Liquid Waste Management Plan
Technical Memorandum

LWMP Technical Memorandum #14

TO:	Wastewater Advisory Committee
SUBJECT:	Grant funding Analysis
DATE:	January 18, 2017
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1.0 BACKGROUND

A key hurdle in Cumberland's ability to implement any wastewater treatment project is funding. Projects that exceed Cumberland's combined reserves and borrowing capacity can only proceed with the assistance of external grant funding.

This Technical Memo summarizes the opportunities, and constraints, for pursuing the major external grant funding avenues. The analysis is based on the recent history of grant programs available in 2015-2017, and discussions with various program administrators in December 2017. It should be noted while the general principles remain the same, specific details of grant program purposes and eligibility can, and do, change, so the most up-to-date information should be sought before any decisions are confirmed.

2.0 PURPOSE OF GRANT FUNDING PROGRAMS

Generally, there are four primary reasons for carrying out wastewater projects.

1. **Replacement** – Replacing or rebuilding existing infrastructure that is nearing the end of its service life.
2. **Improvement** - Upgrading the quality and service levels for existing facilities to meet new standards, particularly for environmental performance.
3. **Expansion** - Increasing supply or treatment capacity, to service population and/or economic growth.
4. **Greenfield construction** – Adding treatment and collection to a new area previously not serviced.

From the point of view of the Provincial and Federal governments, it is generally expected that municipalities should fund **replacement** of their own infrastructure through appropriate taxes and user fees. Similarly, it is also generally expected that **expansion** and **greenfield construction** will be funded by those who need the expansion – typically property developers or new commercial and industrial users, through mechanisms such as Development Cost Charges (DCC's).

The major focus for most of the infrastructure grant programs is on **Improvement.** The grants are intended to help municipalities meet new requirements that have been imposed upon them by the senior governments.

Grant funding often encourages communities to demonstrate **Leadership and Innovation**, enabling projects to go above and beyond current standards, and demonstrating new approaches or technologies. This is often a secondary focus for funding, although some funding programs have this as their primary purpose or even a pre-requisite.

Almost all grant funds are awarded on a competitive basis – evaluating specific projects on a set of pre-determined criteria for the relevant fund. The programs are always over-subscribed as all communities have needs that exceeds their available funding.

The contribution amount is usually a percentage of the estimated capital cost of a project, typically 50 or 67 percent. Some grants will fund up to 100 percent of the costs, but they generally have a maximum amount that can be applied for.

There is often a pronounced preference for "shovel-ready" projects, where the scope and design are set, and costs and execution time are well-estimated. The more a community can define their project, and show it can be completed within the stated time and budget, the better the chance of receiving funding. Project applications that are general or vague in scope, with details to be worked out later, are rarely successful. Applications are typically not accepted for a project that has already started construction or had tenders awarded, though there are exceptions.

For most funding programs, the time frame for completion is typically three years, but there are also some exceptions and variances to this.

There are usually restrictions on the "stacking" of Federal funds, where several funding sources are applied to the same project. The limit is usually to a total of 50% of a project, although there are also exceptions. Notably, money from the Federation of Canadian Municipalities does not count as "Federal" funding.

3.0 JOINT PROVINCIAL-FEDERAL INFRASTRUCTURE FUNDING

Since the 1990's there has usually been some form of a joint infrastructure program between the provincial and federal governments. The most well-known example is the Building Canada Fund, which provided a 1/3 contribution from each of the federal and provincial governments, to be matched by a 1/3 contribution from the municipality. The percentages can change, and the most recent example was the 2016 Clean Water and Wastewater Fund, where the contributions were 50% Federal, 33% Provincial, and 17% Municipal. Some earlier funding programs required a 50 % municipal contribution.

These funds are typically focused on **improvements**, but also have a secondary purpose for **leadership and innovation**. **Expansion** and **replacement** are usually minor priorities and – in some cases – are specifically excluded from funding eligibility.

In the case of wastewater treatment facilities, a specific requirement is that the project will improve treatment to meet the municipality's current regulatory obligations. For Cumberland, this means that the treatment must be improved to meet the current Provincial Discharge Permit and the Federal Wastewater System Effluent Regulation. Unless specifically stated in the funding program, upgrading to meet the provincial Municipal Wastewater Regulation (which a greenfield project would have to meet) would not be required, although it may be assumed this would be desirable.

