

ENVIRONMENT COMMITTEE

*HIS WORSHIP, THE MAYOR
AND COUNCILLORS*

SUBJECT: CLIMATE ACTION FRAMEWORK

RECOMMENDATIONS:

1. THAT Council approve the Climate Action Framework, as outlined in Section 5 of the report;
2. THAT Council direct staff to bring forward a separate report on a City Energy Strategy showing corporate leadership in reducing carbon emissions and energy use; and,
3. THAT Council direct staff to publicly report annually on the Climate Action Framework's progress and the City's Energy Strategy implementation.

REPORT

The Environment Committee, at its meeting held on 2020 June 24, received and adopted the attached report seeking Council authorization for a Climate Action Framework which outlines 'Big Moves and Quick Starts' to ensure that climate action continues to progress within the City.

Respectfully submitted,

Councillor J. Keithley
Chair

Councillor C. Jordan
Vice Chair

Copied to:	City Manager Director Corporate Services Director Planning and Building Director Engineering Director Finance Director Parks, Recreation and Cultural Services Director Public Safety and Community Services City Solicitor
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TO: CHAIR AND MEMBERS
ENVIRONMENT COMMITTEE

DATE: 2020 March 11

FROM: DIRECTOR CORPORATE SERVICES
DIRECTOR PLANNING AND BUILDING

FILE: 33000 02

SUBJECT: CLIMATE ACTION FRAMEWORK

PURPOSE: To seek Committee and Council approval of a Climate Action Framework which outlines 'Big Moves and Quick Starts' to ensure that climate action continues to progress within the City across all sectors at a pace commensurate with the City's updated community carbon emission reduction targets.

RECOMMENDATION:

1. **THAT** the Committee recommend Council to:
 - a) approve the Climate Action Framework as outlined in Section 5 of this report;
 - b) direct staff to bring forward a separate report on a City Energy Strategy showing corporate leadership in reducing carbon emissions and energy use; and,
 - c) direct staff to publicly report annually on the Climate Action Framework's progress and the City's Energy Strategy implementation.

REPORT

1.0 INTRODUCTION

At the September 9, 2019 Council meeting, Council adopted a resolution declaring a Climate Emergency, which set new carbon reduction targets for the City. The targets are 45% reductions by 2030, 75% by 2040 and carbon neutral by 2050. In declaring a Climate Emergency, Council recognized that the dangers posed by the climate crisis warrant strong and urgent action by all levels of government, including local government. While the Climate Emergency declaration is largely symbolic, its adoption communicates recognition of a crisis and the intent to mobilize resources. At the meeting, Council directed staff to bring forward a separate report on a Climate Action Framework to ensure

that climate action continues to progress within the City across all sectors, at a pace that would enable the City to meet the City's updated carbon emission targets.

This report responds to that Council request, and outlines 'Big Moves and Fast Track Actions' to ensure that climate action remains a high priority and provides a context for the organization to meet the aggressive targets established by Council. The Framework also includes updated baseline greenhouse gas inventories following global protocols; verification of the new carbon reduction targets through two carbon emission scenarios (Current Policy Trends and Carbon Neutral 2050); and a sector by sector breakdown of the City's targets based on the Framework.

Addressing the climate emergency requires a sustained commitment over the next three decades and beyond. Burnaby's Climate Action Framework sets the roadmap for a cleaner future and must be supported over the long-term by:

- the City's strong and ambitious carbon emission reduction targets, aligned with regional targets, that commit the City to an energy transition by or before 2050;
- implementable Quick Starts, that will be updated as actions are completed and new actions identified;
- sustained resourcing for climate action, including in operating and capital budgets;
- support from the community – both residents and businesses; and,
- strong climate commitments, action and resourcing from senior governments.

2.0 POLICY SECTION

Climate Action Framework and proposed recommended path forward is aligned with the City of Burnaby's Corporate Strategic Plan by supporting the following goals and sub-goals of the Plan.

Goal

- A Safe Community
 - Transportation Safety – Make City streets, pathways, trails and sidewalks safer.
- A Connected Community
 - Partnership – Work collaboratively with businesses, educational institutions, associations, other communities and governments.

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- A Healthy Community
 - Healthy environment – Enhance our environmental health, resilience and sustainability.

- A Dynamic Community
 - Economic opportunity – Foster an environment that attracts new and supports existing jobs, businesses and industries.
 - Community development – Manage change by balancing economic development with environmental protection and maintaining a sense of belonging.
 - City facilities and infrastructure – Build and maintain infrastructure that meets the needs of our growing community.

- A Thriving Organization
 - Financial viability – Maintain a financially sustainable City for the provision, renewal and enhancement of City services, facilities and assets.
 - Reliable services, technology and information.
 - Technology and innovation – Support technology development and innovation to empower staff and to advance community objectives.

The Climate Action Framework is also aligned with Burnaby’s Environmental Sustainability Strategy (ESS) and Community Energy and Emissions Plan (CEEP).¹ The Framework supports eight ESS goals by advancing more than 15 strategies. During development, the ESS and CEEP engaged with more than 2500 people and gathered more than 8000 ideas, laying the groundwork for the proposed City’s Climate Action Framework.

Upcoming strategic plans will be fundamental to full implementation of the Climate Action Framework. The intention is that these critical policies, including the new Transportation Plan and Housing Strategy, currently in progress, as well as the Official Community Plan, will be aligned with the Climate Action Framework.

¹www.burnaby.ca/Assets/city+services/policies+projects+and+initiatives/environment/Approved+ESS.pdf;
www.burnaby.ca/Assets/city+services/policies+projects+and+initiatives/environment/Approved+CEEP.pdf

3.0 CITY'S GREENHOUSE GAS EMISSIONS

Burnaby's previously reported community emissions in the Community Energy and Emissions Inventory (CEEI) were just under one million tonnes in 2010.² These community emissions came from sources under the City's control or influence, namely: buildings within the City's boundary, vehicles owned by City residents and businesses, and solid waste generated within the City.

New carbon accounting standards, such as the internationally recognized Global Protocol for Community-Scale Greenhouse Gas Emissions (GPC), track community emissions using a globally standardized approach. The GPC includes additional emissions sources, such as upstream emissions from oil and gas, some marine and air travel, more off-road transportation emissions, industrial processes, and land use change.³ Recognizing this, Burnaby has created a community carbon emissions inventory for 2010 using the new protocols (see [Figure 1](#)).

The City generally has the greatest influence on emissions from buildings, transportation and waste; these emissions most closely align with the former CEEI data.⁴ The "Other" category includes additional GPC emissions, as noted above, predominantly those not under direct local government control and influence. Other emissions which comprise 20% of community emissions make achieving the climate emergency targets more challenging for local governments. Action by others, including senior levels of government, will be necessary if Burnaby is to meet its targets.

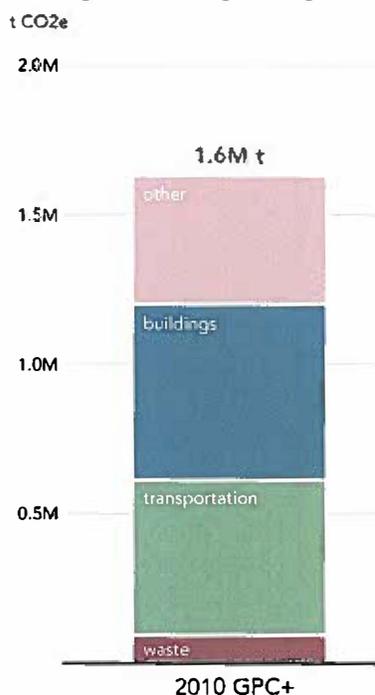


Figure 1. Burnaby's updated community emissions, GPC (global protocol).

² The inventory made use of 2010 provincial CEEI data. CEEI inventories are no longer provided by the Province.

³ The GPC uses a "scope" based approach, which categorizes emissions by where they physically occur: Scope 1: emissions from sources located with a municipal boundary; Scope 2: emissions occurring from using grid-supplied energy within a municipal boundary; and, Scope 3: other emissions occurring outside a municipal boundary resulting from activities inside the boundary. Where local data is not available, data is scaled using appropriate factors such as population.

⁴ Due to changes in the way that data is reported, this baseline is not directly comparable to the earlier CEEI inventory. For example, stationary emissions from industrial buildings are now included in building emissions. Industrial process emissions are included in "Other", based on provincial and/or federal data that uses population as the scaling factor.

