



# 2050

COMMUNITY ENERGY  
& EMISSIONS PLAN

Council Workshop



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Associate



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Principal



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Principal







What is a CEEP?



The background image shows a modern, multi-story building with large glass windows and a prominent orange-brown horizontal band. In front of the building is a green artificial turf sports field with white and yellow yard lines. Several people are visible on the field, some in motion, suggesting a game or practice. The sky is a clear blue with some light clouds. A decorative graphic of stylized mountains in various shades of blue and green is located in the top-left corner.



# Community Energy & Emissions Plan

A strategy designed to identify and track opportunities to reduce energy use and emissions



Energy & Emission  
Reduction Targets



Strategies &  
Actions



Monitoring &  
Implementation





# Why do we need one?

There are two basic responses to climate change:

## Mitigate

Prevent future climate change from happening, by reducing our greenhouse gas emissions

## Adapt

Become more resilient by preparing and responding to climate change

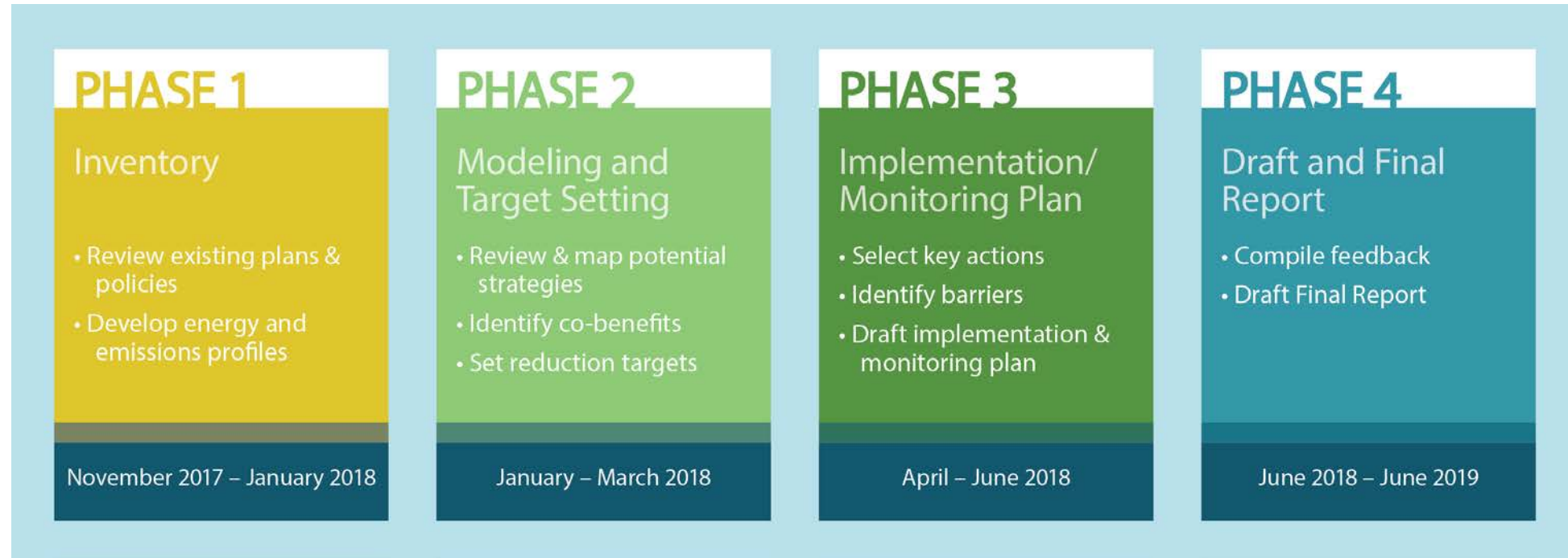


## A CEEP for the DNV

- ✓ Will work together with the Official Community Plan to help guide community growth and development
- ✓ Will serve to meet the District's goals of a low or no-carbon community
- ✓ Will ensure actions have positive co-benefits to the community, including improved health and equity



# Phases of Work and Timeline

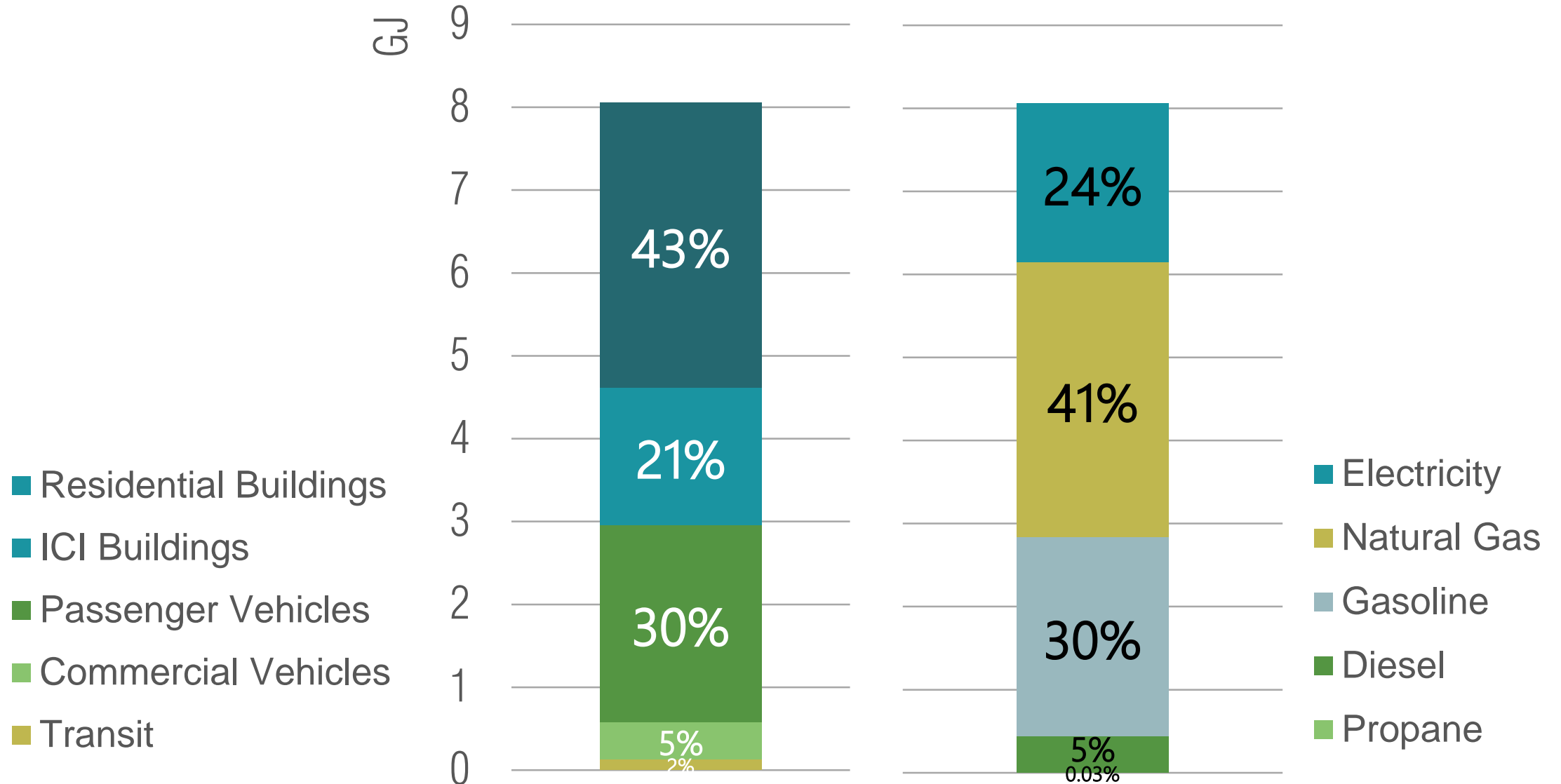




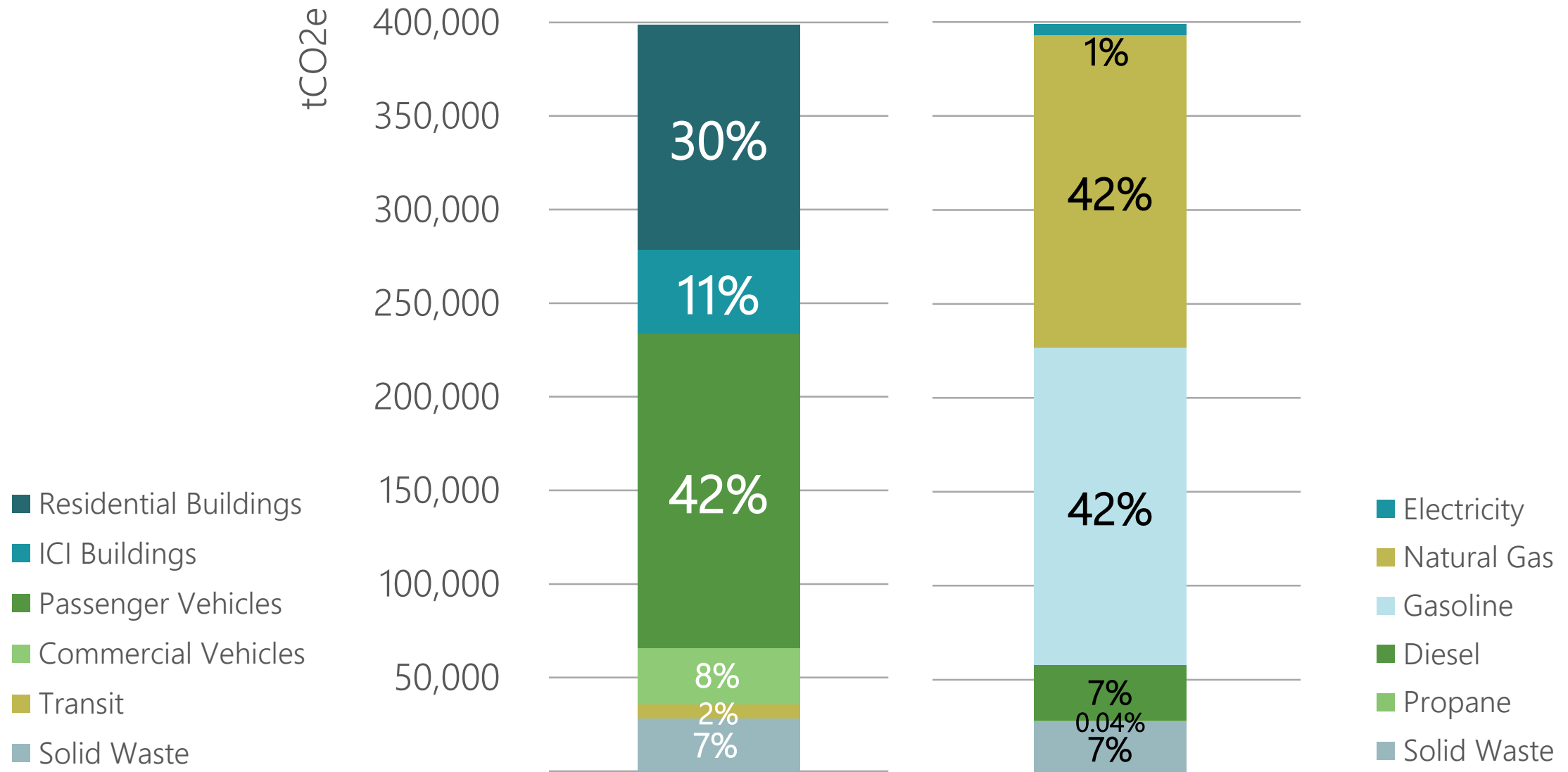
# Energy & Emissions in the DNV



# Energy Consumption: 2016



# GHG Emissions: 2016





# Setting Targets

Canada

**30% reduction in  
emissions from  
2005 levels by  
2030**

**80% reduction in  
emissions from  
2005 levels by  
2050**

BRITISH  
COLUMBIA

**40% reduction in  
emissions from  
2007 levels by  
2030**

**80% reduction in  
emissions from  
2007 levels by  
2050**

metrovan

**33% reduction in  
emissions from  
2007 levels by  
2020**

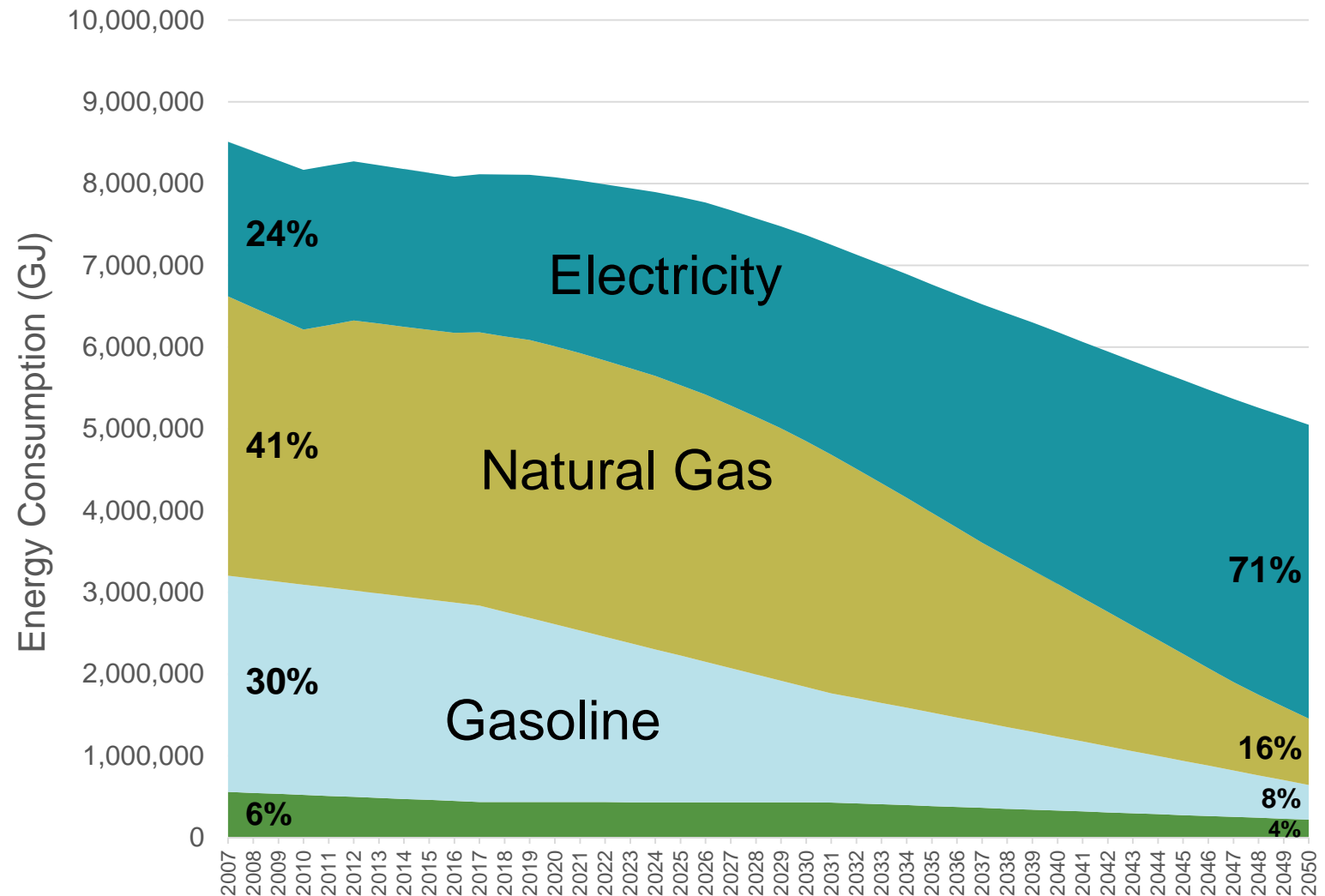
**80% reduction in  
emissions from  
2007 levels by  
2050**

