

CITY OF NORTH VANCOUVER
100 YEAR SUSTAINABILITY VISION

GOALS AND OBJECTIVES
DOCUMENT

Prepared by the Design Centre for Sustainability
For the City of North Vancouver
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100 YEAR SUSTAINABILITY VISION GOALS AND OBJECTIVES DOCUMENT

Project Scope This project is a stakeholder driven, multi-disciplinary design charrette process to develop a *100 Year Sustainability Vision* for the City of North Vancouver. Guided by the Province’s recently introduced Greenhouse Gas Reduction Targets Act (November 2007) to reduce GHG emissions by 80% below 2007 levels by 2050, the project will address sustainability through the lens of climate change. As a result, the project will have a major focus on the reduction of GHG emissions towards possible GHG neutrality by 2107, the City’s 200th anniversary, and will explore how such a target influences sustainable urban form and vice versa. The project will also focus in other areas of the physical realm that concern the City’s liveability more directly (e.g. water quality, housing affordability). By developing a low-GHG 100 Year Sustainability Vision the City will set new standards in urban planning and policy, while providing a framework for dramatic greenhouse gas reductions. The results of this charrette will advance long-term planning work for the City and, as a Sustainability by Design (SxD) case study, will also serve to benefit others in the region, province, and nation.

Project Vision *To be a vibrant, diverse, and highly livable community that provides for the social and economic needs of our community within a carbon neutral environment by the City’s 200th Birthday in 2107.*

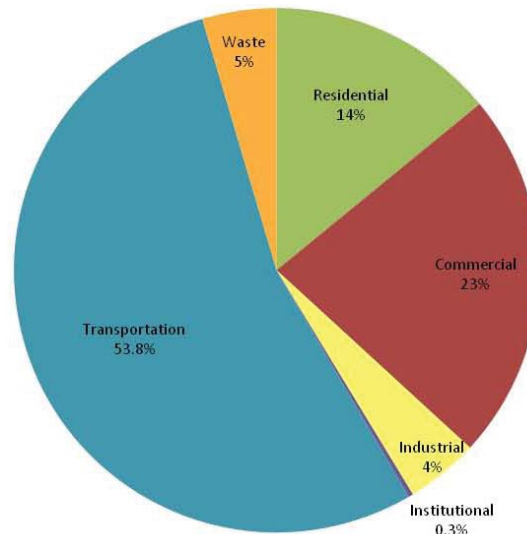
- Project Meta-Targets**
- To achieve zero net greenhouse gas (GHG) emissions by 2107
 - To reduce GHG by 80% below 2007 levels by 2050
(Greenhouse Gas Reduction Targets Act, Province of BC, November 2007)

Key Framing Issues

- Population
- Housing
- Land Use
- Natural Areas
- Climate Change
- GHG Emissions
- Employment
- Transportation
- Infrastructure

Current GHG emissions

According to the City of North Vancouver's 2006 revision of greenhouse gas (GHG) emissions, the City's 2006 community emissions amount to almost 240,000 tonnes. This represents an overall increase of 26% from 1995 levels. Sources of emissions by sector indicate transportation is the main contributor, accountable for 54% of the total emissions, followed by the building sector, representing 37% (residential 14%, commercial 23%), and, to a lesser extent, by waste (5%), industry (4%), and institutional uses (0.3%).



2006 Community GHG Emission Profile

Source: CNV Municipal and Community Greenhouse Gas Inventory, Update 2006, prepared by The Sheltair Group for CNV

Another important aspect to consider is the considerable increase in per capita emissions in the last ten years, from 4.45 tonnes per capita in 1995 to 5 tonnes per capita in 2006 (12% increase), stressing the importance of population growth in overall GHG emissions. However, please note that the 2006 data represents a more accurate number than the 1995 figure, as much or more than it relates to an expanding carbon footprint.

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?

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?

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?

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?

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?

Design Principle 1 | **Appropriate housing for all**

Goal

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

Sustainable communities are comprised of low-GHG-producing 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, affordable housing needs that change over time. A mix of housing types and tenures (market, non-market), at various densities, provides housing choices for 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 and stakeholder input from 100 Year Sustainability Visioning Project "Framing Workshop," April 22, 2008)

Objectives

- Increase the number of housing units to accommodate approximately 105,000 people by 2107.
- Increase the range of housing types to accommodate demographic trends and anticipated increasingly diverse needs.
- Maximize the intensity of homes along corridors such as Lonsdale Avenue and Marine Drive and at key nodes throughout the City.
- Provide connections from housing to transit service and pedestrian and cycling amenities, including the City's Green Necklace park system.
- Increase the mix of housing types within neighbourhoods, blocks, parcels and buildings.
- Include within all forms of housing a range of unit sizes and semi-private green space that can accommodate an aging population as well as families with children.
- Increase access and affordability through innovative building typologies.
- Maximize the incorporation of green buildings and housing retrofits that introduce renewable energy and support the community energy system.

Key Issues

Population; Housing

Goal

To foster sustainability by maximizing the number and types of jobs for its residents throughout the community, both in homes and within walking, cycling or transit commute from homes.

Sustainable, 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 and stakeholder input from 100 Year Sustainability Visioning

Objectives

- Create a job-population balance of approximately 1 job for every employable person.
- Increase employment opportunities in all communities, at all scales and in all sectors, including office, light industrial, home-based businesses, and live/work options.
- Maximize the intensity of people and jobs along key corridors including Lonsdale Avenue and 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.
- Provide building forms that can accommodate flexible, adaptable employment spaces.
- Maintain the City's industrial land base on Lower Lonsdale, Waterfront and behind Capilano Mall.

Key Issues

Population; Employment

Design Principle 3 | **Mixed use corridors accessible to all**

Goal

To support sustainability by providing walkable, transit-supported, safe, accessible, and highly liveable mixed-use corridors.

Sustainable, 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 thoroughways 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 and stakeholder input from 100 Year Sustainability Visioning Project “Framing Workshop”, April 22, 2008)

Objectives

- Increase the mix of land uses along corridors.
- Establish mixed-use nodes at walkable, transit-supported intervals along the corridor.
- Adapt existing road networks for enhanced multi-modal service and access.
- Provide medium to high density development (about 80 people per ha) consistently throughout the City to support a viable local and regional transit service throughout the North Shore.
- Improve east to west transportation connections, particularly transit options, to, from and through the City’s nodes and the District’s villages.
- Provide connections and “flow of movement” to and from the City’s mixed use corridors through accessible, multi-modal street networks.
- Provide multi-modal corridors that can accommodate specific services anticipated change in demographics may require (i.e. shuttle busses, self-organization by rethinking the “go bus”).
- Create new and unique, mixed use nodes (“nodes with character” that integrate living, employment, shopping, recreation and cultural facilities) along Lonsdale Avenue, Queensbury and other key corridors.
- Improve multi-modal street connectivity and transit service options to schools and community centres.
- Revitalize the train tracks and/or trolley bus system as a transit option for the City.
- Improve connections through natural environments and parks with trails and improved roadways for pedestrians and bikers.

