Investing in Canada Infrastructure Program

Instructions

Program Information

- For detailed program information, including application closing date, please visit the Ministry's Investing in Canada Infrastructure Program website and review the Program Guide.
- For further information, please email the Ministry at Infra@gov.bc.ca or phone 250-387-4060.

Important Notes

- The system will automatically time-out after 15 minutes when there has been no activity – please repeatedly save work, otherwise it will be lost.
- An Application does not have to be completed in one session.
- Once an Application is submitted, it will be locked and you will not be able to make changes online. If changes need to be made after an Application has been submitted, please use the contact information above.

Submitting an Application

- All fields are required, unless otherwise indicated.
- Please ensure you have uploaded all required documents.

Applicant Information

Applicant Short Name

Central Coast

Primary Contact

Contact must be from the applicant organization as this will be the person the Ministry will contact regarding this application.

Primary Contact First Name

Courtney

Primary Contact Last Name

Kirk

Title of Primary Contact

Chief Administrative Officer

Telephone Number

2507995291

Telephone Extension

Email Address

cao@ccrd-bc.ca

Secondary Contact

Secondary Contact First Name

Kevin

Secondary Contact Last Name

O'Neill

Title of Secondary Contact

Chair, Hagensborg Waterworks District

Telephone Number

2507995618

Telephone Extension

Email Address

kevin@hwwdistrict.ca

Project Information

Project Title

Hagensborg Community Potable Water Distribution and Treament

Project Type

Drinking Water

Project Description and Rationale

Brief Project Description

The Hagensborg Community Potable Water Enhanced Distribution and Treatment project consists of proposed upgrades to the Hagensborg community water system. These upgrades are required to meet regulatory requirements, replace aging / damaged infrastructure, and provide desired levels of water servicing to the community. Phase 1 upgrades (as proposed under this application) consist of construction of a water treatment plant and replacement of select sections of the distribution system. These works are considered critical to provide safe and reliable water to the community. Phase 2 upgrades will consist of construction of a reservoir and further distribution system improvements. These works are required to provide system robustness and meet operational requirements from both a water quality and quantity perspective. The phase 2 upgrades will be advanced as funds permit and are not included in the scope of this application.

Detailed List of Project Works

The proposed works for the Hagensborg community water system generally include: •Construction of a new water treatment plant equipped with filtration equipment, UV and chlorine disinfection systems, and instrumentation / controls equipment; •Connection of the existing emergency backup well to the proposed treatment plant to facilitate potential groundwater supply; •Replacement of approximately 7 km of distribution system watermains plus an additional approximately 1.5 km of branch lines that are undersized and deteriorated to the extent that they are the source of significant leakage; •Installation of approximately 30 fire hydrants throughout the distribution system; and •Replacement of approximately 150 water service connections including potential installation of water meters.

Project Rationale

The Hagensborg community water system currently does not meet water quality

standards. There is no treatment or disinfection of the source water. The system has been subject to a Boil Water Notice issued by Vancouver Coastal Health that has been in place for over 25 years. The proposed water treatment plant is required to meet regulatory requirements and establish a safe and reliable water supply for the community. The system supplies water to a variety of services including three schools, multiple hotels and lodges, restaurants, federal fish hatchery, community pool, airport and 224 properties. The distribution system is primarily comprised of 100mm and 150mm diameter asbestos cement pipes that were installed over 40 years ago. These watermains are in poor condition and leakage is a significant issue throughout the system. In addition to water wastage, these leaks represent a cross contamination control risk which could jeopardize water quality. The leaks are also impacting system pressures. As the watermain pipes continue to age and their condition worsens, customers throughout the service area have experienced declining water pressures. This suggests that leakage concerns have surpassed nuisance / inefficient levels and now represent critical flaws in the infrastructure. Further to leakage concerns, the watermain pipe sizes are inadequate to convey required fire flows. This is coupled with the lack of fire hydrants in the system. The proposed water distribution system improvements are required to replace dilapidated infrastructure and increase conveyance capacities to meet level of service objectives. The rehabilitation of the water system for the community of Hagensborg and surrounding area will generate immediate beneficial results by facilitating economic growth through development of new business ventures, residential development as well as the tremendous health and wellness benefits that accompany the availability of clean drinking water.

Federal Outcomes

Projects must meet one of the federal outcomes associated with the program to be eligible.

Identify which outcome the project will support

The project will increase access to potable water.

Project Location

Project Physical Address (and/or start and end points)

The Hagensborg Community Water System (Hagensborg Waterworks District) is located at 1507 Mackenzie Highway #20 in Hagensborg, BC. The project area runs in a linear direction East to West in the Bella Coola valley: Eastern extent - Section 31 Township 1 Range 3 Western extent - Section 6 Township 4 Range 3

Has this project (or related components/phases) been the subject of another infrastructure grant application?

NO

Project Nature

Nature of the project works

Nature of the Project

Indicate % for each relevant type

New

30

Rehabilitation

70

Expansion

0

Other

0

Total

100

Does the project involve public facing infrastructure?

