



ADMINISTRATIVE REPORT

Report Date: June 26, 2018
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Meeting Date: July 24, 2018

TO: Vancouver City Council
FROM: Director of Finance
SUBJECT: Debenture Program 2018 (Inaugural Green Bonds)

RECOMMENDATION

- A. THAT Council authorize the issuance of up to \$85,000,000 of City of Vancouver debentures, utilizing borrowing authorities approved as part of the 2015, 2016, 2017 and 2018 Capital Budgets as follows:

Water	\$ 2,466,038
Sewers	\$ 30,083,962
Neighbourhood Energy Utility	\$ 6,023,000
Public Safety Facilities	\$ 14,300,000
Streets and Bridge Infrastructure	\$ 3,477,000
Street Lighting, Traffic Signals and Communication Systems	\$ 2,000,000
Community Facilities	\$ <u>26,650,000</u>
	\$ <u>85,000,000</u>

- B. THAT, until the borrowing authorities established pursuant to Recommendation A are exercised, the Director of Finance, in consultation with the Mayor, the Chair of the City Finance and Services Committee, and the City Manager, or a majority of them, be empowered to act and instruct the City's Fiscal Agent to proceed with the issuance of the debentures, and to set the interest rate, price, and other terms and conditions on which the debentures will be issued by the City.

It should be noted that once the Director of Finance instructs the Fiscal Agent to offer the debentures in the public market, Council will be required to enact the appropriate borrowing by-law to authorize issuance of the debentures.

- C. THAT, pursuant to Recommendation A, Council authorize the issuance of City of Vancouver inaugural Green Bonds as part of its regular debenture funding

program, as it amplifies the City's commitment to environmental sustainability by financing City's eligible capital projects in various "green" initiatives.

REPORT SUMMARY

The purpose of this report is to seek Council's authorization for the Director of Finance to issue up to \$85,000,000 of City of Vancouver Green Bonds as part of its regular debenture funding program to finance the City's capital programs.

The borrowing authorities as outlined in this report were established in the 2015-2018 Capital Plan through Council and electorate approval, and the requirement for debenture funding approved by Council as part of the 2015, 2016, 2017 and 2018 Capital Budgets. Funding for the debt servicing charges (principal and interest) arising from the proposed borrowing will be provided in the annual Operating Budgets. As the final step in the process, the Director of Finance is seeking authority to exercise these authorities to finance the capital programs.

Adopting global Green Bond Principles ("GBP") is consistent with the City's commitment to environmental goals, social responsibility, and economic development across our communities. Hence, the City will issue Green Bonds in accordance with its Green Bond Framework (see Appendix B).

This report also provides information on the City's new Green Bond program. The Green Bond program represents a further progression in the City's efforts to promote and support environmental and socially responsible goals and objectives. It aligns with the City's financing and investment activities to help advance a low-carbon, climate-resilient future.

The City's Green Bond program shares the same financial and legal characteristics as other City debentures issued in the past which are backed by the "full faith and credit" of the City of Vancouver. The main difference with a Green Bond is the dedicated use of debenture proceeds. Under the Green Bond Framework, net proceeds from Green Bonds will be used to finance Council approved capital projects that are beneficial to the environment as determined by the City. Eligible capital projects are set out in the City's Green Bond Framework.

COUNCIL AUTHORITY/PREVIOUS DECISIONS

It has been Council practice to fund capital programs for the waterworks, sewerage & drainage, and energy utility systems from debenture borrowing. As part of the City's long-term debt management strategy, the water utility has transitioned its infrastructure lifecycle replacement program from debt financing to pay-as-you-go. This will help lower the City's overall debt and save interest costs over the long term. Looking ahead, the City will continue to explore opportunities, where appropriate, to transition the general capital programs and the sewerage & drainage utility to a higher proportion of pay-as-you-go to improve the City's long-term debt profile and enhance its credit ratings.

The balance of capital programs are funded from a combination of debenture borrowing, direct contributions from the annual Operating Budget (Capital from Revenue), Development Cost Levies and Community Amenity Contributions from developers, special-purpose reserves, internal loans, fees and levies collected from property owners, and contributions from senior governments and other funding partners.

Section 242 of the *Vancouver Charter* gives Council the authority to borrow funds for the construction, installation, maintenance, replacement, repair and regulation of waterworks, sewerage & drainage and energy utility systems without the assent of the electorate. Section 245 requires that the borrowing authority for all other purposes be established through the electorate's approval of a borrowing plebiscite.

The requirement to borrow funds to finance capital programs is established by Council at the time of the approval of the annual capital budget and through special approvals. Borrowed funds are generally paid back over 10 years to ensure that a systematic borrowing program can be administered, that outstanding debt does not accumulate to unacceptable levels, and that annual debt servicing charges (principal and interest) are maintained at a level that does not put undue pressure on the operating budget.

Section 247 A of the *Vancouver Charter* requires that full provision of annual debt servicing charges (principal and interest) be made in the annual budget. This ensures that debenture holders are paid the interest component at the prescribed rate and time and that sufficient funding is available to retire the obligation at maturity.

As a pre-condition to an external debenture issue, Council authorizes the Director of Finance to set the interest rate, price and other terms and conditions on which the debentures will be issued, including the power to instruct the City's Fiscal Agent to proceed with the issue. In doing so, Council commits itself to follow through with the debenture issue and enact the appropriate borrowing by-law after the debentures are sold.

CITY MANAGER'S/GENERAL MANAGER'S COMMENTS

The City Manager RECOMMENDS approval of the foregoing.

REPORT

Background/Context

The City is the only municipality in British Columbia that manages its own borrowing program outside of the Municipal Finance Authority of British Columbia (MFABC). Pursuant to Council's authority as stipulated in the *Vancouver Charter*, the City borrows in its own name and manages its debenture portfolio with full autonomy over the timing, amounts, and terms and conditions of the debenture issues, and management of the sinking funds accumulated against City of Vancouver debentures.

The City's credit ratings continue to be among the best municipal ratings in Canada with Aaa (stable) by Moody's Investors Service and AAA (stable) by S&P Global Ratings, making City of Vancouver debentures an attractive investment in both domestic and international markets. With respect to market access, the City has enjoyed the same level as the MFABC with no material difference in pricing.

Given the City's record of strong financial and liquidity position, the timing for debenture issuance is most often driven by capital market conditions such as global risk appetite, interest rates, and investors' demand. In recent years, the City has been accessing the market annually,

with the last domestic issue completed in November 2017: \$85 million 10-year sinking fund debentures, maturing on November 3, 2027, at an “all-in” cost of 2.962%.

The City utilizes a Fiscal Agent to provide expert advice on debenture issues and to lead a syndicate of investment brokers who purchase City of Vancouver debentures and market them to domestic and international investors. The Green Bond syndicate will be co-led by RBC Global Markets and CIBC World Markets.