4.0 MEETING CITY'S CARBON NEUTRAL TARGET BY 2050

The Burnaby Climate Action Navigator Tool (CAN Tool)⁵ has been used to model two emissions scenarios. In the "Current Policy Trends" scenario (see [Figure 2](#)), current policy commitments guide energy use and emissions. The "Carbon Neutral" scenario (see [Figure 3](#)) illustrates a policy approach that further reduces energy use and switches fuels predominantly to electricity, which greatly reduces emissions.

"Business as Usual" (BAU) emissions projections are shown by the black line in Figures 2 and 3. The BAU CAN Tool includes existing regulations, particularly Federal fuel efficiency requirements for vehicles and current energy requirements in the BC Building Code, and projects energy consumption and GHG emissions at 2030, 2040, and 2050. The BAU does not include any additional energy or GHG mitigation policies or action at any level of government. With existing BAU regulations, Burnaby's community emissions trend strongly upwards, due mainly to increased population growth and no further reduction regulations.

4.1 Current Policy Trends

Both the Federal and Provincial governments have announced or made commitments to updated or new policies. These current policy trends include Clean BC commitments to the BC Energy Step Code coming into effect in 2032, additional renewable fuels in the liquid fuel supply, and 2040 targets for passenger electric vehicles. The Federal government has softer commitments, including support for vehicle electrification. Such policies are anticipated to have some effect on the BAU emissions projection. Some programs are now in place (e.g. EV purchase incentives, re-committed to annually), although supporting regulations have yet to be developed and/or adopted by the provincial or federal governments for many of the commitments.

The Current Policy Trends scenario assumes that these policies and programs are implemented, continued, and have impact. The scenario, summarized below by the emissions wedges in Figure 2, therefore shows projected GHG emissions with some additional passenger vehicle electrification (supported by Burnaby's residential EV charging policy), the BC Energy Step Code, and an increased level of renewable vehicle fuels (ethanol and bio-diesel). The results indicate that current commitments will have an impact on GHG emissions in 2050, somewhat reducing the baseline projection. However, the impact of current policy trends does not move GHG reductions below 2010 levels, partly due to anticipated new development in Burnaby and associated increases in population. Current policy trends are inadequate to fully address Burnaby's climate emergency target; additional action is required.

⁵ An earlier version of the CAN Tool was used to model emissions and scenarios for the 2016 CEEP. Burnaby's CAN Tool been updated to extend the target date to 2050, and reflects more recently developed policy options including the BC Energy Step Code.

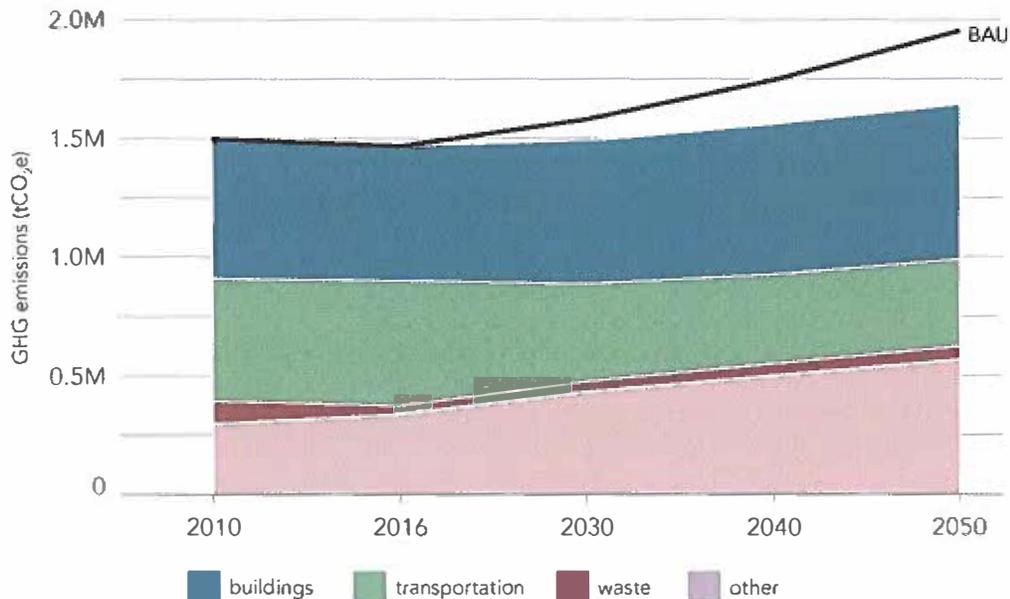


Figure 2. Current Policy Trends projections to 2050.

4.2 Carbon Neutral 2050

The Carbon Neutral 2050 scenario illustrates one feasible pathway to achieve the energy transition necessary for a carbon neutral community (Figures 3 and 4). The scenario estimates the potential energy consumption, non-fossil fuel energy supply, and GHG emissions at 2030, 2040 and 2050 for a package of actions based on City’s Climate Action Framework. Projected increases in population, building types, and the projected impacts of confirmed policies and regulations from other levels of government are consistent with the Current Policy Trends scenario. However, additional strategies have been included, based on actions the City and others can take beyond current trends.

Results indicate that achieving the required energy transition is possible, mainly with current technology and available policy levers. Some strategies require additional policy to achieve the desired emissions reductions, such as achieving zero-emissions in new buildings.⁶ Some strategies are very challenging, such as building retrofits, as policy tools to require the retrofits are limited, and funding the retrofits would be costly. “Other” emissions are mainly addressed by action taken by others with respect to consumption and industrial-based emissions. Some additional future strategies will need to be developed to address the final remaining emissions.

For Council’s information, the Trans Mountain Pipeline expansion project relates to the supply of fossil fuel. The expansion project aims to triple the capacity to transport fossil

⁶ Burnaby’s Green Building Policy employs “alternate compliance” which allows developers the option to meet a higher step of BC’s Energy Step Code, or to more stringently reduce greenhouse gas emissions while meeting to a lower step of the Energy Step Code.

fuels such as bitumen and related products to the Marine Terminal in Burnaby, mainly for export. The pipeline expansion, which will add 14 storage tanks in Burnaby, also increases community safety risks. Burnaby has therefore been actively engaged in opposition to the Trans Mountain Pipeline.

Regulation of the pipeline expansion project rests with the Canada Energy Regulator (formerly the National Energy Board). Burnaby's Climate Action Framework complements past City actions opposing the pipeline expansion. While the pipeline builds additional fossil fuel supply, the Climate Framework focuses on reducing community energy demand and transitioning the community of Burnaby from fossil fuels to renewable energy and fossil fuel alternatives to achieve a carbon neutral community.

Implementing the required changes, which includes funding for programs and infrastructure as well as public and industry buy-in and participation, within the timeframe necessary, will be challenging. For example, delays in implementation, and the addition of new fossil fuel infrastructure in the community, will exacerbate the transition challenge. The 2030 interim target is particularly challenging to meet, because achieving net-zero new buildings will take several years to implement, retrofits will take time to accelerate, and the infrastructure supporting a shift to active transportation, public transit and electric vehicles will take time to build. The 2040 interim target is more achievable, if aggressive actions to start the transition begin now. Carbon neutrality, as noted above, will require some additional and emerging policy tools and technologies.

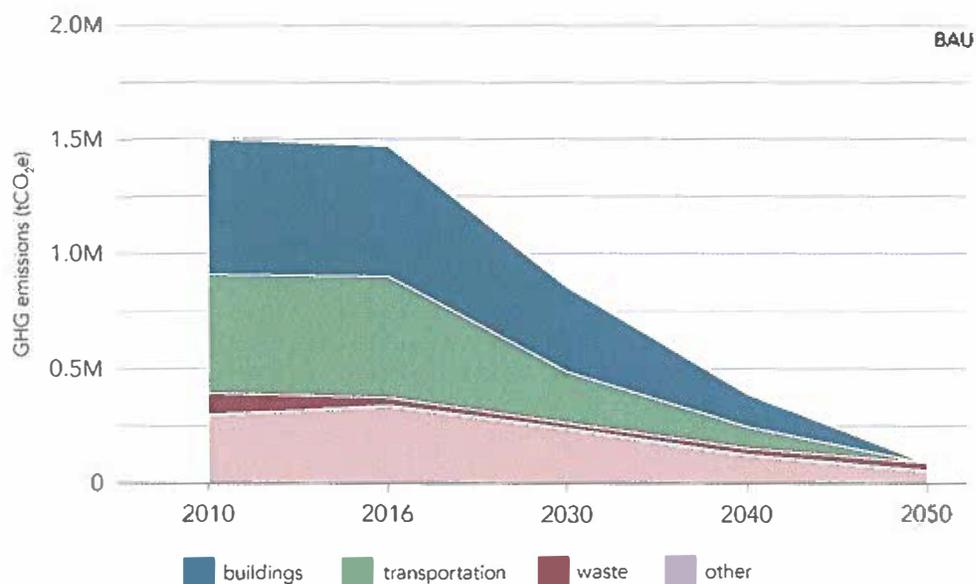


Figure 3. Carbon Neutral 2050 scenario.

