Sustainability *by* Design

City of North Vancouver

100 Year Sustainability Vision

Design Centre for Sustainability
School of Architecture + Landscape Architecture
THE UNIVERSITY OF BRITISH COLUMBIA

the city of north vancouver

Welcome




Today's Agenda

Presentation

Project Overview + Workshop One Results

Current GHG map + Low GHG City diagram

Break

Team Review - Opportunities + Core Strategies diagram

Working Lunch…

Plenary Discussion

Thank you + Next steps

Sustainability *by* Design

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100 Year Sustainability Vision

Project Overview

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Project Overview

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 zero environment by the City's 200th Birthday in 2107.

Project Overview

FRAMEWORK

- Plan for long-term horizon
- Sustainability & Liveability
- Net Zero Carbon




Project Overview

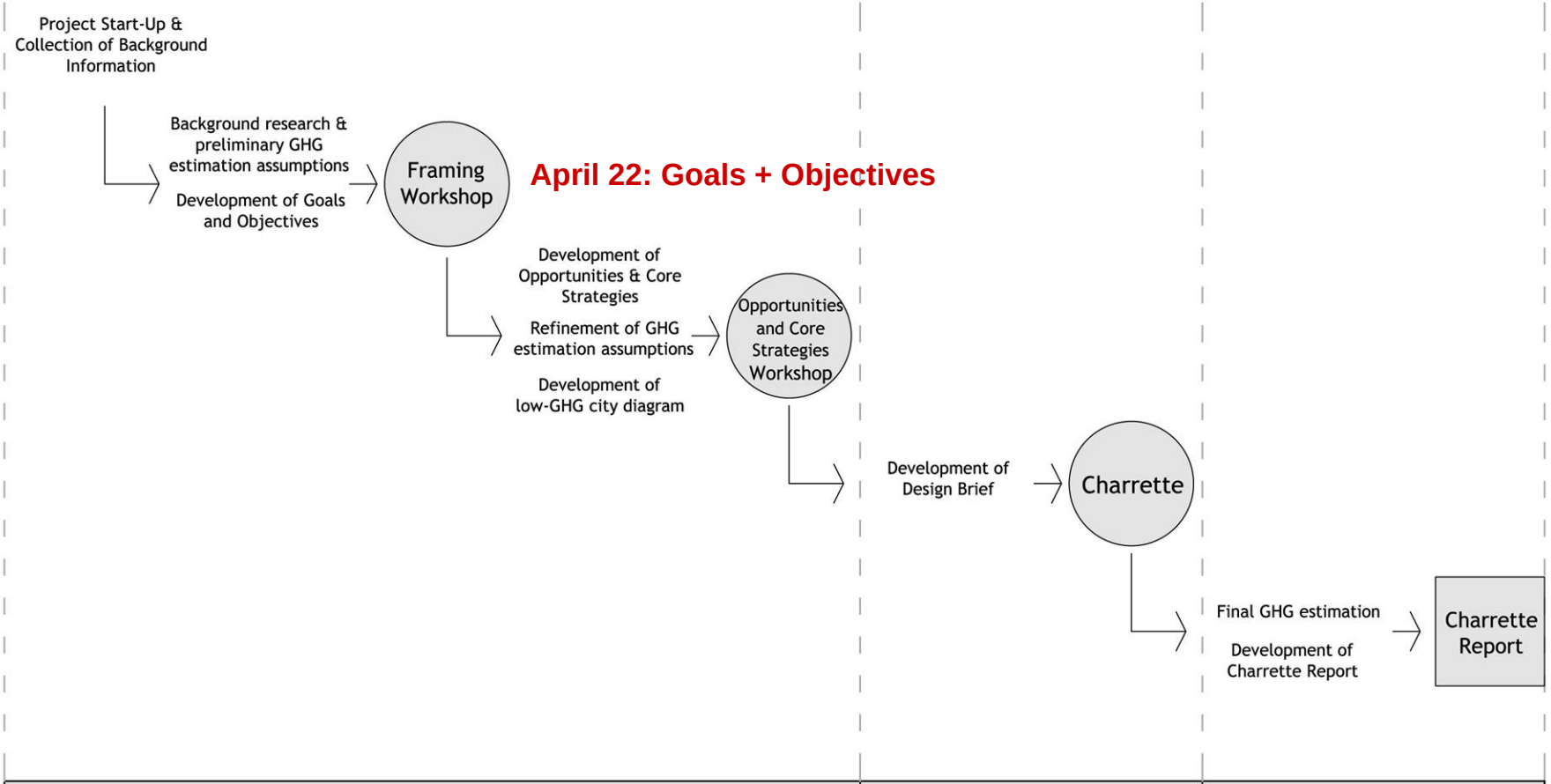
PROJECT META-TARGETS

- To achieve zero net greenhouse gas (GHG) emissions by 2107

- To reduce GHG by 80% below 2007 levels by 2050

  Province of BC: Greenhouse Gas Reduction Targets Act (Nov. 2007)

PROJECT PROCESS



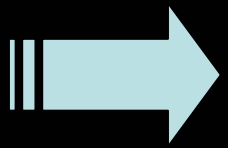
PHASE 1	PHASE 2	PHASE 3
MAJOR DELIVERABLES · *Background research summary* · *Charrette team list* · *Goals and objectives document* · *Preliminary GHG estimation assumptions list* · *Preliminary GHG estimate of existing conditions* · *Preliminary low-GHG city diagram* · *Opportunities and core strategies document*	· *Charrette Design Brief* · *Charrette outputs (maps, diagrams, and sketches)* · *Charrette presentation*	· *GHG estimate for existing and future conditions* · *Charrette Report*

Framing Workshop

WORKSHOP INPUTS + OUTPUTS

INPUTS

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



OUTPUTS

- Refined set of Goals
- Refined design Objectives
- Refined set of key issues

Project Overview - **GUIDING PRINCIPLES**

HOME TEAM

Principle 1 | Appropriate **HOUSING** for all

Principle 2 | Good and plentiful **JOBS** close to home

Project Overview - **GUIDING PRINCIPLES**

GO TEAM

Principle 3 | Mixed use **CORRIDORS** accessible to all

Principle 4 | Five minute **WALKING** distance

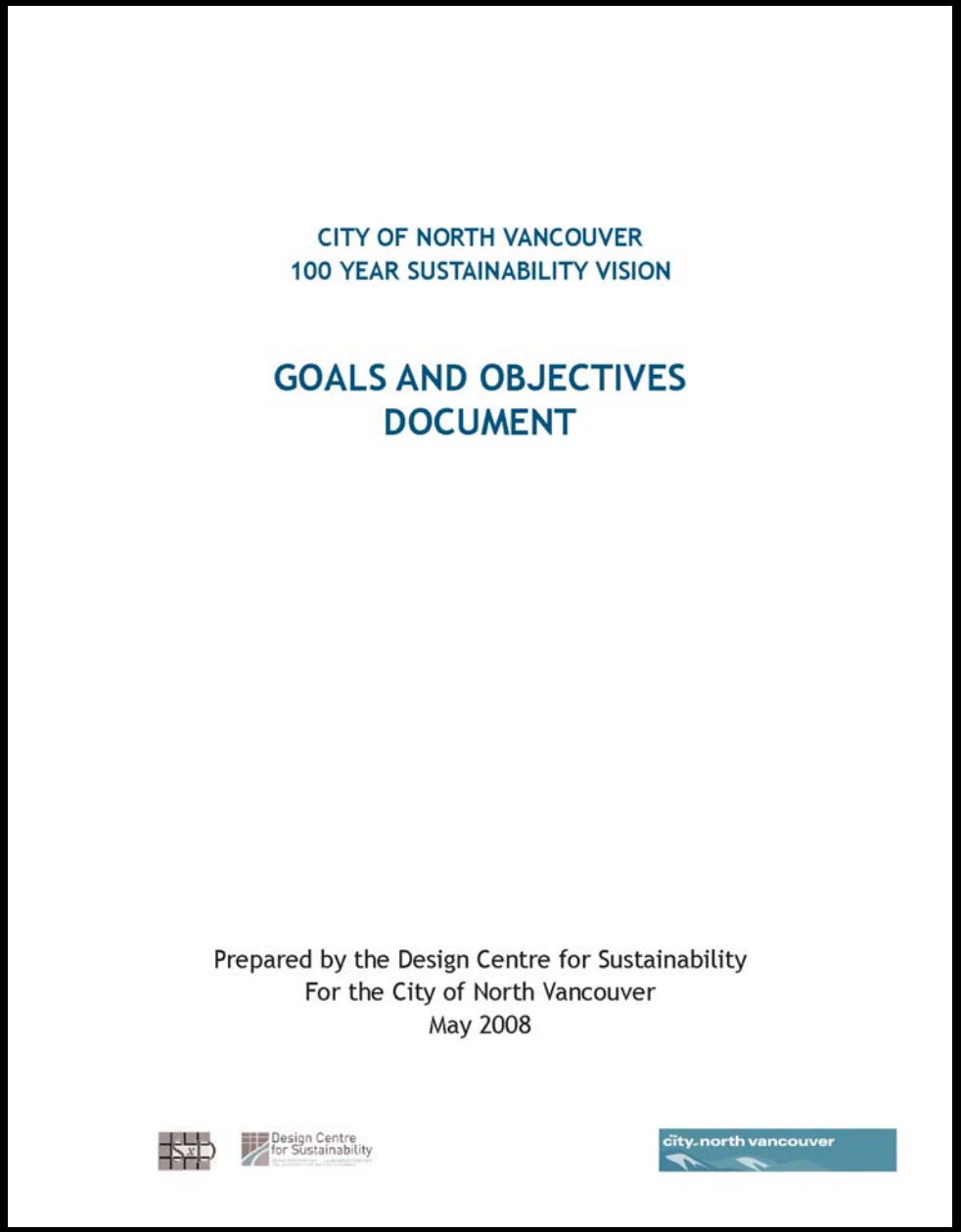
Project Overview - **GUIDING PRINCIPLES**

GREEN TEAM

Principle 5	|	Access to linked **PUBLIC PLACES, PARKS** and **NATURAL** areas
Principle 6	|	Green, durable, timeless **INFRASTRUCTURE**
Principle 7	|	Climate change **ADAPTATION**