NO

Will the highest published applicable energy efficiency standard in the jurisdiction be met or exceeded?

YES

Eligibility

Eligibility

Do you have a Council/Board/Band Council resolution authorizing the project to proceed and committing your share of project funding? (For local government applicants, a Council/Board resolution is required. For Indigenous applicants, a resolution from Band Council or another appropriate authorized body is required).

NO

When do you expect to submit the Council/Board/Band Council resolution?

2018-09-28

The Council/Board/Band Council resolution is required to be received within one month of the application closing date.

Has the project started? Projects that have started (construction tender awarded) are ineligible.

NO

Percentage of project design completed to date

Up to 25%

Estimated project start date

2019-04-01

Estimated project completion date

2020-09-30

Estimated construction start date

2019-08-30

Estimated construction completion date

2020-09-30

What is the population that will be directly served by this project?

400

Does the project benefit a wider geographical area?

YES

List any communities that will benefit from this project, the corresponding populations and how they will benefit.

Although this Project is limited by its geographical and linear layout within the Bella Coola Valley there will be benefits to the wider geographic area. The community of Hagensborg is a service center for the Bella Coola Valley and many residents from outside of the water service area visit the community to attend school, shop, utilize

airport facilities, enjoy the pool, stay in accommodations, visit friends and family, etc. and while doing so would have access to safe drinking water, which isn't the case now. The letter of support from Vancouver Coastal Health specifically mentions a concern that the travelling public would not have access to potable water when visiting and passing through Hagensborg. The Bella Coola Valley is the gateway to the Great Bear Rainforest on the Discovery Coast being marked by BC Ferries as a regional experience linking the Central Coast with the Cariboo-Chilcotin.

Will the project support Indigenous populations?

YES

Please estimate the Indigenous population that the project will directly serve.

30

Please estimate the Indigenous population that the project will indirectly support.

800

Will the applicant own and operate the completed project?

YES

Applications from improvement districts or water utilities must be made by the sponsoring municipality or regional district. If the application is successful in obtaining funding, the ownership of the infrastructure and associated assets must be transferred to the sponsoring local government.

Is there infrastructure related to the project that is owned, managed or maintained by others (besides the main applicant organization)?

NO

Additional Questions Related to Water or Wastewater Categories

If the infrastructure is currently owned by an Improvement District, a society, or private person or entity, is the organization prepared to dissolve and transfer ownership of the service to a municipal or regional district applicant?

YES

Applications from improvement districts or water utilities must be made by the sponsoring municipality or regional district. If the application is successful in obtaining funding, the ownership of the infrastructure and associated assets must be transferred to the sponsoring local government.

Submit resolution to convert

RESOLUTION_TO_COVERT_CCRD - HWD Resolution MOTION.docx

Mandatory Documents

Mandatory Documents

Please attach each of the following mandatory documents (15 MB limit per document).

In all cases, relevant information should be included within the completed application form itself, as this will form the basis of the assessment. Please make specific reference within the application to sections of attached documents that you wish to be included in the review. Attachments should be clearly labelled, organized and succinct.

Project location KML file

PROJECT_KML_CCRD - HWD Figure 1 - Existing Water System Composite.pdf

See instructions for KML files on the Program website .

Detailed Cost Estimate

DETAILED_COST_ESTIMATE_CCRD - HWD icip-detailed-cost-estimate.xlsx

The Detailed Cost Estimate template on the Program website must be used.

Site Plan / Map

SITE_PLAN_CCRD - HWD Figure 2 - Proposed Upgraded Water Servicing Concept Plan.pdf

Feasibility Study

FEASABILITY_STUDY_CCRD - HWD Feasibilty Study - Water System Upgrades - Treament Options.pdf

Are licences, permits and approvals required?

YES

List of licences, permits and approvals

Surface Water Licence (Water Users' Community Act) Province of British Columbia – Ministry of Environment and Climate Change - Approved - Licence may need amendments upon construction of proposed works Operating Permit - Vancouver Coastal Health - Approved Permit update required to reflect water system upgrades Permit To Construct Works Within a Highway Right-of-Way - Province of British Columbia – Ministry of Transportation and Infrastructure -

Pending Construction Permit Vancouver Coastal Health - Pending Facility Classification - Environmental Operators Certification Program – Association of Board of Certification - Approved Reclassification required to reflect water system upgrades

Copy of obtained licences, permits and approvals

LICENSES_PERMITS_APPROVALS_CCRD - HWD Permit Certification Licence.pdf

Water Conservation Plan

WATER_CONSERVATION_PLAN_CCRD - Hagensborg Waterworks District - Water Conservation Plan 2018-08-28.pdf

Copy of Council/Board endorsement for Water Conservation Plan

WATER_CONSERVATION_PLAN_ENDORSEMENT_CCRD - HWD Resolution MOTION.docx

Additional Documentation (click to expand)

Additional documentation is optional and may be uploaded here to support your application. See the Program Guide for guidance.