DISTRICT OF  
**NORTH  
VANCOUVER**

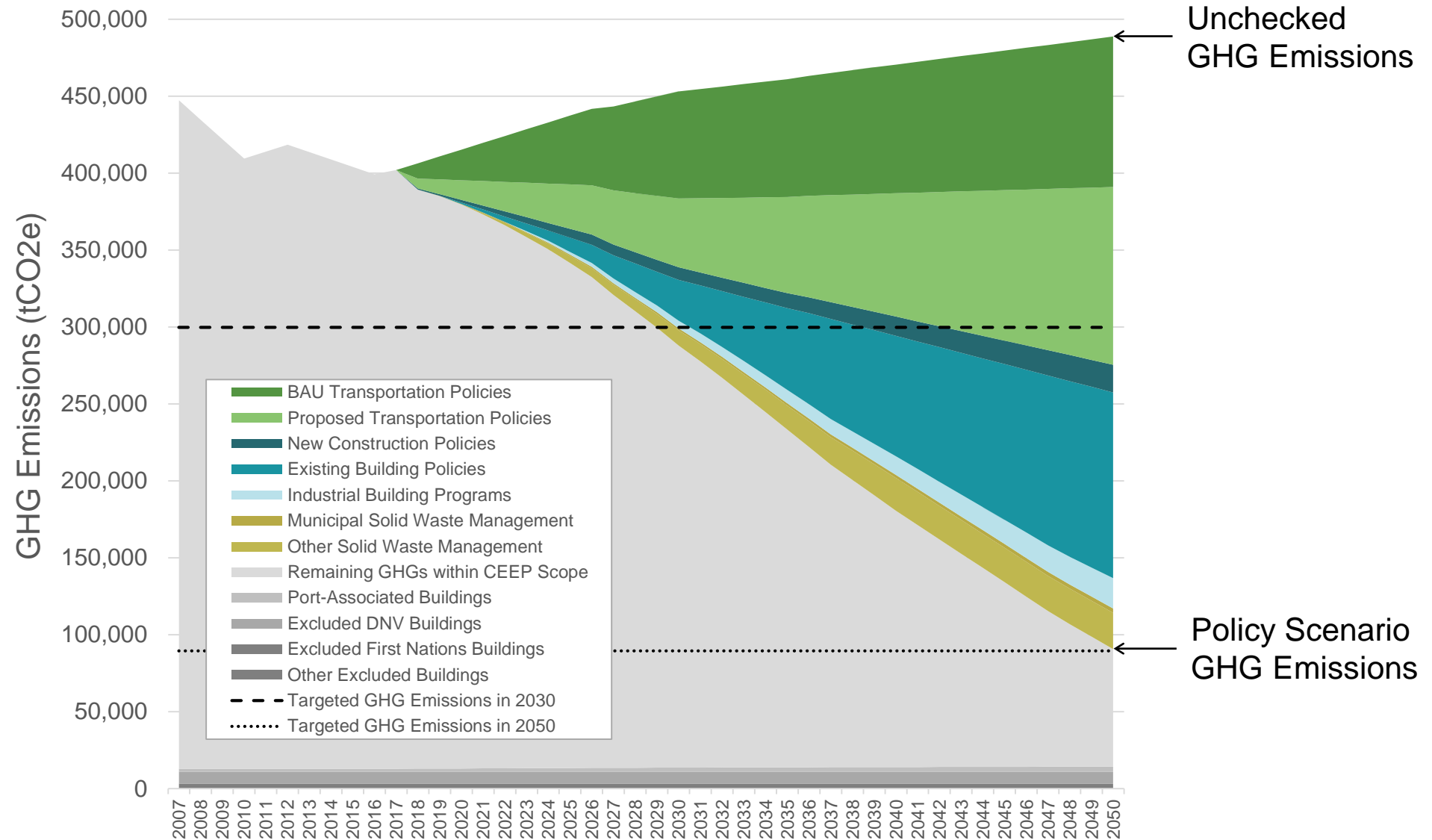
**33% reduction in  
emissions from  
2007 levels by  
2030**

