

Climate & Environment Strategy



city
of north
vancouver

Overview

Climate change is impacting our City, and we expect these impacts to become more severe over the coming years. We have already seen increased heatwaves, wildfires, droughts, and floods. The disruptions from climate change are affecting all aspects of our City – including human wellbeing, biodiversity, and infrastructure. We need to take action to reduce our carbon emissions and adapt to a changing climate.

The City's Climate and Environment Strategy will be our guide for making decisions that foster a resilient urban and natural environment, today and over the coming decade. It presents a road map for navigating the challenges ahead. The key targets of the Strategy are to: increase our urban tree canopy, decarbonize our Community Energy System, shift to active modes of transportation, and accelerate prefabricated low-carbon construction projects in the City.

The Strategy sets policy directions, through four pathways:

- » *Less Grey, More Green* enhancing natural areas and biodiversity;
- » *Climate Resilient Buildings* including new and existing buildings;
- » *Connected Neighbourhoods* supporting zero emissions and active transportation; and
- » *Empowered Choices* fostering a low-impact and circular economy.

Under each of these pathways, we have tactics that demonstrate how the City will turn the dial towards achieving the policy directions.

The process for the development of this Strategy included two phases of engagement in which we heard from a broad cross section of the community across a rich diversity of backgrounds and lived experiences, and received input from *Sḵw̓x̓wú7mesh Úxwumixw* (Squamish Nation) and *səlilwətaɣ* (Tseil-Waututh Nation). During the development of this Strategy, we heard from the community that urgent action and accountability is imperative. The Strategy includes an Implementation Plan with targets and metrics for monitoring and reporting, and priority projects – which will drive action and accountability. The implementation of this Strategy will require strong collaboration and partnerships with everyone having an opportunity to contribute to a thriving, resilient City.

Our vision is for a resilient and low carbon community where all people and nature thrive.



Land Acknowledgment

The City of North Vancouver (the City) acknowledges that it is situated on the ancestral, traditional and unceded territories of *Sḵwx̱wú7mesh Úxwumixw* (Squamish Nation) and *səlilwətaɣ* (Tsleil-Waututh Nation). These Nations remain deeply connected to their lands and waters and, as we build community here, it is critical we acknowledge this has been their home since time immemorial. We thank them for sharing this land with us and for their ongoing partnership with the City on mutual priorities.

A Commitment to Truth and Reconciliation

The City is committed to Truth and Reconciliation. We humbly recognize that we need to learn the truth about Indigenous history in Canada and are at the beginning of our journey of reconciliation with First Nations.


The City will work collaboratively, cooperatively, and respectfully with *Sḵwx̱wú7mesh Úxwumixw* (Squamish Nation) and *səlilwətaɣ* (Tsleil-Waututh Nation) on policy, projects, programs, and services at the City and incorporate the Truth and Reconciliation Commission's Calls to Action, support the principles and objectives of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), and the Province of British Columbia's Declaration on the Rights of Indigenous Peoples Act (DRIPA).

Appreciation and Thanks

The Climate and Environment Strategy was developed with input and support from many residents, businesses, rights holders, interested parties, partners, non-profit organizations, community experts and the Climate and Environment Advisory Task Force, City staff, and more. The City is grateful for everyone's efforts and time.

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An aerial photograph of a park. A paved path runs vertically through the center. On the left side, there is a large, dense evergreen tree and a smaller tree with purple foliage. On the right side, there are several large evergreen trees and a cluster of purple-leaved trees. In the bottom left corner, a playground structure is visible, partially covered with a dark tarp. The grass is green and well-maintained. The text "The next decade is critical. The decisions we make today will determine our future." is overlaid on the left side of the image, with a blue vertical bar to its left.

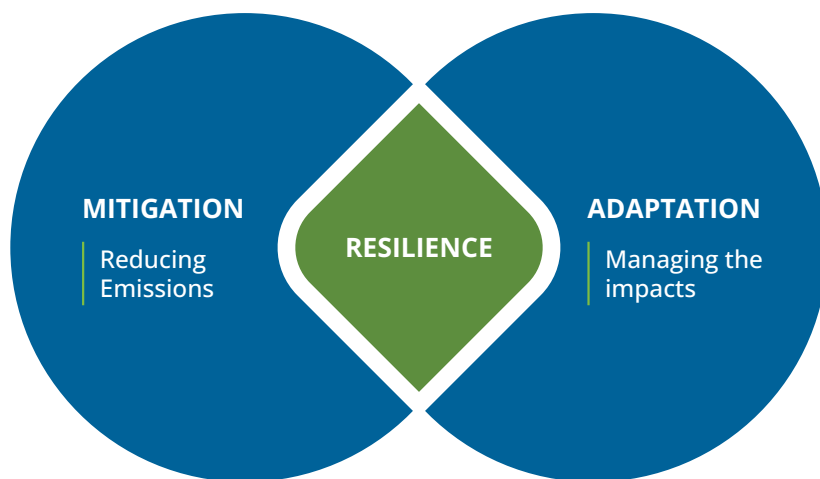
The next decade is critical. The decisions we make today will determine our future.

WHAT IS THE Climate and Environment Strategy?

The City is facing an unprecedented climate and environmental crisis. To navigate these challenges, we need to build a resilient and low carbon community where everyone thrives.

This strategy is a tool to help the City prioritize its actions, its spending, and the work we do over the next ten years. The strategy will also clearly articulate expectations to the external actors – such as senior levels of government, residents, and the development industry – of how we expect to make our community more resilient. To make sure we are meeting our commitments, we have set targets for the City and its partners that will be complemented by a range of metrics to measure our progress and presented through regular reporting.

The Strategy provides a focus to help us mitigate and adapt to climate change, and to promote a healthy environment. **Mitigation** refers to ongoing attempts to limit climate change through the reduction of carbon pollution. **Adaptation** refers to actions taken to prepare and respond to the impacts of climate change. When the City is **resilient**, it is working to address all of these challenges: mitigation, adaptation, as well as community and environmental health.



NOTE TO READERS:

The dark blue text indicates terms are defined in the Glossary beginning on page 36.

Strategy Development Process

We developed our Framework through a range of research to understand the challenges and opportunities.



We engaged with community and interested parties to understand values, priorities and perspectives.



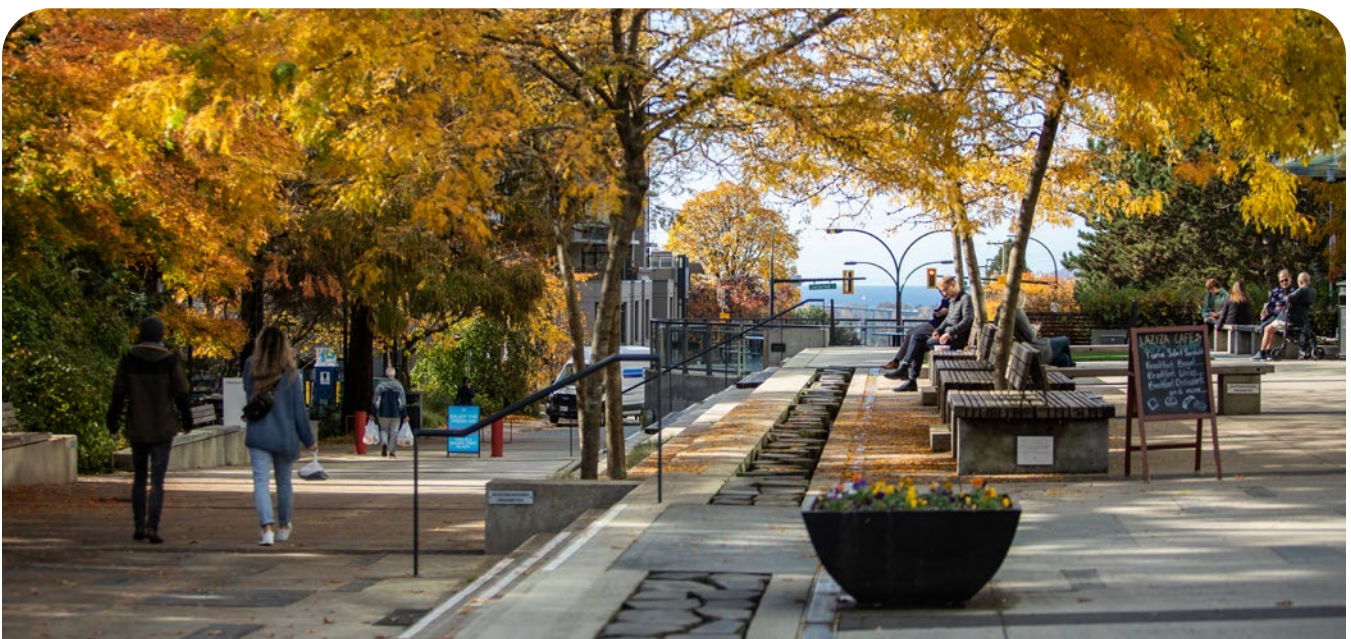
We engaged with community to receive feedback on the draft Strategy.



We developed the Draft Strategy, incorporating feedback from engagement, input from an Advisory Task Force, and a peer review process.



We finalized the Strategy and developed an Implementation Plan, incorporating community feedback.





What We Have Heard

We received feedback through two phases of community engagement, which included listening sessions with equity-deserving groups, interested parties workshops, pop-ups around the City, and survey responses. The following themes emerged in the feedback received and shaped the Strategy.