Strategic Analysis

History and Market Development

The GBP, updated as of June 2018, are voluntary process guidelines that promote transparency and integrity in the Green Bond market by clarifying the approach for issuance of a Green Bond. The GBP are intended to guide issuers on launching a credible Green Bond, and to aid investors by promoting information required to evaluate the environmental impact of their Green Bond investments.

The four components of the GBP are:

1. Use of Proceeds	<ul style="list-style-type: none"> • Issuers should declare eligible project categories, all of which provide clear environmental benefits that can be described and where feasible, quantified and assessed • At present, the extent of disclosure varies greatly with issuers
2. Process for Project Evaluation and Selection	<ul style="list-style-type: none"> • Issuer should establish a review process to select eligible green projects
3. Management of Proceeds	<ul style="list-style-type: none"> • Issuer should be able to track and allocate Green Bond funding to eligible projects • Any unallocated proceeds can be temporarily invested into liquid low-risk fixed income instruments
4. Reporting	<ul style="list-style-type: none"> • Issuer should report at least annually via newsletters, websites or financial reports • Reporting should include allocation of funds to projects and metrics (quantitative or qualitative) that measure green bond impact

Since 2008, the global demand for green bonds has experienced strong growth over the past few years as investors’ appetite for environmentally and socially responsible initiatives is increasingly robust. Global green bond issuance grew from approximately US\$11 billion in 2013 to over US\$120 billion to date.

In the Canadian public sector, Province of Ontario, Province of Quebec, Export Development of Canada, City of Ottawa, and Canada Pension Plan Investment Board have issued Canadian dollar Green Bonds. Other municipalities, such as City of Toronto, are actively looking to issue Green Bonds in the near future.

City of Vancouver Green Bond Framework (Appendix B)

Prior to issuing an inaugural green bond, the City has developed a Green Bond Framework in line with industry best practices. Proceeds of the Green Bonds will be used to finance capital programs that promote low-carbon and climate-resilience, including:

- (i) Renewable Energy
- (ii) Energy Efficiency
- (iii) Green Buildings
- (iv) Clean Transportation
- (v) Pollution Prevention and Control
- (vi) Sustainable Water and Wastewater Management
- (vii) Environmentally Sustainable Management of Living Natural Resources

The selection of eligible capital projects is the responsibility of the Finance, Risk and Supply Chain Management in consultation with other City departments such as Engineering Services; Planning, Urban Design and Sustainability; and Real Estate and Facilities Management. FRS will choose eligible projects that meet the prerequisites set out in the Green Bond Framework.

Transparency is key to a successful Green Bond program. After the Green Bond is issued, the City will post updates once a year on a dedicated Investor Relations (“IR”) webpage within the City’s external website. This IR webpage will include updates on the use of proceeds and project statuses in connection to Green Bonds.

Second-Party Opinion by Sustainalytics (Appendix C)

As part of industry best practices, the City engaged the consulting firm, Sustainalytics, to review the City of Vancouver Green Bond Framework and provide a second-party opinion on the alignment with the GBP 2018, as administered by the International Capital Market Association (the “ICMA”), and the framework’s environmental credentials.

Sustainalytics completed its review on June 18, 2018 and its opinion stated the following elements that were viewed positively:

- i. Alignment of the eligibility criteria with projects recognized by the GBP 2018 as having clear environmental benefits;
- ii. The City’s comprehensive sustainability strategies, which include ambitious time-bound targets and action items; and
- iii. The City’s strong commitment to transparent reporting, including a commitment to provide once a year a summary of the eligible projects, including updates and status reports, as well as key performance indicators relevant to the projects funded.

Based on the above, Sustainalytics is confident that the City is well positioned to issue green bonds and that its Green Bond Framework is transparent, robust, and in alignment with the four core components of the GBP 2018. Additionally, Sustainalytics stated that the City’s green bond issuances may also send a positive message for the promotion of sustainable infrastructure investment by both the public and private sector in Province of British Columbia.

Sustainalytics will make their opinion available to the public on its website once the City announces its timing for the inaugural Green Bond issuance.

Market Conditions

As global economic activity shows early signs of positive direction, with periods of market volatility due to regional events, uncertainty in Europe, Asia, and other areas have kept interest rates low by historical standards. Despite market volatility, investors' appetite for municipal debentures with good credit quality remains strong. Recently, the estimated "all-in" cost for a 10-year issue is in the range of 3.00% to 3.50%, which would continue to be low by historical standards. The City has typically issued 10-year debentures, with the exception of a 40-year debenture issued in 2012 to take advantage of the low rate environment. Staff will continue to monitor the market situation to determine an opportune time to issue, likely in the fall. The Director of Finance recommends that the City be positioned to proceed to market up to a \$85,000,000 Green Bond issue and have the necessary approval in place.

Integral to the City's cash management strategy, any debenture proceeds that are not immediately required to fund capital programs will be invested on an interim basis to reduce the debt carrying costs. On the other hand, should market conditions change drastically that preclude such a launch, the capital program can also be financed internally while awaiting the next opportunity.

In addition, the City will be able to issue the Green Bonds to potential new investors domestically and globally and diversify its access to capital from socially responsible funds, especially since the green bond market has grown exponentially during the past few years.

Debenture Issuance Process

The process of issuing Green Bonds is the same as prior debentures issued by the City. Similarly, given the market volatility and dynamics, the issuer needs to have a high degree of flexibility in determining the timing, structure, interest rate and pricing of the debenture issue right up to the market launch. The schedule of Council meetings at which approval for a debenture issue can be sought does not support such degree of flexibility. It has been Council practice to delegate the authority to initiate a debenture issue to the Director of Finance, in consultation with an advisory group consisting of the Mayor, the Chair of the City Finance and Services Committee, and the City Manager. This group is empowered to make the final decision leading to the issuance of the debentures. Once this group approves the sale, Council is committed to enact the appropriate borrowing by-law as part of the debenture documentation package. This arrangement has worked well in the past and is recommended for the upcoming issue.

Fiscal Agent

As a periodic participant in the capital market, the City relies on its Fiscal Agent to provide expert advice on market conditions; timing, size and structure of the issue; orderly marketing procedures to avoid conflicts with competing issuers; and marketing strategy to achieve the lowest possible borrowing cost for the City. When the City is ready to launch an issue, the Fiscal Agent is responsible for managing the sale of the debentures through a syndicate of investment brokers. The City's Green Bond syndicate will be co-led by RBC Capital Markets and CIBC World Markets.

Borrowing Authorities

The \$85,000,000 Green Bonds issue contemplated in this report is comprised of the following borrowing authorities established from the 2015-2018 Capital Plan:

Council approved borrowing authorities	
Water	\$ 2,466,038
Sewers	\$ 30,083,962
Neighbourhood Energy Utility	<u>\$ 6,023,000</u>
	<u>\$ 38,573,000</u>
Plebiscite approved borrowing authorities	
Public Safety Facilities	\$ 14,300,000
Streets and Bridge Infrastructure	\$ 3,477,000
Street Lighting, Traffic Signals and Communication Systems	\$ 2,000,000
Community Facilities	<u>\$ 26,650,000</u>
	<u>\$ 46,427,000</u>
	<u>\$ 85,000,000</u>

The requirement to borrow funds to finance these capital programs was established by Council at the time of the approval of the 2015, 2016, 2017 and 2018 Capital Budgets.

