	12%	Resilience to External Factors	10%	11%	**15%**	Includes climate change, natural disasters, seasonal impact
	Enhance operational resilience	9%	15%	Resilience to Internal Factors	10%	11%	**15%**	Operational simplicity and reliability, minimize risk of failure
	Maximize use of existing infrastructure	9%	10%	Maximize use of existing infrastructure & road ROW's	6%	7%	**0%**	This is not an end goal in itself, but an action to achieve other goals , such as reducing capital cost and project complexity
	Plan for long term	7%	21%	Long term solution	10%	10%	**10%**	Provides asset life, and possibly capacity, beyond the minimum planning horizon.
				Flexibility to accommodate future changes			**5%**	Technical consultants to elaborate
	Innovation in Design	3%	2%	Innovation	8%	3%	**0%**	This not an end goal in itself, but is an action to achieve other goals, such as attract grant funding, or reduce operational complexity.
Technical Total		**38%**	**61%**		**44%**	**42%**	**45%**	
Affordability	Minimize lifecycle costs	9%	8%	Minimize lifecycle cost	7%	9%	**15%**	Net present value of capital, operational and replacement cost, period is to the planning horizon
	Long Term financial Implications	8%	2%	Long term value	0%		**5%**	Provides asset life and capacity beyond the design planning horizon
				Attract grant funding	8%	10%	**0%**	This is an action to offset capital cost, but needs to be evaluated separately as there is a probability factor involved. Offset = grant% x capital cost x probability
Affordability Total		**17%**	**10%**		**15%**	**19%**	**20%**	
Economic Benefits	Maximize local economic benefits	3%	1%		0%	0	**0%**	Not a focus at all of the Conveyance component
Economic Total		**3%**	**1%**		**0%**	**0**	**0%**	
Environment Benefits	Minimize impacts, and risk of impacts, to sensitive environment	12%	7%	Minimize risk of impacts to sensitive environment	10%	11%	**10%**	Example action - remove forcemain from estuary, but must also consider risks/impact of new location
	Mitigate climate change impacts (Energy and GHG's)	7%	9%	Minimize resource consumption and carbon footprint	9%	8%	**5%**	Reduce use of external resources, e.g. energy, chemicals. Most energy reductions reduce GHG's, but not all GHG reductions reduce energy.
Environment Total		**19%**	**16%**		**19%**	**19%**	**15%**	

Social Benefit	Minimize noise and odour impacts	12%	3%	Minimize noise, odour and visual impacts in operation	6%	10%	**10%**	
				Minimize community disruption during construction	9%	5%	**5%**	
	Maximize community and recreational infrastructure	8%	2%	Maximize community and recreational amenity value	7%	5%	**5%**	Best example is recreational trails above a pipeline, but there might be other opportunities
	Maximize public health benefit	3%	8%	Maximize public health benefit			**0%**	Include this in the specification for this component, relates to Internal resilience- risk of failure
Social Total		**23%**	**13%**		**22%**	**20%**	**20%**	
Grand Total		**100%**	**100%**		**100%**	**100%**	**100%**	

Proposed Final Goal and Evaluation Matrix – Conveyance

Component	**Conveyance**	
Category	**Proposed Revised Goals**	**Proposed %**
Technical	Resilience to External Factors	15
	Resilience to Internal Factors	15
	Long term solution	10
	Flexibility to accommodate future changes	5
Technical Total		**45%**
Affordability	Minimize Lifecycle Cost	15
	Long Term Value	5
	Attract Grant Funding (evaluate to offset capital cost)	0
Affordability Total		**20%**
Economic Benefits		0
Economic Total		**0%**
Environmental Benefits	Minimize risk of impacts to sensitive environment	10
	Mitigate climate change impacts (Energy, and GHG's)	5
Environmental Total		**15%**
Social Benefit	Minimize noise, odour and visual impacts in operation	10
	Minimize community disruption during construction	5
	Maximize community and recreational amenity value	5
Social Total		**20%**
Grand Total		**100%**

Treatment- Consolidation of Goals

Category	Grouping (edited)	PAC %	TAC %	Proposed Revised Goals	Public %	Online %	Proposed %	Description, Comment
Technical	Plan for future –climate change			Resilience to External Factors	10%	10%	5%	Includes climate change, natural disasters, seasonal impact
	Minimize risk of failures/spills	15%	14%	Resilience to Internal Factors	0%	8%	10%	Operational simplicity and reliability, minimize risk of failure/spills
				Maximize use of existing infrastructure and road ROW's	5%	4%	0%	This is not an end goal in itself, but an action to achieve other goals , such as reducing capital cost and project complexity
				Flexibility to accommodate future changes	9%	9%	5%	Technical Consultants to elaborate
	Plan for future - population	17%	16%	Provides asset life and capacity beyond the planning horizon	17%	9%	10%	Some elements may have very long design lives
Technical Total		**32%**	**30%**		**41%**	**40%**	**30%**	
Affordability	Minimize lifecycle costs	12%	17%	Minimize Lifecycle Cost and Asset Management Needs	6%	9%	30%	Net present value of capital, operational and replacement cost, period is to the planning horizon
	Asset management	1%	10%				0%	Included in life cycle cost as "replacement"
	Allocation of costs between existing and new users	3%	8%				0%	This applies regardless of the treatment solution being implemented. It is dealt with in Stage 3 LWMP
	Maximum opportunity for grants	10%	7%	Attract Grant Funding	8%	8%	0%	This is an action to offset capital cost, but needs to be evaluated separately as there is a probability factor involved.
Affordability Total		**25%**	**43%**		**14%**	**17%**	**30%**	
Economic Benefits		0%	0%				**0%**	External economic benefits are not a focus for treatment
Economic Total		**0%**	**0%**		**0%**	**0%**	**0%**	
Environment Benefits	Public awareness about what" not to flush"	0%	0%					This is a management/education issue, regardless of treatment Options
	Maximize effluent quality	19%	13%	Quality of treatment exceeds current standards	9%	9%	10%	Degree to which BOD and TSS removal is better than regulatory standards
				Remove artificial contaminants (e.g. pharmaceuticals, microplastics)	9%	9%	5%	Neither of these are regulated I effluent, and are not likely to be for at least another decade, but can be removed with available technology
				Mitigate climate change impacts (Energy, and GHG's)	9%	7%	5%	Most energy reductions reduce GHG's, but not all GHG reductions reduce energy.

Environment Total		**19%**	**13%**		**27%**	**25%**	**20%**	
Social Benefit	Reduce odour from plant	12%	9%	Minimize noise and odour in long term operation	9%	8%	10%	
	Maximize opportunity for partnership	4%	1%	Partnership Opportunity	7%	6%	5%	If partnerships are desired, they can be pursued independently of Options, but Proponents can also be encouraged to bring them forward
	Maximize opportunity for community amenity at plant	6%	1%	Maximize opportunity for community amenity at/around plant	6%	4%	5%	Could be education or even quasi-recreation facilities, such as an external viewpoint over the plant.
Social Total		**22%**	**13%**		**22%**	**18%**	**20%**	
Grand Total		**99%**	**100%**		**104%**	**100%**	**100%**	

Proposed Final Goal and Evaluation Matrix – Treatment

Category	**Proposed Revised Goals**	**%**
Technical	Resilience to External Factors	5%
	Resilience to Internal Factors	10%
	Flexibility to accommodate future changes	5%
	Provides asset life and capacity beyond the planning horizon	10%
Technical Total		**30%**
Affordability	Minimize Lifecycle Cost and Asset Management Needs	30%
	Potential for Grant Funding	0%
Affordability Total		**30%**
Economic Benefits		0%
Economic Total		**0%**
Environmental Benefits	Quality of treatment exceeds current standards	10%
	Remove artificial contaminants (e.g. pharmaceuticals, microplastics)	5%
	Mitigate climate change impacts (Energy, and GHG's)	5%
Environmental Total		**20%**
Social Benefit	Minimize noise and odour in long term operation	10%
	Partnership Opportunity	5%
	Maximize opportunity for community amenity at/around plant	5%
Social Total		**20%**
Grand Total		**100%**

Resource Recovery – Consolidation of Goals

Category	Grouping (edited)	PAC %	TAC %	Proposed Revised Goals	Public %	Online %	Proposed %	Description, Comment
Technical	Like Cranbrook, focus on technologies that are reliable	10%	3 %	Commercially available technology	10%	12%	10%	Want to avoid "inventing" something, but some RR technologies may still require pilot testing
	Meet provincial regulatory requirements	2%	13%					A pass/fail criteria as far as RR is concerned
	Anticipate future demand for recovered resources	2%	1%	Anticipate future demand for resources	10%	14%	5%	Part of the "market study" for the RR opportunities
				Resiliency to internal factors				Operational simplicity and reliability, minimize risk of failure/spills
				Improve performance of treatment plant	11%	14%	10%	Some reclaimed water treatment processes may help achieve other performance goals
Technical Total		**14%**	**17%**		**31%**	**40%**	**25%**	
Affordability	to be cost neutral as a minimum	2%	10%	Maximize revenue or cost offset			10%	Dependent upon future demand - it may not exist at present
	Use life cycle costs/NPV	22%	27%	Minimize life cycle cost			**20%**	Net present value of capital, operational and replacement cost, period is to the planning horizon
	Grant Funding eligibility	19%	13%	Potential for Grant Funding	11%	13%	10%	Will require a detailed assessment of current and likely grant opportunities, to then assess Options
	Build capacity for options and partnerships to recover costs in future	29%	16%	Potential for external partnerships	9%	9%	10%	The partner is more than just a pay-for product customer, they contribute to the capital cost of the project
Affordability Total		**72%**	**46%**		**20%**	**22%**	**50%**	
Economic Benefits		0%	0%	Grow the local economy	8%	11%	5%	Not a focus of the committee, but has potential for industry creation
Economic Total		**0%**	**0%**		**8%**	**11%**	**5%**	
Environment Benefits	Reduce GHG/carbon neutrality	14%	8%	Energy efficiency and GHG reductions	11%	11%	5%	Most energy reductions reduce GHG's, but not all GHG reductions reduce energy.
	Habitat Restoration or enhancement			Habitat restoration or enhancement	11%	11%	5%	
				Displacement of potable water			5%	
Environment Total		**14%**	**8%**		**22%**	**22%**	**15%**	

Social Benefit	Public health issues considered for any reclaimed water	0%	11%		12%	16%		Is a specification that any reclaimed water option must meet
				Ability to maintain irrigation of public parks and gardens during water restrictions	8%	10%	5%	
Social Total		**0%**	**11%**		**20%**	**26%**	**5%**	
Grand Total		**100%**	**100%**		**100%**	**100%**	**100%**	

Proposed Final Goal and Evaluation Matrix – Resource Recovery

Category	Proposed Revised Goals	%
Technical	Commercially available technology	10%
	Resiliency to internal factors	5%
	Anticipate future demand for resources	5%
	Improve performance of treatment plant	5%
Technical Total		**25%**
Affordability	Maximize revenue or cost offset	10%
	Minimize life cycle cost	**20%**
	Potential for Grant Funding	10%
	Potential for external partnerships	10%
Affordability Total		**50%**
Economic Benefits	Grow the local economy	5%
Economic Total		**5%**
Environmental Benefits	Energy efficiency and GHG reductions	5%
	Habitat restoration or enhancement	5%
	Displacement of potable water	5%
Environmental Total		**15%**
Social Benefit	Ability to maintain irrigation of public parks and gardens during water restrictions	5%
Social Total		**5%**
Grand Total		**100%**

CVRD LWMP Public Consultation Report

December 10, 2018

Prepared by A.M Habkirk BA MA MPA MCIP

BACKGROUND

This report documents the outcomes of the two public consultation workshops held November 27 & 28, 2018 conducted to solicit feedback on goals developed for the CVRD LWMP by the Technical Advisory Committee and Public Advisory Committee (TACPAC) meeting held November 30, 2018.

The Comox Valley Regional District (CVRD) provides liquid waste management for the City of Courtney and the Town of Comox at the Comox Valley Water Pollution Control Centre (CVWPCC). As the communities grow capacity to deliver liquid waste to the CVWPCC must be expanded by increasing conveyance capacity (installing new pipes in the ground) and potentially upgrading of the CVWPCC to provide a higher level of wastewater treatment.

Consultation for the LWMP is proposed to include four sessions over the life of the Liquid Waste Management Plan development process. The first phase included an online consultation and two workshops sessions held in June of 2018. This report documents the workshop components of the second phase of the public consultation process which will also include a parallel online consultation process.

The input from the workshops and online process will provide input to the PACTAC as they develop a shortlist of options to review.

Future consultation phases are proposed to include:
Mar 2020 Open House #2 (CVRD) - Report back to community on consultation value, results and affect. Supported with online information.

THE PURPOSE OF THE PHASE 2 CONSULTATION WORKSHOPS

The purpose of the workshops was to gain feedback on the goals for the Liquid Waste Management Plan (LWMP) components developed by the PACTAC.

THE WORKSHOP CONSULTATION PROCESS

At each of the two workshops attendees were organized in small groups to discuss and then rank the importance of goals developed for each of the LWMP components: conveyance, treatment and resource recovery. The goals generated by the PACTAC were distributed to each participant in a workbook; copies of the workshop workbook and ranking sheets are attached to this report as Appendix 1.

In total 37 complete ranking sheets were submitted. Attendees were asked to record where they live, and data was sorted by place of residence. The following table shows the distribution by place of residence of attendees. It is interesting to note that there were virtually equal numbers of residents from Courtenay and Comox and a significantly high number of attendees from Area B which is not a participant in the service but is impacted by the service.