Key Issues

Land Use Mix; Transportation Modes

Design Principle 4 | Five minute walking distance

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

Sustainable, low-GHG communities are composed 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 400 accessible metres of their daily needs. The goal is to provide a 5-minute walking distance for the average resident, and ease of accessibility for the mobility-challenged. Promoting walkability and accessibility, 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, disabled access, 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 and stakeholder input from 100 Year Visioning Project "Framing Workshop", April 22, 2008)

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 office, commercial, retail, institutional use as well as civic and green space amenities within a five minute walk (or approximately 400 metres) of all homes.
- Provide an attractive, safe, and interconnected pedestrian oriented street environment that accommodates disabled access, pedestrian, bicycle and vehicular "flow" of movement through all parts of the City.
- Create carefully designed, pedestrian, bicycle and vehicular connections to, from and through natural areas that capitalize on the "sense of place" the City's natural amenities offer.
- Integrate alleys as significant pedestrian, bicycle and vehicle connections of the street network.
- Incorporate topography and accessibility issues when defining the five minute walking distance.

Key Issues

Land Use Mix; Transportation Modes

Goal

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

Sustainable, 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 who use and move through them, 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 readily 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 ravines, 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 throughout the City, and planned in context of current and future passive and active recreation needs. (CNV Environmental Protection Program; OCP Goals & Objectives: 4.9.6; 4.10.4; 4.10.7; 4.10.8; 4.10.9; 8.7.11; 8.8.1; 8.8.2; 8.9.1; 8.9.2; 8.9.3; 9.10.1; 9.10.2), and stakeholder input from 100 Year Sustainability Visioning Project “Framing Workshop,” April 22, 2008)

Objectives

- Create an interconnected system of public gathering places, integrating publicly accessible green and urban spaces.
- Create a hierarchy and variety of park types which can accommodate a diversity of activities, including recreational, pocket parks, food-producing sites, and spaces for shared artistic expression.
- Create a comprehensive green street network with trees and planted boulevards, making road ROWs and country lanes connect to major open spaces with pedestrian and bike routes, and perform ecological functions.
- Protect the watershed, daylight water courses, and enhance ecological performance and habitat value throughout parks and open spaces buildings, and infrastructure.
- Increase tree canopy and crown closure along corridors and plant for maximum carbon sequestration incorporating green roof and wall designs.
- Promote opportunities for geothermal heating systems, resource recovery systems, and other energy and material efficiency options related to open space or green infrastructure.

Key Issues

Open Spaces and Private & Public Realm

Goal

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

Sustainable, low-GHG communities balance 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 and private 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), and stakeholder input from 100 Year Sustainability Visioning Project “Framing Workshop,” April 22, 2008)

Objectives

- Enhance stormwater management in streets, open spaces, and other elements of the public realm through low-impact, cost effective and durable strategies.
- Building on the “waste is food” concept, create a holistic infrastructure strategy that layers multi-purpose and ecological functions (including, roads, drains and utility networks).
- Promote opportunities for cleaner, renewable energy options, such as expanding the Lonsdale Energy Corporation district heating system, and integrating closed-loop energy systems, “zero waste” resource recovery options, solar strategies, and other energy and material efficiency designs for buildings and infrastructure throughout the community.
- Implement innovative development standards for increased lifecycle in buildings and infrastructure, including decentralized systems and adaptable technologies.
- Increase the ecological and layered, multi-purpose functions of infrastructure systems including roads, drains, and utility networks.
- Enhance energy performance in buildings through green roofs, walls, solar orientation, and other low-impact, cost effective and durable strategies.

Key Issues

Infrastructure; Population

Design Principle 7 | Climate change adaptation

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, and incorporate sustainability and resiliency considerations into all planning and development.

(Climate Change impacts, from *A Sustainable Urban System: The Long-term Plan for Greater Vancouver*, produced by The Sheltair Group, 2003), and stakeholder input from 100 Year Sustainability Visioning Project "Framing Workshop," April 22, 2008)

Objectives

- Minimize development in vulnerable areas such as slopes, areas below the projected sea level rise, and areas with a high interface fire risk.
- Create effective stormwater retention and watershed management strategies to minimize the impact of decreased spring and summer precipitation, floods, run-off, erosion, and landslides.
- Increase urban forestry and develop other urban design strategies for the public and private realms to help cope with higher temperatures, heat waves, fires, food security and increased concentrations of air pollutants.
- Create and renovate buildings and infrastructure for adaptable and incremental opportunities which incorporate better energy and material efficient designs.
- Plan for long-term local resource management, re-use, and preservation.
- Design for zero-waste, innovative and layered space use, flexibility and resiliency in all built projects.

Key Issues

Anticipated and Unanticipated Impacts of Climate Change

APPENDIX 1

SUPPORTING POLICY

Principle 1 | Appropriate housing for all

OCP PG 40, Energy Planning Objectives:

8.5.2 To implement Community Energy Systems as a means of providing heat energy for applications such as space heating and domestic hot water provided that it is demonstrated to be economically and technically feasible, and meets the City's sustainability goals and objectives.

8.5.5 To encourage the planning, design and construction of energy efficient neighbourhoods and buildings to minimize green house gas emissions.

8.5.6 To minimize the use on non-renewable energy by increasing the use of clean and efficient renewable energy supply systems.

OCP PG 41, Built Environment Objectives:

8.7.3 To encourage the use of re-useable and recyclable materials.

8.7.4 To increase the lifespan of new and existing development by considering adaptive re-use of buildings.

8.7.5 To address development growth and density issues in balance with environmental protection objectives.

OCP PG 18, Residential Land Use Objectives:

5.7.1 To provide a range of housing densities, diversified in type, cost and location, to accommodate the diverse needs of the community.

5.7.2 To avoid "zoning cliffs" at the edges of high and medium density residential areas by designating lower density multiple residential development between higher density and single family areas.

5.7.6 To encourage higher and medium density residential growth adjacent to major commercial facilities, with lower residential densities elsewhere.

Principle 2 | Good and plentiful jobs close to home

OCP PG 40, Energy Planning Objectives:

8.5.1 To promote energy efficient building design and practices for all development projects and City-owned buildings.

8.5.5 To encourage the planning, design and construction of energy efficient neighbourhoods and buildings to minimize green house gas emissions.

OCP PG 40, Energy Planning Objectives:

8.5.1 To promote energy efficient building design and practices for all development projects and City-owned buildings.

8.5.5 To encourage the planning, design and construction of energy efficient neighbourhoods and buildings to minimize green house gas emissions.