- » **Reconciliation is important:** There was strong support for this Strategy to be developed with early and ongoing consultation with *Sḵw̱x̱wú7mesh* *Úxwumixw* (Squamish Nation) and *səlilwətaɣ* (Tsleil-Waututh Nation) and for actions to be informed by Indigenous knowledge.
- » **High level of concern about the climate and nature crises:** There is deep concern about the future of the planet among community members.
- » **Support for urgent action:** Many survey respondents stressed that climate change is occurring now, and we need to take urgent action and act as a leader. The Strategy needs to have a clear direction and be implemented with measurable targets and metrics tracking our progress.
- » **Heat and wildfires:** Nearby wildfire events had respondents concerned about emergency responses, the health of the environment, extreme heat, and air quality.
- » **Equity is important:** Respondents expressed concerns about the accessibility of low carbon technologies and the impacts of climate change on vulnerable populations.
- » **All sectors need support in low carbon transition:** Consideration should be given to the range of supports needed, for different sectors in the City including businesses, organizations, renters, and homeowners. Focus should also be where the City has the most power and where it will make the biggest impact, such as buildings and transportation.
- » **Tracking our progress:** It is important to include metrics and targets as part of the Strategy to help measure to reduce emissions and to adapt. This is essential for monitoring and evaluation and to ensure we are on track and transparent.
- » **Affordability:** Affordability was one barrier identified as community members stated they were worried about the inequality and unaffordability of **low-impact** choices, electrification and higher performance standards for buildings. It will be important to ensure the cost does not fall to those who are struggling to make ends meet, and that there are government rebates available.

THE Big Picture

We Are In a Critical Decade

A WINDOW FOR ACTION

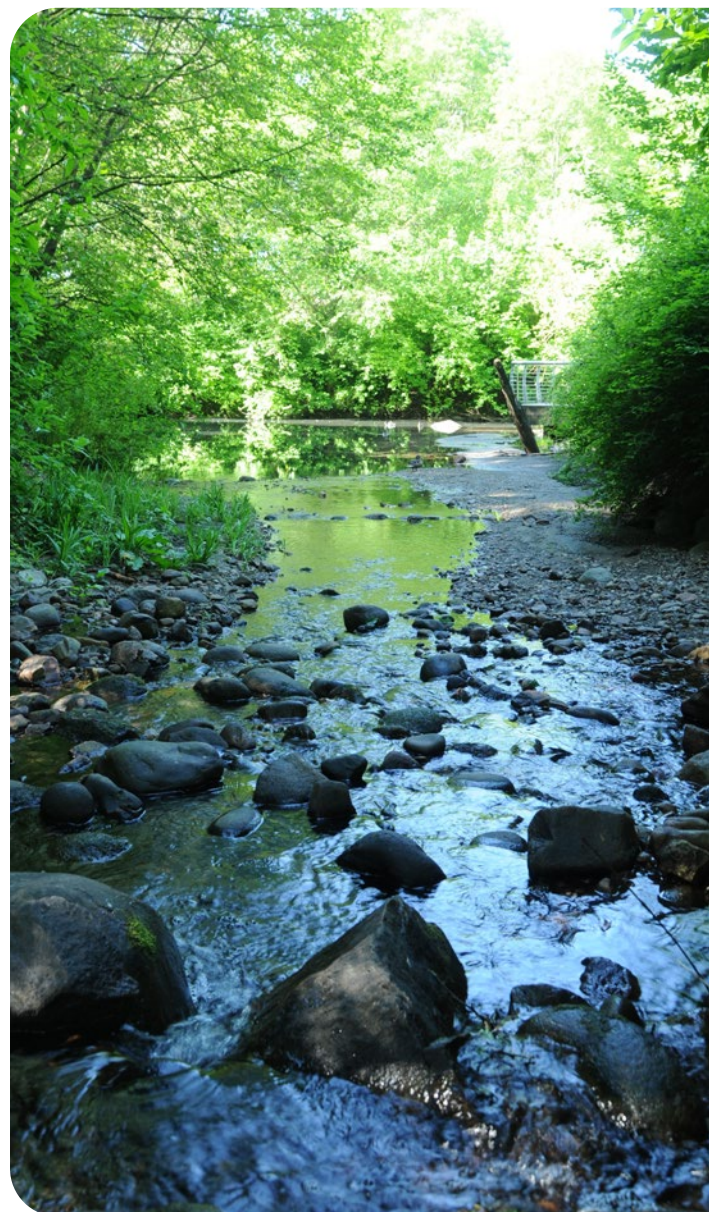
Greenhouse gas emissions must peak by 2025 and be nearly cut in half by 2030 to avoid irreversible impacts from climate change. The most recent reports from the [Intergovernmental Panel on Climate Change \(IPCC\)](#) make clear that immediate and deep emissions reductions across all sectors are needed to limit warming to 2°C above pre-industrial levels, and secure a livable future.

At the same time, urgent action is needed to adapt to the worsening impacts we are already experiencing. Increased heatwaves, wildfires, extreme weather events, droughts and floods are affecting human wellbeing, biodiversity and infrastructure.

The next decade is critical. The decisions we make today will determine our future.

"There is a rapidly closing window of opportunity to secure a livable and sustainable future for all."

IPCC AR6 Synthesis Report



GLOBAL MOMENTUM

Global momentum has been building since 2015 when 195 countries signed the Paris Agreement to limit warming to well below 2°C. Countries' current pledges (made in 2021) represent the first time we have been on track to limit warming below 2°C.

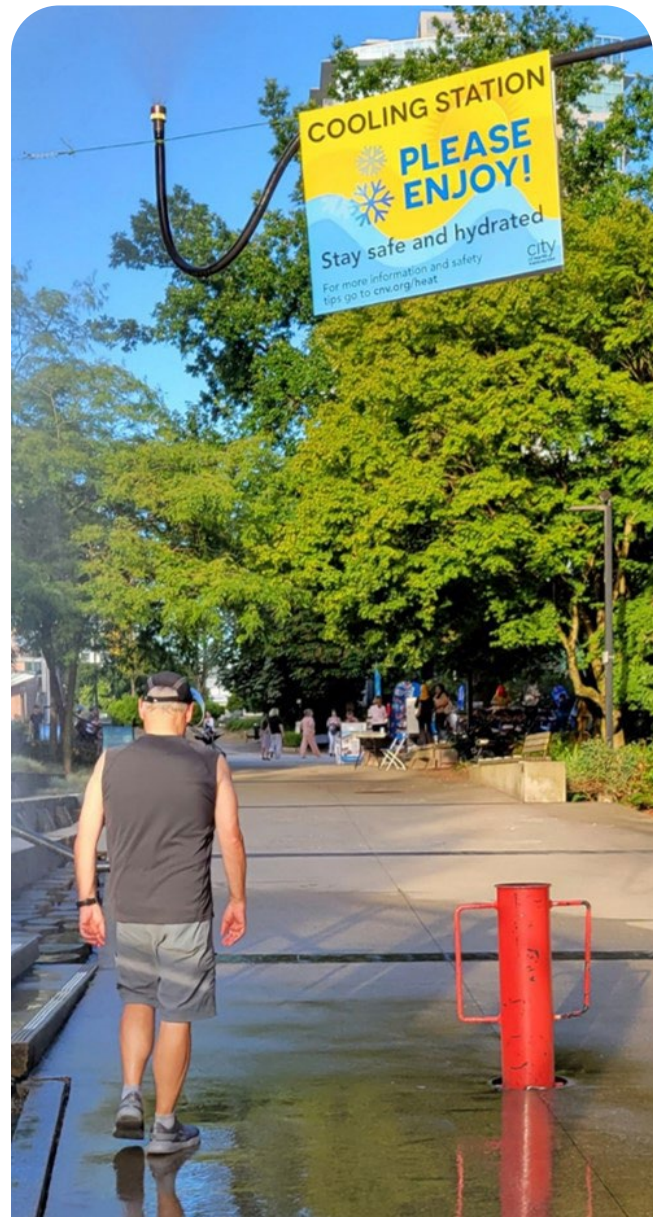
Even if warming is held to 2°C, the impact to the City and its residents will be significant. With concerted effort, it may be possible for us to beat this target and achieve the emissions reductions needed to keep our community – and countless other communities – healthy and safe. In a low emissions scenario there would be no investment in new fossil fuel development, instead there would be rapid expansion of clean and efficient energy technologies through electrification. Many countries have been moving to clean energy, however, the transition to renewable energy sources must accelerate. Climate mitigation efforts will be more important than ever to limit the extent of climate change, and we need to recognize that despite limiting warming, climate **adaptation** is urgent and essential, as the effects of climate change will continue to affect us.

The City of North Vancouver has the ability to be a leader in the transition to a low carbon economy and **resilient** natural environment. Cities are significant contributors to climate change and uniquely equipped for emissions reductions. We can lower energy consumption by reinforcing our compact city form in which it is convenient and comfortable to walk or roll to our daily needs, and by constructing and retrofitting buildings to be highly energy efficient. We can reduce fossil fuel demand through electrification of transportation and buildings. We can increase the resiliency of biodiversity by restoring and enhancing natural assets, such as the urban forest. We can all make choices that have a low impact on the environment – through how we travel, shop, and improve our homes – and the City is taking bold steps to make sure the resilient choices are safe, easy, and convenient.

EQUITY: FRONT AND CENTRE

Everyone's health, livelihood, energy security and personal property are being adversely affected by heatwaves, storms, drought, and flooding, along with slower stresses such as sea level rise and ocean acidification. However, the impacts of climate change are much greater for our most vulnerable and marginalized residents. Even as we work to build a **resilient** community for our current residents, we will need to consider how we can support temporary or permanent migrants who are escaping climate disasters in other parts of the province, country, or globe.