Workshop Attendees by residence location	
Comox	10
Courtenay	11
Electoral Area A	1
Electoral Area B	15

Workshop results are summarized in the tables below and is presented by component and participant place of residence

CONVERYANCE: November 27 & 28 Workshop Results Courtenay and Comox

	CONVEYANCE Courtenay					CONVEYANCE Comox					CONVEYANCE Area A					CONVEYANCE Area B				
	VI	SI	NIU	SU	NI	VI	SI	NIU	SU	NI	VI	SI	NIU	SU	NI	VI	SI	NIU	SU	NI
Technical Goals																				
Ensure infrastructure is resilient to climate change, natural disasters and seasonal impacts.	9	1				9					1					14		1		
Ensure operations are able to adapt to changing conditions.	9	1				8	1				1					14		1		
Maximize the use of existing infrastructure and road right-of-ways.	4	4	3			2	5	1				1				2	4	4	2	3
Ensure long term viability of infrastructure.	9	1				7	1	1			1					10	3	2		
Utilize innovative design.	3	5	2			6	3	1			1					9	3	3		
Affordability Goals																				
Consider long term financial impact, including minimizing lifecycle costs through asset management.	4	1	3	2		6	3				1					4	7	4		
Maximize opportunity for grant funding.	9		1			5	3				1					6	4	3	1	
Economic Goals																				
Maximize opportunities to enhance the local economy.	3	5	2			4	3	2					1			3	6	4		2
Environment Goals																				
Minimize risks and potential impacts to sensitive environments.	9	1				9					1					13	1	1		
Maximize energy efficiency and mitigate climate change impacts.	5	5				9					1					9	4	2		
Social Goals																				
Minimize noise and odour impacts to community.	7	1	1			6	2	1			1					14	1	4		
Minimize disruptions to communities along conveyance routes.	3		3	2		1	6	2					1			10		8		1
Maximize opportunities for community and recreational amenities.	3	5	1	1		2		4							1	3	1			1

Observations on the Conveyance data overall:

- The rankings for all goals from Courtenay and Comox residents are very similar.
- Overall all goals were ranked relatively high – the majority were ranked very important and important.
- There were a minority of rankings in the somewhat and not important categories.

Observations on the technical goals (Courtenay & Comox):

- rankings were highest for:
  - *Ensure infrastructure is resilient to climate change, natural disasters and seasonal impacts.*
  - *Ensure operations are able to adapt to changing conditions.*
  - *Ensure long term viability of infrastructure.*
- rankings were significantly lower for:
  - *Maximize the use of existing infrastructure and road right-of-ways.*
  - *Utilize innovative design.*
- Rankings for the technical goals from residents of Area B are similar to those from Courtenay and Comox residents except for a higher rating for innovative design from Area B residents

Observations on the affordability goals (Courtenay & Comox):

- rankings were highest for:
  - *Maximize opportunity for grant funding.*
- rankings were lower for:
  - *Consider long term financial impact, including minimizing lifecycle costs through asset management*.
- rankings for the affordability goals from residents of Area B were more distributed across the rankings.

Observations on the economic goal (Courtenay & Comox):

- rankings for the economic goal *Maximize opportunities to enhance the local economy* were relatively evenly distributed across the rankings by all participants.

Observations on the environment goals (Courtenay & Comox):

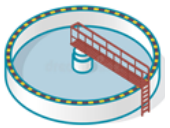
- rankings were highest for:
  - *Minimize risks and potential impacts to sensitive environments from Courtenay residents and Area B residents.* Comox residents ranked this goal equally with *Maximize energy efficiency and mitigate climate change impacts.*
- rankings were lower for:
  - *Maximize energy efficiency and mitigate climate change impacts* from Courtenay residents and Area B residents

Observations on the social goals (Courtenay & Comox):

- rankings were highest for:
  - *Minimize noise and odour impacts to community including Area B residents*
- rankings were lower for:
  - *Minimize disruptions to communities along conveyance routes except Area B residents ranked this goal higher*
  - Maximize opportunities for community and recreational amenities.

TREATMENT: November 27 & 28 Workshop Results Courtenay and Comox

	TREATMENT Courtenay					TREATMENT Comox					TREATMENT Area A					TREATMENT Area B				
	VI	SI	NIU	SU	NI	VI	SI	NIU	SU	NI	VI	SI	NIU	SU	NI	VI	SI	NIU	SU	NI
Technical Goals																				
Ensure infrastructure and operations are resilient to climate change, natural disasters and seasonal impacts.	8	1				10					1					13				
Ensure operations are able to adapt to changing conditions.	8		1			7	3				1					11	4			
Maximize the use of existing infrastructure and road right of ways.	2	4	1			3	4	3				1				3	5	1	5	
Ensure assets are relevant for the long term.	7	1	1			7	2	1			1					9	6	1		
Ensure the system has enough capacity to meet future growth.	7	2				8	1	1								8	2	1		
Affordability Goals																				
Consider long term financial impact, including minimizing lifecycle costs through asset management.	4	2	2	1		5	4	1				1				4	7	5		
Maximize opportunity for grant funding.	3		1			6	3	1			1					12	3	3		
Environment Goals																				
Ensure treatment of wastewater exceeds current standards	9					5	3				1					11	4			
Remove artificial contaminants such as pharmaceuticals and micro plastics from wastewater.	6	2	1			8	2				1					13	1			
Ensure energy efficiency and mitigate climate change impacts.	6	1	2			8	2				1					10	4	1		
Social Goals																				
Minimize noise and odour from treatment plant	5	3	1			5	4	1				1				13				
Maximize opportunities for partnerships that achieve a community benefit	4	3	2			5	2	3					1			6	5	3		
Maximize opportunities for community and recreational amenities at/around the treatment plant.	2	2	2	1	1	1	4	3	1				1			4	4	4	2	



Observations on the Treatment data overall:

- The rankings for all goals from Courtenay and Comox residents are relatively similar.
- Overall all goals were ranked relatively high – the majority falling into the very important and important categories.
- A small proportion of the rankings fall into the neither important or unimportant categories.
- Area B residents tended to rank all of the goals higher that did Courtenay and Comox residents.

Observations on the technical goals (Courtenay & Comox):

- rankings were highest for:
  - *Ensure infrastructure and operations are resilient to climate change, natural disasters and seasonal impacts.*
  - *Ensure operations are able to adapt to changing conditions.*
  - *Ensure assets are relevant for the long term.*
  - *Ensure the system has enough capacity to meet future growth.*
- rankings were significantly lower for:
  - *Maximize the use of existing infrastructure and road right of ways*
- Rankings for the technical goals from residents of Area B are similar to those from Courtenay and Comox.

Observations on the affordability goals (Courtenay & Comox):

- rankings for the affordability goals tended to be distributed except for a high very important ranking for *Maximize opportunity for grant funding*

Observations on the environment goals (Courtenay & Comox):

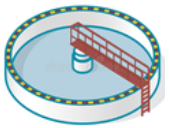
- rankings were highest for:
  - *Ensure treatment of wastewater exceeds current standards*
- rankings were lower for:
  - *Remove artificial contaminants such as pharmaceuticals and micro plastics from wastewater.*
  - *Ensure energy efficiency and mitigate climate change impacts.*
- Rankings from Area B residents were very high for all environment goals with the majority of them in the very important category.

Observations on the social goals (Courtenay & Comox):

- rankings were highest for:
  - *Minimize noise and odour from treatment plant including Area B residents*
- rankings were lower for:
  - *Maximize opportunities for partnerships that achieve a community benefit*
  - *Maximize opportunities for community and recreational amenities at/around the treatment plant.*

RESOURCE RECOVERY November 27 & 28 Workshop Results Courtenay and Comox

	Resource Recovery Courtenay					Resource Recovery Comox					Resource Recovery Area A					Resource Recovery Area B				
	VI	SI	NIU	SU	NI	VI	SI	NIU	SU	NI	VI	SI	NIU	SU	NI	VI	SI	NIU	SU	NI
Technical Goals																				
Use commercially available technology.	5	2	3			4	2	2				1				11	2	2		
Anticipate future demand for resources.	7		3			7	1	1			1					10	3	2		
Improve performance of treatment plant.	6	2	1			6	2	1			1					13		2		
Affordability Goals																				
Explore opportunities to recover heat and energy and offset costs at CVWPCC	8	1	1			5	4				1					11	2	2		
Explore economically productive use of reclaimed water.	9					4	4	1				1				10	4			1
Select resource recovery options that will maximize grant funding opportunities.	8	1	1			4	4	1			1					11	2	1	1	
Explore the potential for external partners to help reduce capital costs.	4	1	3			3	2	4								5	2	6		1
Economic Goals																				
Explore options that can have a positive impact on or grow the local economy	6	1	3			5	1	3					1			6	5	2	1	
Environment Goals																				
Maximize climate change mitigation	6	3	1			8	1					1				9	4	2		
Restore or enhance environmental habitat	7	3				7	1	1			1					10	4	1		
Social Goals																				
Protect public health	9					8	1				1					15				
Ensure ability to maintain irrigation of public parks and gardens during water restrictions.	4	6	1	2		3	4	1		1		1				8	2	3	2	



Observations on the Resource Recovery data overall:

- The rankings for all goals from Courtenay and Comox residents are relatively similar.
- Overall all goals were ranked relatively high – the majority falling into the very important and important categories.
- A small proportion of the rankings fall into the neither important or unimportant categories.
- More rankings in the neither important or unimportant category in the Resource Recovery rankings.
- Area B residents tended to rank the resource recovery goals more highly than did Courtenay and Comox residents.

Observations on the technical goals (Courtenay & Comox):

- rankings were fairly distributed across the very, somewhat and neither important or unimportant categories.
- Area B residents ranked these goals very high compared with Courtenay and Comox residents

Observations on the affordability goals (Courtenay & Comox):

- rankings were highest for:
  - *Explore opportunities to recover heat and energy and offset costs at CVWPCC*
  - *Explore economically productive use of reclaimed water.*
  - *Select resource recovery options that will maximize grant funding opportunities.*
- Rankings were lower for: *Explore the potential for external partners to help reduce capital costs.*
- Courtenay, Comox & Area B ranking were quite similar

Observations on the economic goal (Courtenay & Comox):

- Courtenay, Comox & Area B ranking were quite similar (VI & SI) for: *Explore options that can have a positive impact on or grow the local economy*

Observations on the environment goals (Courtenay & Comox):

- Courtenay, Comox & Area B ranking were quite similar (VI & SI) for: *Maximize climate change mitigation &Restore or enhance environmental habitat*

Observations on the social goals (Courtenay & Comox):

- Courtenay, Comox & Area B ranking were quite similar (VI) for: Protect public health
- rankings were lower for:
  - *Ensure ability to maintain irrigation of public parks and gardens during water restrictions.*

NEXT STEPS

The results of the two consultation workshops will be discussed at the Dec 11, 2018 Technical Advisory and Public Advisory Committees (PAC/TAC) along with the online consultation results and will be considered as they develop a shortlist of options to review.

Appendix 1: Workshop Instructions and ranking pages

Comox Valley REGIONAL DISTRICT

CVRD LWMP Public Engagement Workshop Instructions

Background: The CVRD is developing a liquid waste management plan (LWMP) for the City of Courtney and the Town of Comox. The LWMP process is being guided and supported by Technical and Public Advisory Committees (PACTAC) made up of professionals, elected officials from Courtney and Comox, and members of the public.

One of the early steps in the LWMP process is to develop goals for the management of liquid waste. These goals will ultimately be used to evaluate different options for conveyance, treatment and resource recovery of liquid waste.

Draft goals were developed by the Technical and Public Advisory Committees at a meeting held on November 23, 2018.

The purpose of this workshop is to gain feedback from the public on the draft goals developed by the Technical and Public Advisory Committees to ensure they reflect the goals of the community.

The process for this evening includes:

- A short presentation on the LWMP process
- A short presentation on the existing CVRD liquid management system
- Presentation of the PACTAC draft goals
- Small group discussion of the draft goals
- Individual feedback on the draft goals

Following the presentations there will be an opportunity to discuss the various goals with a small number of workshop participants. Take time to consider some of the following questions in your discussions:

Do you agree with the goals outlined by the PACTAC?
Are there goals that you think should be removed?
Are there any goals missing that you think should be included?

Following the group discussion please record your individual thoughts on the relative importance of the draft goals on the attached form. Also note any goals you think should not be included and any goals you think should be added.

When you are finished please drop the form at the door before you leave.

How important are these goals to you?

I live in ☐ Courtenay ☐ Comox ☐ Other please specify where _____

CONVEYANCE

Principal Objectives:

Decommission Willemar Bluffs section of pipeline

Increase capacity for future growth

Technical Goals	**Very important**	**Somewhat important**	**Neither important or unimportant**	**Somewhat unimportant**	**Not important**
Ensure infrastructure is resilient to climate change, natural disasters and seasonal impacts.	☐	☐	☐	☐	☐
Ensure operations are able to adapt to changing conditions.	☐	☐	☐	☐	☐
Maximize the use of existing infrastructure and road right-of-ways.	☐	☐	☐	☐	☐
Ensure long term viability of infrastructure.	☐	☐	☐	☐	☐
Utilize innovative design.					
Affordability Goals					
Consider long term financial impact, including minimizing lifecycle costs through asset management.	☐	☐	☐	☐	☐
Maximize opportunity for grant funding.	☐	☐	☐	☐	☐
Economic Goals					
Maximize opportunities to enhance the local economy.	☐	☐	☐	☐	☐
Environment Goals					
Minimize risks and potential impacts to sensitive environments.	☐	☐	☐	☐	☐
Ensure energy efficiency and mitigate climate change impacts.	☐	☐	☐	☐	☐
Social Goals	☐	☐	☐	☐	☐
Minimize noise and odour impacts to community.	☐	☐	☐	☐	☐
Minimize disruptions to communities along conveyance routes.	☐	☐	☐	☐	☐
Maximize opportunities for community and recreational amenities.	☐	☐	☐	☐	☐

Are there any goals you think should be deleted?

Are there any goals missing that you think should be included?

How important are these goals to you?

TREATMENT

Principal Objectives:

Upgrades to meet regulatory requirements

Increase capacity for future growth

Technical Goals	**Very important**	**Somewhat important**	**Neither important or unimportant**	**Somewhat unimportant**	**Not important**
Ensure infrastructure and operations are resilient to climate change, natural disasters and seasonal impacts.	☐	☐	☐	☐	☐
Ensure operations are able to adapt to changing conditions.	☐	☐	☐	☐	☐
Maximize the use of existing infrastructure and road right of ways.	☐	☐	☐	☐	☐
Ensure assets are relevant for the long term.	☐	☐	☐	☐	☐
Ensure the system has enough capacity to meet future growth.					
Affordability Goals					
Consider long term financial impact, including minimizing lifecycle costs through asset management.	☐	☐	☐	☐	☐
Maximize opportunity for grant funding.	☐	☐	☐	☐	☐
Environment Goals					
Ensure disinfection of wastewater exceeds current standards.	☐	☐	☐	☐	☐
Ensure treatment of wastewater exceeds current standards	☐	☐	☐	☐	☐
Remove artificial contaminants such as pharmaceuticals and micro plastics from wastewater.	☐	☐	☐	☐	☐
Ensure energy efficiency and mitigate climate change impacts.	☐	☐	☐	☐	☐
Social Goals	☐	☐	☐	☐	☐
Minimize noise and odour from treatment plant	☐	☐	☐	☐	☐
Maximize opportunities for partnerships that achieve a community benefit	☐	☐	☐	☐	☐
Maximize opportunities for community and recreational amenities at/around the treatment plant.	☐	☐	☐	☐	☐

Are there any goals you think should be deleted?