OCP PG 41, Built Environment Objectives:

8.7.4 To increase the lifespan of new and existing development by considering adaptive re-use of buildings.

8.7.5 To address development growth and density issues in balance with environmental protection objectives.

OCP PG 63, Economic Goal:

To maintain a strong and diverse local economy capable of supporting a complete community.

OCP PG 63, Economic Objectives:

12.6.1 To maintain an approximate balance, and to encourage as large an overlap as possible, between the resident labour force and jobs in the City.

12.6.3 To seek a wide range of employment opportunities that accommodates the diverse needs and skills of the community, including opportunities for youth people with disabilities and all members of the City's resident labour force. This should include a wide range of incomes, enabling workers to work and live on the North Shore.

12.6.4 To retain existing businesses that might contribute significantly to the local economy.

12.6.5 To attract new businesses that can contribute to the local economy.

12.6.8 To support home-based businesses that do not negatively impact the residential neighbourhoods where they are located.

Design Principle 3 | Mixed use corridors accessible to all

OCP PG 40, Energy Planning Objectives:

8.5.4 To reduce greenhouse gas emissions by measures such as transportation alternatives to the automobile, including increased transit, and a network of walking and cycling paths.

8.5.5 To encourage the planning, design and construction of energy efficient neighbourhoods and buildings to minimize green house gas emissions.

OCP PG 42, Built Environment Objectives:

8.7.8 To encourage pedestrian-friendly mixed-use redevelopment that combines residential, commercial and institutional uses.

OCP PG 14, Sense of Place Objectives:

4.10.7 To develop the commercial streets in Central and Lower Lonsdale as active, vibrant, pedestrian friendly spaces.

OCP PG 18, Residential Land Use Objectives:

5.7.6 To encourage higher and medium density residential growth adjacent to major commercial facilities, with lower residential densities elsewhere.

OCP PG 20, Commercial Land Use Objectives:

5.8.1 To encourage commercial development within appropriate land use designations.

5.8.3 To conduct a study of entertainment uses in the City and determine how the interface between residential uses and entertainment uses can be better addressed.

Design Principle 4 | Five minute walking distance

OCP PG 17, Land Use Goals:

5.6.1 To establish a land use pattern that supports the creation of a complete community. A balance of residential and employment growth is encouraged.

5.6.6 To encourage development to occur in a manner that minimizes its impact on the environment.

OCP PG 18, Land Use Objectives:

5.7.5 To encourage higher and medium density residential growth adjacent to major commercial facilities, with lower residential densities elsewhere.

OCP PG 40, Energy Planning Objectives:

8.5.4 To reduce greenhouse gas emissions by measures such as transportation alternatives to the automobile, including increased transit, and a network of walking and cycling paths.

8.5.5 To encourage the planning, design and construction of energy efficient neighbourhoods and buildings to minimize greenhouse gas emissions.

OCP PG 42, Built Environment Objectives:

8.7.8 To encourage pedestrian-friendly mixed-use redevelopment that combines residential, commercial and institutional uses.

OCP PG 33, Transportation, Mobility and Access Goals:

6.11.2 To co-ordinate land use planning and transportation planning to reduce transportation demand.

6.11.3 To provide a safe, convenient and efficient network of roads, paths, greenways and pedestrian corridors to move goods and people, while minimizing disruptions to the community.

OCP PG 33, Transportation, Mobility and Access Objectives:

6.12.2 To enhance pedestrian corridors to encourage more pedestrian activity throughout the City of North Vancouver.

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

OCP PG 13, Sense of Place Goals:

4.9.6 To create public gathering places and streets that are pedestrian-friendly, fun, attractive, safe, inclusive for all, that accommodate a range of public functions, and are compatible with the neighbourhood context.

OCP PG 14, Sense of Place Objectives:

4.10.4 To enhance public access to the waterfront.

4.10.7 To develop the commercial streets in Central and Lower Lonsdale as active, vibrant, pedestrian friendly spaces.

4.10.8 To celebrate our natural environment in areas where it can enhance our quality of life or make meaningful contributions to fish and animal habitat.

4.10.9 To provide connections to trails, bicycle routes and attractions in our neighbouring municipalities.

OCP PG.39, Environmental Protection Program

The City of North Vancouver has an Environmental Protection Program for the following reasons:

- Although the City is heavily urbanized, significant environmental resource values are associated with remnant forest areas, creek systems and marine foreshore. For example, salmon and trout spawning and rearing habitat remains in many creek systems of the City;
- Some Environmentally Sensitive Areas (ESAs) are located within parks, but many are unprotected (see OCP, Schedule "E");
- In the face of ongoing infill development and redevelopment, there is a need to identify environmentally sensitive areas and develop appropriate mechanisms to protect them;
- At the same time, more enlightened public attitudes and urban redevelopment present other opportunities to improve the environmental health of the City.

OCP PG 42, Built Environment Objectives:

8.7.11 To plan development in a manner that gives strong consideration to conserving the natural viewshed and heritage sites.

OCP PG 42, Bird and Urban Wildlife Value Objectives:

8.8.1 To protect and enhance the remaining public forested areas of the City

8.8.2 To increase connectivity and habitat linkages between isolated forest habitat areas.

OCP PG 42, Fish and Aquatic Ecosystem Objectives:

8.9.1 To moderate storm water flows from development areas into the City's creek systems.

8.9.2 To restore damaged riparian areas within parks, and manage access so as to avoid further damage.

8.9.3 To protect remaining riparian areas along City creeks, and to encourage restoration of riparian areas on both public and private lands.

OCP PG 46, Parks and Greenways Goal:

To create a linked system of parks and greenways that balances recreational use of parks and streets with sustainable ecological and transportation objectives.

OCP PG 46, Parks and Greenways Objectives:

9.10.1 To create a comprehensive trails and recreational greenways system that links major parks and public destinations throughout the City.

9.10.2 To conserve, protect and improve fish and wildlife habitat values in City parks.

Design Principle 6 | Green, durable, timeless infrastructure

OCP PG.40, OCP Environment Goal

8.4.4: To recognize and promote the relationship between responsible urban development and sustainable aquatic ecosystems.

8.4.5 To protect and enhance existing fish populations in local streams.

OCP PG 40, Energy Planning Objectives:

8.5.2 To implement Community Energy Systems as a means of providing heat energy for applications such as space heating and domestic hot water provided that it is demonstrated to be economically and technically feasible, and meets the City's sustainability goals and objectives.

8.5.5 To encourage the planning, design and construction of energy efficient neighbourhoods and buildings to minimize green house gas emissions; To encourage optimization of energy utilized during the full life-cycle use of public and private assets, i.e. for the production, transportation and assembly of materials, for the lifetime operation and maintenance of the asset, and for the retirement, re-use and replacement of the asset.