It is paramount that priorities, investments and actions are directed towards creating a more inclusive and equitable community.



Our Carbon Pollution Baseline

In the City, the majority of carbon pollution comes from natural gas use in buildings and gas and diesel use in vehicles. In 2020, a total of 259,422 tCO₂eⁱ of greenhouse gas emissions were produced in the City. This equates to 4.4 tCO₂e per person, which is lower than the regional average of 5.3 tCO₂e/personⁱⁱ, but higher than many other leading cities around the world.

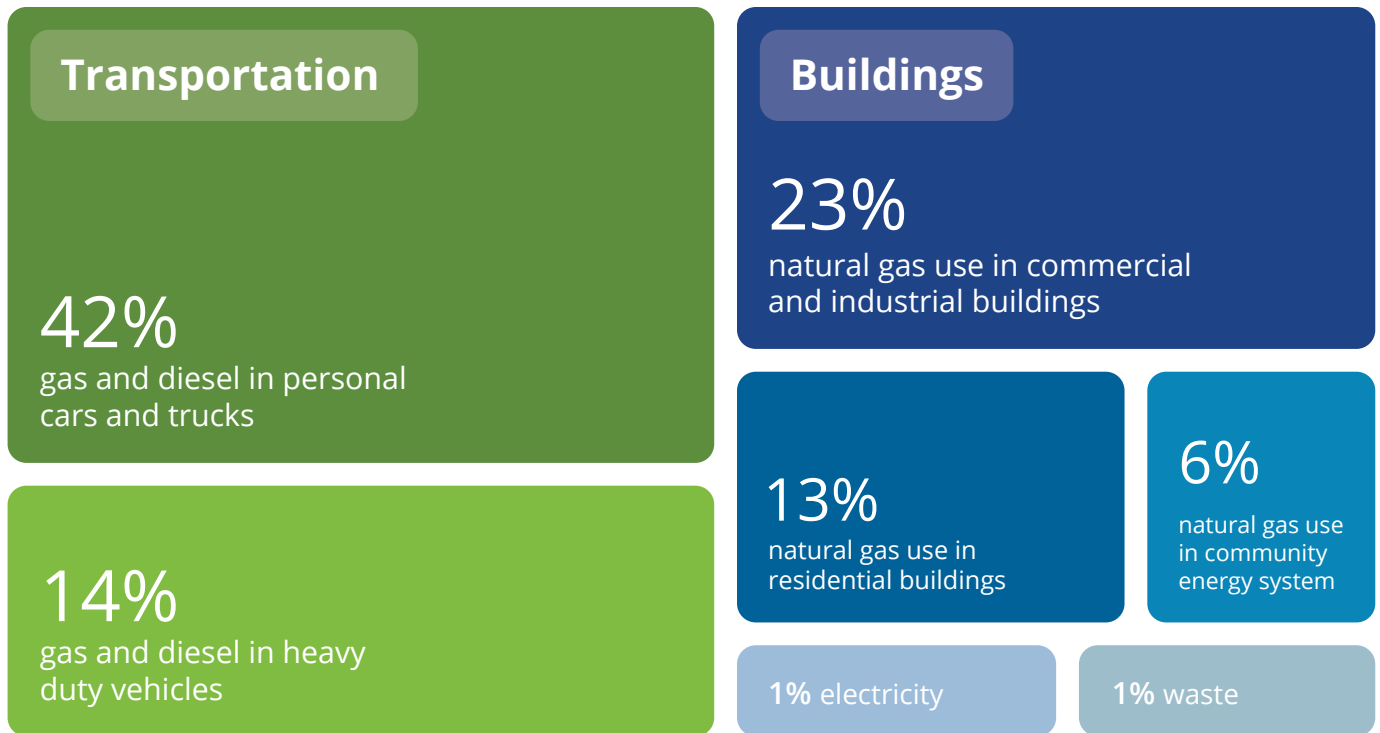


Figure 1 City of North Vancouver Community Energy & Greenhouse Gas Emissions Inventory, 2020.

EMISSIONS FROM TRANSPORTATION

Emissions from transportation come from gas and diesel use in vehicles for the movement of goods and people, with the majority being attributed to personal cars and trucks. Transportation is the largest source of emissions in the City, accounting for 56% of total community-wide emissions.

As of 2023, 61% of personal trips in the City are made by vehicles, compared to 39% by walking,

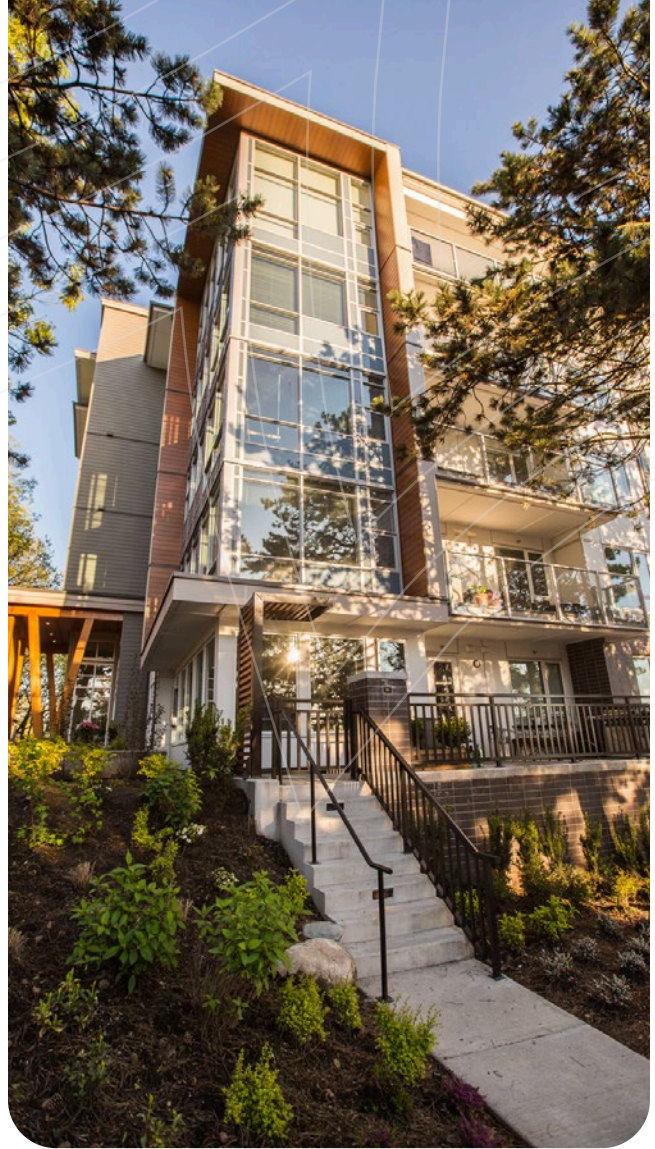
cycling and transitⁱⁱⁱ. The majority of trips stay local to the North Shore, with an average of 15km driven by City residents each day. With increasing summer temperatures, more frequent storms and heavy precipitation, further interventions are needed to ensure active transportation is comfortable. The City will continue monitoring emissions and modes of transportation to compare with our recent baseline and previous years.

EMISSIONS FROM BUILDINGS

Buildings are the second largest source of emissions in the City, behind transportation. The majority of emissions from buildings come from using natural gas to heat space and water.

Most large buildings constructed in the City since 2003 are heated by the [Community Energy System](#), run by the Lonsdale Energy Corporation (LEC). While LEC has renewable energy sources in its system, including the solar array on the library and ground source heat recovery, most of the system is currently powered by natural gas boilers.

The changing climate means buildings have different needs to maintain comfort. With warmer summers and increasing heat events, cooling is becoming a necessity. As we make our buildings more efficient, ventilation systems become important to maintain indoor air quality, especially when windows need to be closed during wildfires.



CONSUMPTION-BASED EMISSIONS

We also produce carbon pollution beyond the boundaries of the City from the goods and foods we consume, to the trips we take and the materials we use. Our choices have impacts outside of the City from the extraction, manufacturing, transportation and disposal of resources. It is estimated that we produce approximately twice as much [consumption-based](#) emissions compared to the emissions we generate in the City^{iv}. The main sources of these emissions are food, transportation (including air travel) and building materials. Choosing locally grown or made products can not only reduce emissions but increase resiliency to supply chain disruptions, such as highway and rail closures, caused by extreme weather events.

Our Progress

REDUCING CARBON POLLUTION THROUGH CITY DESIGN

Total emissions generated in the City have been consistent from 2007 to 2021 despite our population growing by 20%. Our per capita emissions have decreased significantly over the last two decades, and are lower than the regional average, primarily because of our urban form. Higher density housing near transit corridors and a mix of uses is less emissions-intensive than lower density housing because less energy is required to heat these homes and residents are less likely to rely on a vehicle. As a

result, per capita emissions from people living in high density housing can be less than half that of those living in low density housing^v (see Figure 3).

As the City's population has grown, we have accommodated much of this growth by expanding our multi-family building stock^{vi}. As of 2021, apartments make up 78% of dwellings in the City. This has helped to contribute to less energy use per person.