Framing Workshop 1: Results

Principles, Goals and Objectives document

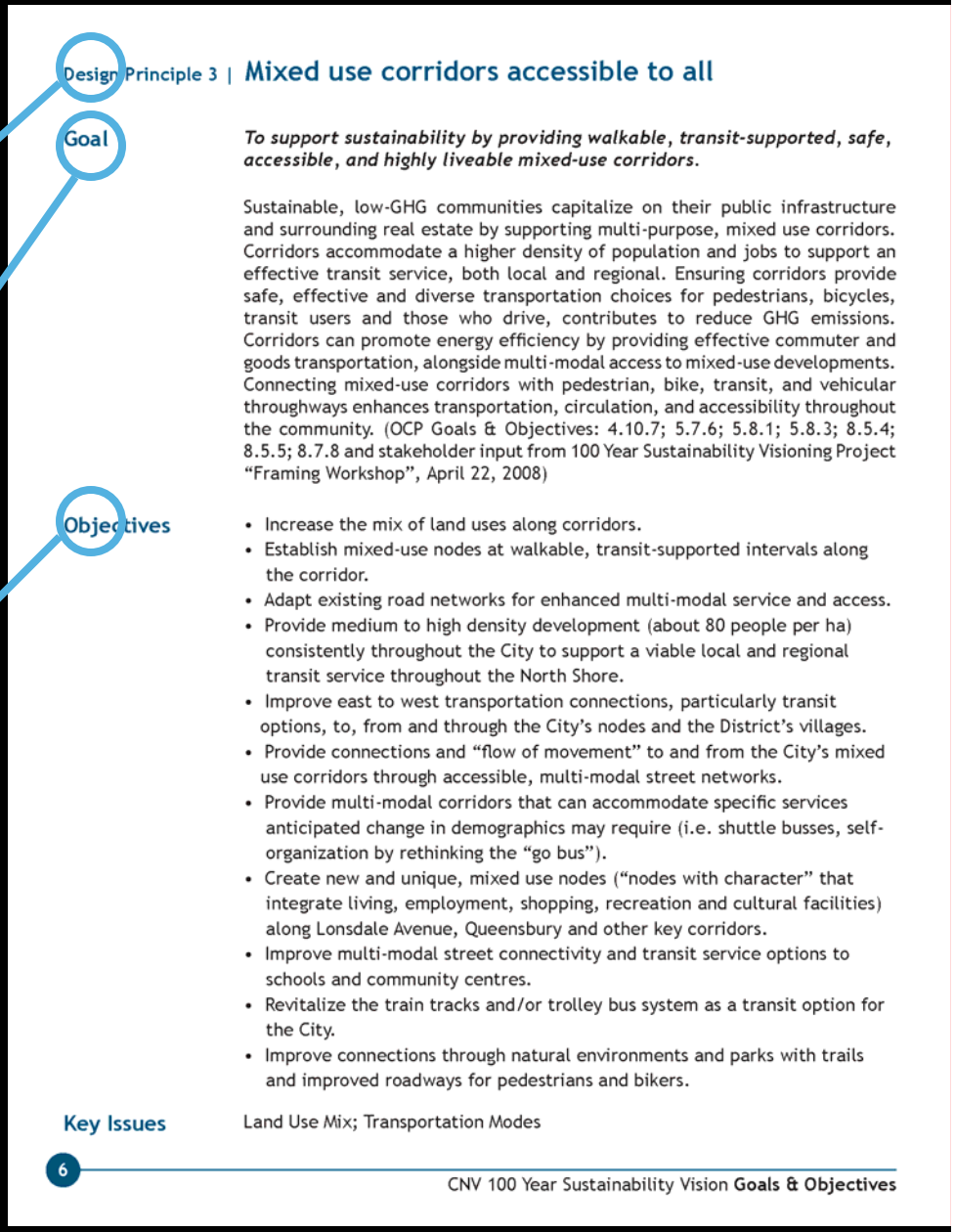


Framing Workshop 1: Results

Refined Principle

Refined Goal

Design Objectives



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 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 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

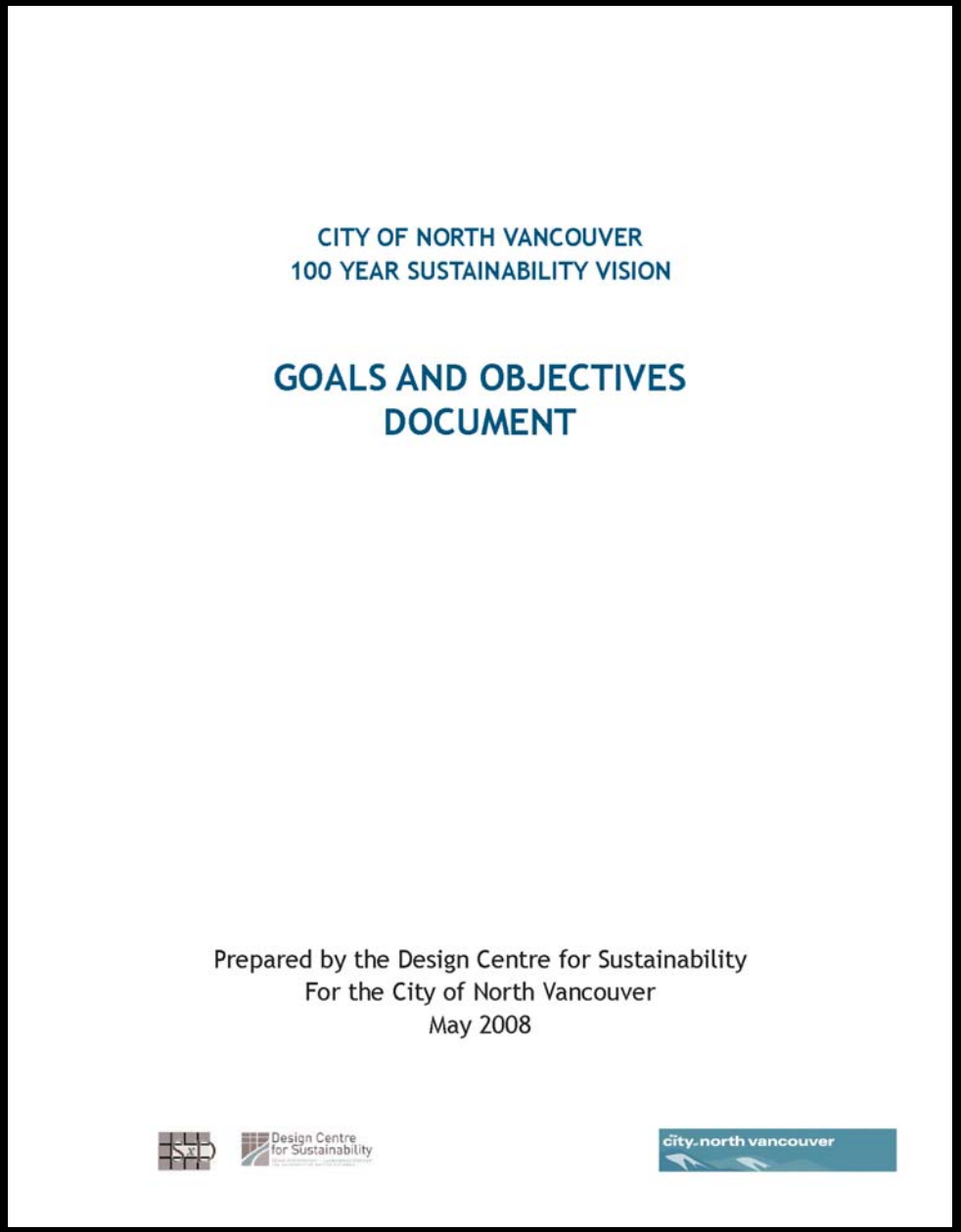
Land Use Mix; Transportation Modes

6

CNV 100 Year Sustainability Vision **Goals & Objectives**

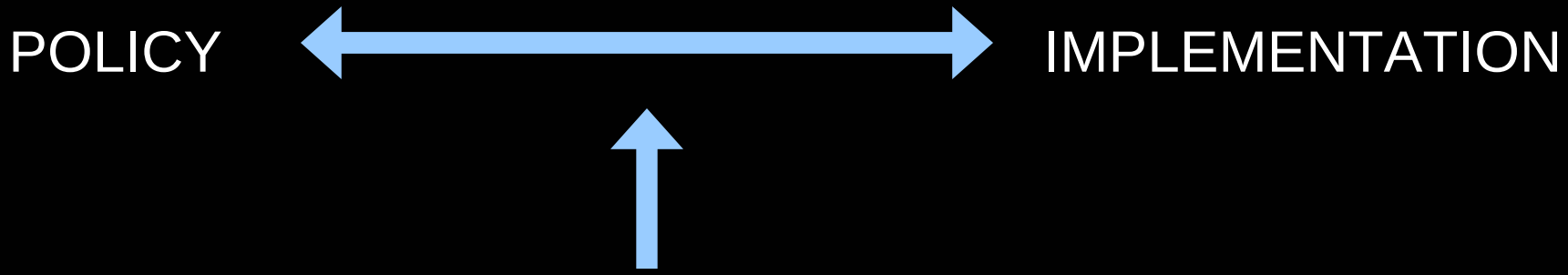
Framing Workshop 1: Results

Directly inform the charrette Design Brief



Framing Workshop

DESIGN OBJECTIVES



VISION

PRINCIPLES

GOALS

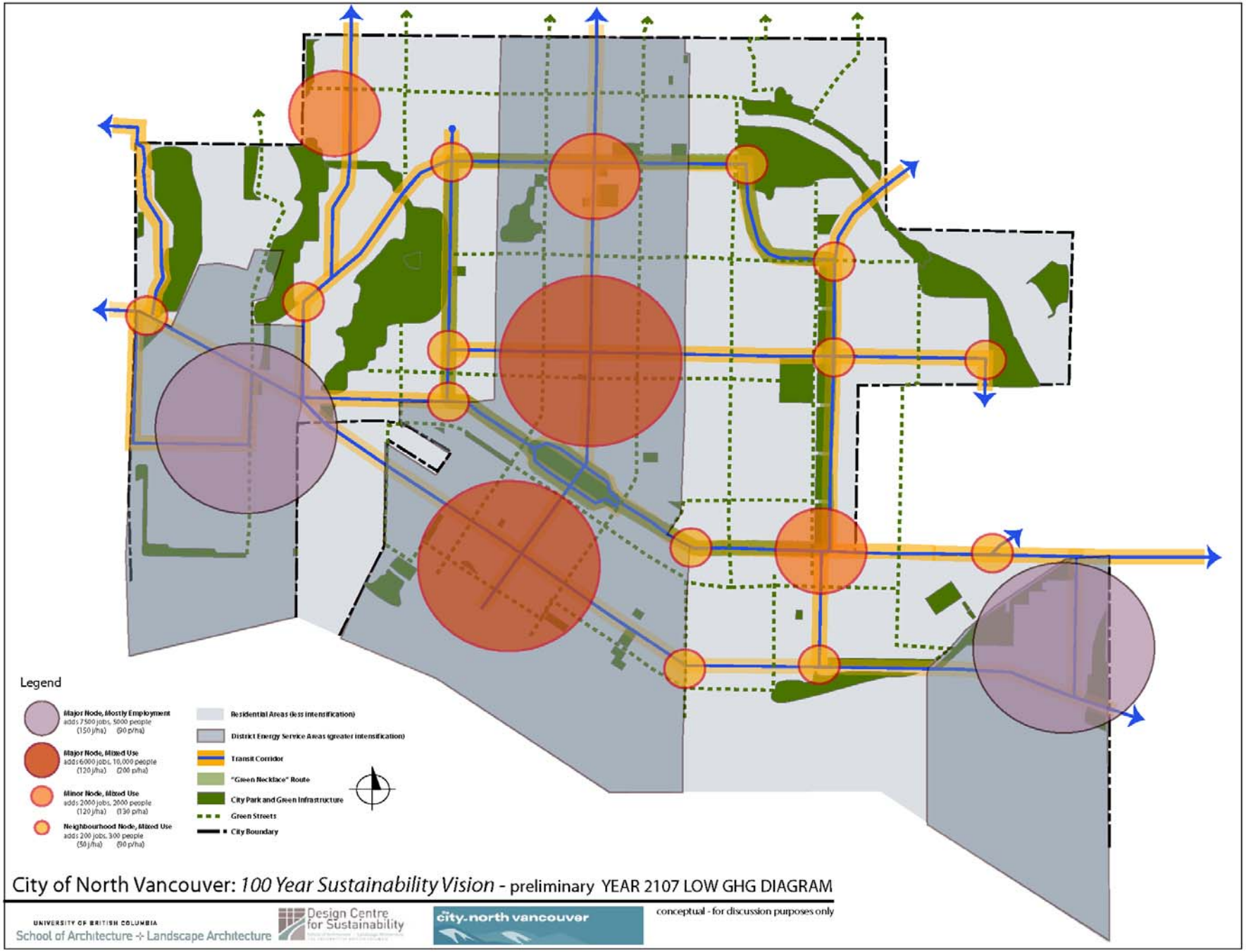
DESIGN OBJECTIVES

Framing Workshop 1: Application of Results

- **Reviewed goals and objectives**
- **Began development of Opportunities and Core Strategies to achieve Net Zero GHG emissions**
- **Began Refining GHG estimation assumptions**

Framing Workshop 1: Application of Results

- **Internal work session with CNV staff**
- **Began to apply design objectives**
- **Created a preliminary Low GHG Diagram**



City of North Vancouver: *100 Year Sustainability Vision* - preliminary YEAR 2107 LOW GHG DIAGRAM

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conceptual - for discussion purposes only