There are often secondary objectives – though not requirements – for things like energy efficiency, green building practices, greenhouse gas reductions and water conservation programs.

While most of these programs will fund a broad range of infrastructure, including roads, water, energy and municipal facilities, some of the programs focus on just one category, like the 2016 Clean Water and Wastewater Fund.

There is no indication what the focus of upcoming programs will be.

There are no joint funding opportunities open as of December 2017. It is expected that new funding programs will be announced in the Provincial Budget in February 2018 and in the Federal Budget in April 2018. It takes several months for the implementation details to be worked out between the governments.

Thus, a call for funding applications is expected in the second half of 2018, but not before.

4.0 FEDERAL GAS TAX FUND

The Federal Gas Tax Fund is a special category of federal funding that shares the revenue from fuel tax to the Provinces for the specific purpose of municipal projects. In BC, the Union of BC Municipalities administers the fund. There are two components to the Gas Tax Fund and the one of interest for a wastewater project is called the Strategic Priorities Fund. It is a competitive application based fund that is intended to fund major infrastructure projects, including wastewater treatment plants. The most recent call for projects was in April 2017 and it allowed for 100% funding of a project to a maximum SPF contribution of $6 million. Project applications over $6 million remain eligible provided that additional costs are confirmed through other funding sources.

This fund is mainly focused on **improvements** and economic development (**expansion**), with a secondary objective of **leadership and innovation.** The technical criteria for the Strategic Priorities Fund for wastewater are the same as the joint Federal-Provincial infrastructure funds.

Historically, the Strategic Priorities Fund puts out a call for applications every two years, so the next funding call is not expected until 2019.

5.0 PROVINCIAL SPECIFIC FUNDS

The BC government has implemented targeted funding programs in the past, such as the “Towns for Tomorrow” or the “Innovative Clean Energy” program. These programs are usually for one type of infrastructure only (e.g. roads, water or energy), and are not recurring. They reflect the specific priorities of the Government of the Day.

There are currently no Provincial specific funding programs available, though it is possible something may be announced in the upcoming budget in February 2018.

6.0 FEDERAL SPECIFIC FUNDS

Federal governments come out with many specific funding programs according to the priorities of the Government of the Day. There is a trend to make these into joint federal-provincial programs by requiring matching funding, or other commitments from the provinces.

Some funds are relatively independent of the provinces and are administered through agencies such as Western Economic Diversification or the Sustainable Development Technology Fund. As the names imply, these funds are heavily geared towards economic development (**expansion)** and **leadership and innovation.** It is rare, but not impossible, for traditional infrastructure projects to qualify for these funds. Examples would be the use of reclaimed water to create an agriculture related opportunity or support other industry. In addition, grants can be focused on the development or piloting of new treatment technologies.

A new specific Federal fund announced in 2017 is the Low Carbon Economy Fund, which supports projects that reduce greenhouse gas emissions. A treatment project that sets a new benchmark for low energy use might qualify

for this fund, as might the concept of processing biosolids (and wood) into biochar for carbon sequestration in a reed bed, or as a general soil amendment. Details are yet to be announced on this fund.

Eligibility for any of the purpose specific funds should be considered a bonus, and should not be driving factor in decision making on a project, though it may assist with funding specific or additional components of a project.

7.0 GREEN MUNICIPAL FUND

The Federation of Canadian Municipalities administers the Green Municipal Fund. This is a fund that is focused on infrastructure **improvements** that demonstrate environmental **leadership and innovation**. The main purpose is to provide additional funding to cover the additional costs for projects that show new or better ways of doing things, and have a high replication potential. GMF has five different focus areas. The one relevant to wastewater is "water quality and conservation".

GMF provided 50% funding to Cumberland for the Stage 1 and 2 LWMP as a Feasibility Project, to investigate innovative ways of improving the wastewater treatment and resource recovery.

For capital projects, GMF provides low interest loans of up to $5 million, and a grant for 15% of the loan amount. For example, a $5M loan is accompanied by a $750k grant. These loans are an alternative (and less expensive) source to borrowing through the Municipal Finance Authority, but still use up the municipality's borrowing capacity.

Applying for funding is a two-stage process. The first stage is an Initial Review that determines whether the project is red-flagged and deemed ineligible for funding. For those applications that are deemed eligible, the second stage is a formal application followed by peer review and evaluation, with funding awarded on a competitive basis. The evaluation criteria are laid out in the water- specific Project Scorecard.