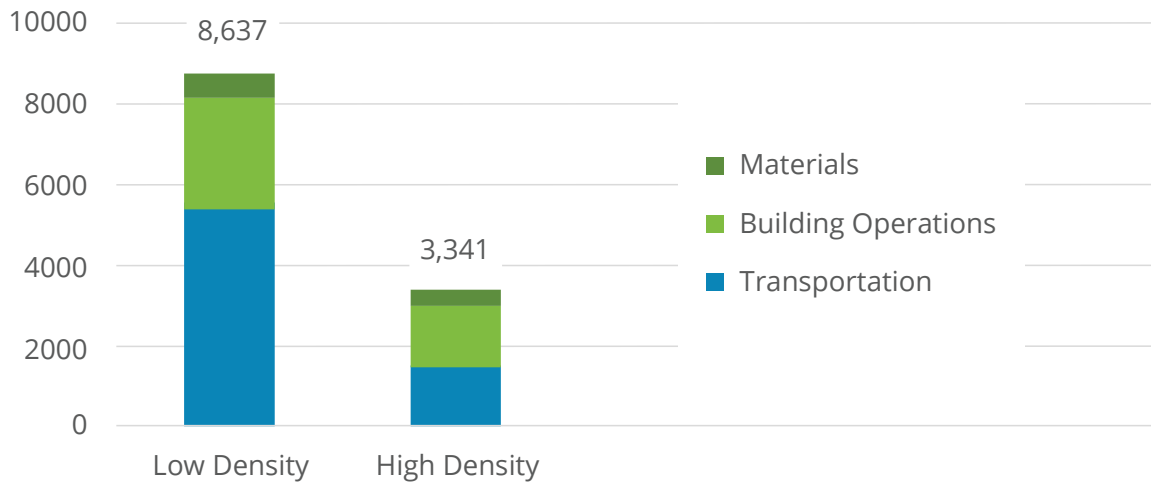


Figure 3 Emissions by building type



The Natural Environment

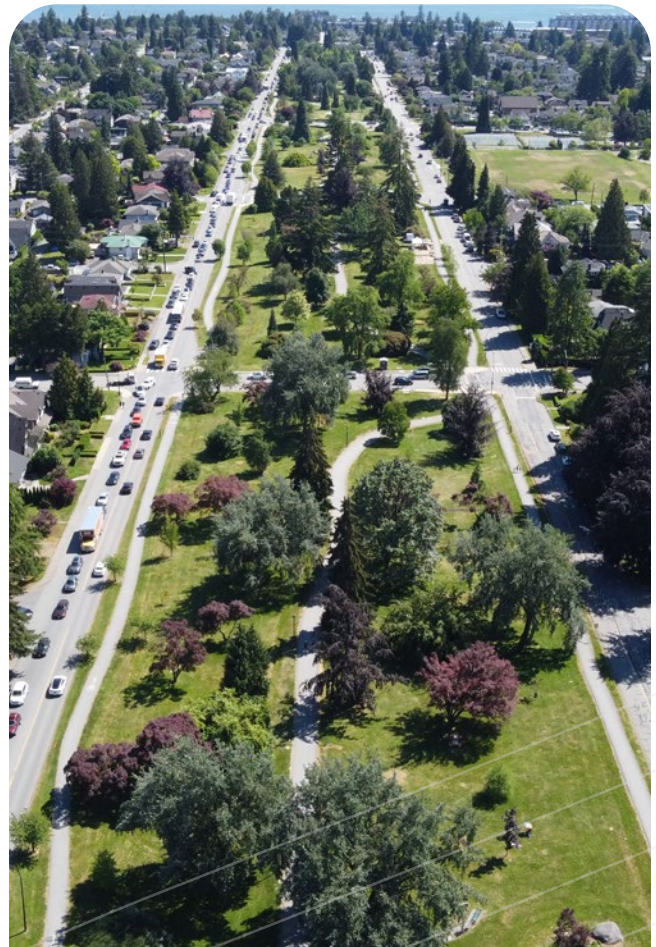
WHAT DO WE MEAN WHEN WE SAY NATURAL ENVIRONMENT?

The natural environment encompasses naturally occurring elements and living creatures – including ourselves. The local natural environment – the forests that wind through our city, the streams and ravines, the shoreline – shapes and nourishes our City. The City's streams, trees, gardens, and landscaped areas provide important habitat for flora and fauna as well as providing key [ecosystem services](#) that keep our City functioning. We have a shared responsibility to care of the natural environment that sustains us.

TREES

The City's urban forest provides critical ecosystem services including: sequestering carbon, cleaning the air, capturing rainwater, cooling the local environment, enhancing people's physical and mental well-being, and hosting and providing habitat for wildlife.

The City monitors the amount of [tree canopy](#) coverage that exists within our boundaries. The City's [tree canopy](#) coverage has been stable at 20% since at least 2007; this number is comparable to other highly urbanized and compact communities, but below the regional average. This number has remained stable due to the City's tree planting initiatives, however we expect tree loss from climate change, urban development, pests, and disease to accelerate. To face these challenges, the urban forest will need additional supports, resources, and care in order to stay healthy and productive.



STREAMS

The City's streams – Lynn Creek, Mackay Creek, Mosquito Creek, and Wagg Creek – flow through and help to shape our urban fabric. The streams drain into the Burrard Inlet, so it is important that the Strategy aligns with the water quality objectives proposed in the Burrard Inlet Action Plan (2017)^{vii}, to support a healthy marine environment.

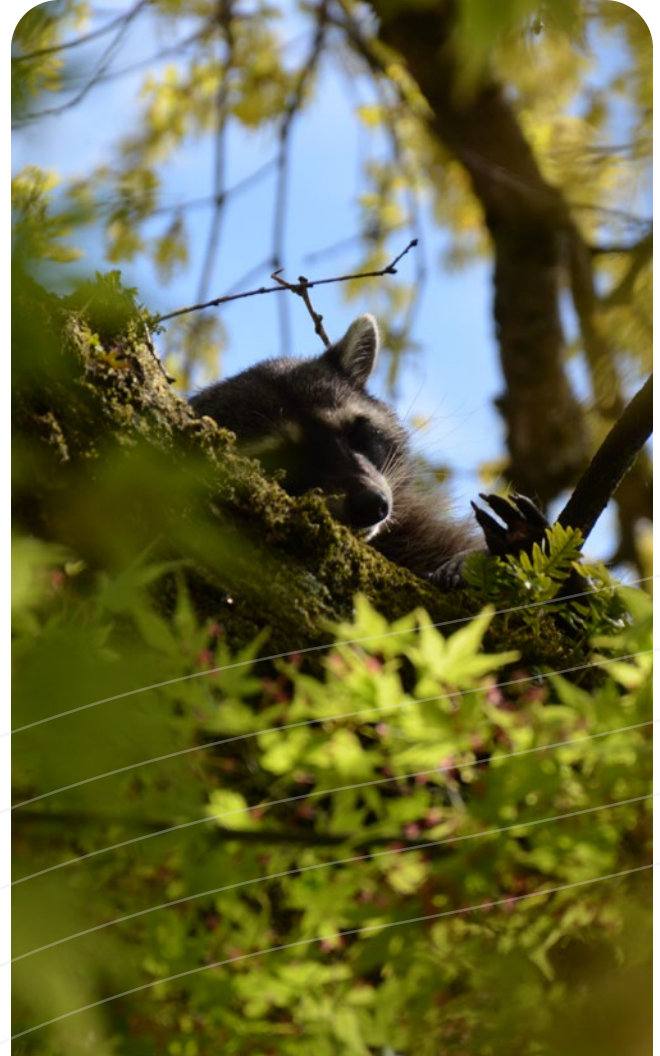
Impermeable surfaces in the City such as roads are a source of polluted stormwater runoff entering our waterways. The City uses green infrastructure, such as the inclusion of rain gardens in the design of our streetscapes, which filters and reduces the volume of stormwater before it enters our streams.

The City tracks water quality through a number of indicators including the diversity of stream insects, also known as benthic invertebrates. Other indicators include temperature, turbidity and the percentage of dissolved oxygen. Ongoing improvements to stormwater quality through improved stormwater capture on private property, better construction practices, and integration of rain gardens into our roadways, have led to improved stream health. Despite positive trends, increased pressure from a growing population, more extreme weather events and rising temperatures mean more must be done to protect our streamside areas from encroaching development, to adapt our streets and utilities to more intense rain events, and to reduce the possibility of contaminants flowing into our **riparian** habitat.

BIODIVERSITY

Biodiversity refers to the variety and number of species in an area and is used as an indicator of the health and integrity of ecosystems.

Biodiversity plays a crucial role in supporting the many essential **ecosystem services** provided by healthy environments. Biodiversity in the City is threatened by loss of habitat, climate change impacts, and invasive plants and animals. The level of biodiversity generally increases with the size and connectivity of an area, diversity of habitat features, distance from human disturbances, **access** to water, and the abundance of different types of food and cover. The City's ravines and forested areas – such as Heywood and Greenwood Parks – support relatively high levels of biodiversity while manicured parks, such as Victoria Park or Grand Boulevard provide opportunity to improve biodiversity outcomes.



Our Future

Climate change is already impacting the City, and its impacts will be more severe in the future. Even if we eliminate carbon pollution globally today, the effects of climate change will impact the world for generations.

Climate change is an existential challenge for our society. It is disrupting local and global economies, the surrounding ecosystems, our physical infrastructure, and our health. Extreme weather events are increasing in frequency. Notable local events include 2021's summer heat dome swiftly followed by an atmospheric river causing catastrophic flooding, and in 2023, the most destructive and expensive wildfire season on record.

By 2050, we can expect that climate change will be affecting our region in the following ways^{viii}:



Warmer temperatures, more than doubling of days over 29°C by the year 2050, and an increase in nights with temperatures over 16°C^{ix}

- » Hotter temperatures and more wildfires will increase the risk of respiratory and heat-related illness, especially in vulnerable populations, as well as stress both land and marine ecosystems.