**80% reduction in  
emissions from  
2007 levels by  
2050\***

# Potential changes to energy use in the DNV

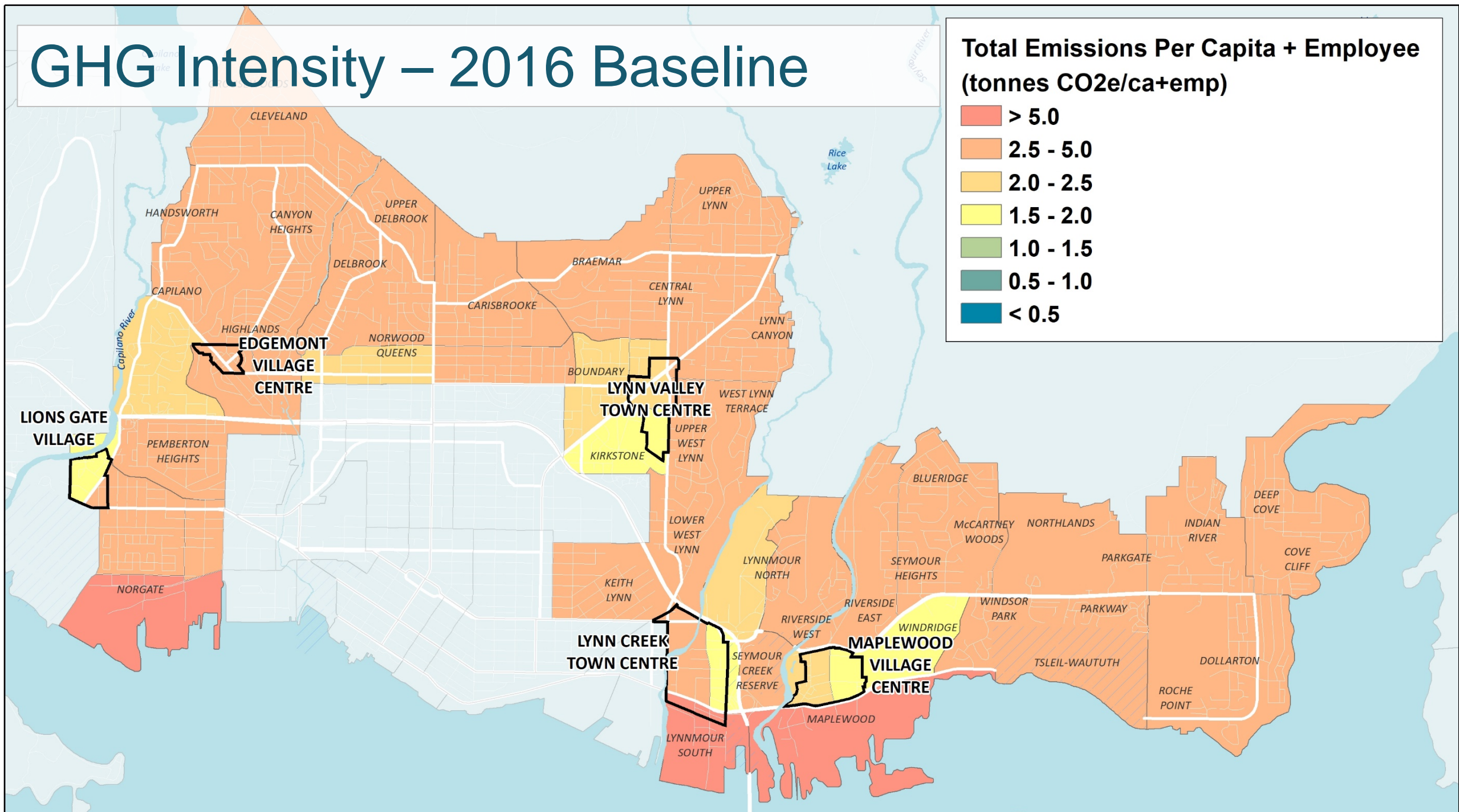


# Potential pathway to an 80% GHG reduction



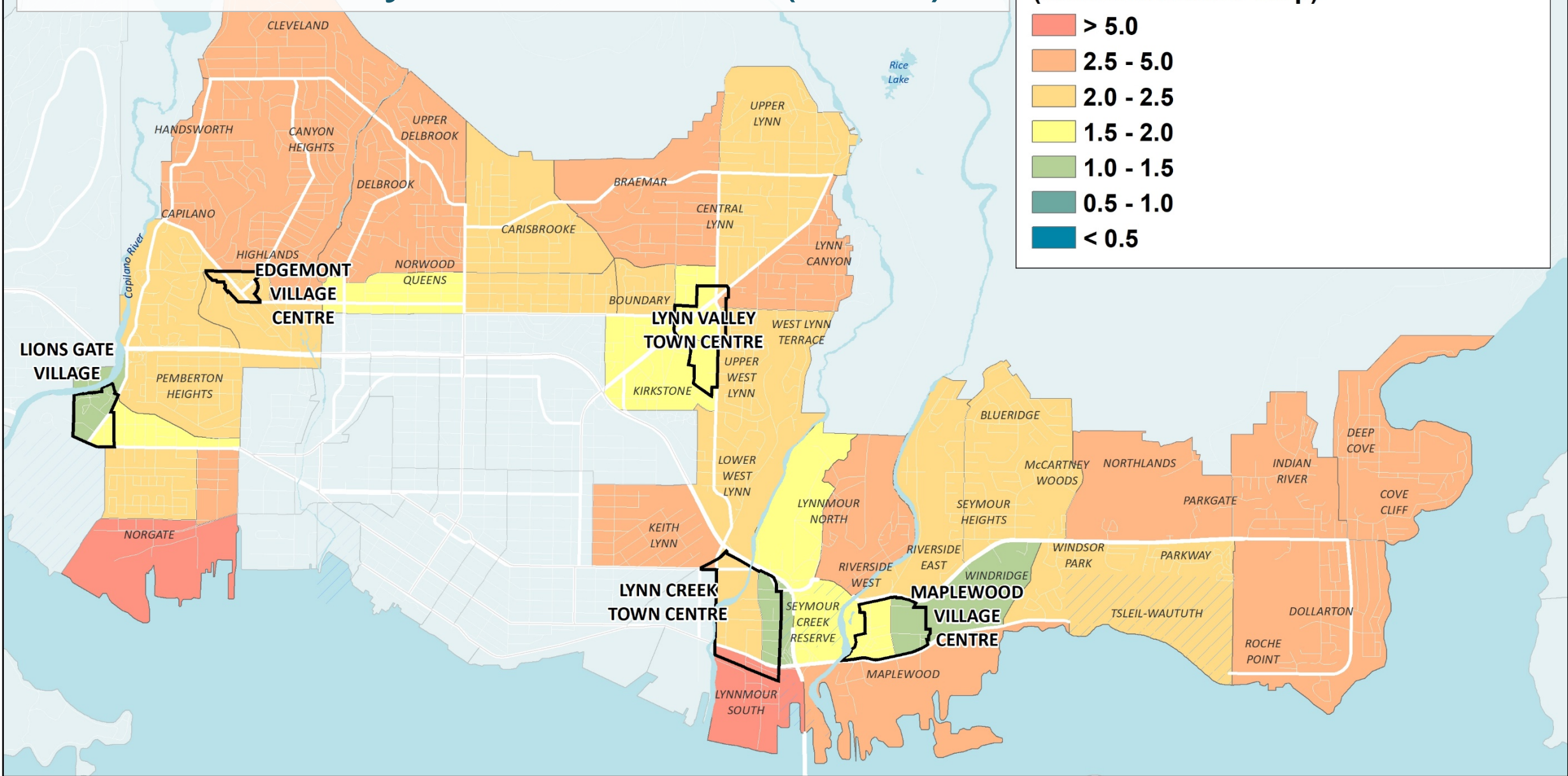


# GHG Intensity – 2016 Baseline



# GHG Intensity – 2030 BAU (OCP)

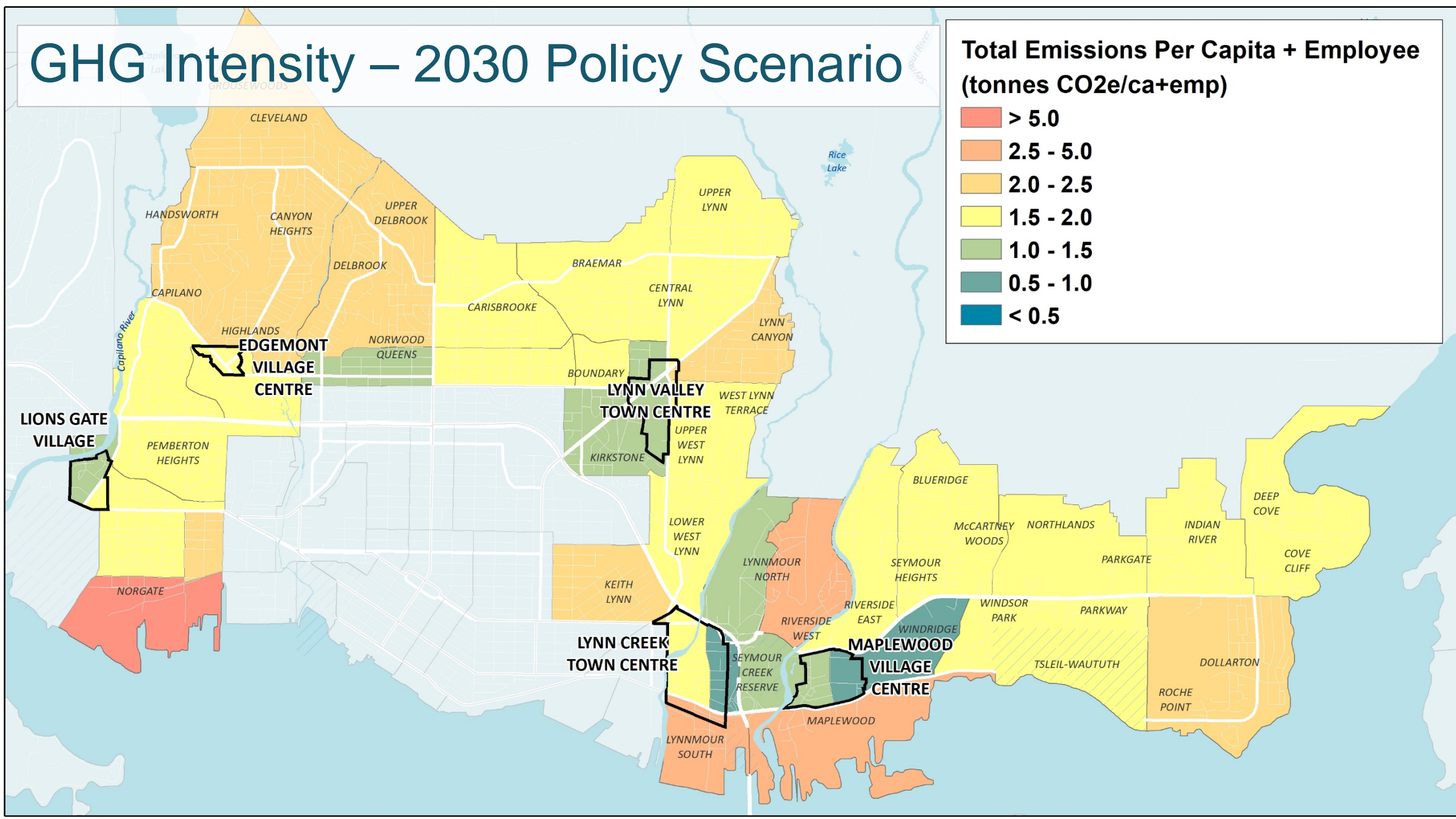
Total Emissions Per Capita + Employee  
(tonnes CO<sub>2</sub>e/ca+emp)





# GHG Intensity – 2030 Policy Scenario

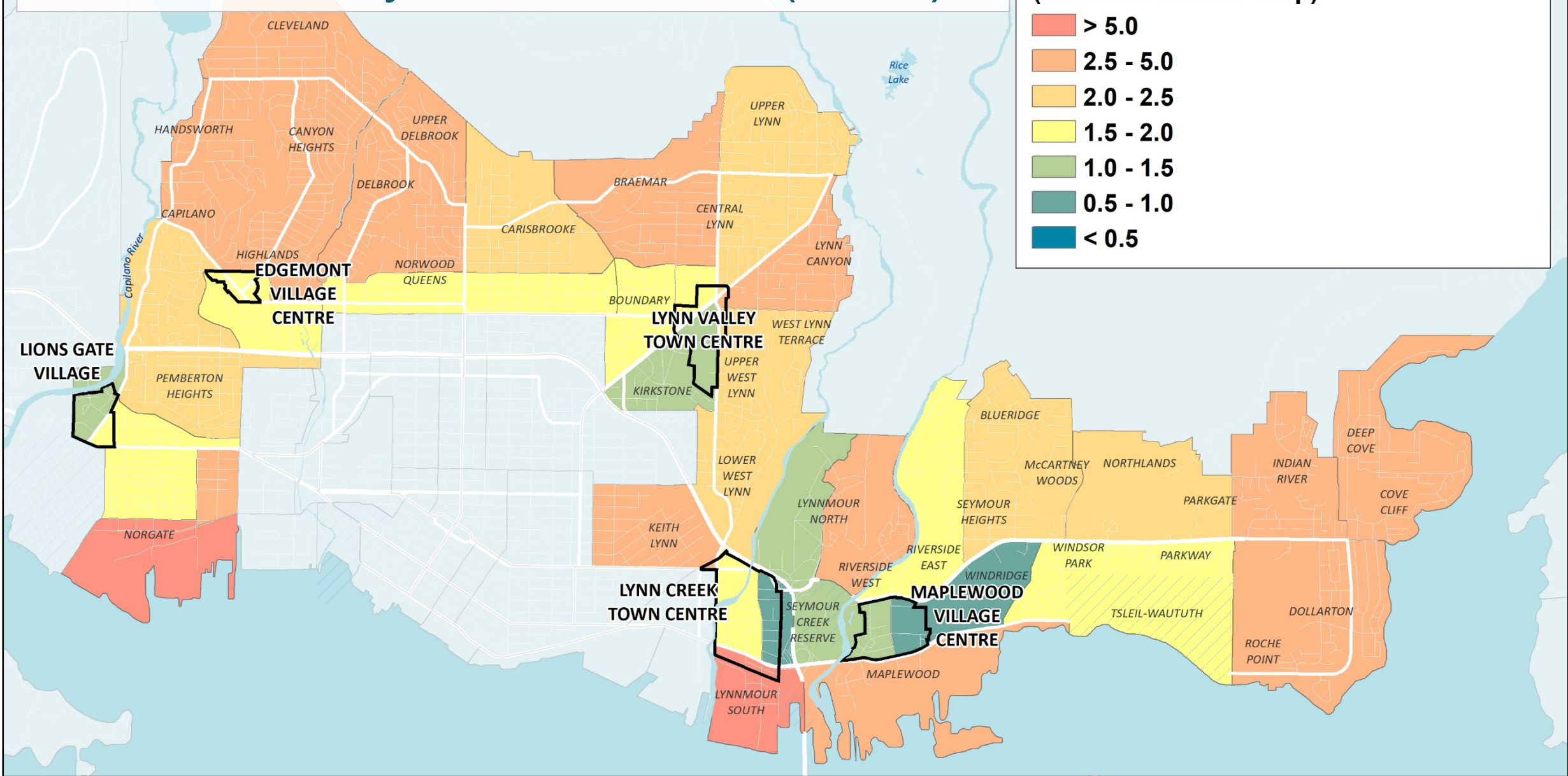
Total Emissions Per Capita + Employee  
(tonnes CO<sub>2</sub>e/ca+emp)





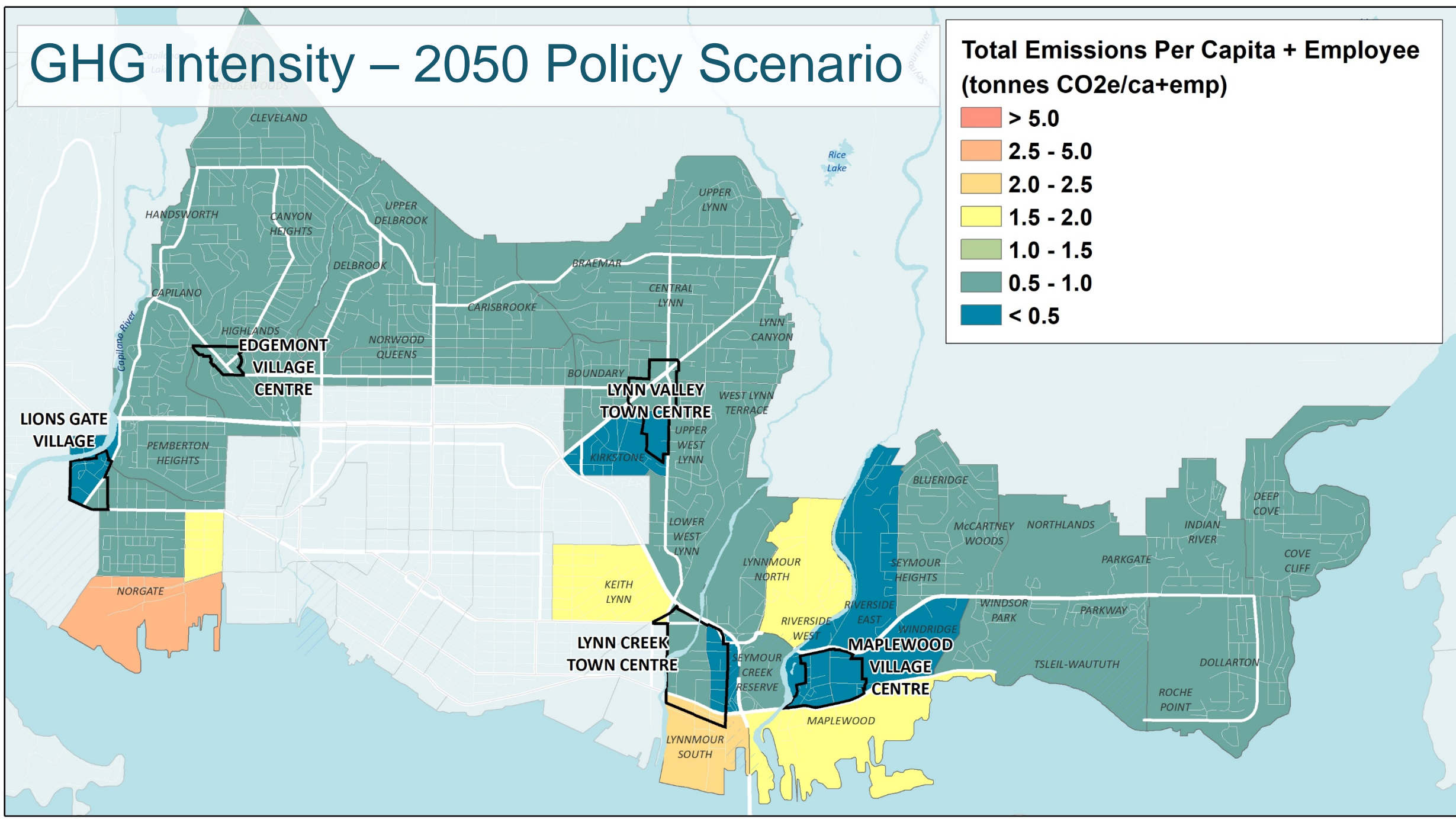
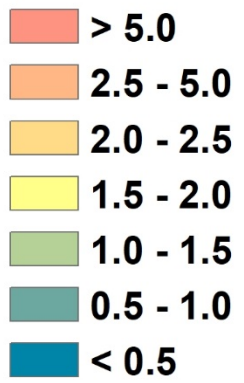
# GHG Intensity – 2050 BAU (OCP)

Total Emissions Per Capita + Employee  
(tonnes CO<sub>2</sub>e/ca+emp)



# GHG Intensity – 2050 Policy Scenario

Total Emissions Per Capita + Employee  
(tonnes CO<sub>2</sub>e/ca+emp)



