

Design Principle 1 | Appropriate housing for all

Proposed Goal *To promote sustainability by providing a range of housing types in every neighbourhood to accommodate all age and income demographics.*

Low GHG communities are comprised of sustainable neighbourhoods that offer a variety of housing choice in type, tenure, affordability and accessibility. Providing different housing types, including smaller unit sizes and flexible building spaces, assists in meeting diverse housing needs that change over time. A mix of housing types and tenures (market, non-market), at various densities, reflects the full range of cost and rent levels of a community. Locating housing in close proximity to shops and services contributes to the reduction of GHG emissions by minimizing residents' dependencies on the car. Developing housing that is supported by community energy systems and renewable energy sources ensures energy efficiency. More compact housing types consume less energy and support community energy systems. (OCP Goals & Objectives: 5.7.1; 5.7.2; 5.7.6; 8.5.2; 8.5.5; 8.5.6; 8.7.3; 8.7.4; 8.7.5)

Sample Design Objectives

- Establish relative proportion of housing types required based on demographic trends.
- Maximize the intensity of homes at key nodes, supported by transit and pedestrian and cycling amenities.
- Increase the mix of housing types within neighbourhoods, blocks, parcels, and buildings.
- Encourage building typologies aimed at increasing access and affordability.
- Encourage green buildings and housing retrofits that introduce renewable energy or support the community energy system.

Key Questions

Population

The City's 2006 population was 45,165. Considering current growth rates from the last five and ten years, the population by 2107 would be somewhere between 75,000 and 105,000. Is this a reasonable basis for framing the discussion of a 100 year vision for the City?

Housing

The City's 2006 housing stock was comprised of 22,643 dwellings. Single detached housing, semi-detached, row houses, and duplexes, combined, represented almost 40% of these. Apartments in less than five storey buildings represented over 40% and apartments in buildings over five storeys represented less than 20%. What changes in housing types and tenures (market, non-market) would need to happen to affordably accommodate the projected population for the 100 year vision?

Design Principle 2 | Good and plentiful jobs close to home

Proposed Goal *To foster sustainability by maximizing the number and types of jobs for its residents throughout the community, both in and near homes.*

Low GHG communities are complete communities supported by diverse local economies. These local economies provide a variety of jobs for residents while offering products and services that support local needs. Locating good and plentiful jobs close to home reduces commute times and related GHG emissions and enables walking and cycling as viable transportation options to carry out daily activities. In addition, the consequent greater mix of land uses and building types creates opportunities for waste and resource synergies and helps to maximize potentials for energy efficiency and renewable energy sources. (OCP Goals & Objectives: 8.5.1; 8.5.5; 8.7.4; 8.7.5; 12.6.1; 12.6.3; 12.6.4; 12.6.5; 12.6.8)

Sample Design Objectives

- Increase employment opportunities in all communities and at all scales, including home-based businesses.
- Maximise the intensity of people and jobs at key nodes, supported by transit, pedestrian and cycling amenities.
- Increase the mix of land uses within neighbourhoods, blocks, parcels and buildings.
- Establish mixed use centres at walkable, transit-supported intervals throughout the city.
- Increase proximity of housing to employment centres and local goods and services.

Key Questions

Population

The City's 2006 population was 45,165. Considering current growth rates from the last five and ten years, the population by 2107 would be somewhere between 75,000 and 105,000. Is this a reasonable basis for framing the discussion of a 100 year vision for the City?

Employment

The City currently employs 26,695 people (2001 data). A balance of 1 job per dwelling, considering an average of 2 people per household, would mean the number of jobs would need to grow by between 40% and 100%, depending on the population assumption. Is this a reasonable basis for framing the discussion of a 100 year vision for the City, and if so, how should the City accommodate the new employment?

Design Principle 3 | Mixed use corridors accessible to all

Proposed Goal *To support sustainability by providing walkable, transit-supported and mixed-use commercial corridors.*

Low GHG communities capitalize on their public infrastructure and surrounding real estate by supporting multi-purpose, mixed use corridors. Corridors accommodate a higher density of population and jobs to support an effective transit service, both local and regional. Ensuring corridors provide safe, effective and diverse transportation choices for pedestrians, bicycles, transit users and those who drive, contributes to reduce GHG emissions. Corridors can promote energy efficiency by providing effective commuter and goods transportation, alongside multi-modal access to mixed-use developments. Connecting mixed-use corridors with pedestrian, bike, transit, and vehicular throughways enhances transportation, circulation, and accessibility throughout the community. (OCP Goals & Objectives: 4.10.7; 5.7.6; 5.8.1; 5.8.3; 8.5.4; 8.5.5; 8.7.8)

Sample Design Objectives

- Increase the mix of land uses along corridors.
- Establish mixed-use nodes at walkable, transit-supported intervals along corridors.
- Adapt existing road networks for enhanced multi-modal service and access.