PROJECT PROCESS

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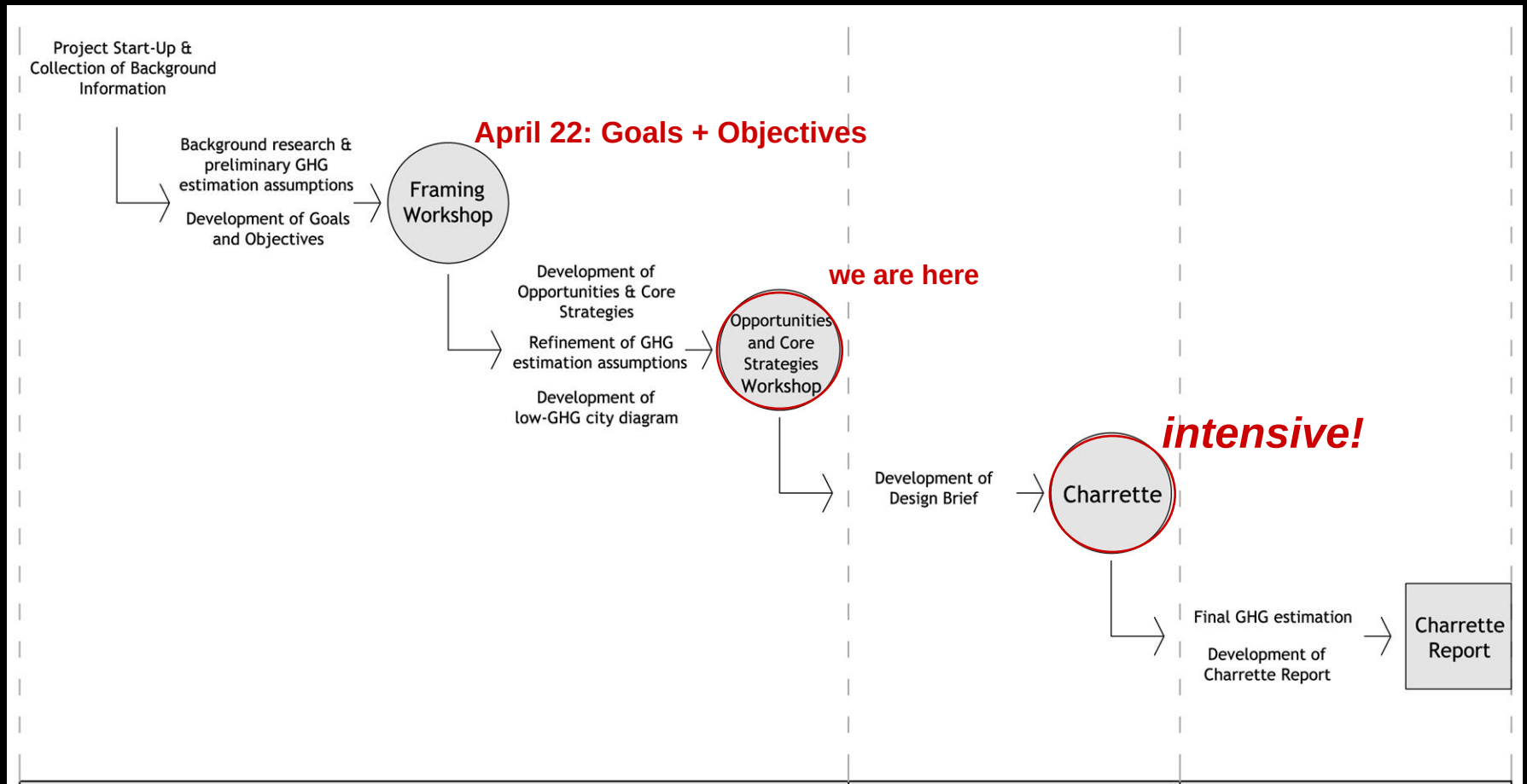

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Project Overview – Visioning Charrette

***Intensive* FOUR DAY event**

September 8-11, 2008 *mark your calendar!*

Project Overview – Visioning Charrette

Typical Charrette Day

8:30 am - Plenary Presentation

9:30 am - Full Team Working Sessions

11:30 am - Plenary Presentation

1:30 pm - Design Team Working Sessions (optional)

Project Overview – Visioning Charrette

Day Two - Mid Course Correction

Day Four - Final Presentation

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Sustainability *by* Design

City of North Vancouver
100 Year Sustainability Vision

Opportunities + Core Strategies Workshop

Design Centre for Sustainability
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THE UNIVERSITY OF BRITISH COLUMBIA

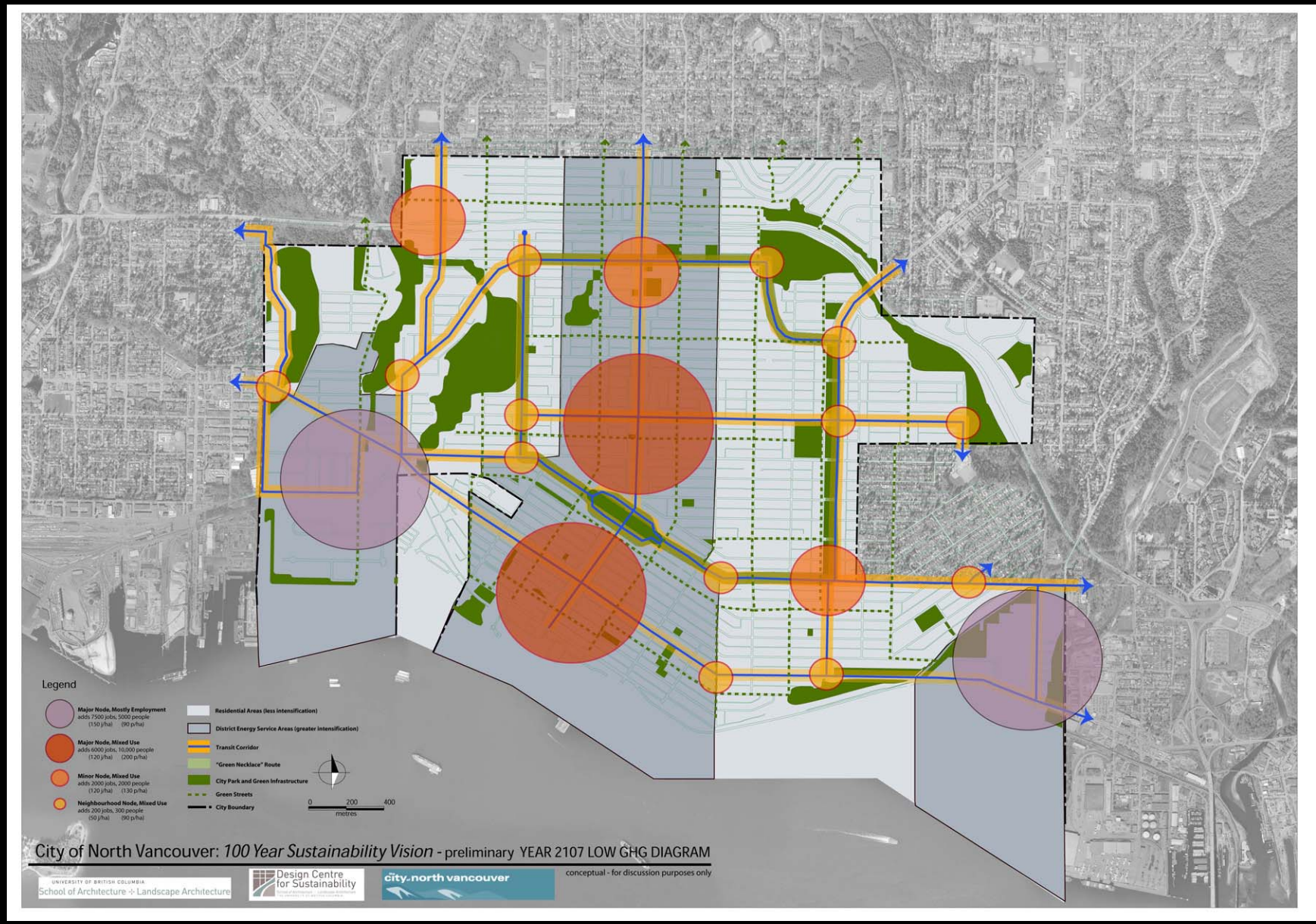
the city of north vancouver

Opportunities + Core Strategies Workshop

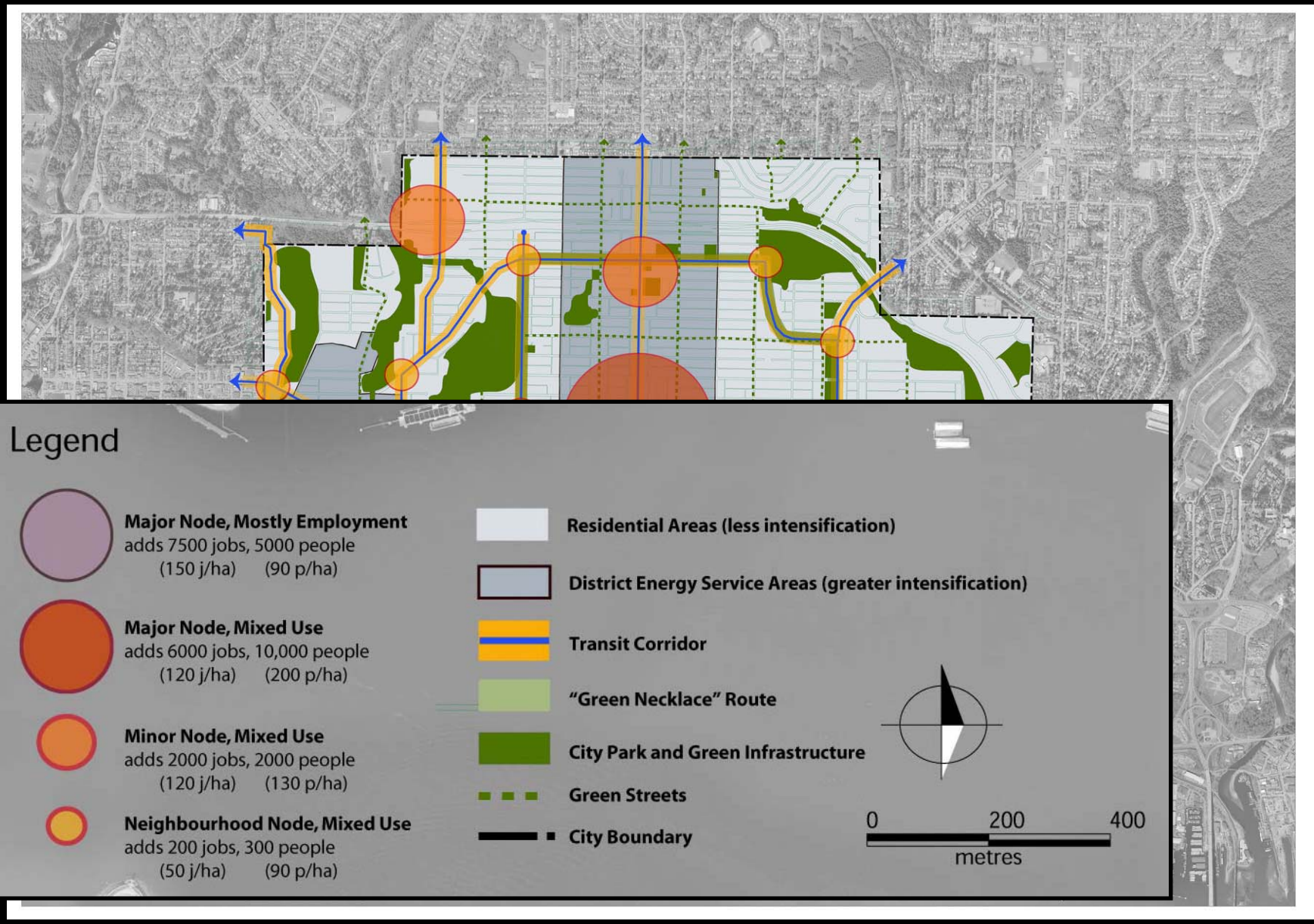
OBJECTIVE

- To develop an Opportunities and Core Strategies diagram for the 100-year Sustainability Vision

