Corporation of the City of
NEW WESTMINSTER

Environment and Climate Advisory Committee Meeting
Agenda

Wednesday, July 20, 2022, 5:00 p.m.
Open to public attendance in Committee Room G
Lower Level, City Hall
Committee members may attend electronically

We recognize and respect that New Westminster is on the unceded and unsurrendered land of the Halkomelem speaking peoples. We acknowledge that colonialism has made invisible their histories and connections to the land. As a City, we are learning and building relationships with the people whose lands we are on.

Pages

1. CALL TO ORDER AND LAND ACKNOWLEDGEMENT
   The Chair will open the meeting and provide a land acknowledgement.

2. INTRODUCTIONS AND ICEBREAKERS

3. CHANGES TO THE AGENDA
   Additions or deletion of items.

4. ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

   4.1. **Minutes of March 16, 2022** 3

   4.2. **Minutes of May 18, 2022** 9

5. REPORTS AND PRESENTATIONS
   Staff and guest reports and presentations for information, discussion, and/or action

   5.1. **Clean Air Plan 2021** 17
   John Lindner, Metro Vancouver

   5.2. **CEEP 2050 Update** 44
   Nayel Halim

   5.3. **Queensborough Ecological Restoration** 123
   Nell Gasiewicz

6. UNFINISHED BUSINESS FROM PREVIOUS MEETINGS

6.1. High-performance Buildings
Nazli Azimikor

7. STANDING REPORTS AND UPDATES
Regular and ongoing reports from staff or members for information and discussion.

7.1. General Updates
Lynn Roxburgh

8. NEW BUSINESS
Items added to the agenda at the beginning of the meeting.

8.1. Invitation to Present to Council
Re: Incentivizing developers to switch to electric heating systems in new homes

Karen Crosby

9. END OF MEETING

10. UPCOMING MEETINGS
Remaining scheduled meetings, which take place at 5:00 p.m. unless otherwise noted:

- November 16

Corporation of the City of
NEW WESTMINSTER

ENVIRONMENT AND CLIMATE ADVISORY COMMITTEE

MINUTES

Wednesday, March 16, 2022
Electronic and in Meeting Room G
Lower Level, City Hall

PRESENT	
Councillor Nadine Nakagawa*	Chair
Nazli Azimikor*	Community Member
Ryan Bardini	Community Member
Farbod Behshad*	Community Member
Danison Buan	Representative, Local Business Association
Karen Crosby*	Community Member
Elsie Krebs	Representative, Professional in Environment or Climate Field, Business, Government, or Non-Profit
Alvin Kube*	Representative, Indigenous Community
Teresa Morton	Representative, Local Environment Organization
REGRETS	
Colleen Gillespie	Representative, Professional in Environment or Climate Field, Business, Government, or Non-Profit
John Lekakis	Representative, Local Institution
STAFF PRESENT	
Nayel Halim	Community Energy and Emissions Specialist
Lynn Roxburgh	Acting Supervisor, Land Use Planning and Climate Action
Katie Stobbart	Committee Clerk

*Denotes electronic attendance

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1. CALL TO ORDER AND LAND ACKNOWLEDGEMENT

Councillor Nakagawa opened the meeting at 5:00 p.m. and recognized with respect that New Westminster is on the unceded and unsurrendered land of the

Halkomelem speaking peoples. She acknowledged that colonialism has made invisible their histories and connections to the land. She recognized that, as a City, we are learning and building relationships with the people whose lands we are on.

2. INTRODUCTIONS AND ICEBREAKERS

2.1 Icebreaker Question

Committee members and staff responded in turn to the icebreaker question, "What brought you to this committee"?

2.2 Legislative Services Committee Orientation

Katie Stobbart, Committee Clerk, provided a presentation entitled "Committee Orientation."

a. Oaths of Office

New members recited their Oaths of Office.

b. Election of Alternate Chair

MOVED and SECONDED

THAT Danison Buan be elected as the Alternate Chair for the 2022 term of the Environment and Climate Advisory Committee.

Carried.

All members present voted in favour of the motion.

3. CHANGES TO THE AGENDA

MOVED and SECONDED

THAT the Environment and Climate Advisory Committee add the following as New Business to the agenda:

- Q to Q Ferry
- Spot Emissions Testing
- Electricity Tax

Carried.

All members present voted in favour of the motion.

4. ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

4.1 Adoption of the Minutes of January 19, 2022

MOVED and SECONDED

THAT the minutes of the Environment and Climate Advisory Committee meeting held on January 19, 2022 be adopted.

Carried.

All members present voted in favour of the motion.

5. REPORTS AND PRESENTATIONS

5.1 Environment and Climate Policy Introduction

Lynn Roxburgh, Acting Supervisor, Land Use Planning and Climate Action, provided a presentation entitled “Environment and Climate Policy Introduction: 2022 Orientation.”

There were no questions or comments from the Committee.

6. UNFINISHED BUSINESS FROM PREVIOUS MEETINGS

There were no items.

7. NEW BUSINESS

7.1 Committee Member Topics for 2022

Karen Crosby, Community Member, raised the matter of what topics Committee members would like to discuss in 2022, and encouraged fellow members of the Committee to bring topics forward.

In response to a question from the Committee, Councillor Nakagawa advised:

- Topics from members may be anything that fits within the mandate of the committee;
- New budget items would likely be directed to the next budget year; and

- If an item is not within municipal jurisdiction, staff may be able to find out what we can do as a municipality, or advocate to senior levels of government.

The Committee identified that the tension between building climate-appropriate buildings and bird strikes is an item they would like on a future agenda.

7.2 New Homes and Renewable Energy

Karen Crosby, Community Member, raised the topic of discussing speeding up the requirement for new homes and buildings to only use renewable energy, rather than natural gas hookups.

MOVED and SECONDED

THAT ENCAC encourages New Westminster City Council to adopt a CEEP which includes a plan to create regulations by 2023 in New Westminster for new construction of single family dwellings that require builders to achieve level 5 of the STEP code, the highest standard for building energy efficiency, or if the builder uses a low-carbon (usually electric) system for heat and hot water, the STEP code is relaxed to level 3.

Procedural note: This motion did not go to a vote as the Committee wished for more information on Step Code before continuing the discussion.

The Committee had the following comments arising from discussion:

- Appreciate the intent of the motion, but it may not capture all considerations. Rather than just avoiding natural gas, would like to encourage a holistic approach which encourages builders to consider the building envelope and total efficiency of the system; and
- We need to also work to reduce consumption, and replacing everything with electricity may not be the answer. May want to amend the wording of the motion.

MOVED and SECONDED

THAT the Environment and Climate Advisory Committee postpone New Homes and Renewable Energy to the next meeting so that staff may provide more information to the Committee about STEP code.

Carried.

All members present voted in favour of the motion.

7.3 Q to Q Ferry

Teresa Morton, Representative, Local Environment Organization, asked whether the City of New Westminster plans to cancel the Q to Q Ferry, which runs on diesel, produces high emissions, and is heavily subsidized.

In response, Councillor Nakagawa advised that there are no plans to cancel the ferry.

7.4 Spot Emissions Testing

Teresa Morton, Representative, Local Environment Organization, asked for an update on the status of spot emissions testing in the City of New Westminster at high truck and train emission locations.

In response, staff indicated that they would look into this following a letter that was sent to Metro Vancouver on the topic, and report back at a later meeting.

7.5 Electricity Tax

Teresa Morton, Representative, Local Environment Organization, asked whether the City of New Westminster plans to cancel the extra 3.5% tax on electricity to encourage residents to switch to more electric heating, hot water, and EV usage.

In response, staff advised that the City's focus has been more on ensuring the programs that support reducing emissions balance out the cost of the increased taxation.

8. STANDING REPORTS AND UPDATES

8.1 Urban Reforestation & Biodiversity Enhancement Initiative Update

Lynn Roxburgh, Acting Supervisor, Land Use Planning and Climate Action, provided an update on behalf of Mathew Pilfold, which was sent to members in the agenda package.

In response to questions from the Committee, Ms. Roxburgh advised that the 27% target is primarily focused on trees, but there is consideration of other foliage needs integrated into the Biodiversity Strategy and Urban Forest Management Plan. Ms. Roxburgh will report back to the Committee on the survival rate of seedlings and whether the City is making progress on urban tree coverage overall.

9. END OF MEETING

On MOTION, the meeting ended at 6:31 p.m.

10. UPCOMING MEETINGS

The remaining scheduled meetings for 2022, which take place at 5:00 p.m. unless otherwise noted:

- May 18
- July 20
- November 16

Certified Correct,

Councillor Nadine Nakagawa	Katie Stobbart
Chair	Committee Clerk

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Corporation of the City of
NEW WESTMINSTER

ENVIRONMENT AND CLIMATE ADVISORY COMMITTEE

MINUTES

Wednesday, May 18, 2022
Electronic and in Meeting Room G
Lower Level, City Hall

PRESENT	
Councillor Nadine Nakagawa*	Chair
Nazli Azimikor	Community Member
Ryan Bardini	Community Member
Danison Buan*	Representative, Local Business Association
Karen Crosby*	Community Member
Colleen Gillespie*	Representative, Professional in Environment or Climate Field, Business, Government, or Non-Profit
Elsie Krebs	Representative, Professional in Environment or Climate Field, Business, Government, or Non-Profit
Alvin Kube*	Representative, Indigenous Community
John Lekakis*	Representative, Local Institution
Teresa Morton*	Representative, Local Environment Organization
REGRETS	
Farbod Behshad	Community Member
STAFF PRESENT	
Renee Chadwick	Manager, Special Projects and Community Partnerships
Nayel Halim	Community Energy and Emissions Specialist
Matthew Pilfold	Arborist Technician
Lynn Roxburgh	Acting Supervisor, Land Use Planning and Climate Action
Meredith Seeton	Policy Planner
Serena Trachta	Manager, Inspections
Katie Stobbart	Committee Clerk

*Denotes electronic attendance

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1. CALL TO ORDER AND LAND ACKNOWLEDGEMENT

Councillor Nakagawa opened the meeting at 5:02 p.m. and recognized with respect that New Westminster is on the unceded and unsurrendered land of the Halkomelem speaking peoples. She acknowledged that colonialism has made invisible their histories and connections to the land. She recognized that, as a City, we are learning and building relationships with the people whose lands we are on.

2. INTRODUCTIONS AND ICEBREAKERS

Committee members and staff responded in turn to the icebreaker question, "What is your favourite holiday?"

3. CHANGES TO THE AGENDA

There were no changes to the agenda.

4. ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

4.1 Minutes of March 16, 2022

Due to a clerical error, the adoption of the minutes was postponed to the next meeting of the Committee.

5. REPORTS AND PRESENTATIONS

5.1 EnCAC Representative on the Community Livability and Social Equity Grants Committee

Renee Chadwick, Manager, Special Projects and Community Partnerships, provided an overview of the Community Livability and Social Equity Grants portfolio and the grants program, including the time commitment.

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MOVED and SECONDED

THAT Nazli Azimikor be appointed as the Environment and Climate Advisory Committee representative on the Community Livability and Social Equity Grants Committee for the 2022-23 term.

Carried.

All members present voted in favour of the motion.

5.2 eMobility Strategy

Meredith Seeton provided a presentation entitled, “eMobility Strategy Update” which noted some of the key changes and updates that have been made to the eMobility Strategy and community feedback on the draft. Ms. Seeton noted that following addressing any comments from this committee, the strategy will be brought before Council.

In response to questions from the committee, Ms. Seeton advised:

- The section of the strategy that addresses charging at home focuses on the challenge of retrofitting parkades in multi-unit residential buildings, but it can be made clearer what the implications are for people who do not live in multi-unit buildings;
- One revision that may be made involves addressing embodied carbon, and being conscious of the life cycle emissions associated with vehicles even if they are electric;
- Shared vehicle services are addressed in the section that discusses rolling out public charging stations and collaborating on infrastructure with taxis and other shared vehicle services; and
- One action area is to monitor eScooter pilot programs and develop an e-micromobility lens for planning and bylaws.

The Committee had the following comments arising from discussion:

- Electrifying transit will make a big difference for New Westminster’s emissions profile, and this should be included in the strategy document;
- Other cities have initiated eMobility strategies and using those examples may help with buy-in;

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- Would like to emphasize how important the regionally consistent framework will be before people will have the confidence to try these modes, and to allow people who are not motorized to have the confidence to share space with micro eMobility vehicles; and
- Recommend enhancing the language around the regionally consistent framework.

MOVED and SECONDED

THAT the Environment and Climate Advisory Committee supports the eMobility Strategy being brought to Council for consideration.

Carried.

All members present voted in favour of the motion.

5.3 Urban Forest Update - Reforestation and Planting Projects

Matthew Pilford provided a presentation entitled “City of New Westminster’s Urban Forest: URBEI & Tree Canada National Greening Program.”

In response to questions from the committee, Mr. Pilford advised:

- Two of the requirements from the funding body are to have a registered professional forester sign off on the planting plans, and to have us perform an audit of plant survival at the five year mark, with a 50% survivorship at year five;
- The Parks department has taken on a new watering truck, so the City now has two, and a watering program will be undertaken that will include the tree planting in Queen’s Park;
- The urban environment is hotter and dryer than the temperate rainforest in which we technically reside, but we have selected conifers we think will do well here and tolerate the drought-like conditions we have been getting in the summer over the past decade;
- The bulk of our tree canopy cover loss has been loss from private rather than public land. The tree protection bylaw is the mechanism we have to retain some of our existing trees on private property as well as account for the loss that is occurring mostly due to change of land use, and continue to plant trees on private property for the future;

- We do not know what our current canopy coverage is as we need to run a survey again. Would suggest that when talking about trees and benefit, we must play the long game: everything we are planting today, we will see the benefit decades from now;
- The Urban Forest Management Strategy does not include language about the benefits of other plants. However it is important to note that trees do not grow in isolation, and we do not ignore the role of other plants in the creation and maintenance of ecosystems in the community;
- We do not work with other municipalities on joint projects specific to urban forests; informally there is knowledge sharing among various communities in Metro Vancouver; and
- The biodiversity strategy was recently adopted by Mayor and Council, which has a lot of focus on creating natural hubs and corridors throughout the City.

The Committee noted that recent research shows that conifers are much better than broadleaf trees at keeping temperatures cool beneath their canopy.

Procedural Note: Colleen Gillespie left the meeting at 6:15 p.m.

6. UNFINISHED BUSINESS FROM PREVIOUS MEETINGS

6.1 New Homes and Renewable Energy

With discussion of Energy Step Code - Nayel Halim

Karen Crosby, Community Member, prefaced the conversation by highlighting the slide: The Case for Electrifying from the Energy Step Code presentation that was sent ahead to the committee. She noted the following:

- Electric heating without gas is much better than any step code level at reducing greenhouse gas emissions;
- There are tradeoffs in any policy decision, and some level of energy efficiency will be lost with this proposal, but emissions would be lower overall, which must be our focus if we are to effectively solve the climate crisis;
- The energy step code seems to be designed to reduce energy demand in buildings, not necessarily change from fossil fuels to

renewable energy, but the climate crisis demands that we make that change;

- If we continue to build with gas infrastructure, we will lock ourselves into another 20 to 100 years of burning gas in these buildings depending on how long the buildings last and how much (expensive) retrofitting happens; and
- To solve the climate crisis we need to realize there are large forces at play, and we need to be the strongest, most collective voice we can be to change the status quo away from burning gas as quickly as possible.

The Committee noted that one of the big challenges with electric heating is proper insulation, as older home technology is outdated; there are many homes in which it is very expensive to run electric heating.

Nayel Halim, Community Energy and Emissions Specialist, and Lynn Roxburgh, Acting Supervisor, Land Use Planning and Climate Action, provided a presentation entitled "Energy Step Code: An Overview" which included a summary of the committee's discussion from March 16, and a brief summary of the Climate Action Work Plan and next steps that would be taken following the potential approval of this motion, as well as a high-level overview of Step Code.

In response to questions from the Committee, Mr. Halim and Ms. Roxburgh noted:

- Net Zero Energy Ready is defined in the Step Code, just categorized as "future-proofed" to be able to transition to net zero. It does not explicitly state that Step Code would achieve net zero; and

- Currently where the industry is at, steps four and five feels out of reach to the industry, and our our current requirement is step three, which is the right step to offer for the incentive to be meaningful.The Committee noted that one concern with mandating this is affordability, particularly for single-family homes. Serena Trachta, Manager, Inspections, advised that there is no good done by building a building that is not energy efficient.

Procedural Note: Teresa Morton left the meeting at 6:50 p.m.

MOVED and SECONDED

THAT EnCAC encourage New Westminster City Council to adopt a CEEP which includes a plan to create regulations by 2023 in New Westminster

for new construction of single family dwellings that require builders to achieve level 5 of the Step code, the highest standard for building energy efficiency, or if the builder uses a low-carbon (usually electric) system for heat and hot water, the Step Code is relaxed to level 3.

Carried.

All members present voted in favour of the motion.

7. STANDING REPORTS AND UPDATES

7.1 General Updates

Lynn Roxburgh, Acting Supervisor, Land Use Planning and Climate Action, provided a general update, noting that the biodiversity strategy has now gone to Council and been adopted, which will guide the City's future work and give direction for updating design guidelines and how we work with applicants.

8. NEW BUSINESS

8.1 High-performance Buildings - Identifying Gaps

Nazli Azimikor introduced the item, noting the following:

- We need to think about the climate issue in a systemic way, and there are many forces at play which need to balance out; and
- Balancing our strategies and the things we mandate with tools and items to empower and enable the industry and the single-family home owner that is interested in doing this but doesn't have the information. Need to figure out how we might aggregate and centralize the information that is out there.

This item will be brought forward to the next meeting as unfinished business.

9. END OF MEETING

The meeting ended at 6:56 p.m.

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10. UPCOMING MEETINGS

Remaining scheduled meetings, which take place at 5:00 p.m. unless otherwise noted:

- July 20
- November 16

DRAFT

Metro Vancouver's *Clean Air Plan*

OVERVIEW, ACTIONS AND POTENTIAL IMPACTS

John Lindner

Air Quality Planner, Parks and Environment

New Westminster Environment and Climate Advisory Committee, July 20, 2022

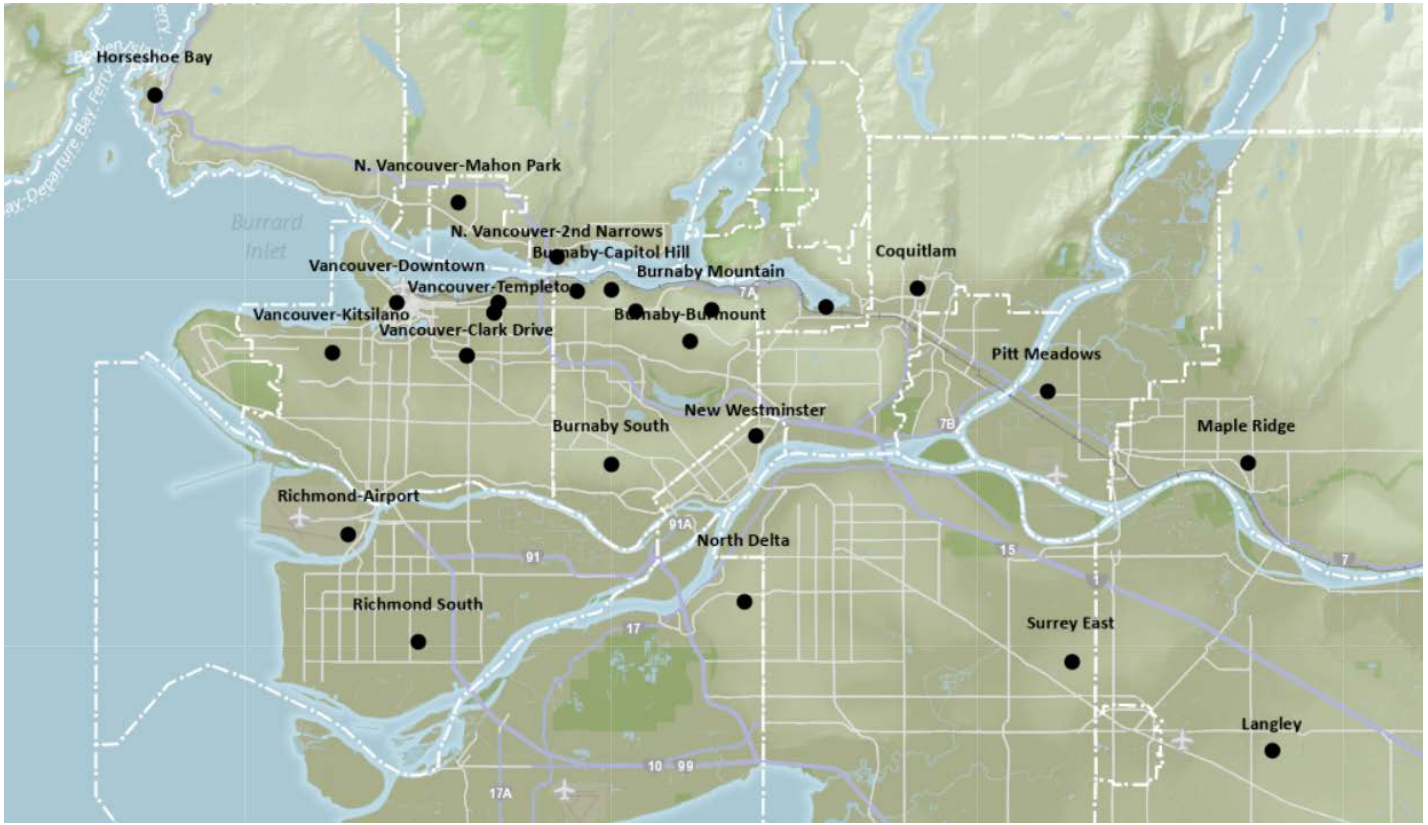
metrovancouver

AIR QUALITY AND GREENHOUSE GAS MANAGEMENT

Metro Vancouver

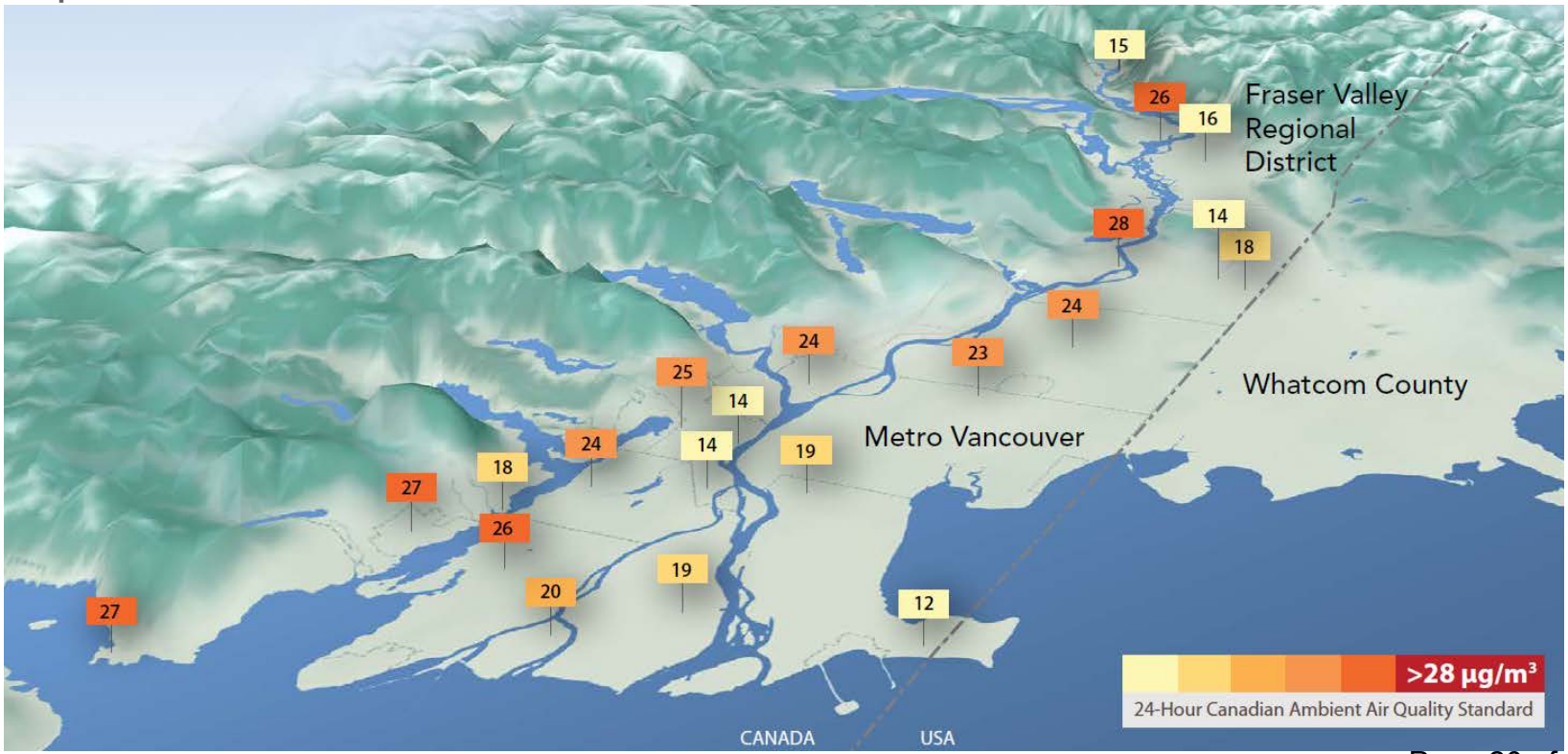
- Metro Vancouver has **delegated authority to control air pollution and manage air quality** in the region
- Convener on issues of regional significance
- Key elements of Metro Vancouver's management program:
    - Monitoring air quality and emissions
    - Issuing and promoting compliance with industrial permits
    - Developing plans, strategies and regulations
    - Delivering awareness and incentive programs