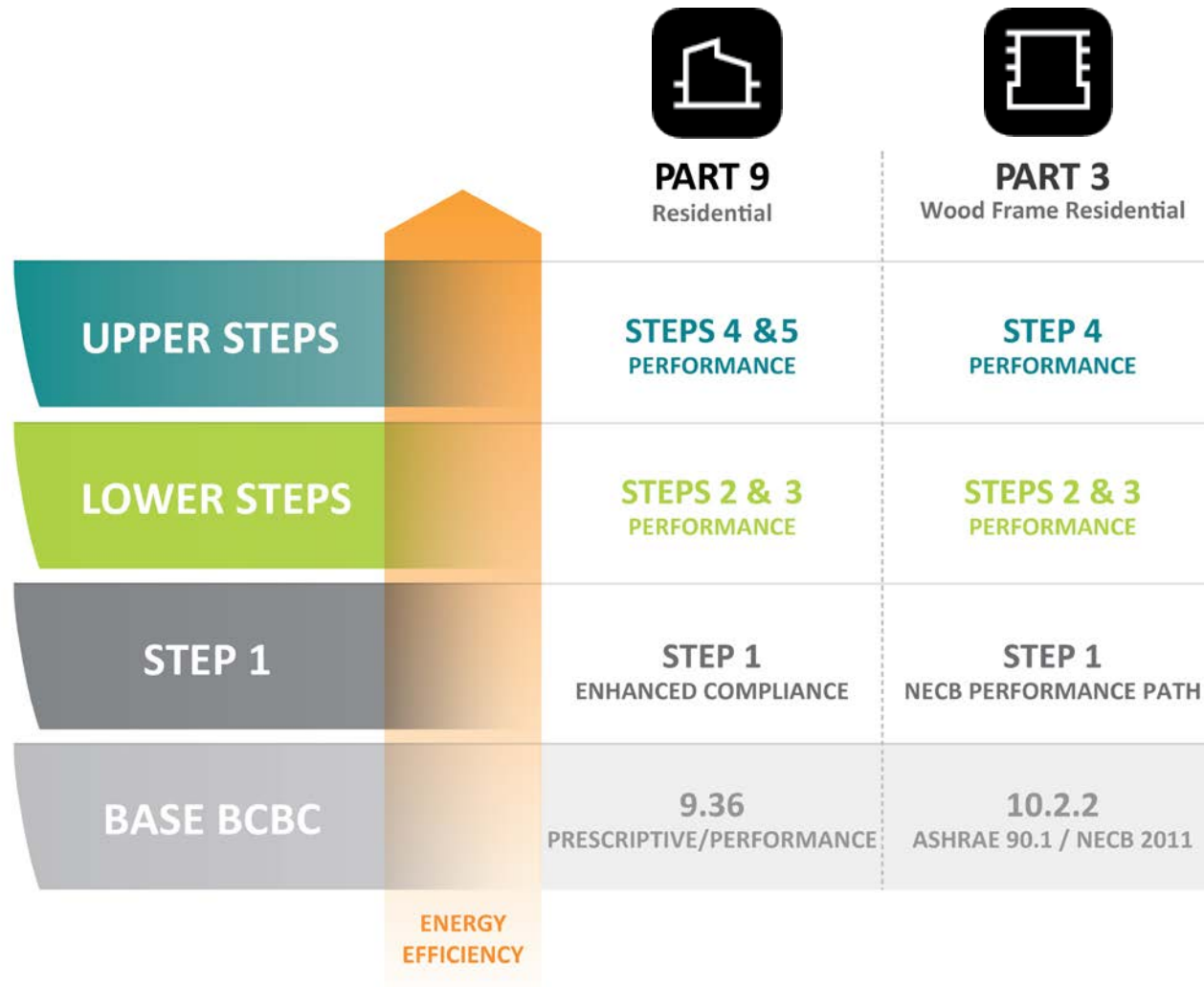




# Buildings and Energy



# The BC Energy Step Code



Adopted July  
1<sup>st</sup> 2018



# Eliminate fossil fuel dependence (“net zero”)



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PIQUE Whistler



BC Energy Step Code Illustrated Guide

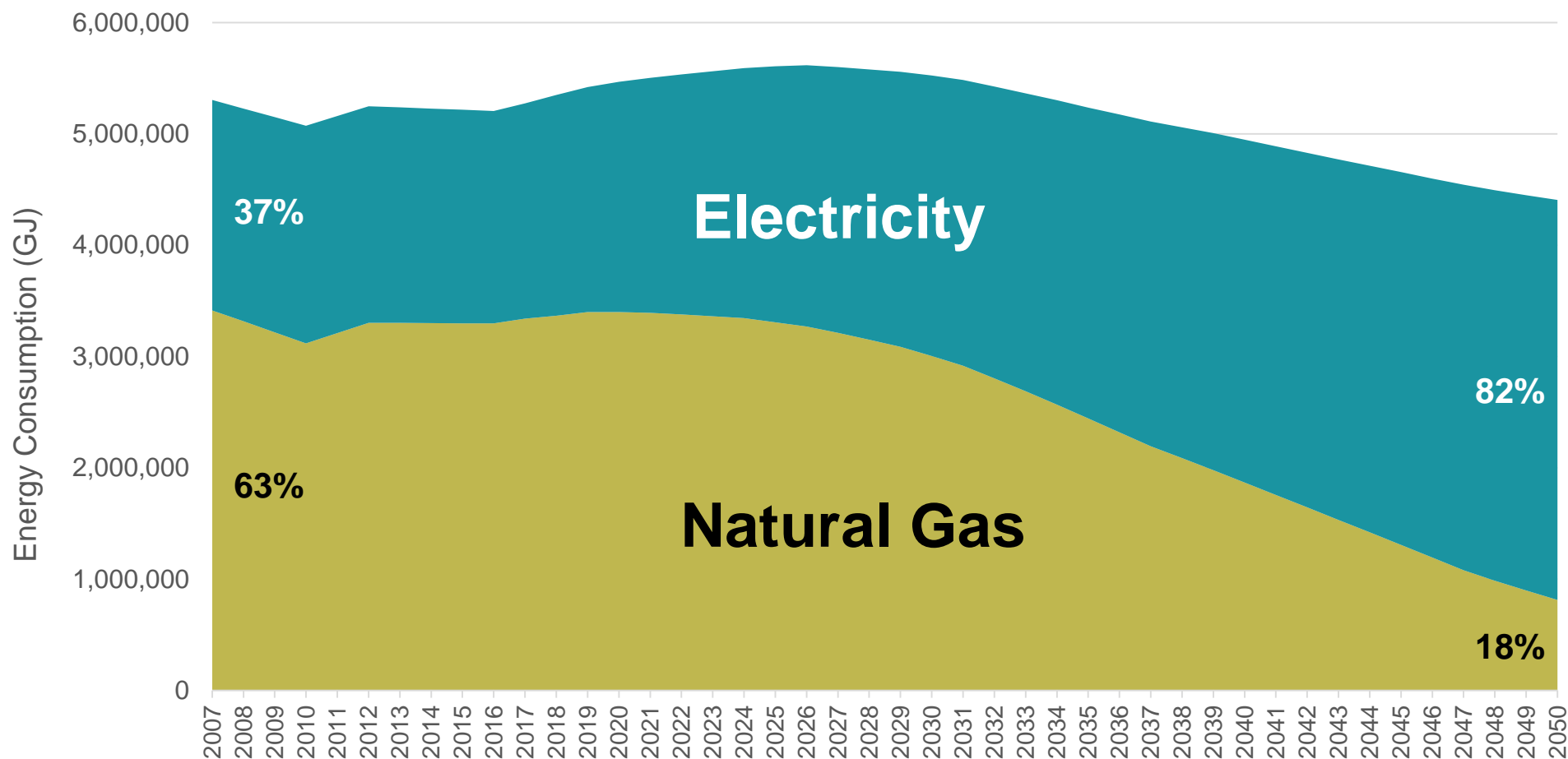


**PASSIVEHOUSE**  
**CANADA** Build better.  
Feel better.

# Existing building retrofits and fuel switching



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Includes buildings and transportation



# Existing building retrofits and fuel switching



Key importance of heat pumps in the switch to low-carbon electricity \*\*



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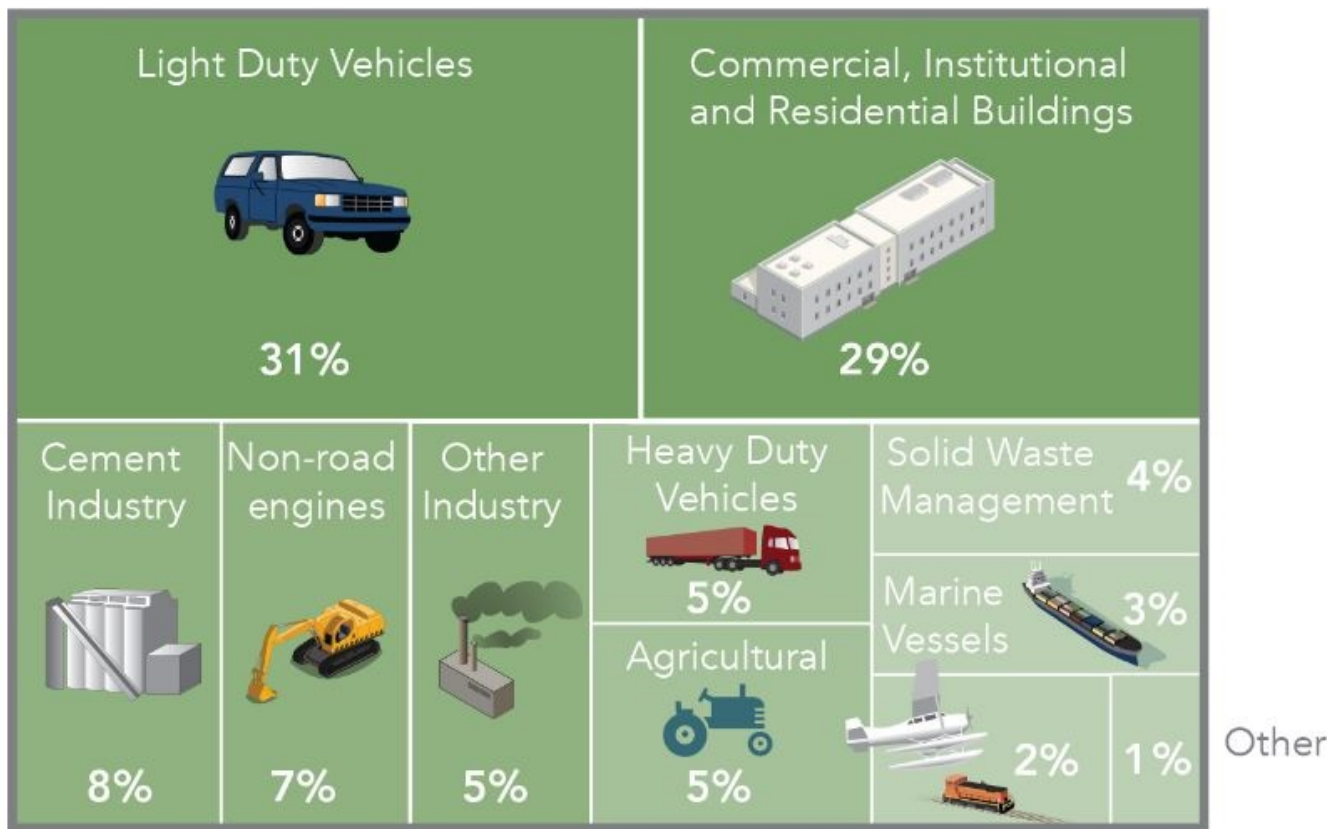
# Land Use and Transportation



# The Central Role of Transportation: Regional



Greenhouse Gas Emissions



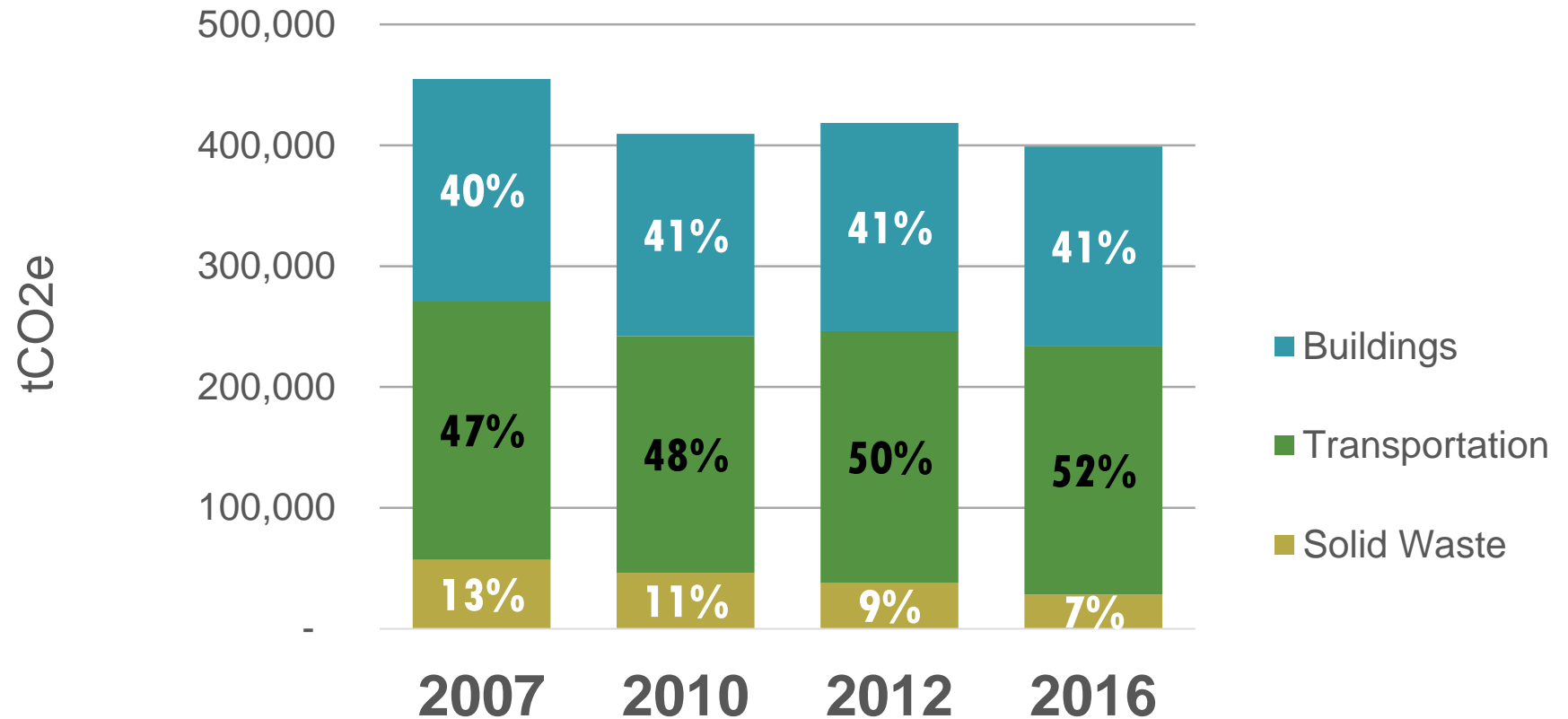
Source: Metro Vancouver, 2013 Caring for the Air Report