Opportunities + Core Strategies Workshop



Opportunities + Core Strategies Workshop



Opportunities + Core Strategies Workshop

DESIGN PRINCIPLE 1:

Appropriate housing for all

- Strengthen existing corridors and develop new mixed-use corridors
- Develop new neighbourhood nodes, increasing walkability
- Increase diverse, higher density and innovative housing types

Opportunities + Core Strategies Workshop

DESIGN PRINCIPLE 1:

Appropriate housing for all

- Locate more residents near transit
- Provide for a mix of demographics and aging in place

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DESIGN PRINCIPLE 2:

Good and plentiful jobs close to home

- Strengthen existing corridors and develop new mixed-use corridors
- Develop new mixed-use nodes, including two major "employment" nodes
- Preserve and build on existing industrial capacity

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DESIGN PRINCIPLE 2:

Good and plentiful jobs close to home

- Increase capacity for goods, services, professional employment
- Bring new jobs and services to each neighbourhood

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DESIGN PRINCIPLE 3:

Mixed use corridors accessible to all

- Locate mixed-use corridors and nodes at transit-supported intervals across City
- Increase mix of land uses along corridors. Including medium and high density development

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DESIGN PRINCIPLE 3:

Mixed use corridors accessible to all

- Improve east-west transit connections and link key District villages
- Use internal street network for accessible pedestrian and bicycle connections

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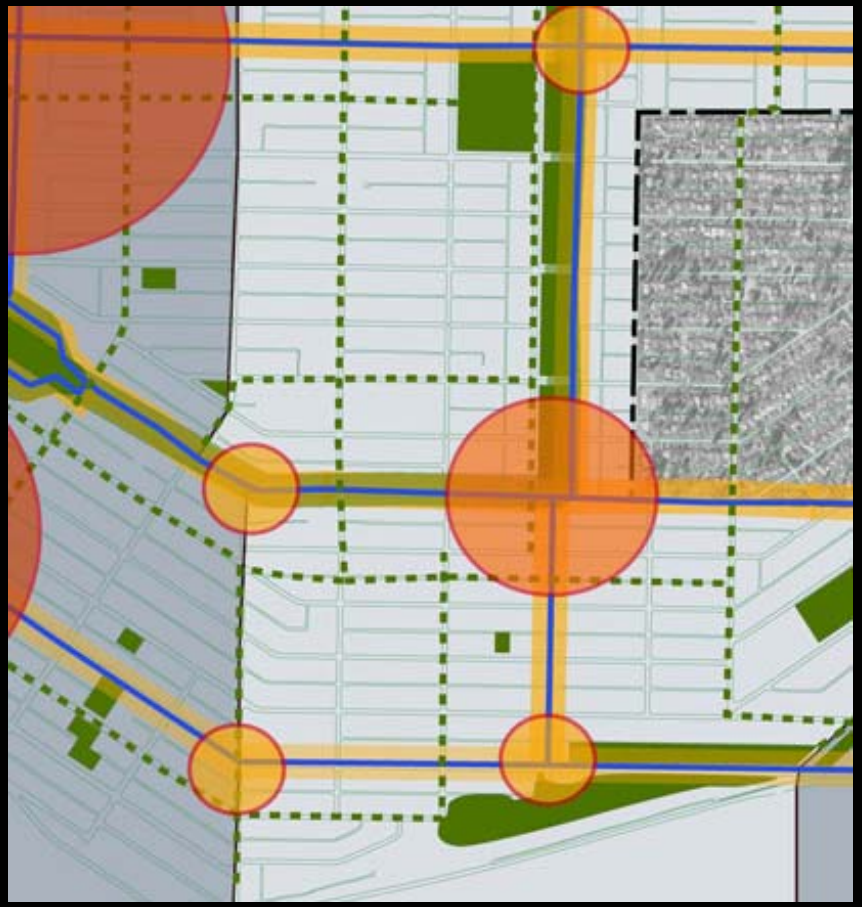
DESIGN PRINCIPLE 4:

Five minute walking distance

- Strengthen existing corridors and develop new mixed-use corridors and nodes
- Ensure lower density areas are within walking distance to goods and services



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DESIGN PRINCIPLE 4:

Five minute walking distance

- Enhance green networks so that residents can easily access civic uses and green space within walking distance
- Utilize local streets as safe, accessible, interconnected routes

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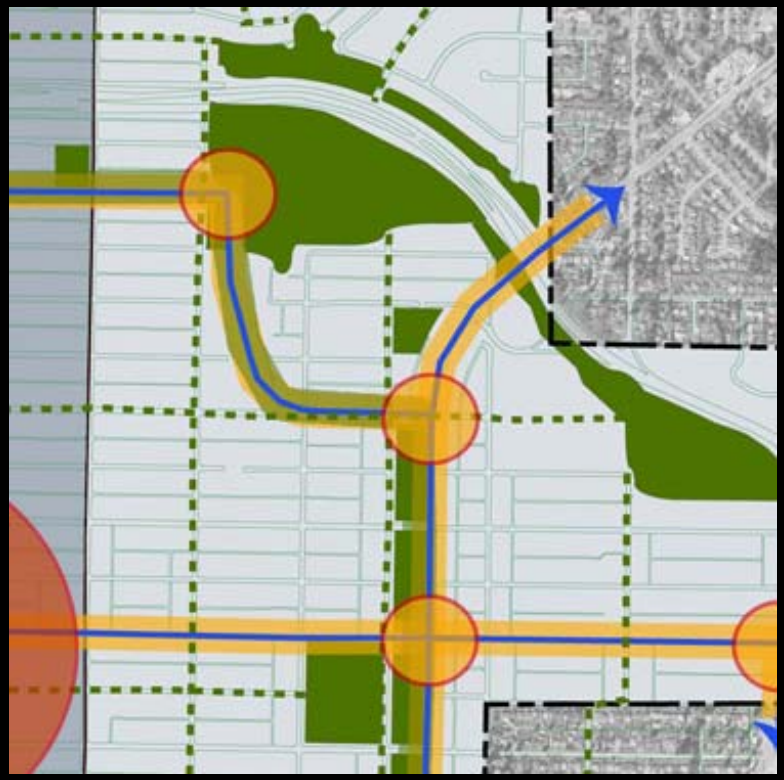
DESIGN PRINCIPLE 5:

Access to linked public places, parks and natural areas

- Preserve major open spaces
- Enhance the green necklace with additional greenway connections
- Create a comprehensive green street network that performs ecological functions and enhances accessibility



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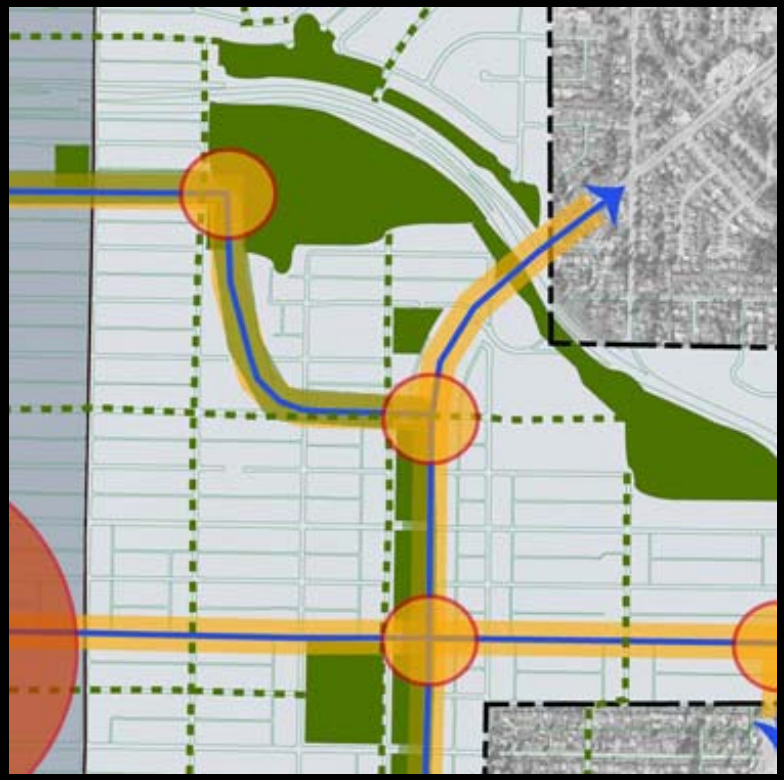
DESIGN PRINCIPLE 5:

Access to linked public places, parks and natural areas

- Locate new greenways to maximize connections between major public gathering places



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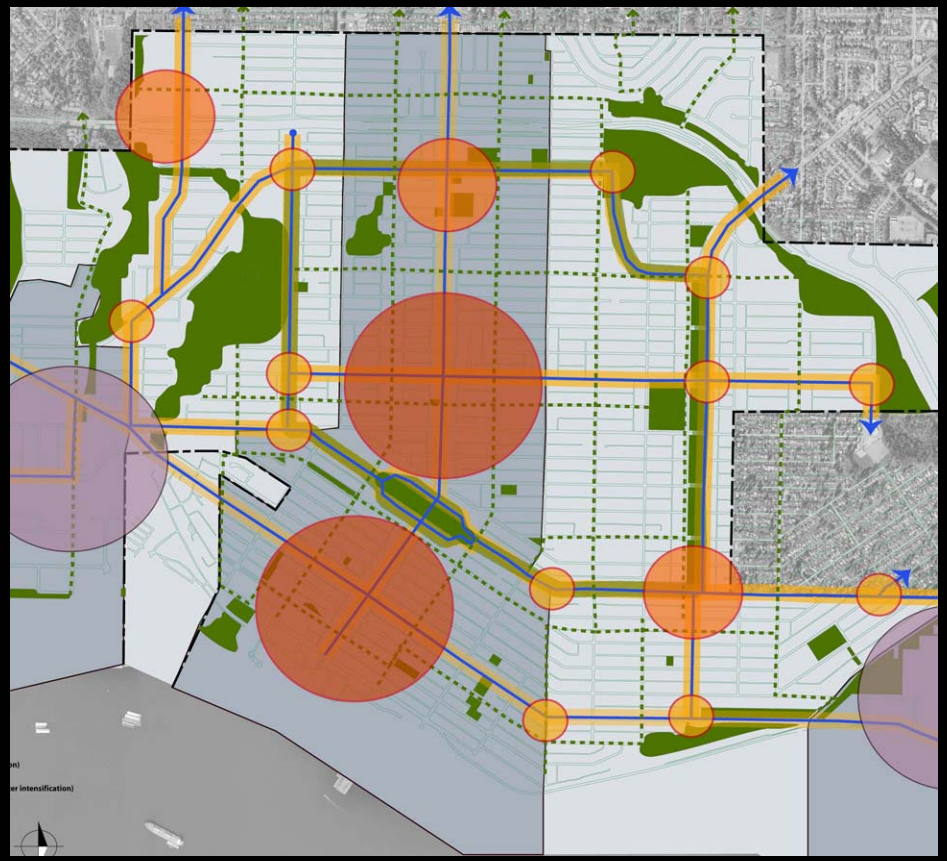
DESIGN PRINCIPLE 6:

Green, durable, timeless infrastructure

- Create a comprehensive stormwater management network, using major open spaces and greenways
- Capitalize on the south facing slopes