MEASURING AIR QUALITY



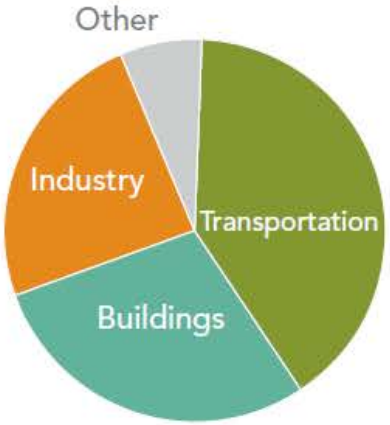
REGIONAL AIR QUALITY

Fine particulate matter in 2021

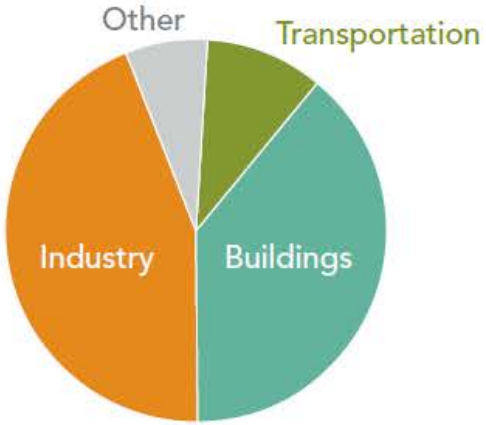


REGIONAL EMISSIONS BY SOURCE AND CONTAMINANT

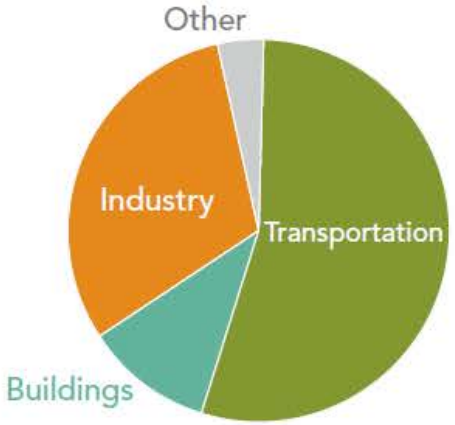
GREENHOUSE GASES



FINE PARTICULATE MATTER



NITROGEN OXIDES

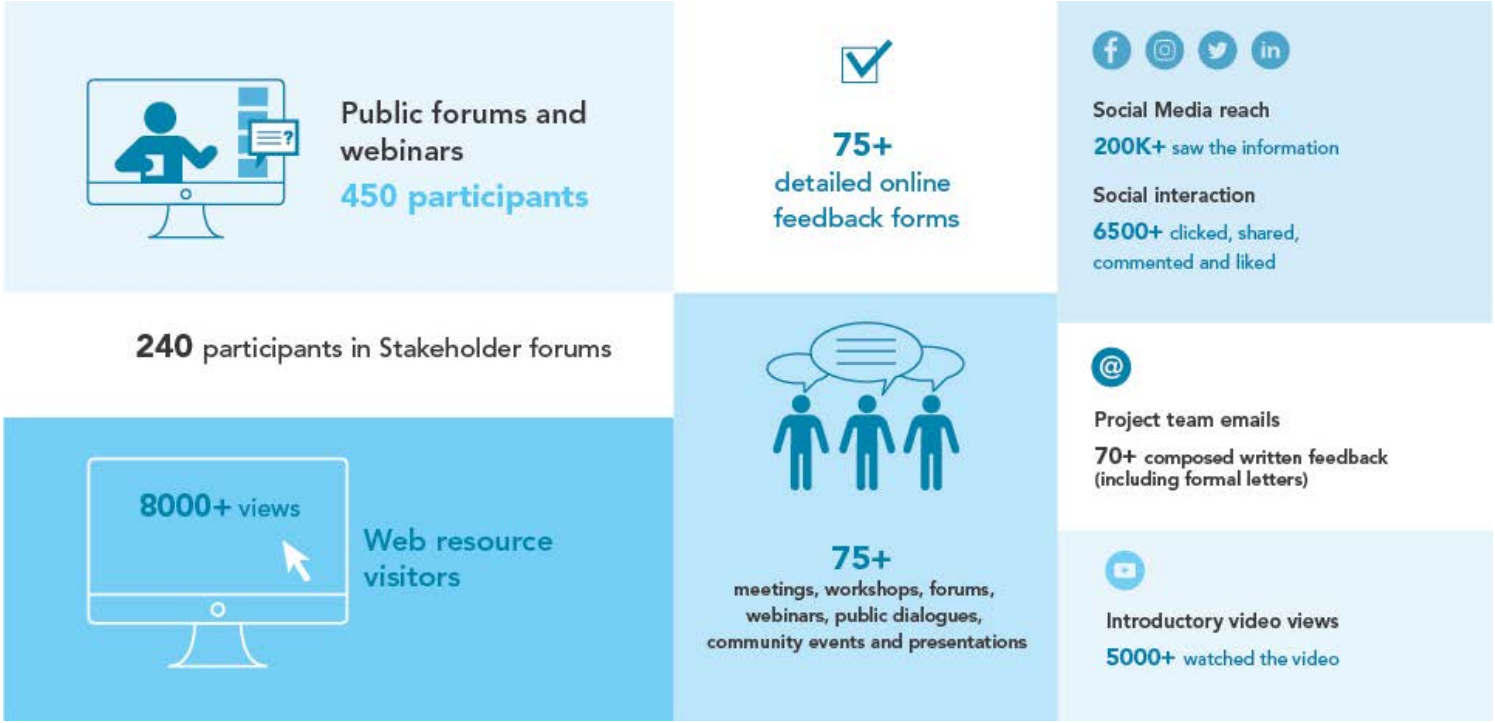


CLEAN AIR PLAN

- Metro Vancouver's fourth air quality and greenhouse gas management plan, through to 2030
- **Includes actions for Metro Vancouver and other governments**
  - 29 Big Moves
  - 98 supporting actions
  - 9 corporate actions

2019 TO 2021 ENGAGEMENT

Clean Air Plan



REGIONAL 2030 TARGETS

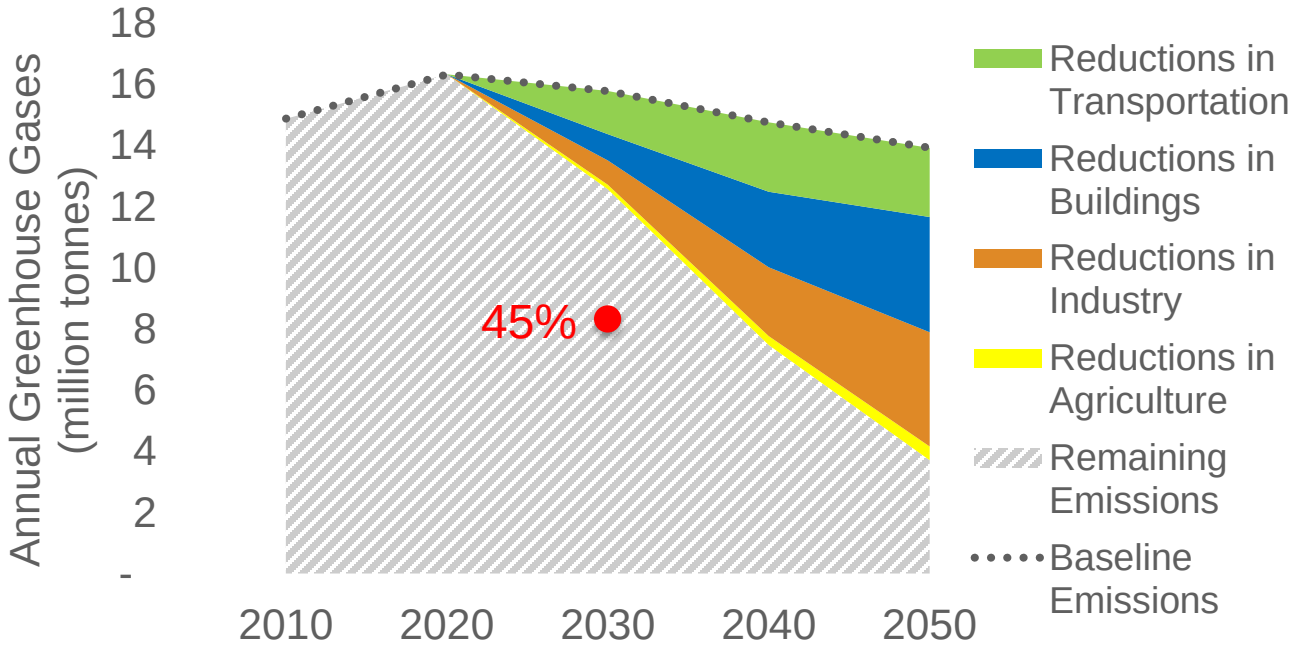
Clean Air Plan

1. **Reduce regional GHGs by 45% from 2010 levels**
2. **Air quality in the region is continually improving**, protecting human health and the environment, by ensuring that:
    a. Ambient air quality meets or is better than the ambient air quality objectives and standards that are regularly updated by Metro Vancouver, the BC Government and the Government of Canada; and
    b. The amount of time that visual air quality is classified as "excellent" is increasing.

POTENTIAL IMPACTS ON GREENHOUSE GASES

Clean Air Plan

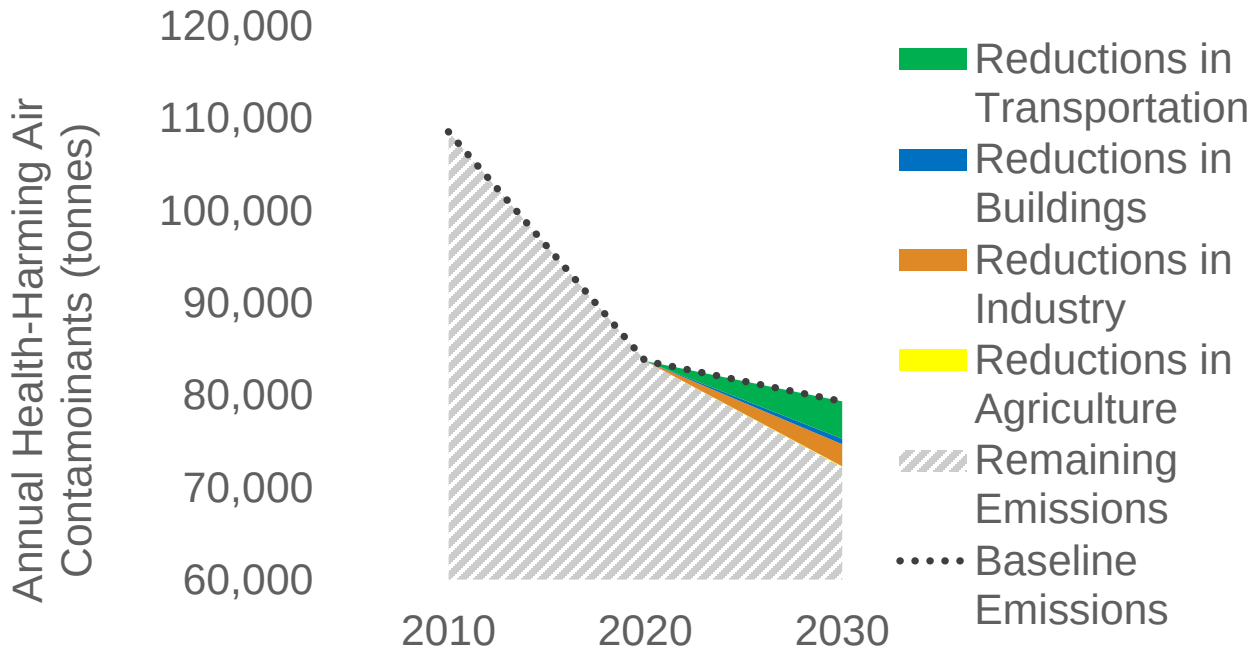
- Could reduce regional greenhouse gases by 15%, from 2010 levels



POTENTIAL IMPACT ON AIR QUALITY

Clean Air Plan

- Plan could create **health benefits of up to $1.6 billion**



INTEGRATING EQUITY

Clean Air Plan

- Long-term approach
- Community input process
- Air quality equity tool
- Metrics and targets

ISSUE AREAS

Clean Air Plan

1. Transportation
2. Buildings
3. Industry
4. Agriculture
5. Health
6. Measure, Monitor and Regulate

ISSUE AREAS

Clean Air Plan

1. Transportation
2. Buildings
3. Industry

Generates more than 90% of regional emissions

4. Agriculture
5. Health
6. Measure, Monitor and Regulate

PERSONAL TRANSPORTATION ACTIONS (1)

Clean Air Plan

1.1.3 Expand Active Transportation Networks. Advocate to member jurisdictions to expand regional and local active transportation networks so it's the most convenient choice for most shorter trips.

- Network expansion should prioritize under-served areas to ensure all residents have access to active transportation options in a connected region.
- The networks should be well-connected, comfortable for most, and integrated with public transit.
- Network elements should include walking and cycling paths, regional greenways, separated bike lanes, and end-of-trip facilities.

PERSONAL TRANSPORTATION ACTIONS (2)

Clean Air Plan

1.1.6 Regional Parking Strategy to Reduce Driving. Develop a Regional Parking Strategy to prioritize active transportation and other low emission transportation options, coordinating with member jurisdictions and TransLink.

- The strategy could include replacing building parking minimums with maximums, establishing parking minimums for bicycles, implementing dynamic parking pricing and reducing free parking spaces.
- The strategy could also support uptake of electric and car-share vehicles by establishing EV charging requirements for parkades, and enhancing preferential parking rates and spaces for electric and car-share vehicles.

PERSONAL TRANSPORTATION ACTIONS (3)

Clean Air Plan

1.2.2 Develop Regional Emission Requirements for Passenger Vehicles. Develop regulatory emission requirements for existing passenger vehicles, to be implemented by the BC Government or Metro Vancouver.

- Any regulatory program must consider equity and be coordinated with member jurisdictions.
- Requirements could include low or zero emission zones, or a vehicle emissions levy with rebates for replacing older vehicles, targeting both health-harming air contaminants and greenhouse gases.
- Any program could also support actions focused on reducing total driving distances, including Action 1.1.2 on pricing driving.

PERSONAL TRANSPORTATION ACTIONS (4)

Clean Air Plan

1.2.4 Regional EV Charging Strategy. Develop a long-term regional strategy for EV charging infrastructure, coordinating with member jurisdictions, energy utilities, TransLink, industry, and other regional partners.

- A strategy would identify where additional publicly accessible EV chargers are needed to ensure equitable access.

1.2.6 Expand EV Charging in Buildings. Work with member jurisdictions, the BC Government, BC Hydro and the Government of Canada to expand access to EV charging in buildings.

- This should also include increased funding for EV charging in existing buildings.
- Funding should prioritize groups who generally would not have access to chargers, such as residents living in rental buildings, strata buildings, non-market housing or secondary suites.

COMMERCIAL TRANSPORTATION ACTIONS (1)

Clean Air Plan

1.3.1 Regulate Existing Medium and Heavy Trucks. Develop regulatory requirements to reduce emissions for existing medium and heavy duty vehicles, to be implemented by the BC Government or Metro Vancouver.

- Approaches could include an inspection and maintenance program that requires repairs on higher emitting trucks, registration requirements targeting older trucks, a regional smoking vehicle hotline, and low or zero emission zones
- Requirements should be developed in coordination with local governments, the Port of Vancouver and other regional partners
- Requirements would initially target health-harming air contaminants but should eventually include greenhouse gas emissions.

COMMERCIAL TRANSPORTATION ACTIONS (2)

Clean Air Plan

1.3.9 Large Fleets to Adopt "ZEV-First" Procurement. Develop and support implementation of "ZEV-first" fleet procurement policies to transition large fleets to zero emission vehicles by the late 2040s, coordinating with local governments and large fleet operators in the region.

- Policies would be supported by regularly updated information on the availability of zero emission medium and heavy duty vehicles
- Policies could also include guidance on right-sizing fleets, and calculating total lifetime costs of zero emission vehicles
- Policies could support regional coordination of purchases (i.e., bulk buy) of zero emission vehicles for fleets to help reduce costs

BUILDINGS ACTIONS (1)

Clean Air Plan

2.1.1 Greenhouse Gas Performance Requirements for Existing Large Buildings. Develop regulatory requirements for existing large buildings to meet greenhouse gas emission performance targets, which would reach zero carbon emissions before 2050.

- Requirements would apply to all existing commercial and large residential buildings, and would include energy consumption benchmarking, reporting and performance requirements.
- The requirements could be developed with member jurisdictions.
- Public sector organizations could play a leadership role by establishing zero emission targets for their own existing buildings earlier.

BUILDINGS ACTIONS (2)

Clean Air Plan

2.2.2 Online Decision Support Tools for Low Carbon Upgrades in Buildings. Work with the BC Government, the Government of Canada and member jurisdictions to develop innovative online decision support tools to help significantly increase public awareness of low carbon solutions.

- These tools would help home and building owners choose these solutions by simplifying the planning, financing and execution of low carbon upgrades in buildings.

2.2.3 New Financing Tools for Low Carbon Upgrades. Work with the BC Government, the Government of Canada, member jurisdictions, energy utilities and other partners to develop strategic financing tools for home and building owners to accelerate low carbon upgrades in buildings.

- These tools (e.g., PACE and on-bill financing) allow owners to spread the cost of upgrades over a longer period, making them more affordable.

BUILDINGS ACTIONS (3)

Clean Air Plan

2.5.2 Use Building Materials with Low Embodied Emissions. Work with the BC Government and member jurisdictions to update or create policies (e.g., procurement, design guidelines, zoning) to prioritize the use of building materials with low embodied emissions, including BC forest products.

- This should include development and maintenance of widely-supported standard calculations for the life cycle emissions of common building products.

NON-ROAD EQUIPMENT ACTIONS (1)

Clean Air Plan

3.2.4 Identify Infrastructure Needs for Zero Emission Non-Road Equipment. Work with energy utilities, local governments, Port of Vancouver, industry and other regional partners to identify the regional infrastructure needs to support a long-term transition to zero emission non-road equipment

- This would consider the refueling and charging needs for different types of non-road equipment, funding requirements, potential pilot projects
- Should align with similar actions for passenger vehicles and medium and heavy duty vehicles

NON-ROAD EQUIPMENT ACTIONS (2)

Clean Air Plan

3.2.6 Awareness Program on Zero Emission Non-Road Equipment. Develop and implement an awareness and outreach program for residents and businesses about the benefits of zero emission non-road equipment, working with local governments and other regional partners.

- Program would include regularly updated information on the availability of zero emission equipment and guidance on right-sizing non-road fleets, as well as supporting regional coordination of purchases (i.e., bulk buy) to help reduce costs

ONGOING REGIONAL ACTIONS

Metro Vancouver

- Explore regulatory policies for existing passenger and commercial vehicles
- Collaborate with BC Government on Clean Transportation Action Plan
- Outreach on requirements for residential wood burning appliances
- Conduct engagement on GHG standards for existing large buildings
- Continue engagement on regulations for open-air burning, odour, and cannabis industry

FINAL CONSIDERATIONS

Clean Air Plan and Metro Vancouver management program

- Regional authority supports local and targeted responses
    - Can be more nimble than senior governments
- **Ongoing collaboration and engagement is critical**
- Key challenges:
    - Costs to residents and businesses
    - Technology availability
    - Equity of actions
    - Balancing air quality and greenhouse gas reductions

New Brighton Park

Questions?

metrovancouver
Together we make our region strong

Corporation of the City of
NEW WESTMINSTER

REPORT

To: Environment and Climate Advisory Committee

Date: July 20, 2022

From: Climate Action Division

Subject: **Draft Community Energy and Emissions Plan**

PURPOSE

To seek feedback on the draft Community Energy and Emissions Plan.

SUMMARY

This report presents the draft Community Energy and Emissions Plan (CEEP) update, and seeks Environment and Climate Advisory Committee feedback on the draft. The CEEP guides the City towards achieving its ambitious climate emergency greenhouse gas (GHG) emissions reduction targets (45% reduction by 2030, 65% by 2040, and net zero by 2050).

The draft CEEP is based on community and industry engagement, industry best practices, the latest climate research, and emissions modelling. The CEEP includes five key action areas and 55 actions to help reduce community-wide emissions and build a more climate-resilient, energy-conscious, and low carbon community.

Staff brought the draft CEEP to Council on July 11th, 2022 and received approval to undertake a final round of consultation through the summer. Final revisions will be made to the document based on staff, community, industry, and Advisory Committee feedback. It is anticipated that the final document will be presented to Council for endorsement in fall 2022.

BACKGROUND

To continue to support the objectives established by Council's 2019 Climate Emergency Declaration and the Seven Bold Steps for Climate Action, the City worked with a consultant, Sustainably Solutions Group (SSG), to develop the draft Community Energy and Emissions Plan (CEEP) update.

The draft CEEP update builds on the City's achievement of actions in the 2011 CEEP. Since 2011, the climate crisis has grown more urgent and there has also been a rapid evolution of low carbon technologies and climate policy options. The draft CEEP update considers this changed context in charting the path to more ambitious emissions reduction targets. It also builds on climate actions already taken by the City, and directions established in the City's Master Transportation Plan and Official Community Plan, as well as other City plans.

PLAN PROCESS & ENGAGEMENT

The draft CEEP was developed through three phases:

- Phase 1: Data Collection and Emissions Modelling
- Phase 2: Developing Low Carbon Scenario and Initial Engagement
- Phase 3: Drafting the Plan

Phase 1: Data Collection and Emissions Modelling

This phase was conducted over the summer of 2021. Emissions-related data was collected to help establish the City's current energy and emissions profile. This profile was used to forecast future emissions trends by source, fuel type, and sector. The forecast considers projected population and employment growth, land use patterns, anticipated climate trends, and other relevant parameters over the next 30 years.

Phase 2: Developing Low Carbon Scenario and Initial Engagement

The next phase involved developing the City's Low Carbon Scenario, which is the pathway of low carbon actions that the City would implement in order to achieve its ambitious emissions reduction targets. This phase also involved gathering input from community and industry representatives on specific actions and opportunities that could help reduce greenhouse gas (GHG) emissions. Engagement activities included:

- online workshops with community members, industry representatives, and equity-denied community members[1] to gather input on CEEP actions and priority areas; and
- an online community survey to gather feedback on low carbon actions.

Attachment 1 provides a summary of engagement findings.