Are there any goals missing that you think should be included?

How important are these goals to you?

RESOURCE RECOVERY

Principal Objectives:

Explore opportunities to recover and reuse resources from wastewater

- Water
- Heat/energy
- Nutrients

Technical Goals	Very important	Somewhat important	Neither important or unimportant	Somewhat unimportant	Not important
Use commercially available technology.	☐	☐	☐	☐	☐
Anticipate future demand for resources.	☐	☐	☐	☐	☐
Improve performance of treatment plant.	☐	☐	☐	☐	☐
Affordability Goals					
Explore opportunities to recover heat and energy and offset costs at CVWPCC	☐	☐	☐	☐	☐
Explore economically productive use of reclaimed water.	☐	☐	☐	☐	☐
Select resource recovery options that will maximize grant funding opportunities.	☐	☐	☐	☐	☐
Explore the potential for external partners to help reduce capital costs.	☐	☐	☐	☐	☐
Economic Goals					
Explore options that can have a positive impact on or grow the local economy	☐	☐	☐	☐	☐
Environment Goals					
Maximize climate change mitigation	☐	☐	☐	☐	☐
Restore or enhance environmental habitat	☐	☐	☐	☐	☐
Social Goals	☐	☐	☐	☐	☐
Protect public health	☐	☐	☐	☐	☐
Ensure ability to maintain irrigation of public parks and gardens during water restrictions.	☐	☐	☐	☐	☐

Are there any goals you think should be deleted?

Are there any goals missing that you think should be included?

How satisfied are you with this workshop as an opportunity to have your voice heard?

Very satisfied	Satisfied	Somewhat satisfied	Not satisfied
☐	☐	☐	☐

Survey Report

27 November 2018 - 09 December 2018

Goals and Objectives - Comox Valley Sewer Service Planning

PROJECT: Help shape the future of our Sewer System in Courtenay and Comox

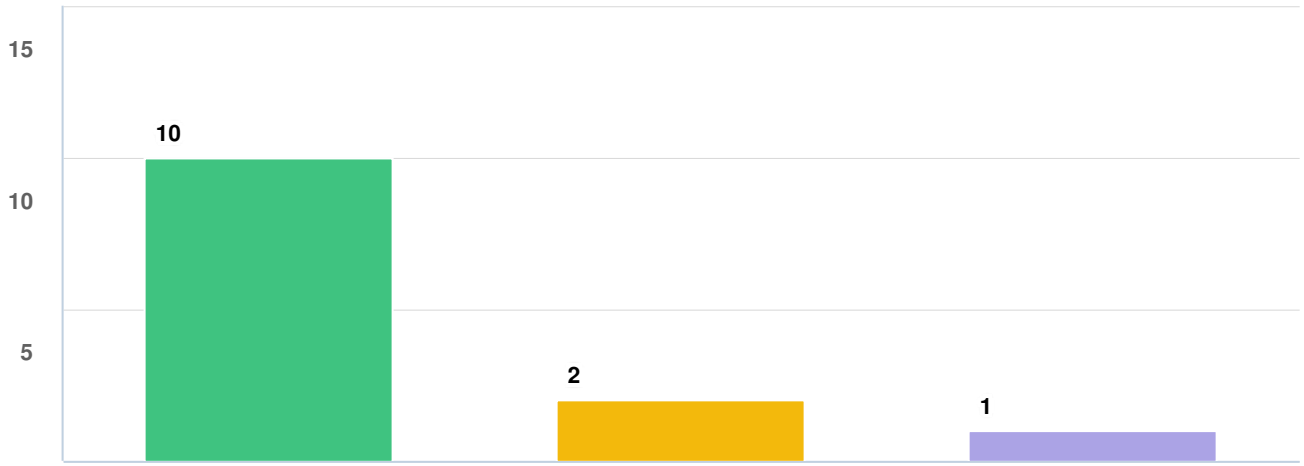
Connect CVRD

engagement hq by Bang the Table

CONVEYANCE

The first series of questions focuses on CONVEYANCE: How important are these goals to you regarding conveyance (the pipes and pump stations that move wastewater from homes/businesses to the treatment plant).

Q1 Ensure infrastructure is resilient to climate change, natural disasters and seasonal impacts.

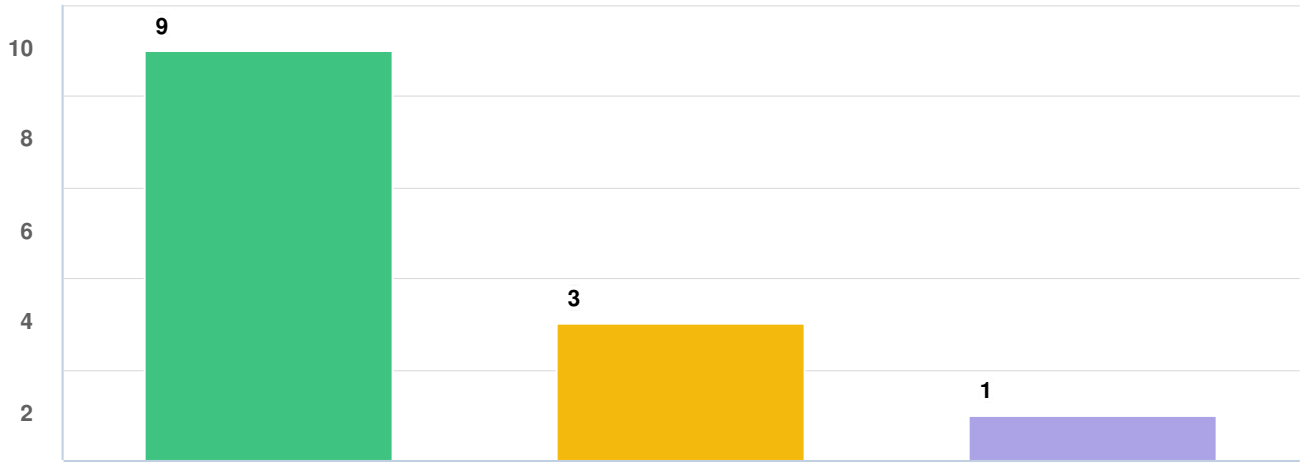


Question options

Very Important | Somewhat important | Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q2 Ensure operations are able to adapt to changing conditions.

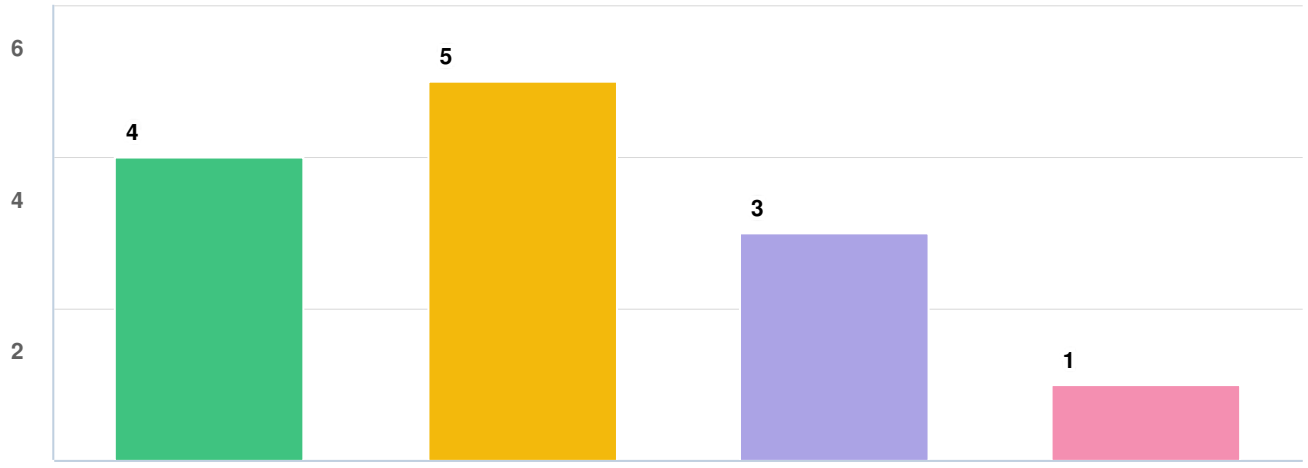


Question options

Very important | Somewhat important | Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q3 Maximize the use of existing infrastructure and road right of ways.

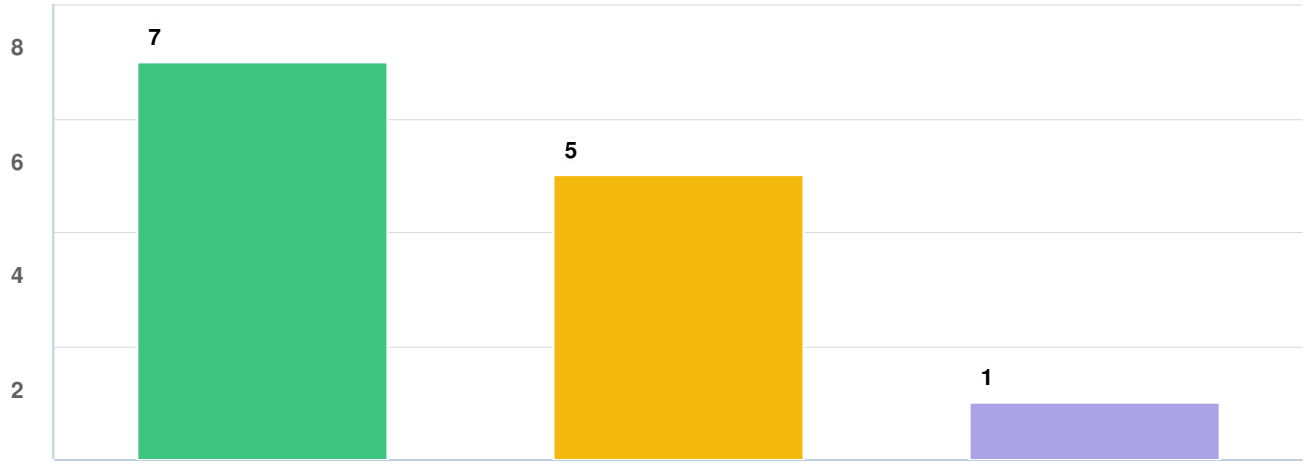


Question options

Very Important Somewhat important Neither important or unimportant Somewhat unimportant

Optional question (14 responses, 0 skipped)

Q4 Ensure long-term viability of infrastructure.

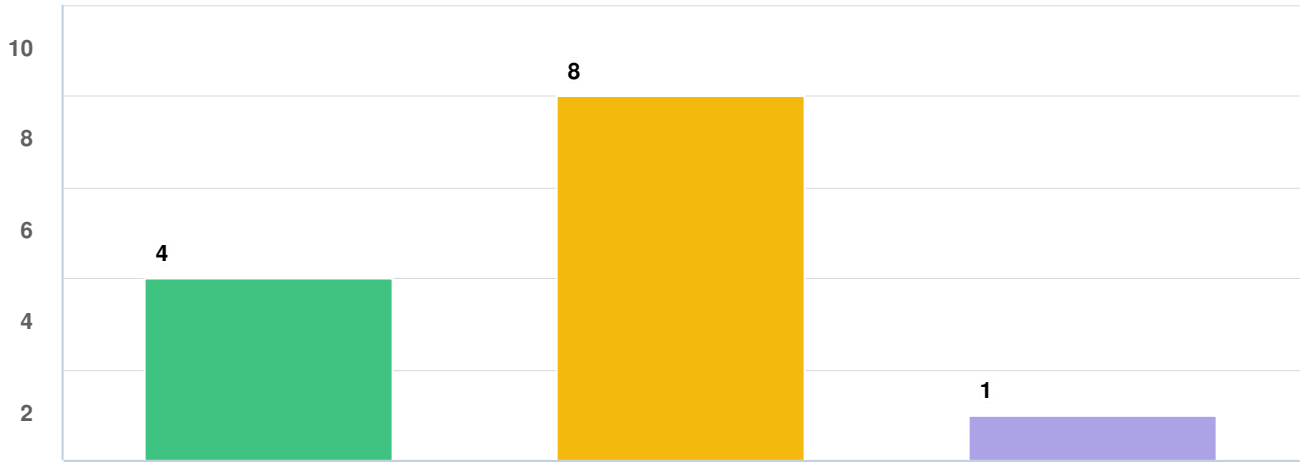


Question options

Very Important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q5 Utilize innovative design.