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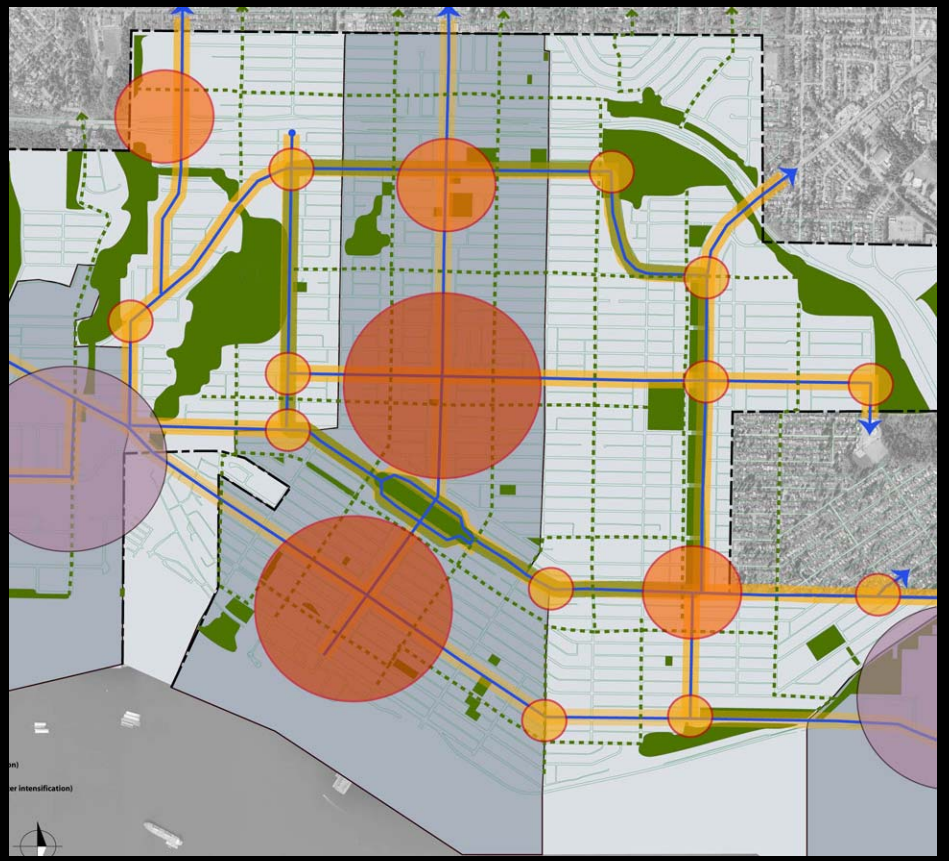
DESIGN PRINCIPLE 6:

Green, durable, timeless infrastructure

- Expand the district energy system throughout Lonsdale Avenue and to two new nodes
- Layer multiple functions (stormwater, energy) into all systems (streets, open spaces)



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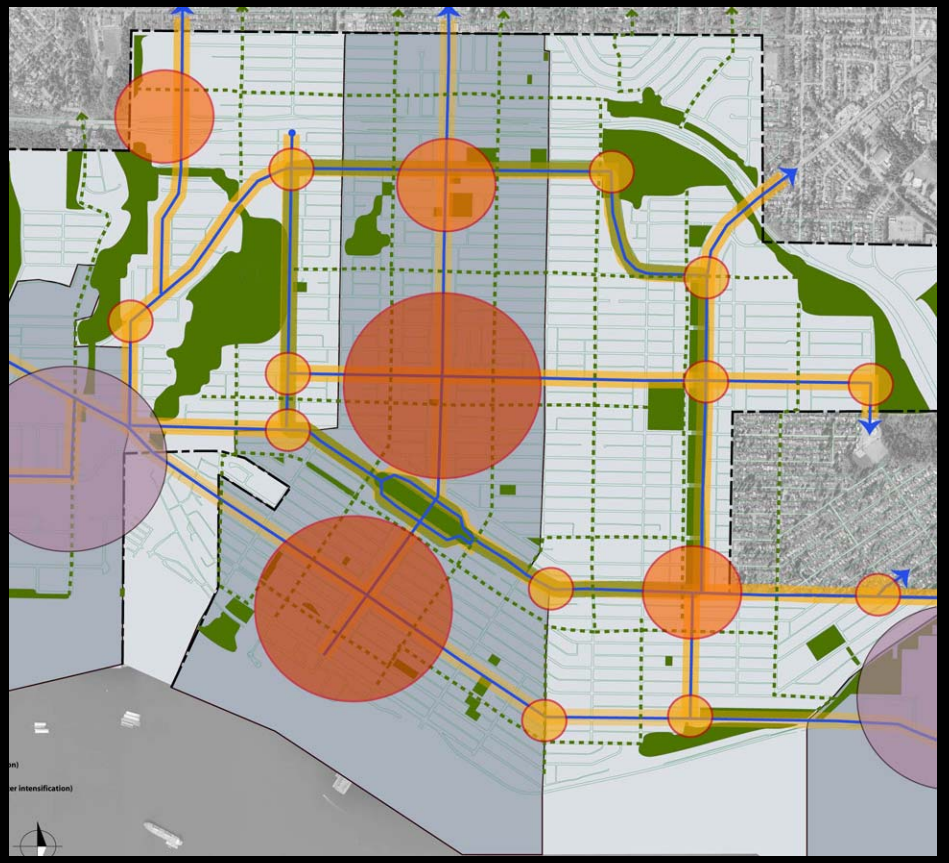
DESIGN PRINCIPLE 7:

Climate change adaptation

- Cluster development and distribute compact nodes throughout City, avoiding vulnerable areas
- Ensure careful study and design of waterfront nodes to deal with sea level rise



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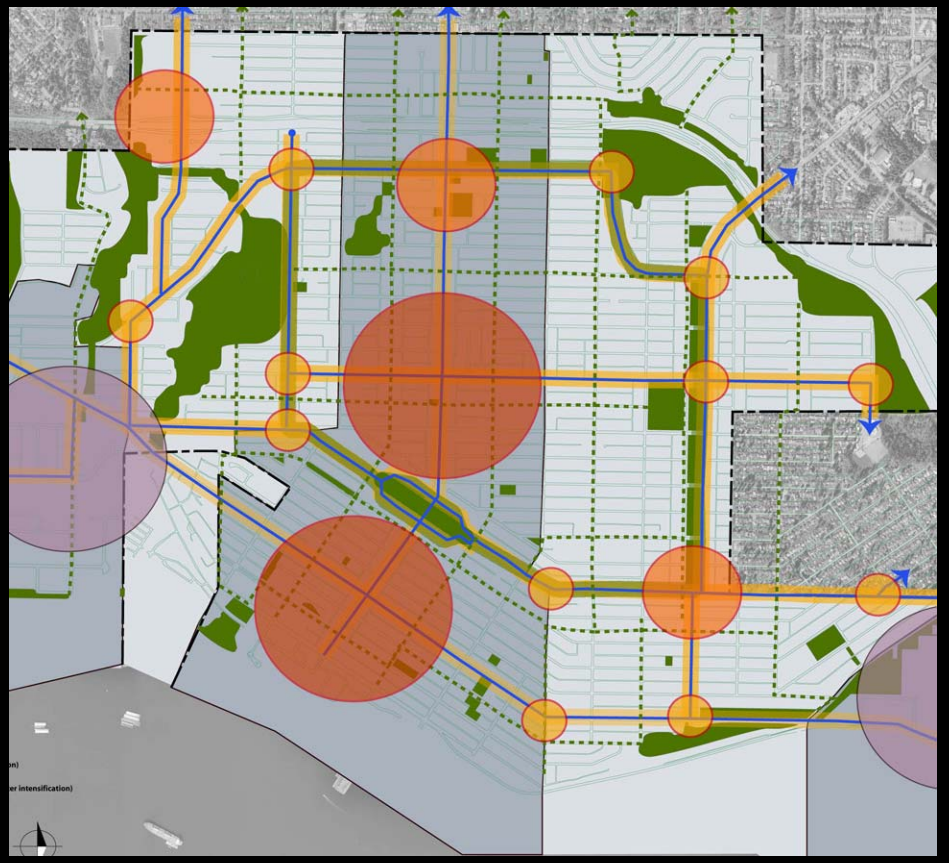
DESIGN PRINCIPLE 7:

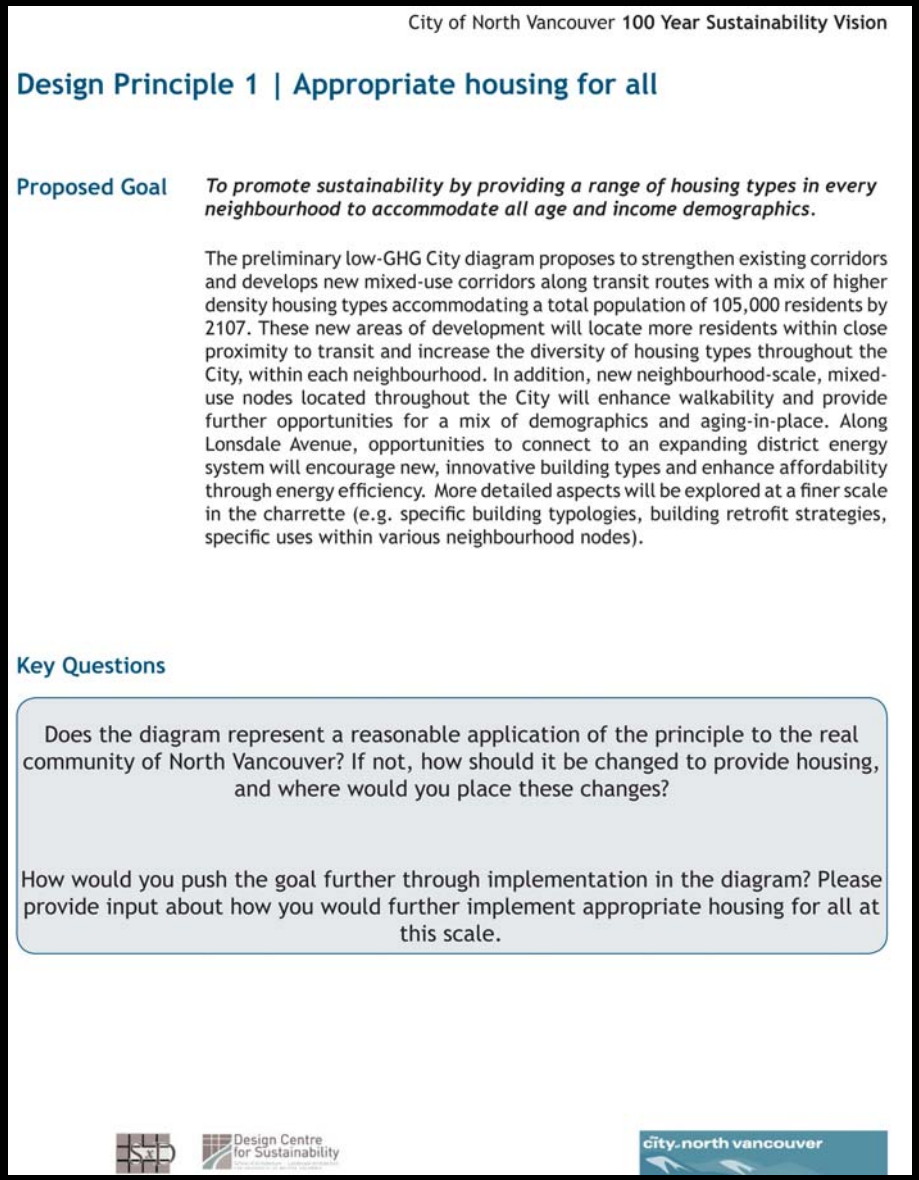
Climate change adaptation

- Utilize stormwater management strategies and preserve open spaces to mitigate further climate change impacts

- Expand district energy system



Opportunities + Core Strategies Workshop



City of North Vancouver **100 Year Sustainability Vision**

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.

The preliminary low-GHG City diagram proposes to strengthen existing corridors and develops new mixed-use corridors along transit routes with a mix of higher density housing types accommodating a total population of 105,000 residents by 2107. These new areas of development will locate more residents within close proximity to transit and increase the diversity of housing types throughout the City, within each neighbourhood. In addition, new neighbourhood-scale, mixed-use nodes located throughout the City will enhance walkability and provide further opportunities for a mix of demographics and aging-in-place. Along Lonsdale Avenue, opportunities to connect to an expanding district energy system will encourage new, innovative building types and enhance affordability through energy efficiency. More detailed aspects will be explored at a finer scale in the charrette (e.g. specific building typologies, building retrofit strategies, specific uses within various neighbourhood nodes).