Phase 3: Drafting the Plan

In March of 2021, an initial draft CEEP update was received from the consultant. Internal review led to revisions to better convey the call to action for the community,

[1] A group of people who, because of systemic discrimination, face barriers that prevent them from having the same access to all aspects of society such as employment, education, institutions and health services.

private sector and other actors, to collaborate on climate action and help achieve the City's emissions reduction targets. Revisions also focused on more clearly identifying key action areas and opportunities that yield the greatest GHG emissions reduction impacts, and ensuring that the actions are achievable within the City's jurisdiction (leveraging partnerships and advocating to senior government where necessary) and are New Westminster specific.

As the plan was being drafted, staff updated the Environment and Climate Task Force, and the New Westminster Utility Commission.

Staff brought the completed draft to Council on July 11th, 2022 and received approval to undertake a final round of consultation through the summer.

DRAFT CEEP SUMMARY

The draft CEEP, provided as Attachment 2, conveys the urgency of taking bold climate action steps, and charts a pathway for the City, in partnership with other levels of government, the community and the private sector, to approach net zero emissions by 2050. It includes five key action areas, targets for each area, and 55 specific implementation actions. These are categorized and summarized as follows:

- Transportation – low carbon mobility and supporting active transportation;
- Buildings – retrofitting existing buildings and requiring new buildings to be built to high performance standards;
- Energy – supporting energy conservation, district energy, and renewable energy;
- Waste – reducing waste and embracing circular economy[2] principles; and
- Natural areas and green infrastructure – preserving and enhancing natural areas and the urban tree canopy, and increasing the use of green infrastructure.

The draft CEEP makes it clear that the most significant potential gains are in transportation – both through a mode shift and electrification – as well as building efficiency improvements and electrification. Achieving the ambitious targets in these two sectors would require particular focus and continued nimbleness as new legislative tools and technologies come online.

The CEEP is intended to be a living document that will need to be updated regularly through evaluation and monitoring. It will also need to be flexible to take advantage of emerging opportunities, technological advancements and innovation in order to ensure that the CEEP is future-proof and stands the test of time.

[2] A circular economy is a model of production and consumption, which involves reusing, sharing, repairing, refurbishing and recycling existing materials and products as long as possible.

REVIEW OF THE DRAFT

To finalize the draft CEEP, staff is consulting with community and industry representatives through the summer to gather input. The following consultation activities are underway:

- the draft is posted on the Be Heard New West page, and feedback is being solicited through a forum discussion and ideas board;
- the opportunity to provide feedback is being advertised through social media and CityPage;
- staff is reaching out to community and industry representatives who participated in earlier consultation activities for their feedback; and
- staff is promoting the input opportunity at pop-up engagement events through the summer.

Staff is seeking the Advisory Committee's feedback on the draft. The Committee's comments will be considered together with community feedback and interdepartmental review.

Staff anticipate bringing forward a finalized Plan for Council consideration in fall of 2022.

ATTACHMENTS

Attachment 1 – CEEP Engagement Summary
Attachment 2 – Draft Community Energy and Emissions Plan

APPROVALS

This report was prepared by:
Nayel Halim, Community Energy and Emissions Specialist

This report was reviewed by:
Meredith Seeton, Policy Planner
Lynn Roxburgh, Supervisor of Land Use Planning and Climate Action
Jackie Teed, Senior Manager of Climate Action, Planning and Development

New Westminster
Community Energy and Emissions Plan

Engagement Summary

May 2022

SSG SUSTAINABILITY SOLUTIONSGROUP

NEW WESTMINSTER

Engagement Objectives

As part of the Community Energy and Emissions Plan (CEEP) development process, New Westminster community members and industry representatives were engaged to gather input on climate action initiatives that would support the City's climate emergency targets.

Pivotal to the success of the CEEP and future sustainability of the city is a recognition of our community's interests and perspectives regarding this important initiative. The City and Sustainability Solutions Group (SSG) conducted a variety of engagement activities to gather feedback, which will help the project team identify specific projects, actions, and strategic initiatives that the City can take to achieve its emission reduction targets.

What Was the Process?

The process of developing the City's low-carbon targets and actions required three critical steps:

1. A technical analysis by SSG and the City to update New Westminster's greenhouse gas (GHG) inventory and plot a business-as-planned scenario;
2. Focus group and industry engagement to refine climate targets; and
3. Engagement with the community.

Industry and community engagement was conducted through various engagement activities (see Figure 1), where participants outlined their priorities for climate action and identified specific initiatives the community can take to address the climate emergency.

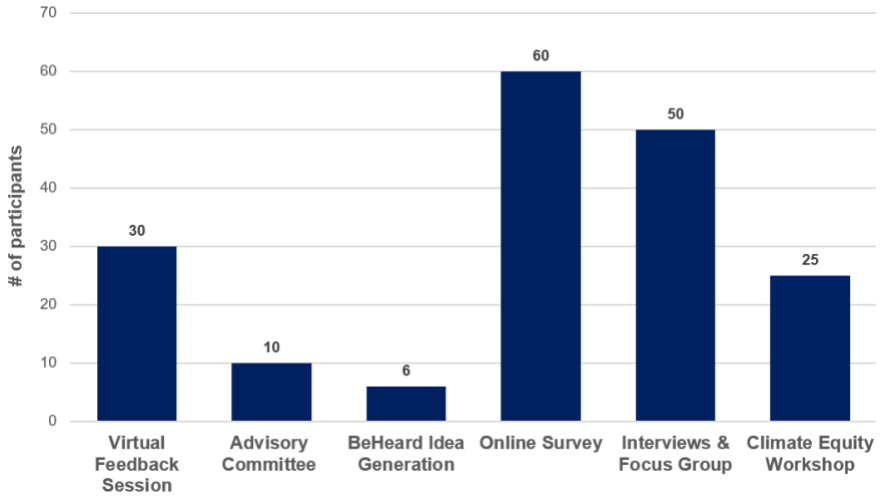


Figure 1. Participation in CEEP-related engagements.

As SSG and the City began developing the CEEP in the fall of 2021. A community survey was launched asking for input on tactics for implementing the Plan. A virtual community workshop in October 2021 focused on the same topic.

A workshop with industry professionals and organizations from the housing and development sectors focused on buildings and the built environment. Attendees included:

- Greater Vancouver Homebuilders Association,
- Urban Development Institute,
- University of British Columbia,
- Mantle Developments,
- Metro Vancouver.
- BC Non-Profit Housing Association,
- FRESCO Energy Efficiency,
- Energy Save New West,
- Local housing developers,
- Local contractors/builders, and
- Local heating, ventilation, and air conditioning (HVAC) tradespeople.

Select interviews occurred separately with city departments, Energy Save New Westminster, and Kruger Paper. These interviews followed the themes and questions of the focus groups but more specific to their work in building renovations and industrial processes.

Addressing the needs and priorities of vulnerable and at-risk community members is an emerging priority. In early 2022, members of the Community Action Network (CAN) participated in a workshop focused on addressing equity in climate action. CAN is a partnership with the BC Poverty Reduction Coalition to ensure that people with lived and living experience in poverty and homelessness are valued, respected, and supported in the engagement process and that their contributions are reflected in decision making and initiative development.

Figure 2 provides an overview of the timeline for the community engagement and shows participation in various CEEP related engagements.

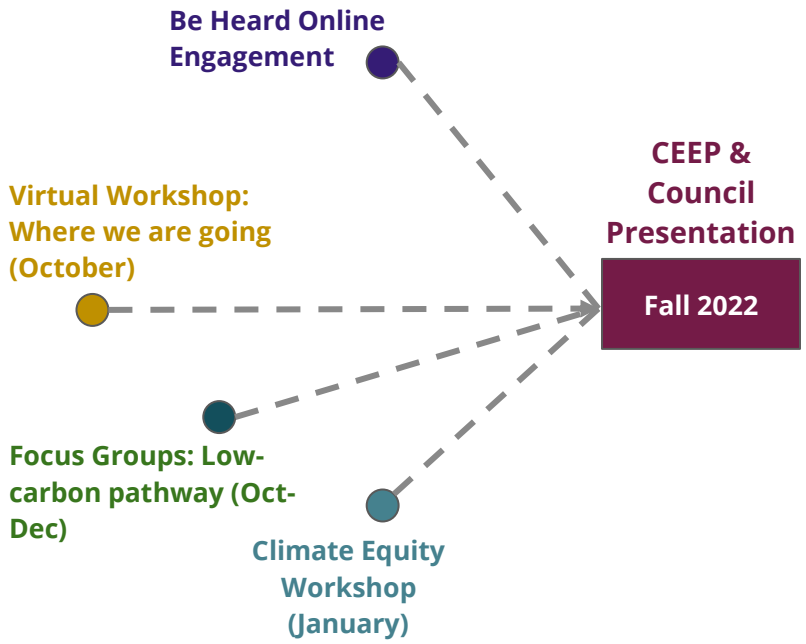


Figure 2. Engagement process.

What we Heard

Virtual Community Workshop

On October 6th, 2021, the City hosted a virtual community workshop on the Community Energy and Emissions Plan (CEEP). The purpose of the workshop was to introduce the CEEP project, provide a summary of the City's current energy and emissions profile, and gather input on potential actions the City can take to achieve the goals of the Seven Bold Steps.

Since the CEEP focuses on reducing community-wide emissions, the workshop focused on gathering participant input on possible actions to support Bold Step #2 – Car Light Community, Bold Step #3 – Carbon Free Homes and Buildings, and Bold Step #5 – Carbon Free Energy. Overall, there was support for many of the actions proposed. Feedback was also received on additional actions that could be considered.

The key themes that emerged where:

- Receiving approval from strata organizations is challenging and deters owners from making improvements.
- Incentives and rebates for energy retrofits can help reduce energy consumption and improve accessibility to affordable housing operators.
- Participants expressed interest in initiatives that support fuel-switching for both vehicles and space heating.
- Prioritize increasing active transportation to achieve GHG emissions rather than relying on uptake of electric vehicles

Interviews & Focus Group

Housing and development industry representatives, as well as and major industry, were engaged to ensure the pathway to net-zero GHG emissions was achievable in the New Westminster context. Feedback included:

1. **Building energy performance for new construction.** Builders felt that plans to rapidly advance step-code construction (proposed for 2025) are too sudden and net-zero construction still needs more practice before becoming widespread. They recommended delaying these targets towards 2030.
2. **Building retrofit timelines.** Many stakeholder members supported the aspirational targets for retrofitting buildings but noted supply chain and workforce capacity would prevent them from

meeting the targets without significant technological improvements and labour supply.

3. **Building retrofit outcomes.** Stakeholders noted that achieving a 50% reduction for heating demand in retrofitted buildings will be very difficult and costly especially for smaller/single detached buildings. They recommended adjusting the target to 20–30%, which is more in line with industry practice.
4. **Industry/hydrogen/electricity.** Heavy industry in New Westminster is currently dependent on natural gas. Some industrial processes that require less heat can be electrified, but hydrocarbon combustion is still critical. The recommendation is to use more hydrogen and renewable natural gas after 2040.
5. **Transportation.** Respondents felt that the City should focus its efforts on funding public and active transport instead of electric vehicles. Electric vehicles will not be accessible to low-income populations for many years, and more active transportation comes with more health and community co-benefits. Respondents also noted the COVID-19 pandemic has proven long commute distances are not always necessary. The recommendation was to make the modal split target more ambitious.

Climate Equity Workshop

The City held a workshop with representatives of equity-seeking groups on January 25th 2022 to better understand how equity can be incorporated into the CEEP.

Community members and organizations in affordable housing, mental health, seniors, and youth services workshopped climate targets and priority actions for including equity in the City's climate action plan.

The feedback is summarized below:

1. **City policies and incentives:** City policies often do not reach equity-denied groups because of financial barriers. Incentives for renewable energy/carbon free energy often only apply to homeowners and building owners. Respondents pointed out that low-income community members often do not have access to a credit card so they cannot participate in bike-share or car-share programs.
2. **Community scale interventions and infrastructure spending:** Funding for more bike lanes, better transit, discounted bikes or transit passes, or more public space would allow low-income residents to better participate in climate action. Equity-denied groups highlighted community

gardens with local fruit trees as particularly accessible.

3. **Building renovations:** Renters will not be able to retrofit their buildings or apartments and rely on decisions made by building owners. This means many low-income residents live in buildings with drafty windows, infestations, flooding, or poor insulation. For this reason, the City should incentivize building owners to retrofit, while maintaining affordability for tenants.
4. **Future extreme climate events:** Climate extremes (heat waves and cold waves) affect ageing populations and vulnerable people disproportionately. Many New Westminster residents live without air conditioning, and more emergency relief buildings are needed

Priority Actions for Equity-Seeking Groups

Equity-seeking groups identified the following priorities for the City's climate action plan:

- More emphasis on good state of repair for rental buildings;
- Availability of used bikes and reduced rate e-bikes for low-income populations;
- Free transit for high school/middle school students;
- Reduced energy/electricity rates for low income households;
- Partnerships to provide electric vehicles for community associations serving equity-denied populations; and
- More community gardens/fruit-bearing trees in the city.

CEEP Community Survey

Context

The CEEP Community Survey was open to the public using the Be Heard platform from January 10 to February 8, 2022.

The purpose of the survey was to gather feedback on low-carbon initiatives that will influence New Westminster's near-term climate actions and implementation of the Seven Bold Steps. Note that the survey did not cover all of the bold steps. Bold Steps 1 and 2, Carbon-Free Corporation and Pollution-free Vehicles, are covered under the Corporate Energy and Emissions Reduction Strategy (CEERS) and the draft eMobility Strategy.

The survey had 58 respondents, though not every respondent answered every question.

Questions - Buildings

Q1 Which of the following energy efficiency improvements are you interested in making to a New Westminster property?

When asked what types of energy improvements they would make, most respondents opted for installing solar panels. Of the 57 respondents, 38 chose solar panels. Heat pumps were the second most popular choice at 32 respondents.

About half of respondents also included improved home insulation, efficient doors and windows, and replacing older appliances with more efficient models.

Only 16 respondents opted for more efficient water faucets/toilets.

A breakdown of the responses follows:

- 27 for improving home insulation;
- 28 for installing more efficient doors and windows;
- 16 for installing low-flow showers, faucets, and toilets;
- 22 for replacing older appliances with more efficient options;
- 38 for installing solar panels on the roof, ground, or in a community setting;
- 32 for converting to an electric heat pump;
- 4 for none of the above.

The question invited respondents to add their own options. These included mini-split heat pumps in condos/apartments to replace baseboard heaters to improve quality of life and lower emissions; home composting and community gardens to mitigate waste emissions; air sealing; gas absorption heat pumps or hybrid systems as opposed to air-source; electric heat pump water heaters; and solar windows and shingles.

Q2 What supports would you need to make the changes you indicated in the previous question?

When asked what respondents would need to carry out their preferred home improvements, the most cited response was financial support (38 of 53 respondents). Of the 38 respondents who selected financial support, 20 of them either only selected financial support or selected it over education programs. Presumably the message here is that many respondents are aware of the available technology but lack the financial means to implement it.

The question invited respondents to include their own answers. Among the answers provided, five of them dealt with financial concerns. These included needing more

information on city and provincial rebates and more information on how savings from new technologies stack up against the initial investment cost of installing them and disposing of old infrastructure.

Of the respondents, 28 also selected education programs about home improvement technology, while 23 selected the agreement of a building owner or strata.

Respondents who provided their own answers also expressed concern about how landlords and strata councils can hamper home improvement efforts. These answers indicate there are people in New Westminster who would like to implement home improvement technologies but are being prevented from doing so by overarching bodies. Two respondents called for more pressure to be placed on landlords and more codes and regulations to facilitate these improvements.

Though only 10 respondents sought more information on how to implement new technologies themselves, one respondent asked for support accessing contractors who can competently advise on which technologies best suit particular homes and then install the technology at a reasonable cost.

Q3 Please rank the carbon-free buildings priorities you think the City should focus on in the next five years, with 1 being the top priority and 5 being the lowest priority.

This ranking question drew 56 respondents. Though the top ranked three options came in very close to one another, the highest ranked option at 2.25 was to create guidelines to encourage very low to zero-emission construction. Low-interest financing programs was the second ranked option at 2.4, and policy to support landlords to transition rental buildings to lower-emitting alternatives was ranked third at 2.87.

Programs to help builders choose low-emissions materials was ranked fourth at 3.11, and community rooftop and terrace gardens were ranked fifth at 4.0.

Q4 The City could facilitate training programs to ensure local builders and contractors have the skills to be part of the transition to a sustainable future. For example, reducing building emissions will require building energy auditors and carpenters who are familiar with energy-efficient building standards and equipment. Given Canada's commitment to reducing emissions, there is significant potential for job growth in industries such as these. Should the City support (fund, subsidize, and promote) programs that train people to have these and other skills that will be required to help New Westminster transition to a low-emissions future?

Of all respondents, 57 answered this question and the majority (32) said yes, the City should facilitate training programs and ensure local builders have the skills required to install and maintain new technologies, while 14 said no. It should be noted that about half of the 11 respondents who chose "other" wrote that the City may not be the best positioned body to facilitate such programs.

Q5 How supportive are you of increasing the supply of renewable energy in New Westminster by 2050 by installing solar panels on roofs, community solar gardens, etc.?

Of the 57 people who responded to this question, 37 stated they were fully in support of increasing renewable energy within the community. Only one expressed that they did not support this at all.

Of those who would support renewable energy expansion if they had more information, 7 expressed a need for more information about the technology, 8 wanted more information about the benefits to the community, and 15 wanted to know how renewable energy would affect their finances and household.

Those who wrote their own responses weren't necessarily opposed to renewable energy. Some had concerns about the viability of solar energy in New Westminster's cloudy climate, others about prioritizing renewable energy over reducing emissions from buildings, and others about whether the municipality is the best positioned to run a renewable energy utility.

Q6 Out of the 6 actions listed below, please choose up to 5 renewable energy priorities you think the City should focus on in the next five years, with 1 being your top priority and 5 being the lowest priority.

Out of the 6 possible options, 3 were ranked highest and very close together. Having developers install rooftop solar ranked highest at 2.47, offering rebates for solar panels ranked second at 2.74, and ensuring roofs are structurally sound enough for solar panels ranked third at 2.98.

Blending renewable natural gas into the energy supply ranked fourth at 3.28.

Offering community generated solar energy to low-income households at a reduced rate ranked fifth at 3.33.

Hydrogen fuel cells ranked sixth at 4.2.

Questions -Transportation

Q7 What is your main mode of transportation to get around New Westminster?

Of the 57 respondents who answered this question, half (28) own and use their own vehicle to get around the city.

The next largest proportion of respondents (18) are predominantly pedestrians.

The remaining respondents take public transit (4), ride their bikes (3), or use a combination of the above (4).

Q8 How often do you take public transportation?

Of the 57 respondents who answered this question, only 1 takes transit daily. On the other hand, only 4 respondents never take public transit.

When combined, 17 respondents take public transit a few times a week or weekly. Another 14 take public transit a few times a month, while 17 take it a few times a year.

Four respondents stated they used to take transit more often but reduced their trips because of the pandemic.

Q9 If you do not often take public transportation, what would encourage you to take it / take it more?

The pandemic influences people's decision making when it comes to taking transit more often. Of the 51 people who answered this question, 17 said they would take more trips if COVID-19 transmission rates were to come down.

However, 19 people said they would take more trips if buses ran more frequently.

Of the respondents, 10 said they would need stops closer to their home and destination, and 9 need lower cost. This question invited respondents to write in their own answers. This question drew the highest number of and most varied answers.

Fifteen respondents wrote in their own answers. Their answers included needs like increased ferry availability in Queensborough, reduced travel time to their destination and faster intercity/regional transit (perhaps an extension of the Skytrain), and better bus shelters that protect riders from the weather.

Others transport too many heavy items in life or work to make transit viable.

Others think their electric vehicles negate their transportation impacts and are therefore absolved of the need to integrate transit as a low-emission option.

Q10 How often do you ride a bike in New Westminster?

Of the 57 respondents who answered this question, only 3 bike daily. Another 19 never bike.

When combined, 8 respondents ride a few times a week or weekly, another 7 ride a few times a month, while 13 ride a few times a year.

Some respondents who wrote in their own answers cited a desire for an e-bike, either because they are of advanced age or have health problems and could use the assist, or because streets in New Westminster are so hilly.

Q11 If you do not often ride your bike in New Westminster, what would encourage you to ride more?

Of the 55 respondents who answered this question, 29 stated that increased protected bike lanes would incentivize them to ride more. Another 22 would want better protection against bike theft. Thirteen said they either can't ride a bike or that nothing will incentivize them to do so.

Thirty-nine respondents would benefit from some sort of e-bike access; these respondents are almost evenly divided between those who would like rebates to buy their own e-bikes and those who would want a bike-share program.

One respondent brought up a need for better regulations around e-bikes and scooters to allow e-bike riders more assured access to protected spaces off main roads. She cited an incident where her husband was ticketed for riding a slow-speed e-scooter in the bike lane. He is unable to drive a car and the scooter gave him mobility, but the incident was so distressing that he sold the e-scooter.

This points to a need for clearer communication and regulation around shared space for push bikes and e-bikes/scooters.

Some residents still wish to ride without a helmet.

One respondent asked for increased ferry trips in and out of Queensborough, which speaks to a need for better support for multi-modal transit.

Another asked for a bike lock subsidy, which also speaks to protection from bike theft.

Q12 Please rank your priorities related to transportation and land use that you think the City should focus on within the next five years, with 1 being your top priority and 4 being the lowest priority.

Fifty-six respondents answered this question. More safety for cyclists and pedestrians at intersections ranked highest at 1.8. Covered and secured bike garages at high-frequency destinations ranked second at 2.04, which also speaks to a need for improved support for multi-modal transportation.

A zero-emissions zone in New Westminster ranked third at 2.61, while more benches and protected seating ranked fourth at 2.8.

Next Steps

Staff are currently drafting the CEEP and integrating community and stakeholder engagement.

A draft CEEP will be published on the Be Heard website where residents can view, comment, and provide feedback.

The draft will be reviewed and updated before a finalized version is brought to Council for adoption in fall 2022.

New Westminster

Community Energy and Emissions Plan

June 2022

DRAFT

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Contents

Land Acknowledgement

The City of New Westminster is located on the unceded and unsurrendered land of the Halkomelem speaking peoples. We acknowledge that colonialism has made invisible their histories and connections to the land. As a City, we are learning and building relationships with the people whose lands we are on.

Message from Mayor and Council

[Still to Come]

Contributors and Acknowledgements

The City would like to recognize the contributions made to the Community Energy and Emissions Plan process by community members, the Environment and Climate Task Force, the Environment and Climate Advisory Committee, Mayor and Council, and participating stakeholders. Their contributions ensured that this Action Plan captures the climate action aspirations of the community.

Modelling and plan development was led by Sustainability Solutions Group (SSG).

Executive Summary

The climate emergency calls for bold and rapid action. The City of New Westminster has set responsible and ambitious emissions reduction targets of becoming a net zero greenhouse gas (GHG) emission community by 2050, and achieving significant reductions by 2030 and 2040. Reaching these targets will take unwavering focus by the City, collaboration with senior levels of government and the private sector, and proactive action by community members.

This Community Energy and Emission Plan (CEEP) provides a roadmap to approach net zero by 2050, and is a call to action for the City and the broader community. Informed by community and industry perspectives, the latest research on climate science, emissions modelling and an exploration of the most impactful emissions reduction opportunities, the CEEP provides five sector focus areas, and 55 actions for the City to take. The sectors and corresponding action areas are as follows:

Sector	**Action Areas**
Transportation	• Shifting to sustainable transportation modes • Accelerating adoption of electric mobility
Buildings	• Retrofitting existing buildings to be more efficient and use renewable energy • Ensuring new buildings are as high performing as possible
Energy	• Reducing energy demand • Generating local renewable energy • Expanding district energy and waste heat recovery systems • Exploring Smart Grid technology
Waste and Circular Economy	• Reducing and diverting waste • Implementing circular economy principles
Natural Areas and Green Infrastructure	• Expanding the urban forest canopy • Expanding naturalized areas • Developing more green infrastructure

The biggest GHG reduction opportunities are in the transportation and buildings sectors. Action recommendations in these areas look to ensure we reduce energy demand first, improve efficiency, and ultimately switch fuel sources to low carbon sources. This approach will help manage impacts on the electricity grid and build community resilience.

