



Sustainability *by* Design City & District of North Vancouver 100 Year Sustainability Vision





Sustainability *by* Design City & District of North Vancouver

100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green

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.



Sustainability by Design City & District of North Vancouver

100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green

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)





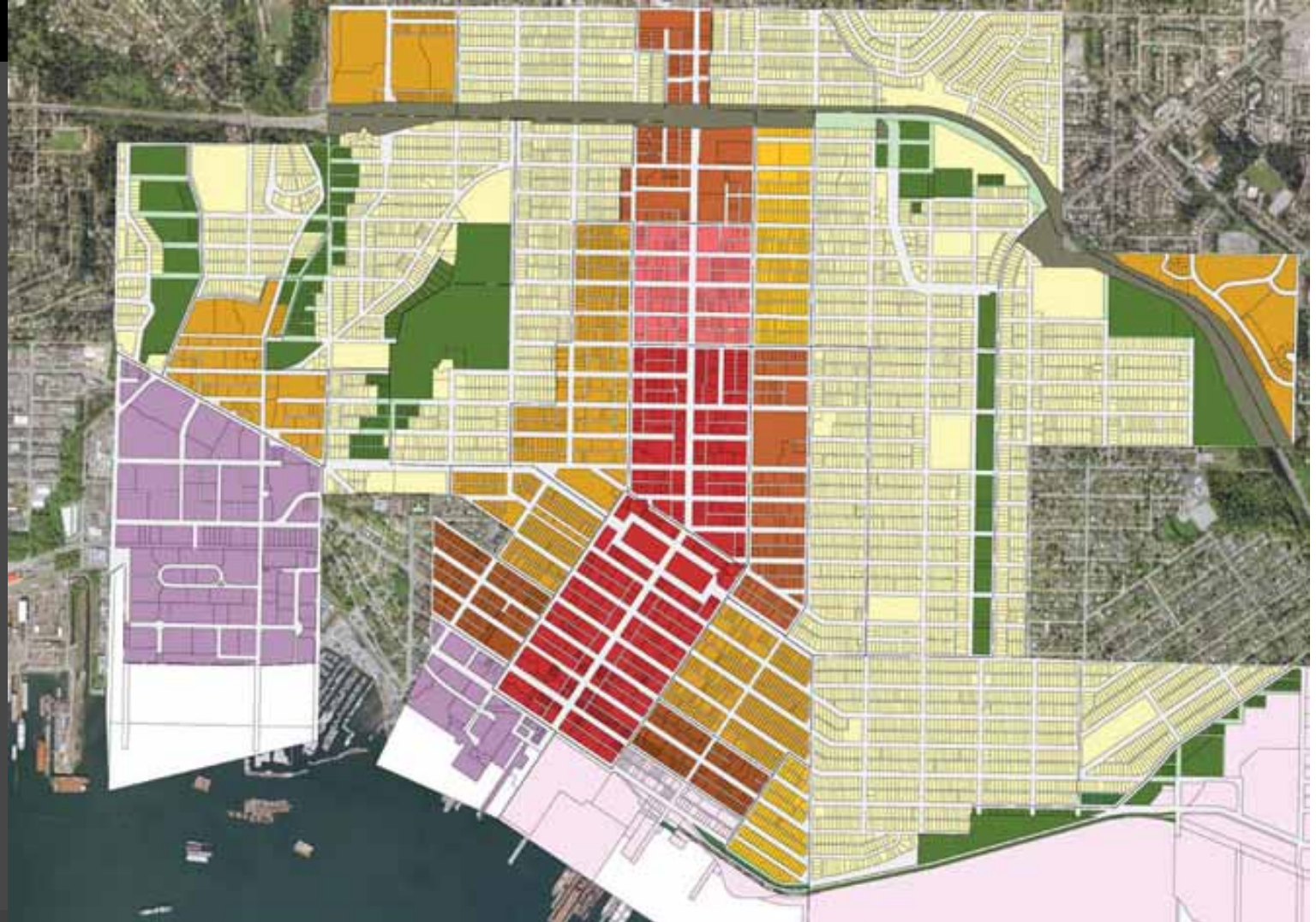
Sustainability *by* Design

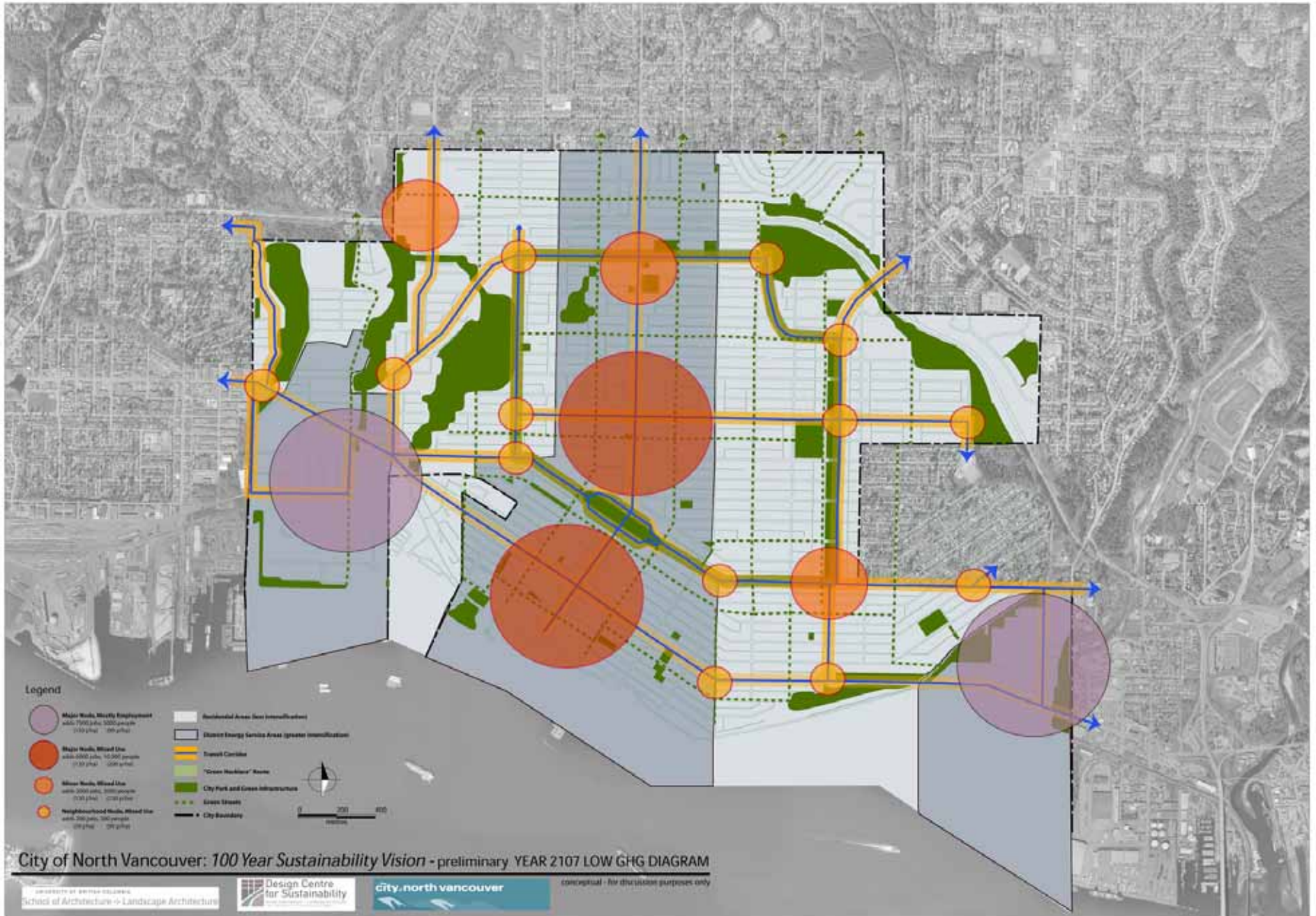
City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

- Pop./Job Matrix
- Common Strategies
 - Node intensification
 - Transport network
 - Green network
 - Energy systems
- Sustainable City Core
 - 100 Yr concept plan
 - Home and work
 - Go
 - Green





Legend



Major Node, Mostly Employment
adds 7500 jobs, 5000 people
(150 j/ha) (90 p/ha)



Major Node, Mixed Use
adds 6000 jobs, 10,000 people
(120 j/ha) (200 p/ha)



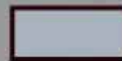
Minor Node, Mixed Use
adds 2000 jobs, 2000 people
(120 j/ha) (130 p/ha)



Neighbourhood Node, Mixed Use
adds 200 jobs, 300 people
(50 j/ha) (90 p/ha)



Residential Areas (less intensification)