Aircraft & Railways

# DNV: A Larger and Growing Share of GHG Emissions

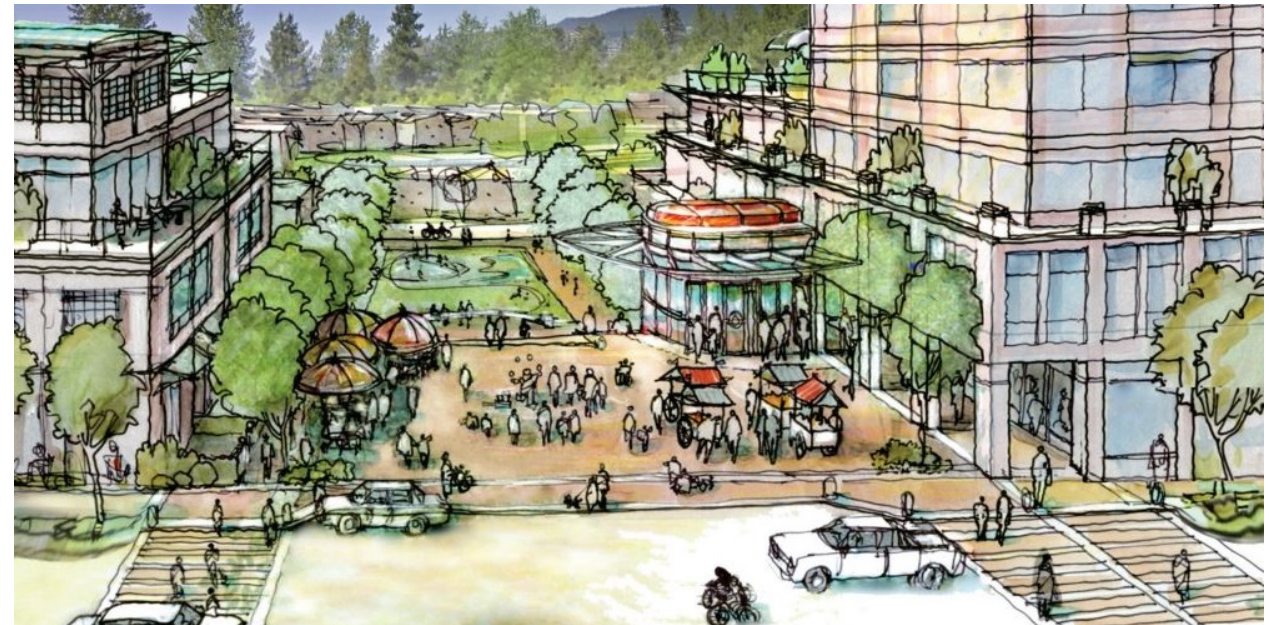
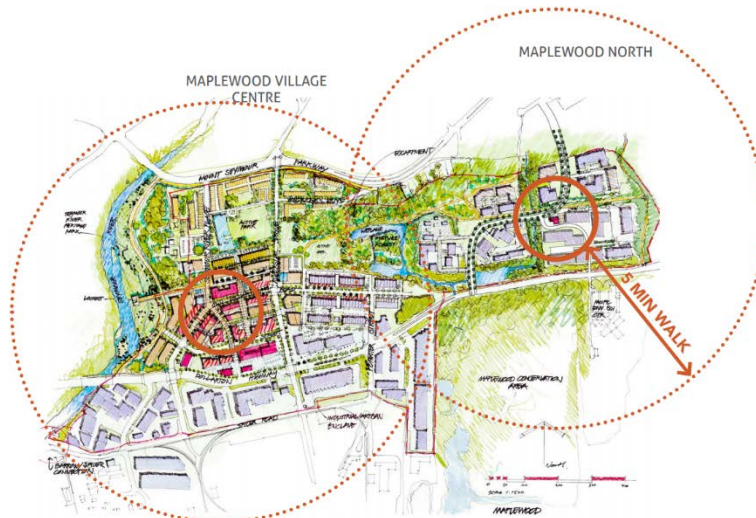
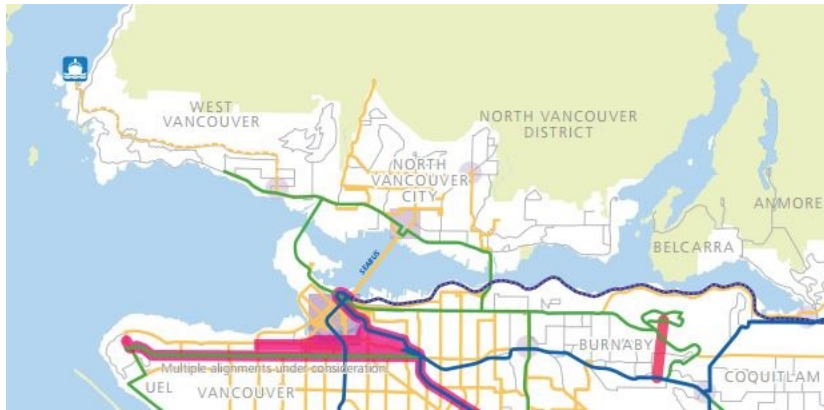


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# A Strong Foundation: Land Use Plans and Regional Leadership

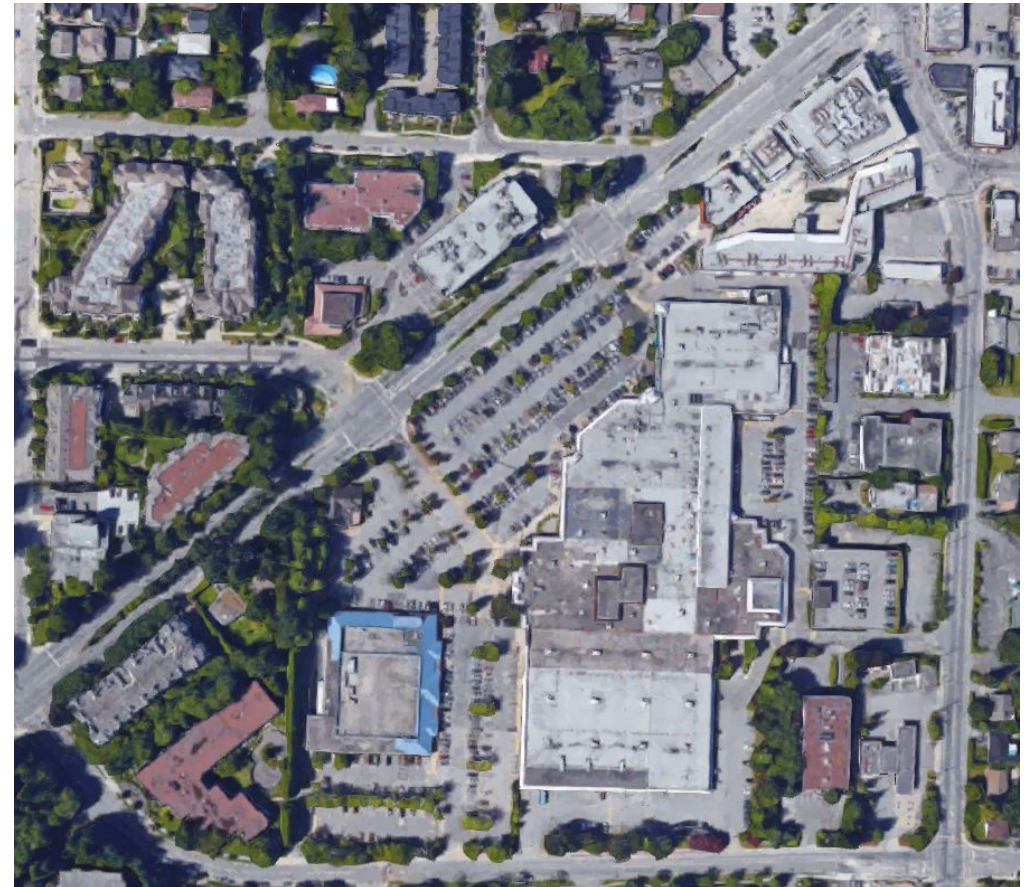




# Room for Improvement: Parking Policy and TDM



- 20th century parking requirements
- Village Centres: Parking not treated as a constrained resource (priced + managed)
- Demand management: *Voluntary*, applies only to new development



*Lynn Valley Village Centre: Auto-related infrastructure covers more than half of land area*

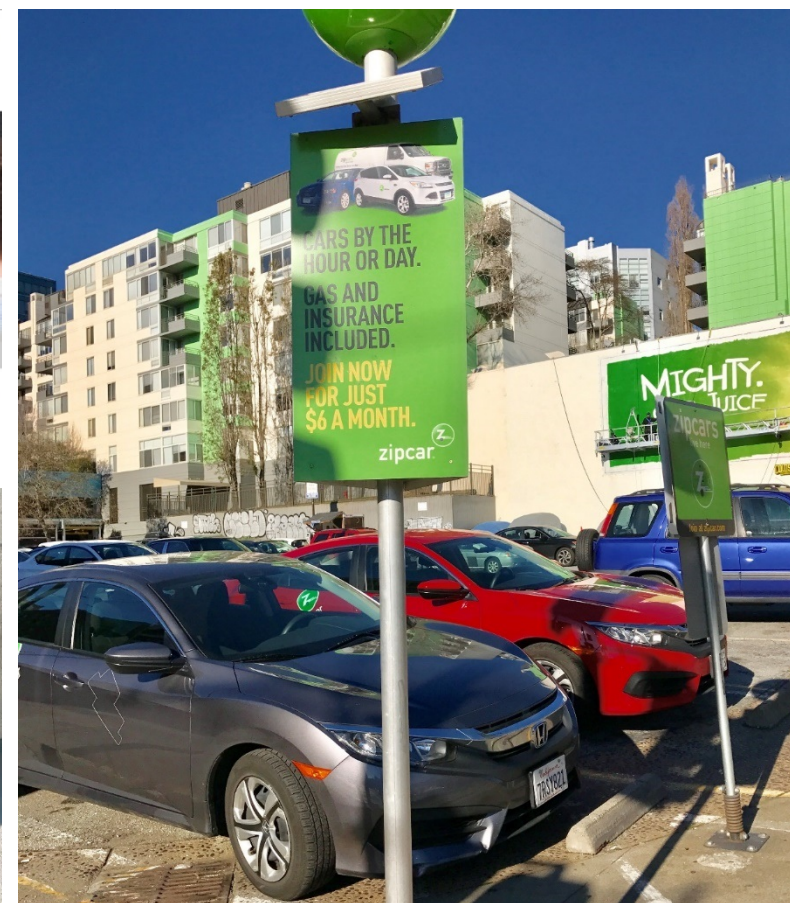
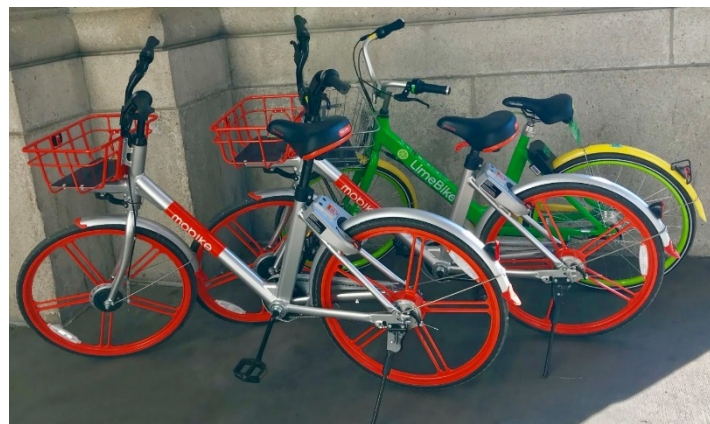




# Parking and TDM



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# Land Use



**“The best transportation  
plan is a good land use plan”**



Sources: Mission Rock (Left), NYC.gov (Right)



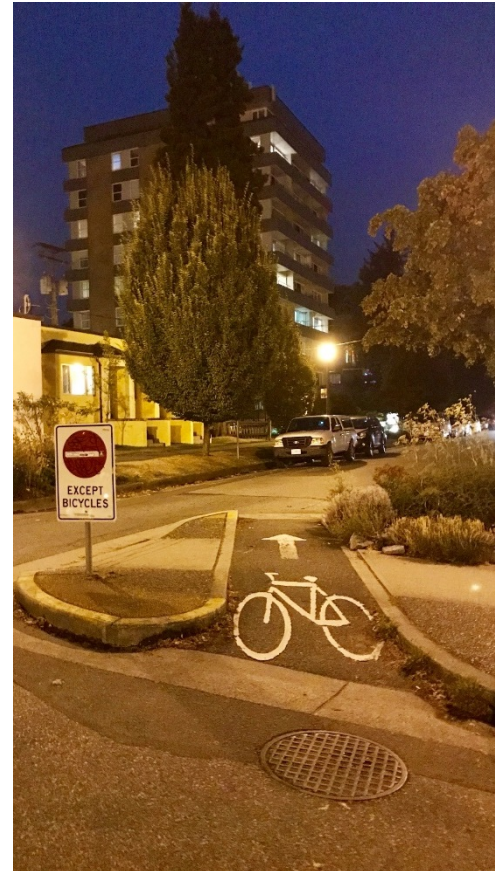
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# Strengthen Multimodal Networks