Key Questions

Does the diagram represent a reasonable application of the principle to the real community of North Vancouver? If not, how should it be changed to provide housing, and where would you place these changes?

How would you push the goal further through implementation in the diagram? Please provide input about how you would further implement appropriate housing for all at this scale.

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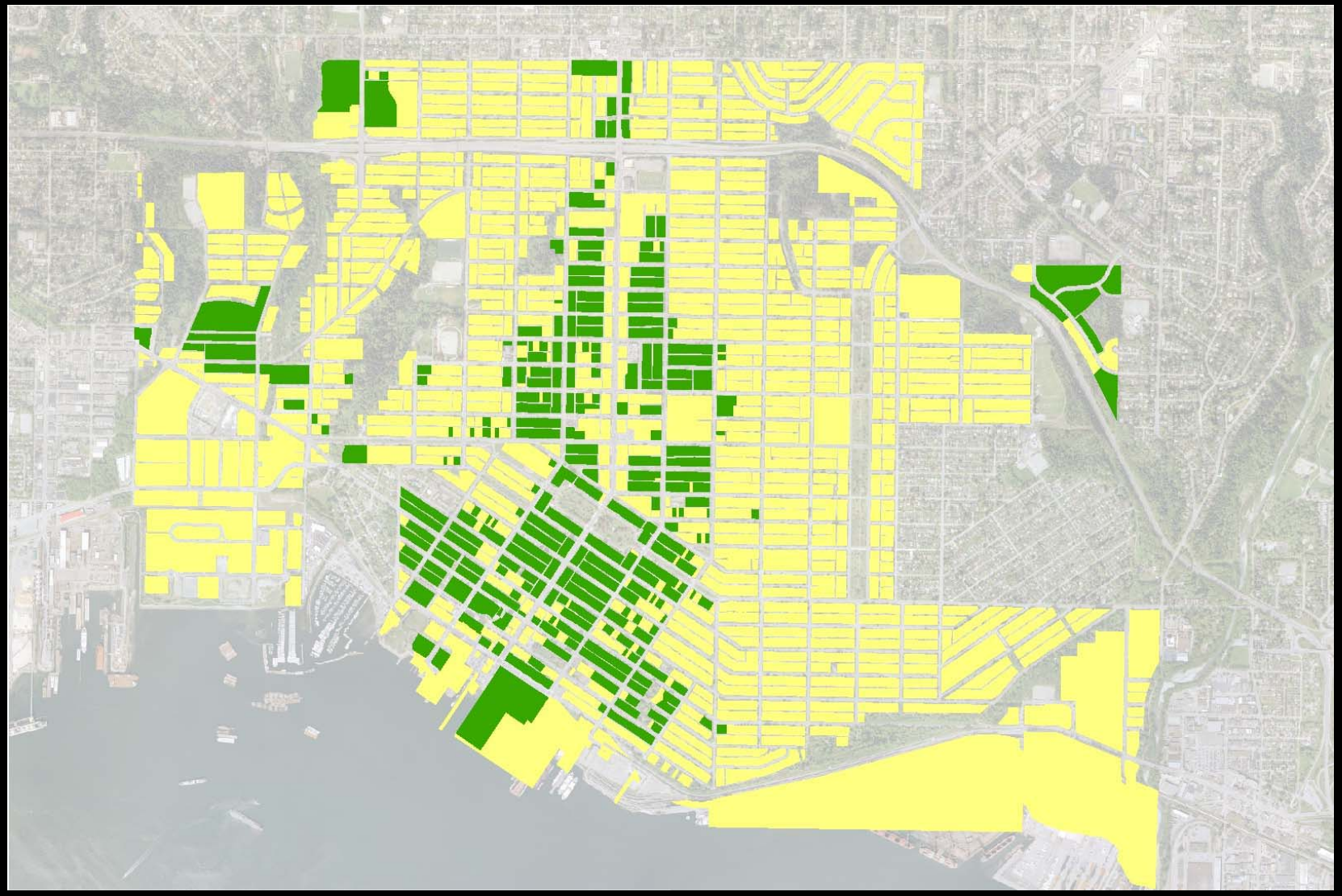
How the diagram addresses the Principle

What would you add or change?

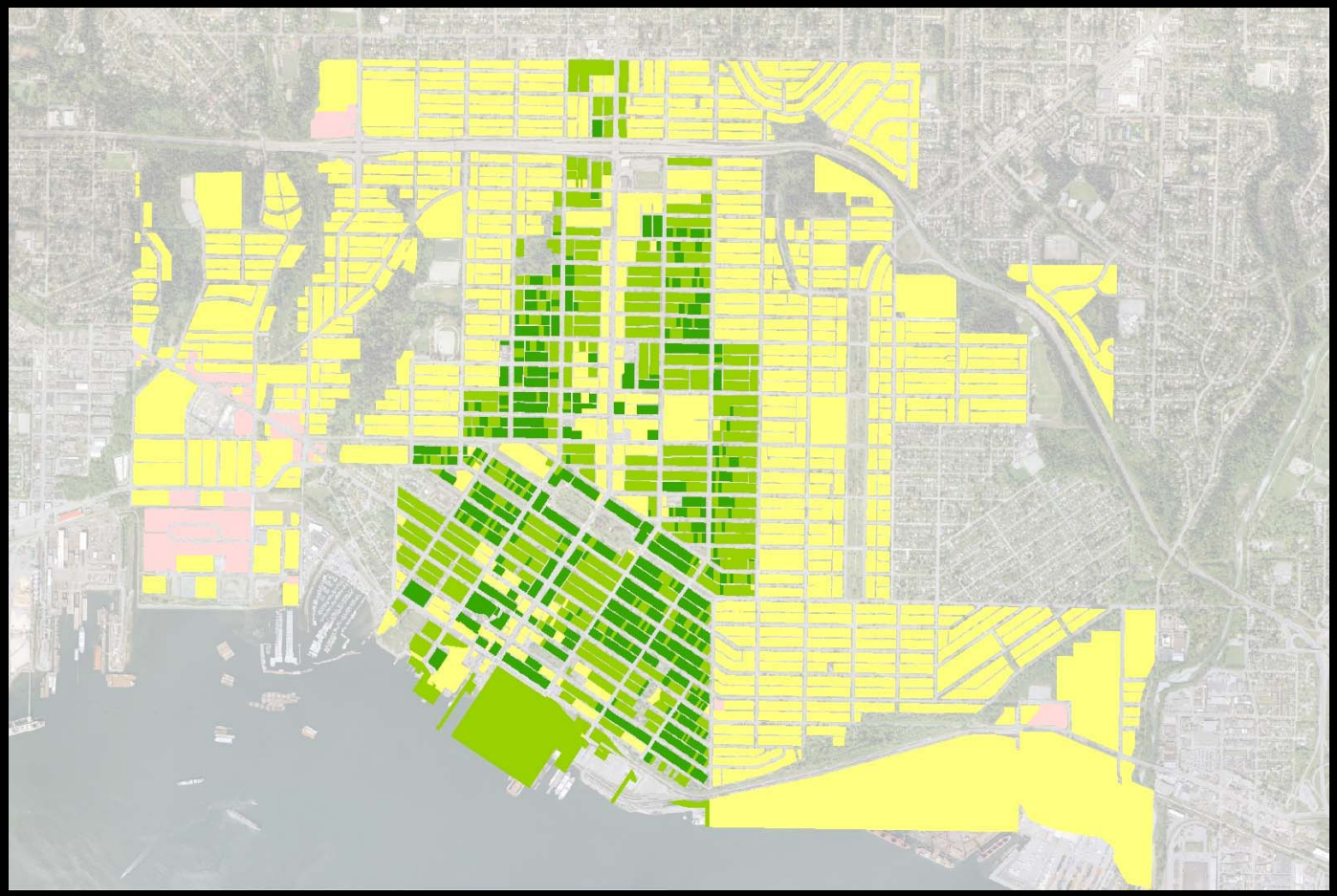
How would you push further?

Spatializing Urban Form's Carbon Contributions



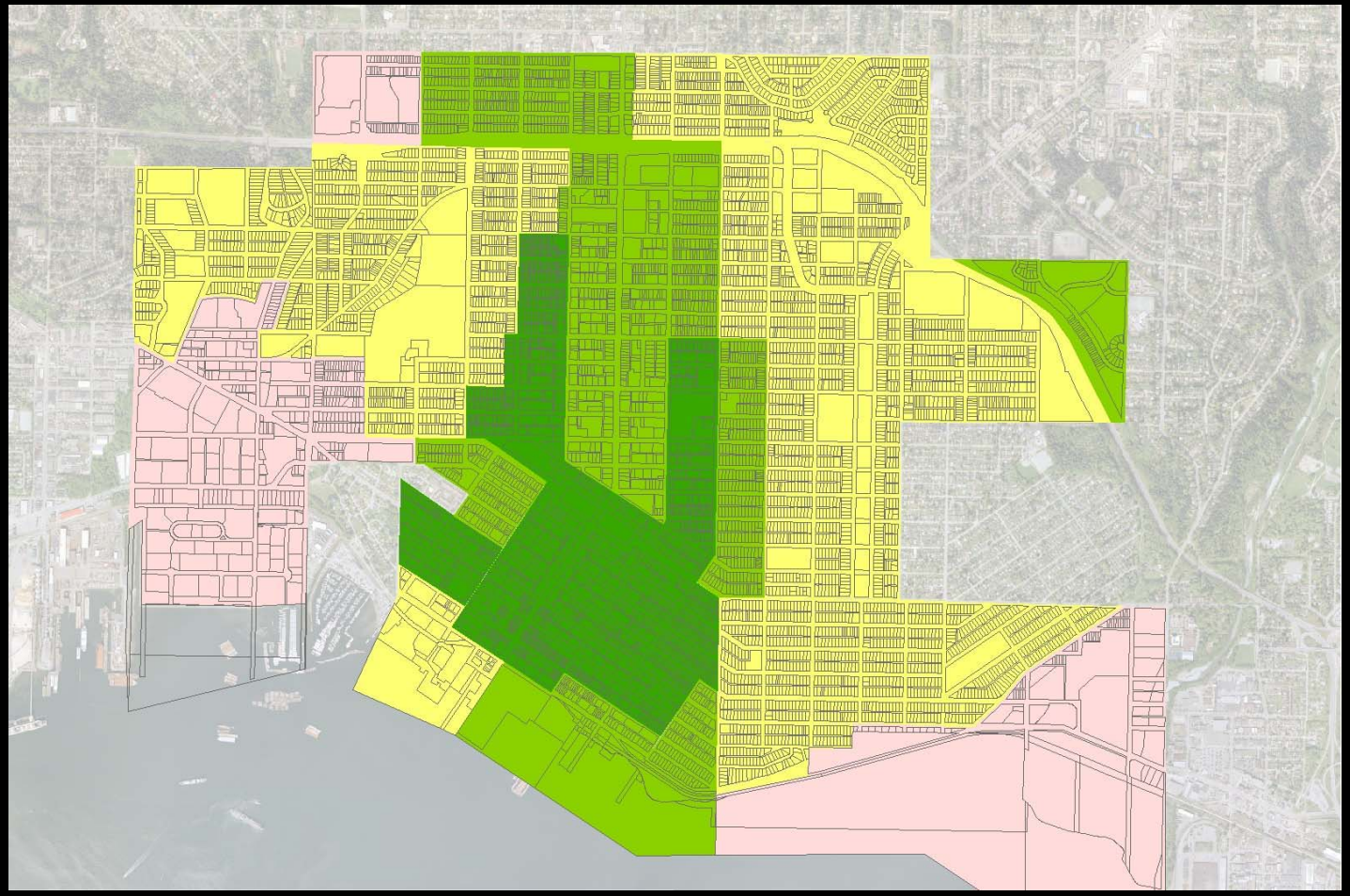
Building GHGs / Person (Jobs + Residents) / Year