It is important to note that the reduction strategies are not necessarily additive, as numerous interactions between strategies change the outcomes. For example, in the Transportation sector, increasing the number of trips made by active transportation

reduces the number of trips made in private vehicles: shifting modes impacts the effects of, and need for, electric vehicles. In the Building sector, achieving net zero new buildings more quickly reduces the need for retrofits later. Similarly, increasing the rates of retrofits on existing buildings reduces the amount of natural gas used, which in turn decreases the future need for renewable natural gas.

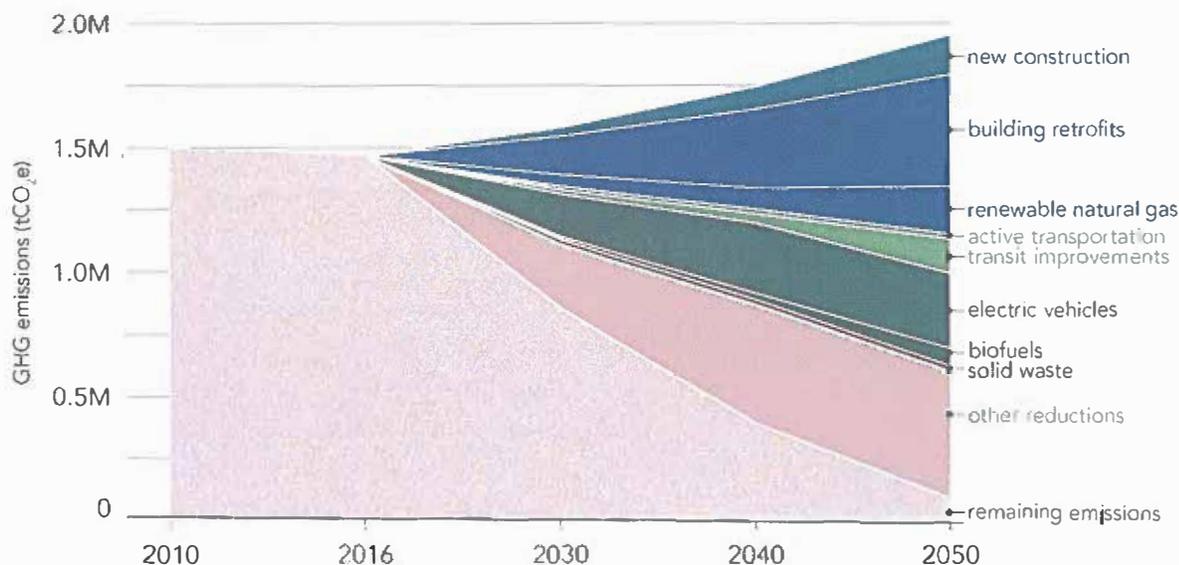


Figure 4. Carbon Neutral 2050 reductions by strategy.

Renewable Fuels and Additional Reductions

The Climate Action Framework aims to transition Burnaby away from fossil fuels, with an emphasis on reduced demand and increased electrification. Electrification is a good energy alternative due to the availability of low-carbon grid electricity in British Columbia.⁷ In some cases, biological renewable fuels may also act as a substitute, helping to meet the 2050 target. However, biological renewable fuels have supply constraints.

Biofuels (e.g. bioethanol and biodiesel) can replace a portion of conventional gasoline and diesel fuel consumption in vehicles. Derived directly from plants or indirectly from agricultural and other wastes, they are considered carbon neutral (although carbon is involved in their processing and transport). Canadian demand for biofuels currently outpaces Canadian production and the future available supply is uncertain.

Renewable diesel and renewable natural gas, produced through biological processes, may also face supply constraints. This uncertainty should be taken into consideration when considering the role of renewable fuels in future climate change scenarios.

⁷ Although BC grid electricity is not 100% renewable, it is more than 90% carbon-free, and therefore considered a renewable fuel for the purposes of this Framework.

The Carbon Neutral 2050 scenario assumes that remaining fossil energy use, after demand reduction and electrification, is supplied by renewable fuels in 2050 (Figure 4). This assumption is highly uncertain, but currently is required to achieve carbon neutrality, alongside “additional reductions” which remain to be defined.⁸

5.0 CLIMATE ACTION FRAMEWORK

The Climate Action Framework responds to the climate emergency and the strong and urgent action needed.

5.1 Overview

Burnaby’s carbon reduction targets, aligned with those adopted by Metro Vancouver, require the Burnaby community to complete an energy transition in less than thirty years. This Climate Action Framework lays out key transition components as Seven Big Moves. Taken together, the Big Moves will accelerate Burnaby’s climate action over the next decade and beyond so that the City’s Climate Emergency targets can be met.



⁸ Additional reductions are necessary for sectors where the City of Burnaby has little if any influence, such as emissions from marine and air travel by Burnaby residents, and Burnaby residents’ proportion of industrial process emissions from elsewhere in BC. Additional reduction strategies will need to be developed by other levels of government and industry, as noted in Clean BC.

The Climate Action Framework builds on existing Burnaby policy, such as Burnaby’s long-standing compact growth around high-quality public transit, the more recent residential EV charging requirement, and the City’s Green Building Policy. Burnaby is also currently advancing related policy, such as the new Transportation Plan and updated Urban Village plans. The Framework has been aligned with current policy initiatives and City programs to ensure that they are mutually supportive.



Figure 4. Allocation of carbon emission reductions by Big Move, to 2050.

Each Big Move has three to four associated “Quick Start” actions. Quick Starts commit Burnaby to immediate implementation of policy, programs and infrastructure which move the City towards a full energy transition and a carbon neutral community. They are intended to be completed within a three year cycle, and included in capital and operating budgets as necessary. The Quick Starts will ensure that key components of the policy and infrastructure necessary for the energy transition are put into place as rapidly as possible.

The Quick Starts were reviewed by cross-departmental staff teams drawn from Finance, Corporate Services, Planning and Building, Engineering, Parks, Recreation and Cultural Services, and the Burnaby Library, to determine implementation feasibility.

The first cycle of Quick Starts is detailed in this Framework; however, these initial Quick Starts are not the only actions that will be needed. The Climate Framework will be publicly reported on annually, and reviewed and updated tri-annually, to measure completion and revise and add new Quick Starts, ensuring that Burnaby’s path to the energy transition is continuous and adaptive.

5.2 BIG MOVES AND QUICK STARTS

This section details the Climate Action Framework. The Framework sets out seven Big Moves and associated Quick Starts that together provide the roadmap for reducing Burnaby’s greenhouse gas emissions.

Table 1 summarizes the Big Moves and Quick Starts, and also identifies Burnaby’s supporting policies, including existing policy, policy to be updated, and new policy areas.

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Key supporting policy and programs from others such as Metro Vancouver and the province are also identified (see Attachment #1).

Details about each Big Move and Quick Start are noted to be as follows:

Big Move 1: Climate Leadership

Description/Vision: Burnaby strengthens City Leadership, administrative capacity, and community engagement on climate and energy. Burnaby maintains and extends its role as a leader in climate action with meaningful and achievable plans and policies to reduce carbon emission. The City participates regionally on climate action and integrates climate-specific targets, policies and actions into ongoing capital and strategic planning.

As a leader, the City uses its own facilities and fleet as examples of carbon neutral operations, with an internal carbon price. Through strategic planning, relevant departments and staff are mandated and resourced to advance action on climate change. Progress is documented and reported back to the public to demonstrate transparency and accountability.

Facilitated by the City, Burnaby citizens learn more about climate change and are engaged in the energy transition in City venues and facilities. Dialogue on climate issues is facilitated by the Burnaby Library, in partnership with other groups.