Drier summers with a 16% decrease in summer rainfall by the year 2050

- » Drier summers and an expected 62% decreased snowpack could put strain on our drinking water supply, and threaten [native plants](#) and animals.



More extreme precipitation events in non-summer months

- » Extreme rainfall events will challenge infrastructure capacity, and result in more frequent sewer overflows and unplanned discharge to receiving waters.



At least a sea level rise to 50cm by year 2050 and 1m by year 2100

- » Sea level rise and storm surges will increase the risk of flooding, will increase the costs of shoreline and infrastructure repair, and may result in degradation in quality of the intertidal zone.

The best way we can adapt to and mitigate these impacts is by following the Pathway to Resilience.

Pathway To Resilience

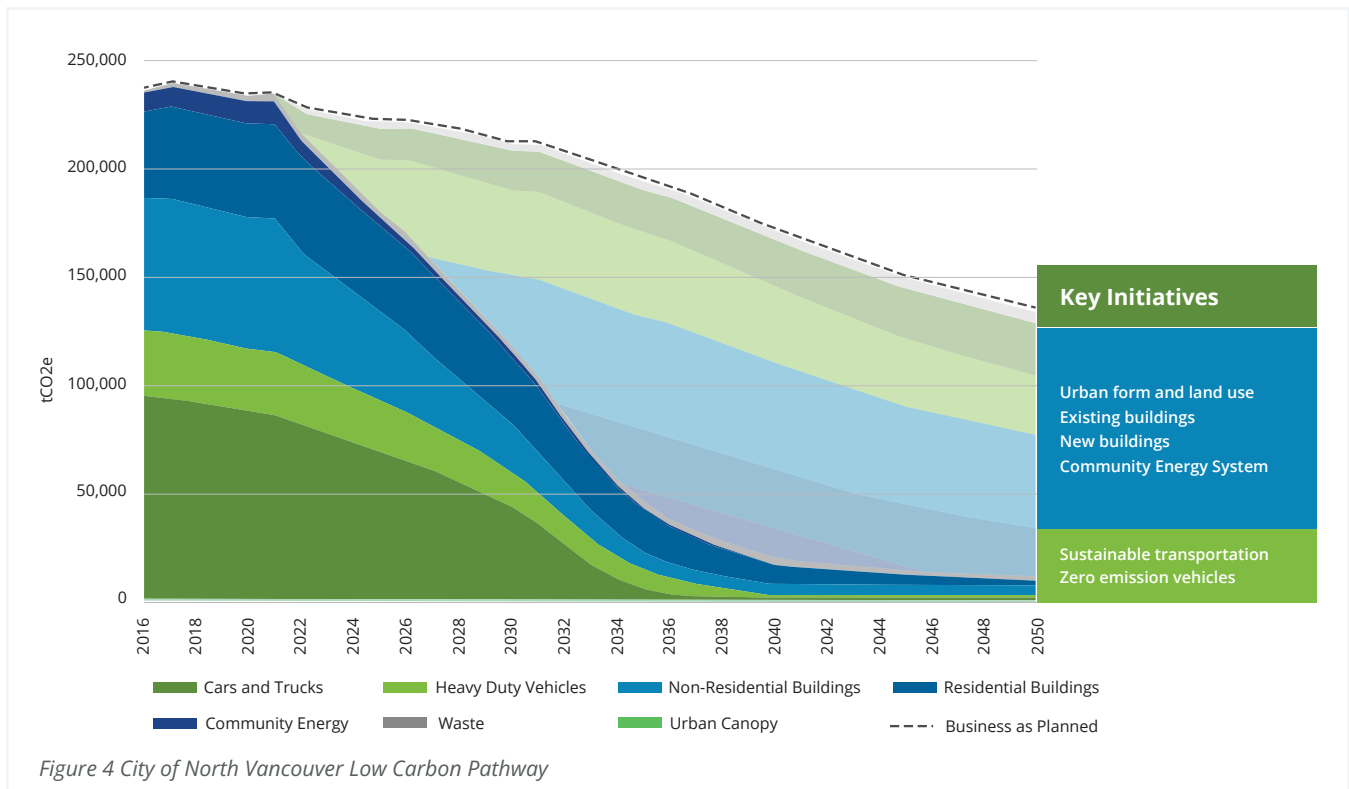
Climate resiliency encompasses mitigation and [adaptation](#), which need to work hand-in-hand.

MITIGATION: THE LOW CARBON PATHWAY

The Official Community Plan indicates that we should reduce our carbon emissions to 50% of 2007 levels by 2050. We know now that this reduction is inadequate. **Through this Strategy, and future updates to the OCP, we are presenting a new target of net zero by 2050.** Net zero emissions means that any emissions are balanced by equivalent amounts of emissions removals from the atmosphere. The City has determined a Low Carbon Pathway to achieving our climate targets by modeling the changes needed to achieve the necessary emissions reductions. The Low Carbon Pathway shows that transformational change across all sectors is needed to achieve net zero by 2050.

Without making any changes, the Business as Planned projection indicates that emissions will decrease 10% by 2030 and 43% by 2050 as a result of actions already adopted by the City and senior levels of government. In particular, emissions are expected to decline from the transportation sector as a result of BC's electric vehicle sales targets. These reductions are steps in the right direction, but more action is needed to achieve our climate targets.

Shifting from fossil fuel-powered buildings and transportation to renewable electricity and zero emission modes of transportation is central to the Low Carbon Pathway. Though it won't be easy, the tools and technologies exist today to make the Low Carbon Pathway possible through collective action.





CLIMATE ADAPTATION

Mitigation is critical to prevent worsening the climate crisis. However, adaptation is central to ensuring the City remains a livable and healthy environment as we experience the effects of global warming. Taking action now will help to lessen human and natural losses. Canada's National [Adaptation Strategy](#) found that every dollar invested in early [adaptation](#) measures accrues \$13-15 in total benefits.^x

There are many initiatives that individuals, neighbourhoods and workplaces can take to adapt to a changing climate. The City's focus is on enhancing our environment – planting more climate adapted trees, reducing heat island inducing paved surfaces, and managing our natural assets – making sure the buildings being approved will be healthy despite rising temperatures, and empowering residents and businesses to build sustainable communities and make low-impact choices.





The City's Policy Landscape

The Climate and Environment Strategy is one piece of the City's policy puzzle; the environment is a key consideration but not the only consideration in building the healthiest small city. Understanding the City's broader policy landscape, and how different policy documents relate to one another, is helpful context for understanding and implementing City's Climate and Environment Strategy.

ABOUT THE OCP

The City's main city-building policy document is the Official Community Plan (OCP).

Official community plans describe the long-term vision of communities and are governed by the Local Government Act. They are a statement of objectives and policies that guide decisions on municipal planning and land-use management.

Any OCP must include statements or map designations for existing and future land uses; housing policies; community greenhouse gas emissions targets and policies; existing and future public facilities; phasing for major roads, sewer and water systems; and restrictions for land that is subject to hazardous conditions or that is environmentally sensitive.

THE FUTURE CITY POLICY LANDSCAPE

To support the City's vision and deliver on the OCP, City departments are developing strategies that act as part of a "City Plan Series" (like books in a series) to guide our next decade of planning, decision-making, and action in key areas with a people and place based approach. The Climate and Environment Strategy will support the "City Plan Series" with direction on climate action, resilience, and the reduction of greenhouse gas emissions and it will provide a policy framework for future updates to the OCP. The future City policy landscape will take a people and place-based approach.

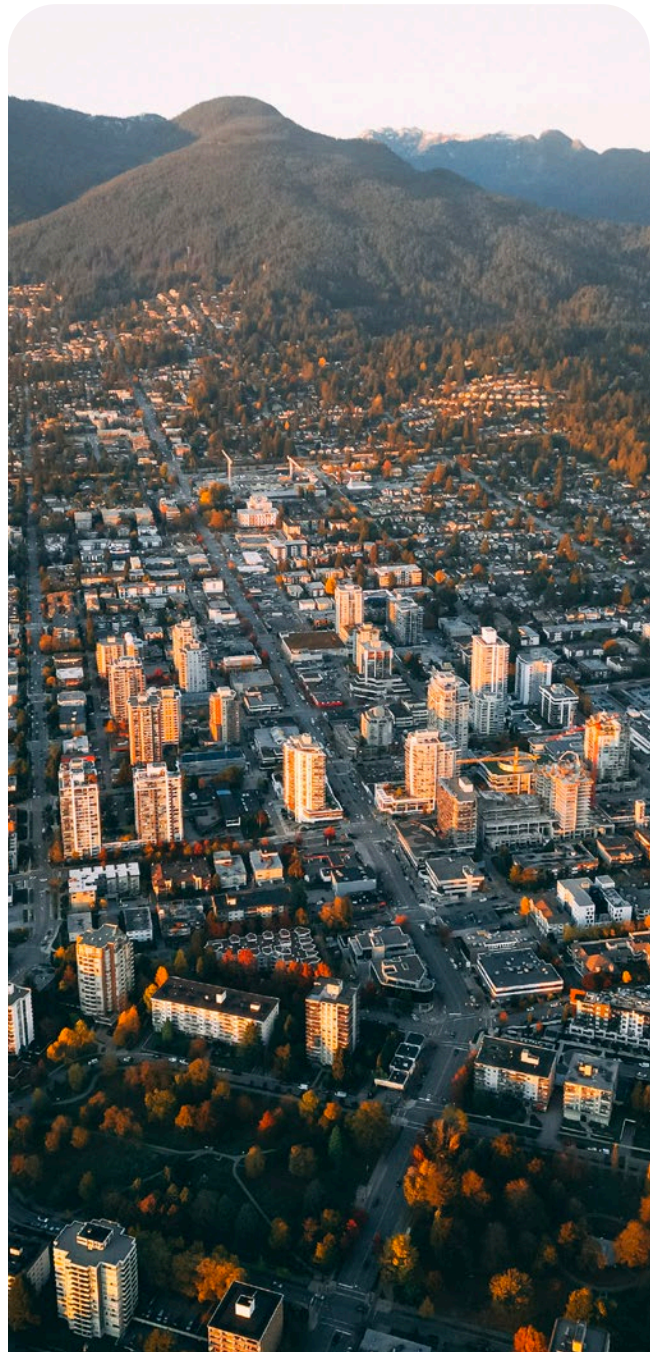


To ensure that each of the strategies reflect the City's values and priorities, the policy directions and tactics are vetted or filtered through the guiding principles of the OCP and Council's Strategic Plan, Corporate Business Plan, and the City's Financial Plan.