Implementation of the CEEP will need to include flexibility, to ensure the City can adapt and pivot as new action opportunities arise with legislative and technological change. Ensuring actions are implemented in an equitable way will also be critical to ensuring the transition to a low carbon community benefits everyone.

Part 1: Defining the Challenge

1. Introduction

The importance of rapid climate change response cannot be overstated. Human-induced climate change through fossil fuel use is a global crisis that threatens health and public safety, infrastructure, livelihoods, biodiversity, and ecosystems. As local and global greenhouse gas (GHG) emissions increase, the Earth continues to heat at an unprecedented rate. The Intergovernmental Panel on Climate Change's (IPCC) 2021 6th Assessment Report[1] confirms that without intervention, global heating of greater than +2°C will occur in the next 30 to 80 years. Heating of +1.5°C is the point at which major, disruptive weather events will occur. Heating beyond this level will result in severe, frequent weather and geological catastrophes. Limiting heating to the +1.5°C global target will curb the severity of climate change impacts to human and natural systems but will not prevent them. The Assessment Report concludes that rapid fossil fuel use elimination across all socio-economic sectors is imperative to avoid the worst climate impacts.

Following a community call for action to address this threat, the City of New Westminster declared a climate emergency in 2019 and committed to reducing GHG emissions across the community by 45% of 2010 levels by 2030, 65% by 2040, and 100% by 2050. The Community Energy and Emissions Plan (CEEP) is the blueprint for taking the bold action required to address the emergency. The targets and actions identified in this plan show the low-carbon pathway to net-zero greenhouse gas (GHG) emissions by 2050, as well as ambitious interim targets.

The modelling that informed the CEEP shows that getting to near zero emissions is possible but challenging. Following the low-carbon pathway requires focus by the City, ongoing commitment from senior levels of government, and participation from a range of partners, including businesses and building owners. New enabling legislation from the Provincial Government is needed to implement certain emissions reduction actions. When it arrives, the City will need to act quickly to incentivize energy efficiency retrofits, roll out waste bans, and implement other emissions reduction measures.

The CEEP focuses on actions the City can take within its jurisdiction, to lead by example, set the regulatory context, explore incentives, and create the neighbourhoods that will enable low-carbon living. However, the City does not control all the mechanisms needed to achieve zero emissions. Critically, collective action is also needed by community members to proactively undertake retrofits to homes, to choose sustainable transportation when able, to reduce and divert waste, and more. Rapidly reducing emissions and reaching net-zero is a community effort. The CEEP helps sharpen our focus on the scale and urgency of the challenge and identifies how we will meet it.

[1] Intergovernmental Panel on Climate Change, 6th Assessment Report (2021): https://www.ipcc.ch/assessment-report/ar6

2. Background and Policy Context

Building on New Westminster's Bold Steps for Climate Action

Following the City's 2019 climate emergency declaration and adoption of ambitious emission reduction targets, City Council endorsed Seven Bold Steps for Climate Action to guide the community toward a low-carbon future.

This plan builds on and supports the implementation of the Seven Bold Steps, which include seven targets for 2030. The modelling that informs the CEEP indicates that actions to reduce emissions need to be taken in areas beyond the Seven Bold Steps as well. The CEEP therefore includes these actions, and adjusts and extends targets out to 2050, providing a data-backed pathway to zero emissions.

This CEEP replaces 2011's Community Energy and Emissions Plan, which guided climate action for the past decade. The climate crisis has grown more urgent in the intervening years. There has also been rapid evolution of low-carbon technologies as well as new policy and regulatory tools. The CEEP considers this changed context in charting the path to more ambitious emission reductions.

Connection to Existing Plans

The challenge of bold action on climate can be daunting but substantial work is already underway to create the community conditions for low-carbon living. The City has a suite of overarching plans that incorporate climate change mitigation and adaptation actions, and various subject-specific plans on rolling out climate action in particular areas.

Overarching Plans

These overarching plans set the long-term land use and transportation pattern for the city, and fundamentally influence the way community members live and move.

- **Official Community Plan** (2017): provides a vision, goals, and policies for New Westminster to the year 2041. Together, these elements connect the community's "big picture" aspiration with the tools needed to achieve it, including specific actions, development permit guidelines, and land use designations.
- **Master Transportation Plan** (2015) and neighbourhood transportation plans: establish long range transportation network plans and priorities, focusing on advancing sustainable transportation.

Subject Specific Plans

- **Environment Strategy and Action Plan** (2018): includes a vision, set of goals and actions on energy and emissions, built environment, waste and natural areas and habitat.
- **Biodiversity Strategy** (2022): analyses the state of natural areas and biodiversity in the City and provides a suite of recommended actions and guidelines that will help the City to prioritize

protection, enhancement, and restoration of natural habitat areas and the species that live there.

- **Urban Forest Management Strategy** (2016): outlines actions to protect the city's urban forest and ecosystems by increasing the city's tree canopy, improving tree management practices, and building community ownership of the urban forest.
- **eMobility Strategy** (2022): accelerates and supports the move towards sustainable and electric transportation systems in the community, including supporting e-bikes and other e-micromobility options, increasing EV charging infrastructure and supporting adoption of EVs, and enhance electric utility management to accommodate increased electrical demand.
- **Integrated Stormwater Management Plan** (2017): helps the City manage rain water, prevent sewer overflows and flooding, and enhance watersheds, through a suite of green infrastructure approaches.
- **Corporate Energy and Emissions Reduction Strategy** (2020): identifies actionable strategies for the City to become a carbon neutral corporation by 2030.

These plans offer strong, relevant direction for the CEEP. Their implementation will support climate change mitigation and adaptation goals. The urgency of their implementation is underscored by the CEEP modelling which confirms the need for immediate, ambitious action to meet our emission reduction targets.

Senior Government Climate Planning

The following federal, provincial, and regional plans offer mandates, policies and implementation strategies that support the transition to a net-zero emissions future.

- **Pan-Canadian Framework** is the federal framework for climate action, including the approach to pricing carbon pollution and measures to achieve emission reductions across all economic sectors. It aims to drive innovation and growth by increasing technology development and adoption to ensure Canadian businesses are competitive in the global low-carbon economy. It also includes actions to provide guidance on GHG reporting, advance climate change adaptation, and build resilience to climate impacts across the country.

- **CleanBC Roadmap to 2030** outlines Provincial commitments to meet the legislated target of achieving net-zero GHG emissions by 2050. Achieving the CleanBC target requires all jurisdictions across the province to use clean energy and reduce GHG emissions as much as possible. Doing so can put ambitious communities at the forefront of initiatives and enable them to capture opportunities as they arise; the CEEP can thus be seen as a significant opportunity.

- **Metro Vancouver's Climate 2050** is the strategic framework guiding the region's climate change policies and collective actions to transition towards a low carbon future.

- **Transport 2050** is the long-term strategy that shapes the future of transportation in Metro Vancouver, setting the goals, directions, and key initiatives for the entire regional transportation system, across all modes. Transport 2050 has a strong climate focus and includes bold action on advancing carbon-free transportation.

SIDEBAR: Climate Leadership to Date

New Westminster has a history of taking innovative climate action. Some noteworthy achievements include:

- Launching Energy Save New West (ESNW) in 2013, to assist community members and industry partners to improve the energy efficiency of new and existing buildings and reduce community wide GHG emissions.
- Creating the community's first solar garden in 2018.
- Adopting a climate action budgeting framework in 2019 in response to the climate emergency declaration.
- Being an early adopter of the BC Energy Step Code in 2019.
- Being one of the first jurisdictions in North America to introduce requirements for all new residential buildings to be 'EV ready' in 2019.

Following First Nations Climate Leadership

New Westminster is within the traditional territory of the Halkomelem (hən̓q̓əmin̓əm, Halq'eméylem, Hul'q'umi'num') and Sḵwxwú7mesh sníchim-speaking peoples. Since time immemorial, Halkomelem and Sḵwxwú7mesh peoples have lived with these lands and hold an intimate awareness of its value to life and wellbeing. The City of New Westminster recognises, values, and respects these Indigenous connections to this land and all we can learn about how it sustains everyone. For over 150 years this land has been harmfully exploited by colonization which has contributed to the climate crisis we all face today.

First Nations communities are leaders in addressing the climate emergency and much can be learned from local examples, such as the Tsleil-Waututh Nation's leadership on solar arrays (a new array powering the Nation's administrative building as pictured here).

Figure 1. The largest ground-mount solar array in Metro Vancouver powers the Tsleil-Waututh Nation's administrative building (https://twnsacredtrust.ca/twn-says-yes-to-renewable-energy/)

Solutions to the climate emergencies must be led by Indigenous knowledge systems such as the Medicine Wheel. The Medicine Wheel teaches as about the interconnection of all things. It teaches us that the living world is sacred and what happens to one, happens to us all. The City is learning to apply the holistic lens of the Medicine Wheel in our objective to heal the land, and in so doing, as we implement the CEEP, we can begin to heal ourselves as well.

Finding a path out of the climate emergency requires learning from, and working with, First Nations and Indigenous residents of this land. The City must seek ways to work with our Indigenous partners to deliver on the goals of the Community Energy and Emissions Plan. Implementation must grow a

relationship of mutual respect, trust and reconciliation with local First Nations and indigenous people.

Climate Equity

Improved equity outcomes are a principal goal of the CEEP. Climate action must enhance equity and address the wellbeing of everyone, especially equity-denied groups.

Live-alone and frail seniors, low-income groups, racialized communities, people with physical and mental health conditions, and those experiencing homelessness are more likely to be exposed to or impacted by climate hazards. These populations are less able to adapt to a changing climate and severe weather events (including extreme heat and poor air quality). They are also more likely to live in areas with less green space and reside in older buildings with inefficient heating and no cooling systems. If they own a private vehicle, it is also likely to be gasoline powered, and potentially older with poor fuel efficiency. The City's implementation of the CEEP must ensure that equity-denied groups benefit from the transition to a low-carbon society and are meaningfully involved in decision-making that informs this transition.

SIDEBAR: Addressing Energy Poverty
The median energy cost burden for Canadian households is 3% of after-tax income. A household is experiencing energy poverty when its energy cost burden exceeds two times the national median or 6% on their home energy bills. In 2016, 9% of New Westminster households were experiencing energy poverty.

The City collaborated with other local governments to address this issue and carried out a detailed assessment of energy poverty. This study identified the contributing factors to energy cost burden and prevalent barriers that have prevented equity-denied groups from benefitting from energy efficiency programs and available incentives at the provincial level. A data toolkit was created that gives the City a detailed understanding of the New Westminster context. This will be used to review City policies and programs through an equity lens.
With rigorous data available, the City is better equipped to design targeted initiatives that will allow us to identify opportunities to reduce energy poverty and expand on building adaptation initiatives.

Resilience and Adaptation

The primary focus of the Community Energy and Emissions Plan is to mitigate local GHG emissions. However, climate impacts are already being felt in the community, and climate adaptation is increasingly critical. Resilience and adaptation are important lenses for climate action planning.

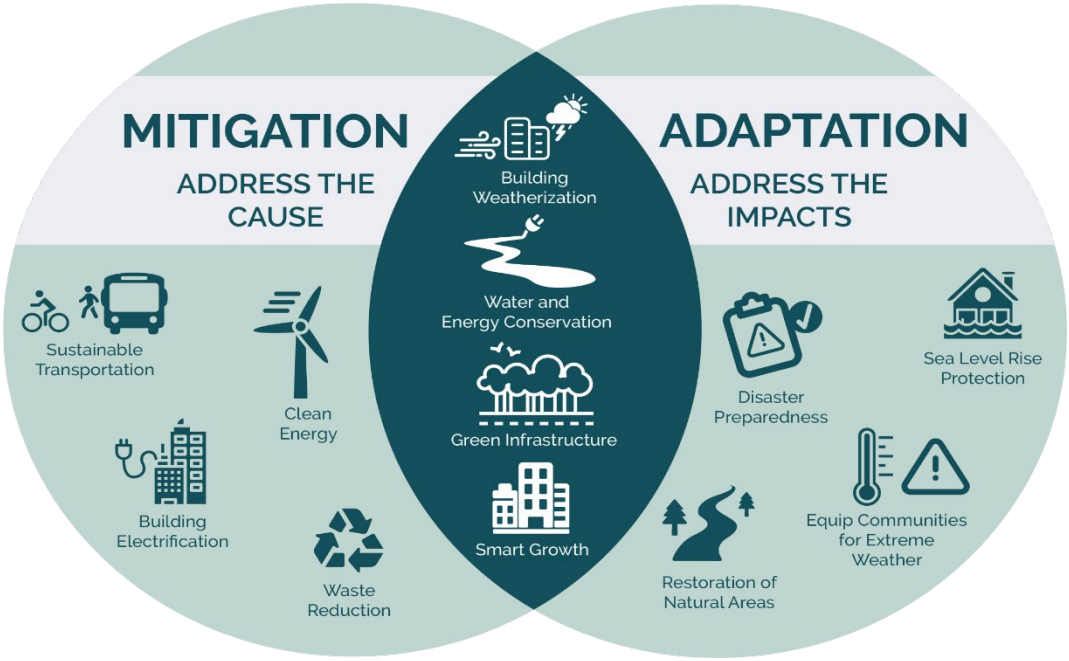


Figure 2. Areas of overlap between climate change mitigation and adaptation actions.

Several of the City's existing plans include climate actions that support both mitigation and adaptation, such as enhancing the tree canopy and developing green infrastructure to better manage stormwater. Some CEEP emission reduction actions also have climate change adaptation benefits. For example, building energy efficiency retrofits will provide more insulation against extreme cold or heat events. Adding local renewable energy production and battery storage will increase resilience against power outages or price shocks. Continuing to develop compact and walkable communities will help residents easily get help or resources if roads or transit systems are damaged. This strategy identifies adaptation benefits of its emissions reduction actions. Considering adaptation benefits and applying an equity lens to the distribution of these benefits will be critical during action implementation. Further work to identify adaptation strategies and actions is also needed through a separate process.

3. Climate Impacts

Though climate change is a global phenomenon, its effects are and will be felt at the local level. Unless immediate and drastic action is taken to reduce GHG emissions, New Westminster can expect continued climate disruption, further heating, and increased severity and frequency of local climate impacts.

The annual average temperature is projected to increase by 3ºC by the 2050s.[2] Days hotter than 30ºC, which New Westminster almost never sees, may increase to 16 per year.[3] These hot days will increase the amount of energy needed to cool indoor spaces. In summer 2021, the region experienced a record-breaking "heat dome" event which resulted in the tragic premature deaths of 28 community members in New Westminster, including seniors and those living with pre-existing health conditions.

The region's already dry summers are also projected to receive 15% less rain, although annual precipitation is also projected to increase 7%.[4] Fall and winter storms like the atmospheric rivers that drenched the region in November 2021 will become more likely, which could damage infrastructure and affect biodiversity in the Fraser River.

The following local climate impacts are also expected:

- Warmer temperatures and more humid air from increase rainfall in the winter and spring months will result in greater air front variances, resulting in more frequent and intense storms;
- Warmer annual mean temperatures will result in flora and fauna species migration, with some currently local species moving north. This may result in an increase of invasive species and risk to local biodiversity;
- Warmer winters will decrease heating demand in winter months;
- Wetter winters and springs will increase flood risk frequency and severity, as well as risk of decreased slope stability;
- Decreased snowpack will mean less water for the summer months, increasing drought risk;
- More frequent, higher river flows combined with expected sea level rise will cause increased strain on dikes and other flood protection infrastructure. Existing drainage infrastructure may need capacity increases or retention ponds;
- Increased drought will increase wildfire risk, wildfire smoke presence, and airborne particulate pollutants; and

[2] Pacific Climate Impacts Consortium's Plan2Adapt for the region of Metro Vancouver. https://services.pacificclimate.org/plan2adapt/app

[3] Climate Atlas of Canada report for Vancouver, British Columbia. https://climateatlas.ca/sites/default/files/cityreports/Vancouver-EN.pdf

[4] Ibid, 2.

- Longer dry seasons may increase the length of forest fire season.

SIDEBAR: Wider Climate Change Disruptions
As a global phenomenon, climate change disrupts the local, regional, and global systems we rely on to live safe, consistent lives. Climate change impacts to ecosystems and agriculture are expected to have major impacts on food and water availability across the globe, affecting billions of people. New Westminster residents are at lower risk of water shortages due to local precipitation levels and our watershed management and conservation practices. However, food availability disruptions caused by climate change may disproportionately reduce access to healthy diets by increasing food costs.

4. Emissions and Climate Action Pathways

What Emissions are Included?

The CEEP considers Scopes 1 and 2 GHG emissions, as well as Scope 3 GHG emissions for waste and energy transmission (Figure 3). Agriculture and other land use emissions are excluded as these are insignificant within New Westminster. The carbon sequestration value of forests is included, however. Out-of-boundary transportation by rail or aviation are excluded as these are typically outside of the City's jurisdiction to control. Similarly, indirect emissions from activities like product manufacturing and construction materials are excluded under the assumption that these emissions are included in the inventories of the jurisdictions in which they occur.

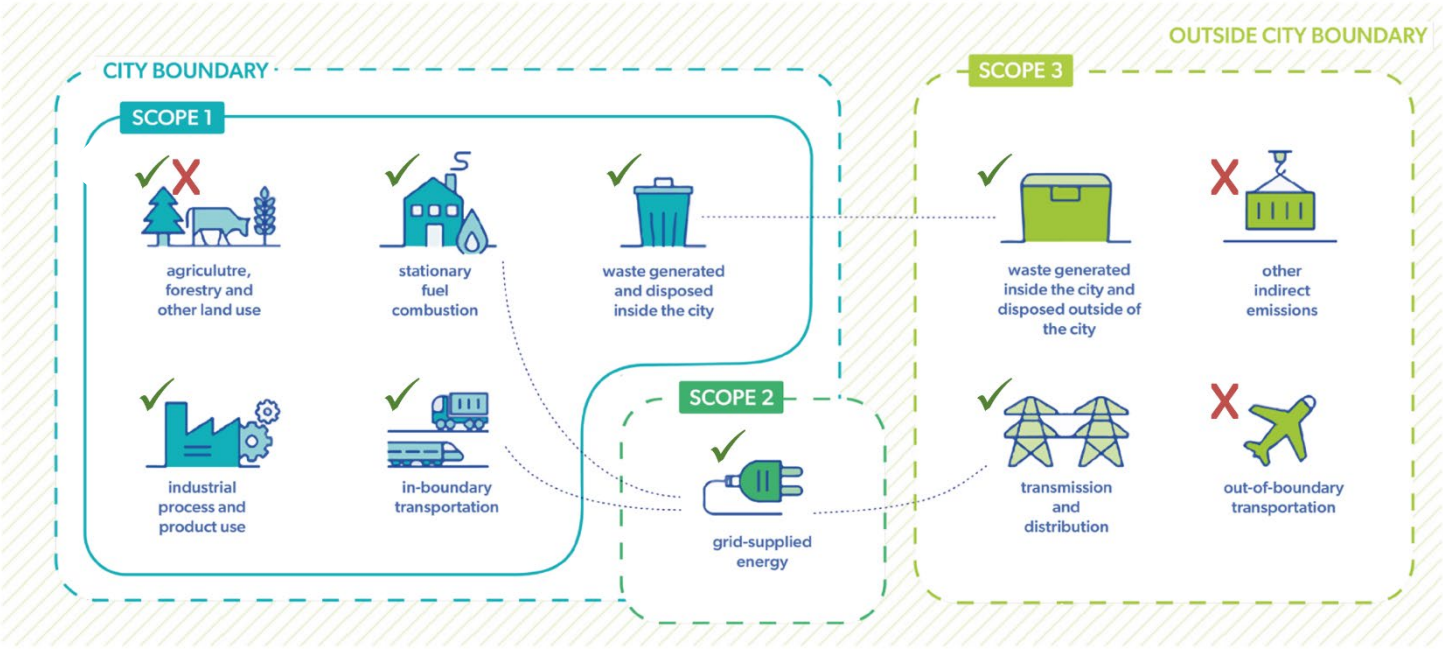


Figure 3. Emissions scopes as they relate to geographic and inventory boundaries.[5]

[5] Image source: Consumption-Based Inventories of C40 Cities. https://www.c40.org/researches/consumption-based-emissions

GHG inventories typically track carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O) emissions—the three main types of greenhouse gases that governments can most control. Gases are measured in tonnes and converted into tonnes of carbon dioxide equivalents (tCO2e). The conversion allows comparison of each gas' greenhouse effect (global warming potential, GWP) relative to one unit of CO2.

Greenhouse Gas	Global Warming Potential Value	
	Over 20 years	Over 100 years
Carbon Dioxide (CO2)	1	1
Methane (CH4)	86	34
Nitrous Oxide (N2O)	268	298

2010 and 2016 Emissions Inventories

New Westminster's emission reduction targets are set against 2010 emission levels, which were 240,610 tCO2e total emissions. 2010 inventory data is downscaled from provincial data. The CEEP uses 2016 as a modelling base year, as local energy and emissions data is available for this year, increasing the accuracy of the inventory for this year. Figure 4 shows New Westminster's 2016 emissions by fuel source and by sector.

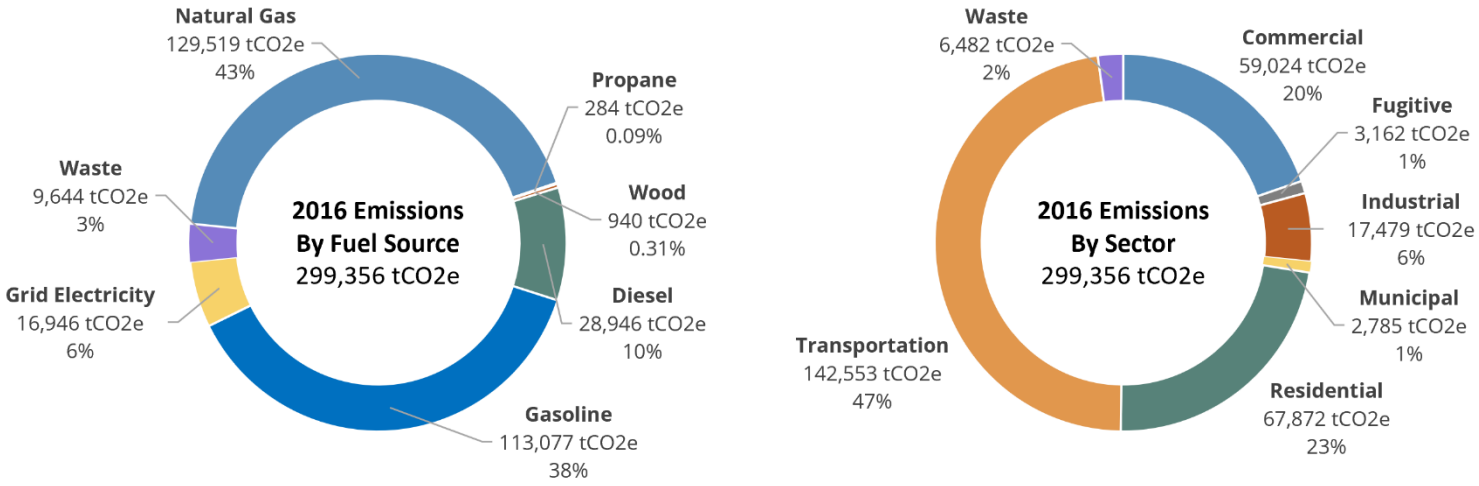


Figure 4. Emissions by fuel source and sector in New Westminster's 2016 base year.

Natural gas was the largest source of GHG emissions (43%) in 2016, followed by gasoline (38%). The transportation sector accounted for the largest percent of emissions (47%), followed by 23% in the residential sector, and 20% in the commercial buildings sector. The emission inventory shows us the most critical areas of action for emission reduction efforts.

Emissions Reduction Pathways

New Westminster is a growing community. In 2016, approximately 76,600 people lived in New Westminster. By 2050, the population is projected to grow to roughly 120,000. The number of homes and jobs in the city will increase as well. Energy use and emissions production is directly tied to these increases.

Determining an ambitious pathway to net-zero emissions is crucial. Cumulative emissions lock in greater heating and more extreme planetary conditions. There are different potential timelines to take for climate action, each resulting in differing cumulative emissions production (Figure 5). Ambitious action in the short term achieves the greatest reductions. Steady action starting now and continuing in the coming decades results in greater cumulative emissions. Waiting until closer to the 2050 emission reduction target date results in much greater cumulative emissions. The longer we wait to act, the greater the resulting emissions, and the greater the climate change impacts.