OCP PG 41, Built Environment Objectives:

8.7.3 To encourage the use of re-useable and recyclable materials.

8.7.6 To encourage creative design solutions that address the City's sustainability and environmental objectives.

8.7.9 To manage development areas in a manner that provides a sufficient buffer to hazard lands (such as unstable slopes).

8.7.10 To increase the ratio of productive, permeable green space to hard impermeable surface areas as redevelopment occurs.

8.7.12 To encourage new developments that minimize environmental impacts and that incorporate the principles of a sustainable lifestyle.

OCP PG 42, Bird and Urban Wildlife Value Objectives:

8.8.4 To enhance wildlife values by increasing tree cover and quality habitat on street boulevards, parks and developed areas.

OCP PG 42, Fish and Aquatic Ecosystem Objectives:

8.9.1 To moderate storm water flows from development areas into the City's creek systems.

8.9.2 To restore damaged riparian areas within parks, and manage access so as to avoid further damage.

8.9.3 To protect remaining riparian areas along City creeks, and to encourage restoration of riparian areas on both public and private lands.

OCP PG 33, Transportation, mobility and access goals:

6.11.2 To co-ordinate land use planning and transportation planning to reduce transportation demand.

6.11.3 To provide a safe, convenient and efficient network of roads, paths, greenways and pedestrian corridors to move goods and people, while minimizing disruptions to the community.

6.11.4 To continue to work to reduce greenhouse gas emissions by promoting alternatives to the single occupant vehicle, including improved public transit, pedestrian-friendly streetscapes, and designated bicycle routes;

6.11.6 To produce a Transportation Plan, with target dates for implementation, that will identify transportation policies and transportation system improvements to further goals and objectives related to sustainable transportation practices (safer city road program, revised road network hierarchy).

6.11.8 To work with transit authorities to provide a regional public transportation system that is fast, comfortable, convenient, accessible and effective.

OCP PG 33, Transportation, mobility and access objectives:

6.12.1 To enhance and expand opportunities for bicycles as a viable and attractive transportation choice.

6.12.2 To enhance pedestrian corridors to encourage more pedestrian activity throughout the City of North Vancouver.

6.12.8 To strengthen the linkages to port activities on Burrard Inlet as a vital economic asset to the community and the region.

6.12.9 To maintain and improve effective highway access from, and to, the City of North Vancouver by way of the major arterial routes and Highway #1 access points.

6.12.13 To encourage better integration of SkyTrain, SeaBus, B.C. Rail Passenger Service and the bus system to improve transit connections within and outside of the community.

OCP PG 46, Parks and Greenways Goal:

To create a linked system of parks and greenways that balances recreational use of parks and streets with sustainable ecological and transportation objectives.

OCP PG 59, Infrastructure Management Goals:

11.7.1 To provide the citizens, businesses and visitors with public infrastructure that improves the quality of life and protects the natural environment at an affordable cost.

11.7.2 To operate and maintain the infrastructure to acceptable standards.

11.7.4 To maintain structures to optimize the useful life of our infrastructure and replace it when necessary to maintain reliable service.

OCP PG 59, Asset Management Objectives:

11.8.3 To integrate the servicing of areas where growth is concentrated with asset replacement plans.

11.8.10 To incorporate the concept of sustainability into the development of capital replacement plans.

OPC PG 63, Economic Objectives:

12.6.2 To maintain a high level of service and infrastructure for businesses, including telecommunications, such that the City's commercial and industrial lands are ready to meet the demands of business.

Design Principle 7 | Climate change adaptation

The citiesPLUS Submission *A Sustainable Urban System: The Long-term Plan for Greater Vancouver*, produced by The Sheltair Group, 2003, pages 3, 13

APPENDIX 2

FRAMING WORKSHOP: SUMMARY OF STAKEHOLDER DISCUSSION

City of North Vancouver - 100 Year Sustainability Vision

FRAMING WORKSHOP

Tuesday April 22, 2008, 9:30 am - 12:00 pm

City Hall Conference Room A

WORKSHOP OBJECTIVES

- To refine the Goals and Objectives for the 100 Year Sustainability Vision
- To refine the key issues that will frame the 100 Year Sustainability Vision (e.g. Population, employment, housing, open space, etc.)

WORKSHOP AGENDA

| Time | Task |
|----------------|--|
| 9:00 - 9:30 | Breakfast / Registration |
| 9:30 - 9:40 | Welcome: Mayor Darrell Mussatto |
| 9:40 - 10:00 | Project Overview: Agenda, general project overview, and how today's activities fit in the project process. |
| 10:00 - 10:25 | Review of SxD and principles |
| 10:25 - 10:35 | Break |
| 10:35 - 11:35 | Group Break-out Sessions: Discussion about project Goals & Objectives and related key issues. |
| 11:35 - 11:50 | Plenary |
| 11:50 - 12:00T | Thank you and next steps |

WORKSHOP INPUTS & OUTPUTS

Inputs

- Project Vision and Meta-Target
- SxD Guiding Principles for Sustainable Communities
- Preliminary Goals and Objectives
- Preliminary key issues to frame the project

Outputs

- Refined set of Goals and Objectives
- Refined set of key issues that will frame the 100 Year Sustainability Vision

Workshop Teams

Richard White, Director, Community Development CNV

Home Team (To Refine Principles 1 & 2)

Facilitators:

Nicole Miller, Design Centre for Sustainability

Susan Milley, Design Centre for Sustainability

Participants:

Cheryl Kathler, Community Planner, CNV

Phil Sanderson, Economic Development Manager, CNV

Glenn Stainton, LEC Manager

Tyke Babalos, Property Owner, Sugar Bowl Holdings Ltd.

James Fox, Developer, Wedgewood Ventures

Al Saunders, Harbourview Projects Corp.

Annwen Loverin, Executive Director, Silver Harbour Senior Centre

Ian Abercrombie, Director of Facilities & Planning, School District # 44

Dominica Babicki, Supervisor, Sustainability Research, DNV

Sheryl Fisher, Communication Officer, Squamish Nation

Robyn Wark, Senior Key Account Manager, BC Hydro

Chris Dorais, Chair, North Vancouver School Board

Stephen Sheppard, Design Centre for Sustainability, UBC

Go Team (To Refine Principles 3 & 4)

Facilitators:

Sara Muir Owen, Design Centre for Sustainability

Sigrid Grünenberger, Design Centre for Sustainability

Participants:

Isabel Gordon, Director, Finance, CNV

Gary Penway, Deputy Director, Community Development, CNV

Dragana Mitic, Asst. City Engineer, Transportation, CNV

Jay Hiscox, Stantec

Pam Horton, Community Accessibility

John Watson, Marine Drive Resident's Association

Rosario Setticasi, Real Estate

Tamin Raad, Manager, Project Planning, Translink

Gil Yaron, Business Owner, Frogfile

Sarah Dal Santo, Section Manager, Policy Planning, DNV

Ian Forsythe, Director, North Vancouver Office of Cultural Affairs

Green Team (To Refine Principles 5, 6 & 7)

Facilitators:

Jone Belausteguigoitia, Design Centre for Sustainability

Dave Flanders, Design Centre for Sustainability

Participants:

Suzanne Smith, Planner, CNV

Dave Hutch, Landscape Architect, CNV

Mike Hunter, Manager, Parks & Environment, CNV

Jennifer Sanguinetti, Stantec

Victoria Smith, BC Hydro

Melanie Marchand, Chair, Advisory Planning Commission

Susan Haid, Manager, Sustainable Community Development, DNV

Margo Gram, Cultural Services Coordinator, Centennial Theatre.