District Energy Service Areas (greater intensification)



Transit Corridor



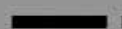
"Green Necklace" Route



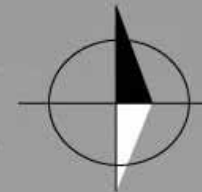
City Park and Green Infrastructure



Green Streets



City Boundary



FRAMING THE CHALLENGE:

The City of North Vancouver's 100 Year Sustainability Vision

$$\text{energy consumption} \times \text{energy source} = \text{GHG emissions}$$

2007

Baseline energy and emission figures

POPULATION: 47,000
 EMPLOYMENT: 32,000
 HOUSEHOLDS: 22,000

TOTAL ENERGY: 5 million GJ
 TOTAL EMISSIONS: 245,000 tonnes



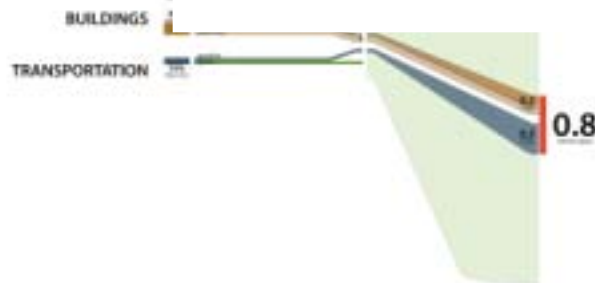
$$\text{energy consumption} \times \text{energy source} = \text{GHG emissions}$$

2050

Meet Provincial target to reduce total 2007 community emissions by 80 percent

POPULATION: 65,000
 EMPLOYMENT: 39,000
 HOUSEHOLDS: 35,000

TOTAL ENERGY: 2.5 million GJ
 TOTAL EMISSIONS: 49,000 tonnes



2107

Meet 100 Year Sustainability Vision target to reduce community emissions to zero

POPULATION: 104,000
 EMPLOYMENT: 56,000
 HOUSEHOLDS: 53,000

TOTAL ENERGY: 2 million GJ
 TOTAL EMISSIONS: 0 tonnes



Emission factors (kg CO₂/GJ)

natural gas	49
electricity	240
wood	49
coal	75
oil	75
propane	75
green (various sources)	0

Source: BC Energy Services Ltd.