Additional Document

OTHER_1_CCRD - HWD Letter of Support VCH MedicalHealthOfficer.pdf

Additional Document

OTHER_2_CCRD - HWD Urban_Systems_Asset_Management_Investment_Plan_Final_2017_03_01_Other_OTHER_RPT.pdf

Additional Document

OTHER_3_CCRD - HWD revised_Adopted_and_Endorsed_Integrated_Strategic_Plan_no_background-2016_02_11-WK-CCRD-Publication-.pdf

Project Costs

Total Gross Project Costs

$5,162,000

Total Ineligible Project Costs

$0

Total Eligible Project Costs [Total Project Costs less Total Ineligible Project Costs]

$5,162,000

Other Funding Sources (Do not include internal sources)

Please note: Other federal and/or provincial grants may affect the total grant requested as per stacking rules. See the Program Guide for information on stacking rules.

Gas Tax - Strategic Priorities Fund

Gas Tax - Community Works Fund

New Building Canada Fund - Small Communities Fund

Clean Water and Wastewater Fund

Other

Total Other Funding Sources

$0

Net Eligible Costs [Total Eligible Project Costs less Total Other Funding Sources]

$5,162,000

Maximum Grant Amount (Estimated)

$3,785,294

Are you requesting less than the maximum grant amount?

NO

If your detailed cost estimates do not directly correspond with these amounts, clarify the variance between the costs.

Fiscal Year Breakdown

Fiscal Year

Forecasted Eligible Costs (April 1 to March 31)

2019 - 2020

$3,613,400

2020 - 2021

$1,548,600

2021 - 2022

$0

2022 - 2023

$0

2023 - 2024

$0

Total

$5,162,000

Difference from Net Eligible Costs

$0

Funding Details

Is this project a phase or component of a larger project?

YES

Is this phased approach reflected in the cost estimates and/or supporting documentation you have provided? Please provide additional details on the phases, including funding for past and/or future phases and estimated timelines.

The scope of work proposed under this application is the first phase of required water system improvements that have been identified. These upgrades focus on water quality improvements to address current public health concerns. Phase 2 upgrades, including construction of a reservoir, will provide improved levels of service, including fire protection storage, and also improve system robustness. These works have been proposed as a future phase in recognition that funding may be limited and should be focused on critical infrastructure works.

Can the project, as submitted, be broken into separate phases?

NO

Is there the intent to submit a request for the use of own labour force and equipment for this project?

NO

Projects that require sole source contracts may need a Federal Treasury Board submission for project approval.

At this stage, is there the intent to use sole source procurement for any aspect of the project?

NO

Project Risks

Project Financing

Applicants should have their share of the capital costs secured prior to application to the program.

Will the project require the borrowing of funds to pay for your organization's portion of the costs?

NO

Are all the funds readily accessible from another source?

YES

Please attach evidence of secured funds (Example: Bank statements, staff reports or resolutions of board / council directing the use of reserve funds).

EVIDENCE_OF_SECURED_FUNDS_CCRD - HWD Financial Statements.pdf

Local governments, please attach evidence that the project and its cash flows have been or will be included in the 5-year financial plan bylaw.

LG_EVIDENCE_FIVE_YEAR_FIN_PLAN_CCRD -HWD Bylaw_57_2017-2021_Five_Year_Financial_Plan.pdf

What plans are in place and where will funds be sourced from if project costs escalate beyond budgeted contingencies (cost overruns)?

The budget includes a construction contingency of 25% or $ $920 000 of the estimated $5 162 000 in construction costs. If tenders submitted for construction work are higher than expected, this project can be scaled down. The relative isolation of the

community and the increased costs of supplying construction materials have been accommodated. The existence of a proven water supply and adequate land for the water treatment plant construction adds great certainty to the costing of the project.

ICIP does not provide additional funds to cover cost overruns. Also note stacking rules in the Program Guide.

Project Identification

How is this project a community priority?

Potable drinking water in Canada is among the safest in the world and the delivery of potable water is at the core of any healthy community. The CCRD has entered into collaboration with Vancouver Coastal Health to improve health outcomes. Provision of clean drinking water is at the forefront of concerns for VCH. The CCRD and Hagensborg Waterworks District have the full support of VCH in the rehabilitation of watermains and construction of a water treatment plant in Hagnesborg (See Letter of Support). Upon completion of this project there will be a decrease in the need for bottled water therefore reducing carbon emissions as a result of the reduction in transportation and burden on the municipal solid waste and recycling centre. The economic activity involved with business development, tourism and industry consider access to safe potable water. Access to potable will drive investment in Hagensborg and surrounding area.

How would this project proceed without grant funding?

This project would not proceed without grant funding. The Hagensborg Waterworks District has saved their financial contribution for over 10 years and it would take possibly 30 to 40 plus years to save the money required to implement this proposed project. Being an improvement district makes access to capital funding very difficult, therefore, approaching the CCRD to sponsor this application was integral to providing improved service to the community.

Is the project included in a long-term plan for the community?

YES

Identify the long-term plan in which it is included and how it is identified within the plan.