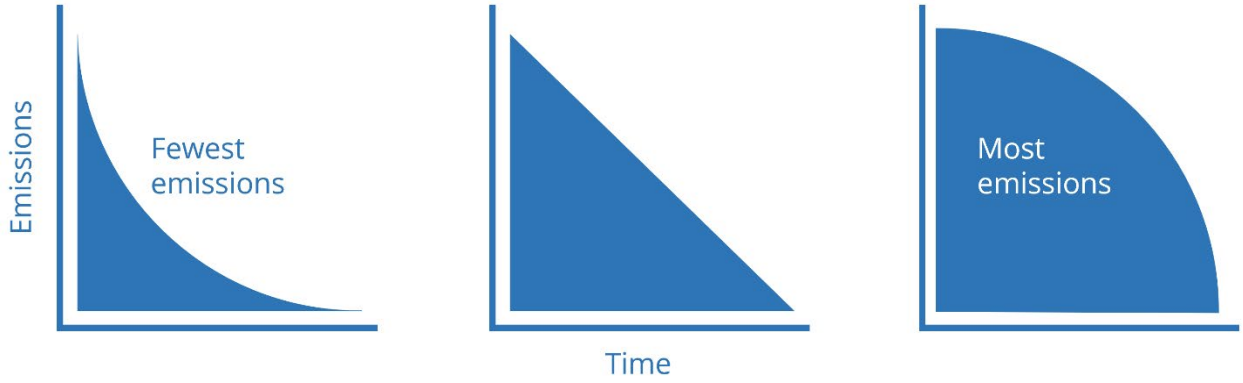


Figure 5. Differences in cumulative emissions when different reduction pathways are followed.

Rigorous scenario modelling was conducted to assess the emissions impact of energy consuming activities across all community sectors (i.e., buildings, transportation, waste, natural areas and green infrastructure, and energy). Accounting for community growth, energy consumption and emissions production were modelled to 2050, providing an emissions projection estimate.

A Low-carbon Scenario (LCS) of emission reduction actions was also modelled to determine a pathway for New Westminster to achieve its net-zero emissions target (Figure 6). The LCS includes a variety of actions based on known and projected technological trends, higher level government commitments, and community inputs.

The LCS reduction pathway most closely aligns with the middle scenario in Figure 5. We do not necessarily have the capacity to cut emissions as rapidly as a fewest emissions scenario but we can work quickly to avoid the most cumulative emissions scenario.

Figure 6 depicts the projected emissions to 2050 and the emission reduction impacts of senior government commitments (CleanBC and federal actions), projected industrial sector energy efficiency and fuel switching, and local actions modelled in the Low-carbon Scenario.

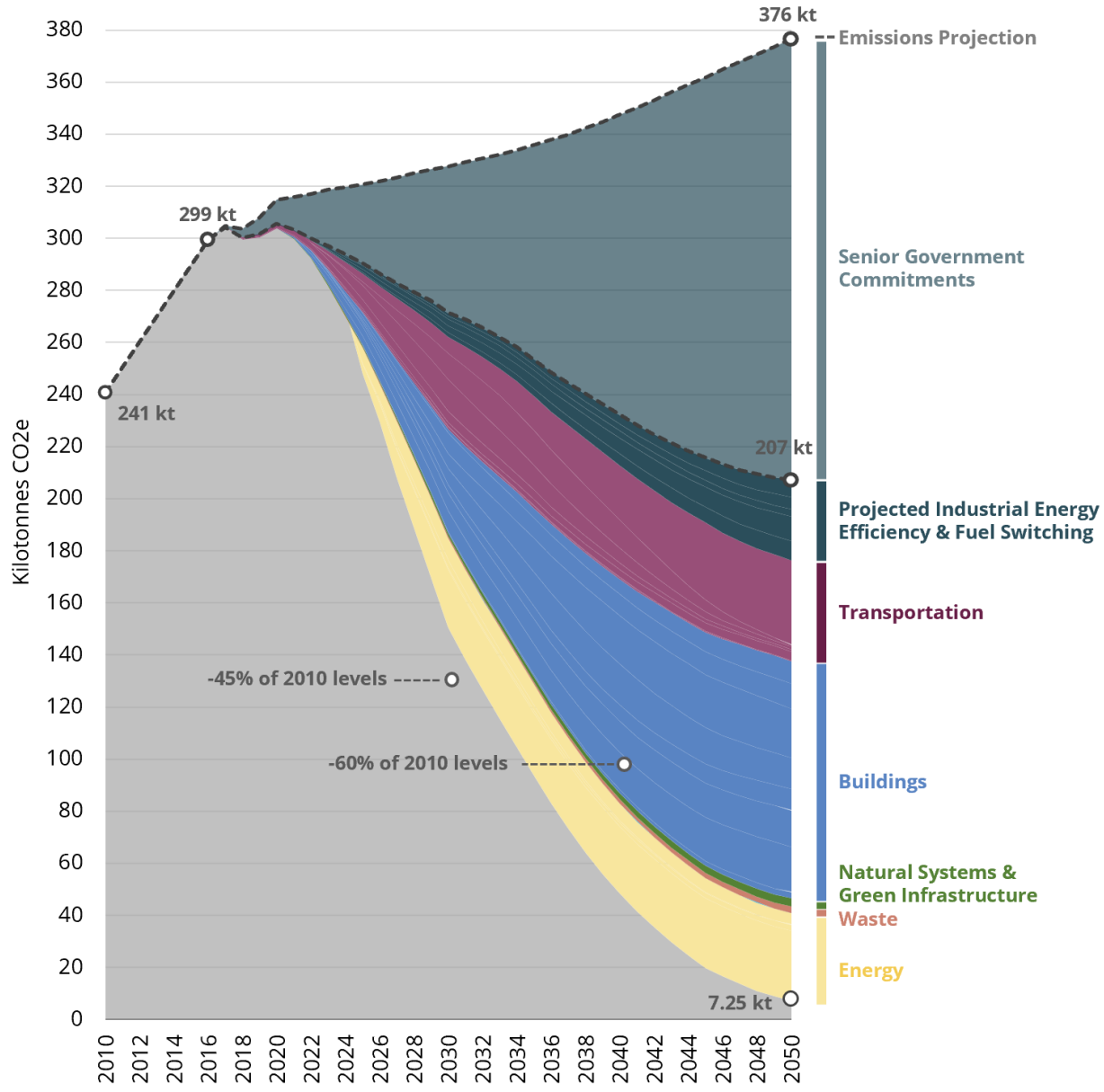


Figure 6. New Westminster's community emissions projection and modelled emission reduction effects of various provincial and local low-carbon actions, 2010-2050. The sharp emissions increase from 2010 to 2016 is likely primarily due to emission inventory differences, not necessarily an actual emissions increase (although it is likely emissions did rise some with population, housing, and vehicle use growth over this period). 2010 inventory data is derived from downscaled provincial emissions data while the 2016 inventory data is based on observed data.

LCS actions reduce emissions 97.0% from 2010 levels (97.6% from the 2016 modelling base year), getting New Westminster close to its 2050 net-zero target. Although LCS actions modelled are ambitious, their emission reductions fall short of achieving the interim emission reduction target of -45% by 2030 under 2010 levels, primarily due to the short timeframe for action. More rapid and ambitious action in the residential buildings and transportation sectors could achieve the target. The interim target of -65% by 2040 under 2010 levels can be easily met by implementing these actions.

7.25 kilotonnes of emissions remain in 2050 after emission reduction actions are taken over the next 28 years. Bridging the gap to net-zero will require extra fossil fuel elimination and potentially carbon sequestration efforts. Three main sources are responsible for the remaining 2050 emissions:

- Natural gas use in industrial processes and buildings that haven't switched to low-carbon energy sources;
- Single detached dwellings still using wood stoves for heating; and
- Legacy solid waste that pre-dates improved organics diversion efforts emitting methane from anaerobic decomposition in landfills.

The 7.25 ktCO2e gap is challenging to bridge. The remaining emitting energy sources can be switched for low-carbon energy sources, but the existing solid waste in the landfill continues to decompose and emit methane over long periods. Capping the landfill and capturing the methane provides a partial solution: about 45% of the methane produce can typically be captured by this method. Additional solutions could include further increases to carbon-sequestering green spaces and forest or investing in gold standard carbon offsets. Determining the final solution may not be necessary at this time; technologies will advance and conditions will change over the next 30 years, providing different emission reduction opportunities. Implementing actions we know can be taken right now to reduce New Westminster's emissions by 97% by 2050 is the main focus.

SIDEBAR: Community Voice

CEEP development involved gathering input from community members and industry representatives to inform emission reduction actions and priorities, including: which actions would be most likely to foster community uptake, which were most appropriate to the New Westminster context, and which might generate additional benefits like economic development and diversification, and improved health and well-being. Representatives of equity-denied groups were engaged to ground the actions in the lived reality of residents. Further engagement will be critical during implementation.

SIDEBAR: Reduce, Improve, Switch

The philosophy of 'Reduce, Improve, Switch' puts avoiding energy use as the top priority, followed by maximizing energy efficiency improvements, and then switching to low-carbon energy sources to meet remaining demand.

- "**Reduce**" means decreasing energy consumption through actions like reducing personal vehicle use, increasing walking and biking, and incorporating passive design measures such as solar awnings into buildings.
- "**Improve**" refers to increasing energy efficiency through actions like replacing lighting and appliances with more efficient options or driving a more fuel-efficient vehicle.
- "**Switch**" includes actions like replacing natural gas furnaces with electric heat pumps or replacing an internal combustion engine vehicle with an electric one.

British Columbia has the benefit of low-carbon hydroelectricity. It's supply is limited, however, and reducing electricity use and improving energy efficiency "frees up" electricity and helps avoid costly new electricity generation and distribution infrastructure.

Part 2: CEEP Actions

The CEEP provides a data-informed actions roadmap to reduce emissions and curb climate change impacts.

This action plan:

- Supports implementation of the City's Seven Bold Steps for Climate Action;
- Reinforces the importance of ambitiously implementing the recommendations in existing plans;
- Identifies and fills policy gaps with new actions for areas where more ambitious action is needed;
- Integrates the results and priorities from engagement with community and industry representatives;
- Describes short- and medium-term actions and their role in meeting the City's climate emergency targets (emission reduction targets of 45% by 2030, 65% by 2040, and 100% by 2050 under 2007 levels); and
- Indicates actions with strong potential to advance equity and inclusion, build community resilience, and achieve other benefits.

Structure of the Plan

The CEEP has five action sectors: transportation, buildings, energy, waste and circular economy, and natural areas and green infrastructure. The industrial sector is not included as the City has few policy and regulatory mechanisms to influence this sector. Industrial sector emissions are expected to decrease as energy efficiency and fuel switching efforts are made in response to increasing carbon pricing set at the federal level. 2030 and 2050 targets are defined for each sector and actions are described for reaching the targets. As CEEP actions are implemented, a continuous cycle of monitoring progress, evaluating outcomes, and adjusting approaches to improve outcomes occurs.

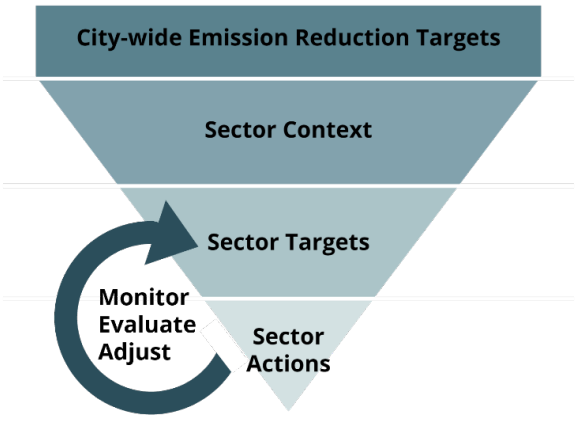


Figure 7. CEEP structure.

1. Transportation

Transportation accounted for nearly 30% of community energy in 2016 and was responsible for nearly half (48%) of community GHG emissions. 88% of all transportation emissions came from gasoline powered cars and light trucks. New Westminster residents usually choose personal vehicles to get around. Our community also has significant through-traffic and congestion challenges.

The good news is that New Westminster is well-positioned to significantly reduce emissions from the way we move. The city boasts a compact form of development and has a land use framework that continues to focus housing near SkyTrain stations, services, jobs, and amenities in many neighbourhoods. We have steep terrain but remain a walkable community. With five SkyTrain stations, we are well-served by transit.

The City's first priority is to support more walking, biking, transit use, and use of multi-occupant shared vehicles. These modes are affordable and active transportation promotes health, reduces congestion, and makes efficient use of energy and resources. To make this shift, walking and biking need to feel safe, transit needs to be comfortable and convenient, and "last mile" challenges need to be solved. eMicromobility adoption such as e-bikes and e-scooters will help with the last mile, overcome the challenge of steep terrain, and further the distance that can be comfortably travelled without a car.

Electrification of vehicles—including transit, commercial and personal vehicles—will also reduce emissions and improve air quality. Adoption of electric vehicles (EVs) for trips that cannot be done by active transportation will provide significant gains. Vehicle electrification goals can be reached by supporting charging at home, work, and key destinations.

WHAT YOU CAN DO

- Get around on foot or by bike for a healthy lifestyle.
- Is it possible to live close to your place of work or use transit to get there?
- Work from home some days, if you're able.
- Use a car share service. You save on car payments, insurance costs, and parking fees, and you never have to get gas.
- Use e-bikes, e-scooters, and e-boards. They're quick, convenient, and inexpensive compared to cars.
- Combine transit and biking. You can take you bike on the bus and the SkyTrain.

Targets

2030

- 60% of all trips within the city by sustainable modes of transportation (walking, biking, rolling, transit, and riding in multi-occupant shared vehicles)
- 93% of vehicle sales will be zero emission vehicles.

2050

- 80% of all trips within the city by sustainable modes of transportation.
- 100% of vehicles are zero emissions models.

Actions	GHG reductions	Benefits	Resources	Timeline
Sustainable Transportation Modes				
1. Continue to implement the Official Community Plan, including: a. pursuing complete communities with transit-supportive densities and land use mixes; and b. enabling transit-oriented development in the Downtown and at SkyTrain station areas.	Preventative	Equity Health Resilience	N/A	Ongoing
2. Prioritize sustainable transportation action implementation from the Master Transportation Plan, including: a. rapidly completing a network of active transportation infrastructure; b. supporting transit use by improving customer facilities and information, and exploring transit priority measures; and c. encouraging other transportation demand management measures that reduce demand for personal vehicle use.	High	Equity Health Resilience	$$$	Ongoing
3. Collaborate with Metro Vancouver and TransLink to implement the Regional Greenway and Major Bikeway Networks within New Westminster.	Medium	Equity Health	$$	Mid-term
4. Advocate for and support implementation of TransLink's regional Transport 2050 plan, including: a. expanding frequent transit service, and improving service along the	High	Equity	N/A	Ongoing, on a priority basis

Major Transit Network (development of rapid bus along 8th Street, and capacity relief measures on the Expo SkyTrain line); and b. improving affordability, accessibility, and safety of transit and active transportation for all community members.				
5. Explore holding car-free days and creating car-free areas.	Low	Equity Health	$	Near-term
6. Advocate for more exploration of mobility pricing or road use charges, in collaboration with Metro Vancouver and TransLink.	Medium	Equity Health	N/A	Near-term
eMobility				
7. Implement the eMobility Strategy. Ensure EV and eMicromobility (e-bikes, etc.) adoption is accelerated by: a. Incorporating an eMicromobility lens into planning and policies, enhancing e-bike accessibility, and improving access to secure public and private e-bike parking; b. enabling residents to choose EVs by supporting access to charging at home, work, and in public spaces, and supporting EV affordability; and c. proactively managing electricity grid impacts of charging.	High	Equity Health Resilience	$$$	Near-term
8. Support the implementation of TransLink's regional Transport 2050 plan. Focus on actions transitioning to zero emission vehicles, such as: a. financial incentives for eMicromobility and EV adoption; b. prioritizing access for low-income residents and small businesses; and c. supporting the transition of medium- and heavy-duty vehicles to low emissions in the near-term and zero emissions over the long-term.	High	Equity Health Resilience	$$$	Ongoing
9. Support TransLink in implementing the 2050 Low Carbon Fleet Strategy to advance battery electric bus service in New Westminster, positioning New		Equity Health Resilience	N/A	Ongoing

Westminster as an area to lead with this transition.				
10. Explore establishing zero emission vehicle zones, where only people walking, rolling, biking or driving EVs and other zero emission vehicles may access the area, partnering with TransLink, Metro Vancouver, or other agencies as appropriate.	Medium	Equity Health Resilience	$	Near-term
11. Show leadership by continuing to transition to an energy efficient and low-carbon corporate fleet, as directed by the Corporate Energy and Emissions Reduction Strategy (CEERS).	Low		$$$	Near-term
12. Collaborate with Metro Vancouver and other partners to advocate to senior governments to support the transition to zero emission medium and heavy duty vehicles.	High		N/A	Medium-term
13. Collaborate with Metro Vancouver and other partners to reduce emissions from deliveries (including online deliveries), by exploring initiatives such as supporting transitioning delivery fleets to zero emissions, off-peak deliveries, small urban consolidation centres, and cargo bike deliveries.	Medium		N/A	Near-term

Resources Estimates: $ – < $100,000 $$ – $100,000-$500,000 $$$ – > $500,000

2. Buildings

Buildings accounted for approximately 53% of total energy use and 43% of total GHG emissions in New Westminster in 2016. 95% of emissions from buildings were from natural gas used to heat commercial and residential buildings, even though 49% of homes use electric heating. Transitioning to high performance buildings (new and existing) is a critical part of our low-carbon pathway.

New Westminster is a very built-up city, with many heritage buildings and strong rent protection that provides critical affordable housing. Retrofitting existing buildings to reduce energy demand (e.g. adding insulation, draft sealing), improving their efficiency (e.g., using efficient lighting and appliances), and switching fuel sources (e.g., from fossil fuel furnaces to efficient electric heat pumps), will result in more efficient use of energy and resources. Retrofits also help improve the livability and safety of homes, especially in the context of increased frequency and severity of extreme weather events.

Achieving retrofit goals will require demystifying and solving challenges related to retrofitting multi-unit residential buildings (MURBs), as well as using regulatory tools as soon as they are available to prompt switching to low-carbon energy sources. Supporting appropriate incentives and inspiring residents and rental building owners to proactively invest to reduce emissions will be critical.

As the city continues to grow, it is also essential that new buildings are constructed to the highest energy efficiency standards. New Westminster uses the BC Energy Step Code to require high energy performance. Modelling shows that significant emission reductions can be achieved over the mid- to long-term by requiring higher Step Code levels sooner in new construction. New buildings should simply not use fossil fuel energy sources. The City can also look for opportunities to be bold and innovative in reducing emissions from the built environment in large scale developments such as those at the Braid and 22nd Street SkyTrain station areas.

WHAT YOU CAN DO

- Upgrade your home energy efficiency by improving insulation, improving airtightness, or replacing the furnace with an electric heat pump. There are many subsidies available to make the upgrades affordable and you'll save money with lower energy bills.
- If you're using electric baseboard heating, consider upgrading to an electric heat pump, which is 300-500% more energy efficient and provides cooling in the summer.
- Clean or replace air filters on air conditioning/heat pump units regularly to maintain the units' efficiency.
- Choose energy efficient models when your appliances need to be replaced. Replace gas stoves with electric induction models. Replace gas fireplaces with electric heat pumps.
- Work with your condo strata board to determine the best energy efficiency solutions for your building. They could include replacing windows, upgrading insulation, installing heat pumps, and installing external window shades/awnings.

Targets

2030

- Retrofit 50% of existing buildings to achieve 50% heating demand reduction and switch space and water heating to electric.
- All new buildings meet the highest tier of the BC Energy Step Code.
- All new buildings use fossil fuel free energy systems.

2050

- Retrofit 95% of existing buildings to achieve 50% heating demand reduction and switch space and water heating to electric.
- New buildings are net-zero emissions.

Actions	GHG reduction	Benefits	Resources	Timeline
Existing Buildings				
1. Increase the supports and programs for energy retrofits for existing residential, institutional, commercial, and industrial buildings, including: a. prioritizing addressing the unique retrofit needs of multi-unit residential buildings, especially rental buildings; b. focus on the least efficient building stock (pre-1980); c. adapting retrofit strategies to work with heritage and character buildings; d. exploring innovative financing mechanisms and tools to support retrofits (e.g. on-bill financing, green revolving load funds, or Property Assessed Clean Energy Financing (PACE)); and e. collecting and analysing energy and spatial data of existing buildings to identify priority building archetypes and optimal strategies to support energy retrofits.	High	Health	$$$	Near-term
2. Advocate to senior government and agencies to increase incentives and financing programs for energy retrofits, particularly for multi-unit residential buildings.	High	Health Equity	N/A	Near-term

3. As legislation changes to allow fuel sources to be regulated, ensure City regulations require low-carbon heating and hot water systems replacements.	High	Health	N/A	Near- to mid-term
4. Review the City's regulatory and policy context for opportunities to better incentivize energy retrofits in exchange for additional density or other benefits, where appropriate.	High	Health Equity	N/A	Short-term
5. Continue to pursue heritage retention and revitalization where appropriate, efficiently using energy and resources through adaptive reuse of buildings.	Low	Resilience	N/A	Ongoing
New Buildings				
6. Require maximum BC Energy Step Code tier for residential and non-residential buildings before 2030.	Medium	Health Equity Resilience	N/A	Mid-term
7. Identify appropriate performance standards for institutional and industrial buildings, and encourage meeting these standards through policy.	Medium	Health Equity Resilience	N/A	Mid-term
8. As legislation changes to allow fuel sources to be regulated through GHG intensity, ensure City regulations require low-carbon energy sources for new buildings.	Medium	Health Equity Resilience	N/A	Mid-term
All Buildings				
9. Continue to support and participate in pilot projects targeting energy performance improvements that are advanced by partners, the community or the development sector, and assist in disseminating lessons learned.	Low	Resilience	N/A	Ongoing
10. Review the Zoning Bylaw, Development Permit Area guidelines, and other policies and regulations to remove any remaining barriers, and to further incentivize energy efficiency and GHG emissions reductions.	Low	Resilience	N/A	Near-term
11. Continue to offer educational opportunities to the building industry, and explore ways to support industry training to be able to adapt to high performance building standards and lead the way on innovative buildings.	High	Health Resilience	N/A	Ongoing
12. Continue to demonstrate leadership through high energy performance City	Low	Resilience	N/A	Ongoing

facilities constructed with low embodied carbon materials, as directed by CEERS.				
13. Advocate for the development of a mandatory energy labelling and benchmarking program for buildings and, in the interim, explore tools the City can use to encourage voluntary energy disclosure.	Low		N/A	Near-term

Resources Estimates: $ – < $100,000 $$ – $100,000-$500,000 $$$ – > $500,000

CASE STUDY: Energy Save New West

Energy Save New West (ESNW) is a community energy program designed to improve the energy efficiency and reduce greenhouse gas emissions in new and existing homes and businesses in New Westminster. ESNW works closely with a network of program partners in effort to provide a wide range of services, incentives, industry training and information to help local residents and businesses better manage energy use and related costs. Their focus is to deliver a better experience that makes it easier for people to improve the energy performance of their home or business. ESNW has had tremendous impact in the community through providing:

- A comprehensive suite of rebates and incentives including access to energy assessments, technical energy coaching, energy upgrades and access to utility rebates;
- A secure customer journey with end-to-end program support to make it straightforward and easier for homeowners and businesses to participate;
- Proactive consultation with participants to maximize the potential benefits of energy efficiency retrofits including increased uptake of program rebates and incentives offered by City of New Westminster, FortisBC and BC Hydro; and
- Positive industry engagement with local builders, designers and architects including training and professional development from the program that encourages design and construction of better homes in New Westminster.

3. Energy

Gasoline cars and trucks accounted for 38% of 2016 emissions. Natural gas heating accounted for another 43%. Emissions related to electricity accounted for only 6% as BC's predominantly hydroelectricity grid is one of the cleanest in Canada. As transportation and buildings electrify, significant emissions gains will be made.