Impact: By embedding commitment on climate action in day-to-day operations, strategic planning and City budgets, as well as public outreach, Burnaby establishes a strong direction and example for the community to achieve climate targets. With sufficient resources, City departments and staff are prepared to take the actions necessary to support the energy transition and other Big Moves.

Co-benefits: Climate Leadership also supports the City's Corporate Strategic Plan.

Existing Work: This Big Move builds on Burnaby's current role as a policy leader on climate action, including implementation of the current CEEP and Environmental Sustainability Strategy through initiatives such as the EV charging requirements, Green Building Policy, and expansion of organic waste diversion.

Implementation: This Big Move requires commitment from Council and City leadership to coordinate and resource climate action at an organizational level.

Timeline: Quick Start implementation to begin in 2020; Leadership sustained throughout the energy transition.

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Leadership Quick Starts

1. **Develop the City Energy Strategy; create an Energy Transition Team; establish reporting procedures**

This Quick Start commits the City to develop a City Energy Strategy, which will outline the energy transition on a corporate basis, with leadership emissions targets. The Strategy will provide principles for corporate decision-making related to energy and climate, and extend and accelerate corporate action on climate change.

The City will assemble a centralized multi-disciplinary Energy Transition Team responsible for coordinating across the Climate Action Framework and the Big Moves to take advantage of synergistic opportunities, as the implementation of one action can have benefits on another. The Team could also coordinate cross-departmental implementation of relevant actions emerging from the new Transportation Plan, continue implementation of the public electric vehicle (EV) network, and support Green Building Policy implementation.

Burnaby will also develop a performance plan that monitors the delivery of sector-specific energy and emissions policies and programs, including Quick Start progress. Progress will be reported publicly on an annual basis for both community and corporate climate action.

2. **Commit to net-zero new facilities and an internal carbon price**

Burnaby will review and identify City facilities in sufficiently early stages of planning and development so that they can be developed as low or zero-carbon. A civic facilities policy will be developed to ensure all future buildings are zero-carbon where feasible, taking the internal carbon price into account. New facilities that can serve additional adaptive purposes, such as summer cooling shelters and clean air centres, will be identified.

Burnaby will develop an internal carbon pricing system, similar to Metro Vancouver's which is currently \$150/tonne, to support the energy transition. The internal carbon price, or "shadow price" will provide a mechanism to assess the long-term life-cycle costs of projects through a climate lens. The Finance Department will also ensure financial climate stability through development of a Climate Action Reserve.

3. **Work with partners and advocate for action by others, including senior governments**

Several areas of action require support from other levels of government. Burnaby will work with Metro Vancouver and member municipalities to advance climate action and advocate for policy change and resourcing from provincial and federal governments. Examples may include: coordinating GHG inventories for local governments in Metro Vancouver, improved data collection and data sharing to track progress, advocating for

the provincial addition of a carbon cap or greenhouse gas intensity target in the Energy Step Code, supporting regional retrofit programs, and advocating for technical and financial support for retrofits from senior levels of government.

4. Expand climate awareness, engagement and dialogue

Responding to the climate emergency will require action on the part of all members of the community, whether choosing a different transportation mode, upgrading one's heating system, or supporting improved green spaces in the community. This Quick Start would build on current initiatives, in which Burnaby departments provide public outreach and engagement on City issues, to include climate emergency information and climate action guides to community members. Community engagement and consultation in support of specific actions would also be undertaken.

To engage the community on broader questions around the climate emergency, the Burnaby Library will partner with community organizations to host public forums and events.

Big Move 2: Resilient Neighbourhoods

Description/Vision: By 2040, Burnaby has created a network of low-carbon, resilient neighbourhoods with housing for everyone. Medium-density development has been strategically added to existing, new, and expanded Urban Villages and single and two-family neighbourhoods, prioritizing locations along transit corridors. Renewable energy projects are integrated into neighbourhoods where feasible. New development includes provisions that eliminate building and transportation emissions and increase cooling, with public realm improvements including trees, greenspace and green infrastructure. A variety of housing types are supported on a neighbourhood basis, including accessory dwelling units, multiplex buildings, townhouses, four to six storey apartments, mass timber buildings, and commercial uses.

Impact: Building on a strong foundation of compact growth, resilient neighbourhoods ensures the efficient use of land for housing, enabling growth within climate target limits. When combined with Big Move 6 (Net Zero New Buildings), this Big Move strategically replaces GHG-producing buildings with net-zero carbon buildings while increasing the number of housing units, and enables a successful transportation shift in neighbourhoods that are currently car-dependent (Big Move 4, Accelerated Mode Shift).

Co-benefits: Resilient Neighbourhoods also supports household diversity and housing affordability, public health and equity, and climate adaptation (clean and cool indoor air, storm water mitigation).

Existing Work: This Big Move builds on Burnaby's longstanding commitment to transit-oriented, compact urban development and supports the OCP, as well as the ESS Live Goal of "A network of compact and complete communities within a fabric of healthy

ecosystems.” This Big Move aligns with ESS and CEEP strategies and actions supporting more complete, walkable/bike-able, climate-resilient communities. It also aligns with recommendations in the Housing Task Force report to add more housing choice.

Implementation: This Big Move should be aligned with the new Housing Strategy and Transportation Plan (both currently in progress) and the upcoming OCP review. It will be implemented through updated Urban Village Plans and Zoning Bylaw amendments.

Timeline: Complete Quick Starts by 2023, in alignment with the Housing Strategy and Transportation Plan. Review and refine other areas as neighbourhood plans and OCP updates are undertaken.

Resilient Neighbourhood Quick Starts

1. Plan for resilient Urban Villages

Burnaby has a network of Urban Villages that are identified for their potential to evolve and change into complete and resilient neighbourhoods, including redevelopment that delivers residential growth, commercial services, employment opportunities, public green space, and multi-modal transportation options. Urban Villages are typically located near a Skytrain Station or on TransLink’s Frequent Transit Network.

Through the review of Urban Village Community Plans, the City can revise land use designations and zoning districts to enhance neighbourhood resiliency and support a zero-emissions future. The review of Urban Village Plans will consider emerging forms of development such as mass timber buildings taller than six storeys and buildings with zero-emissions. Also, the public realm can be improved, public green space and trees added, and natural systems can be enhanced with green boulevards and corridors. This Quick Start commits the City of Burnaby to review and update two Urban Village areas by 2023.

2. Prepare for renewable district energy and other renewable energy projects

Renewable energy projects can supply energy locally, and will be evaluated on a project by project basis within neighbourhoods.

Renewable district energy can efficiently distribute heating and cooling to buildings across a neighbourhood or district. Although some systems make use of efficient natural gas heating systems, newer technologies can provide zero-emissions systems. Burnaby has several existing or in-process private and institutional district energy systems, including geothermal in Brentwood, and a future biomass system at SFU.

This Quick Start commits the City to consider a district energy utility that makes use of renewable or “waste” energy sources such as excess heat from Metro Vancouver’s waste-to-energy facility, located in Burnaby. Renewable district energy systems can connect both new development and existing buildings, reducing emissions for all the buildings connected to the system.

This Quick Start also includes consideration of bylaws and policies that enable uptake of the district energy utility to help ensure sustainable project implementation.

3. Plan for zero-carbon communities in the OCP

Projected growth and development in Burnaby could increase community carbon emission if the new construction is not net-zero, and zero carbon mobility options are not available. This Quick Start will ensure that carbon considerations related to buildings, land uses, urban forms, and mobility are explicitly included in the upcoming OCP update.

Specifically, staff will explore how the OCP can introduce or reinforce policies that plan for existing or future zero-carbon opportunities, such as mid-to-high rise mass timber construction, strategic growth near zero-carbon mobility options, or moderate increases in density or building heights that have the added benefit of making zero-emissions building forms more viable. The OCP review can lead to consequential regulatory or bylaw changes, such as the creation of development permit areas, density incentives, or zoning relaxations in support of climate action initiatives and zero-emissions development. The City will complete the policy review within three years.

4. Develop a Climate Adaptation Strategy with associated 10-year capital plan

Climate change is having and will continue to have short and long-term regional impacts, including warmer summer days and nights, wetter winters and drier summers, continued sea level rise, and stronger and more frequent extreme rainfall events.⁹ Climate impacts in turn will affect regional water supply and demand, sewage and drainage infrastructure, ecosystems, agriculture, air quality and human health, building energy demand, and the local economy.¹⁰ To ensure resilience and prepare for the changes, local governments in the region are and will continue to take action to adapt to climate change impacts. Such actions include updating drainage design requirements, adopting and updating green infrastructure standards and storm water management requirements, enhancing dike management and ecosystem health, exploring greywater reuse, and considering policies such as peak or seasonal water pricing to reduce water demand.