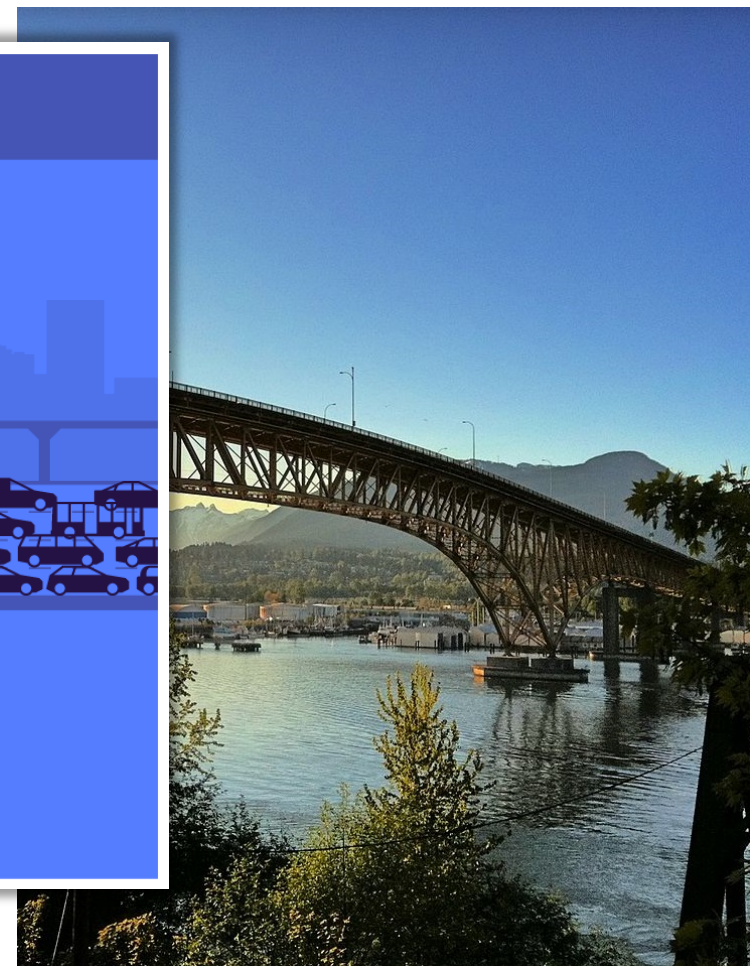
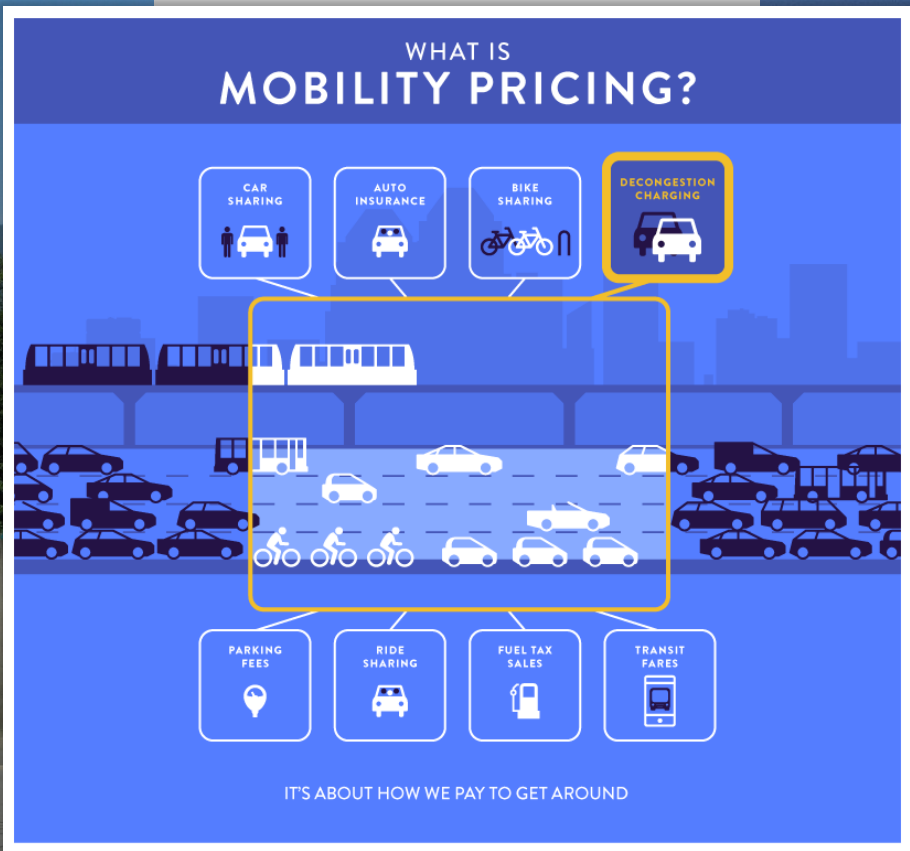
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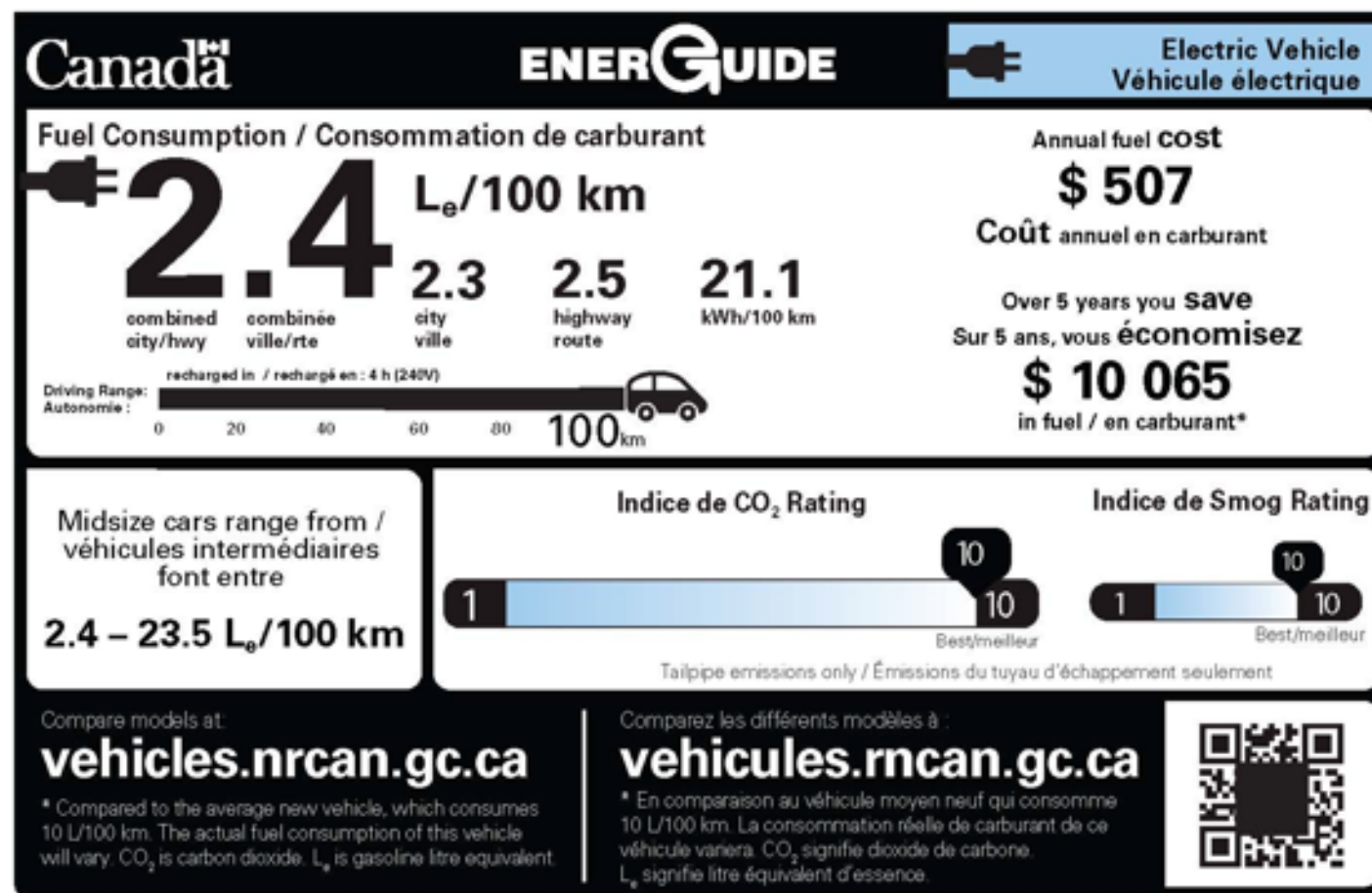
# Support Regional Initiatives



# Support Fuel Efficiency & Emissions Standards



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# Electrify the Fleets



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# Conclusions



**Lions Gate Village Centre**



**Lynn Creek Town Centre**



**Lynn Valley Town Centre**



**Maplewood Village Centre**





# Wellbeing Effects of CEEP Strategies



**Actions to reduce GHG  
emissions  
can also boost social wellbeing  
and community health.**

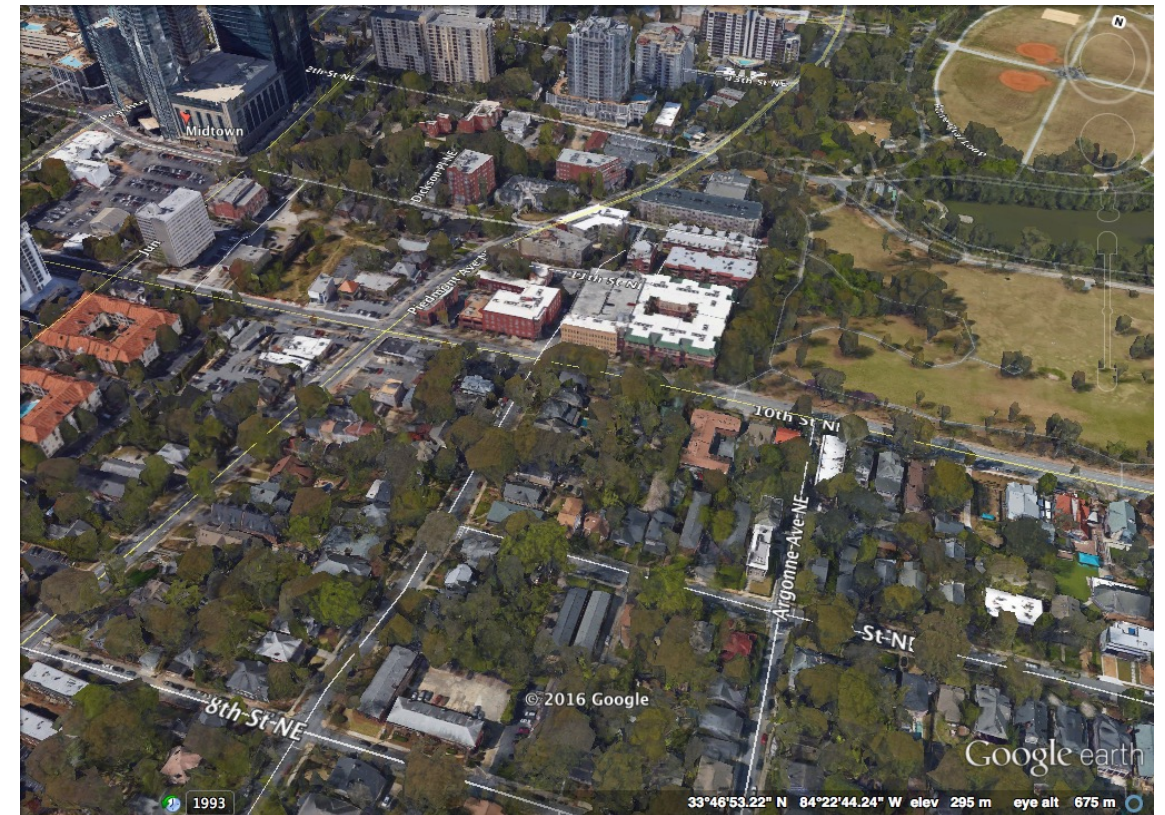
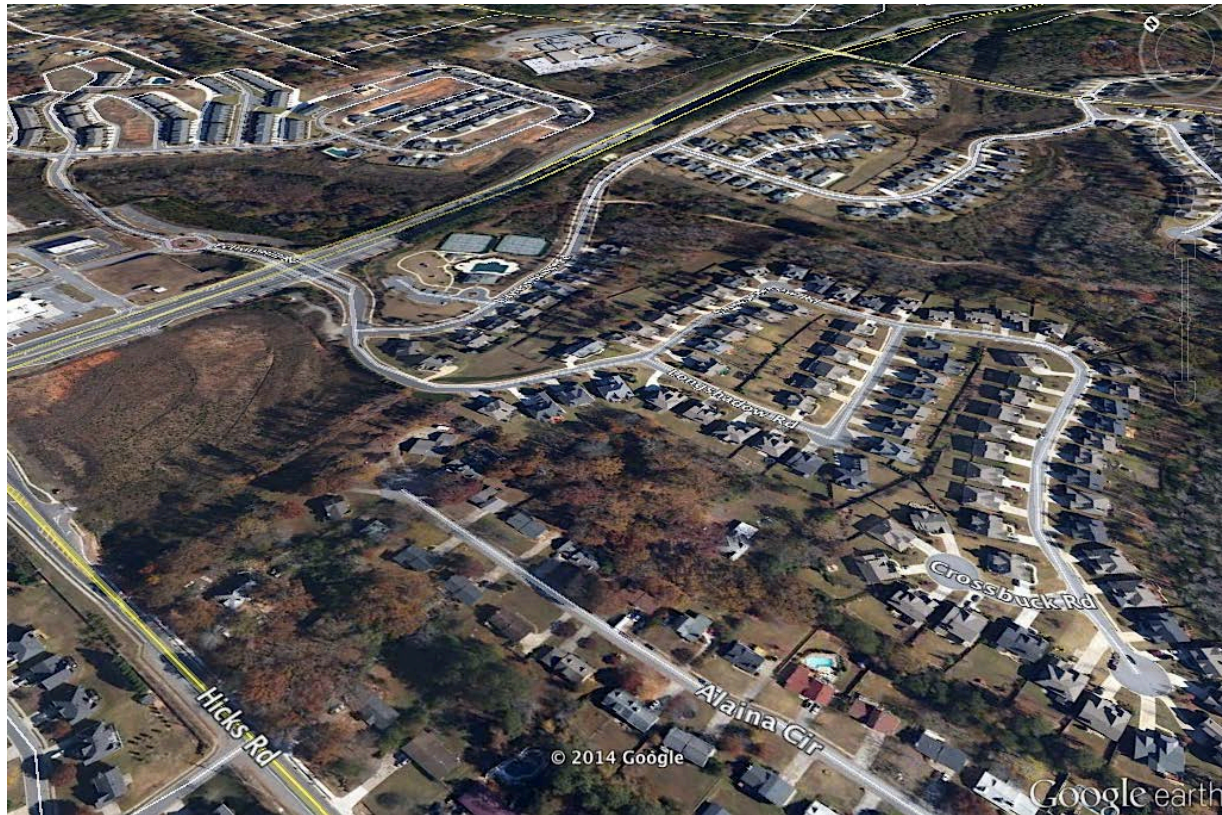