Don Sigston, Manager, Lands, CNV

HOME TEAM: P1 | APPROPRIATE HOUSING FOR ALL
P2 | GOOD + PLENTIFUL JOBS CLOSE TO HOME

GENERAL COMMENTS:

- Many variables determine successful communities. This project would benefit from not only focusing on physical/quantifiable aspects. Through the project, exploration on how the design of physical space helps create more opportunities for social, cultural etc. qualities of place should take place.
- CNV began as a compact community, as such it's easier to manage a small land base and offers increases in sustainability options. However, CNV should consider its role/interaction with the District. Their corridors connect and their integration is essential. Should explore parallel processes which lead to charrette.
- Sustainability is multi-faceted. This exercise is about the built environment, but where is social and economic? Underlying design/built foundation of the process will -over time- evolve to support the more intangible qualities of a complete community. In 100 years, need to develop flexibility in our designs.

P1 | APPROPRIATE HOUSING FOR ALL:

- Too many variables to conceptualize for 100 years. Also, increasing cost of real estate means affordable housing is imperative. Serious strategies and bold goals are required (also on behalf of government) to fulfil community needs.
- 75,000-105,000 is reasonable to prepare for this range of population increase.
- Design objectives should be bolder in addressing affordable housing: North Shore is expensive. 40% of all future housing must be affordable. People who work in the city cannot afford to live in it. The key to limiting car commute time to work is housing affordability.
- 100 years' conceptualization is difficult. But we know we need major changes: what about seniors' health? Need "50" categories of housing- not just 4—case x case basis for a population with increasingly diverse needs. Housing flexibility and adaptability are important. • As CNV is the urban core of North Shore it faces development pressures. Housing complexity will become more important over the next 100 years.
- A Carbon-Neutral city requires density to support infrastructure. How do you provide high-density yet maintain family-friendly with shared greens pace nearby - how to achieve carbon neutrality while maintaining quality of life is a key question. Should focus on flexible building design. For example, SFU apartments include a flex-suite which can be rented out.
- Population demographics in 100 years indicate more seniors which will support more 5-storey housing.
- Social interaction is important to build community solidarity/security, etc.

Lower-rise developments seem to better support this. Are there examples of lower-rise development that could inform CNV development? Italy, NY, Montreal have examples of lower-rise buildings such as 3-storey walk-ups which often accommodate large, extended families. Fostering this in CNV would require a “culture change” from the “big house/big lot” mentality to recognizing that 3, 5 and 10-storey buildings can support children and families.

- A variety of unit sizes and improved housing mix is needed. Rental controls of units should be banned. Design objectives for key nodes should support density gradients along key corridors such as Lonsdale with different housing types in appropriate areas. This corridor intensification should be more aggressive, supporting townhouses, greater housing mixes and densities. Firm design goals should be developed and adhered to to support this.
- Key nodes with intense corridors need to be well-connected via multi-modal (pedestrian, bicycle, transit and vehicular) user friendly transportation routes. Further connectivity as well as to and from the Green Necklace should be developed, as well as connections North-South, and along Marine drive.
- Affordable housing is not in our control and is presenting the City a big challenge. Senior governments must be involved in addressing the affordable housing issue. What is the ratio of existing rental-market versus non-market? It should be 50:50 for all housing types. However, with more strata owners, the proportion has been decreasing in the past 10 years to about 65 owners to 50 renters.
- Sustainable housing needs building standards that will support structure for 100 years. The choice of material is crucial; must be durable from outset and must incorporate flexible design.
- The City’s demographics need to be examined. Where are trends, gaps that will be expected over the next 100 years? Lifecycle living arrangements and designs are important to accommodate changing demographics.

HOUSING SUMMARY:

- Density will increase over the next 100 years. Diversity and affordability are key issues to address. Other issues to consider include building life cycles: what is a sustainable Carbon Neutral building form?
- Important to consider the range in demographics; don’t develop housing focused on one type of demographic. Long-term, aging in place designs needed. The City’s OCP must be more flexible in incorporating creativity in the community building process and developing housing.

P2 | GOOD + PLENTIFUL JOBS CLOSE TO HOME:

Question posed to the group: Is an assumption of one job per dwelling unit enough?

- To determine appropriate ratio depends on the quality of the job.

Can we determine this through physical form? The community should consider the types of jobs that will allow people to afford housing in the community. One job per dwelling unit is meaningless if many new jobs are lower wage, average of \$10 per hour. An important question is how to ensure those that work in the community will live in the community. To determine jobs and types of jobs, we need to focus on the overall economic vision, as well as education and training necessary to support the vision. For example is their a vision to support a high-tech centre? Business centre? And what would be the education and training needs to support these?

- The City's zoning should support flexible spaces, live-work, light industrial, and working from home to assist in accommodating more jobs in the City. Policy should allow for flexibility in uses under zoning criteria. For example, current zoning prohibits lawyers, doctors and dentists offices together in one building.
- North Vancouver should have an employment vision for 100 years and identify where it wants to grow with regards to employment, and which sectors. CNV's Economic Development Strategy (not yet adopted) provides a 10-15 year projection and attempts to define types of employment growth and economic opportunities. The City should establish policies which support these opportunities and minimize influences of market trends which can change preferred options. Some main points include maintaining industrial land base, developing niche and high-tech industries, and developing offices.
- Lonsdale corridor should serve as an office development location, serving as an extension of downtown Vancouver. The City should explore opportunities with the existing industry on Lower Lonsdale, Waterfront, and behind Capilano Mall. The City has defined, limited land area for industry.
- Often, new development responds to market trends which can result in losing office spaces, creating a challenge when planning for employment opportunities. Community needs to shift its values with regard to privacy, so as to encourage mixed use integration. In addition, businesses should aim to integrate more transportation options (e.g. consider where they're located, promote car co-ops and other options). • What role can the City play in creating incentives/policies to encourage transit-use; working in community? Can they provide tax breaks to businesses that support transit or other modal options? Other incentives might be relevant to landlords/businesses and/or work/employee and building/development strategies (e.g. Whistler's employee housing).
- Currently, people commuting to CNV drive cars. In 100 years what will be the mode of commute? Need to consider some of the options that might be available in future.