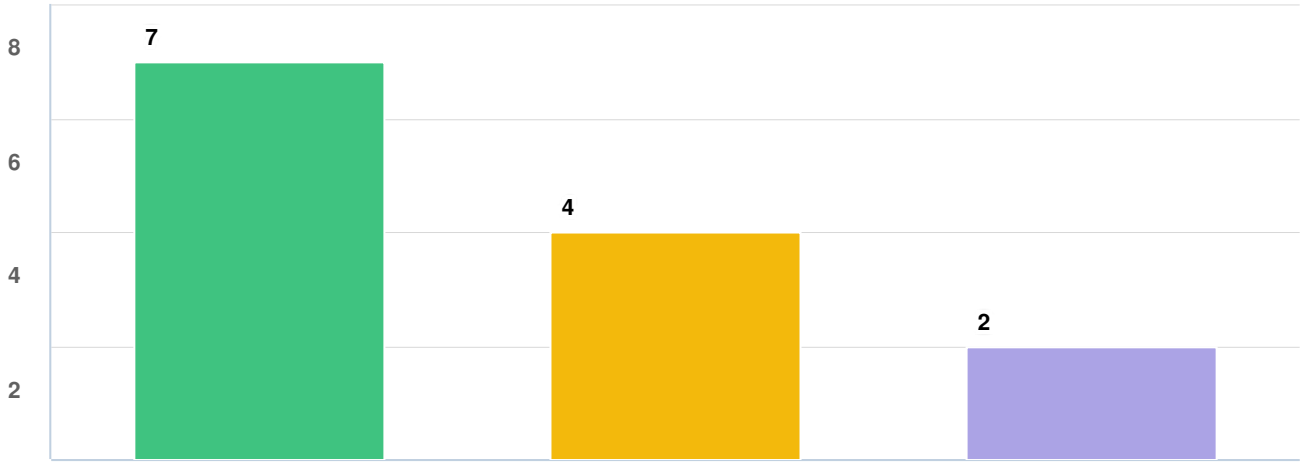


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q6 Consider long-term financial impact and minimize lifecycle costs

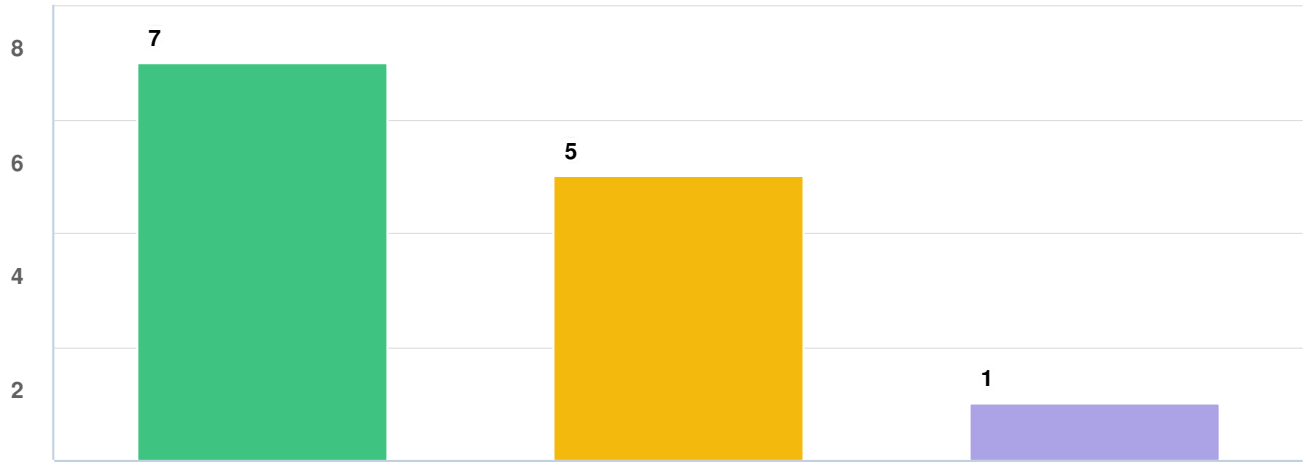


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q7 Maximize opportunity for grant funding.

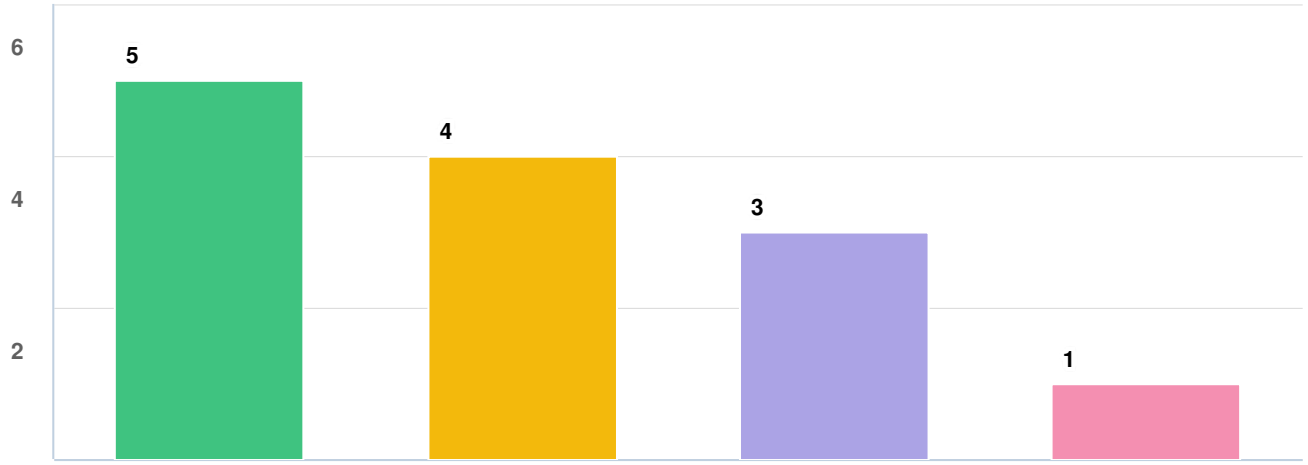


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q8 Maximize opportunities to enhance the local economy.

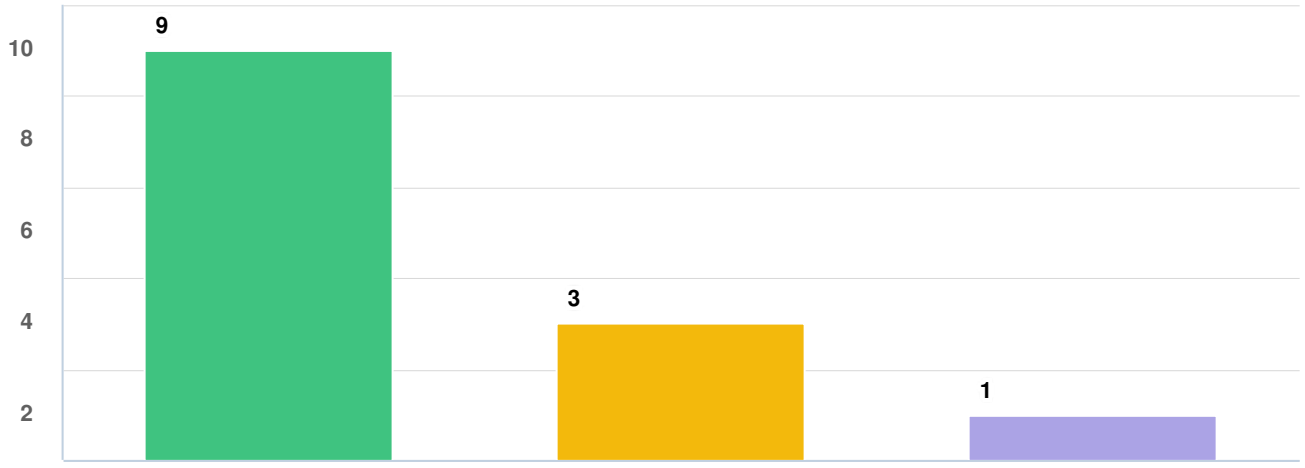


Question options

Very important Somewhat important Neither important or unimportant Not imrportant

Optional question (14 responses, 0 skipped)

Q9 Minimize risks and potential impacts to sensitive environments.

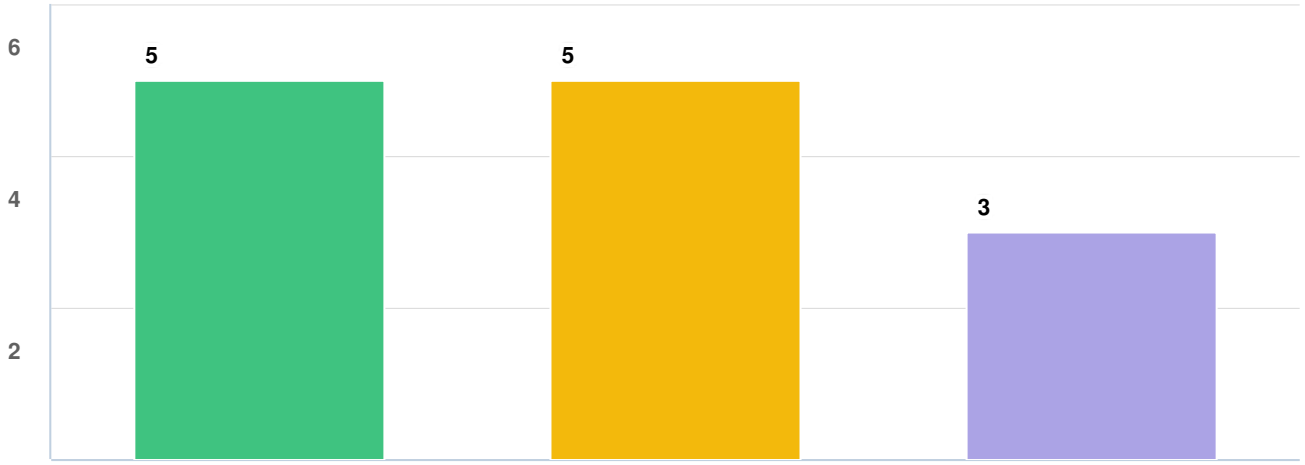


Question options

Very important Somewhat important Somewhat unimportant

Optional question (14 responses, 0 skipped)

Q10 Maximize energy efficiency and mitigate climate change impacts.

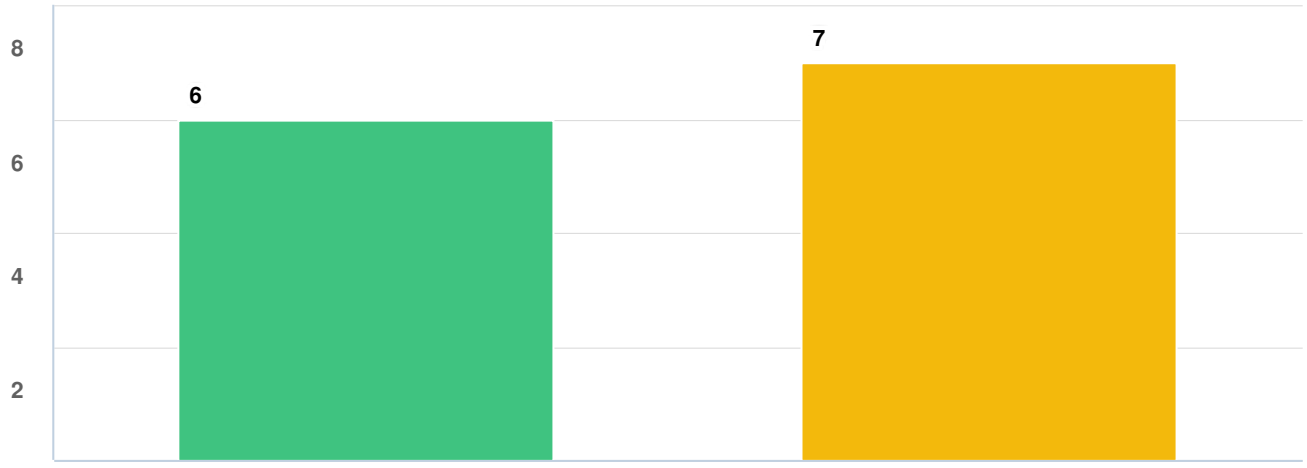


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q11 Minimize noise and odour impacts to the community.

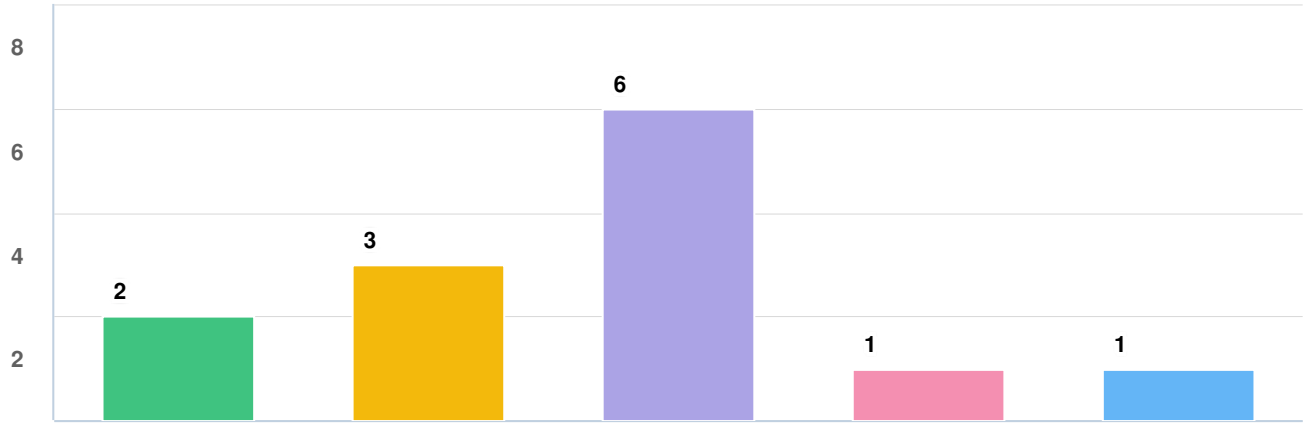


Question options

Very important Somewhat important

Optional question (14 responses, 0 skipped)

Q12 Minimize disruptions to communities along conveyance routes.

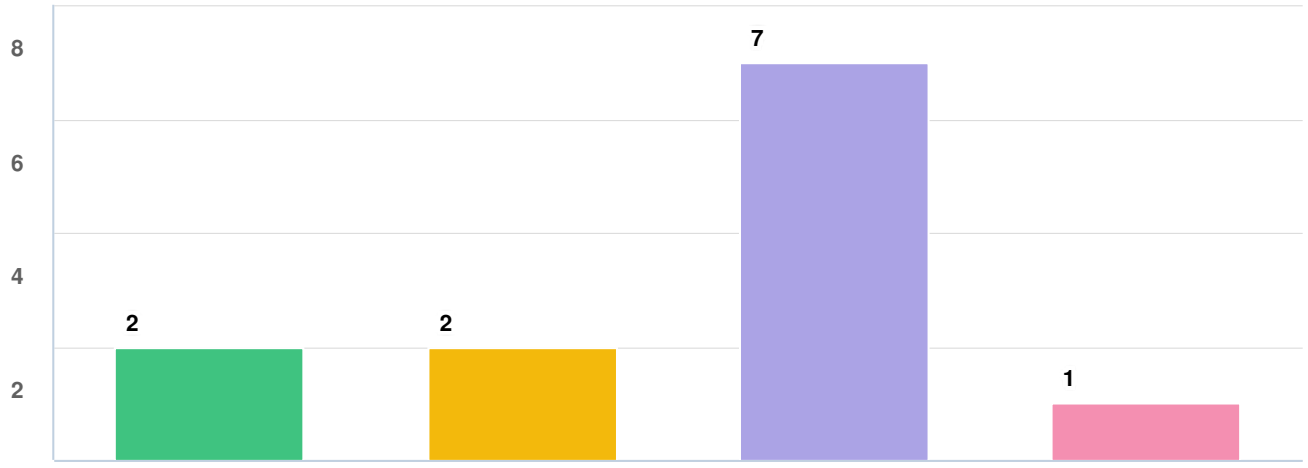


Question options

Very important Somewhat important Neither important or unimportant Somewhat unimportant Not important

Optional question (14 responses, 0 skipped)

Q13 Maximize opportunities for community and recreational amenities.