Debenture Structure

This will be the City’s inaugural Green Bond issuance. The City’s Green Bonds share the same financial and legal characteristics as other City’s debentures. The City has been a regular debenture issuer, with annual issuance in recent years. As reported in the 2017 Annual Financial report, the City had \$993.4 million in external debt outstanding as of December 31, 2017. The City has accumulated \$395.4 million in Sinking Fund reserves for retirement of this debt which leaves a net external debt outstanding of \$598 million. The summary of outstanding debt and details of the City debenture issues are included in Appendix A.

Implications/Related Issues/Risk (if applicable)

Financial

The annual debt servicing charges (principal and interest) on a \$85,000,000 debenture issue are estimated at approximately \$11 million, subject to bond market conditions upon issuance. Funding will be provided in the annual Budgets. On-going debt charges will be offset by anticipated debt maturities and/or use of debt stabilization reserves.

CONCLUSION

The Director of Finance recommends that the City be positioned to proceed to market up to a \$85,000,000 Green Bonds issue and have the necessary approval in place.

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APPENDIX A

City of Vancouver Debenture Structure

Capital Plan Debenture	Issued (\$ 000's)	Maturity	Interest Rate
2009 – 10 year term	125,000	2019-12-02	4.90%
2010 – 10 year term	125,000	2020-06-01	4.50%
2011 – 10 year term	140,000	2021-12-02	3.45%
2012 – 40 year term	120,000	2052-10-18	3.70%
2013 – 10 year term	110,000	2023-10-24	3.75%
2014 – 10 year term	105,000	2024-10-16	3.05%
2015 – 10 year term	90,000	2025-11-20	2.90%
2016 – 10 year term	90,000	2026-12-15	2.70%
2017 – 10 year term	85,000	2027-11-03	2.85%

At December 31, 2017

Total outstanding	993,440
Less: Sinking Fund Reserve	395,407
Net outstanding	<u>598,033</u>

Note: \$347,700 is the statutory minimum sinking fund reserve
Source: 2017 Annual Financial Report, page 35



City of Vancouver

APPENDIX B

Green Bond Framework

1. Vision and Strategy

The City of Vancouver strives to create a great city of communities that cares about our people, our environment, and our opportunities to live, work and prosper.

Our ambitious and achievable Renewable City Strategy goal is to become a city that uses only renewable sources of energy while respecting the principles of sustainability. Striving to use 100% renewable energy provides an opportunity to enhance the City's society, economy and environment. To achieve this, the Strategy targets buildings, transportation and green economic opportunities. It builds on a number of strategies already in place such as the Greenest City 2020 Action Plan, Transportation 2040, Vancouver Economic Action Strategy and Healthy City Strategy.

Target 1: Derive 100% of the energy used in Vancouver from renewable sources before 2050

Target 2: Reduce greenhouse gas emissions by at least 80% below 2007 levels before 2050

The consequences of inaction to reduce fossil fuel use, such as climate change, poor air quality and detrimental health impacts, can be avoided through the adoption of renewable energy.

This Green Bond Framework (the "Framework") represents a further progression in the City's efforts to promote and support our environmental and socially responsible goals and objectives. It aligns with our financing and investment activities to help us continue funding a low-carbon, climate-resilient future.

This Framework applies to Green Bonds issued by the City of Vancouver on or after June 30, 2018. It sets out the guidelines for the City's Green Bond issuances in accordance with the four core components of the International Capital Markets Association's Green Bond Principles: (i) use of proceeds; (ii) process for project evaluation and selection; (iii) management of proceeds; and (iv) reporting.

2. Use of Proceeds

The net proceeds of the City's Green Bond¹ issuances will be used to finance or refinance, in part or full, new and/or existing eligible capital projects across the City of Vancouver that meet the Eligibility Criteria (the "Eligible Projects") as outlined in the Eligibility Criteria. Eligible Projects will include projects that have been completed by the City within 36 months preceding the date of the Green Bond issuance.

Eligible Projects are projects identified by the City as capital projects that are or which carry components that are beneficial to the environment, as determined by the City.

¹ A Green Bond¹ is a debenture, where the proceeds are allocated towards green projects.



3. Eligibility Criteria

Without limitation, capital projects in the following categories will generally be considered eligible but not limited to:

Eligible Category	Description of Projects (include but not limited to the following items)
A. Renewable Energy	<ul style="list-style-type: none"> • Solar power installations including solar thermal, on-site power generation, etc. • Sustainable biomethane (such as landfill biogas recapture), other biofuels, or hydrogen fuel sources
B. Energy Efficiency	<ul style="list-style-type: none"> • Energy management and reduction systems, such as smart thermostats and energy monitoring systems² • District energy • Air-source and geo-exchange heating systems • Building energy retrofit projects and building control optimization projects that reduce energy consumption and support the City's Zero Emission Building Plan, BC Hydro Continuous Optimisation program, amongst others. • Equipment to reduce energy consumption including LED building lighting, and efficient heating, ventilating, air conditioning (HVAC)
C. Green Buildings	<ul style="list-style-type: none"> • New buildings or retrofitted existing buildings that meet regional, national or international third-party environmental certifications, such as LEED Gold / Platinum, Passive House³ Standards (EnerPhit), Living Building Challenge, or any other similar recognized standards.
D. Clean Transportation	<ul style="list-style-type: none"> • Supporting infrastructure for electric and hybrid public transit • Electric Vehicle (EV) infrastructure to support EV uptake • Fleet for electric, hybrid, public, rail, non-motorised, multi-modal transportation • Cycling and walking infrastructure
E. Pollution Prevention and Control	<ul style="list-style-type: none"> • Expansion of organic, wood and demolition waste recycling • Value added products from waste and remanufacturing
F. Sustainable Water and Wastewater Management	<ul style="list-style-type: none"> • Infrastructure for clean water and water efficiency • Infrastructure for wastewater treatment • Construction or maintenance of water collection and urban drainage infrastructure including storm water management and sewer separation
G. Environmentally Sustainable Management of Living Natural Resources	<ul style="list-style-type: none"> • Nature conservation that preserve biological diversity, restores and preserves valuable natural habitats and landscapes, such as forests, marshes, creeks, coastal ecosystem, and the ongoing management of such assets. • Promote, restore or preserve biological diversity in urban areas such as parks, green rooftops, and other green spaces.

² Systems which monitor or control natural gas will be excluded.

³ Passive Houses limit energy consumption and air leakage to achieve deep energy use reductions for heating and cooling.