City of North Vancouver



conceptual - for discussion purposes only

2050 ASSUMPTIONS

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

Energy consumption



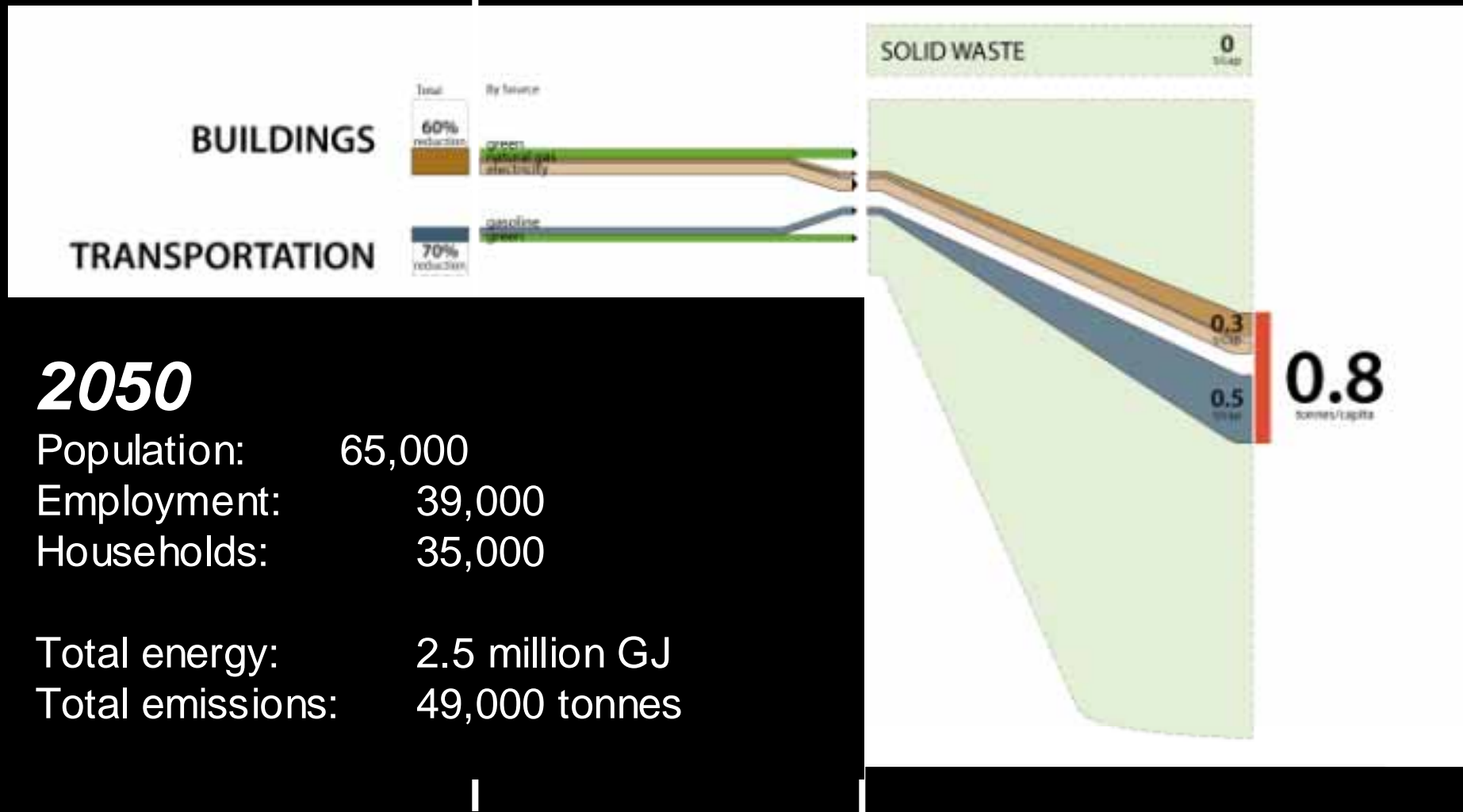
Energy source



*Energy
consumption*

*Energy
source*

*GHG
emissions*



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



*Energy
consumption*

*Energy
source*

*GHG
emissions*





Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green

City of North Vancouver

	Present	2107
People	45,000	135,000
Jobs	27,000	90,000

PRESENT AND PROJECTED TARGETS FOR THE DISTRICT OF NORTH VANCOUVER

- Approximate doubling of the District's overall population from:
83,000 (2006) to 80,000 (2107)
- In the two study areas:

LOWER CAPILANO AREA	PRESENT CONDITION (est)	2107 TARGETS
POPULATION	5,750	20,000
JOBS	2,000	8,000

LOWER LYNN/ MAPLEWOOD/ LYNNMOUR AREA	PRESENT CONDITION (est)	2107 TARGETS
POPULATION	4,500	25,000
JOBS	2,000	10,000



Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Transport network

Green network

Energy systems

Node intensification

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Transport network

Green network

Energy systems

Node intensification

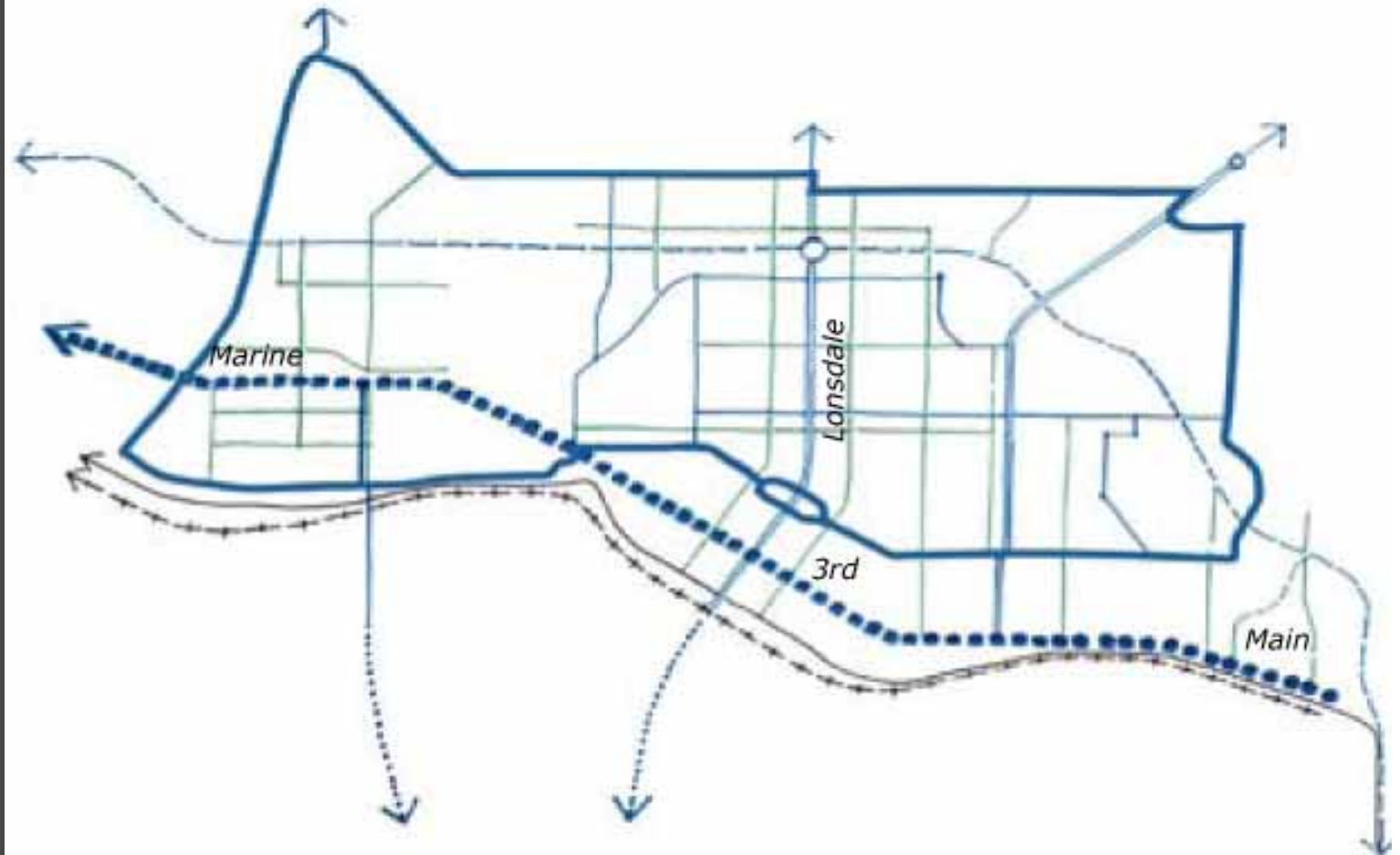
Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Transport network