⁹ Metro Vancouver. [Climate Projections for Metro Vancouver](#). September 2016. See also [Technical Brief: Climate Change Impacts on Precipitation Stormwater for 2050 and 2100](#); average rainfall is projected to increase 20%-45% by 2050 (2018, Figure 4).

¹⁰ Ibid.

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Coordinated adaptation across departments ensures timely and efficient adaptation measures. Burnaby will engage in an integrated and systematic adaptation planning process, including a 10-year capital program, to provide strong direction to City Departments as Burnaby modifies policies, practices and infrastructure to respond to a changing climate.

Big Move 3: Healthy Ecosystems

Description/Vision: By 2050, Burnaby has increased the extent and improved the health and resilience of the City's greenspaces,¹¹ including streamside areas and the urban forest. Burnaby will have set, and met, a tree canopy cover target.¹² Burnaby's greenspaces provide summer cooling to all neighbourhoods and reduce storm water impacts.

Impact: Ecologically healthy greenspaces, forests, stream areas and urban trees reduce the urban heat island effect, reducing energy use (and costs) for cooling in the summers.

Co-Benefits: This Big Move also supports public health and equity, biodiversity, and climate adaptation through cooling and storm water mitigation. Healthy ecosystems improve air quality and support a healthy city by providing shaded public spaces for respite during summer heat events.¹³

Existing Work: This Big Move supports the ESS Breathe Goal of "A community resilient to climate change, with clean air and low carbon emissions" and the Breathe 3.2 Big Move "Resilience to Climate Change," as well as the ESS moves for Green and Flow. This Big Move builds on Burnaby's current Town Centre Street Design Standards for raingardens and urban forest canopy, and on-going work within Parks and Engineering to maintain and enhance the City's greenspaces.

Implementation: Regenerating streamside areas, increasing the urban forest canopy and expanding and enhancing healthy greenspaces is a long-term process. Strategic planning should occur within the next three years to provide the long-term policy direction necessary for a healthy urban forest and greenspace network, along with case-by-case implementation. An equity lens is important to ensure that lower-income neighbourhoods

¹¹ Ecologically healthy and climate-resilient greenspaces are biologically diverse, include site-appropriate native and other plant species, and are appropriately managed for succession, longevity and resistance to disease. Burnaby's greenspaces include conservation and restoration areas, streamside areas, street trees, public and private landscaping, raingardens, and passive and active parks.

¹² Burnaby's current tree canopy cover is 34%, just above the regional average (2014 data from: Metro Vancouver, *Regional Tree Canopy Cover and Impervious Surfaces*, p. 11).

¹³ Note that urban forests are neither large enough nor long-term enough (sustained over thousands of years) that they can provide significant levels of carbon sequestration. The urban forest is therefore not intended to offset fossil fuel emissions; however, urban greenspace can reduce summer energy demand, improve public health and provide ecological benefits.

are equally considered in planning and programs, achieving equitable benefits from street trees and access to natural areas and public parks.

Timeline: Complete planning and program implementation by 2023.

Healthy Ecosystems Quick Starts

1. Enhance and expand streamside areas for urban cooling

This Quick Start aims to increase and enhance streamside areas across the city to contribute to urban cooling, reduce summer energy needs, and reduce erosion impacts. It builds on current work, such as habitat fencing, closure of informal trail systems, restoring areas subject to private property encroachments, and removal of invasive plant species, to restore and enhance streamside health. Streamside enhancement and restoration will be coordinated with other operational needs; in order to optimally protect these areas, not all streamside areas will have public access.

Increasing streamside areas reduces risks to vulnerable properties (e.g. along ravines); as well, increasing the width of existing riparian corridors makes restoration and streamside enhancement more effective. Tools to identify potential properties and increase streamside areas include the existing Streamside Protection (SPEA) requirements and the current Ravine Inventory and Condition Assessment study, which can be used in conjunction with an updated Parkland Property Acquisition Program. Regulatory tools to protect streamside areas can be explored in the upcoming OCP revisions (Big Move 2).

2. Increase tree planting and green infrastructure on city boulevards

This Quick Start commits the City to add another option to the boulevard tree planting program. A "Tree4Free" pilot program, starting in 2021, would commit the City to plant additional boulevard trees, above the current Local Area Service Program (LASP) tree plantings. Property owners would be able to request free street trees adjacent to their property in the City boulevard.¹⁴

This Quick Start would also begin development of new street standards, beyond the Town Centres, including implementation of green infrastructure in appropriate boulevards.

¹⁴ Many communities across Canada have online tree request programs. For example, see Hamilton, ON and Saanich, BC: www.hamilton.ca/home-property-and-development/property-gardens-trees/street-tree-planting-program; www.saanich.ca/EN/main/community/natural-environment/trees/partnership-tree-planting-program.html.

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3. Expand and enhance the urban forest on public land

This Quick Start commits the City to develop, adopt and begin implementation of a comprehensive Urban Forest Strategy to increase and enhance the existing urban forest on public land for urban cooling. The policy should consider baseline data (inventory, canopy cover, species diversity and age, tree health); targets for canopy cover; and, climate-adaptive species. Under-utilized open park spaces and unused road right-of-ways, some of which are currently treed, should be considered for addition to the urban forest, and rezoned to parkland where appropriate. Spatial distribution and analysis will include equity considerations to ensure that all neighbourhoods have cooling urban forests/parks.

The Urban Forest Strategy would make use of the extensive data and knowledge within Parks and Engineering. It would build on existing Park initiatives and current work to regenerate older, deteriorating forest tracts with climate appropriate trees and other plantings, sustaining the City's forested areas for at least the next 100 years.¹⁵

Big Move 4: Accelerated Mode Shift

Description/Vision: In Burnaby, all travel choices are enjoyable and the transportation system is the foundation of our thriving public spaces and our quality of life. The transportation system not only moves people and goods between destinations but provides places for people to meet and participate in city life. It is a balanced and inclusive system that offers accessible and safe mobility in support of a healthy, green, prosperous, and connected community.¹⁶

By 2030, Burnaby has implemented key policies and actions in the new Transportation Plan and Sidewalk Construction Program to support an active public realm and accelerate the shift from personal vehicles to active transportation and public transit options, currently at 13% and 16% respectively.¹⁷ By 2040, Burnaby neighbourhoods are walkable, bikeable, and transit-supported, with a high quality public realm. By 2050, Burnaby has achieved its mobility targets, including 75% of trips by public transit and active transportation, no increase in vehicle kilometers travelled, and a zero-emissions mobility system.

This Big Move recognizes that Burnaby's road network is a finite resource, and must be effectively allocated to meet the carbon neutral target and the mobility needs of Burnaby's growing population.

¹⁵ For example, the Parks Department will plant more than 3000 trees throughout Burnaby during the 2019-2020 planting season (October to March).

¹⁶ Burnaby's Transportation Plan Vision. www.burnaby.ca/City-Services/Planning/Transportation-Planning/Transportation-Plan-Update.html#draft.

¹⁷ Translink Trip Diary data, 2017.

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Impact: Shifting rapidly to active transportation, particularly cycling and electrified public transit, will directly reduce community emissions, and could account for 8% of community emissions reductions by 2050.

Co-Benefits: An accelerated transportation mode shift also supports human health and equity, and makes the best use of the existing road network.

Existing Work: This Big Move builds on the current practice of providing active transportation infrastructure and additional mobility options with new development, such as through the Town Centre Street Design Standards, car share requirements in new developments, participation in and Council commitments to improve pedestrian and cycling infrastructure across the City. The Big Move assumes future implementation of the new Burnaby Transportation Plan. This Big Move fits the ESS and CEEP Move Goal of “A walkable, bikeable, and transit-supported city that supports a healthy community and environment,” and aligns with ESS Move strategies 5.1-5.3 and CEEP Move strategies C2.1-C2.4.

Implementation: The Accelerated Mode Shift requires commitment to and rapid implementation of active transportation infrastructure, to ensure a continued and successful transition to active transportation through 2050. For public transit, Burnaby can enable more transit trips through road allocation to transit, working with Translink to implement bus priority measures, the provision of transit amenities, and continuing to add density that is connected to transit corridors (see Big Move 2, Resilient Neighbourhoods).