Continued growth and electrification may create electricity supply constraints. Energy conservation and demand management are important strategies to avoid reaching the limit of grid electricity supply. These also save on household energy costs and reduce the need for new electricity infrastructure.

New Westminster can also address increased grid demand through local renewable energy generation. This also adds resilience to the grid.

The actions in this section help to: implement energy conservation and demand management initiatives, encourage local renewable energy systems, embrace emerging smart grid technologies, and expand connections to district energy systems. As a City with its own electric utility, New Westminster is well positioned to take bold action on energy.

WHAT YOU CAN DO:

- Switch to energy efficient light bulbs.
- Turn off switches and disconnect charging plugs from outlets when not in use.
- Air dry dishes and clothes.
- Switch from baseboard heating to a heat pump to use less electricity.
- If you own a single detached dwelling, consider installing solar panels to take advantage of New Westminster's net metering program.

CALLOUT BOX: Did you know? Vampire loads (also known as phantom plug loads) secretly drain electricity when an electronic device is turned off, but still plugged into an outlet. Any digital device charger (phone, tablet, computer, TV, stereo, etc.) plugged into a wall still consumes a small, but continuous amount of electricity, even when the actual device isn't attached.

Targets

2030

- Reduce per capita energy demand by 30% by 2030.
- Generate 2% of electricity from local and renewable sources of energy.

2050

- Reduce energy demand by 60% per capita by 2050.
- Generate 5% of electricity from local and renewable sources of energy.

Actions	GHG Reduction	Benefits	Resources	Timeline
Local Energy Generation				
1. Complete a renewable energy study that identifies viable supply sources and a prioritized list of initiatives.	High	Health Resilience	$	Near-term
2. Explore how to encourage cost effective, on-site renewable energy generation in new and existing buildings through incentives and policy tools, such as preferential net-metering rates.	Medium	Health Resilience	$	Near-term
3. Explore opportunities to expand urban solar gardens that enable community members to invest in solar projects.	Low	Health Resilience Equity	$	Ongoing, on a priority basis
Energy Conservation and Demand Management				
4. Continue to implement and expand on educational campaigns to encourage and raise awareness about energy conservation, including providing additional information on utility bills.	Low	Equity Resilience	$	Near-term
5. Encourage the use of smart technology to better manage energy usage (e.g. smart thermostats).	Low		$	Near-term
6. Collect and share resources on energy conservation programs developed by BC Hydro and other partners to build knowledge and capacity among commercial and institutional building Electric Utility customers to reduce their energy consumption.	Medium	Resilience	N/A	Near-term

7. Work with Electric Utility and BC Hydro to implement energy conservation and demand management strategies, including continuing to ensure New Westminster customers have access to programs offered by BC Hydro or an equivalent program offered by the City.	Medium	Resilience	N/A	Near-term
District Energy and Waste Heat Recovery				
8. Explore the feasibility of extending Sapperton's district energy system or developing new systems as new opportunities arise.	Medium	Resilience	$$$	Near-term
9. Explore opportunities to encourage on-site waste heat recovery systems in buildings with a net positive internal rate of return.	Medium	Resilience	$	Near-term
Smart Grid Technologies				
10. Assess the business case and feasibility of battery energy storage within the City's existing grid.	Medium	Resilience	$$	Mid-term
11. Explore opportunities to partner on a pilot of a solar-battery demonstration project on a building.	Low	Resilience	$	Near-term
12. Conduct feasibility studies that test low-carbon backup power systems to reduce reliance on fossil fuel backup power generators.	Medium	Resilience	$	Near-term
13. Continue to explore upgrading electrical metering equipment with an advanced metering infrastructure (AMI) system to allow community members to better monitor and assess their energy use.	Low	Equity Resilience	$$$	Ongoing

Resources Estimates: $ – < $100,000 $$ – $100,000-$500,000 $$$ – > $500,000

SIDEBAR: Urban Solar Gardens

There are two urban solar gardens in New Westminster. They consist of community-owned solar photovoltaic arrays. One is located on the City public works yard and the other is located on the Queensborough Community Centre. This City-led renewable energy project provides an opportunity for interested residents, businesses, and non-profit organizations to voluntarily subscribe to a portion of the total electricity generated by the array. The solar power generated is credited back to each subscriber's electricity bill twice per year for up to 25 years.

CASE STUDY: District Energy

The Sapperton district energy project will supply clean, affordable, and renewable heating to residents in the area while reducing emissions. The Royal Columbian Hospital will be an anchor customer for the system, with its significant annual heating requirements. The system will also serve new residential and commercial development. As the underground piping network expands into new neighbourhoods at Sapperton and Braid Stations, it may be possible to connect existing commercial and multi-unit residential buildings, replacing their heating equipment as it reaches replacement age. New buildings along East Columbia Street may also be able to connect.

The district energy system has potential to generate local revenue and keep energy dollars within the community. The system is anticipated to reduce GHG emissions by approximately 8,600 tCO2e per year—125,000 tCO2e over its lifespan.

4. Waste and Circular Economy

Emissions from waste represented 3% of total emissions in New Westminster in 2016. Although this is a small portion of the emissions profile, as population grows emissions from waste are anticipated to increase 46%, making waste reduction diversion an important source of emission reduction.

Metro Vancouver has jurisdiction over waste management and processing for New Westminster. The City can exert influence through its collection services, partnerships, advocacy, and policies in key areas. The City can support more composting and diversion of organics, increased recycling of more types of materials, and ensure buildings' configuration makes this as convenient as possible.

Substantial waste-related emissions reductions can also come from shifting to a circular economy model. In a circular economy, waste is "designed out". Outputs from one process are inputs for another; instead of being extracted, used, and disposed, resources are potentially used indefinitely. Achieving this shift would require significant societal change, but the City can use regulations, policy, and advocacy to help build momentum.

Targets

2030

- Reduce annual waste by 5% by 2030.

2050

- Reduce annual waste by 20% by 2050.

WHAT YOU CAN DO

- Follow the 5-Rs (in this order): Refuse, Reduce, Reuse, Repurpose, Recycle.
- Champion improved recycling at your work or in your housing complex.
- Save up your specialty items and bring them to the United Boulevard Recycling and Waste Centre.
- If you have a yard, compost your food waste, yard trimmings, and soiled paper.

Actions	GHG reduction	Benefits	Resources	Timeline
Waste Reduction				
1. Support senior government action on reducing use of single use plastics and implement changes locally as soon as a framework is provided.	Low	Resilience	N/A	Ongoing
2. Support and amplify waste reduction and diversion educational programs delivered by Metro Vancouver and other partners (e.g. community groups supported through City grants).	Low	Resilience	N/A	Ongoing
3. Explore opportunities to host or support regular waste reduction events such as zero waste days, community repair events, or neighbourhood garage sales.	Low	Resilience	$	Ongoing
Waste Diversion				
4. Continue to regularly expand and improve household recycling and yard and food scraps diversion and collection programs.	Low	Resilience	$$	Ongoing
5. Continue to require recycling and organics facilities on site in multi-unit residential, industrial, commercial, and institutional buildings, and consider expanding guidelines to improve the convenience and experience of recycling and organics storage and pick-up.	Low	Resilience	N/A	Ongoing
6. Work with businesses to reduce waste and divert organics from restaurants, the tourism industry, and the commercial sector overall.	Low	Resilience	N/A	Ongoing
7. Expand green demolition by reviewing and increasing requirements for construction waste diversion and encourage deconstruction, and improving enforcement for better compliance.	Low	Resilience	N/A	Near-term
8. Support Metro Vancouver in its update to and implementation of the Regional Solid and Liquid Waste Management Plans, and advocate for a stronger climate lens in these regional plans, including: a. strengthening the market for recycling and recycled materials,	Low	Resilience	N/A	Ongoing

expanding Extended Producer Responsibility, and pursuing circular economy opportunities b. enhanced GHG emissions capturing methane (biogas) from landfills, expansion of low emissions waste-to-energy facilities as appropriate, and reducing emissions from organics.				
Circular Economy				
9. Collaborate with Metro Vancouver and municipalities in the region to coordinate development of a circular economy, including the potential development of regional principles or a regional strategy.	Low	Equity Resilience	$	Ongoing
10. Build on the results of the 2018 circular economy workshop conducted in collaboration with the National Industrial Symbiosis Program (NISP), and engage more businesses in circular economy initiatives.	Low	Equity Resilience	$	Near-term

Resources Estimates: $ – < $100,000 $$ – $100,000-$500,000 $$$ – > $500,000

5. Natural Areas and Green Infrastructure

In addition to taking action to reduce emissions from different sectors, addressing the climate emergency requires restoring and leveraging natural systems, to buffer against the impacts of climate change.

Natural areas, including the soils and plants in parklands and our urban forest canopy, sequester carbon. Growing the City's forest canopy coverage to 27% would result in the removal of 4,050 tonnes of carbon pollution every year, and increase our forest's carbon storage capacity by 50%. Green infrastructure like rain gardens and bioswales also allow water to infiltrate and be filtered, reducing indirect emissions associated with grey infrastructure (e.g., stormwater gutters, pipes and tunnels, and water and wastewater treatment facilities).

Natural areas and green infrastructure can also help improve New Westminster's resilience and adaptability to climate change by managing storm water runoff, mitigating the urban heat island effect, improving air quality, and fostering biodiversity. Integrating the natural environment within the public realm can also support human well being and mental health, and has a spin off benefit of making walking and biking more compelling.

The City's Integrated Stormwater Management Plan, Biodiversity Strategy, and Urban Forest Management Plan contain sound recommendations for enhancing natural systems within the city. Implementing these plans will be important to enhancing resilience and off-setting emissions. Relatedly, supporting a sustainable local food system can also have an impact on GHG emissions.

WHAT YOU CAN DO

- Keep the trees on your property and consider planting new ones.
- Plant native species plants.
- Let your lawn go golden in the summer.
- Install a raingarden and capture rainwater for use on plants and lawns.
- Adopt a catch basin.

Targets

2030

- Increase the urban forest canopy cover to 27% by 2030.

2050

- Maintain the urban forest canopy coverage at 27%.
- Protect 10% of City's land base as natural park area.

Actions	GHG reduction	Benefits	Resources	Timeline
1. Develop an Adaptation Strategy that outlines strategies and actions to mitigate climate related risks and build climate resilience.	Low	Health Resilience Equity	$	Near-term
2. Continue to implement the Integrated Stormwater Management Plan, including: a. creating additional resources and enhanced guidelines for green infrastructure on private property; and b. expanding the use of green infrastructure on public lands.	Low	Health Resilience Equity	$$$	Ongoing
3. Continue to implement the Urban Forest Management Strategy and Biodiversity Strategy including: a. incentivizing community members to install habitat features and plant trees; b. further encouraging developers and builders to integrate green spaces into developments; c. integrating natural systems into the public realm, such as parks, greenways, and active transportation corridors; and d. exploring land acquisition and restoration to expand natural park areas.	Medium	Health Resilience Equity	$$$	Ongoing
4. Explore opportunities to support sustainable local food systems, such as by: a. continuing to encourage communal gardens and private balcony or roof gardens in new multi-unit residential buildings; b. reviewing regulations to remove barriers to urban farming; and c. supporting local food procurement and farmers markets.	Medium	Health Resilience Equity	N/A	Ongoing
5. Seek opportunities to reduce water consumption, such as through promoting the use of smart technologies such as timers and leak detectors by residents and businesses.	Low	Health Resilience Equity	$	Near-term

6. Explore opportunities to increase the City's water pumping efficiency.	Low	Resilience	$$$	Ongoing

Resources Estimates: $ – < $100,000 $$ – $100,000-$500,000 $$$ – > $500,000

Monitoring and Evaluation

GHG emission inventories will be updated regularly. The City will measure, track and report on its targets and actions annually, making adjustments where required. This reporting will be part of a larger key performance indicator (KPI) reporting project.

Taking a flexible and iterative approach to action implementation will help manage the risk and uncertainty with these efforts and allow the City to take advantage of evolving federal and provincial government policy and regulations, and emerging technologies.

Implementation of the CEEP will be informed by the creation of a decision support tool that helps the City prioritize climate action, by considering factors such as cost effectiveness, GHG emission impact, equity, additional community benefits, and opportunities to further reconciliation. The City will also consider developing a carbon budget, deepening the climate budget framework that is already in place.

Rapid implementation and scaling up of actions will require additional staffing. Additional positions on the Climate Action Team may be needed, to build momentum on achieving building retrofit targets, for example. The Climate Action Team will lead implementation of the CEEP, but many actions have interdepartmental implications. Rapid implementation of the Master Transportation Plan to support emissions reductions from transportation, for example, will require additional staffing in the Transportation team.

The Next Chapter

The modelling and analysis that underpins this Plan makes it clear how urgently we need to act to make the kind of impact on emissions that is needed to meet our community energy emission reduction targets. Bold action will be needed to retrofit our existing buildings, build new buildings to the best standards available, shift out of our polluting vehicles, reduce our waste, and enhance natural systems. This plan provides a roadmap and following through will require significant focus and collective action.

The City is committed to continuously learning and deepening action on the climate emergency. Following current best practices, the inventory underpinning the CEEP focuses on "scope 1 and 2 emissions". However, we know that out of scope emissions also have a real impact on climate and need to be addressed.

The next chapter in GHG emissions reduction must address these upstream and downstream emissions, through approaches such as lifecycle analysis and consideration of embodied carbon. We as a community need to reconsider our consumption patterns and look for circular economy options, and critically examine our lifestyles to shift to low-carbon living. The City will look for opportunities to lead this shift through corporate actions as well as new policy and programs that inspire collective community action. Potential future actions include adopting consumption-based emissions accounting for the City, an evidence-based carbon budget approach, or developing a sustainable consumption strategy that identifies and prioritizes options for lower carbon consumption.

Disclaimer

Sustainability Solutions Group (SSG) exercised reasonable skill, care, and diligence to assess the information acquired during the preparation of the analysis that informs the Community Energy and Emissions Plan, but no guarantees or warranties are made regarding the accuracy or completeness of this information. This document, the information it contains, the information and basis on which it relies, and the associated factors are subject to changes that are beyond the control of SSG. The information provided by others is believed to be accurate but has not been verified.

This analysis includes strategic-level estimates of New Westminster that should not be relied upon for design or other purposes without verification. SSG does not accept responsibility for the use of this analysis for any purpose other than that stated above, and does not accept responsibility to any third party for the use, in whole or in part, of the contents of this document. This analysis applies to the City of New Westminster and cannot be applied to other jurisdictions without analysis. Any use by the City of New Westminster, its sub-consultants or any third party, or any reliance on or decisions based on this document, are the responsibility of the user or third party.

Abbreviations & Glossary

CEEP Community Energy and Emissions Plan

CO2 Carbon dioxide

CO2e Carbon dioxide equivalents

DE District energy

GHG Greenhouse gas emissions

LCS Low-carbon scenario

RNG Renewable natural gas

Units

GHG emissions

1 ktCO2e = 1,000 tCO2e

Energy

1 MJ= 0.0001 GJ

1 TJ= 1,000 GJ

1 PJ= 1,000,000 GJ

1 GJ= 278 kWh

1 MWh= 1,000 kWh

1 GWh=1,000,000 kWh

Appendix 1: Low-carbon Scenario Modelled Energy and Emissions Charts

Modelled LCS energy trajectory (top) and emission reductions (bottom) by sector: As energy efficiency and renewable energy actions are taken, energy demand decreases across all sectors except for a slight increase in the industrial sector as industry grows. Transportation energy demand decreases substantially as EVs require less energy to operate and use that energy more efficiently than gas and diesel vehicles. As energy sources electrify and switch to RNG and hydrogen, emissions decrease in all sectors except waste, which increases slightly with population.

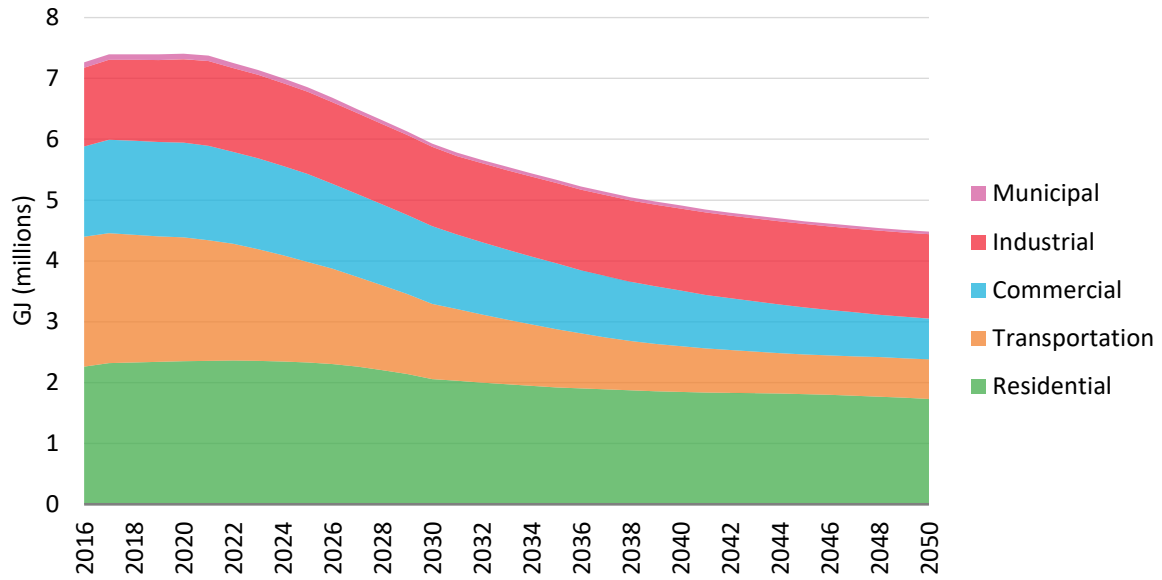


Figure 2 *Modelled LCS Community Energy by Sector, 2016-2050*

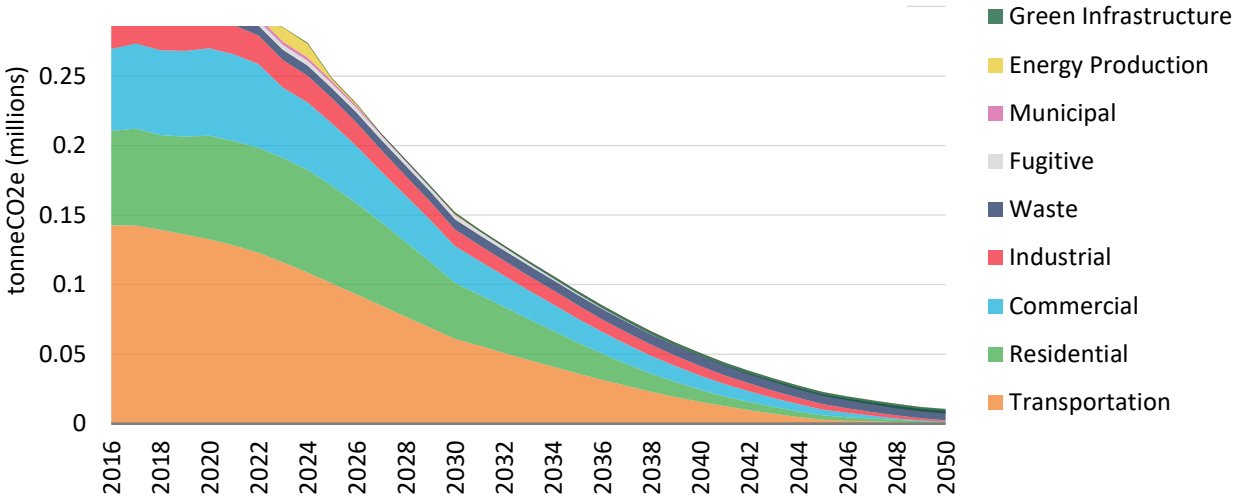


Figure 1 *Modelled LCS Emission Reductions by Sector, 2016-2050*

Modelled LCS energy trajectory (top) and emissions reductions (bottom) by fuel type: Gasoline and diesel use all but disappear by 2050, replaced by electricity provided by the grid and local sources. RNG and hydrogen help reduce natural gas use. District energy systems and ambient heat (electric heat pumps) reduce natural gas use as well. Building heating systems and vehicles increasingly switch to electricity use, increasing the energy drawn from the grid and local sources. All of these energy shifts and reductions have corresponding emissions reductions. Emissions all but disappear by 2050, with some remaining from continued natural gas use, wood use, and legacy solid waste.

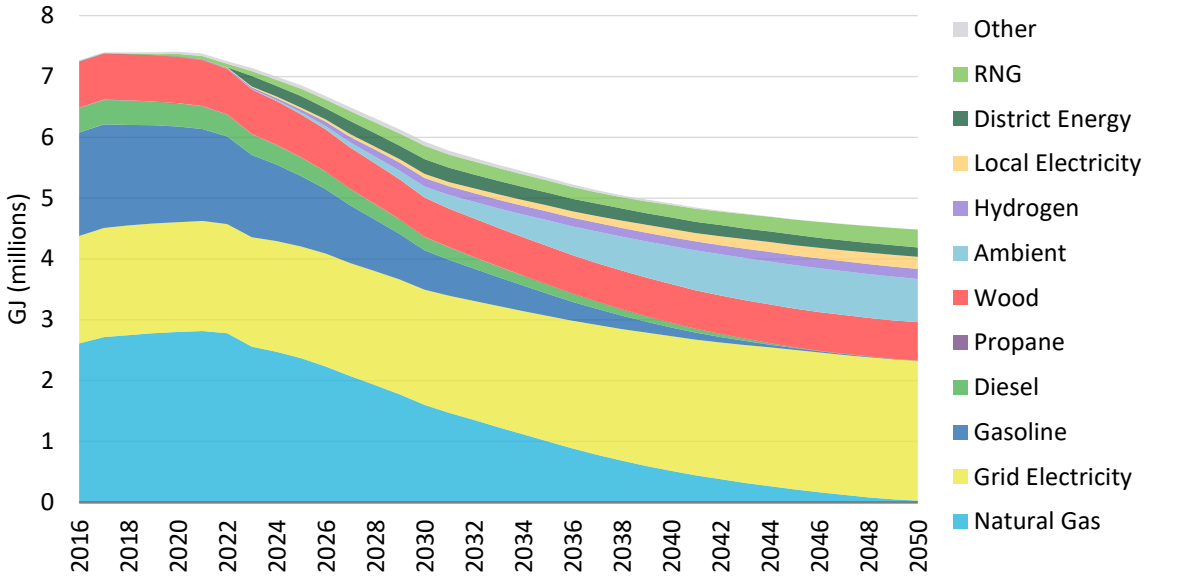


Figure 3 *Modelled LCS Community Energy by Fuel Type, 2016-2050*

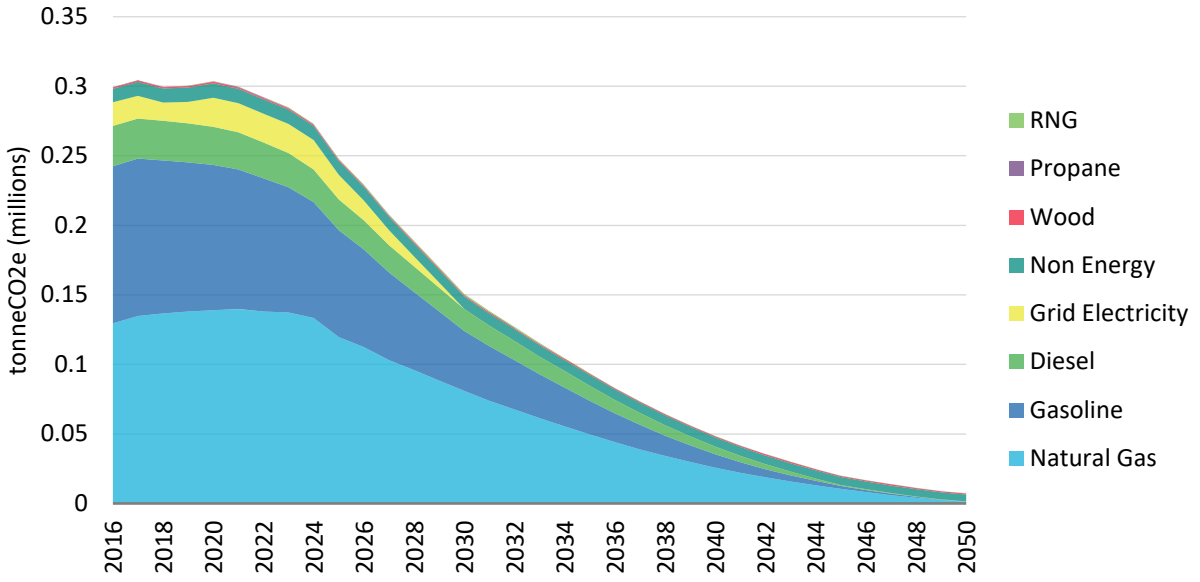


Figure 4 *Modelled LCS Emissions Reductions by Fuel Type, 2016-2050*

Modelled LCS energy use trajectory by end use (below): As winters warm and building heating systems transition to efficient electric heat pumps, overall space heating energy demand decreases, even though there are more buildings and homes to heat by 2050. The increased efficiency of hot water electric heat pumps decreases total water heating demand, even though there are more buildings using water. Total transportation energy use decreases as vehicles electrify and more trips are made by active transportation, transit, and energy efficient e-bikes, e-scooters, and e-boards. Industrial energy use grows slightly as industry grows. Space cooling energy demand increases slightly as summers warm, but the increase is small compared to the realized decrease in space heating energy.