Green network

Energy systems

Node intensification

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Transport network

Green network

Energy systems

Node intensification

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100 Yr concept plan

Home and work

Go

Green





Sustainability *by* Design

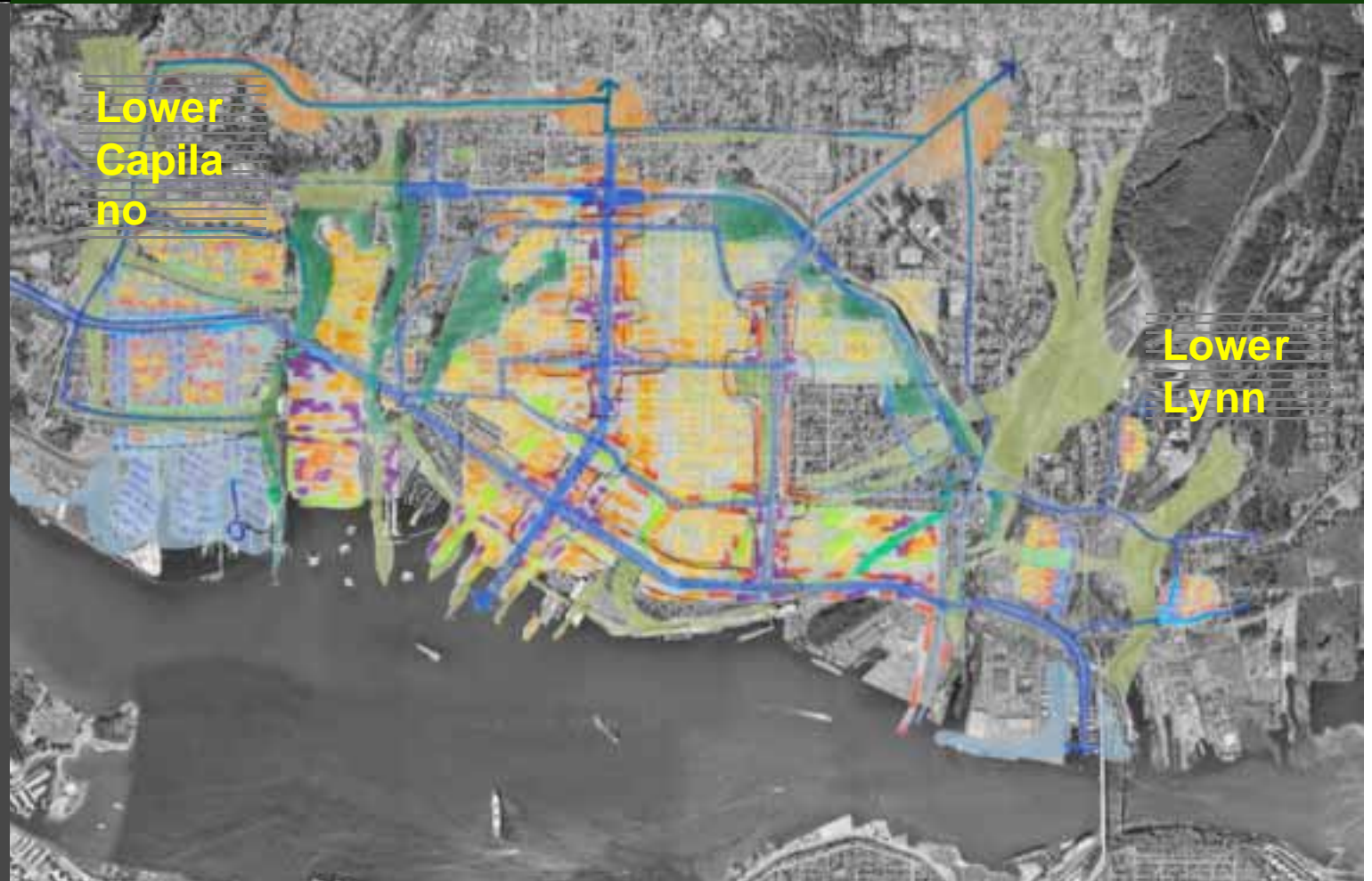
District of North Vancouver 100 Year Sustainability Vision