Question options

Very important | Somewhat important | Neither important or unimportant | Not important

Optional question (14 responses, 0 skipped)

Q14 Are there any goals you think should be deleted regarding CONVEYANCE?

peatrlorian 11/30/2018 11:57 AM	Less car focus
Linvann 12/03/2018 09:13 AM	On budget
salty 12/04/2018 10:36 AM	Maximize opportunities to enhance the local economy...
Jennysteel 12/06/2018 09:29 PM	

Optional question (3 responses, 11 skipped)

Q15 Are there any goals missing that you think should be included regarding CONVEYANCE?

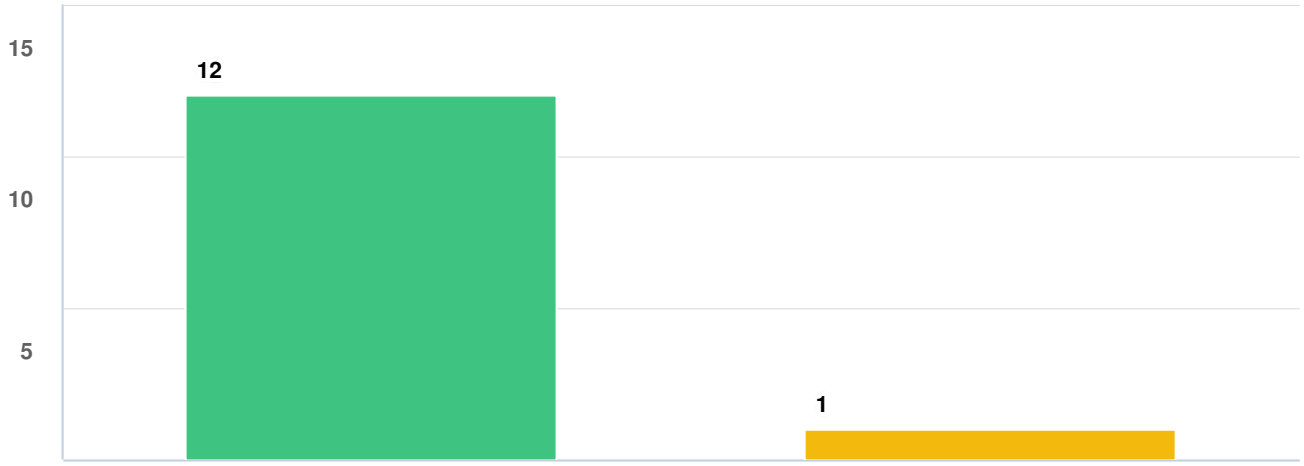
Albert Englehart 11/30/2018 10:54 AM	At the very least, all areas in the city of Comox should be connected to the sewer system vice septic. We should not be dumping untreated waste back into the environment if we can help it.
peatrlorian 11/30/2018 11:57 AM	Bike lanes
mary.payne 12/01/2018 09:13 AM	A timeline was not part of the survey
Linvann 12/03/2018 09:13 AM	Progress reports with learnings and recommendations.
Amanda Smith 12/06/2018 08:53 AM	Are you going to use ozone and this system to treat our waste? https://www.rdkb.com/Services/EnvironmentalServices2014/LiquidWaste.aspx
Susan Ruth 12/06/2018 07:24 PM	upgrading the storm water system so that it does not impact the sewage lines.
Jennysteel 12/06/2018 09:29 PM	Should try to reduce the amount and nature of the household effluent coming into the system through public education
Eugene 12/07/2018 04:19 PM	Energy generation potential of the project
ggeiger 12/08/2018 10:02 AM	If there is a rural impact or ideas involving rural land , large land owners should be consulted eg. Comox Valley Farmers Institute .As they have a large impaction economy.

Optional question (9 responses, 5 skipped)

TREATMENT

This second series of questions focuses on TREATMENT: How important are these goals to you when it comes to treatment of wastewater (the collection and treatment of all wastewater collected - ensuring it's at a safe standard before discharging into the marine environment)?

Q16 Ensure infrastructure and operations are resilient to climate change, natural disasters and seasonal impacts.

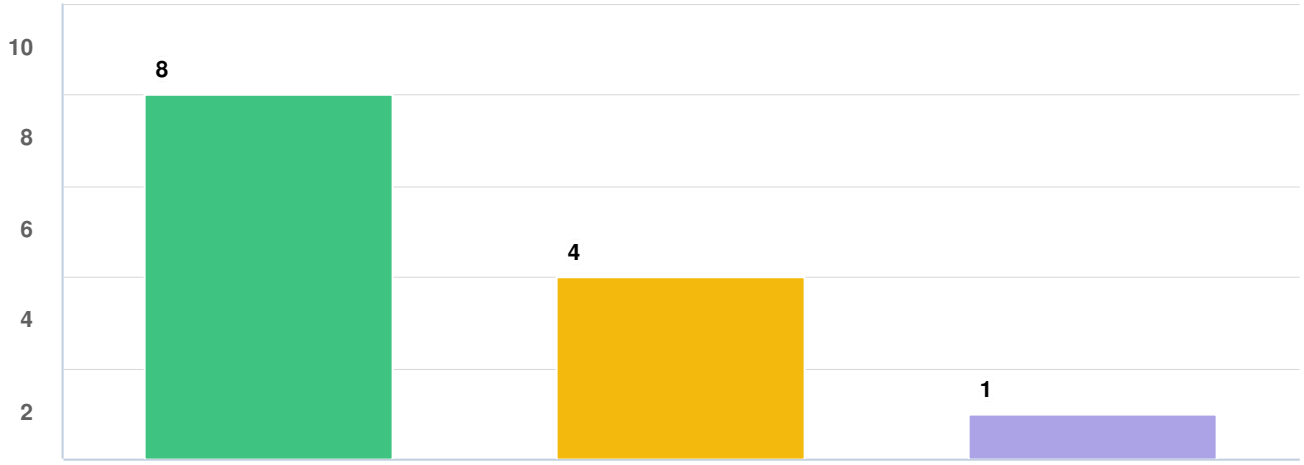


Question options

Very important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q17 Ensure operations are able to adapt to changing conditions.

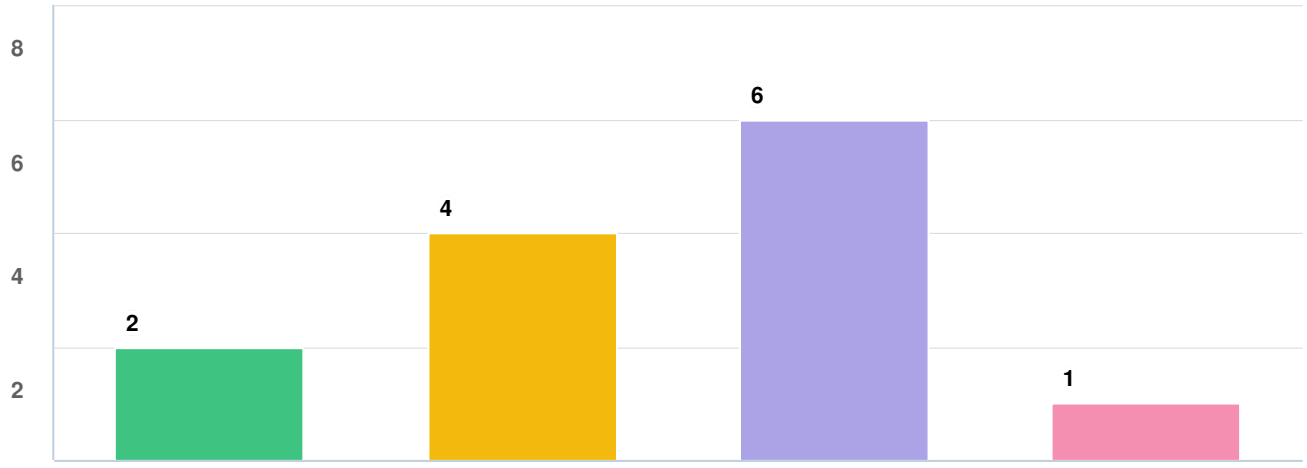


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q18 Maximize the use of existing infrastructure and road right-of-ways.

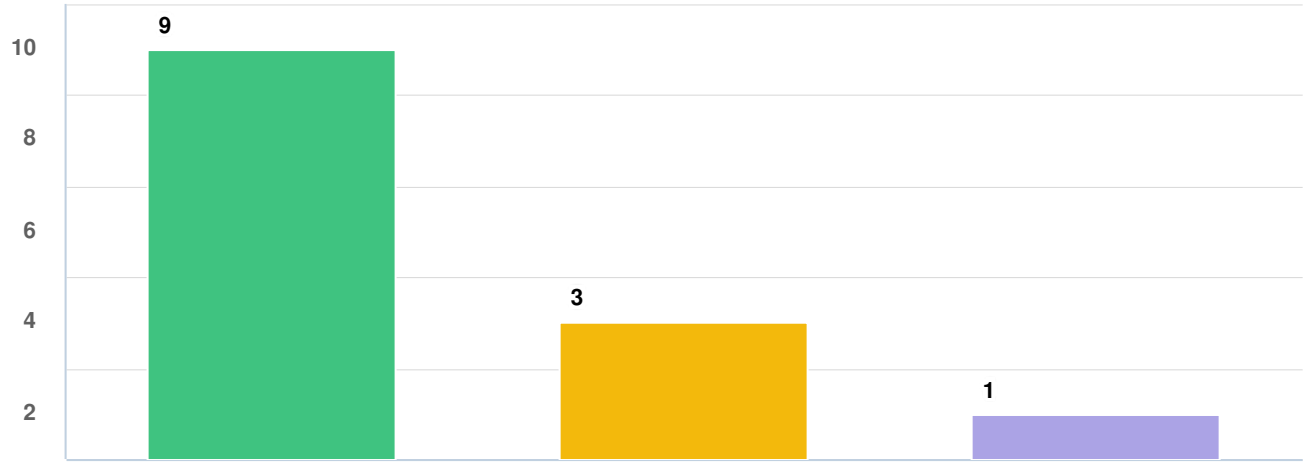


Question options

Very important | Somewhat important | Neither important or unimportant | Somewhat unimportant

Optional question (14 responses, 0 skipped)

Q19 Ensure assets are relevant for the long term.

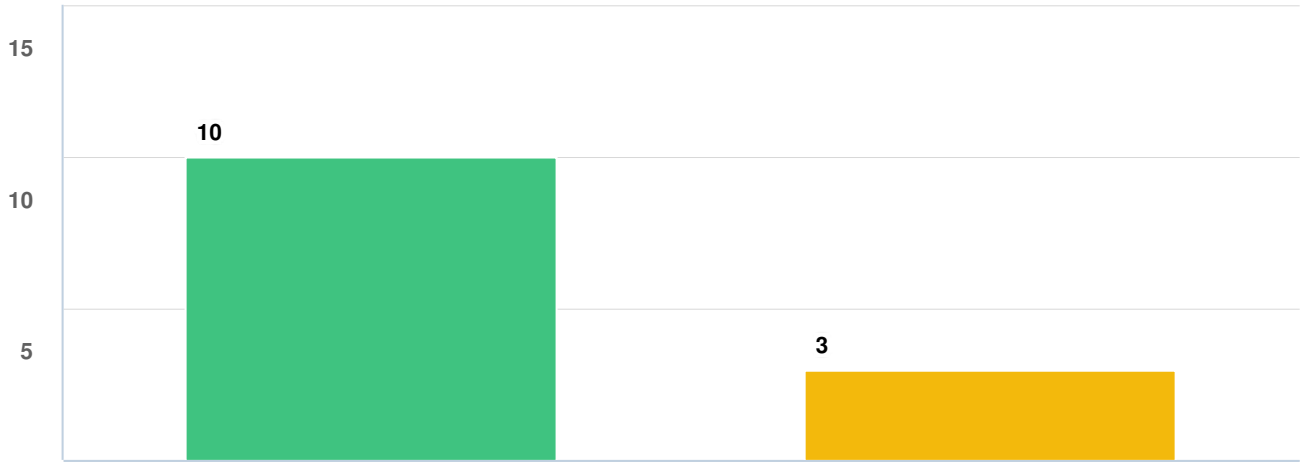


Question options

Very important | Somewhat important | Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q20 Ensure the system has enough capacity to meet future growth.

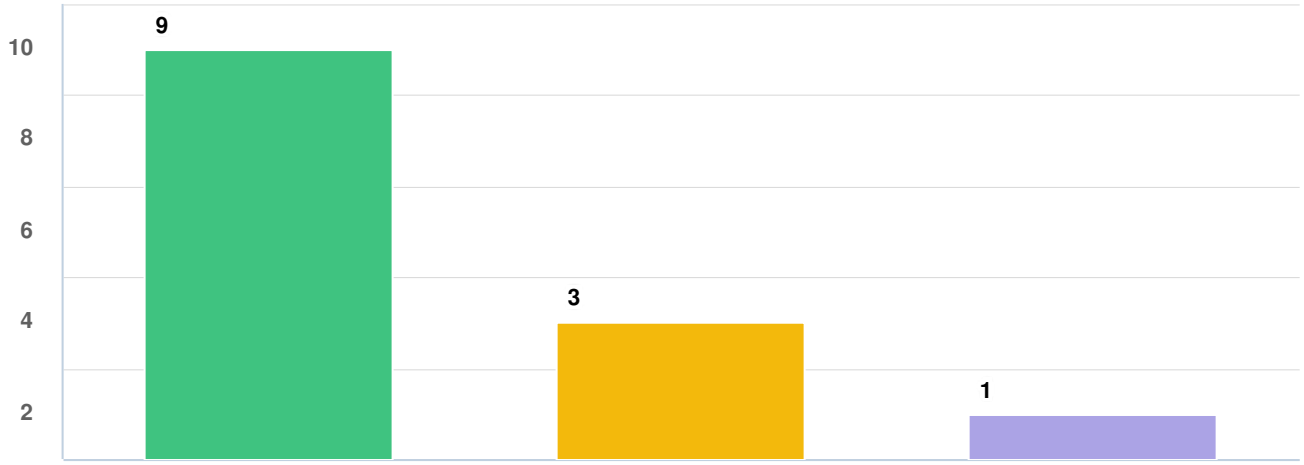


Question options

Very important Somewhat important

Optional question (14 responses, 0 skipped)

Q21 Consider long-term financial impact and minimize life cycle costs.