Key Questions

Land use Mix

In 2001 the City's major land use was single family residential (over 40% of the City's land), followed by recreation and protected natural areas (13.5%), residential - townhouse and low-rise apartments (12.4%), and the remaining land uses to a lower extent. Considering the distribution of density and land uses can determine the ways people work, live, and commute, what changes in the City's land use mix would need to happen to accommodate the projected population and employment for the City's 100 year vision while reducing the overall impact on the environment?

Transportation Modes

The City currently has a relatively high percentage of transit commuters (20%) and walking and biking commuters (11%), facilitated by the provision of frequent bus and seabus services. However, the majority of commuters are drivers, representing 62% of the total. 50% of the City's GHG emissions result from transportation. What changes in the City's urban form and transportation service would need to happen in the City's 100 year sustainability vision to replace automobile use, reduce energy consumption, and promote alternative modes of transportation?

Design Principle 4 | Five minute walking distance

Proposed Goal *To promote sustainability by ensuring citizens live within walking distance to jobs, goods, services, and open spaces.*

Low GHG communities are comprised of compact neighbourhoods where people, jobs, goods, services, and open spaces are located in close proximity to support walkability. The mix and balance of land uses supports the creation of complete communities where citizens live within a 5-minute walking distance (400m) of their daily needs. Promoting walkability and reducing automobile dependency minimizes the impact on the environment. The traditional, small block street grid interconnects neighbourhoods through multimodal corridors designed for walking, cycling, transit use, and cars. The grid also supports the City's community energy system. (OCP Goals & Objectives: 5.6.1; 5.6.6; 5.7.5; 6.11.2; 6.11.3; 6.12.2; 8.5.4; 8.5.5; 8.7.8)

Sample Design Objectives

- Encourage a mix of uses and higher density along corridors, so that surrounding lower densities are within walking distance to the goods and services at the corridor.
- Provide an attractive, safe, and interconnected street environment.

Key Questions

Land use Mix

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Design Principle 5 | Access to linked public places, parks, and natural areas

Proposed Goal *To foster sustainability by ensuring access to an attractive, safe, and interconnected public realm for all citizens.*

Low GHG communities promote a high quality public realm that knits the community together, is designed to best serve the community, and celebrates its natural environment. A high quality public realm facilitates our multi-cultural, multi-generational, and diverse community. It includes attractive streetscapes and public gathering places that are functional for all, including seniors, youth, families, and those with disabilities. Carefully designed higher densities enhance the vibrancy, safety, and sense of place of the public realm, providing activity, enclosure, eyes on the streets, and semi-public spaces people can access and use. Protecting, preserving, and linking natural areas, parks, and public spaces promotes recreation, healthy living, and a connection with nature. It also maintains and restores ecosystem function within the community and beyond, accommodates habitat, and sequesters GHG emissions. This supports energy efficiency by maintaining the ecological function of creeks and by providing stormwater management and other green infrastructure opportunities. The implementation of the Green Necklace project is an example of providing a continuous system of parks, linking major public destinations, and planned in context of current and future passive and active recreation needs. (CNV's Environmental Protection Program; OCP Goals & Objectives: 4.9.6; 4.10.4; 4.10.7; 4.10.8; 4.10.9; 8.8.1; 8.8.2; 8.9.1; 8.9.2; 8.9.3; 9.10.1; 9.10.2)

Sample Design Objectives

- Create an interconnected system of public gathering places.
- Create a green street network with trees and planted boulevards that connects major open spaces and performs ecological functions.
- Re-establish ecological performance within open spaces and enhance the recreational and habitat value of green systems.

Key Question

Open Spaces and Private & Public Realm

The City has a number of outstanding natural and historic attributes: the waterfront, hills, creeks, mountain views, sloping southern exposure, and Town Centre. Recreation and protected natural areas represent 13.5% of the City's land base. The current compact size of the City and grid street pattern facilitates access to the Town Centre, parks, and natural areas. What changes in the City's private and public realm and open spaces need to happen in the 100 year vision to provide an attractive, accessible system of open spaces for the projected population that positively contributes to the environment?