Implementation of supporting actions, such as cycling education and better transit amenities like bus shelters, lighting and public wi-fi that improve the user experience, will be detailed in the new Transportation Plan.

Timeline: Accelerated in-house capacity for the design and construction of active transportation infrastructure in the next three years, with completion of a core cycling network and priority pedestrian infrastructure by 2030.¹⁸ Additional active transportation infrastructure will be completed through to 2050. The City will work with TransLink to implement transit priority measures as part of the Burnaby/New Westminster Area Transportation Plan and as outlined in the new Burnaby Transportation Plan.

Mode Shift Quick Starts

1. Accelerate pedestrian infrastructure improvements

As identified in the Sidewalk Construction Program and key to the new Burnaby Transportation Plan, the City has committed to accelerating completion of priority pedestrian infrastructure, funded by annual capital budget commitments. Such a

¹⁸ As noted in the Sidewalk Construction Program Update (June 11, 2019), priorities include sidewalks near schools, community centres, parks and transit facilities.

commitment will ensure completion of critical links and network gaps, particularly sidewalks and crosswalks; on-going long-term commitments will provide appropriate pedestrian infrastructure across the City.

Pedestrian infrastructure makes use of public lands within road right-of-ways. It adds public value to the City's existing road infrastructure and increases mobility choice and pedestrian safety. In some cases, such as bus stops, the sidewalk program will also add pedestrian and transit amenities such as bus shelters and benches.

This Quick Start commits to enhancing the City's capacity to rapidly build pedestrian infrastructure, with a dedicated sidewalk crew, flexible work-planning, and expanded neighbourhood consultation. This Quick Start will coordinate with Healthy Ecosystems and Resilient Neighbourhoods to ensure a high quality, resilient public realm, with the aim of building approximately 15 km of sidewalks per year. The Quick Start builds on a 2019 Council commitment that increased the pedestrian infrastructure budget for the five-year capital budget (2020-2024).

Targets and policies in Burnaby's new Transportation Plan will provide guidelines to improve the overall pedestrian experience, such as through city-wide Public Realm Street Design Standards for areas outside of the Town Centres. Planning, policy, and actions to improve the pedestrian experience complement and will be coordinated with the Climate Action Framework's Resilient Neighbourhoods and Healthy Ecosystems Big Moves.

2. Complete detailed design for the Core Cycling Network and begin construction

Burnaby's city-wide cycling network would include all necessary long distance, Town Centre and Urban Village cycling routes, to ensure a complete All Ages All Abilities network across the City. As an anchor to the larger cycling network, the Core Cycling Network will provide consistent and clear connections for neighbourhoods across the City, and is the priority cycling infrastructure to be built over the next decade.

This Quick Start commits to the planning and design necessary to implement Burnaby's core cycling network, including identification of land requirements and other constraints, with preliminary construction and annual capital budget commitments. The overall aim is to build out the Core Network by 2030, in coordination with the accelerated pedestrian infrastructure.

3. Expand transit priority measures, including bus priority lanes

One of the most effective transit improvements to increase ridership is improving bus reliability and speed: Burnaby will continue to work with Translink to provide new and enhanced service.

This Quick Start commits the City to implementing measures under the City's control, particularly preparing for the allocation of bus priority lanes, with the aim of expanding the bus priority lane program through expanded hours and additional priority bus lanes. This work will be done cross-departmentally, and in coordination with Translink.

4. Conduct a bylaw review to remove barriers to multi-modal transportation options

Multi-modal transportation includes emerging low and zero carbon options such as e-scooters and e-bikes, as well as car sharing. This Quick Start will review Burnaby bylaws¹⁹ to identify and work to remove barriers to e-bike, e-scooter and car sharing, such as parking restrictions for car share vehicles and highly restricted use of neighbourhood zero-emission vehicles.

Big Move 5: Zero-Emission (ZE) Vehicles

Description/Vision: By 2030, Burnaby is rapidly transitioning to zero-emission vehicles (ZEVs), both passenger and commercial. By 2040, Burnaby has achieved more than double the provincial target for ZEVs on the road, with 50% of the City's passenger vehicles zero emission vehicles.

Bylaws, policies and city infrastructure support the ZE vehicle transition, particularly the provision of EV charging infrastructure: all residents will have access to charging at home and/or within the public realm. Public charging infrastructure supports all citizens in choosing electric vehicles, as EV infrastructure is built out over time in new residential and commercial parking areas through re-development. Burnaby will monitor trends and adapt infrastructure as needed for other ZEVs such as hydrogen vehicles in the future.

Impact: Shifting rapidly to zero-emission vehicles will directly reduce community emissions and could account for 20% of emission reductions by 2050.

Co-Benefits: A shift to zero-emission vehicles also supports clean air and public health.

Existing Work: This Big Move builds on the recently adopted requirements for EV charging in the Zoning Bylaw that requires EV charging infrastructure for all new residential parking stalls. Burnaby is also piloting Level 2 public chargers in all four quadrants of the City, with phase 1 implementation in 2019-2020. This Big Move aligns with ESS Move strategy 5.6 and CEEP Move strategy C2.5.

Implementation: This Big Move requires the accelerated provision of public and non-residential EV charging infrastructure over the next 2-5 years. Partners include the province, BC Hydro, and the federal government, who provide grants for ZEV

¹⁹ See, for example: 6 and 32A, [Traffic Bylaw 1961](#).

infrastructure and/or incentives for EV purchases, as well as the development and business community.

Timeline: The second phase of the City's public charging infrastructure should be in place by 2022, with expansion as needed thereafter.

ZE Vehicle Quick Starts

1. Expand the City's public charging network in all quadrants, including on-street charging

This Quick Start builds on the Phase 1 implementation the City's EV charging pilot to ensure that the growing demand for EV charging continues to be met. The City will continue to add Level 2 charging at existing City facilities, within service level constraints. Burnaby will work with BC Hydro and others to fund EV infrastructure upgrades, including upgrading electrical service provision. The pilot project will be monitored and expanded based on current and projected future demand, and electrical supply availability.

In addition, the Town Centre Street Design Standards will be amended to include curbside charging in dual parking pods, ensuring that a public network continues to be built out as the Town Centres re-develop.

The City of Burnaby has implemented a fee-for-charging bylaw. Charge rates have been set based on infrastructure and electricity cost recovery. The City will monitor and update charge rates every two years or as needed.

2. Adopt non-residential (e.g. commercial and workplace) EV charging requirements

The City is currently developing non-residential charging requirements for new development, including commercial, institutional, industrial and workplace charging, to support the electric vehicle transition. This Quick Start commits the City to undertake final stakeholder review and bring forward reports to Council and changes to policy before the end of 2020.

3. Plan and design for public EV charging at civic facilities

Burnaby has several new civic facilities in preliminary design, including the Metrotown Events Centre, Willingdon Heights Recreation Centre, Burnaby Lake Aquatic and Arena Facility, and Cameron Community Centre. This Quick Start will strategically provide EV charging stalls at or adjacent to new civic facilities to address potential future public charging gaps, based on analysis of the public network and projected future needs,

particularly for “garage orphans.”²⁰ Some stalls will be EV-ready, while others will be electrified for future installation of EV charging infrastructure.

Big Move 6: ZE Buildings – Net Zero New

Description/Vision: By 2025, Burnaby has in place a pathway to zero-emissions buildings for both Part 9 (small) and Part 3 (large) buildings. By or before 2030, most new buildings in Burnaby are net zero-emissions at occupancy, locking in the energy transition pathway for buildings.²¹

An early commitment to zero-emission new buildings prevents the addition of new emission sources during a time when emissions must be decreasing rapidly: new ZE buildings keep community emissions from rising with population growth. Accelerating the Green Building Policy’s pathway to zero carbon, and strengthening policy provisions to reduce and achieve net zero-emissions also reduces the need for potentially costly retrofits in the future. Replacing older buildings with zero-emissions new buildings during redevelopment reduces the building sector’s contribution to community carbon emission.

Impact: The critical impact from zero emission new construction is to hold the line on emissions growth as the community continues to grow. As re-development replaces older buildings, overall emissions reductions are also possible. Zero-emissions new buildings could therefore account for 9% of emission reductions by 2050.

Co-Benefits: A commitment to zero-emission new buildings also supports equity, public health, climate adaptation, and the local green economy (services and product manufacture/supply). Heat pumps in zero-emissions buildings can provide summer cooling and some also provide filtration for clean air, including during wildfire smoke events.