A specific interest of GMF and FCM is in the affordable and effective improvement of lagoon treatment systems. There are many small towns across Canada that have lagoons, and can't afford to replace them with mechanical treatment plants. A project that demonstrates practical upgrades to achieve high quality water and other environmental and societal benefits from a lagoon-based system has high innovation and replication potential.

Replacing lagoons with a mechanical treatment plant, even a high quality one, has already been done for numerous towns across the country. So, while it has high replication potential, it has little or no innovation or leadership value, and GMF indicated such a project would not likely be funded.

GMF have also indicated that the proposed scope of work for Option 1, Phase 1 – adding the separation and disinfection processes would likely not qualify for GMF funding as these upgrades have already been successfully demonstrated with lagoons.

If an application is to be made to GMF for a Phase 1 project, the application will be eligible, and a good candidate for success, only if it includes innovative treatment elements like the wetland and biochar reed bed. The Cumberland situation is ideal for demonstrating innovative treatment methods where the extra performance is *desired,* but not *required*. Thus, if applying for a Phase 1 project, (or any project) it is recommended to include the wetland and the biochar reed bed in the project application.

Funding intakes occur twice a year, with the Initial Review being March 1 and second stage Applications due April 15. The second intake begins in August. The decision process takes about four months from the application date.

8.0 MUNICIPALITIES FOR CLIMATE INNOVATION FUND

The Federation of Canadian Municipalities delivers a second program specifically aimed at combating climate change, called the Municipalities for Climate Innovation Program (MCIP). The Program funding, training and resources and is organized into two streams- climate *adaptation*, and climate *mitigation*.

Climate Adaptation – to prepare for and minimize the impacts of climate change. Eligible capital projects are designed to enable the adoption of a technology or solution that has the potential to help municipalities improve the resilience of municipal infrastructure to a climate risk.

Relevant example projects include;

- Increasing the capacity of the municipality to deliver services such as water, recreation, etc. in the event of temperature extremes (*e.g. by using reclaimed water*)
- Developing enhancements to sewer, stormwater and storage infrastructure to reduce the impact of untreated combined sewage entering waterways.
- Managing or revitalizing natural assets such as urban tree canopy to support temperature management

Climate Mitigation –targeted at projects that reduce greenhouse gas emissions (or equivalents). These projects are designed to enable the adoption of a technology or solution that has the potential to reduce GHG emissions.

Relevant examples of projects include;

- Making energy-efficiency and renewable upgrades to a drinking water or wastewater treatment plant
- Creating an energy recovery loop to channel waste energy to heat
- Using digested solids from a wastewater treatment plant to generate gas for electricity or heat

The evaluation is focused on the mitigation/adaptation benefits, and the ability to deliver the project and quantify the benefits.

Evaluation Criteria		**Points**
Potential to reduce vulnerability to climate change impacts (**Adaptation** projects)	Potential to reduce GHG emissions (**Mitigation** projects)	30
Measurement systems		20
Alignment with municipal priorities and local context		20
Project management		30
TOTAL		**100**

Further details are in the Climate Adaptation Project Scorecard and the Climate Mitigation Project Scorecard.

Funding is in the form of grants, of up to 80% of the project costs, to maximum of $1 million. Applications are accepted any time, and the program runs until January 2020.

For Cumberland, the wastewater treatment project as a whole, (including the wetland) might be eligible if it is achieving significant adaption or mitigation benefits. However, this program seems to be most applicable to the wetland or reed bed, or resource recovery projects, as stand-alone projects, as they are more tightly defined, measurable and replicable.

9.0 NON – INFRASTRUCTURE FUNDS

There are several sources of funding that are not specifically related to infrastructure, that might be applicable to specific parts of the Cumberland project. The best examples of these are