POPULATION QUESTION:

- Population projections for GVRD/Metro Van provide for a shorter term.
- By 2031 the City estimates a 40,000 population increase on the North Shore. CNV has grown 5% in last 5 years. Population projections are

variable. Group recommends for the scope of this project, a minimum doubling of the existing population 100,000+ should be considered. What is the capacity of CNV? Is “doubling” too arbitrary? Too low?

- Incremental population changes should be considered in tandem with anticipated climatic changes. The answer to the population question is yet to be determined, but it is OK to use an estimate of doubling for the purpose of the project. The group reserves the right to change this at next workshop (group consensus).

Last thoughts on Jobs target for 100 years?

- The project should consider job type together with housing. One job for every employable person is good [ideal] target. Should also address desire that more people living in the community should work in the community.
- Job growth currently is in service sector. Movie industry encourages home-based businesses too.
- Building flexibility and adaptability are crucial. Should also accommodate for telecommuting (though no group consensus on this). Adaptable spaces will be required in housing development as well as in business areas.
- Encourage flexibility in uses under current zoning criteria. Focus on the employment vision for the community and build and grow around that vision.
- Provide government and civic incentives for builders to develop truly affordable housing options to keep our teachers, firemen etc. living in the community.
- Develop bold objectives that can make change; the vision must be bold and noticeable, and aggressively tackle provision affordable housing.
- Provide clear and unwavering policy to preserve the opportunity for office and employment in light of market trends that may support other forms of development.
- Alter OCP boundaries to increase density build-outs (rezone for higher densities?); support energy retrofits in buildings. Provide community energy system-ready construction—regardless of location and connection. Develop net-zero buildings; consider SFU planning and skytrain connections. Where is the plan to make CNV energy-independent?
- Housing percent: increase semi-detached/row housing to over 60% of single-detached units. On major corridors increase density to high-rise (over 5 storeys) to 40%; and apartments less than 5 storeys to 40%. Population: 100,000+.
- In respect to Principle One: Types of housing should include 40% apartment (under 5 storey); 45% single detached, semi-detached duplexes “co-op housing”; 15% apartment (over 5 storey). Need housing that can accommodate diverse lifestyles: biking/hiking/skiing/boating/walking/dogs/families. Housing should be energy efficient and green. In respect to Principle Two: Should consider types of jobs instead of how

many. Should promote flexible building spaces, live/work opportunities and flexible zoning including accommodation for home-based businesses. Should consider a future vision for the type of employment the City wishes to foster.

- Density will be informed by the capacity of land; as well as flexibility, adaptability and form of housing. Need to create adaptable spaces and need to envisage the future economy.
- Population should assume the higher end of the estimate; and increase % of dwellings in buildings over 5-storeys. Need to evaluate the sustainability of the 4-storey frame versus more concrete construction-flexibility. How does our % of apartments over 5-storeys relate to other communities?
- How many people living in city drive to jobs elsewhere? Why? Are people willing to consider heavier social engineering, such as tax incentives, to encourage working close to home?

**GO TEAM: P 3 | MIXED USE CORRIDORS ACCESSIBLE TO ALL
P 4 | FIVE MINUTE WALKING DISTANCE**

SUMMARY OF GENERAL COMMENTS:

- We need to understand the term “corridor” versus “street.” We don’t envision our corridors to look like Kingsway in Vancouver; rather we see a mixed-use spine with character and nodes of development along it. They can allow linear flow but also accommodate nodal development.
- CNV’s corridors must accommodate multi-modal flow and must have consistent moderate to high density along it to support viable transit.

SUMMARY OF KEY QUESTIONS:

- Increase commercial land uses and businesses.
- Accommodate mixed-use development.
- Ensure pedestrian realm connects people to destinations.

GENERAL DISCUSSION ON PRINCIPLES AND GOALS:

- May consider the term “streets” versus “corridors” and include note about “safer” places in the principle. The notion of the corridor as a key spine, provides a visual strength to the City.
- When considering a 100 year view it is important to be modest and conservative regarding changes. We should be sure to preserve the good things - we have good corridors in our City. Be careful when you try to change the way you “think” things work, because you may screw up the way things actually work.
- We should extend corridors to district, connect transportation and land use and provide strong connections to Lonsdale, Queensbury etc. Currently “flow” is an issue. There is a lack of sidewalks. This impacts

the flow of pedestrian movement 6 blocks in from the corridor and along Lonsdale.

- Should aim to achieve consistent mod/high density throughout the City. Translink suggests about 80 people/ha should be planned for consistently throughout the city to support viable transit. It is also important to consider the North Shore in its entirety. Should strive for a good walking city with good transit supported by clusters of high density (CNV 35-40 people/ha). Currently CNV and DNV average about 20 people per ha. If the densities and walkability is put in place, transit will happen.
- Doubling the population in 100 years could be as simple as encouraging families to live in the community. Most homes currently have far more bedrooms than people.
- The complexity of topo and geography should be considered in context with nodal and corridor development. Five minutes for who? Should indicate walking distance by number of blocks or measured distance (i.e. 400m) Also need to consider hills in relation to walking. The distance circle becomes egg shaped. We need to improve connections through natural environment and parks with trails, bike and in some cases roads.
- Ultimately corridors should be built respectfully of people's values. They should be developed with high quality, character, and human scale in mind, and should serve to connect people to the places they want and need to go. The corridor should support multi-modal transportation (bikes, pedestrians and vehicles) and transit oriented mixed-use nodes or villages. The City should consider bringing back the train track.
- The City's transit system is currently geared toward Vancouver, but that is not how people are traveling. There is a need to consider multi-modal travel and not just transit. Due to small size of CNV provision of a walkable city is technically fairly simple. More of a challenge would be to promote sustainability in transit choices on a North-Shore wide basis.
- North Vancouver also needs to consider its regional context and ensure that it is not trying to duplicate or compete with other, perhaps much larger communities.
- In terms of a 100 Year Plan, should consider how to evaluate and check the health of the plan. How we will know if we are advancing the plan? We need to be aware of things that might jeopardize the plan and the vision. For instance, we should consider technology and its influence on future movement and work (i.e. ability to work from home, etc.)

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?

- Increase density, increase employment, introduce employment to various areas in the City. Provide mixed-use density throughout the City not just one location. What does CNV feel is a "desirable" mix of uses? Why? What are character defining uses? Does land use define layout of streetscapes,

edges, nodes? i.e. Bird Market, Coffee Market. Does this translate at City scale? i.e. "MEC corridor" For a green future should we promote CNV as hotbed for Eco-Industry and Eco-business. This is influenced by lifestyle and values.