4. Process for Project Evaluation and Selection

- Finance, Risk and Supply Chain Management Department (FRS) is responsible for evaluating and screening capital projects in consultation with other City departments such as Engineering Services; Planning, Urban Design, and Sustainability; and Real Estate Facilities Management.
- FRS will choose Eligible Projects that meet the prerequisites set out in the Eligibility Criteria which shall comply with the relevant policies of the City of Vancouver, including assessments of the social and environmental risks of a given project.

5. Management of Proceeds

- FRS will be responsible for the allocation of the net proceeds from the issuance of Green Bonds to the relevant and approved Eligible Projects and Assets.
- Net proceeds from each Green Bond will be deposited and recorded separately which tracks the use of and allocation of funds for Eligible Projects.
- In most cases when such projects are underway, proceeds from the Green Bonds issued by the City will be directly applied to the Eligible Projects.
- In the case where projects are delayed, any portion of the net proceeds that have not been allocated can be temporarily held in the account of the City and invested in cash or liquid fixed income instruments in accordance with the Vancouver Charter.
- Payment of principal and interest on any Green Bond issuance will be made from our general or sinking funds and will not be directly linked to the performance of any Eligible Project.

6. Reporting & Disclosure

As long as there are outstanding Green Bonds issued under this Framework, the City will publish through the City’s website updates once a year on:

- Allocation of the proceeds from the Green Bond into Eligible Projects
- Summary of Eligible Projects including updates and status reports
- Where feasible, City’s key performance indicators including, but not limited to:

Eligible Category	Key Performance Indicators
A. Renewable Energy	<ul style="list-style-type: none"> • Biomethane captured (t CH₄) • GHG emissions reduced/avoided (tCO₂e)
B. Energy Efficiency	<ul style="list-style-type: none"> • Energy saved per year (kWh/year) • GHG emissions reduced/avoided (tCO₂e) • Total tonnes of community CO₂e emissions from all community buildings
C. Green Buildings	<ul style="list-style-type: none"> • List of third-party environmental certifications received.
D. Clean Transportation	<ul style="list-style-type: none"> • Cycling, Walking, and Transit trips (% of modal share) • Bike lanes installed (kms)
E. Pollution Prevention and Control	<ul style="list-style-type: none"> • Total number of instances of non-compliance to air quality standards • GHG emissions reduced/avoided (tCO₂e)



	<ul style="list-style-type: none">• Amount of waste diverted from landfill (tonnes)
F. Sustainable Water and Wastewater Management	<ul style="list-style-type: none">• Total water consumption per capita• Total number of instances of non-compliance to water quality standards
G. Environmentally Sustainable Management of Living Natural Resources	<ul style="list-style-type: none">• Area of natural assets conserved/protected/restored

APPENDIX C

Second-Party Opinion

City of Vancouver Green Bond

Evaluation Summary

Sustainalytics is of the opinion that the City of Vancouver Green Bond Framework is credible and impactful and aligns with the four core components of the Green Bond Principles 2018. This assessment is based on the following:



USE OF PROCEEDS The use of proceeds includes a comprehensive list of eligible categories that are important for low-carbon and climate resilient growth and all seven categories are aligned with those recognized by the Green Bond Principles. Sustainalytics considers that the project categories will have clear positive environmental impacts and address the City's environmental needs.



PROJECT EVALUATION / SELECTION The responsibility for project selection and evaluation belongs to the City's Finance, Risk and Supply Chain Management Department, in consultation with other relevant departments such as Engineering Services; Planning, Urban Design, and Sustainability; and Real Estate and Facilities Management. Support by a strong governance structure is in line with market practice.



MANAGEMENT OF PROCEEDS The City of Vancouver will deposit and record funds separately which tracks the allocation of funds towards eligible projects. Pending allocation, the proceeds will be held in cash or liquid fixed-income instruments. The City's processes to manage and track proceeds using internal reporting systems are in line with market practice.



REPORTING The City of Vancouver has committed to publish once a year, through the City of Vancouver's website, updates on the allocation of proceeds, including updates on the eligible projects funded and relevant key performance indicators where feasible, as aligned with market practice.



Evaluation date	June 29, 2018
Issuer Location	Vancouver, Canada

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Introduction

The City of Vancouver is Canada's eighth-largest city, and the most populous in the Province of British Columbia, with over 656,000 inhabitants in 2017. The greater metropolitan area is home to over 2,590,000 people, making it the third-largest in the country. The City of Vancouver is the densest city in Canada and has the lowest greenhouse gas emissions per capita of any major city in North America. The City of Vancouver has committed itself to ambitious environmental goals, including becoming the greenest city in the world by 2020 and to generate 100% of its energy from renewable sources before 2050.

The City of Vancouver has developed the City of Vancouver Green Bond Framework (the "framework") under which it will be issuing green bonds and using the proceeds to finance or refinance, in whole or in part, existing and future projects that provide environmental benefits to the City and support the achievement of environmental and climate goals. The framework defines eligibility criteria in the following areas:

1. Renewable Energy
2. Energy Efficiency
3. Green Buildings
4. Clean Transportation
5. Pollution Prevention and Control
6. Sustainable Water and Wastewater Management
7. Environmentally Sustainable Management of Living Natural Resources

The City of Vancouver engaged Sustainalytics to review the City of Vancouver Green Bond Framework and provide a second-party opinion on the alignment of the green bond with the Green Bond Principles 2018 (the "GBP"), as administered by the International Capital Market Association (the "ICMA")¹, and the framework's environmental credentials. This framework has been published in a separate document².

As part of this engagement, Sustainalytics held conversations with various members of the City of Vancouver's budgeting, capital planning, sustainability and treasury teams to understand the sustainability impact of their business processes and planned use of proceeds, as well as management of proceeds and reporting aspects of the City's green bond. Sustainalytics also reviewed relevant public documents and non-public information.

This document contains Sustainalytics' opinion of the City of Vancouver Green Bond Framework and should be read in conjunction with that framework.