The CCRD’s Integrated Strategic Plan (ISP) 2015 - 2019 has a vision for an inclusive, resilient, and sustainable group of communities thriving within a locally influenced, safe, healthy natural environment. This project helps to further goals two and three of the ISP: Goal Two: Investment and support for public infrastructure and services Goal Three: An enhanced and strengthened Region The construction of a water treatment plant and rehabilitated watermains within the Hagensborg community water system aligns with the CCRD’s ISP and is a priority in the CCRD work plan going forward.

What alternative options for the project were considered?

Feasibility studies completed in 1997 (John Motherwell & Associates Engineering Ltd.) and in 2009 (David Nairne + Associated Ltd.) evaluated alternate options to address the water quality concerns, including: • Treating the existing Snootli Creek surface water source by constructing a centralized treatment plant. • Installing point of use / point of entry treatment systems on each domestic service connection throughout the service area. • Developing a new groundwater source to replace the existing surface water intake. Common to all of these options, construction of a storage reservoir and distribution system improvements was recommended.

How were they compared or analyzed? Please explain how and why the chosen option was selected.

Through further dialogue with the Water Board of Trustees, as well as public consultation with service area customers, construction of a treatment plant for the existing Snootli Creek water source was identified as the preferred option. This concept is supported by Vancouver Coastal Health, as noted in their letter of support attached to this application.

How does the selected option represent the most efficient solution to address the objectives or levels of service identified as related to the project?

Feasibility studies completed in 1997 (John Motherwell & Associates Engineering Ltd.) and in 2009 (David Nairne + Associated Ltd.) evaluated alternate options to address the water quality concerns, including: The selected option maximizes the use of existing water infrastructure. This servicing concept leverages the positive attributes of the existing water system, such as raw water storage capacity and gravity pressure, by strategically locating proposed new centralized infrastructure. The addition of treatment and storage components will improve the level of service provided by the water system by addressing water quality concerns and fire protection deficiencies.

Project Consultation Considerations

What affected or interested groups have already been consulted with regarding the project? What was the feedback from consultation?

The Hagensborg Waterworks District approached the Central Coast Regional District to sponsor the proposed project. No other interested groups have been consulted at this time. The Nuxalk Nation will be informed of the proposed works and have the opportunity to express any concerns regarding the project.

What groups will be consulted with prior to the project proceeding and/or in conjunction with the project? Describe your engagement strategy for consulting with these groups regarding the project.

The Hagensborg Waterworks District has consulted with the Central Coast Regional District to sponsor the application for capital funding. Currently, the Waterworks District has administrative approval on behalf of the Chief Administrative Officer to complete

and submit this project proposal. The Board of Directors are aware of the proposed project and upon further development will embark on establishing the feasibility of conversion of the Improvement District and required next steps. The rate payers of the water service area will be petitioned and the Nuxalk Nation Chief in Council and the Executive Director will be consulted

Will Indigenous groups be consulted about the project?

Not Yet Started

Is any part of the project located on federal lands?

NO

Is the project subject to an environmental assessment?

NO

Long-Term Management

Does your organization have experience with owning and managing similar infrastructure?

YES

Briefly describe infrastructure and experience.

The Bella Coola Fire Local Service Area was established in 1992 when the Regional District became responsible for the defunct improvement district which had provided fire protection, street lighting and water service and distribution to the Bella Coola town site located in Electoral Area E. The Hagensborg Waterworks District was incorporated by Letters Patent in 1964 and operates in compliance with the Local Government Act and is one of the largest Improvement Districts in the province servicing over 224 water connections with over 14 miles of pipe and fire hydrants. They operate a public water system and fire protection for the community of Hagensborg.

Federal Risk Checklist

Select “Yes” for risks that are applicable to your project and identify details in the corresponding text box. Select “No” for risks that are not relevant to your project.

For example: Describe risk and its probability (low/medium/high), impact and the mitigation response (will the risk be avoided, mitigated, transferred or accepted). Describe the planned actions and what the residual risk will be.

Project Complexity

Remote geographical location

YES

Hagensborg is located 420 kilometers from the nearest urban centre of Williams Lake. The budget includes a 25% construction contingency for unexpected costs. Services will be contracted locally when possible.

Unpredictable weather

YES

The Bella Coola valley has a favorable climate for construction. Temperatures are moderated by the proximity to the ocean. Timing of tendering process and contract stipulations will include penalties for delays – will help mitigate issues around project delays.

Untested or unproven technologies

NO

Highly technical or complex project

NO

Interdependencies between phases

NO

Other

NO

No risk identified

NO

Project Readiness

Project site hasn’t been finalized

NO

Land hasn’t been acquired

NO

Potential issues with permits or authorization

NO

Industry supply may not be able to meet demand

NO

Funding is not secured for the entire project cost (assuming a grant is received through this program)

NO

Other

No risk identified

YES

Project Sensitivity

The project has received positive media attention

NO

The project has received negative media attention

NO

Certain stakeholders have been vocal about the project

NO

Other

NO

No risk identified

NO

Project Risks

Identify broader project risks (excluding those already identified in the federal checklist) such as those related to project feasibility, scope, public support, social and environmental impacts, technology and its long-term management. Please list all that are known, and include your evaluation and proposed mitigation for each risk.