- Islands Coastal Economic Trust (ICET)- Aimed at encouraging economic development on Vancouver Island and Coastal BC. Project is funded 33% to a $400k maximum. A project that makes economic use of reclaimed water (e.g. developing agriculture or industry) might be eligible for this. Establishing the wetland area as an eco-tourism destination would also be a possibility
- BC Habitat Conservation Trust Fund (HCTF) – Aimed at restoring and improving natural habitat. Project funding is 50% to a maximum of $100k. The wetland augmentation and enhancement would be the only part of the project eligible for funding.
- Environment Canada Habitat Stewardship Program (HSP) Aimed at restoring and improving natural habitat. Project funding is 50% to a likely maximum of $100k. The wetland augmentation and enhancement work would be the only part of the project eligible for funding. It is worth noting that Environment Canada previously approved the use of the Eco-Gift lands for a constructed treatment wetland, noting the benefits to Maple Lake Creek and the Trent environments were concluded by Environment Canada to offset the habitat changes as a result of the wetlands loss and conversion to retention ponds. A project that uses the existing wetlands to deliver downstream environmental benefits while enhancing the wetland habitat might be very appealing for this program.
- Environment Canada National Wetland Conservation Fund (NWCF) - Aimed at supporting on-the-ground activities to restore and enhance wetlands in Canada. The objectives of the fund are to:
    - Restore degraded or lost wetlands on working and settled landscapes to achieve a net gain in wetland habitat area;
    - Enhance the ecological functions of existing degraded wetlands;
    - Scientifically assess and monitor wetland functions and ecological goods and services in order to further the above objectives to restore and/or enhance wetlands; and
    - Encourage the stewardship of Canada's wetlands by industry and the stewardship and enjoyment of wetlands by the Canadian public.

  The wetland component of the project is a good candidate for the NWCF fund. Details are not presently available as to what the NWCF funding contribution and arrangements are.

These non-infrastructure funds are very focused and are not relevant to the major infrastructure of wastewater treatment. But the wetland component of the treatment project clearly has some potential for the habitat focused funds.

There are also some smaller, third party funds and groups that are more focused on community involvement in habitat and community improvement projects, such as Ducks Unlimited. These could be pursued for community or special group involvement in planning and volunteer help for executing a wetland enhancement program.

10.0 RISK ASSESSMENT FOR FUNDING APPLICATIONS

When the funding programs evaluate project applications, the evaluators are not just looking at the technical and economic criteria- they are also looking at the risks related to the project. There is a very strong desire to have the funded projects be successfully completed on time and budget, and not become white elephants. Thus, a major part of the evaluation is the assessment of risk to successful completion. The most prominent risks include;

- going over time;
- going over budget;
- not being completed at all;
- failing to achieve the desired results (especially for innovative projects);
- scope is too large for the community to manage project team;
- technical ability of the project team;
- scope (and cost) is too large to have a net benefit;
- not receiving regulatory approvals; and
- not receiving borrowing approval from electors (referendums or Alternate Approval Processes).

The risks that most frequently arise are related to funding and regulatory approvals.

Funding Risk

Generally, infrastructure programs only fund part of a project, and the evaluators like to see that the evidence that the balance of funding required for project completion is already in place. Where the municipality is relying on borrowing for its share of the funding, the ideal situation would be for elector approval to already be received before the funding application is made. There have been projects such as the CVRD South Sewer Project - that have been halted and cancelled because approval was not received. The strongest application is one where the municipality's portion is already approved – either in reserve funds or elector approved borrowing.

For Cumberland, the preferred strategy would be to seek borrowing approval as soon as the decision has been made on the treatment Option and the preferred phasing/implementation.

Regulatory Approvals Risk

Wastewater projects require authorization from the Ministry of Environment before construction can proceed. These authorizations can take up to a year or more to obtain. This creates a significant schedule risk if the community applies for project funding before receiving authorization. For Cumberland, the Ministry of Environment has already authorized the proposed works within the existing Discharge Permit and so there is no regulatory risk .

LWMP Considerations

The LWMP is a unique process in that upon approval of the Stage 3 LWMP, a municipality gains both regulatory and borrowing authorizations, allowing the community to confidently apply for grants without funding or regulatory risks. It must emphasized that only a completed, and Minister approved Stage 3 LWMP achieves these authorizations, and a Stage 1 or 2 LWMP achieves neither.

11.0 SUMMARY OF MAJOR FUNDING OPPORTUNITIES

The characteristics of both the major programs, and the treatment Options, are summarized in Tables 1 and 2. Table 3 combines this information to give an initial assessment of suitability of the different options for the various funding programs. It should be noted that these assessments are qualitative based on previous experience and the evaluation information available from the funds themselves. Not all funds give out their detailed evaluation criteria, so assessments of likelihood of success are subjective at best, and should be reviewed against the most up to date information possible. The assessments have been done on a scale of zero to five, where five is the best, no ranking meaning not applicable and "N" meaning not eligible.