RELEVANT EXTERNAL POLICIES

Beyond the City, other levels of government influence the development of this Strategy.

- » **CLIMATE 2050** is Metro Vancouver’s strategic framework to coordinate local government efforts and demonstrate bold leadership in responding to climate change. The framework is supported by several sector-focused roadmaps.
- » **THE CLEAN AIR PLAN** is Metro Vancouver’s air quality and greenhouse gas management plan. Actions in the plan will reduce air contaminant emissions and impacts, including greenhouse gases in the near-term and support a commitment to be a carbon-neutral region by 2050.
- » **METRO 2050** is Metro Vancouver’s regional growth strategy. It is the vision for accommodating anticipated future growth to the region with considerations for diverse and affordable housing, transit and mobility, resilient employment, protected industrial, ecological, and agricultural lands, and the impacts of a changing climate.
- » **CLEAN BC ROADMAP TO 2030** is the BC government’s plan to achieve its 2030 target of reducing emissions by 40% compared to 2007 levels. The plan lays out a set of actions to transform BC’s economy by shifting away from fossil fuels and towards renewable energy, with tailored approaches for each sector. This Climate and Environment Strategy aims to coordinate with the commitments in this plan as they relate to emissions from buildings, transportation, and energy production.
- » **CANADA’S CHANGING CLIMATE REPORT (2019)** is about how and why Canada’s climate has changed and what changes are projected for the future. This report was led by Environment and Climate Change Canada and its purpose is to provide a climate science foundation and to help raise awareness and understanding among the broader public of how Canada’s climate is changing.
- » **IPCC SIXTH ASSESSMENT REPORT (2023)** is a global report on climate change with contributions from three working groups and a synthesis report. This report assesses scientific, technical, and socio-economic information concerning climate change, including projections. This report states that it is only possible to avoid warming over 1.5°C through massive and immediate cuts to carbon pollution and to reach net zero by 2050.





The City's Climate and Environment Strategy will be our guide for making decisions that foster a resilient urban and natural environment, today and over the coming decade.

WHAT ARE WE

Trying to Achieve?

THE CITY OF NORTH VANCOUVER HAS A BOLD VISION:

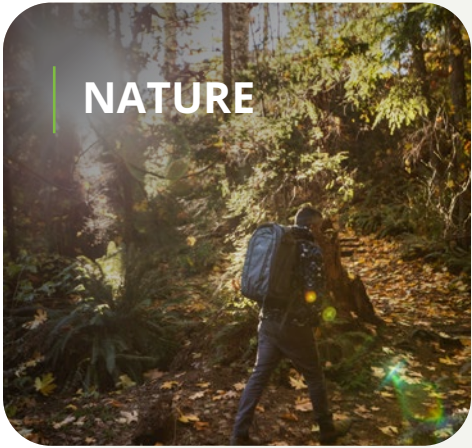
**A resilient and low carbon community
where all people and nature thrive.**

Our vision acts as an aspirational guide to the Strategy, and is supported by the policy directions of our four pathways. It paints a picture of a healthy, green and low carbon City that is well-equipped to navigate a rapidly changing future for generations to come, and where the benefits of a clean environment are shared by everyone.



Our focus:

NATURE



We recognize the value of watersheds and ecosystems in the City and the need to protect, restore, and enhance these natural areas.

Our health, wellbeing, and prosperity are linked to the natural environment. We can improve our social and environmental resilience through planning and regulation, an improved relationship to the environment, and working closely with Sḵw̱x̱wú7mesh Úxwumixw (Squamish Nation) and sə̌lilwəta4 (Tseil-Waututh Nation), who have been stewards of the land since time immemorial.

EMISSIONS



We mitigate our climate impact by changing our buildings and the way we move to achieve net zero emissions by 2050.

We have a limited window of opportunity to reduce carbon pollution, and avoid severe and irreversible impacts. Our City needs to act alongside other jurisdictions around the world to be leaders in reducing carbon pollution.

URGENCY



We are leaders and prepared for rapid changes to adapt our community to current and expected climate impacts.

By growing a culture of climate leadership, we can inspire transformative change that extends beyond our boundaries. Working together, we can adapt to our changing climate now and into the future.

THE Path Forward

What Does The Path Forward Look Like?

The Climate and Environment Strategy has four strategic pathways, each with clear policy directions and tactics that will help us realize a resilient and low carbon community where all people and nature thrive.

1

LESS GREY, MORE GREEN

2

CLIMATE RESILIENT
BUILDINGS

3

CONNECTED
NEIGHBOURHOODS

4

EMPOWERED CHOICES

1. Less Grey, More Green



DIRECTION

Restore, protect, and enhance natural areas and biodiversity on public and private property.

CONTEXT

The City's natural areas and assets support our community in countless seen and unseen ways, from cleaning the air and water, providing habitat to numerous species, shading and cooling our streets and buildings, to providing places for social and physical pursuit. Supporting the health and the extent of the environment by increasing the connectivity of natural areas, expanding the urban tree canopy, and prioritizing opportunities to incorporate more green to our urban fabric will foster biodiversity, improve ecosystem wellbeing, reduce stress on grey infrastructure, and result in a more resilient and biodiverse City.

TACTICS

- 1.1 Position the environment and climate priorities at the core of land use and transportation planning, and at the foundation of decision-making.
- 1.2 Integrate an updated hazard, risk, and vulnerability analysis approach to ensure safe and resilient land use planning, and for the management of the City's public infrastructure and natural assets.
- 1.3 Protect and grow the City's park and public space system, natural areas, urban forest, and habitat connectivity.
- 1.4 Protect and improve biodiversity, the health of flora and fauna, and improve soil health for a changing climate.
- 1.5 Improve stream and riparian health and water quality across the City and as it flows to the Burrard Inlet.
- 1.6 Enhance and restore the City's foreshore while adapting to rising sea levels.
- 1.7 Better utilize rainwater, recharge groundwater, and reduce effective impervious areas on public and private property.
- 1.8 Conserve drinking water and promote education concerning water management, particularly during times of shortage.
- 1.9 Reduce noise, light, and air pollution.



TARGET

Grow the City's urban tree canopy coverage to 22-24% by 2035 – to be confirmed through the City's forthcoming Urban Forest Plan.

2. Climate Resilient Buildings



DIRECTION

Transition to a **resilient** building stock through improvements to new and existing buildings.

CONTEXT

As one of the faster growing municipalities in Metro Vancouver, the City has a significant opportunity to improve the climate resilience of all our buildings through regulation of new construction, low carbon and resilient retrofits of existing buildings, and decarbonizing of the City's community energy system. As we implement these tactics, we recognize that affordability and equity must be integrated into the City's climate actions.

TACTICS

- 1.1** Implement energy and **carbon performance standards** for existing buildings.
- 1.2** Incentivize and remove barriers to **low carbon and resilient retrofits**, including buildings connected to the **community energy system**.
- 1.3** Undertake **low carbon and resilient retrofits** of City buildings.
- 1.4** Transition to high efficiency, **zero carbon** building standards that are adapted to a changing climate and extreme weather events.
- 1.5** Use the development process to demonstrate leadership in resilience and innovation for buildings and sites.
- 1.6** Increase public and industry awareness and action regarding the energy and carbon performance of buildings.
- 1.7** Reduce the **embodied carbon** of building materials and construction projects.
- 1.8** Ensure the City's **community energy system** meets our climate goals, including the transition to renewable energy.



TARGET

Low-carbon heat to supply 40% of the Community Energy System by 2027, and 60% by 2030.

3. Connected Neighbourhoods



DIRECTION

Build compact and mixed-use communities that support zero emission and active modes of transportation.

CONTEXT

Carbon pollution from transportation accounts for 56% of community-wide emissions with the majority being attributed to personal cars and trucks. By building compact, mixed-use neighbourhoods where residents live within a short distances of their daily needs, we can reduce the need for car ownership and ensure the lowest carbon option for all trips is convenient, affordable, accessible, comfortable and safe.

TACTICS

- 1.1** Use the City's land use planning and policy framework to create a City of low carbon and **resilient** neighbourhoods that enable **access** to daily needs and greenspace within a short walk or roll from home.
- 1.2** Increase the utilization, comfort, and **climate resilience** of the City's active transportation network – adopting a seamless and integrated experience between sustainable modes.
- 1.3** Increase the number of climate resilient transit shelters in the City.
- 1.4** Support and enable the switch to **zero emission passenger vehicles** (ZEVs) and the electrification of medium and heavy duty vehicles.
- 1.5** Increase **access** to zero emissions mobility-sharing and car-sharing services.
- 1.6** Decarbonize the City's fleet and equipment, and make low-carbon travel the most attractive option for City staff trips.
- 1.7** Transition to sustainable **urban logistics**.