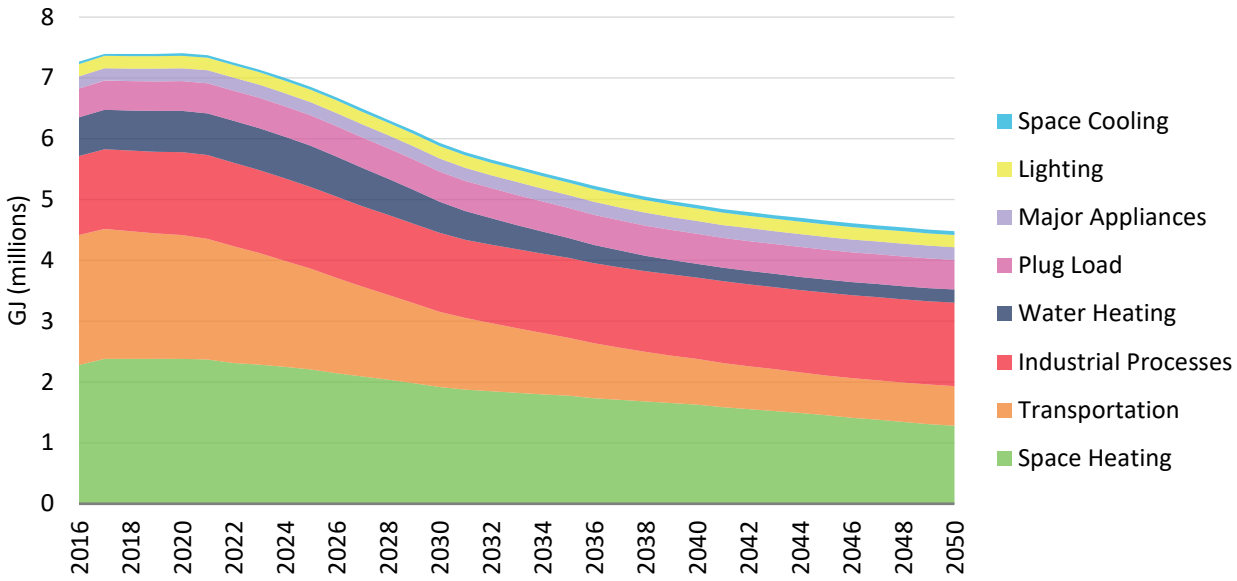


Figure 5 *Modelled LCS Energy Use Trajectory by End Use, 2016-2050*

Environment and Climate Advisory Committee
Draft Community & Energy Emissions Plan

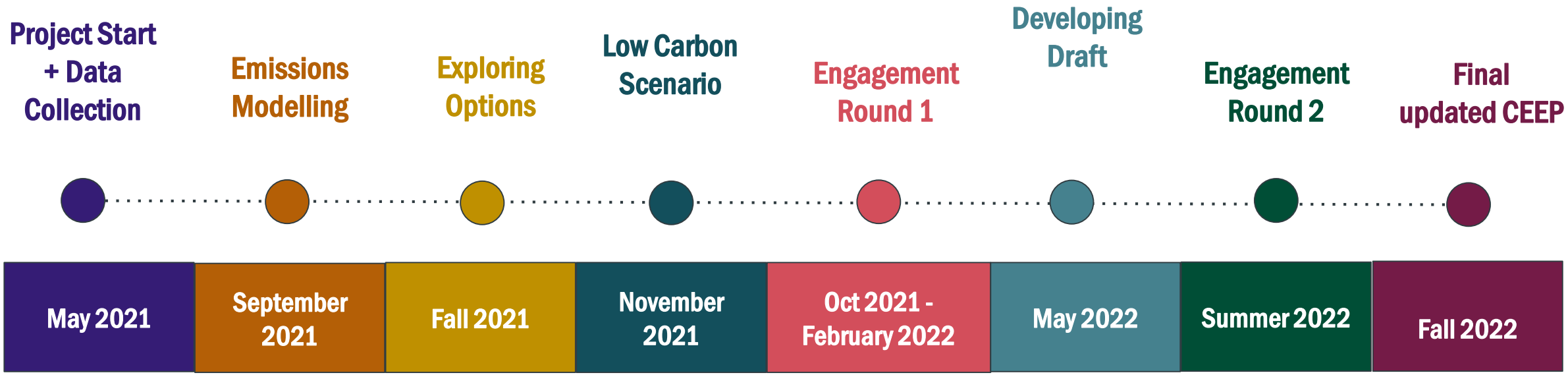
July 20th 2022

NEW WESTMINSTER

Overview

- Progress update
- Engagement summary & feedback
- CEEP update structure
- Next steps
- Discussion

Project Update & Timeline



Round 1 Engagement Summary

- Identified priority areas & community needs
- Gauged feasibility of actions
- Ensured actions are New West specific

What We Heard

- Support for retrofits, including heat pumps.
- Support for more locally generated renewable energy.
- Greater support for enhancing active transportation and making transit more convenient, affordable and accessible, than for encouraging the use of electric vehicles.
- Design City programs and incentives to better reach equity-denied groups with financial and structural barriers.
- Reducing electricity rates for low-income populations would help address energy poverty.

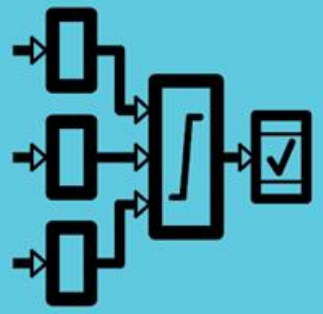
Draft CEEP Structure

- **Part 1: The Narrative**
- **Part 2: Action Plan Areas**
    - Transportation
    - Buildings
    - Waste
    - Energy
    - Natural Systems & Green Infrastructure
- **Next Chapter**

1. Reduce

Reduce or avoide energy consumption in the first place.

2. Improve



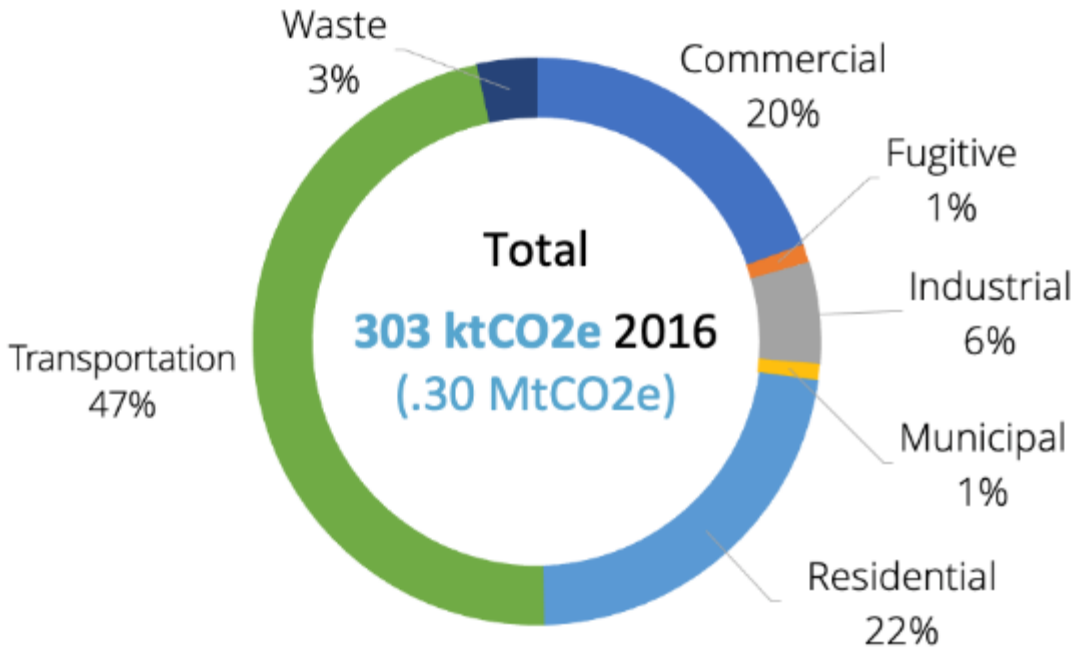
Improve the efficiency of the energy system (supply and demand).

3. Switch

Fuel switch to low-carbon or zero-carbon renewable sources.

Key Action Areas: Transportation & Buildings

TOTAL EMISSIONS (ktCO2e), by sector



ktCO2e	2016	2016 Share
Commercial	59	19%
Fugitive	3	1%
Industrial	17	6%
Municipal	3	1%
Residential	68	22%
Transportation	143	47%
Waste	10	3%
Total	303	100%

Transportation

- Accelerate implementation of the Master Transportation Plan
- Support TransLink's implementation of Transit 2050
- Implement the eMobility Strategy
- Collaborate with Metro Vancouver and other partners to support the transition to zero emission vehicles and explore establishing zero emission vehicle zones

Buildings

- Increase supports for building retrofits
- Act on new legislative tools
    - Fuel switching
    - Energy benchmarking
- Ensure all new buildings meet the highest tier of the BC Energy Step Code before 2030

Waste & Circular Economy

- Support waste reduction
- Increase waste diversion
- Embrace Circular Economy principles

Energy

- Support energy conservation & demand management
- Support local energy generation (e.g. solar gardens)
- Explore expanding District Energy
- Explore Smart Grid Technologies

Natural Areas & Green Infrastructure

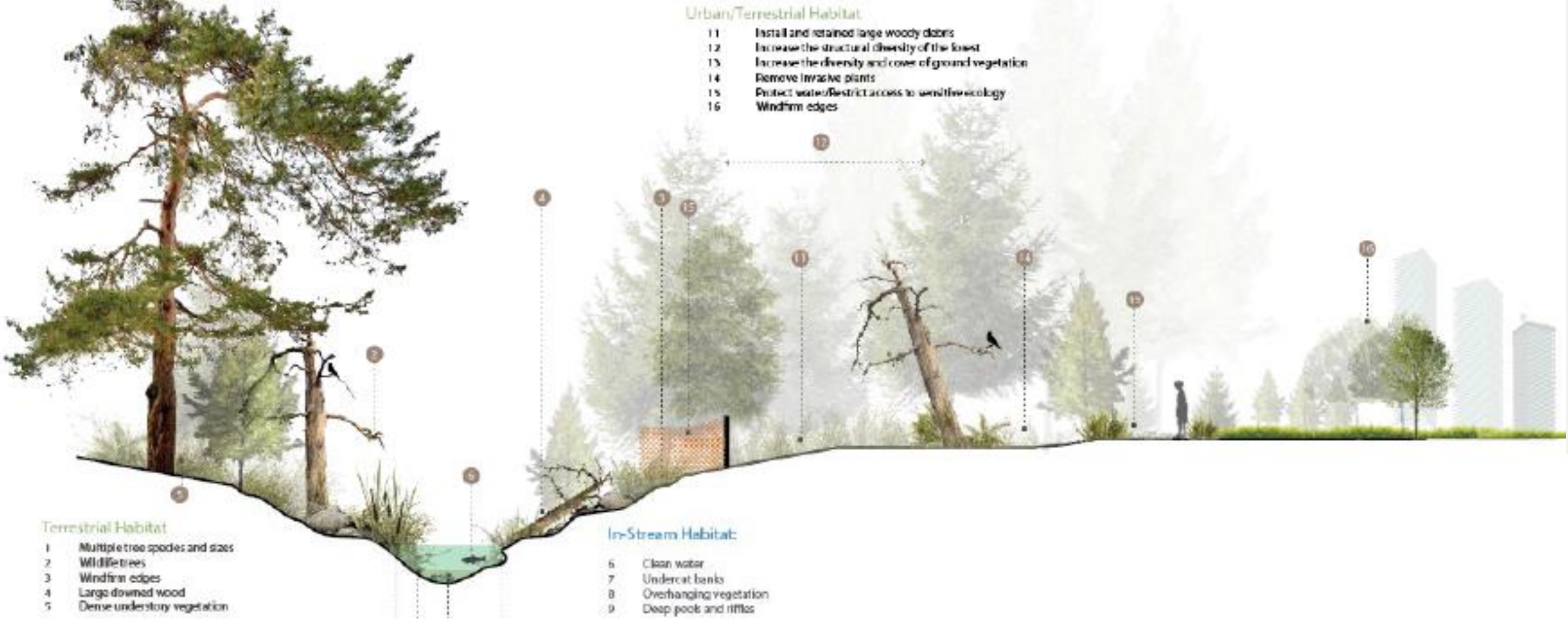
- Develop Adaptation Strategy
- Continue to implement:
    - Urban Forest Management Strategy
    - Integrated Stormwater Management Plan
    - Reduction of water consumption

Next Steps

- Summer consultation
- Final revisions
- Council endoresement in Fall 2022

Questions for the Advisory Committee

- What actions in the CEEP update excite you?
- Are there any areas you feel needed more attention or were missing?

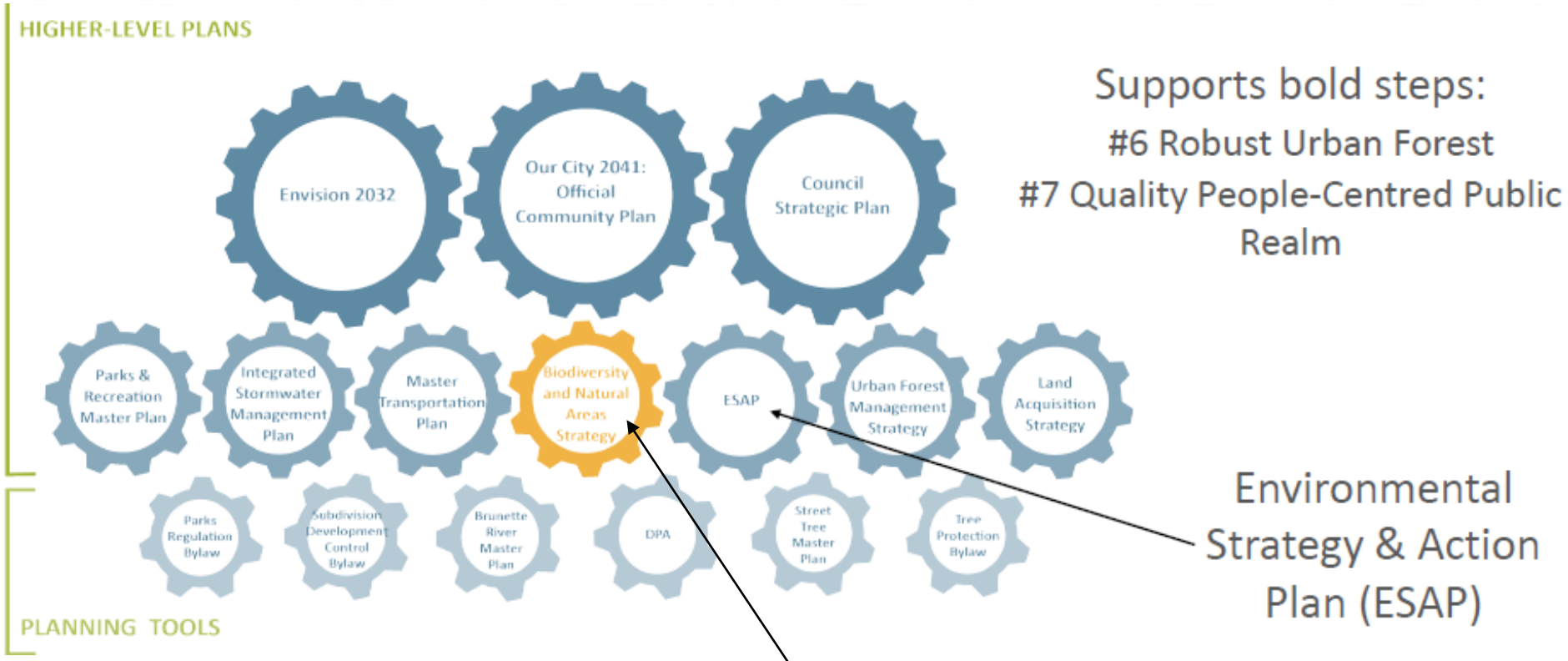


QUEENSBOROUGH ECOLOGICAL RESTORATION

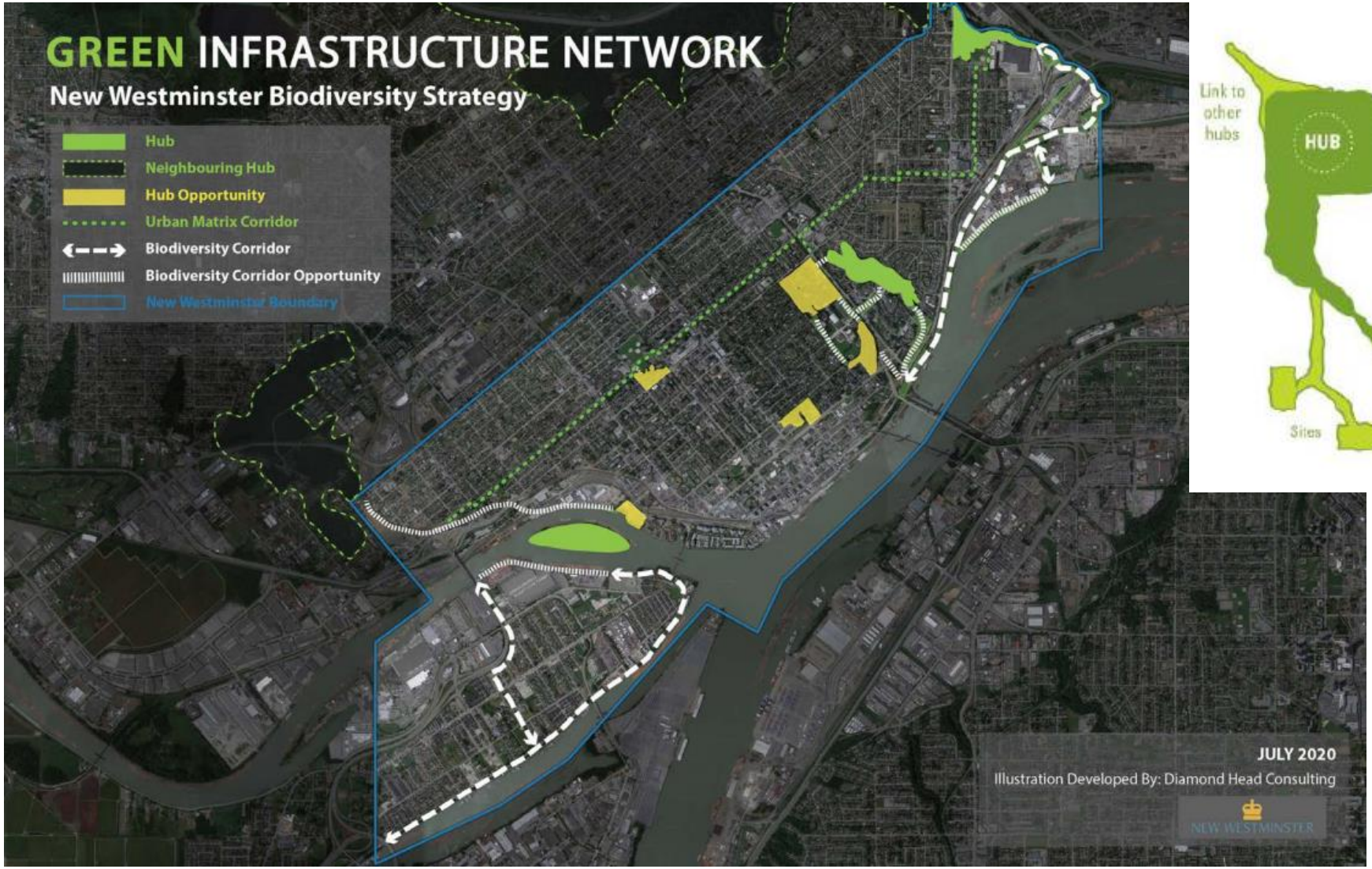
ENVIRONMENT AND CLIMATE ADVISORY COMMITTEE

JULY 20, 2022

SUPPORTING POLICY/ PLANS



GREEN INFRASTRUCTURE NETWORK



BACKGROUND

Development Assistance Compensation (DAC) Funding

Project Name: Queensborough Perimeter Trail Upgrades and Shoreline environmental restoration

a. Clearing/ Grubbing - $100,000

b. Site Prep (soil and mulch)- $125,000

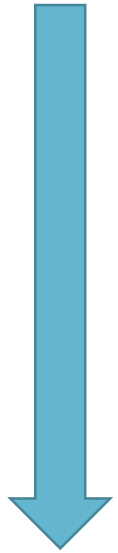
c. Plants and Trees (supply and install) -$150,000

d. Irrigation- $75,000

e. Signage/ outreach/ community event costs- $50,000

f. Total estimated cost - **$500,000**

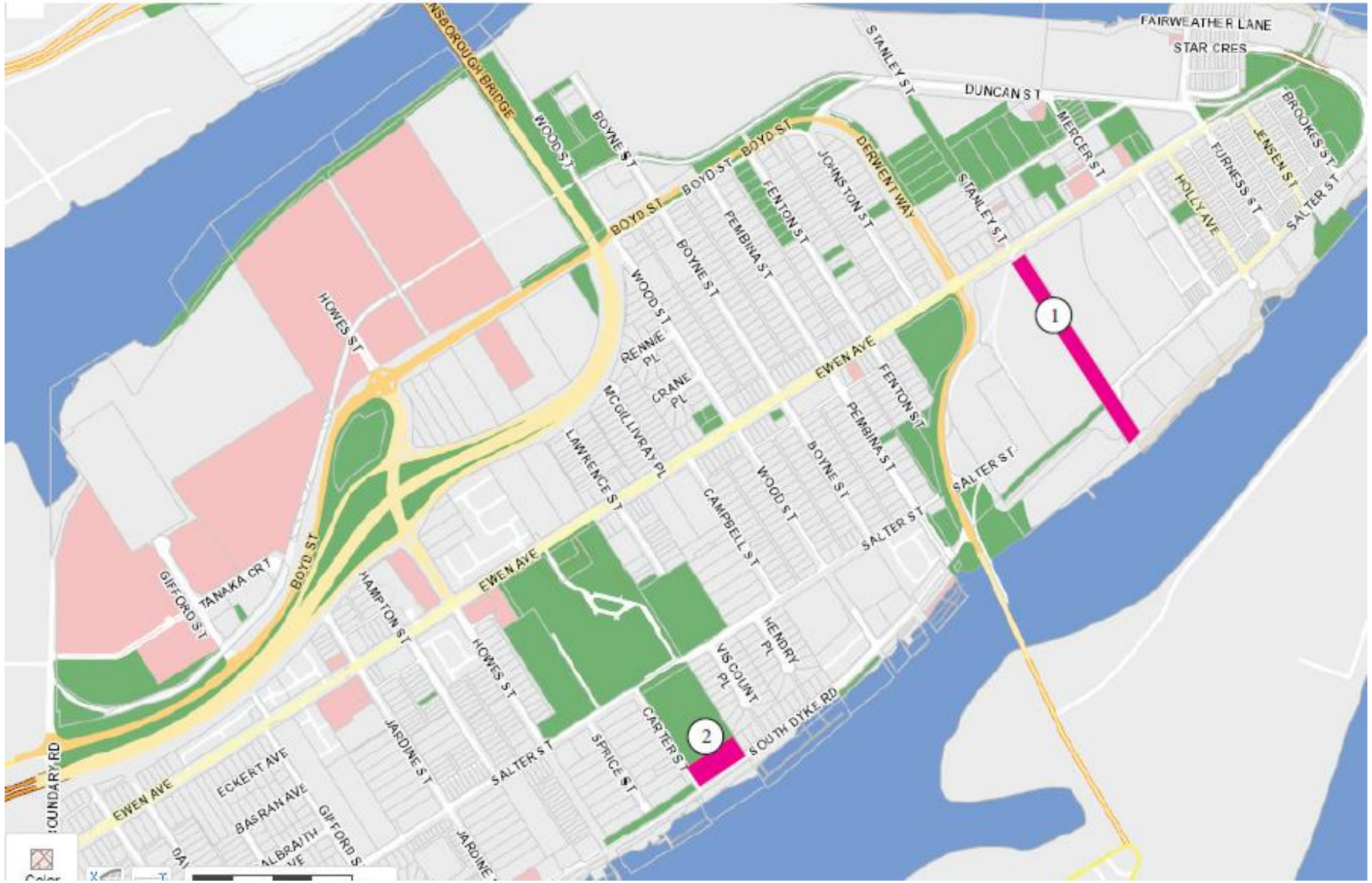
MARCH 2020:
APPROVED PROJECT FOR DAC FUNDING



DECEMBER 31, 2022
PROJECT MUST BE COMPLETE

LOCATIONS

Two locations selected through an interdepartmental staff workshop



SITE 1: STANLEY STREET GREENWAY

Between Ewen Ave. and Queensborough Perimeter Trail


Native tree and shrub plantings


Native shrub plantings.