Existing Work: This Big Move builds on Burnaby’s recently adopted Green Building Policy. It supports the ESS and CEEP Build Goal of “Buildings and infrastructure that have a positive impact on the environment,” and aligns with ESS Build strategies 6.1-6.2 and 6.6 and CEEP Build strategies C3.1-C3.2 and C3.6.

Implementation: This Big Move requires the immediate consideration of accelerated Step Code requirements as well as additional measures to limit emissions from new buildings (i.e. a low greenhouse gas intensity or GHGI target option), for both Part 9 and Part 3 buildings. The City will review additional policy tools to encourage or require low-carbon buildings, including zoning tools (see Resilient Neighbourhoods) and renewable

²⁰ Garage orphans refers to EV owners or possible EV owners who do not have access to EV charging at home. A lack of home charging is often found in existing rental and strata multi-family buildings.

²¹ As Burnaby cannot simply require zero emissions for building heating, cooling and hot water due to jurisdictional constraints, the City will aim to have most buildings reach net zero by providing two routes to comply with regulatory requirements, one of which will be zero-emissions systems.

district energy, and maintain and enhance the low-carbon alternate compliance pathway for re-development.²²

Timeline: Review and revise the Green Building Policy within 2 years to strengthen low and zero-carbon provisions. The Policy should establish a clear and transparent zero-emissions pathway for new buildings going through rezoning as of 2025, so that the majority of Burnaby's new buildings will be zero-emissions for heating, cooling and hot water at occupancy, by or before 2030.

Net Zero New Buildings Quick Starts

1. Accelerate the roadmap to net zero emissions using low-carbon compliance

This Quick Start would update Burnaby's existing Green Building Policy to establish a clear zero-emissions pathway. The roadmap would include reviewing and strengthening the greenhouse gas intensity (GHGI) targets for large (Part 3) non-residential and residential buildings; considering pathways for additional building types such as institutional and light industrial; and, updating the Energy Code steps and zero-carbon options for smaller (Part 9) homes, such as single and two-family and townhouse, with the aim of achieving net-zero at occupancy as soon as possible for this type of dwelling.

2. Advance regulations that support net zero buildings

The Urban Village plans and OCP review (Big Move 2, Quick Starts 1 and 3) will explore policies that support the creation of zero-emission neighbourhoods, policies that can have consequential regulatory or bylaw changes.

To begin this process, this Quick Start commits the City of Burnaby to introduce a key amendment to the Zoning Bylaw that would exempt the construction of thicker exterior building walls from the calculation of density on a site, thereby encouraging the construction of more energy-efficient buildings.

3. Remove policy barriers to low carbon construction methods such as mass timber

This Quick Start would conduct a policy review to remove barriers to low carbon construction methods, such as mass timber. Mass timber buildings have fewer embodied emissions than concrete buildings of a comparable size. Due to construction methods, mass timber provides opportunities to meet stringent energy efficiency requirements in a cost effective manner. The BC government has committed to include mass timber buildings of up to 12-storeys in the BC Building Code by 2022. This Quick Start commits

²² The legal jurisdiction and available regulatory tools for Burnaby to require zero-carbon new buildings is currently unclear and requires further review. Low-carbon alternate compliance pathways for rezoning are currently in use.

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the City of Burnaby to review current land use policies and practices (e.g. re-zoning, permitting, inspections), to allow for a rapid transition to mass timber buildings once the BCBC changes come into effect.

4. Advance construction and demolition (C&D) policy

Construction and demolition (C&D) waste generates up to one third of Metro Vancouver's total solid waste: more than half of this waste is recyclable²³ and about 60% is comprised of wood materials.²⁴ This Quick Start looks to close the loop on the community's recyclable and re-useable C&D materials currently going to landfill, particularly wood, by reviewing infrastructure needs, advancing C&D policy within Burnaby, and continuing to partner with Metro Vancouver to advance the ISWRMP.²⁵ The City will establish a C&D material recycling working group and determine resource requirements in order to create a robust program.

Big Move 7: ZE Buildings – Retrofits for Net Zero

Description/Vision: By 2050, existing buildings in Burnaby have transitioned to low-carbon energy sources for space heating and hot water, resulting in zero-emission homes and businesses throughout the City. Heat pumps are a primary technology in this transition.

Retrofits are one of the most challenging areas of climate action for local governments. This is due to the few points of contact between local governments and existing home and building owners, the higher cost of deep energy efficiency upgrades compared to new construction, and the number of existing residential units. Burnaby has approximately 92,000 existing residential units, of which about half are single-family, duplex and townhouse (ground-oriented), and half are low and high-rise apartments. This Big Move would therefore require development of a city-wide Retrofit Strategy to define measures to reduce energy consumption in buildings while transitioning to zero-emission energy sources and technologies. Heating and hot water systems generally have shorter lifespans than building envelopes, providing a key opportunity. The City would call on resources from senior levels of government and other partners to support citizens and businesses in their transition.

²³ www.metrovancouver.org/services/solid-waste/SolidWastePublications/DLCToolkit.pdf

²⁴ Based on the 2018 Construction and Demolition Waste Composition Study of C&D non-diverted waste that goes to landfill: www.metrovancouver.org/services/solid-waste/SolidWastePublications/2018ConstructionDemolitionWasteCompositionStudy.pdf. Close to 80% of regional C&D waste materials are currently diverted, primarily asphalt and concrete.

²⁵ Current work on ISWRMP Strategy 2.7 (wood reuse, recycling, and energy recovery) includes feasibility studies on expanding C&D processing and recovery capacity: www.metrovancouver.org/services/solid-waste/SolidWastePublications/2019ISWRMPBiennialReport.pdf, page 6.

Impact: A transition to zero-emission existing buildings, through the increased use of zero-emission space heating and hot water systems, will directly reduce community emissions and could account for 34% of emission reductions by 2050.

Co-Benefits: A commitment to zero-emission existing buildings also supports equity and public health, and the local green economy (services and product manufacture/supply).

Existing Work: This Big Move takes advantage of Burnaby's existing Heating System Permit requirement for heating system installations and replacements.²⁶ It supports the ESS and CEEP Build Goal of "Buildings and infrastructure that have a positive impact on the environment," and aligns with the ESS Build strategies 6.2-6.3 and 6.6 and CEEP Build strategies C3.3, C3.4 and C3.6.

Implementation: The energy efficiency and renewables transition in existing buildings must begin immediately to realize some reductions by 2030. This Big Move can therefore begin with an update to the Heating System Permit requirement, using a stepped transition (from education to incentive to requirement) to heat pumps or other renewable energy systems. The City will also support commercial and strata energy awareness and energy transitions through building energy programs, advocacy for resources, and alignment with regional, provincial and federal programs. The City will also need to explore additional policy tools and develop a retrofit strategy.

Timeline: By 2025, transition from furnace to renewable energy (heat pump or other) requirement for ground-oriented heating and hot water system upgrades, advocate for and participate in building energy programs, and develop a long-term Retrofit Strategy with staff in place to implement.

Retrofits Quick Starts

1. Transition to heating and cooling permits, with supporting materials

Burnaby can make use of its existing [heating system permit](#) requirement to engage in education about heat pumps – both for home-owners (retrofits), and the industry, starting with a heat pump bulletin and name change to "Heating & Cooling Permit." The City will promote and consider partnering with existing heat pump incentive programs, and could lobby senior levels of government for expanded heat pump incentive programs. By 2025, the City could require heat pumps as replacement technology for natural gas furnaces and boilers; a legal review would be required.

²⁶ The current heating permits include geothermal, forced air, hydronic and solar hot water systems. [www.burnaby.ca/Assets/city+services/building/Brochures+\\$!26+Bulletins/Heating/Heating+System+Permits.pdf](http://www.burnaby.ca/Assets/city+services/building/Brochures+$!26+Bulletins/Heating/Heating+System+Permits.pdf)

Note: this policy carries strong compliance challenges for retrofits which should be addressed over the next decade through Quick Start 3. Partners such as business leaders in the heating and cooling industry could be engaged to support this initiative.

2. Advance low-carbon programs for existing commercial and multi-family buildings

Burnaby will participate in partnership programs that advance energy management and energy retrofits in commercial, institutional and large (strata and rental) buildings.