District

Sustainable Nodes

Day two plan

- Lower Capilano
- Lower Lynn
- Home and work
- Go
- Green





Sustainability *by* Design

District of North Vancouver 100 Year Sustainability Vision

District

Sustainable Nodes

Day two plan

Lower Capilano

Lower Lynn

Home and work

Go

Green



**100
Year
Vision**



Sustainability *by* Design

District of North Vancouver
100 Year Sustainability
Vision

District

Sustainable Nodes

Day two plan

Lower Capilano

Lower Lynn

Home and work

Go

Green



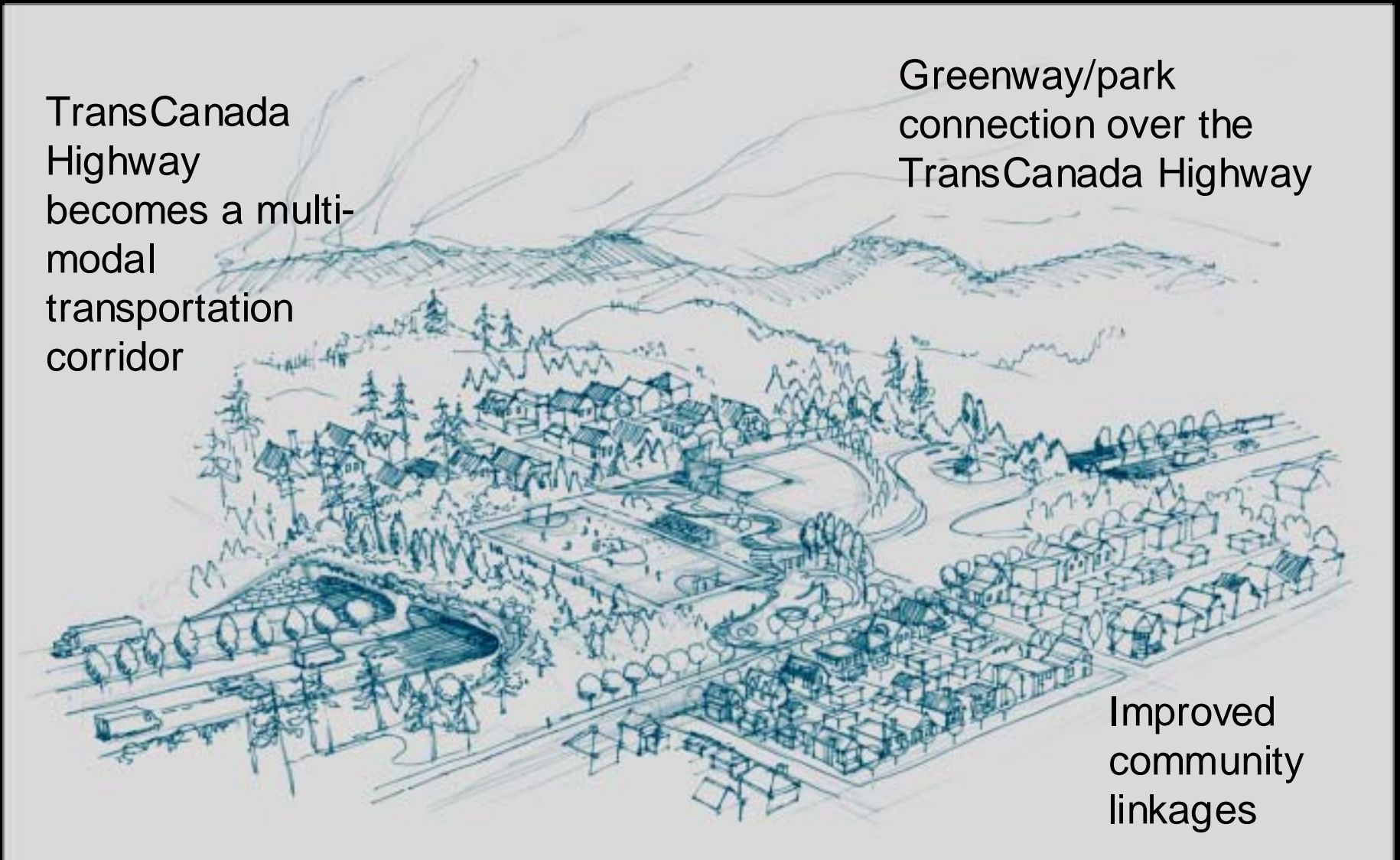
100
Year
Vision

SAMPLE SKETCH OF 2107 VISION FOR TRANSPORTATION IN THE DISTRICT