A broader risk to the proposed project is garnering greater public and political support. Bylaws which establish new services require the assent or approval of the electors which may be obtained through various methods including petition, counter petition, or voting. In 2015, the CCRD completed a successful Petition for Service for the establishment of a water system for the Shearwater Area of Denny Island. To mitigate potential public opposition the Hagensborg Waterworks District and the CCRD will create a public education / information program (public meetings, website updates, interest group consultations, etc.) to share up to date and accurate project information for service area rate payers. To ensure the success of the project implementation, the CCRD will: • The project will be managed using standardized project management procedures. • Consultants will be hired based on open and fair RFP guidelines and policies. • An internal staff member will be assigned the project lead. • A municipal waterworks contractor will be used to provide project oversight. • Regular project and financial reporting will be provided to stakeholders. • Issues and proposed changes to project scope and design will be tested against the project charter. • The project sponsor will be accountable to the CCRD Board of Directors.

Identify project risks as related to implementation and construction (excluding those that are already identified the in federal checklist). Please list all that are known, and include your evaluation and proposed mitigation for each risk.

1. Funding constraints and lack of financial information: A delay to the overall program approval and funding. 2. Technical capacity: The proposed project will require expertise and oversight from qualified experts and CCRD and HWD staff in numerous fields including geomorphology, hydrology, engineering, project management, and policy analysis. 3. Human resource challenges: The CCRD has limited staff. 4. Project management challenges: As a multi-stakeholder project it will be important to have oversight at very high levels and ensure that all possible principles of project management are implemented. Mitigation: 1. Anticipate and allow flexibility to expand the program’s work schedule. Include contingency funds for unexpected expenses. 2. Include funding for technical support and consultants in the budget; A high level of expertise and experience will be required to ensure that this project delivers. 3. The CCRD will have to engage stakeholders, contractors, and the community. Ongoing education and communication with public and elected officials. 5. Best practices of project management will be implemented. The Project Sponsor will be the CAO of the CCRD and project management will be shared by the CCRD and contractor. The project will be initiated with a Project Charter and complimented by regular meetings.

Management and Planning

Asset Management for Sustainable Service Delivery

The Asset Management BC Framework provides context and can be found on Asset Management BC's website: www.assetmanagementbc.ca. The Asset Management BC Roadmap (found in the "Resources" section of the website) provides a brief summary of the basic building blocks of asset management for sustainable service delivery.

Describe how operation and maintenance will be managed over the lifecycle of the infrastructure which is the subject of this application, including how it will be funded.

The regional district's Integrated Strategic Plan (2015-2019) is also reflected in the Five Year Financial Plan. The CCRD's mission is to foster the sustainable socioeconomic and environmental wellbeing of the Central Coast through the professional and efficient delivery of mandated regional and community services. One of the four main goals outlined in the plan relate to directly to the application: Investment and support for Public Infrastructure and Services. Core strategies included developing and completing an asset management plan to address aging infrastructure and provision of sustainable and quality service levels for leisure functions. If this project is successfully funded the CCRD will have the funds to complete the system and have the means to operate the facility in addition to setting aside funds for its future replacement, therefore directly linking Asset Management Planning with both the Capital Work and Financial Plan.

Operating and maintenance costs can be reduced over the lifecycle of the infrastructure through appropriate design. How does the project design support efficiencies in operation, maintenance and related costs over the lifecycle of the infrastructure?

The proposed upgrades will address leakage concerns throughout the distribution system. This will reduce overall community water demands; in turn lowering operating and maintenance efforts The costs and benefits of installing water meters on each service connection will be evaluated. Factors to be considered will include an equitable billing structure as well as leak detection capabilities The proposed new water treatment plant will improve the reliability and robustness of the water system. Allowing operation and maintenance efforts to focus on proactive, preventative maintenance Current watermain pipes are understood to be leaking, which could be a function of age and / or soil conditions. The proposed new watermains will be constructed of PVC piping, with a design life of approx. 100 yrs The design will incorporate means of optimizing mechanical and electrical equipment based on actual water demands and community growth, without the requirement to modify the structural component

Describe the plans in place for the renewal, replacement or rehabilitation of the infrastructure (which is the subject of this application) at the end of its life, including how the renewal will be financed/funded.

The annual operating fees collected from the water service area will include a component dedicated to future asset replacement. Funds will be collected and saved in a dedicated asset replacement fund specific to the proposed water service area. Additional plans for renewal or upgrades will be determined by a joint steering committee / commission and will be subject to availability of asset replacement funding or community works funding as a service of the CCRD.

Note: Proponents are expected to manage the completed project in a financially sustainable manner, including planning for the eventual renewal of the infrastructure without grant support.

What measures will be taken to extend the life of the assets constructed by the project?