Design Principle 6 | Green, durable, timeless infrastructure

Proposed Goal *To support sustainability by providing buildings and infrastructure that have longer lifecycles and a reduced impact on the environment.*

Low GHG communities optimize the economic, social, and ecological impacts of buildings and infrastructure. Lifecycle of buildings and infrastructure is a key aspect of this, particularly when the current condition is generally a 30-year lifespan. Longer lifecycles, together with innovative development standards and practices, preserve, enhance, and maximize the use of existing public facilities and other local community resources. This maximizes energy efficiency and reduces GHG emissions, as well as the private, public and taxpayer costs of development and infrastructure. Green buildings and community energy systems contribute to the reduction of GHG emissions. Natural areas, parks and other public open space, as well as green streets and on-site stormwater management practices, contribute to water quality and flood prevention. (OCP Goals & Objectives: 6.11.2; 6.11.3; 6.11.4; 6.11.8; 6.12.1; 6.12.2; 6.12.8; 6.12.9; 6.12.13; 8.4.4; 8.4.5; 8.5.2; 8.5.5; 8.7.3; 8.7.6; 8.7.10; 8.7.12; 8.8.4; 8.9.1; 8.9.2; 8.9.3; 11.7.1; 11.7.2; 11.7.4; 11.8.3; 11.8.10; 11.8.10; 12.6.2)

Sample Design Objectives

- Enhance stormwater management in streets, open spaces, and other elements of the public realm through low-impact, cost effective and durable strategies.
- Enhance energy performance in buildings through low-impact, cost effective and durable strategies.
- Implement innovative development standards for increased lifecycle in buildings and infrastructure.
- Increase the ecological functions of infrastructure systems including roads, drains, and utility networks.
- Promote opportunities for geothermal heating systems and other energy efficiency options related to open space or green infrastructure.

Key Question

Infrastructure

Conventional current practice includes buildings and infrastructure with short lifecycles and negative impacts on the environment (water, air, energy, and soil). Almost 40% of the City's GHG emissions result from buildings (residential and commercial). Increased development including impervious surfaces decreases water quality and increases flood risk. What changes in the City's buildings and infrastructure need to happen in the 100 year vision to accommodate the projected population while ensuring longer life cycles, energy conservation, water quality, flood prevention, and a positive contribution to the environment?

Design Principle 7 | Climate change adaptation

Proposed Goal *To advance sustainability by ensuring adaptation and resiliency to potential challenges in a way that does not compromise citizens' quality of life.*

Looking out 100 years, sustainable communities not only plan for the mitigation of climate change (by reducing GHG emissions), but also move towards adaptation. Adaptation strategies support urban systems that are resilient to climate change impacts (as anticipated by the scientific community) while maintaining a high quality of life for citizens. Potential costs of climate change in BC's lower mainland in the next 50 years have been estimated to include sea level rise, increased storm intensity, increased precipitation in winter (5-20%), decreased precipitation in spring and summer (up to 20%), and higher temperatures (4-5°C in winter, 3-4°C in summer). In light of these, communities adapting to climate change carefully plan along waterfronts and creeks, design stormwater networks, plan for reduced aquifer recharge and reservoir capacity, and prevent erosion and landslides, among others.

(Source for Climate Change impacts: *A Sustainable Urban System: The Long-term Plan for Greater Vancouver*, produced by The Sheltair Group, 2003)

Sample Design Objectives

- Minimize development in areas below the projected sea level rise.
- Create an effective stormwater retention and management strategy to minimize the impact of floods, run-off, erosion, and landslides.
- Create an effective stormwater management strategy to minimize the impact of a decreased spring and summer precipitation (reduced aquifer recharge and reservoir capacity)
- Increase the urban forestry and develop other urban design strategies for the public realm to help cope with higher temperatures, extreme heat waves, and increased concentrations of air pollutants on hot calm days.

Key Questions

Anticipated and Unanticipated Impacts of Climate Change

Anticipated impacts of climate change for the City include sea level rise, increased storm intensity, increased precipitation in winter, decreased precipitation in spring and summer, and higher temperatures. What changes in the City's urban form, public realm, and infrastructure (water and energy) would need to happen in the City's 100 year vision to adapt to both anticipated and unanticipated changes in a way that does not compromise the quality of life of the projected population?