Invasive species removal and native shrub plantings.


Native shrub plantings.
Secondary path and linear play

SITE 2: RYALL PARK (SOUTH)

Between Ryall Park south ball field and South Dyke Rd.


Re ocate bleachers away from snags.
Nature play area that integrates elements from the forest (logs, boulders, planting) into the design.
Existing wildlife trees to be retained?
Existing depression deepened to create vernal pond.*Water table to be confirmed.
Infill planting with native trees and shrubs with high biodiversity value.
Wood-clad bridge.
Gravel trail
Invasive removal
Mowable pollinator planting.
SOUTH DYKE RD
Vernal pond viewing platform with interpretation
Existing utility access road.
SECTION A
Optional vernal pond.
Reconfigured seating area with view to the Fraser River.
Optional fish and wildlife friendly culvert
Resurfaced and raised trail.
Brightly coloured crosswalk and trailhead markers.
Reconfigured seating area with view to the Fraser River.
H DYKE RD

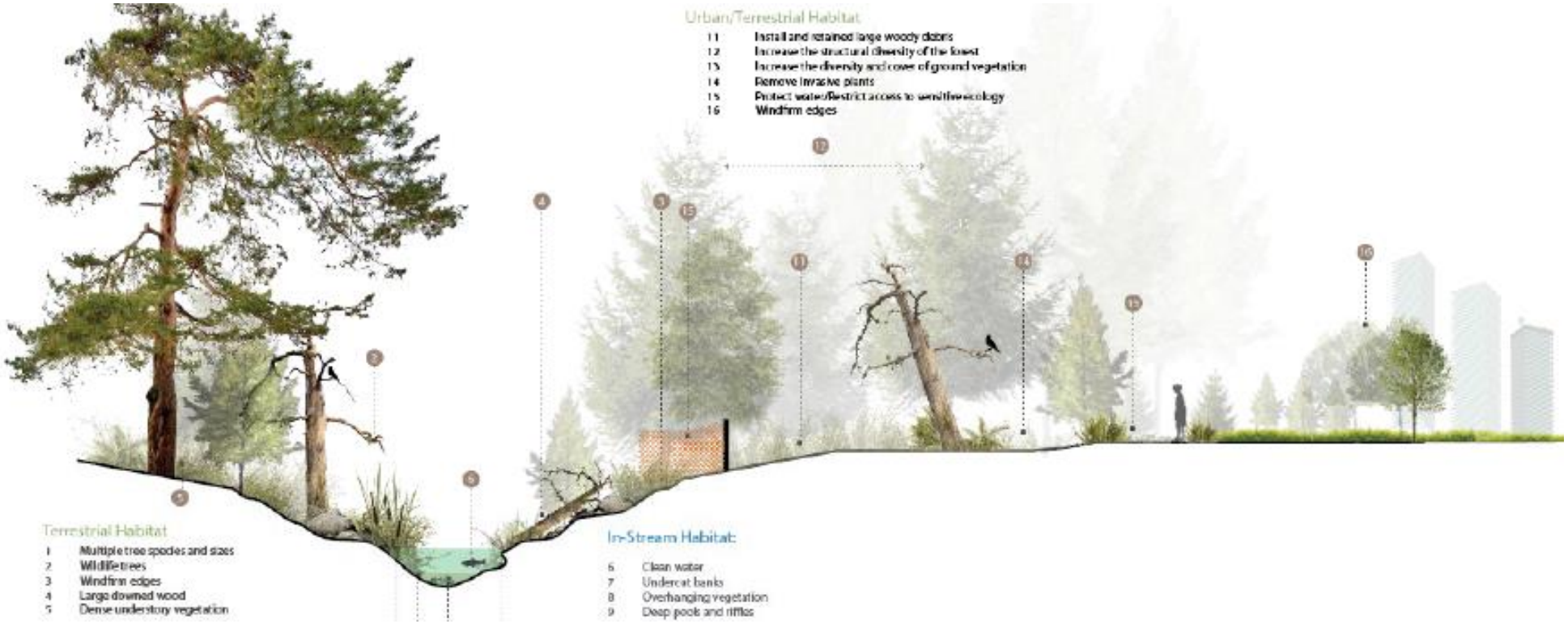
PROJECT SCOPE AND TIMELINE

1) Professional surveys and review sites with interdepartmental staff team **(complete)**
2) Consultant team developing detailed plans, cost estimate and tender documents for: **(in progress)**
    a. Formalizing trails (mulch or compacted gravel);
    b. Drainage improvements (as required);
    c. Invasive species removal;
    d. Planting plan for native trees/ shrubs focused habitat layering (i.e. to foster habitat, nesting, breeding, food sources);
    e. Other habitat improvements (snags, boulders logs, bird boxes, perches, etc.);
    f. Experience of nature improvements (seating, natural elements); and
    g. Design interpretive and wayfinding signage
    h. Create a maintenance/ operations plan
3) Tender for construction (aim to award by mid-August, 2022).
4) Begin construction after bird nesting season (aim to start October 10, 2022).
5) **Complete construction by or before Dec. 31, 2022.**

DISCUSSION

1) Any comments on the project?

2) Would the EACAC like to receive project updates (email or at next EACAC meeting)?



High-performance buildings - Identifying Gaps

In order to enable and incentivize the construction and occupancy of more high-performance buildings, we need to account for all the forces acting in the market.

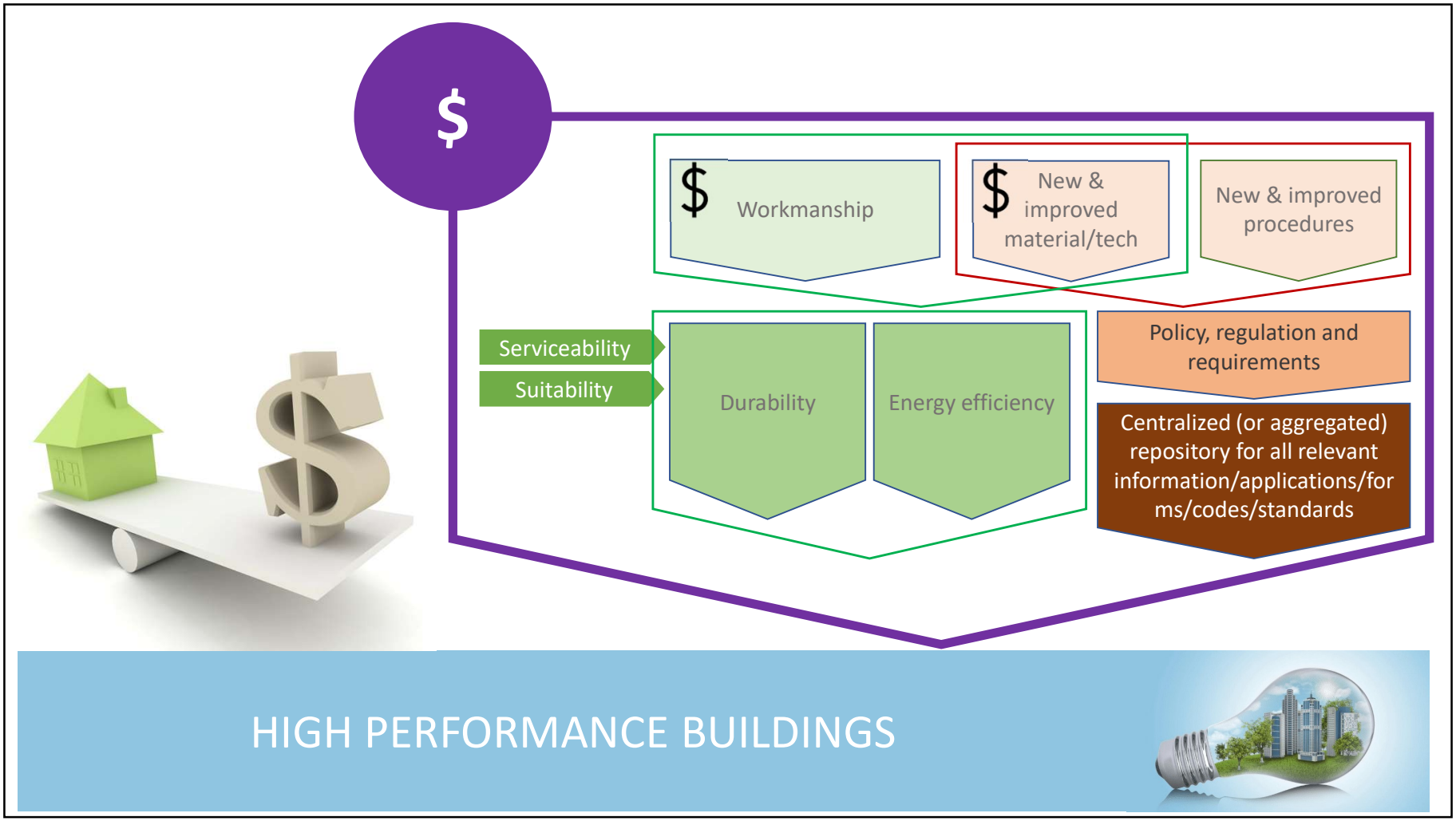
At minimum, we need the appropriate technology and procedures as well as the workmanship that would, together, result in increased performance. Our assessment of performance should account for both energy-efficiency as well as durability. If we had to rip out high-performing buildings every 10 years and build new ones, it would be counterproductive. Durability is characterized by longevity, serviceability and long-term suitability.

For example, a window replacement that requires destruction of the building envelope or structural framing is less serviceable than a window replacement that can be done with no disruption to other key building elements. Similarly, a focus on single-family homes in an urban environment that aims to increase high-density housing would be less suitable to long-term urban planning.

For us to get closer to our goals, we need to account for all the different pieces of the puzzle in a systemic manner. Existing gaps can better be identified this way.

One immediate concern is the patchwork of information out there which are disaggregated and scattered. Would we benefit from an effort to aggregate and centralize best practices?

1


$
$ Workmanship
$ New & improved material/tech
New & improved procedures
Serviceability
Suitability
Durability
Energy efficiency
Policy, regulation and requirements
Centralized (or aggregated) repository for all relevant information/applications/forms/codes/standards
HIGH PERFORMANCE BUILDINGS

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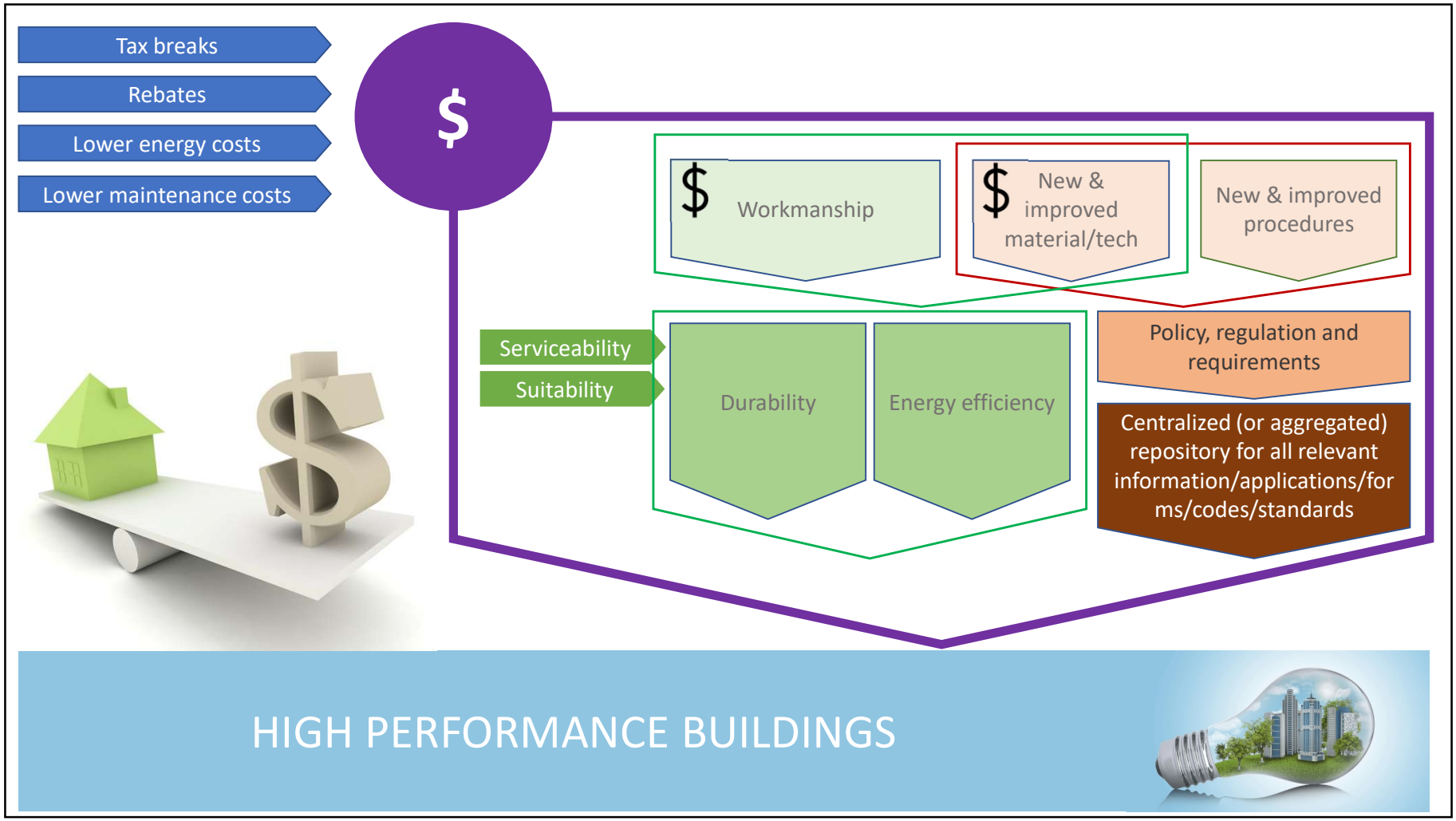
Tax breaks
Rebates
Lower energy costs
Lower maintenance costs
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New & improved procedures
Serviceability
Suitability
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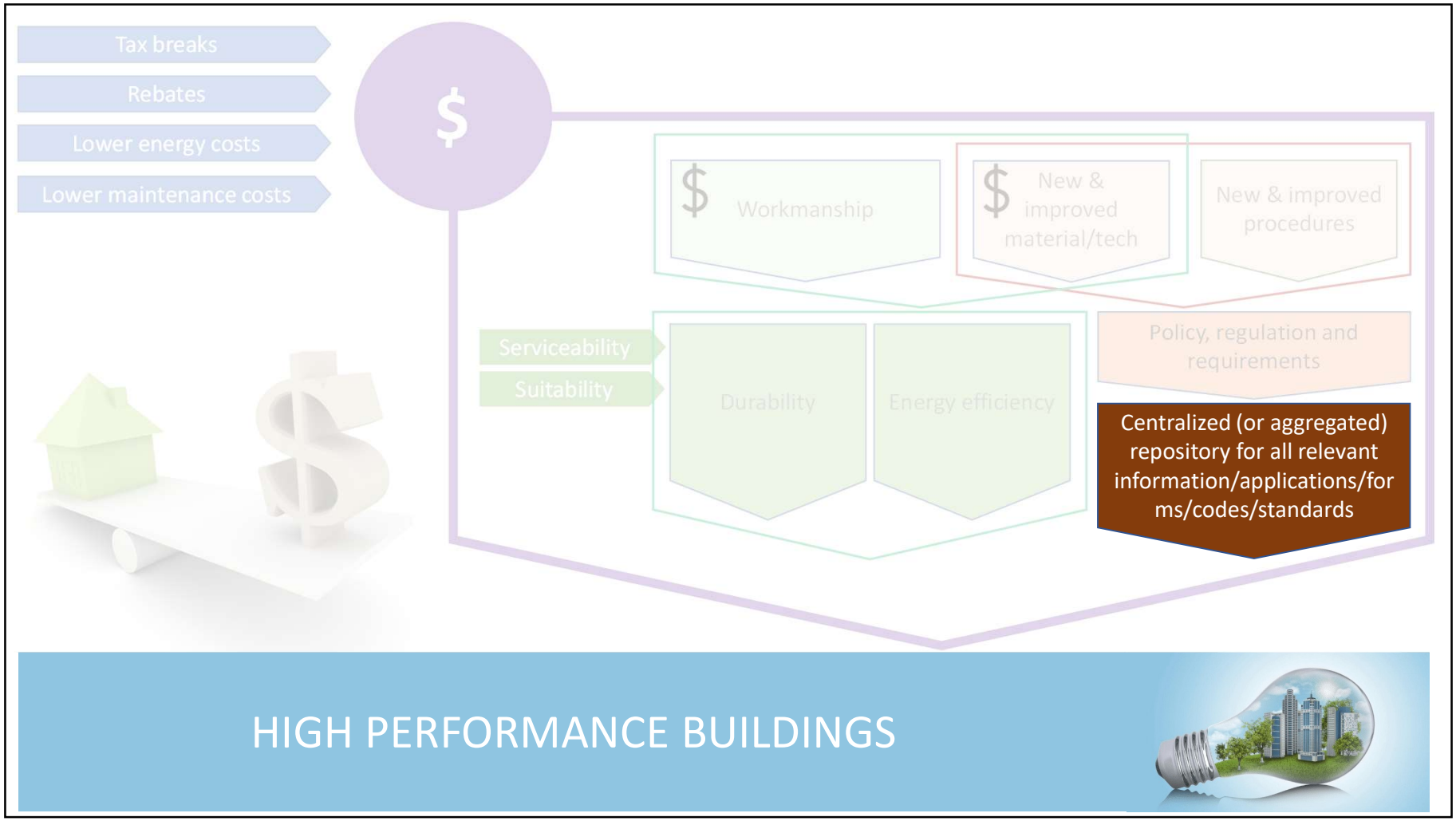
Energy efficiency
Policy, regulation and requirements
Centralized (or aggregated) repository for all relevant information/applications/forms/codes/standards
HIGH PERFORMANCE BUILDINGS

12


Tax breaks
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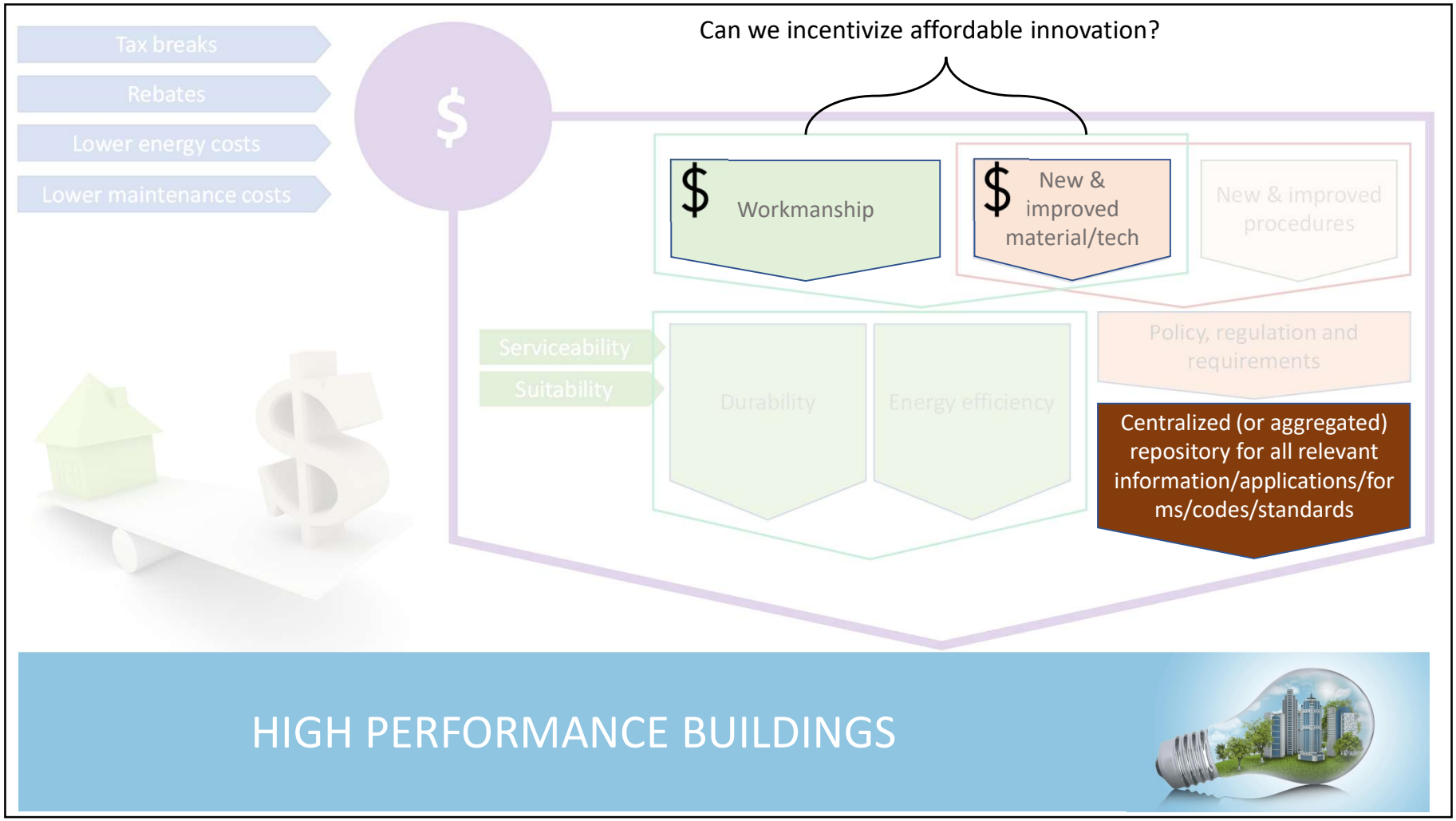
Policy, regulation and requirements
Centralized (or aggregated) repository for all relevant information/applications/forms/codes/standards
HIGH PERFORMANCE BUILDINGS

13


Tax breaks
Rebates
Lower energy costs
Lower maintenance costs
$
Can we incentivize affordable innovation?
$ Workmanship
$ New & improved material/tech
New & improved procedures
Serviceability
Suitability
Durability
Energy efficiency
Policy, regulation and requirements
Centralized (or aggregated) repository for all relevant information/applications/forms/codes/standards
HIGH PERFORMANCE BUILDINGS

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