The existing asbestos cement watermain pipes are understood to be leaking in many areas of the system, which could be a function of age and / or soil conditions. The proposed new watermains will be constructed of PVC piping, which has a design life of approximately 100 years. The proposed water treatment plant and reservoir will be comprised of structural, mechanical, and electrical components. The design will incorporate means of optimizing mechanical and electrical equipment based on actual water demands and community growth, without the requirement to modify the structural components (which typically have a longer design life).

How will human resource capacity be supported to enable proactive planning related to sustainable service delivery?

The Central Coast Regional District has a Public Works Manager who currently manages the Bella Coola town site water service, as well as, managing the development of a new water service area in the community of Shearwater on Denny Island. Upon successful funding, the Public Works Manager will work with the Hagensborg Waterworks District Chair and Trustees to complete the conversion and transfer of knowledge, infrastructure and any associated assets from the Improvement District to the Regional District. During this period, the Hagensborg Water Works District will transition into a new Service Area and create a joint steering committee or service area commission. The committee / commission will provide strategic direction, support and project management sharing the operation and maintenance management.

What effects will the proposed project have on service levels and how will these be measured?

This will be an enhanced and new service for the community of Hagensborg. It will replace an ageing and deteriorated and leaky water system and add a treatment plant. This will dramatically improve water quality and pressure to the system. The permanent boil water advisory (of more than 25 years) can be lifted following construction of the system. The project will improve quality of life and satisfaction with delivery services. Improvement will be measured by the increase in number of individuals with access to potable water.

For the Asset Class related to infrastructure in this application

Is there an asset management plan?

YES

Does the asset management plan include:

Assets owned and their condition?, Risks to service delivery?, Practices, projects, and programs required to meet organizational asset management objectives, manage risks, and achieve the desired level of service in the most cost effective way?, A short term capital works plan (1 – 3 years)?, An embedded or linked long term financial plan for greater than 5 years that supports ongoing lifecycle costs (capital, operations, and maintenance)?, A timeline for implementation, resources required, and necessary future improvements to the plan?

Are renewal dates (and/or the expected lives) of infrastructure assets revised on a frequent basis within the asset inventory/registry based on condition assessment or review of performance data? Describe processes carried out to keep information on assets current, accurate and useful.

The CCRD is dedicated and committed to managing their capital assets and planning for their future renewal, upgrade, etc. The CCRD has demonstrated they are making progress as it relates to asset management and are in alignment with the Asset Management BC framework. The CCRD's Asset Management Plan was prepared in March 2017 and has an up to date asset inventory, condition assessment information. The Plan identifies what assets the CCRD owns, the cost to replace them and how much money needs to be invested annually to sustain the CCRD's assets. The proposed project will be included in the Asset Management Plan upon completion. The Plan recommends in the next 1 – 3 years that the CCRD undertake an Asset Management gap analysis, implement a Geographic Information System to track assets; develop an Asset Management Policy; create a long term Financial Plan (10+ years) and implement a formal Risk Assessment Framework.

Is the renewal of assets planned and prioritized to ensure that service outcomes are met, risks are managed, and costs are optimized? Explain the decision process used for creating short- and long-term renewal programs (or capital works plans) and identify what information is used to aid decision making for all assets within the class.

Asset Service Life - How long will the asset last? Replacement Value - How much will it cost to replace the asset? Remaining Life - When does the asset need to be replaced? Infrastructure Renewal Deficit (backlog) - Which assets have pasted their theoretical service life and need to be inspected for condition? Total 20 Year Investment - How much should theoretically be invested over the next 20 years to renew existing infrastructure? 20 Year Average Annual Investment (20 Year AAI) - How much are we theoretically expected to invest on average per year to address the 20 year total investment? Average Annual Life Cycle Investment (AALCI) - How should we spend annually to sustain infrastructure over the long term? Note: AALCI must be considered in conjunction with infrastructure renewal deficit (backlog) as this is forward looking parameter that does not consider historical expenditures. Timing of each infrastructure replacement When should we be anticipating infrastructure expenditures?

Climate Change

How does the project design incorporate climate change considerations to adapt infrastructure to climate change occurring over its life?

Climate change is expected to cause continued unpredictability and variability in precipitation and related weather events that impact watercourses. With respect to Snootli Creek, specifically the Hagensborg Waterworks District's intake on this creek, this could lead to seasonal water shortages, spikes in turbidity impacting water quality,

and similar conditions. The proposed treatment plant design will include provisions to deal with variable source water quality, such as turbidity spikes. The proposed distribution system improvements, and potential installation of water meters, is expected to reduce water use through a combination of physical infrastructure improvements and behavior change. This will make the service area less susceptible to water shortages. The proposed storage reservoir will also help address variation in both water quality and quantity.

How will the project mitigate climate change?