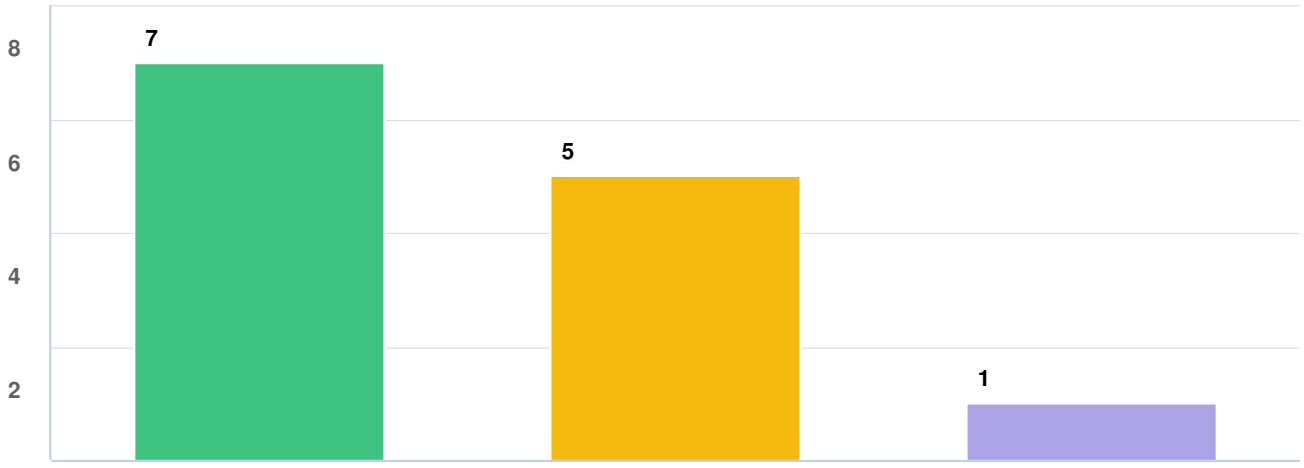


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q22 Maximize opportunity for grant funding.

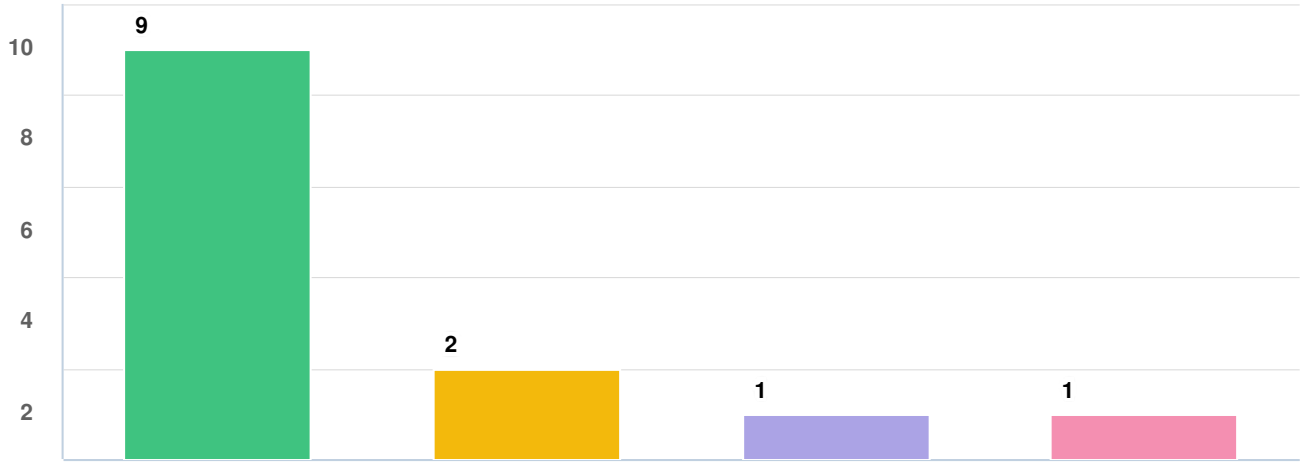


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q23 Ensure treatment of wastewater exceeds current standards.

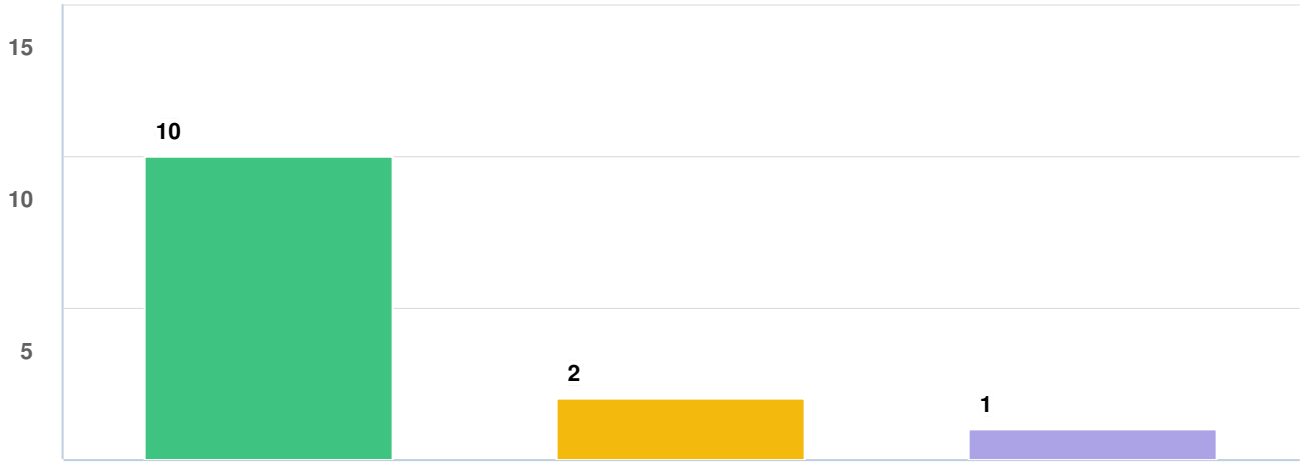


Question options

Very important Somewhat important Neither important or unimportant Somewhat unimportant

Optional question (14 responses, 0 skipped)

Q24 Remove artificial contaminants such as pharmaceuticals and microplastics from wastewater.

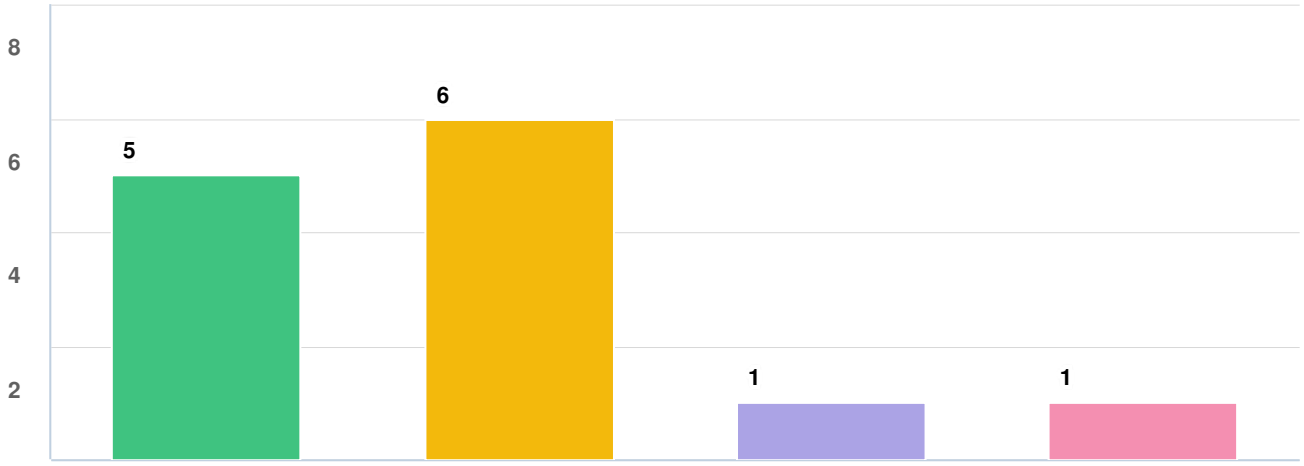


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q25 Maximize energy efficiency and mitigate climate change impacts.

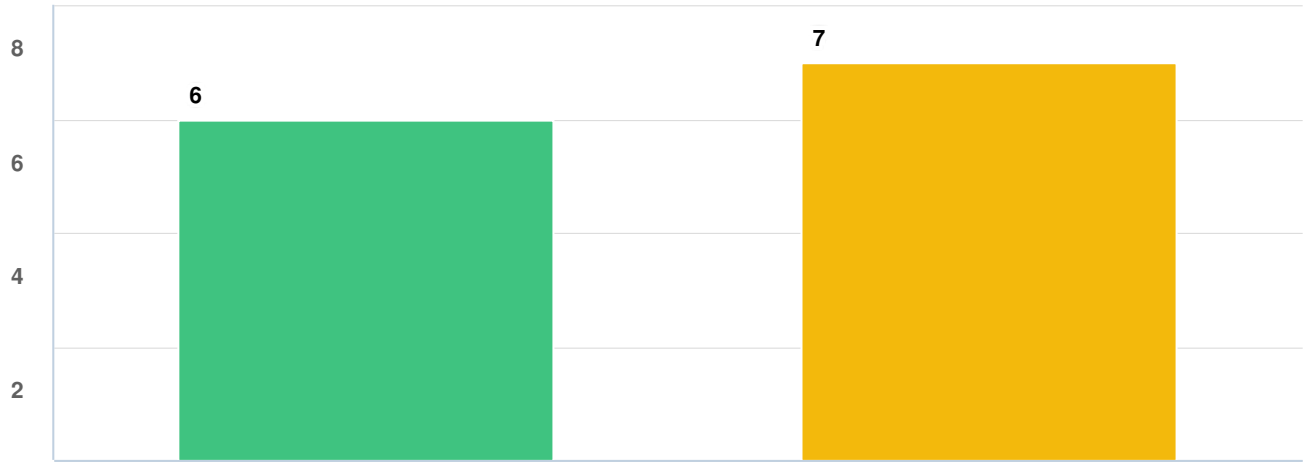


Question options

Very important Somewhat important Neither important or unimportant Somewhat unimportant

Optional question (14 responses, 0 skipped)

Q26 Minimize noise and odour from treatment plant

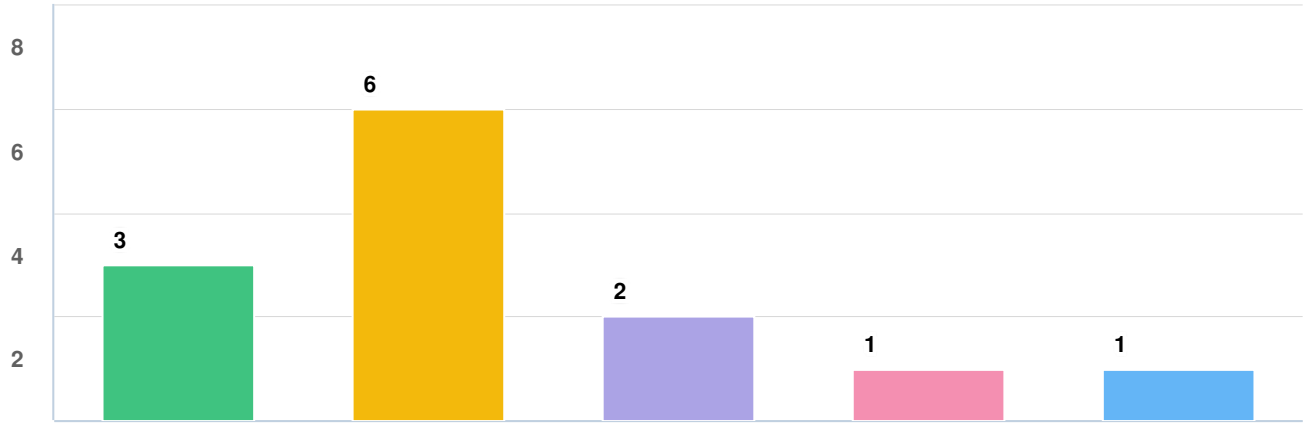


Question options

Very important Somewhat important

Optional question (14 responses, 0 skipped)

Q27 Maximize opportunities for partnerships that achieve a community benefit.

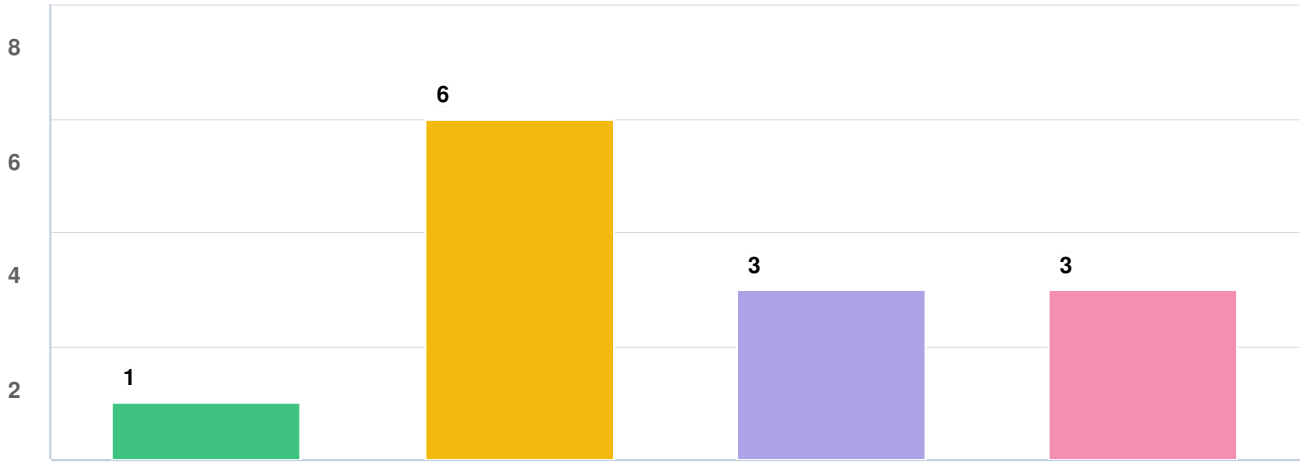


Question options

Very important Somewhat important Neither important or unimportant Somewhat unimportant Not important

Optional question (14 responses, 0 skipped)

Q28 Maximize opportunities for community and recreational amenities at/around the treatment plant.