- Increase commercial and business in city and accommodate work/live, and create more mixed use corridors and nodes. For example develop 3rd Street, Queensbury and Lonsdale into mixed use nodal corridors. Nodal commercial and mixed-use development could provide for DNV too. There is a need to consider the District and its influence in land use development.
- Consider the nodes and corridors in context of compact city, with continuous high density every 400 - 500m along key corridors. Consider corridors and nodes as networks with unique and different character. Accommodate affordable housing. Keep residential out of industrial and core commercial. Densify single family areas and new minor nodes.
- Recognize schools and community centres as key nodes; connect programming and events to corridor networks. Fully integrate shopping, recreation and cultural facilities into "nodes"
- Walkable bike accessible routes needed to follow contours and topography - difficult to do where ravines and parks bypass logical routes. Protect the ravines from development. CNV possibly can cluster supportive uses at ecological edges i.e seniors, children at natural parks and i.e. watershed and feed clean industry. Protect amenities - natural areas, views, etc. They control the quality of life in the City.

What changes in the City's urban form and transportation service would need to happen in the the City's 100 Year sustainability vision to replace automobile use, reduce energy consumption and promote alternative modes of transportation?

- Plan all aspects to revert to "shuttle" commute and provide better through transit routes, especially east to west connections (rethink the "go" bus). Consider future service needs and amenities alongside site specific services linked to anticipated change in demographics. Consider the aging demographic and the consequences that will influence future services. Bring back a trolley bus system or move frequent mass transit along the main transportation corridor. Improve access to transit; evaluate commute versus shuttle/long range versus local and plan for adaptive change.
- Improve transportation to District, which relies on the urban core of the city. Support a North Shore transportation system; a coordinated system with the District that connects to its villages. Connect schools with transit. Use the alleys - they are too valuable to be for garbage and cars.
- Provide multi-use and flexible housing options and incorporate density throughout the city to support transit. If land uses are put together in close proximity there is no need for transportation. Build pedestrian oriented streets with sidewalks. Anticipate needed pedestrian connections. For example, develop pedestrian connections to schools

and commercial services and other destinations. Ensure pedestrian connections speak of quality of place and provide comfortable, safe routes; connect users with nature to help create a sense of place for CNV.

- Changes to automobiles (e.g. Prius, Volt) will extend life of auto. Don't plan on eliminating them. technology is main; no emission vehicles and transit

GREEN TEAM: P 5 | ACCESS TO LINKED PUBLIC PLACES, PARKS, AND NATURAL AREAS

P 6 | GREEN, DURABLE, TIMELESS INFRASTRUCTURE

P 7 | CLIMATE CHANGE ADAPTATION

P 5 | ACCESS TO LINKED PUBLIC PLACES, PARKS, AND NATURAL AREAS:

- Consider the intensity of uses; increase the diversity of spaces. An increase of population will result in an increase of use. Will need to design accordingly.
- Use natural systems to inform design. Incorporate day lighting, mud, H2O and new forms of stormwater management. Consider functional requirements, stream preservation and H2O volumes. Define the micro-level and regional watershed delineation and work from there.
- Provide a focus on pedestrian and bike corridors. Create narrower streets; account for steeper slope streets and consider open water courses and natural features. Hillside, north-south street orientation is a challenge as it is steep for cyclists/pedestrians and this is where the H2O drainage is. East-west is good for cyclists/pedestrians.
- Create pedestrian and bicycle priority streets on local/wide ROWs. Create green streets with extensive trees, shrubs and planting (e.g. diverse species, double rows, multi-layers). This will help sequester carbon, manage stormwater and provide habitat. Increase tree canopy and crown closure. Note that open waterways e.g. ditches make best play spaces for kids and day lighting/stormwater management features adds to the public realm.
- Reduce the number of cars, increase number of people on streets and design streets to be for people. Consider times of year (seasonal) when cars not allowed and/or car-free streets. utilizing streets for more public gathering spaces, especially in the central areas (like Victoria in the summer, Montmartre in Paris). Limit or restrict traffic in certain central spaces for shopping, markets, outdoor, art and entertainment; redesign key intersections for this type of seasonal use. This is important because most parks are on the periphery and are not really built for this type of activity (which requires hard surface). As central lane densifies this sort of outdoor use engenders community and connection.
- Program outdoor space and think of streets as part of public realm. For example, streets like parks can play a role in carbon sequestration through accommodating trees. Should encourage more people in the street and fewer people in the parks. Would serve to create less lawn and

- enhance the public to urban integration.
 - Consider limiting access to some green areas? Promote environmental education via public art. Don't segregate green and urban - can/should all be elements of publicly owned. Consider green walls that cascade into green streets and green roofs over parking areas. Emphasize opportunities of public infrastructure's biomass producing role.
 - Match park hierarchy and surrounding open space with population (and demographics) and immediate neighbourhood. Reduce parking requirement via density that supports alternative transportation options. Enhance the quality and frequency of open space in high density areas. Understand and build capacity for public open spaces, knowing that we won't be able to anticipate all the various uses. Think of multi-generational parks, gathering places.
 - Create livable parks and consider the urban/park interface and a hierarchy of park types. Integrate green buildings into public open space system to enhance it. Encourage smaller footprint buildings with greater green space connected through green necklace, etc. via DCC's or incentive programs; encourage green roofs.
 - Create remarkable urban open spaces that celebrate and demonstrate nature's services (e.g. water cycle - climate change, art). Park vision should include all ROWs - streets and lanes. Consider food production in respect to green infrastructure, including opportunities for food production in boulevards, parks, community gardens, etc.
 - Consider landscapes - think about conversion and redevelopment of existing sites. Use landscape planting that promotes beauty, urban health, eco function, no pesticides use. Enhance maintenance of natural areas in order to maintain basic ecosystem functions.
 - Increase opportunities for creating public greens pace (pocket parks) and greenways through redevelopment. Improve access to parks with sidewalks. Extend green street network to lanes as well to create network of "country lanes" similar to the City of Vancouver's pilot project.
 - There are limited opportunities for major new park acquisitions and an increasing role for community based park stewardship.
 - What do we expect impacts to be on our natural spaces (i.e. forest fires and banned access.)
- P 6 | GREEN, DURABLE, TIMELESS INFRASTRUCTURE:
- Assume renewable resources for district heating and expand the Lonsdale Energy Corporation service area. Consider sewage as energy source and locate where these sources would be. Think holistic infrastructure: composting at neighbourhood scale; linking district needs with local sources; multi-departmental. Support decentralizing systems for wastewater treatment and recycling. Currently, the Lions Gate system is centralized. Ensure infrastructure is smaller, decentralized. For example design waste water treatment facilities that are integrated into developments (density/open space).