The City of Burnaby is currently participating in a large building benchmarking program, in partnership with Metro Vancouver, neighbouring municipalities, BC Hydro, the University of British Columbia and Natural Resources Canada. Through this program, the City will demonstrate best practices in building energy management: namely, the tracking, public reporting and comparison of building energy use to other similar use buildings, particularly commercial and institutional buildings.

Existing strata buildings face unique challenges for energy retrofits. Metro Vancouver recently piloted a Strata Energy Advisor Program, which provided professional energy retrofit technical assistance to strata councils, including for heat pump conversions. More than 50 buildings underwent retrofits, with more than 300 expressing interest. Local government financial contributions were directed towards buildings within the contributing municipality, as well as shared administrative costs. Pending a report on pilot results, Burnaby could support extension and expansion of the program, regionally or provincially. Transitioning strata buildings has the additional benefit that a single intervention transitions multiple dwelling units at the same time.

3. Develop a city-wide Zero-Emissions (ZE) Building Retrofit Strategy

The Retrofits Big Move will require the development of a comprehensive Zero-Emissions Building Retrofit Strategy which establishes a pathway to a complete transition of existing buildings to zero-emission heating, cooling and hot water systems by 2050. The Retrofit Strategy will consider ongoing education, incentive funding, industry partnerships and potential regulations to require zero-emission systems upon replacement. Expansion of current benchmarking requirements to existing buildings, as well as building recommissioning, particularly for commercial buildings, have a role to play. Partnerships will be required to achieve the depth of results needed for the energy transition to a carbon neutral community.

7.0 FINANCIAL IMPLICATIONS

Taking bold action to address the climate emergency has financial implications for the City, both in operating expenses and capital budgets. Some re-prioritization of existing staff work, as well as additional, multi-functional positions within Departments will be needed. In addition, additional capital will be required for some Quick Starts, particularly

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those with infrastructure commitments. Some financial commitments are already in the current five-year capital budget, such as the sidewalk infrastructure program. Other commitments will be brought forward into capital planning processes going forward.

Funding for climate action will be advanced internally through the Climate Action Reserve Fund, with initial money coming from the Climate Action Revenue Incentive Program (CARIP). Grant and partnership funding is being actively pursued, for example through NRCan and BC Hydro, and will continue to be sought as actions are advanced. Additional financial needs will be brought forward in individual reports and through the budgeting process.

8.0 CONCLUSION

Addressing the climate emergency requires a sustained commitment over the next three decades and beyond. The City's Climate Action Framework sets the roadmap for a cleaner future and must be supported over the long-term by the City's strong carbon emission reduction targets, aligned with regional targets, that commit the city to an energy transition by or before 2050. The roadmap includes implementable Quick Starts, that will be updated as actions are completed and new actions identified. The Framework requires sustained resourcing for climate action, including in operating and capital budgets, as well as support from the community – both residents and businesses and strong climate commitments, action and resourcing from senior governments.



Dipak Dattani
DIRECTOR CORPORATE SERVICES



Ed Krzak
DIRECTOR PLANNING AND
BUILDING

DD:

Attachment

Copied to: City Manager
Director Engineering
Director Finance
Director Parks, Recreation & Cultural Services
Director Public Safety and Community Services
City Solicitor
City Clerk

Table 1. Climate Action Framework: Big Moves & Quick Start Actions

**Italicized Quick Start Actions require supportive policy, regulation, or programs by others, rather than action by the City alone.*

BIG MOVE	Quick Start Actions (2021-2023)	Supporting Policy and Programs (Burnaby)	Supporting Policy and Programs (Others)
<p>1</p> <p>Climate Leadership</p> <p>Strengthen City Leadership, administrative capacity, and community engagement on climate and energy.</p>	<p>1. Develop the City Energy Strategy; create an Energy Transition Team; establish reporting procedures.</p> <p>2. Commit to net-zero emissions new facilities and an internal carbon price.</p> <p>3. <i>Work with partners and advocate for action by others, including senior governments.</i></p> <p>4. Expand climate awareness, engagement and dialogue.</p>	<p><i>Existing:</i> Corporate Strategic Plan</p> <p><i>New:</i> City Energy Strategy (in process)</p>	<p>Clean BC</p>
<p>2</p> <p>Resilient Neighbourhoods</p> <p>Embed zero-carbon policy into land use planning and adapt to impacts.</p>	<p>1. Plan for resilient Urban Villages.</p> <p>2. Plan for zero-carbon communities in the OCP.</p> <p>3. <i>Prepare for renewable district energy and other renewable energy projects.</i></p> <p>4. Develop a Climate Adaptation Strategy with associated 10-year capital plan.</p>	<p><i>New:</i> Housing Strategy (in process)</p> <p><i>New:</i> Transportation Plan (in process)</p> <p><i>Update:</i> Urban Village plans</p> <p><i>Update:</i> Official Community Plan</p> <p><i>Update:</i> Zoning Bylaw</p>	<p>TransLink Frequent Transit Network</p> <p>Provincial Energy & Water DPA Guidelines</p>
<p>3</p> <p>Healthy Ecosystems</p> <p>Enhance and expand greenspaces to combat urban heat and climate impacts.</p>	<p>1. Enhance and expand streamside areas for urban cooling.</p> <p>2. Increase tree planting and green infrastructure on city boulevards.</p> <p>3. Expand and enhance the urban forest on public land.</p>	<p><i>Existing:</i> Town Centre Street Design Standards</p> <p><i>New:</i> preliminary design of city-wide Street Design Standards (in process)</p> <p><i>New:</i> Urban Forest Strategy</p>	<p>Metro Vancouver Ecosystem Health Strategy</p>

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<p>4</p> <p>Accelerated Mode Shift</p> <p>Expand transportation choice to reduce emissions and increase quality of life.</p>	<ol style="list-style-type: none"> 1. Accelerate priority pedestrian infrastructure improvements. 2. Complete detailed design of the core cycling network and begin construction. 3. <i>Expand transit priority measures, including bus priority lanes.</i> 4. <i>Conduct a bylaw review to reduce barriers to multi-modal options.</i> 	<p><i>New:</i> Transportation Plan (in process)</p> <p><i>Existing:</i> Sidewalk Construction Program</p> <p><i>Existing:</i> Transportation Demand Management rezoning guidelines</p> <p><i>Existing:</i> Town Centre Street Design Standards</p> <p><i>New:</i> preliminary design of city-wide Street Design Standards (in process)</p>	<p>TransLink Transportation 2040</p> <p>TransLink low-carbon commitment (zero emissions by 2050)</p> <p>TransLink Burnaby New Westminster Area Transit Plan (update expected)</p>
<p>5</p> <p>ZE Vehicles</p> <p>Support the EV transition through the provision of EV infrastructure.</p>	<ol style="list-style-type: none"> 1. Expand the City's public charging network in all quadrants, including on-street charging. 2. Adopt non-residential (e.g. commercial and workplace) EV charging requirements. 3. Plan and design for EV charging infrastructure at civic facilities. 	<p><i>Update:</i> EV Charging Requirements</p> <p><i>New:</i> Public Charging Program (in process)</p>	<p>Metro Vancouver Clean Air Plan</p> <p>Provincial and Federal ZEV incentives</p> <p>Charging infrastructure grants</p> <p>Provincial low-carbon fuel standards</p>
<p>6</p> <p>ZE Buildings – Net Zero New</p> <p>Use available tools to rapidly transition to net-zero new construction.</p>	<ol style="list-style-type: none"> 1. Accelerate the roadmap to net zero emissions using low-carbon compliance. 2. Advance regulations that support net zero buildings. 3. <i>Remove barriers to low carbon construction methods such as mass timber.</i> 4. Advance construction and demolition waste (C&D) policy. 	<p><i>Update:</i> Green Building Policy</p> <p><i>Update:</i> Zoning Bylaw</p>	<p>Clean BC</p> <p>Provincial Energy Step Code</p>
<p>7</p> <p>ZE Buildings – Retrofits</p> <p>Encourage, assist, and partner to reduce emissions from existing buildings.</p>	<ol style="list-style-type: none"> 1. Transition to heating and cooling system (renewable energy) permits. 2. <i>Advance low-carbon programs for existing commercial and multi-family buildings.</i> 3. <i>Develop a city-wide ZE Building Retrofit Strategy.</i> 	<p><i>Update:</i> Heating System Permit</p> <p><i>New:</i> Retrofit Policy</p>	<p>Clean BC</p> <p>Provincial Energy Step Code</p>