Spatializing Urban Form's Carbon Contributions



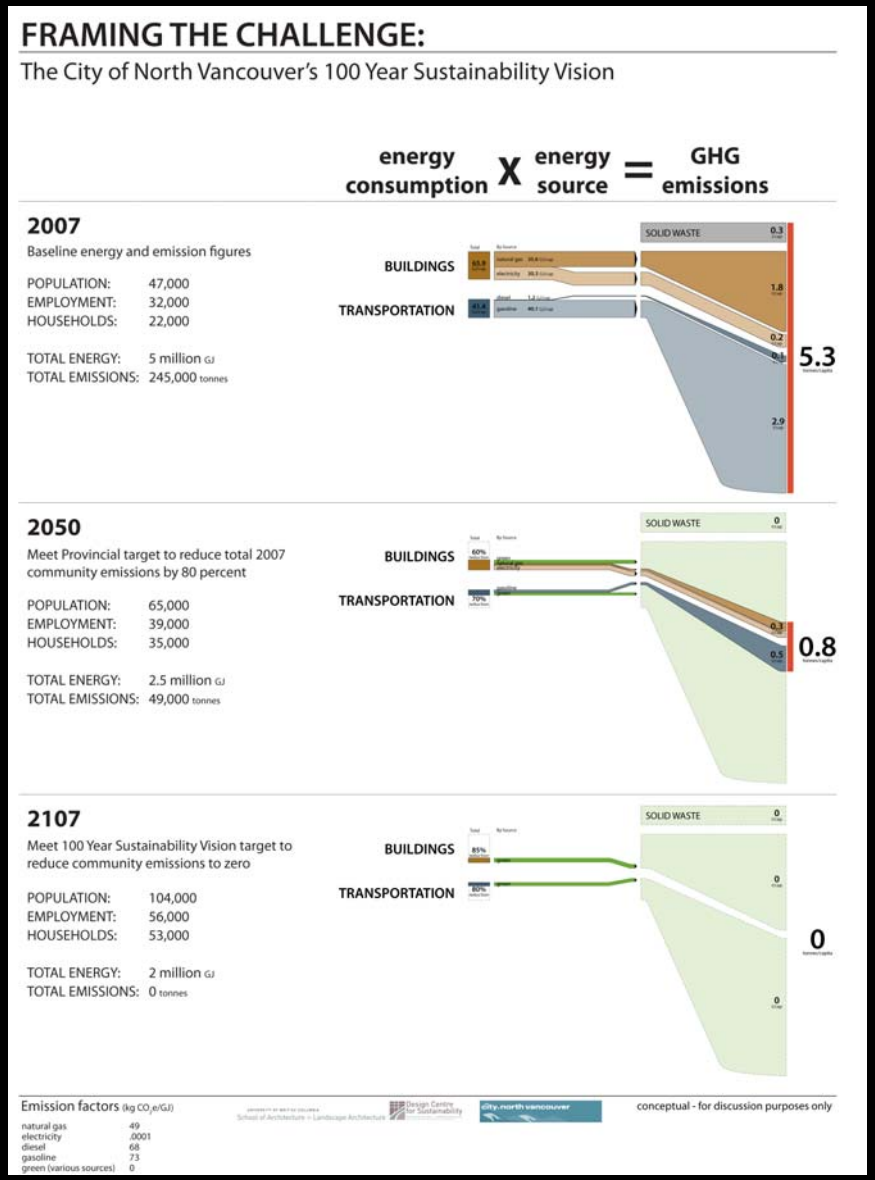
Trip GHGs / Person (Jobs + Residents) / Year

Spatializing Urban Form's Carbon Contributions

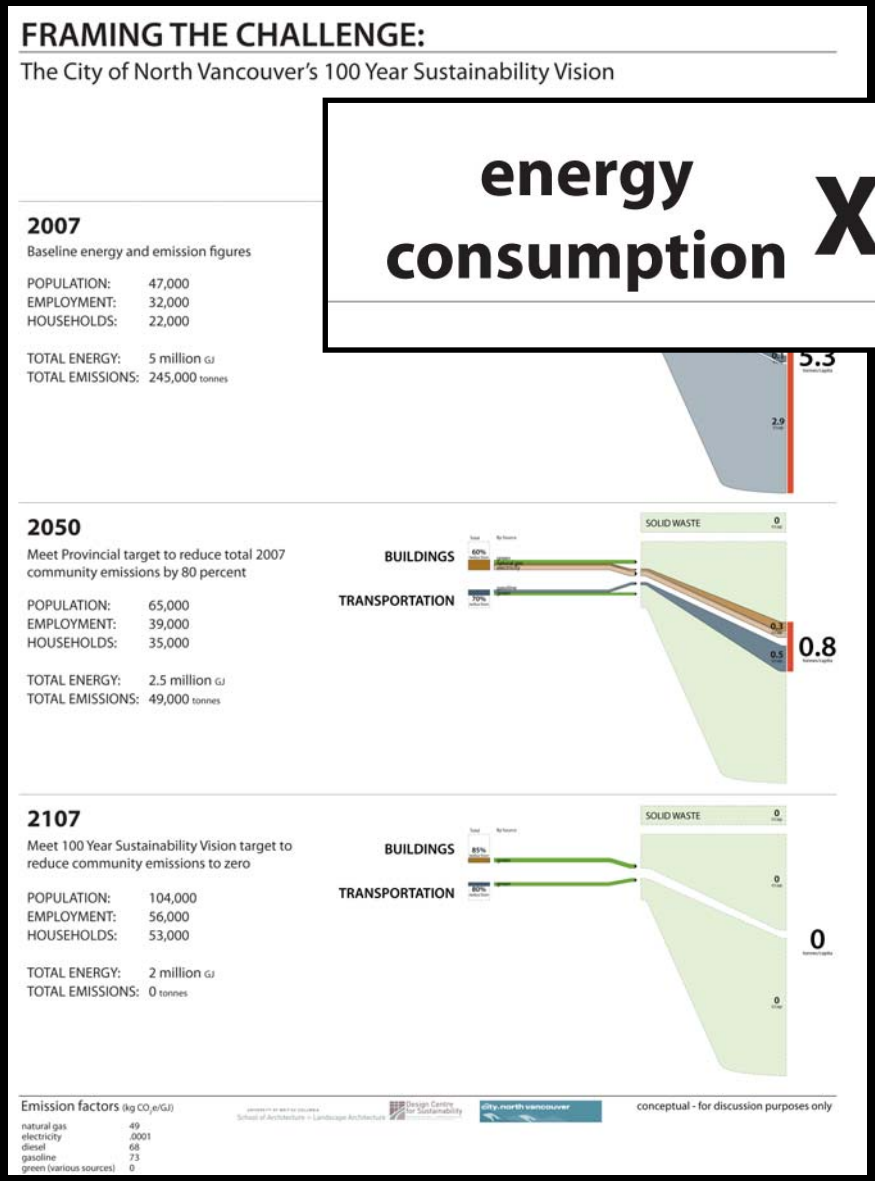


Trip GHGs / Person (Jobs + Residents) / Year

Opportunities + Core Strategies Workshop



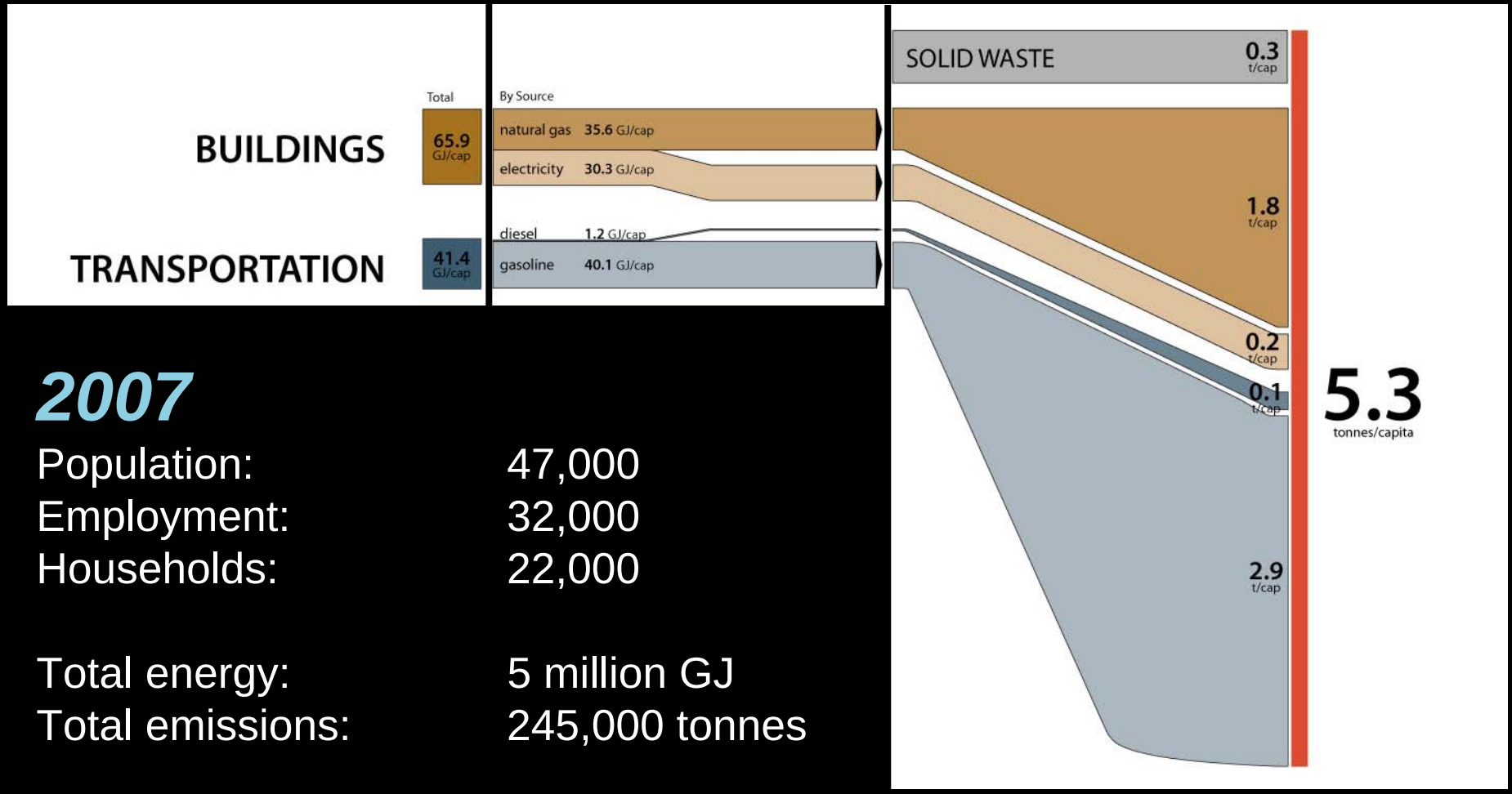
Opportunities + Core Strategies Workshop