# CEEP Wellbeing Co-Benefits



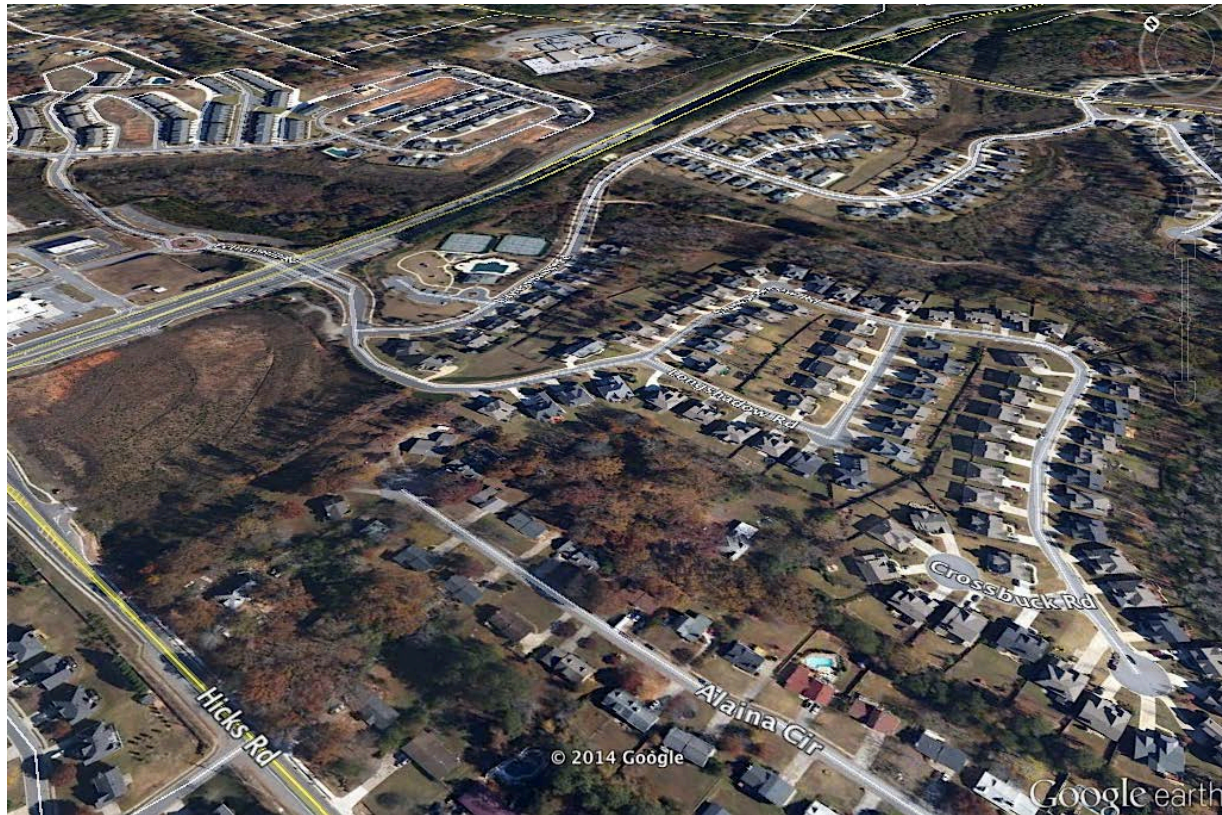


# Comparing land use system effects



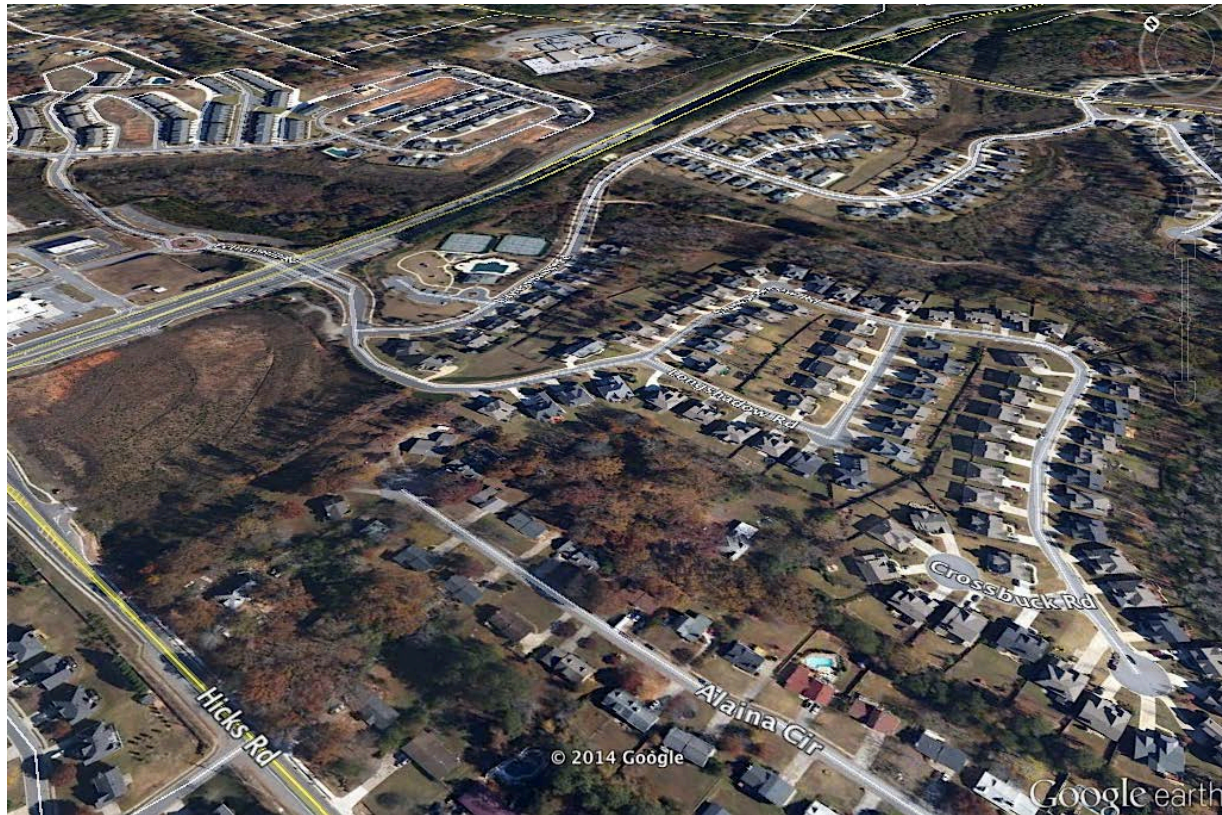


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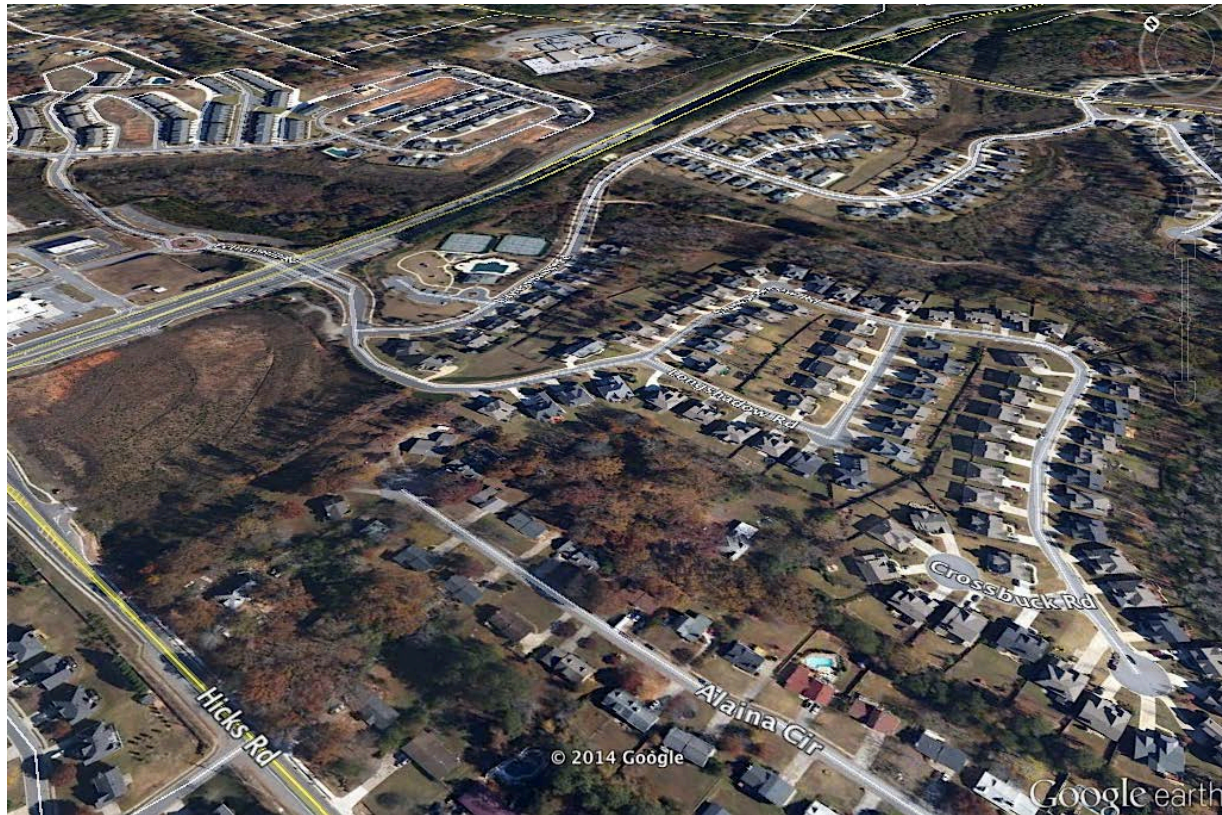


# Comparing land use system effects



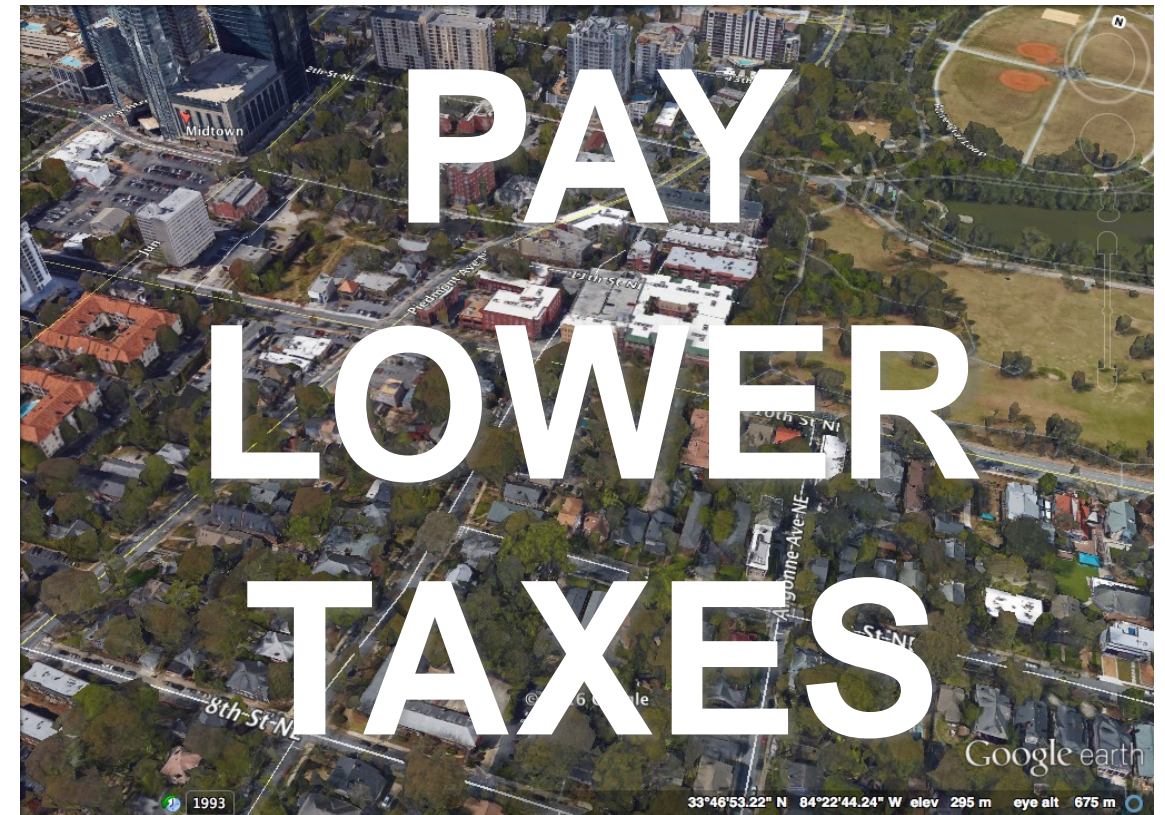
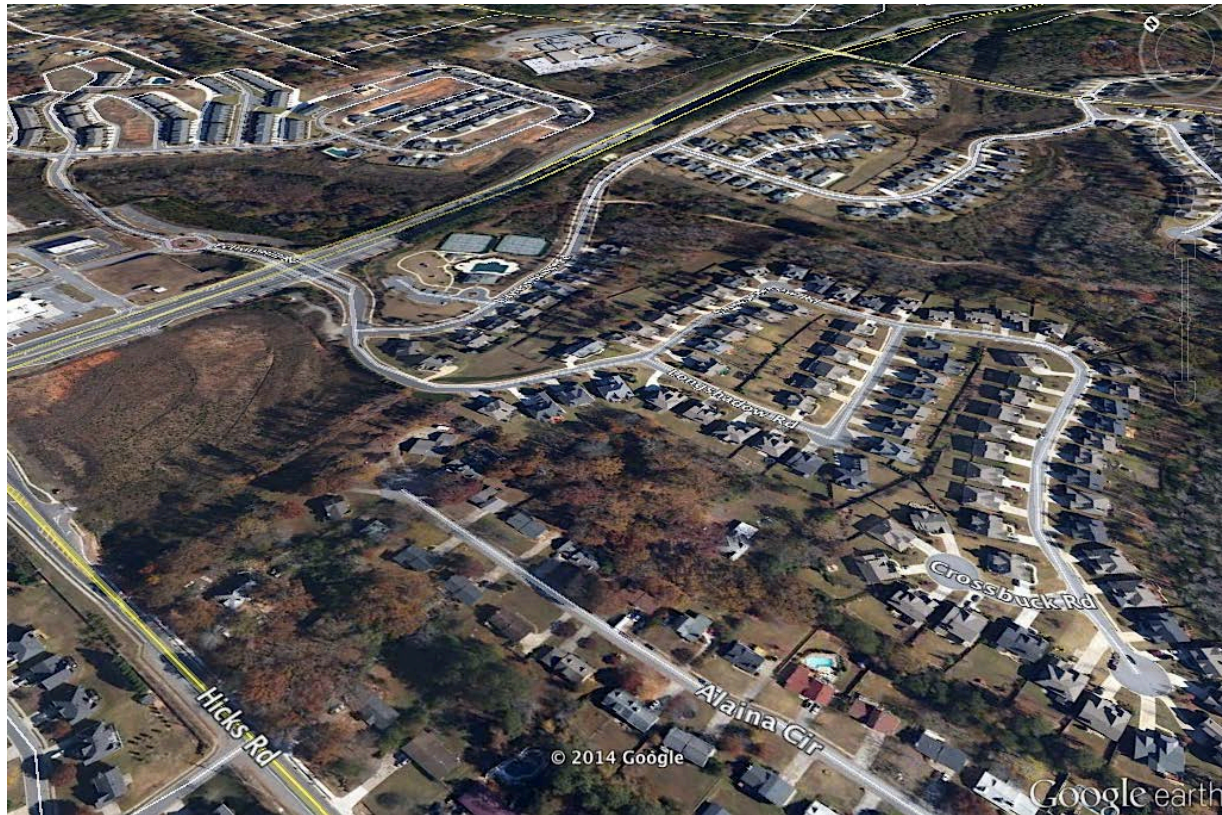