Water service connections equipped with a water meter will be reviewed. Universal metering us proposed for the service are, which has seen residential per capita water use reductions of 15% to 30% in other BC communities and have leak detection capabilities. Residential water service connections will be 25mm in diameter as per BC Building Code. If a commercial or other customer requests a larger water services, they will be required to demonstrate the need for such. The intent is to avoid unnecessarily oversizing infrastructure and also to ensure that potable water is only being used for appropriate uses. With climate change, river flows are expected to reduce in summer and controlling water consumption will reduce the risk of water shortage. As stated in the Water Conservation Plan , by reducing water consumption, Hagensborg is less susceptible to adverse impacts in the event of a drought or intense rainfall event.

Will the project achieve a reduction in greenhouse gas emissions?

YES

Estimate how much of a reduction in greenhouse gas emissions will be achieved (in tonnes CO2 equivalent per year).

0

Briefly describe how the project will reduce greenhouse gas emissions.

The proposed project may not result in a net reduction of carbon footprint; however, the proposed construction approach will seek to minimize greenhouse gas emissions. Locally available labour, materials, and equipment will be utilized as much as possible. For example, a local gravel source has been secured for the granular material that will be required for pipe bedding / backfill as well as for the treatment plant and reservoir foundations. This gravel pit is located immediately adjacent to the water service area, which translates to minimal trucking requirements and reduction of carbon emissions.

Outcome Specific Questions

Drinking Water Supplemental Questions

Projects eligible under the environmental quality sub-stream are public infrastructure (capital assets) owned by a Local Government or First Nation. The desired Outcome of the Drinking Water category is to increase access to potable water. For example, the level of treatment may be improved to resolve drinking water quality issues or potable water may be made available to more people. Projects must support a system that will meet or exceed provincial water quality requirements, either with the project resulting in meeting requirements or the drinking water quality already meeting the standards. Please keep the desired Outcome in mind when answering the questions in this section.

Program Targets and Benefits

Will the project meet or exceed the requirements of the Drinking Water Protection Act, Drinking Water Protection Regulation, Provincial Water Treatment Objectives, and the terms and conditions set out in the Operating Permit for the drinking water system?

YES

Describe how it will meet or exceed the requirements.

The proposed new water treatment plant will be designed to satisfy the following criteria: •Deliver high quality water in accordance with the Drinking Water Protection Act and Regulation as well as the Guidelines for Canadian Drinking Water Quality; •Meet the following treatment objectives outlined by Vancouver Coastal Health: 4 log (99.99%) reduction of viruses. 3 log (99.9%) reduction of Giardia and Cryptosporidium. 2 or more disinfection / treatment barriers for all surface water systems. Less than 1 NTU of turbidity, with a target of 0.1 NTU. 0 total and fecal coliforms and E.Coli.

What regulation(s) or authority regulates or oversees the drinking water system of which the project forms a part? And, how does this project comply with the standards or requirements of that authority? Please describe the legal instruments that are used including the name of the regulator (e.g. Ministry of Health, Drinking Water Protection Act, and Drinking Water Protection Regulation; Ministry of Environment and Climate Change Strategy – Water Sustainability Act and Groundwater Protection Regulation; Regional Health Authority – Operating Permit, etc.).

Construction and operation of a water system and treatment facility required compliance with the Water Sustainability Act, BC Design Guidelines for Rural Residential and Community water systems, Vancouver Coastal Health Operating Permit, Guidelines for Canadian Drinking water Quality, and Fire Underwriters Survey. The proposed system will meet all guidelines and all issuance of an operating permit from Vancouver Coastal Health. The Hagensborg community water system is under the jurisdiction of Vancouver Coastal Health. The Drinking Water Officer has expressed concerns with our

system for over 25 years and has provided valuable input to the proposed treatment approach identified through this project. The proposed water treatment plant and associated monitoring procedures will bring us into compliance with the conditions of our Operating Permit.

Has the community which the project will serve experienced a long-term drinking water advisory lasting more than 12 months?

YES

Will the project result in improvements that will result in the advisory being lifted?

Yes, the proposed new water treatment plant will address water quality concerns and allow the long-standing Boil Water Notice to be lifted.

Briefly explain the nature of the long-term drinking water advisory and how the project will resolve the issues which resulted in the advisory.

The long-term boil water advisory has been in effect in the Hagensborg Water Works District for over 25 years due to elevated levels of organics in the surface water source. The community water system is supplied by raw surface water. With no form of treatment of disinfection, the system does not meet regulatory requirements for potable water quality.

How does the project meet the goal of increased access to potable water? Include quantities such as the number of people or the volume of water.

Currently, the service area population of approximately 400 people (plus visitors from the surrounding area) does not have access to safe and reliable water. The proposed project will facilitate the provision of potable water throughout the service area.