¹ ICMA's Green Bond Principles 2018 <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/June-2018/Green-Bond-Principles---June-2018-140618-WEB.pdf>

² <http://vancouver.ca/default.aspx>

Sustainalytics' Opinion

Section 1: Sustainalytics' Opinion on the City of Vancouver Green Bond Framework

Summary

Sustainalytics is of the opinion that the City of Vancouver Green Bond Framework is credible and impactful and aligns with the four core components of the Green Bond Principles 2018. Sustainalytics' opinion is based on the following:

- The eligible use of proceeds categories (i.e. Renewable Energy, Energy Efficiency, Green Buildings, Clean Transportation, Pollution Prevention and Control, Sustainable Water and Wastewater Management, and Environmentally Sustainable Management of Living Natural Resources) are all recognized by the Green Bond Principles as project categories with clear environmental benefits, and Sustainalytics views these projects as having a positive environmental impact (for additional information on impact see Section 3). Further, the City has communicated to Sustainalytics that it will avoid investments in fossil fuel and fossil fuel related grid infrastructure.
 - The Green Buildings eligibility criterion for new buildings or retrofitted existing buildings is based on third-party certification standards such as LEED (Gold or higher) and Passive House Standards. Sustainalytics has conducted an evaluation of the schemes used (see Appendix 1), and considers this to be in line with market practice, and provides adequate transparency and assurance on the level of energy efficiency gains rendered by the financed projects.
- The City of Vancouver's Finance, Risk and Supply Chain Management Department (FRS) is responsible for project evaluation and selection, in consultation with other relevant City departments such as Engineering Services; Planning, Urban Design and Sustainability; and Real Estate and Facilities Management. Sustainalytics considers that the required collaboration between the municipality's decision-making bodies is likely to strengthen the implementation of the City's green bond framework.
- The net proceeds raised by a green bond issuance will be deposited and recorded separately which ensures monitoring and tracking of the use of proceeds. Unallocated proceeds may be held in cash or invested in liquid fixed income instruments, in accordance with the Vancouver Charter. The City's processes to manage and track proceeds using internal reporting systems are in line with market practice.
- The City of Vancouver has committed to report once a year, through the City of Vancouver's website, updates on the allocation of proceeds to eligible projects as well as the balance of funds remaining. Furthermore, the City will provide a summary and status report of the eligible projects funded, as well as relevant City's key performance indicators for the various use of proceeds categories, including but not limited to: GHG emissions avoided, list of third-party certifications received, amount of waste diverted from landfills, changes in water consumption and conservation efforts. Other impact reporting indicators will be included to the extent possible. Moreover, the principle of free access to public records provides additional transparency into the operations of the City.

Alignment with Green Bond Principles 2018

Sustainalytics has determined that the City of Vancouver Green Bond Framework aligns to the four core components of the Green Bond Principles 2018. For detailed information please refer to Appendix 2: Green Bond/Green Bond Programme External Review Form.

Section 2: Sustainability Strategy of the Issuer

Contribution of the framework to the City's sustainability plans and strategies

Sustainalytics is of the opinion that the City of Vancouver has ambitious environmental plans, strategies, and governance structures based on the following:

- The City's Greenest City 2020 Action Plan to become the greenest city in the world by 2020, supported by ten goal areas and 17 measurable targets³; additionally, seven of the ten goals are in line and complement the City's green bond framework.
- Associated strategies developed to help meet the commitments of the Greenest City 2020 Action Plan, including:
 - Renewable City Strategy, which sets the targets of meeting 100% of energy needs from renewable sources by 2050 and reducing greenhouse gas emissions by 80% from 2007 levels over the same period⁴.
 - Zero Waste Vancouver, which seeks to reduce the amount of waste going to landfills by discouraging single-use items and supporting recycling and reuse⁵.
 - Neighbourhood Energy Strategy, which encourages the adoption of neighbourhood-scale energy systems to supply central heating and hot water⁶.
 - Healthy City Strategy, which sets 13 long-term goals as well as specific targets for 2025, including: Cultivating Connections, Active Living and Getting Outside, Getting Around, and Environments to Thrive In⁷.
 - Vancouver Economic Action Strategy, which lays out as a guiding principle that “environmental issues are inseparable from economic issues” and seeks to “target opportunities in the green and creative economies to improve employment expansion and business performance,” with the specific goal of doubling the number of green jobs by 2020⁸.
- The City's Transportation 2040 Plan which has a focus on sustainable mobility and urban planning tailored around the city's current and proposed public transportation facilities. Additionally, it includes relevant short- and long-term targets such as: (i) making the majority (over 50%) of trips on foot, bike, and transit by 2020 and at least two-thirds of all trips by 2040, and (ii) reducing the average distance driven per resident by 20% (by 2020 from 2007 levels)⁹.
- The City's Climate Change Adaptation Strategy, which seeks to prepare the City, its residents, and infrastructure for an increased frequency of extreme weather events and anticipated sea level rise¹⁰.

Sustainalytics is of the opinion that (i) formalizing commitments through ambitious plans and strategies, (ii) setting time-bound targets, and (iii) tracking and reporting progress as per commitments is indicative of the priority that City of Vancouver assigns to achieving environmental results. Overall, Sustainalytics is confident that the City of Vancouver is well-positioned to issue green bonds and that the issuance of green bonds aligns and positively contributes to the City's environmental strategies and targets.

³ <http://vancouver.ca/files/cov/greenest-city-2020-action-plan-2015-2020.pdf>

⁴ <http://vancouver.ca/green-vancouver/renewable-city.aspx>

⁵ <http://vancouver.ca/green-vancouver/zero-waste-vancouver.aspx>

⁶ <http://vancouver.ca/green-vancouver/neighbourhood-energy-strategy.aspx>

⁷ <http://vancouver.ca/people-programs/healthy-city-strategy.aspx>

⁸ <http://vancouver.ca/files/cov/vancouver-economic-action-strategy.pdf>

⁹ <http://vancouver.ca/streets-transportation/transportation-2040.aspx>

¹⁰ <http://vancouver.ca/green-vancouver/climate-change-adaptation-strategy.aspx>

Well positioned to address common environmental and social risks associated with the projects

Sustainalytics recognizes that potential infrastructure upgrades and expansions, including those relating to transportation, waste and wastewater management, and new buildings projects, may be associated with environmental and social risks such as noise and air pollution, water use and discharge, and local community approval.

The City of Vancouver is subject to provincial¹¹ and federal¹² environmental regulations relating to environmental protection, including the need to complete environmental assessments for larger projects. The City of Vancouver itself has by-laws relating to the recycling and disposal of construction waste, and the management of solid waste and wastewater. Furthermore, the City considers community engagement a “fundamental civic goal”, and commits to applying the values of the International Association for Public Participations¹³. Overall, Sustainalytics is confident that the City of Vancouver is well-positioned to identify, manage, and mitigate environmental and social risks associated with the projects financed.

Section 3: Impact of Use of Proceeds

Proceeds of the City of Vancouver’s green bonds will be directed towards the following seven eligible categories: Renewable Energy, Energy Efficiency, Green Buildings, Clean Transportation, Pollution Prevention and Control, Sustainable Water and Wastewater Management, and Environmentally Sustainable Management of Living Natural Resources.

Overall, Sustainalytics is of the opinion that the proceeds from the bonds will have clear positive environmental impacts. Sustainalytics has provided further details on the local environmental impact resulting from certain Eligible Project Categories below.

Advancing the transition to a low-carbon economy and contributing to the achievement of climate-related targets

The City of Vancouver’s Renewable City Strategy outlines the objective of reducing greenhouse gas emissions by 80% from 2007 levels by 2050, while the Greenest City Action Plan sets a 2020 target of 33% below 2007 levels. The City of Vancouver has set three priority actions for the 2015-2020 period to support the achievement of its climate goals: converting existing steam heat systems to renewable energy, developing four new neighbourhood energy systems, and beginning to implement a renewable energy strategy. The City has also laid out an approach to meeting its long-term goals, centred around: reducing energy use, increasing renewable energy use, and increasing renewable energy supply. Sustainalytics views favourably that the City’s transition to a low-carbon economy involves both reducing the total energy used as well as a shift towards renewable sources.