TARGET

50% of trips in the City are taken by walking, rolling and transit by 2030 – supporting the City's *Mobility Strategy*.

4. Empowered Choices



DIRECTION

Foster a low-impact and **circular economy** that empowers our community to move to a zero carbon and zero waste future.

CONTEXT

Emissions are generated throughout a product's lifecycle: from the extraction of raw materials, to waste disposal. By embracing a **low-impact and circular economy** – reducing, rethinking, sharing, reusing, repairing and recycling – we are moving towards a zero carbon, zero waste future.

TACTICS

- 1.1 Embed a culture of reducing and rethinking the use of products and materials into City policies and communications.
- 1.2 Support reusing, repairing and repurposing of materials to extend the life of goods in circulation.
- 1.3 Increase the recovery and recycling of resources such as food and construction materials to reduce waste.
- 1.4 Shift to the consumption of **low-impact** food, products and services and support businesses making this transition.
- 1.5 Expand and diversify opportunities to grow and process more food locally, and foster learning and knowledge-sharing about local food and cultural plants.
- 1.6 Encourage and facilitate the sharing of resources, food, and common amenities, such as **lending libraries**, shared laundry rooms, and consumer goods rental services.
- 1.7 Provide leadership, education and resources – including incentives, grants, awards, and regularized funding – to support community-driven change.
- 1.8 Advocate and coordinate for legislation that strengthens the **circular economy** across products' full lifecycle such as **durability and right-to-repair standards**, and **extended producer responsibility**.
- 1.9 Expand the City's culture of innovative sustainable operations within the City's processes, procurement and financial practices through interdisciplinary collaboration.



TARGET

Annual increase of prefabricated construction projects in the City

Our health, wellbeing, and prosperity are linked to the natural environment.



Implementation

Funding and Resources

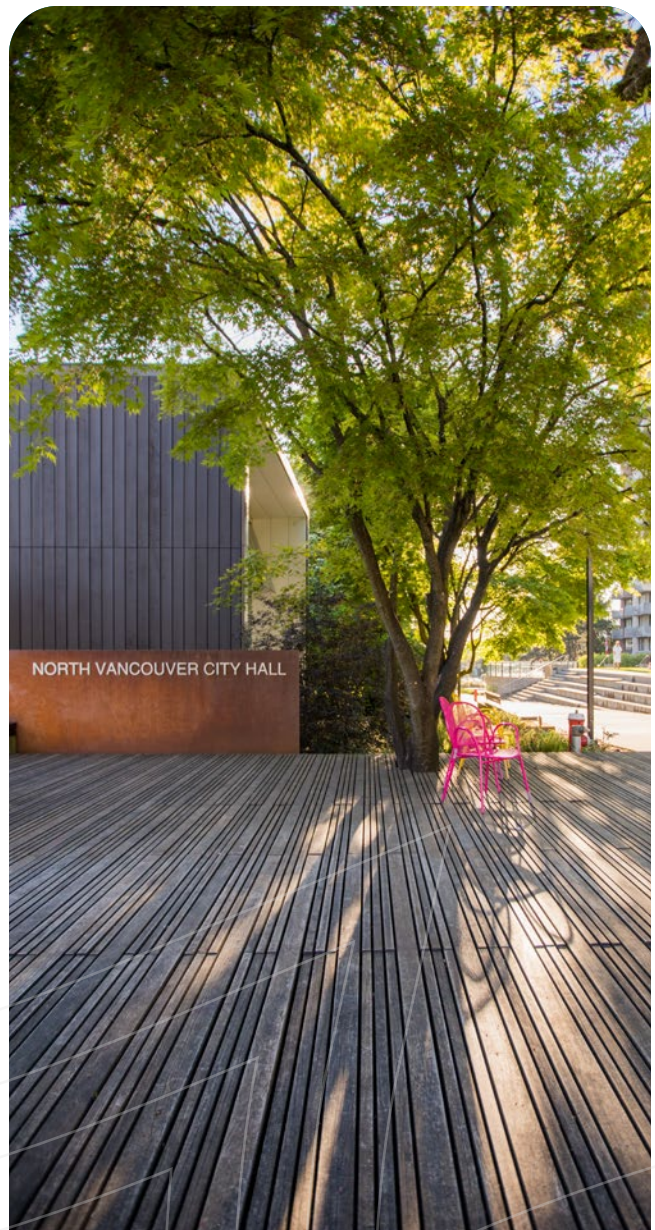
This Strategy is intended to guide the City's decisions to foster a resilient and low carbon community over the next decade.

Breaking the Strategy down into annual priorities will be a necessary planning exercise given the Strategy's integration with other City plans and priorities, the evolving needs of our community, and the City's response to changing conditions locally, regionally, and globally. Implementation will require close collaboration with various City departments and teams, and delivery of the work will be dependent on Council's objectives and priorities, along with annual budgets and staff capacity.

The typical opportunities for establishing annual priorities and allocating funding and resources in the City include:

- » **The Annual Financial Planning Process** at which time all City departments propose a list of projects and/or programs to be included in the City's operating and capital budgets in the Financial Plan. These projects are then evaluated and selected based on how well they support the City's objectives and strategic priorities.
- » **Work Programming** which happens annually and by each City department, to guide the work and budget allocation for each team. Policy development, project planning and implementation are typically considered through this process.
- » **Partnerships and External Funding Sources** may enable the City to deliver projects and/or programs on expedited timelines, as funding or partnerships are secured.

Successful implementation of this Strategy will require strong teamwork, adequate resources, staff time, partnerships, and an engaged community. Everyone has an opportunity to contribute to this work.



How We Do the Work

AN APPROACH OF ONGOING AND INCLUSIVE ENGAGEMENT

Implementing the Strategy requires ongoing, inclusive engagement with other governments, interested parties, Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) and sə̓lilwəta4 (Tsleil-Waututh Nation), and the community at large. Throughout the lifespan of the Strategy, the City will take the following inclusive and adaptive approaches to ongoing engagement.

- » **Talk & Engage:** Ongoing conversations make it possible to better understand the current needs of the community and find collective solutions to evolving issues. Meaningful engagement includes reducing barriers to participation, and ensuring a diverse representation of viewpoints.
- » **Education, Empowerment & Stewardship:** Much of the success of this Strategy will depend on a high level of community participation. The City will work with and support community organizations to expand education and engagement opportunities, as well as foster environmental stewardship. The Strategy recognizes that in order for individuals to feel empowered to make low-impact choices, the City must make those options – whether zero waste, walking and rolling, and smarter home energy systems – safe, convenient, and economical.
- » **Pilot, Learn & Adapt:** The world is changing quickly and being nimble is critical. The City will be open to trying new things through piloting and learning as we go. Piloting projects allows greater opportunity for the community to provide feedback as the City monitors on-the-ground outcomes.

Projects and Partnerships

There is an opportunity for everyone, including residents, City staff, political and community leaders, and other levels of government, to contribute to the work of implementing the Strategy. Success will depend on strong teamwork, communication, adequate resources, partnerships and an engaged community.

Accountability

The Strategy's Pathways establish the City's long-term policy directions for the next decade. The strategy's implementation prioritizes and focuses on the initiatives we will achieve in the near-term, and shows how we'll measure and track our progress.

During the development of this Strategy, we heard from the community that urgent action and accountability is imperative. Monitoring and reporting will drive accountability, and ensure the community has the opportunity to actively engage in our work, and continually contribute to this Strategy. Through the Annual Municipal Report, we will report back to the community documenting the implementation progress.

Over the coming years, the City will monitor, refresh and update the implementation section as needed – to keep the Strategy current and relevant. The implementation plan is the living part of this Strategy. The implementation plan is made up of three elements: targets, metrics, and priority projects.

Targets & Metrics

Targets are the measurable key goal of each Pathway. A target details the expected and anticipated outcome of the work done for each respective Pathway. Clear targets mean that we can strategically prioritize the work we are doing, and develop partnerships to amplify impact.

Metrics are the indicators we will use to our measure the realization of the Strategy's policy directions. These metrics will utilize available data – and gather additional climate and environmental information as necessary – to enable assessment of our progress. Metrics will monitor whether we're moving the needle in the right direction, and where we may be falling short, for our key targets specifically as well as the Pathways more generally. Tracking our metrics will support data-driven decision making over the coming years.

Key metrics relate directly to the Pathway's targets. **Supporting metrics** support the overall policy direction of each Pathway.

Less Grey, More Green	
Key Target	Grow the City's urban tree canopy coverage to 22-24% by 2035 – to be confirmed through the City's forthcoming Urban Forest Plan
Key Metric	<p>Tree canopy coverage.</p> <p>Measuring the percentage of the City with tree canopy coverage, using aerial imagery and LiDAR technology, illustrates the extent of the City's urban forest, and reveals where there are gaps in our urban forest. Monitoring will be conducted every 4 to 5 years.</p>
Supporting Metrics	<p>Stream and stormwater health indicators.</p> <p>Monitoring aquatic health of the City's watersheds helps us understand better management of our waterways is needed. All our water is connected – from the rain, to drains, to creeks, to the ocean. Monitoring will be conducted every 2 to 5 years following Metro Vancouver's standardized Adaptive Management Framework methodology for water quality, sediment and benthic invertebrate sampling.</p> <p>Bird, insect and fish indicator species.</p> <p>The presence of indicator species signals the overall health of a habitat. Monitoring indicator species – such as song sparrows, barred owls, and coho salmon – can guide efforts to enhance and protect biodiversity. Monitoring is expected to be conducted biannually, and could include contributions from citizen science.</p>

Climate Resilient Buildings

Key Target

Low-carbon heat to supply 40% of the [Community Energy System](#) by 2027, and 60% by 2030

Key Metric

Community Energy System emissions.