Managing Demand

Identify the demand/flow utilized for planning and design of the project and project components, including each of the following:

1. **Design flow and/or current water demand (e.g. L/s or m3/d, annual demand, average daily demand, maximum daily demand, peak hour demand, etc.)**
2. **A per-capita water demand for the population of the area serviced**
3. **How the demand/flow is measured/estimated for design of project components**

4. **Forecasted future demand or flows, and how growth/capacity is incorporated**
5. **How the size of the infrastructure has been determined based on demand or flow information.**

1) Design flow and/or current water demand (e.g. L/s or m3/d, annual demand, average daily demand, maximum daily demand, peak hour demand, etc.) The average day demand is calculated to be 2.1 L/s. Based on a peaking factor of 2.0, the maximum day demand is calculated to be 4.2 L/s. 2) A per-capita water demand for the population of the area serviced The water service area population is approximately 400 people. Average day demand is based on 450 L/person/day and maximum day demand is based on 900 L/person/day, which are consistent with Master Municipal Construction Documents (MMCD) Design Guidelines. 3) How the demand/flow is measured/estimated for design of project components Due to the lack of flow monitoring equipment, historical water use records are not available (nor would they be considered reflective given the excessive system leakage). In light of this, design water demands were derived based on theoretical per capita water use values. 4) Forecasted future demand or flows, and how growth/capacity is incorporated There is limited growth expected within the water service area and the serviced population of approximately 400 people is considered reflective of projected future water demands. 5) How the size of the infrastructure has been determined based on demand or flow information. Treatment equipment will be designed to meet the maximum day demand over 21 hours, which correlates to a design flow of 4.8 L/s. Reservoir capacity (for future phase 2 upgrades) is comprised of fire protection, domestic, and emergency storage. Fire protection capacity is based on a fire flow of 3,000 L/min for a duration of 75 minutes, consistent with Fire Underwriters Survey guidelines. Distribution system pipe sizes are designed to convey design fire flows and maintain static and dynamic system pressures in accordance with MMCD Design Guidelines.

How will the future water demand/flow be managed or influenced to make the infrastructure cost effective and suitable for the full duration of its useful life? How does this project support these demand management initiatives?

The proposed water system upgrades include a new bulk water meter as well as zone meters for the east and west system branches. Installation of water meters on each individual water service connection is also being considered.

Environmental Benefits

How is the management of drinking water integrated with other services in the community or region (e.g. integration with services like wastewater, stormwater, solid waste, roads, etc.)?

The Hagensborg water system is a stand alone system; the management of the system will be integrated into the CCRD's current management of the Bella Coola Towne site water system. As outlined in the Water Conservation Plan; water conservation is essential from an operational and financial standpoint. This plan can be expanded to include the Bella Coola Town site service; public awareness to reducing water consumption resulting in a reduction of wear and tear on the water infrastructure. With a reduction in the wear and tear of the water infrastructure, repairs and replacement can be deferred, and thereby prolonging the life of the water infrastructure. Additionally, less water consumption increases results in less water being extracted from Snootli Creek, leaving more baseflow for the natural environment and aquatic habitat. This includes the hatchery facility located downstream of our intake structure.

How is the drinking water supply (source) being protected and managed to ensure clean water is available for the future of the community?

Access to the Snootli Creek watershed is prohibited to ensure that the community water source is protected. Vehicular access points are gated and signs are posted to indicate access prohibited, community water supply. Watershed wardens also patrol the area to ensure that activities that could compromise the water supply are not taking place. Signage is posted for public to inform them to remain out of the water source (See attached photos).

Describe how the following are applied through the project:

- **Reduced use of natural resources, and the estimated quantity reduced**
- **Resource recovery and energy generation**
- **Protection, enhancement or restoration of the natural environment**
- **The use of natural assets utilized to deliver a service normally provided by built infrastructure**

• Reduced use of natural resources, and the estimated quantity reduced Addressing the excessive system leakage through replacement of aging watermain pipes will reduce water use and the quantity of water drawn from Snootli Creek would subsequently be reduced. • Resource recovery and energy generation The servicing concept maximizes gravity pressures, which avoids the need for pumping. • Protection, enhancement or restoration of the natural environment Reduced water use will result in less water being extracted from Snootli Creek leaving more baseflow for the natural environment and aquatic habitat. This includes the hatchery facility located downstream of our intake structure. • The use of natural assets utilized to

deliver a service normally provided by built infrastructure The water servicing concept is designed to maximize reliance of gravity pressure as opposed to pumping. The use of local resources will also be maximized, such as locally sourced gravel and sand materials.

Drinking Water Project Indicator Table

Include only assets that will be receiving investment.

Indicate quantity or length as appropriate

Quantity / Length before investment

Physical Condition before investment

Quantity / Length after investment

Physical Condition after investment

Water treatment facilities

Zero

Do not Know

One

Very Good

Reservoir

Pump stations

Local water pipes *in meters*

17000

Very Poor

17000

Very Good

Transmission pipes *in meters*

Submission

Applicants should be aware that information collected is subject to the Freedom of Information and Protection of Privacy Act.

On behalf of

Central Coast Regional District

I Courtney Kirk

certify that the information contained in this Application form is to the best of my/our knowledge, correct and complete and has been submitted with Council/Board/Band Council concurrence, as authorized by a resolution dated (or that is anticipated on):

2018-09-28

This will certify the following authorities have reviewed and approved this application:

Kevin O'Neil

Chair Hagensborg Waterworks District

Financial Approver

Jacob Scissons

Engineer Urban Systems

Engineer or Project Manager Approver