The City of Vancouver’s climate-related goals also align with the ambitions and commitments of the Province of British Columbia and Government of Canada. The Province’s climate commitment is to reduce carbon emissions to 80% below 2007 levels by 2050, as enumerated in the Greenhouse Gas Reduction Targets Act.¹⁴ An interim target of a 6% reduction by 2012 was achieved, although since this time emission levels have plateaued. Nationally, the federal government is a signatory to the Paris Agreement, and has submitted a Nationally Determined Contribution which commits Canada to reducing greenhouse gas emissions by 30% below 2005 levels by 2030, as well as taking action to reduce atmospheric black carbon.¹⁵ Sustainalytics is of the opinion that the City’s investment in renewable energy, energy efficiency, clean transport, and green buildings will contribute to the achievement of local, provincial, and national emissions targets, and support a transition to a low-carbon economy.

¹¹ Relevant legislation includes the Environmental Management Act, the Greenhouse Gas Reductions Targets Act, the Environmental Assessment Act, the Significant Projects Streamlining Act, the Fish Protection Act, the Heritage Conservation Act, and the Drinking Water Protection Act.

¹² Relevant legislation includes the Canadian Environmental Protection Act, The Canadian Environmental Assessment Act, the Fisheries Act, the Navigable Waters Protection Act, the Species at Risk Act, and the Migratory Birds Convention Act.

¹³ <http://vancouver.ca/your-government/how-we-do-community-engagement.aspx>

¹⁴ http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_07042_01

¹⁵ <http://www4.unfccc.int/ndcregistry/PublishedDocuments/Canada%20First/Canada%20First%20NDC-Revised%20submission%202017-05-11.pdf>

The importance of green buildings and the built environment

Buildings are the single largest source of emissions in Vancouver, contributing 56% percent of the municipal total in 2014.¹⁶ The majority of these emissions relate to building heating needs, which is most commonly fueled by natural gas, as well as water heating. 38% of building energy used in the typical residential home relate to natural gas-fired space heating. The City of Vancouver's strategy to reduce emissions from buildings involves targeting both the building envelope (e.g. roof, walls, windows, doors) to reduce energy needs, as well as the mechanical systems (e.g. furnace, hot water tank, space heaters) to use energy more efficiently or shift to less-emitting sources. The City's Zero Emissions Building Plan¹⁷ aims to take an incremental "stepping down" approach by setting incrementally more stringent energy use standards in concert with the expansion of district energy systems.

As part of its Plan, the City references the Passive House standard. Passive House is a building standard which seeks to minimize total energy use by utilizing advanced design techniques and materials.¹⁸ The passive house standards emphasize "superinsulation", air-tight construction, heat-recovery ventilation, efficient building shape, and appropriate solar exposure. Passive Houses can achieve energy savings of up to 80-90% compared to typical Canadian building,¹⁹ and the standard can be applied to all types of buildings. Passive house certification is performance-based, with maximum threshold in heating energy load, total energy use per unit of floor area, and building air-tightness. The Passive House certification is intended primarily for use in new construction, as retrofits to existing buildings may not be able to achieve the stringent requirements.²⁰ In response to this issue, the Passive House Institute has developed the EnerPHit certification, which when applied as part of building retrofits can achieve energy savings of 75-90%.²¹ The Zero Emissions Building Plan does not mandate the adoption of Passive House for either new construction or retrofits, however, it is referenced as "a key tool to effectively transform the building industry to greatly improved" performance, and the City has stated its intention to explore building envelope retrofits to EnerPHit standards. Furthermore, the City has confirmed that it is investigating the feasibility of constructing City-owned facilities, in particular a new Fire Hall, to the standard. Sustainalytics believes that the investments in green buildings, including Passive House construction, will support the achievement of the Renewable City Strategy and the Zero Emissions Building Plan.

In addition to setting a target for zero-emissions new buildings, the City's Energy Retrofit Strategy for Existing Buildings²² and the Greenest City Action Plan lay out the steps the City intends to take to retrofit existing buildings to perform comparable to new construction. Actions under these strategies include mandating energy efficiency improvements and providing incentives and support mechanisms for modest retrofits. As part of this initiative, the City is also encouraging conversion of gas heating systems to electric heat pumps. Furthermore, the City is participating in BC Hydro's Continuous Optimization Program²³, which offers support to large hydro and natural gas customers to make efficiency improvements to building systems, in particular HVAC, at its own facilities. Sustainalytics is of the opinion that the use of proceeds related to energy efficiency and existing buildings will have a positive environmental impact and support the achievement of the Renewable City Strategy and the Energy Retrofit Strategy.

Importance of clean transportation to achieving climate-related goals

Fossil fuel-powered vehicles accounted for approximately 37% of the City of Vancouver's total emissions in 2014. Furthermore, passenger vehicle use represented 49% of all transportation within the City.²⁴ The City has set out a strategic plan, Transportation 2040, which aims to shift towards renewably powered vehicles in order to meet air quality and greenhouse gas emissions goals. This strategy re-affirms the Greenest City target of decreasing average vehicle distance per resident by 20% from 2007 levels by 2020. It also sets new mode-share targets: at least half of trips by bike, transit, or on foot by 2020, and at least two thirds of

¹⁶ <http://vancouver.ca/green-vancouver/renewable-buildings.aspx>

¹⁷ <http://council.vancouver.ca/20160712/documents/rr2.pdf>

¹⁸ http://www.passivehouse.com/02_informations/01_whatisapassivehouse/01_whatisapassivehouse.htm

¹⁹ <http://www.passivehouse.ca/design-fundamentals>

²⁰ http://www.passiv.de/en/03_certification/02_certification_buildings/04_enerphit/04_enerphit.htm

²¹ <https://passipedia.org/certification/enerphit>

²² <http://vancouver.ca/files/cov/Energy-Retrofit-Strategy-for-Buildings-Presentation-for-Council-June-2014.pdf>

²³ <https://www.bchydro.com/powersmart/business/programs/continuous-optimization.html>

²⁴ 42% of trips made by the vehicle driver, and an additional 7% by vehicle passengers. <http://vancouver.ca/green-vancouver/renewable-transportation.aspx>

trips by 2040. The City of Vancouver has already taken steps to fulfill its commitments, including the expansion of active transportation corridors. Study is ongoing for the expansion of rail-based transit along the Arbutus Corridor as well as working with the regional transit provider, Translink, on the extension of the Millennium Line SkyTrain along Broadway. Sustainalytics views positively the City's commitments to expanding clean transportation, including active transportation and public transit, as such projects are in line with the City's overall environmental goals and will further contribute to local, provincial, and national greenhouse gas reduction targets.