- Find opportunities within topography and locate density appropriately for alternative transportations
- Consider adaptability of all development and foresight for different technologies in the future: alternative energy (solar, geothermal) can come online. Provide solar-ready infrastructure so that when it becomes less cost prohibitive it can be applied. Forced air systems will phase out, enable changing uses with the same infrastructure. Increase efficiency of energy standards.
- Promote effective asset management and maintenance. Take care of the built environment so it lasts through the future. Durability of buildings is mostly determined by quality of cladding and ability to connect to other uses changing infrastructure technologies.
- Waste and biomass equals energy. Focus on reducing waste, reducing use of materials. For example, narrower vehicular lane means less asphalt waste from streets. Rethink wasted space: consider parking lots and roofs and design for multiple functions (e.g. car sharing, etc.). Add innovation to what we have got! Reduce synthetic substances/materials and improve non-toxic materials (asphalt, plastics, etc.) while banning toxic ones (styrofoam and dry wall). Increase convenience of recycling and consider incentives (economic opportunities) and disincentive (user pay) to subsidize green programs; invest from bad into good industry, like Denmark does.
- Changing definition of heritage - can be upgraded, lots already built. Prepare design guidelines to encourage heritage preservation while upgrading to new environmental standards
- Zoning should have a longer term view looking forward 20/50/75/100 years. Services/transportation opportunities should drive areas of increased housing types and density. For example should provide row housing instead of lane houses. Strive for at least a 50% reduction in single family homes in 100 years.
- Community plan should include holistic infrastructure planning. Infrastructure should provide central heating/cooling in core and expand the core. Such planning should look at all opportunities to reduce or eliminate waste and implement “waste as food” principles.
- Design guidelines/requirements for buildings to maximize solar design. CNV so well situated for solar gain. “Daylight” the street grid as though daylighting a stream. Stormwater management and cycling opportunity in parking lane mostly. Promote green buildings: roofs, walls with cascading green and garden opportunities.
- Assume district energy is renewable and determine future sources and supply (i.e. biomass). Tap into geo-thermal possibilities (take heat/return heat) use solar parcels to augment and store energy.
- Building design should utilize roofs (e.g. condos require hard surface why don't place them on roofs - save more “natural space”); garden space, recreation space, viewing space.
- Expand LEC infrastructure through all higher density areas and position the utility to move to lower GHG technologies. Consider green

infrastructure including closed loop energy systems, multi-purpose utilities; renewable sources. Ensure water supply and distribution is matched to type of use to reduce energy use and resource consumption.

- Recognize that natural areas are assets that require preventive maintenance. Consider full life-cycle cost analysis of infrastructure replacement options and incorporate rigorous preventive maintenance programs to maximize the affective life of infrastructure. Promote asset management. Ban synthetics, toxic and man-made substances; ensure zero waste for North Shore.

P 7 | CLIMATE CHANGE ADAPTATION:

- Decrease impervious surfaces everywhere: roads, lanes, parking even on single family home lots and increase stormwater management in nature-scaping on street grid throughout city. Create incentives for more resilient and natural landscapes for private homes. Promote rainwater capture and infiltration for residential and commercial areas.
- Create incentives for biotopes: reduce grass, increase habitat. Encourage more resilient landscaping with less H2O use and more diversity.
- Remove contaminants in the waterfront infrastructure.
- Understand and educate about the risk balance between trees and storm blow down. Maintain natural areas: pests and stress, fire risk (interface fires); manage resources; fuel management. Create fire-safe buffer between homes and parks. Don't build on slope hazards. Develop vegetation strategies to maximize green while managing "risk" density increased storm events; build resiliencies (i.e. underground hydro) Mitigate slope hazards: given variation precipitation - terrain structures, slope stabilization etc. Plan for longer-term storage/detention of stormwater. Be fire smart; ensure ravines etc. are clear to avoid debris torrents.
- Promote food production at the neighbourhood scale. Encourage combinations of stormwater retention and urban agriculture - so we have enough water for local food production. Encourage rain gardens and fat downspouts to retain more water in single family homes
- Create healthy, well-managed, robust urban forests that provide conifer or continuous cover, "collinades," along corridors. Consider solar potential and rain cover (awnings). Re-establish areas/corridors of large conifer cover as temperature moderators/storm water capture/carbon capture (micro-climate). Plant healthy forests now. Use native trees (Hemlock loop). Plan for stormwater and carbon captures.
- Landscape of climate change: model sea level rise, floods and species adaptation. Consider Asian monsoons and winds. Consider impacts to bridges and streets. Develop bendable, soft infrastructure. Use water systems more as there will be more of it for example consider a mini ferry system
- Increase the compatibility of the low temperature hot water system. Consider waste energy (link to a North Shore plant), geothermal (air

and ground-source), solar water heating, biofref. The system could feasibly support mid to high density along the Lonsdale corridor. Cost is prohibitive; the infrastructure is there already - get pipes in new; and support incremental opportunities!

- To accommodate adaptation ensure infrastructure is flexible and resilient (think seismic approach to building for street infrastructure etc.) As part of zero waste goal, make energy systems (APE network) adaptable to accommodate waste; energy powered by waste.

SUMMARY COMMENTS:

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

- All public land considered (not just parks): open space, streets (not just for cars), alleys etc.
- Multiple uses/activities/intensive uses

P 6 | Green, durable, timeless infrastructure

- Holistic infrastructure: waste, food
- Decentralized infrastructure: local H2O filtration, waste management
- Innovative/layered use of space: roofs, parking lots, etc. use them better!

P 7 | Climate change adaptation

- Not just public; must consider the private scale too (adapt and mitigate here) Consider food production, stormwater etc. public and private opportunities.
- Locate buildings and infrastructure in less vulnerable areas (not flood areas/waterfront, houses/fire risk)
- Promote incremental opportunities for the next 100 years.

PLENARY COMMENTS

HOME TEAM

- Many types of housing
- Population will likely increase beyond 105,000
- Employment - big issue is what kinds of jobs; the vision should identify or consider the types of jobs: industrial land; future high tech
- 27,000 jobs many people coming in
- Big question is how to get people who live here to work here.

GO TEAM

- Existing corridors are a great asset; need to revitalize these with character and node development
- Need to support a consistent, continuous density across the City
- Need to accommodate multi-modal transportation, improve accessibility and flow, including networks and connections from corridors through the City
- Provide connections to districts, villages and the places where people want to get to
- Natural elements provide opportunities for connections and opportunities for enhancing North Van “sense of place” experience
- Increase commercial and business opportunities within the City; provide opportunities to live, work and recreate all within a five minute walk

GREEN TEAM

- Intensity of uses
- Natural systems to inform design
- Pedestrian and bike corridors
- Consider North South connections to and for water and East West connections for people
- Green walls
- Green roofs and parking areas
- Food production
- Decentralized systems; localizing systems
- Less asphalt and dry wall
- Parking stalls for car sharing
- Climate change adaptation
- Provide solar energy in summer; rain cover and capture in winter
- Infiltrate rain water
- Energy wise development
- Fix risk management
- Bendable soft infrastructure