TransCanada Highway becomes a multi-modal transportation corridor

Greenway/park connection over the TransCanada Highway

Improved community linkages



100 YEAR VISION SKETCH OF NEW COMMUNITY CENTRE IN LOWER CAPILANO





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

City

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100 Yr concept plan

Home and work

Go

Green





Sustainability *by* Design

City of North Vancouver 100 Year Sustainability Vision

Project Overview

Objectives

Pop./Job Matrix

Common Strategies

Node intensification

Transport network

Green network

Energy systems

Sustainable City Core

100 Yr concept plan

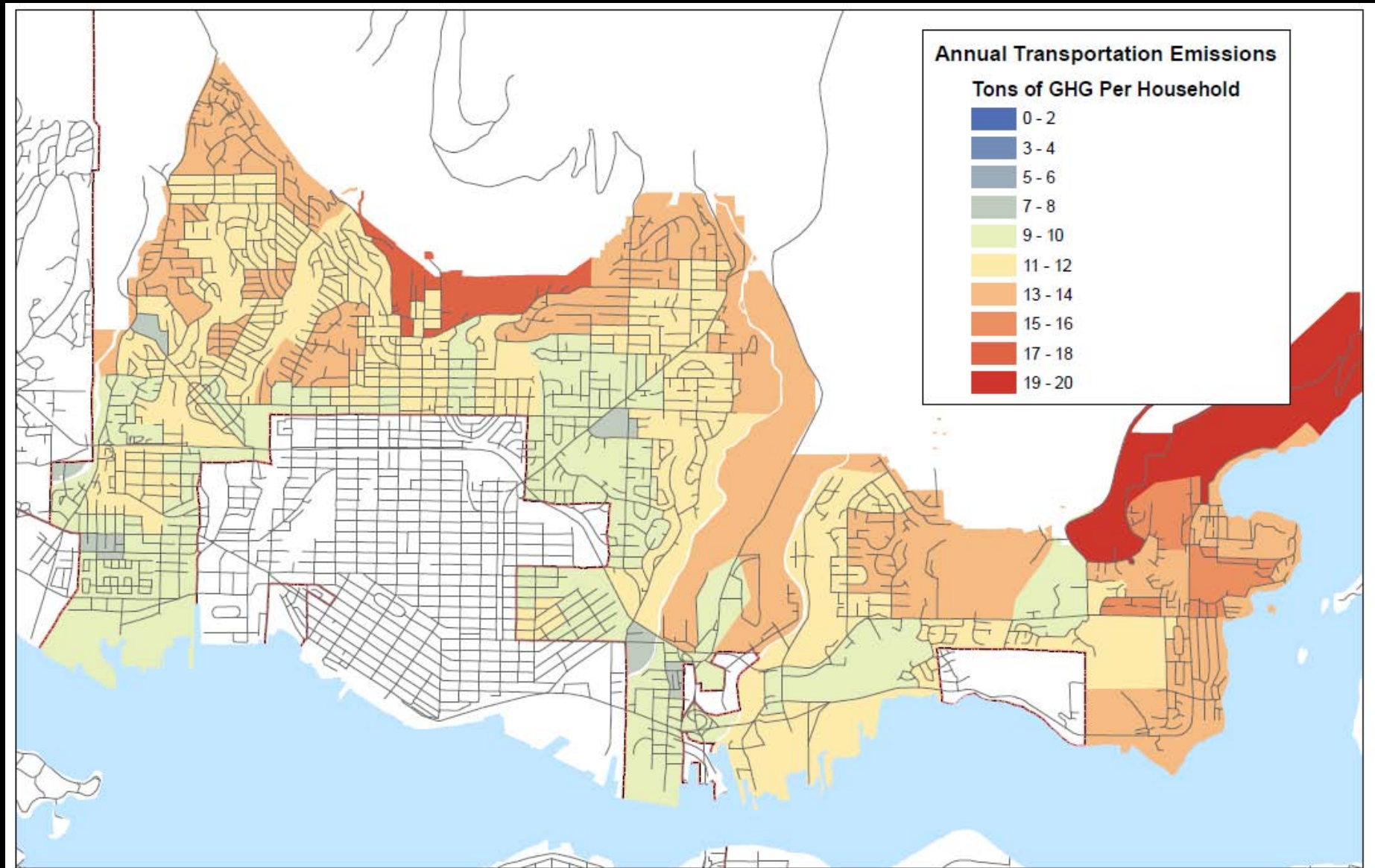
Home and work

Go

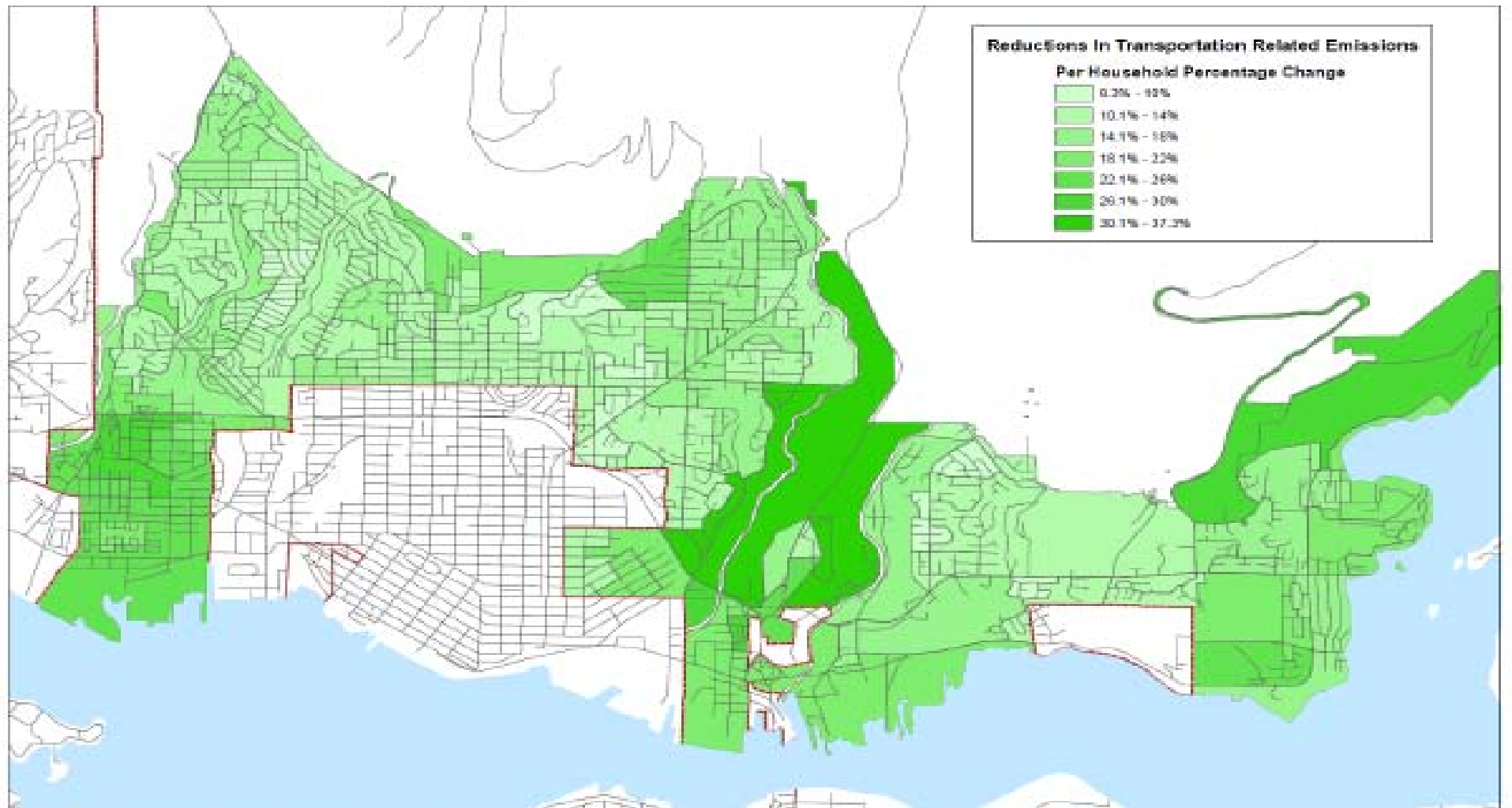
Green



CURRENT SCENARIO 2008 – TRANSPORTATION RELATED EMISSIONS



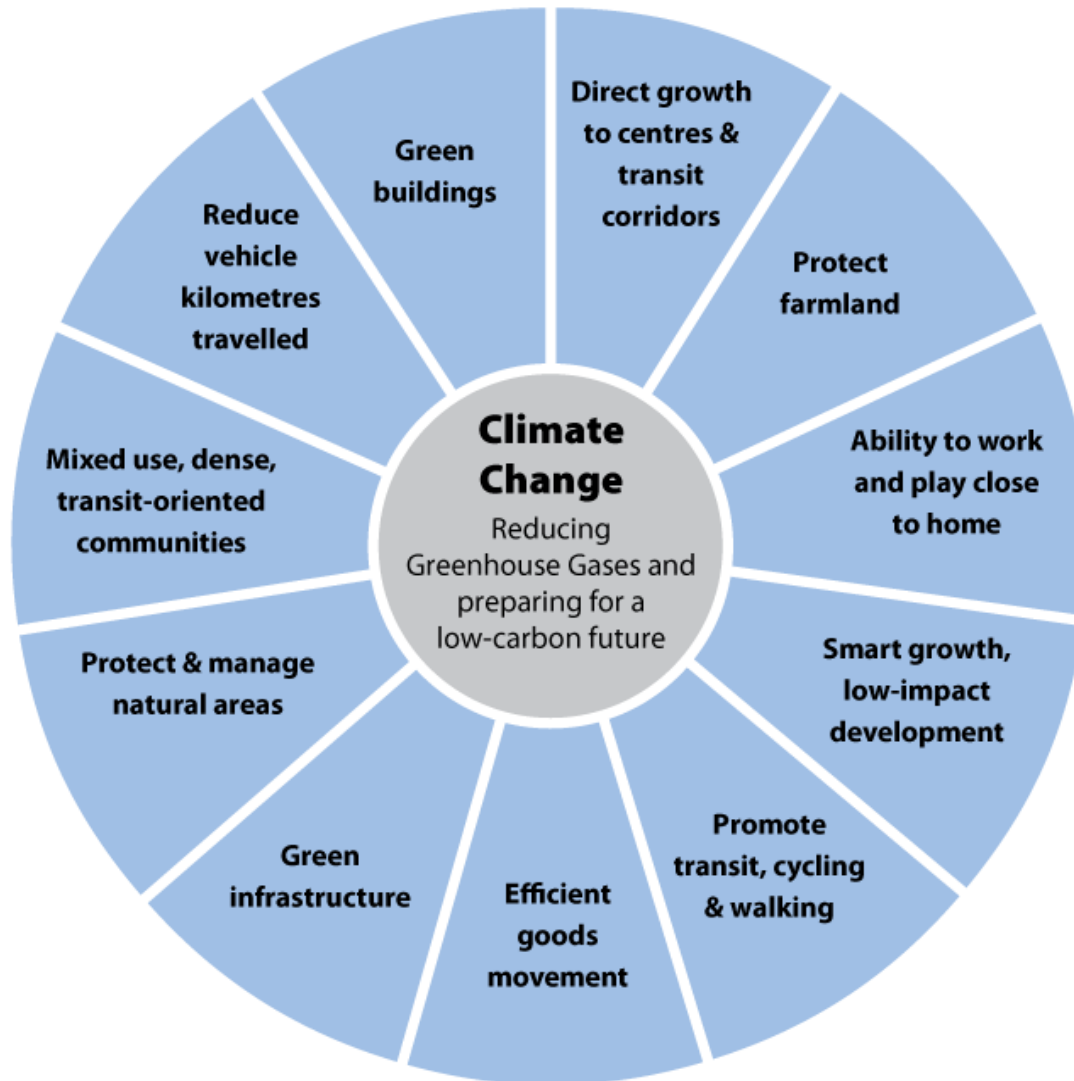
FUTURE SCENARIO 2031 – NET REDUCTION IN TRANSPORTATION RELATED GHGS



Net reductions/ household in transportation related GHGs from 37.3% to 8.3%

FIGURE 5

How Land Use and Transportation Strategies Contribute to Climate Action



Source: Metro Vancouver Regional Growth Strategy – Preliminary Draft



Sustainability *by* Design City & District of North Vancouver

100 Year Sustainability Vision