Alignment with/contribution to SDGs

The Sustainable Development Goals (SDGs) were set in September 2015 and form an agenda for achieving sustainable development by the year 2030. This green bond advances the following SDG goals and targets:

Use of Proceeds Category	SDG	SDG target
Renewable Energy Energy Efficiency	7. Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix. 7.3 By 2030, double the global rate of improvement in energy efficiency.
Clean Transportation Climate Change Adaptation Green Buildings	11. Sustainable Cities and Communities 13. Climate Action	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport. 11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries. 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.
Pollution Prevention and Control Sustainable Water and Wastewater Management	6. Clean Water and Sanitation 12. Responsible Consumption and Production	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally. 12.2 By 2030, achieve the sustainable management and efficient use of natural resources. 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil.
Environmentally Sustainable Management of Living Resources	15. Life on Land	15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

Conclusion

The City of Vancouver has developed a Green Bond Framework under which it intends to issue green bonds. Proceeds of the bonds will be used to finance or refinance expenditures in the areas that promote a transition to low-carbon and climate-resilient growth including: (i) Renewable Energy, (ii) Energy Efficiency (iii) Green Buildings, (iv) Clean Transportation, (v) Pollution Prevention and Control, (vi) Sustainable Water and Wastewater Management, and (vii) Environmentally Sustainable Management of Living Natural Resources.

Sustainalytics views the following elements of the City of Vancouver's Green Bond Framework positively:

- i. alignment of the eligibility criteria with projects recognized by the Green Bond Principles 2018 as having clear environmental benefits;
- ii. City of Vancouver's comprehensive sustainability strategies, which include ambitious time-bound targets and action items;

-
- iii. City of Vancouver's strong commitment to transparent reporting, including a commitment to provide once a year a summary of the eligible projects, including updates and status reports, as well as key performance indicators relevant to the projects funded.

Based on the above, Sustainalytics is confident that the City of Vancouver is well positioned to issue green bonds and that its Green Bond Framework is transparent, robust, and in alignment with the four core components of the Green Bond Principles 2018. Additionally, the City of Vancouver's green bond issuances may also set a positive precedent for the promotion of sustainable infrastructure investment by both the public and private sector in the province of British Columbia.

Appendices

Appendix 1: Overview and Comparison of Real Estate Certification Schemes

	LEED	Passive House	Living Building Challenge
Background	Leadership in Energy and Environmental Design (LEED) is a US Certification System for residential and commercial buildings used worldwide. LEED was developed by the non-profit U.S. Green Building Council (USGBC) and covers the design, construction, maintenance and operation of buildings.	Passive House (also known by its German name, Passivhaus) is a certification scheme for very low energy buildings, first developed in Germany and administered by the non-profit Passive House Institute and implemented in Canada by the Canadian Passive House Institute (CanPHI).	The Living Building Challenge is an international green building certification program and sustainable design framework run by the International Living Future Institute, a US non-profit organization seeking to tackle climate change by pushing for a built urban environment free of fossil fuels.
Certification levels	Certified Silver Gold Platinum	Certified EnerPHit (retrofits only)	Living Building Certification Petal Certification Net Zero Energy Building Certification
Areas of assessment: environmental performance of the building	<ul style="list-style-type: none"> • Energy and atmosphere • Sustainable Sites • Location and Transportation • Materials and resources • Water efficiency • Indoor environmental quality • Innovation in Design • Regional Priority 	<ul style="list-style-type: none"> • Space Heat/Cooling Demand • Building Airtightness • Total Primary Energy Demand 	<ul style="list-style-type: none"> • Place • Water • Energy • Health and Happiness • Materials • Equity • Beauty
Requirements	Prerequisites (independent of level of certification) and credits with associated points. These points are then added together to obtain the LEED level of certification There are several different rating systems within LEED. Each rating system is designed to apply to a specific sector (e.g. New Construction, Major Renovation, Core and Shell Development, Schools-/Retail-/Healthcare New Construction and Major Renovations, Existing Buildings: Operation)	Threshold requirements in three areas: space heat demand, building pressurization test result, and total primary energy demand, calculated per unit of usable floor area (metres square). For building retrofits, EnerPHit certification can be achieved by demonstrating the maximum space heating demand (at a less stringent level than full certification), or by utilizing components certified by the PHI.	The Living Building Challenge is organized into seven performance areas called Petals. Each Petal is further sub-divided into Imperatives, which address specific issues through detailed requirements. All Imperatives assigned to a Typology are mandatory. Living Building Challenge certification requires actual, rather than anticipated, performance demonstrated over twelve consecutive months.
Performance display			

Appendix 2: Green Bond / Green Bond Programme - External Review Form

Section 1. Basic Information

Issuer name:	City of Vancouver
Green Bond ISIN or Issuer Green Bond Framework Name, if applicable: <i>[specify as appropriate]</i>	City of Vancouver Green Bond Framework
Review provider's name:	Sustainalytics
Completion date of this form:	June 28, 2018
Publication date of review publication: <i>[where appropriate, specify if it is an update and add reference to earlier relevant review]</i>	

Section 2. Review overview

SCOPE OF REVIEW

The following may be used or adapted, where appropriate, to summarise the scope of the review.

The review assessed the following elements and confirmed their alignment with the GBPs:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Use of Proceeds | <input checked="" type="checkbox"/> Process for Project Evaluation and Selection |
| <input checked="" type="checkbox"/> Management of Proceeds | <input checked="" type="checkbox"/> Reporting |

ROLE(S) OF REVIEW PROVIDER

- | | |
|---|--|
| <input checked="" type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other <i>(please specify)</i> : | |

Note: In case of multiple reviews / different providers, please provide separate forms for each review.

EXECUTIVE SUMMARY OF REVIEW and/or LINK TO FULL REVIEW *(if applicable)*

Please refer to Executive Summary above.

Section 3. Detailed review

Reviewers are encouraged to provide the information below to the extent possible and use the comment section to explain the scope of their review.

1. USE OF PROCEEDS

Overall comment on section *(if applicable)*:

The use of proceeds includes a comprehensive list of eligible categories that are important for low-carbon and climate change resilient growth and all seven categories are aligned with those recognized by the Green Bond Principles. These categories are: renewable energy, energy efficiency, green buildings, clean transportation, pollution prevention and control, sustainable water and wastewater management, and environmentally sustainable management of living natural resources. Sustainalytics considers that the project categories will have clear positive environmental impacts and address the City's environmental needs.