Table 1. Summary of Grant Funds and Criteria

Fund	Monetary Contribution	Replacement (only)	Improvement (environmental performance)	Leadership and Innovation	Expansion/ Economic Development	Habitat Restoration	Community Enhancement	GHG Reductions
Joint Prov/Fed	67% typical	N	3	2	1		1	1
Gas Tax	100% to $6M	*	3	2	2		1	1
Green Municipal Fund	Loan to $5m +15% grant	N	4	3		1	1	1
Municipal Climate Innovation Prog.	80% to $1M	N		4		1		5
Island Coastal Economic Trust	33% to $400k	N			4		1	
Habitat Conservation Trust Fund	50% to $100k	N				5		
Habitat Stewardship Program	50% to $100k	N				5		
National Wetland Conservation Fund	TBD	N				5		

Table 2. Summary of Options and Assessment of Grant Fund Criteria.

	Option 1			Option 2	Option 3	Add-ons Additional points to be added to the Options score	
	Phase 1	Phase 2A	Phase 2B				
Criteria	Lagoon to Permit Compliance	Lagoon to MEP (incl. wetland score)	Lagoon to GEP	Base Flow Mechanical to GEP	Full Flow Mechanical to GEP	Wetland Augmentation	Biochar Reed Bed
Replacement	1	1	1	1	1	0	0
Improvement (Environmental Performance)	1	2	3	4	3	1	1
Leadership/ innovation/demonstration	0	2	1	1	2	2	2
Capacity expansion	1	3	3	3	4	0	0
Habitat enhancement	1	3	2	2	2	2	1
Community enhancement	0	1	0	0	1	1	0
GHG Reductions (compared to "standard" treatment of same quality)	1	2	2	0	0	1	4
Value for Money	2	3	2	3	1	0.5	0.5

Notes

1. Only Option1, Phase 2A includes the wetland augmentation as this is integral to this option. For all other Options it is a discretionary add-on.
2. The reed bed is a discretionary item that can be added on to any Option.
3. The points from the wetland and reed bed can be added to any Option, but cannot take the total score over 4.5.

Table 3. Summary of Grant Funding Probability.

		Option 1			Option 2	Option 3	Add-ons Additional points to be added to the Options score	
		Phase 1	Phase 2A (incl wetland score)	Phase 2B				
Fund	Monetary Contribution	Lagoon to Permit Compliance	Lagoon to MEP	Lagoon to GEP	Base Flow Mechanical to GEP	Full Flow Mechanical to GEP	Wetland Augment.	Biochar Reed Bed
Joint Prov/Fed	67% typical	2.5	3.5	2.5	3	1	0.5	1
Gas Tax	100% to $6M max	2.5	3.5	2.5	3	2	0.5	1
Green Municipal Fund	Loan to $5M +15% grant	N	1	1	N	1	1	2
Municipal Climate Innovation	80% to $1M max	N	1	1	1	1	1	1
Island Coastal Economic Trust	33% to $400k max	N	1	N	N	N	1	N
Habitat Conservation Trust	50% to $100k max	N	3	N	N	N	3	1
Habitat Stewardship	50% to $100k	N	3	N	N	N	3	1
National Wetland Conservation	TBD	N	3	N	N	N	3	1
Overall Ranking*		**2**	**2.9**	**2.2**	**2.5**	**1.8**	**0.6**	**1.0**

Notes.

1. The Overall Ranking score is a composite achieved by multiplying the score for each option by the money available, adding the results for each Option, and normalizing to a score out of 5. This is intended to be used for the “Ability to Attract Grant Funding” category in the Options Evaluation System.
2. As with Table 2, the score for the wetland and/or reed bed can be added to any option to improve its score, but cannot take it over 4.5

12.0 SUMMARY

External grant funding has become a major part of how municipal infrastructure projects are funded. There are numerous funds available to Cumberland, with separate and sometimes overlapping purposes. Some types of projects are more likely to secure grant funding than others, and this is a valid consideration in decision making.

The funds are all evaluated and awarded on a competitive basis, and for the major infrastructure funds, consideration of risk factors that can delay or halt a project can equally as important a consideration of the technical and environmental benefits.

Grant programs can also assist with funding of specific or additional components of a project that would not otherwise be pursued.

Once a project has started, or gone out to tender, it is not eligible for most funding programs (with the notable exception of the Green Municipal Fund) so it is ideal to pursue and secure grants before commencing the project. If grant funding is not obtained, and the project has not started, the scope can be changed and/or reduced to reduce the overall cost.