Question options

Very important | Somewhat important | Neither important or unimportant | Not important

Optional question (14 responses, 0 skipped)

Q29 Are there any goals you think should be deleted regarding TREATMENT?

DaveM 11/29/2018 10:27 AM	no
Linvann 12/03/2018 09:13 AM	Cost is the critical factor a goal may be to remove all pharmaceutical but if the cost is exorbitant the goal can not be met.
Poorpi 12/05/2018 06:01 PM	Mitigate climate change should go but energy efficiencies must stay
Susan Ruth 12/06/2018 07:24 PM	if "Maximize opportunities for partnerships that achieve a community benefit " code for public-private partnerships, absolutely not. Thanks.
Jennysteel 12/06/2018 09:29 PM	Minimize odour and noise is NOT acceptable -- they both must be elliminated. CVRD placed its plant in a residential community so there should be no odour or noise beyond the plant boundaries.
ggeiger 12/08/2018 10:02 AM	I dont know what the goals are i can't find them.

Optional question (6 responses, 8 skipped)

Q30 Are there any goals missing that you think should be added regarding TREATMENT?

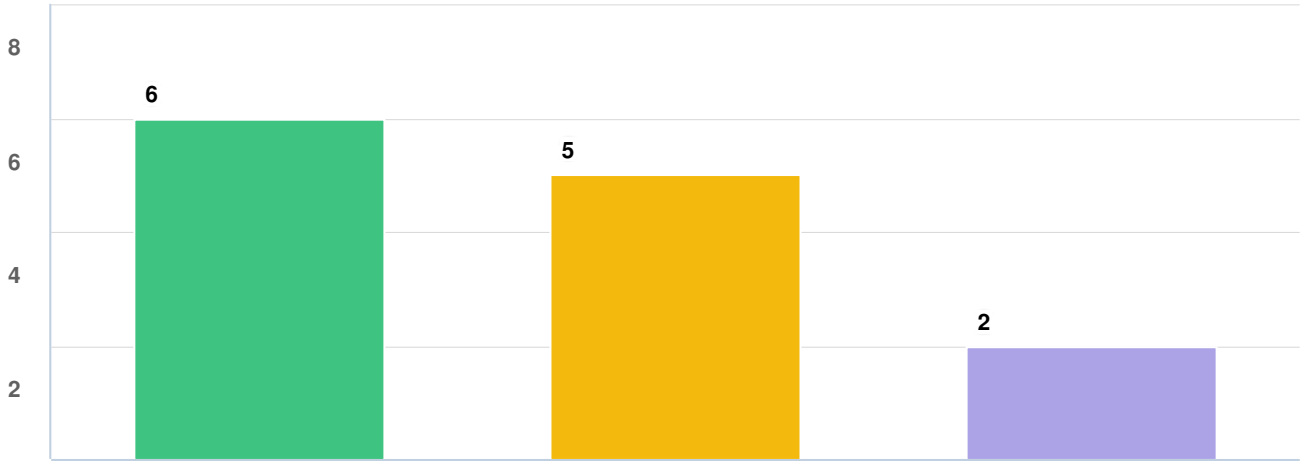
DaveM 11/29/2018 10:27 AM	no
Albert Englehart 11/30/2018 10:54 AM	Continue to expand the sewer system to include as many residents of the CVRD as passible
mary.payne 12/01/2018 09:13 AM	Timeline
Linvann 12/03/2018 09:13 AM	Reporting and what will be done to dispose of whatever contamination is removed ie what will you do with micro plastics, or chemicals once removed?
Amanda Smith 12/06/2018 08:53 AM	Are you going to use ozone and this system to treat our waste? https://www.rdkb.com/Services/EnvironmentalServices2014/LiquidWaste.aspx
Eugene 12/07/2018 04:19 PM	Maximize energy generation potential

Optional question (6 responses, 8 skipped)

RESOURCE RECOVERY

This third series of questions focuses on RESOURCE RECOVERY: How important are these goals to you when it comes to exploring opportunities to recover and reuse resources from wastewater (ie: water, heat/energy/nutrients) rather than releasing/discharging.

Q31 Use commercially available technology.

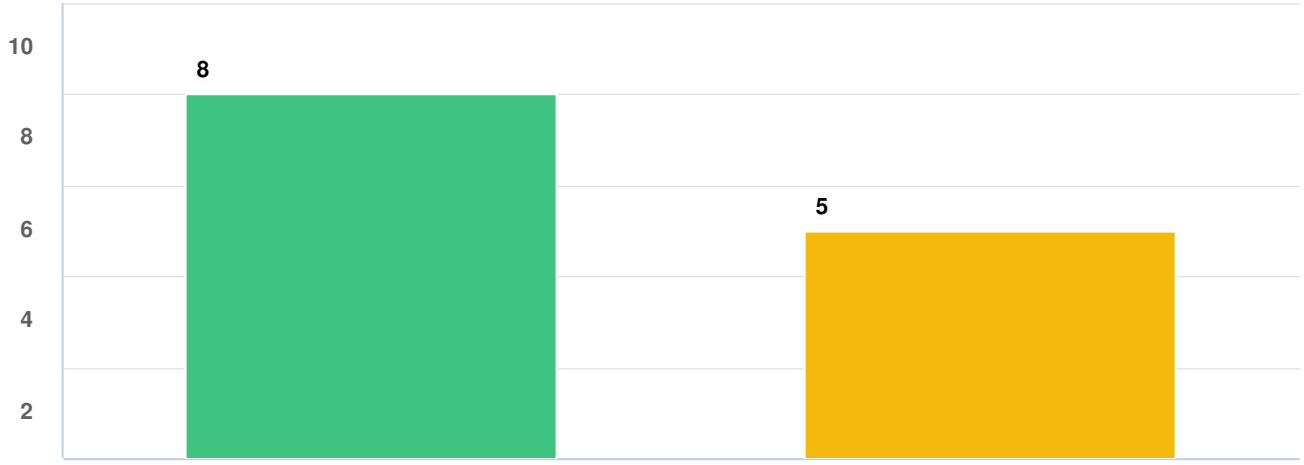


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q32 Anticipate future demand for resources

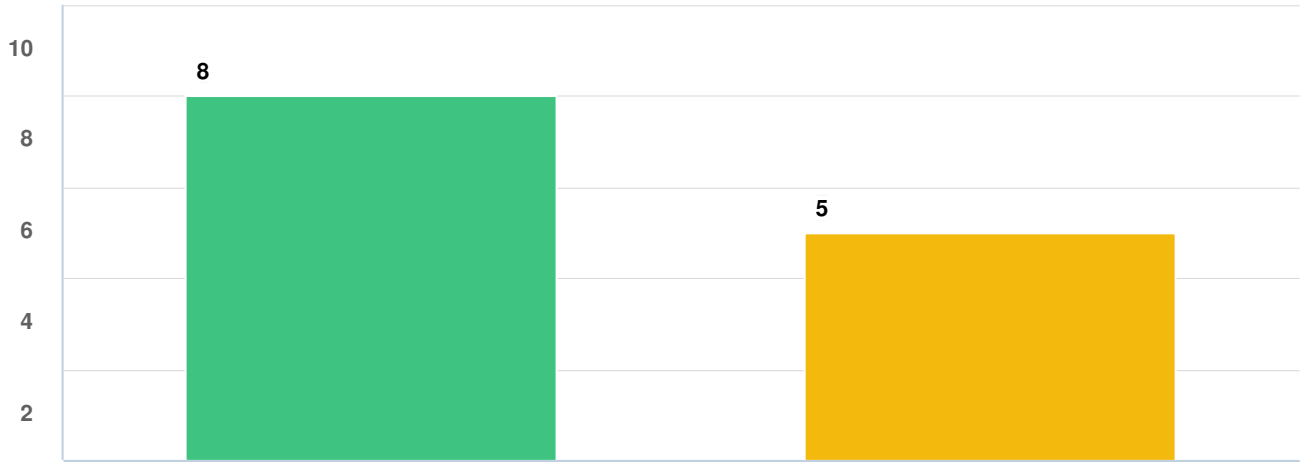


Question options

Very important Somewhat important

Optional question (14 responses, 0 skipped)

Q33 Improve performance of treatment plant.

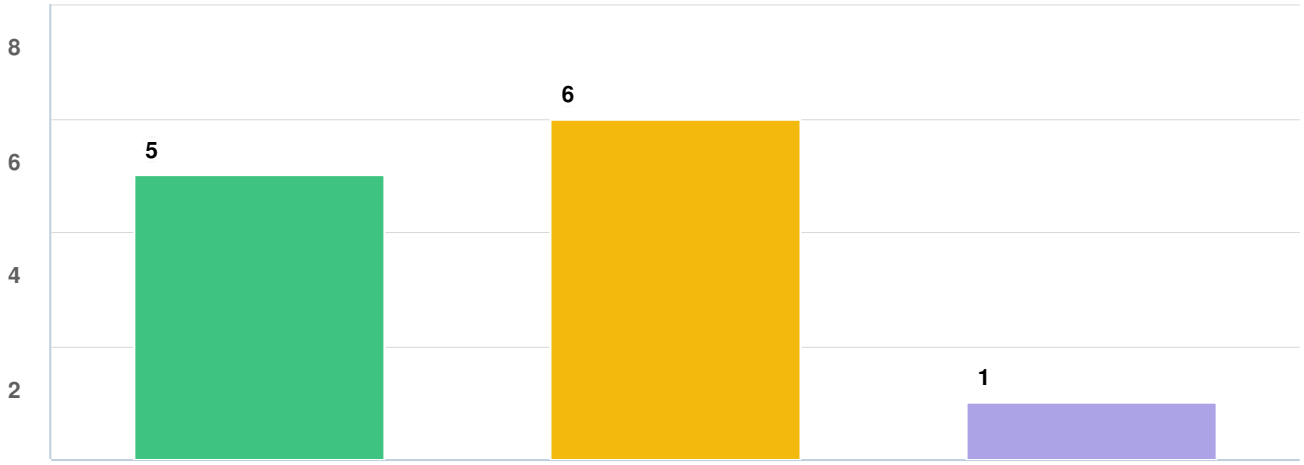


Question options

Very important Somewhat important

Optional question (14 responses, 0 skipped)

Q34 Explore opportunities to recover heat and energy and offset costs at treatment plant.

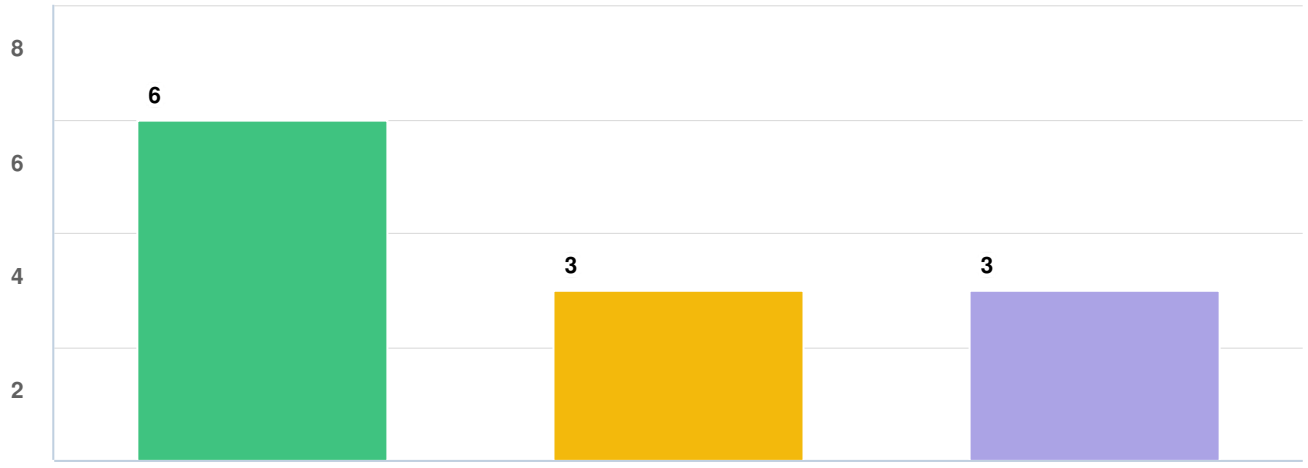


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q35 Explore economically productive use of reclaimed water.

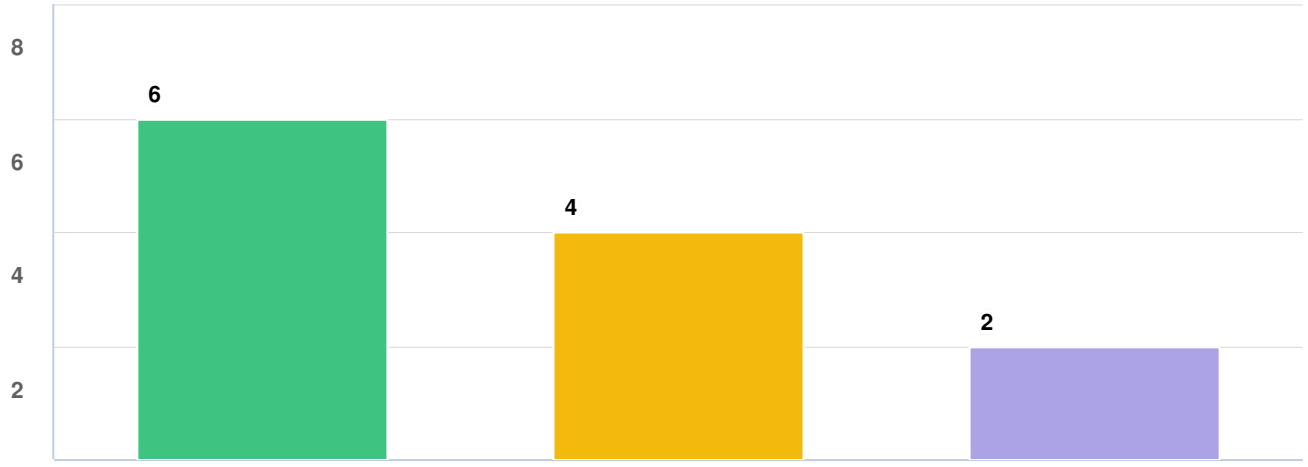


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q36 Select resource recovery options that will maximize grant funding opportunities.