energy consumption X **energy source** = **GHG emissions**

Opportunities + Core Strategies Workshop

Energy consumption *Energy source* *GHG emissions*



2007

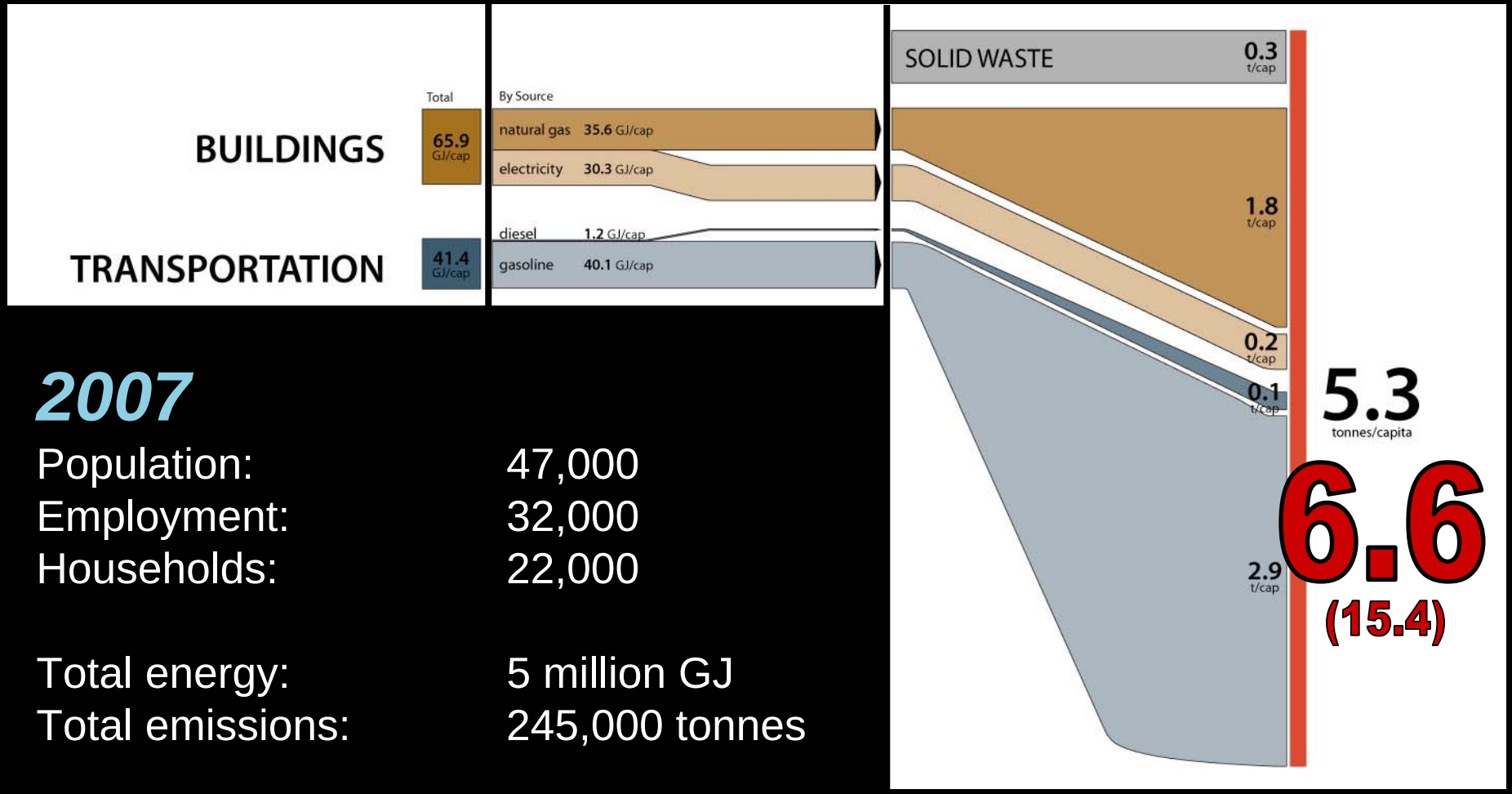
Population:	47,000
Employment:	32,000
Households:	22,000
Total energy:	5 million GJ
Total emissions:	245,000 tonnes

Opportunities + Core Strategies Workshop

Energy consumption

Energy source

GHG emissions



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Opportunities + Core Strategies Workshop

2050
ASSUMPTIONS

- Attached/stacked buildings
- High performance construction
- Increased walkability
- Enhanced low-carbon transit
- Expanded district energy
- Zero emissions from waste

Energy consumption

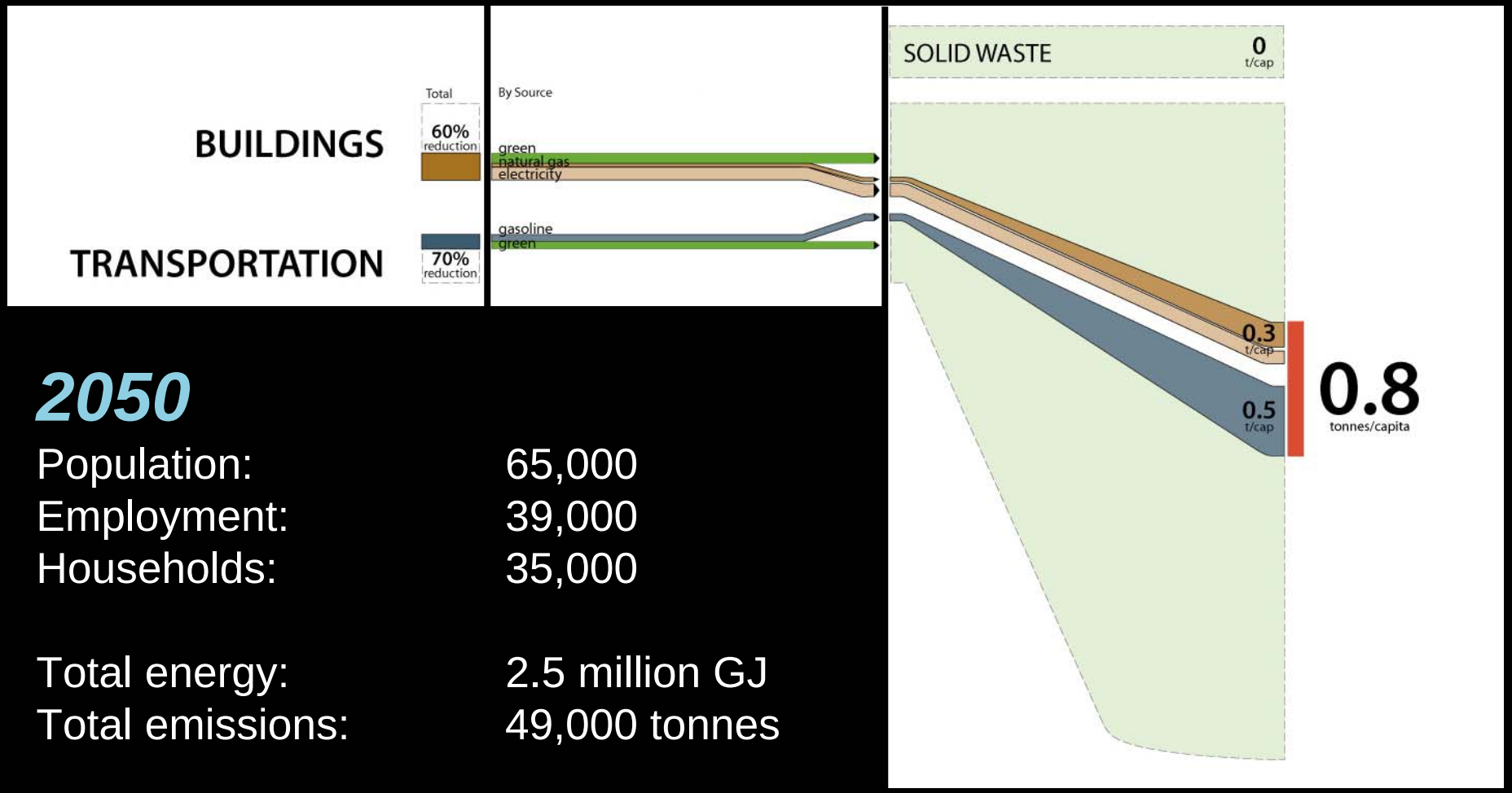
Energy source

Opportunities + Core Strategies Workshop

Energy consumption

Energy source

GHG emissions



2050

Population:	65,000
Employment:	39,000
Households:	35,000
Total energy:	2.5 million GJ
Total emissions:	49,000 tonnes

Opportunities + Core Strategies Workshop

2107
ASSUMPTIONS

- Attached/stacked buildings
- High performance construction
- Increased walkability
- Enhanced low-carbon transit
- Expanded district energy (co-generation)
- Additional low-carbon energy (City, Provincial)

Energy consumption

Energy source

Opportunities + Core Strategies Workshop

Energy consumption *Energy source* *GHG emissions*

2107

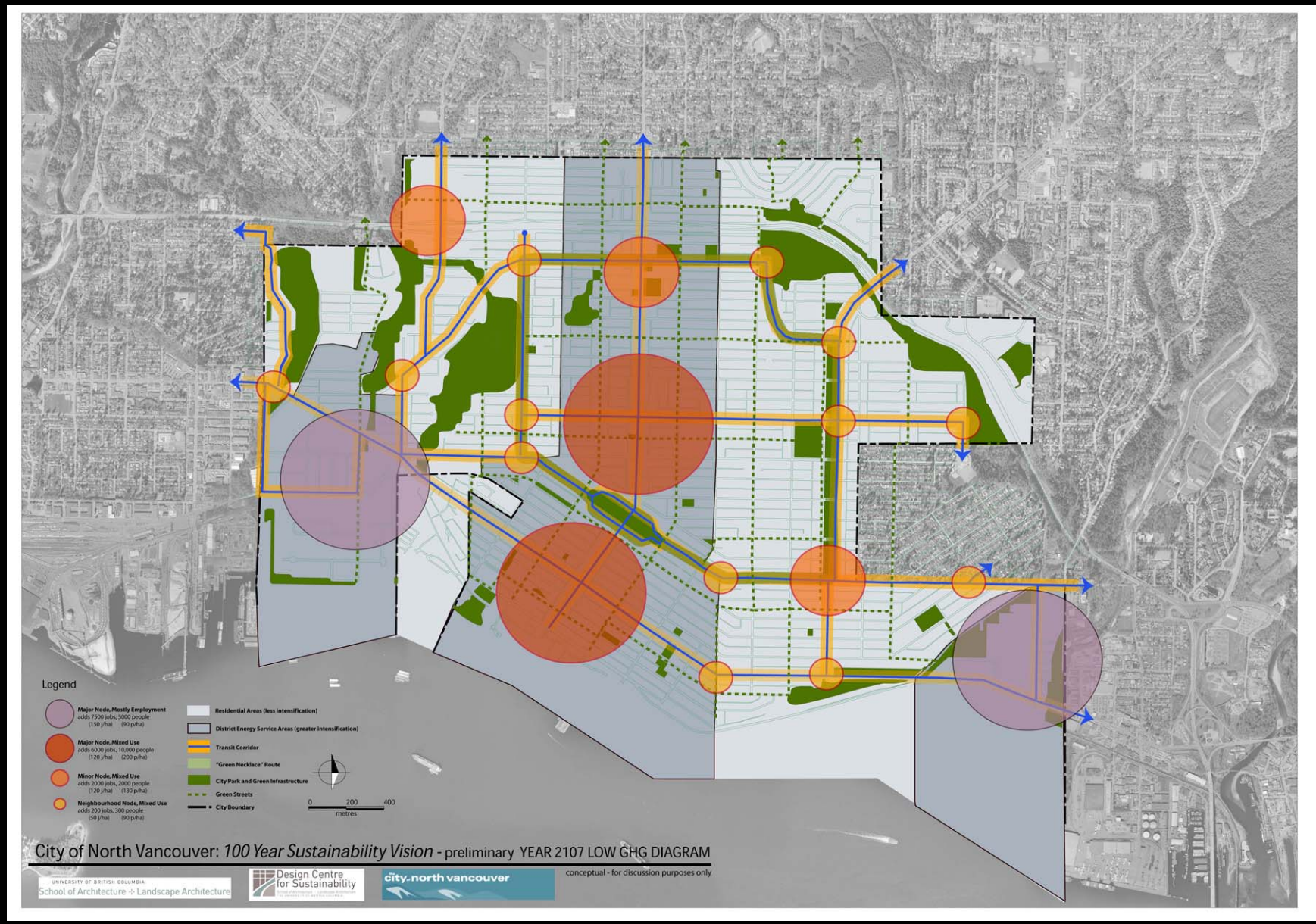
Population:	104,000
Employment:	56,000
Households:	53,000
Total energy:	2 million GJ
Total emissions:	0 tonnes

Opportunities + Core Strategies Workshop

MATERIALS + CHOREOGRAPHY

- Break out in 3 groups: Go; Green; Home
- Group discussion + development of the Opportunities + Core Strategies diagram for a 100-year vision
- Working lunch…
- Report back to plenary

Opportunities + Core Strategies Workshop



Questions…

Thank you