Use of proceeds categories as per GBP:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Renewable energy | <input checked="" type="checkbox"/> Energy efficiency |
| <input checked="" type="checkbox"/> Pollution prevention and control | <input checked="" type="checkbox"/> Environmentally sustainable management of living natural resources and land use |
| <input type="checkbox"/> Terrestrial and aquatic biodiversity conservation | <input checked="" type="checkbox"/> Clean transportation |
| <input checked="" type="checkbox"/> Sustainable water and wastewater management | <input type="checkbox"/> Climate change adaptation |
| <input type="checkbox"/> Eco-efficient and/or circular economy adapted products, production technologies and processes | <input checked="" type="checkbox"/> Green buildings |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with GBP categories, or other eligible areas not yet stated in GBPs | <input type="checkbox"/> Other <i>(please specify)</i> : |

If applicable please specify the environmental taxonomy, if other than GBPs:

2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Overall comment on section *(if applicable)*:

The responsibility for project selection and evaluation belongs to the City's Finance, Risk and Supply Chain Management Department, in consultation with other relevant departments such as Engineering Services, Planning, Urban Design, Sustainability and Real Estate Management. Support by a strong governance structure is in line with market practice.

Evaluation and selection

- | | |
|--|---|
| <input checked="" type="checkbox"/> Credentials on the issuer's environmental sustainability objectives | <input checked="" type="checkbox"/> Documented process to determine that projects fit within defined categories |
| <input checked="" type="checkbox"/> Defined and transparent criteria for projects eligible for Green Bond proceeds | <input checked="" type="checkbox"/> Documented process to identify and manage potential ESG risks associated |

with the project

- Summary criteria for project evaluation and selection publicly available
- Other (*please specify*):

Information on Responsibilities and Accountability

- Evaluation / Selection criteria subject to external advice or verification
- In-house assessment
- Other (*please specify*):

3. MANAGEMENT OF PROCEEDS

Overall comment on section (*if applicable*):

The City of Vancouver will deposit and record funds separately which tracks the allocation of funds towards eligible projects. Pending allocation, the proceeds will be held in cash or liquid fixed-income instruments. The City's processes to manage and track proceeds using internal reporting systems are in line with market practice.

Tracking of proceeds:

- Green Bond proceeds segregated or tracked by the issuer in an appropriate manner
- Disclosure of intended types of temporary investment instruments for unallocated proceeds
- Other (*please specify*):

Additional disclosure:

- Allocations to future investments only
- Allocations to both existing and future investments
- Allocation to individual disbursements
- Allocation to a portfolio of disbursements
- Disclosure of portfolio balance of unallocated proceeds
- Other (*please specify*):

4. REPORTING

Overall comment on section (*if applicable*):

The City of Vancouver has committed to report once a year on the allocation of proceeds, including updates on the eligible projects funded and relevant City's key performance indicators where feasible, aligned with market practice.

Use of proceeds reporting:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Project-by-project | <input type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other (please specify): |

Information reported:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Allocated amounts | <input checked="" type="checkbox"/> Green Bond financed share of total investment |
| <input checked="" type="checkbox"/> Other (please specify): | |

Frequency:

- | | |
|---|--------------------------------------|
| <input type="checkbox"/> Annual | <input type="checkbox"/> Semi-annual |
| <input checked="" type="checkbox"/> Other (please specify): | |

Impact reporting:

- | | |
|--|--|
| <input type="checkbox"/> Project-by-project | <input checked="" type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other (please specify): |

Frequency:

- | | |
|--|--------------------------------------|
| <input checked="" type="checkbox"/> Annual | <input type="checkbox"/> Semi-annual |
| <input type="checkbox"/> Other (please specify): | |

Information reported (expected or ex-post):

- | | |
|---|---|
| <input checked="" type="checkbox"/> GHG Emissions / Savings | <input checked="" type="checkbox"/> Energy Savings |
| <input checked="" type="checkbox"/> Decrease in water use | <input checked="" type="checkbox"/> Other ESG indicators (please specify):
Biomethane captured (t CH4)
List of third-party environmental certifications received.
Cycling, Walking, and Transit trips (% of modal share)
Bike lanes installed (kms)
Total number of instances of non-compliance to air quality standards
Amount of waste diverted from landfill (tonnes)
Total number of instances of non-compliance to water quality standards
Area of natural assets conserved/protected/restored |

Means of Disclosure

- | | |
|---|---|
| <input type="checkbox"/> Information published in financial report | <input type="checkbox"/> Information published in sustainability report |
| <input type="checkbox"/> Information published in ad hoc documents | <input checked="" type="checkbox"/> Other (please specify): Published on City Website |
| <input type="checkbox"/> Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review): | |

Where appropriate, please specify name and date of publication in the useful links section.

USEFUL LINKS (e.g. to review provider methodology or credentials, to issuer’s documentation, etc.)

SPECIFY OTHER EXTERNAL REVIEWS AVAILABLE, IF APPROPRIATE

Type(s) of Review provided:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification / Audit | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

Review provider(s):

Date of publication:

ABOUT ROLE(S) OF REVIEW PROVIDERS AS DEFINED BY THE GBP

- i. **Consultant Review:** An issuer can seek advice from consultants and/or institutions with recognized expertise in environmental sustainability or other aspects of the issuance of a Green Bond, such as the establishment/review of an issuer’s Green Bond framework. “Second Party Opinions” may fall into this category.
- ii. **Verification:** An issuer can have its Green Bond, associated Green Bond framework, or underlying assets independently verified by qualified parties, such as auditors. In contrast to certification, verification may focus on alignment with internal standards or claims made by the issuer. Evaluation of the environmentally sustainable features of underlying assets may be termed verification and may reference external criteria.
- iii. **Certification:** An issuer can have its Green Bond or associated Green Bond framework or Use of Proceeds certified against an external green assessment standard. An assessment standard defines criteria, and alignment with such criteria is tested by qualified third parties / certifiers.
- iv. **Rating:** An issuer can have its Green Bond or associated Green Bond framework rated by qualified third parties, such as specialised research providers or rating agencies. Green Bond ratings are separate from an issuer’s ESG rating as they typically apply to individual securities or Green Bond frameworks / programmes.

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The client is fully responsible for certifying and ensuring its commitments` compliance, implementation and monitoring.

Sustainalytics

Sustainalytics is a leading independent ESG and corporate governance research, ratings and analytics firm that support investors around the world with the development and implementation of responsible investment strategies. With 13 offices globally, the firm partners with institutional investors who integrate ESG information and assessments into their investment processes. Spanning 30 countries, the world's leading issuers, from multinational corporations to financial institutions to governments, turn to Sustainalytics for second-party opinions on green and sustainable bond frameworks. Sustainalytics has been certified by the Climate Bonds Standard Board as a verifier organization, and supports various stakeholders in the development and verification of their frameworks. Global Capital named Sustainalytics the “Most Impressive Second Party Opinion Provider in 2017”. In 2018, the firm was recognized as the “Largest External Reviewer” by the Climate Bonds Initiative as well as Environmental Finance. In addition, Sustainalytics received a Special Mention Sustainable Finance Award in 2018 from The Research Institute for Environmental Finance Japan for its contribution to the growth of the Japanese Green Bond Market.

For more information, visit www.sustainalytics.com

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