Monitoring emissions from the Community Energy System quantifies the transition to renewable, low-carbon energy sources.

Supporting Metric

Building emissions.

Monitoring community and corporate emissions tracks the City's pathway to net zero, and ensures the City remains accountable for emissions from City facilities.



Connected Neighborhoods

Key Target	50% of trips in the City are taken by walking, rolling and transit by 2030 – supporting the City's <i>Mobility Strategy</i>
Key Metric	<p>Mode Shift.</p> <p>Shifting as many trips as possible to walking, rolling and transit, and reducing overall vehicle trips in the City is the first priority in cutting emissions from transportation.</p>
Supporting Metrics	<p>Tree canopy coverage of mobility lanes, sidewalks, and multi-use pathways.</p> <p>Monitoring the percentage of tree canopy coverage over the mobility network shows where tree planting is needed, for shading our active transportation routes.</p> <p>Transit shelters.</p> <p>Monitoring the number of transit shelters in the City can show where more shelters are needed – to increase comfort for public transit users.</p> <p>Transportation emissions.</p> <p>Monitoring community and corporate transportation emissions tracks the City's pathway to net zero.</p>

Empowered Choices

Key Target	Annual increase of prefabricated construction projects in the City
Key Metric	<p>Buildings constructed annually in the City using prefabricated construction.</p> <p>Prefabricated construction has multiple benefits including encouraging the use of low-carbon materials such as mass timber, reducing construction waste, and mitigating noise and other construction impacts on the community.</p>
Supporting Metric	<p>Waste emissions.</p> <p>Tracking the emissions from the landfilling of solid waste is part of tracking the City's pathway to net zero.</p>

Priority Projects

The City has been a leader at integrating climate action into all of our work and creating a sustainable and resilient City. However, a focus on particular initiatives is required to move the needle on our climate and environment ambitions.

Every year, the City prioritizes initiatives through its budgeting process to help us achieve our climate goals. The projects listed here represent key initiatives, for each of the Strategy Pathways, which have already been budgeted and integrated into departmental work plans. As projects are completed, we will identify new initiatives through our reporting process and subsequently include those items for Council consideration as a part of the City's annual budgeting process.

Urban Forest Plan

The Urban Forest Plan will provide a roadmap to protecting and growing the City's Urban Forest, which includes all of the trees and supporting vegetation in the City, over the next 30 years.

Sewer heat recovery plant to reduce Community Energy System emissions

Reducing emissions from our Community Energy System is essential to delivering zero carbon building in the City.

Street Design Guidelines

These guidelines will establish a design framework, standards, and a set of principles for ensuring a walkable, high quality public spaces and pedestrian streetscapes. This project will also provide ranges of acceptable design parameters for different streets in the City, which will help guide City growth and development.

Offsite Prefabricated Construction bylaw and process update

Incentivizing prefabricated construction has multiple benefits including encouraging the use of low-carbon materials such as mass timber, reducing construction waste, and mitigating noise and other construction impacts on the community.



Glossary

Terms Used In This Document

ACCESS: refers to making a service or resource available for everyone to benefit from equitably and meaningfully.

ADAPTATION: refers to actions undertaken to prepare for and adjust to the current and projected impacts of climate change.

CARBON DIOXIDE EQUIVALENT OR CO₂E: refers to the number of metric tonnes of CO₂ emissions with the same global warming potential as one metric tonne of another greenhouse gas. There are a number of gases that contribute to global warming all of which together are quantified in the single unit of CO₂e.

CARBON PERFORMANCE STANDARDS: are imposed to limit the amount of carbon pollution that can be emitted by a building.

CIRCULAR ECONOMY: is a model of production and consumption that involves sharing, reusing, repurposing, recovering, rethinking, repairing, and recycling materials and products as long as possible. Circular economies reduce and divert much of the waste that goes to landfills.

CLIMATE RESILIENCE: is the ability to anticipate, prepare for, and respond to hazardous stresses or shocks related to climate change.

COMMUNITY ENERGY SYSTEM: is a centralized heating system that distributes thermal energy through a network of underground pipes to multiple buildings in an area. Lonsdale Energy Corporation is the City's community energy system.

CONSUMPTION-BASED: refer to emissions associated with using of products and services that have been produced elsewhere, such as consuming food that was grown in another country.

DURABILITY AND RIGHT-TO-REPAIR STANDARDS: legislation or regulations that set standards for producers regarding the quality, durability and repairability of goods.

ECOSYSTEM SERVICES: are the many direct and indirect benefits to human wellbeing provided by the natural environment, such as food production and flood mitigation.

EMBODIED CARBON OR EMBODIED EMISSIONS: of a material is the carbon pollution generated from its full life cycle from production to disposal.

EXTENDED PRODUCER RESPONSIBILITY: an approach to recycling that requires producers, such as manufacturers, distributors, and retailers to take responsibility for the life cycle of the product they sell including collection and recycling.

FORESHORE: is the part of the shore that is between the lowest and highest tides, such as the inter-tidal zone.

GREY AND GREEN INFRASTRUCTURE: Gray infrastructure is hard infrastructure, such as pipes and culverts. Green infrastructure is the strategic use of natural areas in a way that harnesses or replicates natural ecosystems, such as wetlands and raingardens.

GREENHOUSE GAS EMISSIONS: are the gases in the atmosphere, both natural and anthropogenic, such as carbon dioxide, methane and nitrous oxide that trap heat and cause climate change.

EFFECTIVE IMPERVIOUS AREAS: are hard surfaces that are not directly connected to the ground, so do not allow rainwater to soak into the ground before it reaches a stream. This can lead to more stormwater runoff, increased pollutants into our water systems, and impacts to stream and wildlife health.

IPCC OR INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE: is the intergovernmental body of the United Nations that is responsible for advancing knowledge on human-induced climate change.

LENDING LIBRARIES: are community hubs for sharing, borrowing and reusing tools, equipment and household goods amongst neighbors.

LOCAL FOOD ASSET: are food and cultural resources including local land-based amenities (e.g. pollinator gardens and urban agriculture), built amenities (e.g. community kitchens), and public programs and organizations (e.g. food rescue organizations) that connect people with local food and cultural plants.

LOW CARBON PATHWAY: refers to the necessary adjustments that are needed to achieve our carbon pollution targets. The City has set targets to be achieved before 2050. See page 12 of this Strategy.

LOW-IMPACT: refers to actions and choices made that emit less carbon pollution than an alternative, such as buying locally grown food rather than importing food that emits more transportation-related emissions.

MITIGATION: refers to ongoing actions to limit climate change and potential climate change impacts through the reduction of carbon pollution.

NATIVE SPECIES: are flora and fauna that are indigenous to a given region or ecosystem with no human intervention.

NATURAL ENVIRONMENT: refers to the non-human-made surroundings and conditions in which all living and non-living things exist on Earth. This includes ecological units that operate as natural systems (e.g., soil, vegetation) and universal natural resources (e.g., air, water).

NET ZERO EMISSIONS OR NET ZERO OR CARBON NEUTRAL: means an overall balance between the greenhouse gas emissions produced and removed from the atmosphere. For the City, this means reducing emissions as much as possible, and removing any remaining emissions using natural solutions and technology.

[GROUNDWATER] RECHARGE: refers to the hydrologic process where water moves downward from surface water to groundwater, and occurs as water falls on the land surface, infiltrates into soils, and moves through pore spaces down to the water table.

RESILIENT: refers to the ability withstand and/or recover from shocks and stresses, and the ability to proactively learn from experiences and improve conditions with consideration for mitigation, adaptation, and health.

RETROFITS OR LOW CARBON AND RESILIENT RETROFITS: refer to increasing energy efficiency and renewable energy produced by older buildings to decrease carbon pollution created from these buildings, and making buildings more resilient to a changing climate.

RIPARIAN: refers to the natural areas adjacent to streams, lakes, and rivers.

STORMWATER: is rain that lands on rooftops, roads, and sidewalks, and into our stormwater infrastructure system instead of soaking into the ground. Stormwater can be managed through measures like rain gardens, permeable surfaces, and planting trees.

STORMWATER TREATMENT SYSTEMS: are built or naturalized infrastructure that capture pollutants from surface water runoff before they reach a body of water.

TREE CANOPY: indicates the extent of urban forest and ecosystem services it provides and consists of ground cover, stems, branches, and leaves of trees both on public and private land.

URBAN FOREST: is an interconnected ecosystem that refers to all of the trees, soil, and supporting vegetation in the community.

URBAN LOGISTICS: refers to the movement of goods and describes the transport of goods in urban areas.

WALKING AND ROLLING: refer to walking, using a mobility device (e.g., wheelchair), biking, skating, taking a scooter, or using a micromobility device (e.g., e-bike-share).

WATERSHED OR CATCHMENT AREA: is the area of land that drains all the rainfall and streams to a common outlet into the ocean.

ZERO CARBON, OR ZERO CARBON EMISSIONS: means that no greenhouse gas emissions are generated at the point of use.

ZERO EMISSION PASSENGER VEHICLES (ZEVs): is a vehicle that does not emit carbon pollution from the onboard source of power.

ZERO WASTE: is a set of principles focused on waste prevention that encourages redesigning resource life cycles so that all products are repurposed and/or reused, rather than going to landfills, incinerators, or any part of the environment.



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