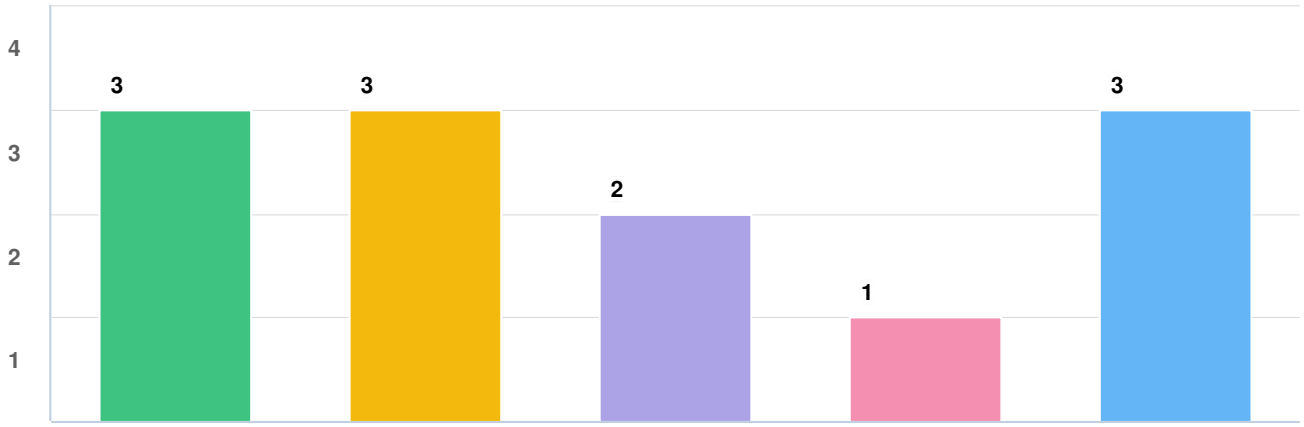


Question options

Very important Somewhat important Neither important or unimportant

Optional question (14 responses, 0 skipped)

Q37 Explore the potential for external partners to help reduce capital costs.

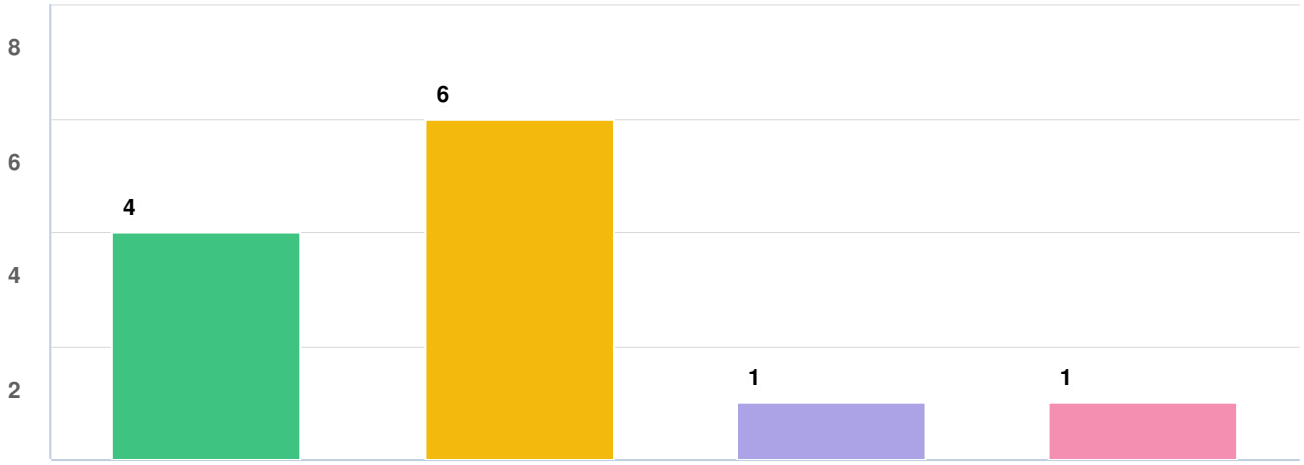


Question options

Very important | Somewhat important | Neither important or unimportant | Somewhat unimportant | Not important

Optional question (14 responses, 0 skipped)

Q38 Explore options that can have a positive impact on or grow the local economy.

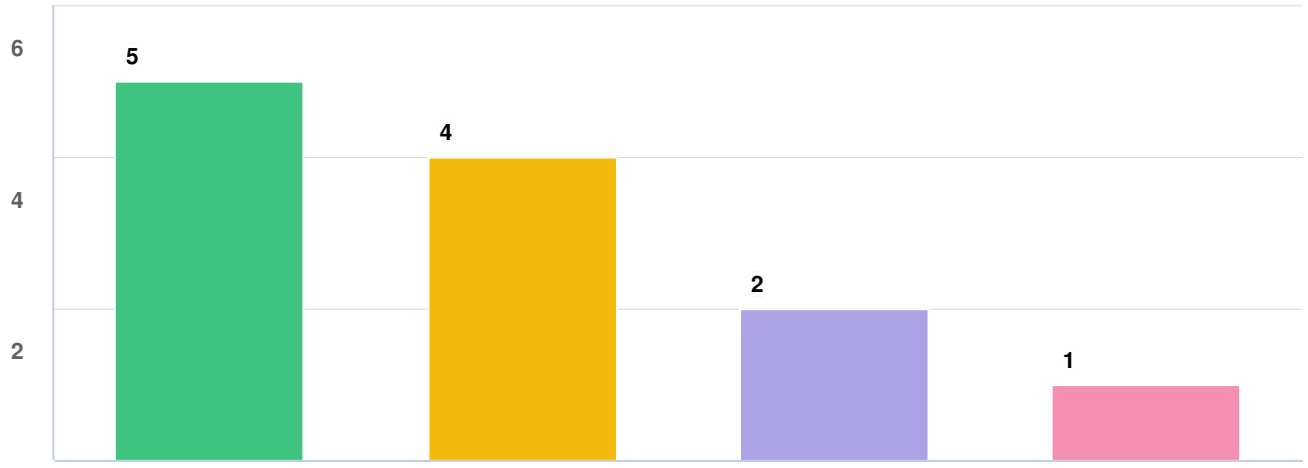


Question options

Very important | Somewhat important | Neither important or unimportant | Somewhat unimportant

Optional question (14 responses, 0 skipped)

Q39 Maximize climate change mitigation

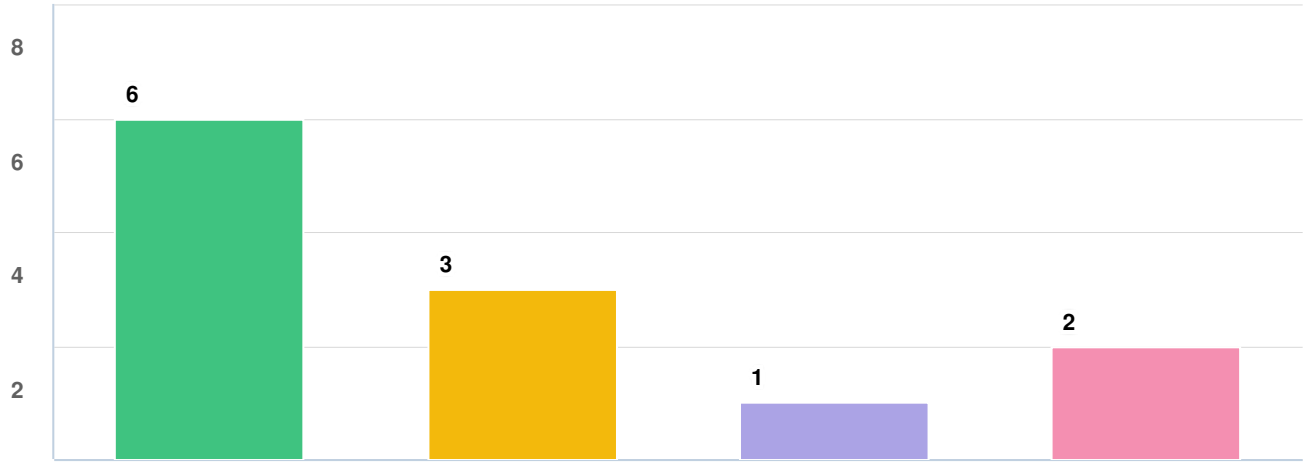


Question options

Very important Somewhat important Neither important or unimportant Not important

Optional question (14 responses, 0 skipped)

Q40 Restore or enhance environmental habitat

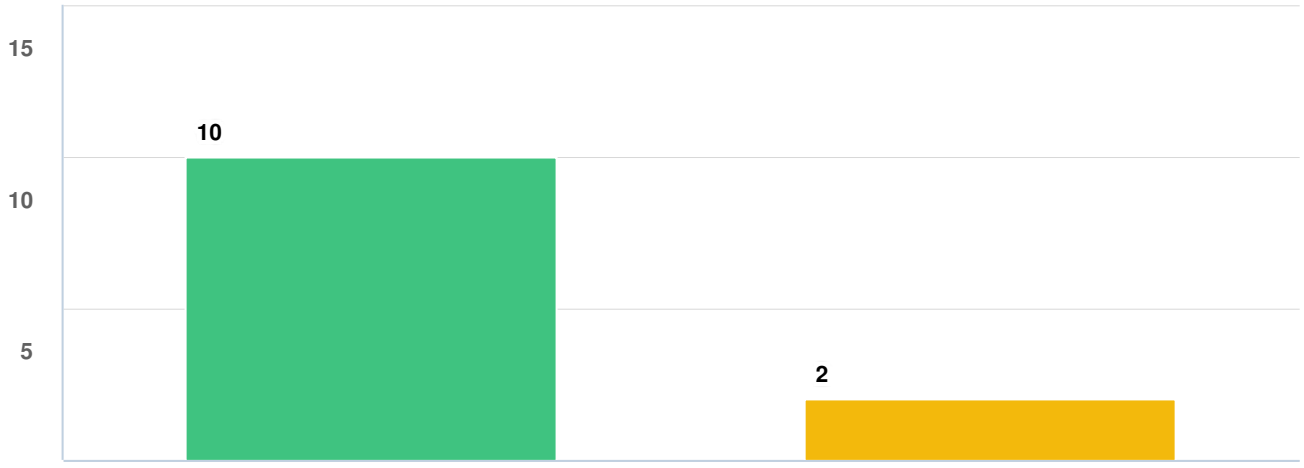


Question options

Very important Somewhat important Neither important or unimportant Not important

Optional question (14 responses, 0 skipped)

Q41 Protect public health

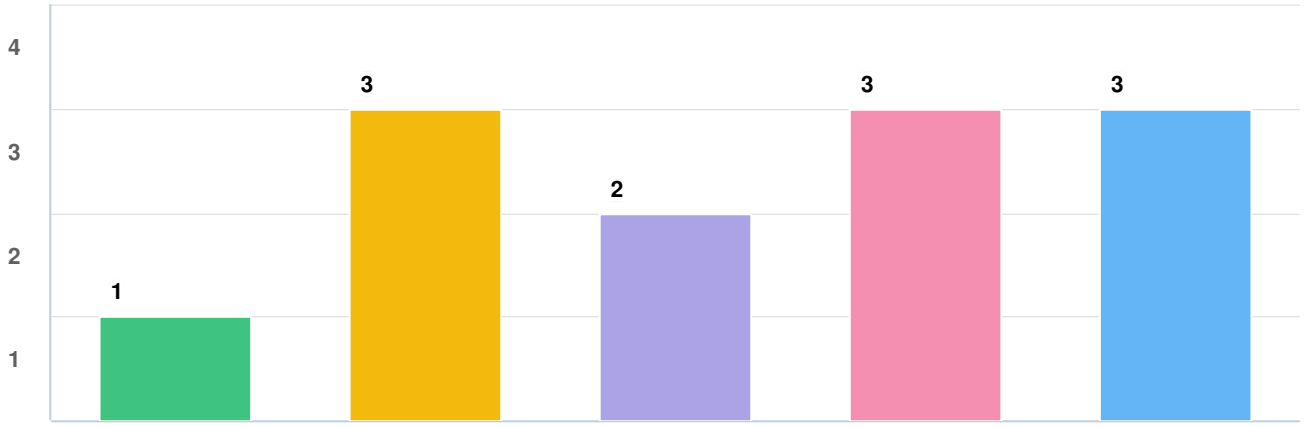


Question options

Very important Somewhat important

Optional question (14 responses, 0 skipped)

Q42 Ensure ability to maintain irrigation of public parks and gardens during water restrictions.



Question options

Very important Somewhat important Neither important or unimportant Somewhat unimportant Not important

Optional question (14 responses, 0 skipped)

Q43 Are there any goals missing that you think should be included regarding RESOURCE RECOVERY?

Linvann 12/03/2018 09:13 AM	Check out success of Okotoks Ab water treatment and their objectives for downstream Sheep River. Learn from the best on what is economically achievable.
Poorpi 12/05/2018 06:01 PM	Composting
ggeiger 12/08/2018 10:02 AM	Using treated waste water for irrigation to Local farms

Optional question (3 responses, 11 skipped)

Q44 Are there any goals you think should be deleted regarding RESOURCE RECOVERY?

Linvann 12/03/2018 09:13 AM	Restore or enhance env habitat. Scope is too big, focus down to what is achievable.
Poorpi 12/05/2018 06:01 PM	Watering parks and gardens, only high cost playing fields should be maintained
Susan Ruth 12/06/2018 07:24 PM	"Maximize opportunities for partnerships that achieve a community benefit." would this mean that the solid waste used for composting would no longer be possible. What is the cost benefit analysis trading one for the other?

Optional question (3 responses, 11 skipped)

Q45 Where do you live? (Courtenay/Comox/Electoral Area?)

Albert Englehart 11/30/2018 10:54 AM	Comox
mary.payne 12/01/2018 09:13 AM	Courtenay
jonmcdon23 12/02/2018 09:07 AM	Courtenay
Linvann 12/03/2018 09:13 AM	Courtenay
salty 12/04/2018 10:36 AM	Area B
Poorpi 12/05/2018 06:01 PM	Courtenay
Amanda Smith 12/06/2018 08:53 AM	Comox
Susan Ruth 12/06/2018 07:24 PM	Electoral area B, north Courtenay
Jennysteel 12/06/2018 09:29 PM	Electoral Area B - Curtis RAoad
ggeiger 12/08/2018 10:02 AM	Courtenay and area c

Optional question (10 responses, 4 skipped)