# Comparing land use system effects



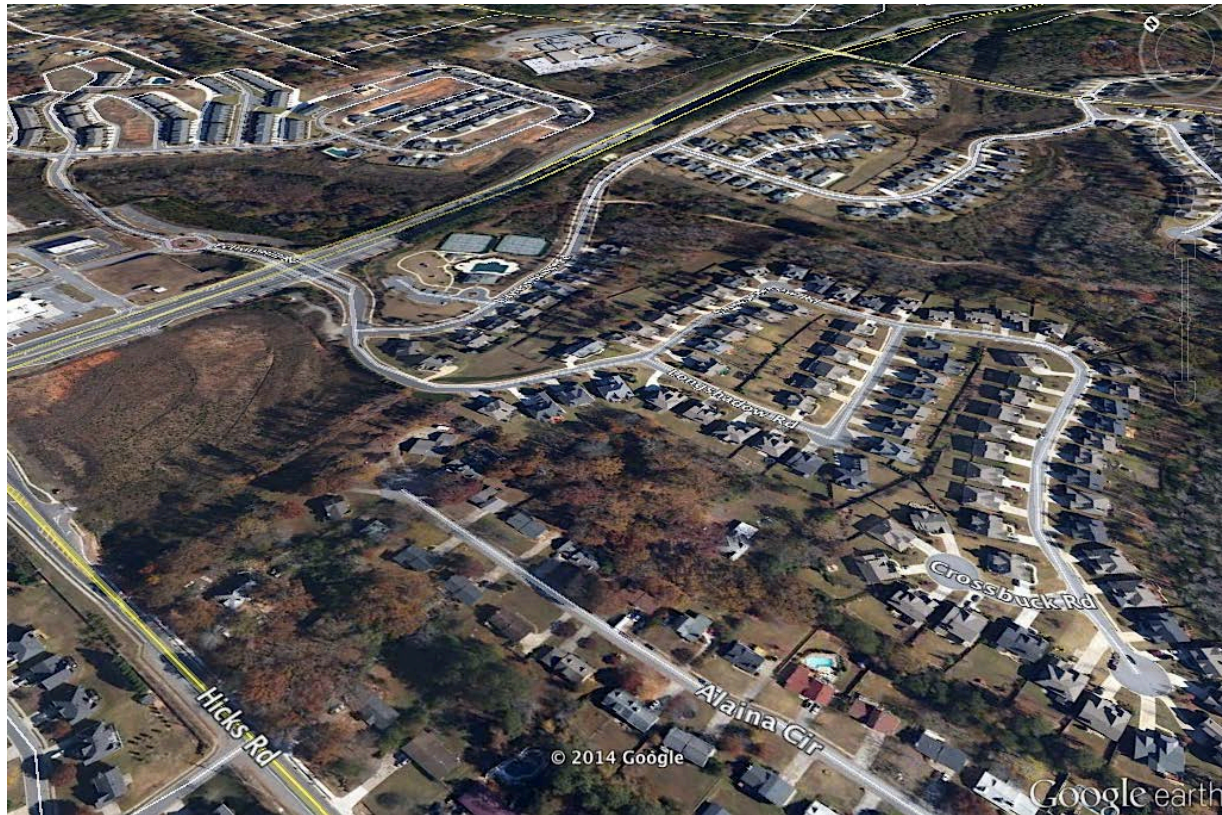


# Comparing land use system effects






# Comparing land use system effects







# If we want to attract people to low-carbon places, we must address the sociability challenges.



## Frequency of conversations with neighbours

People in high rises have fewer chats with their neighbours. And they are less likely to do small favours for their neighbours, like pick up their newspapers or mail when they are away.

**48%**

of people in single detached homes  
did a favour for a neighbour

**23%**

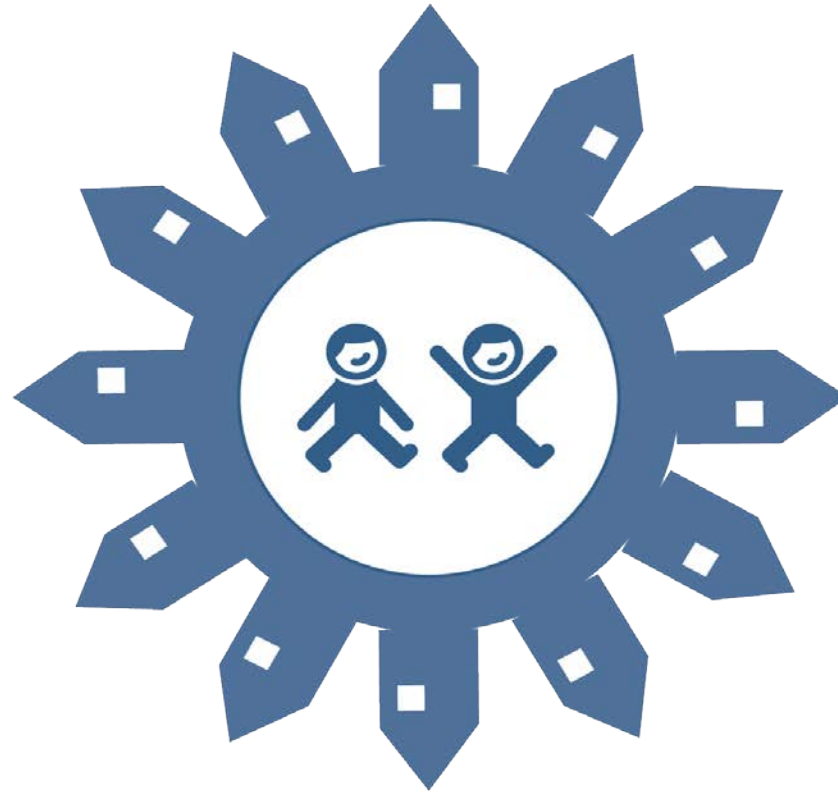
of people in high rises did a  
favour for a neighbour







Tweak the tower model: Create **sub-clusters** where a dozen or so households share a semi-private space.



“Missing” middle housing repopulates  
single-family neighbourhoods  
at a social scale.



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# Active edges nurture health, safety, and sociability



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Mixed use, blank edge



Mixed use, active edge





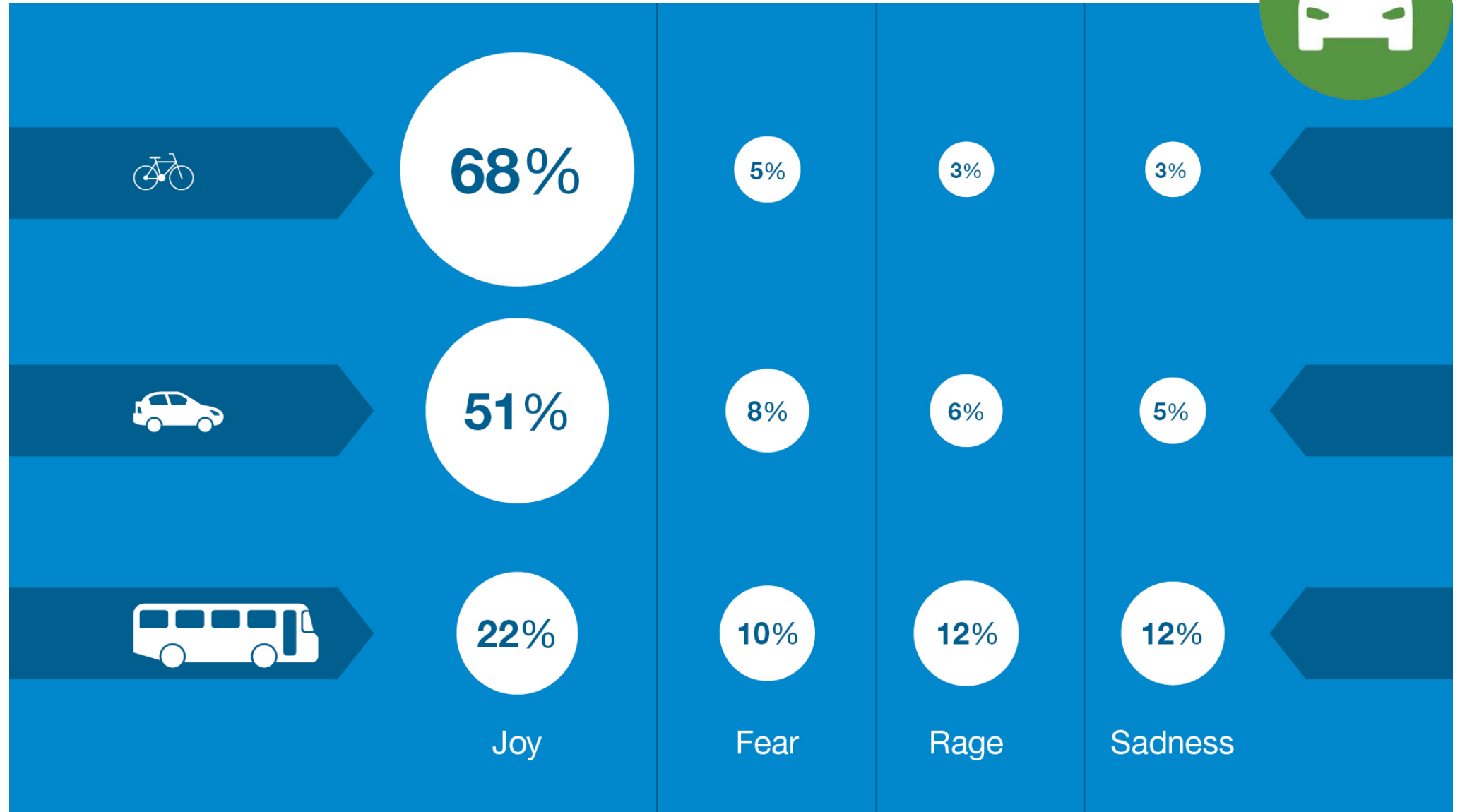
*Provide a wide range of housing types and tenure models for all income levels and stages of life. The longer people can stay in their community, the greater the bonds of trust and local social connection.*





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Contents lists available at [ScienceDirect](#)

## Preventive Medicine

journal homepage: [www.elsevier.com/locate/ypmed](http://www.elsevier.com/locate/ypmed)



# Does active commuting improve psychological wellbeing? Longitudinal evidence from eighteen waves of the British Household Panel Survey



Adam Martin <sup>a,b,\*</sup>, Yevgeniy Goryakin <sup>a,b</sup>, Marc Suhrcke <sup>a,b,c</sup>

<sup>a</sup> Health Economics Group, Norwich Medical School, University of East Anglia, Norwich, UK

<sup>b</sup> UKCRC Centre for Diet and Activity Research, Institute of Public Health, Cambridge, UK

<sup>c</sup> Centre for Health Economics, University of York, York, UK

**Longitudinal studies show that transit  
makes people happy. Seriously!**





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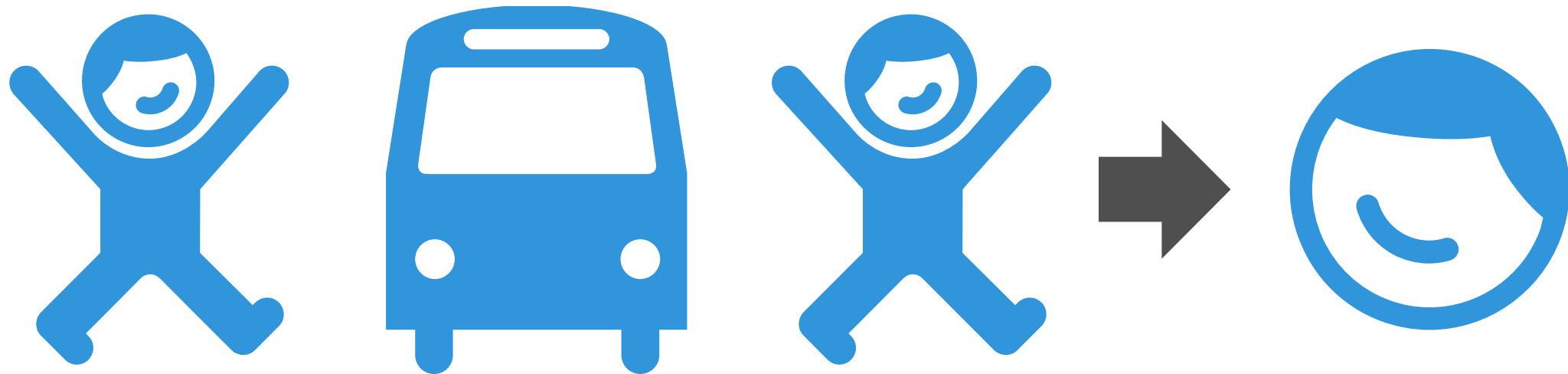
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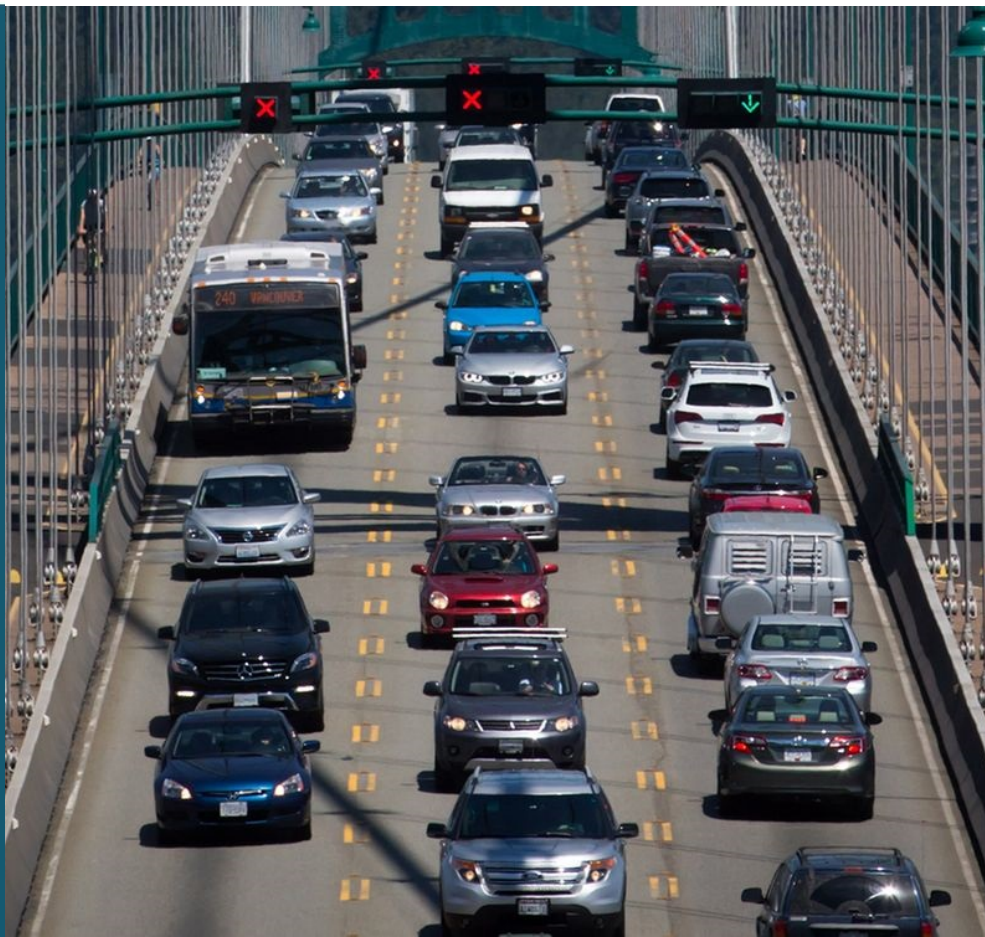




Equity and transit: Most efficient road users should never have to wait behind least efficient users.



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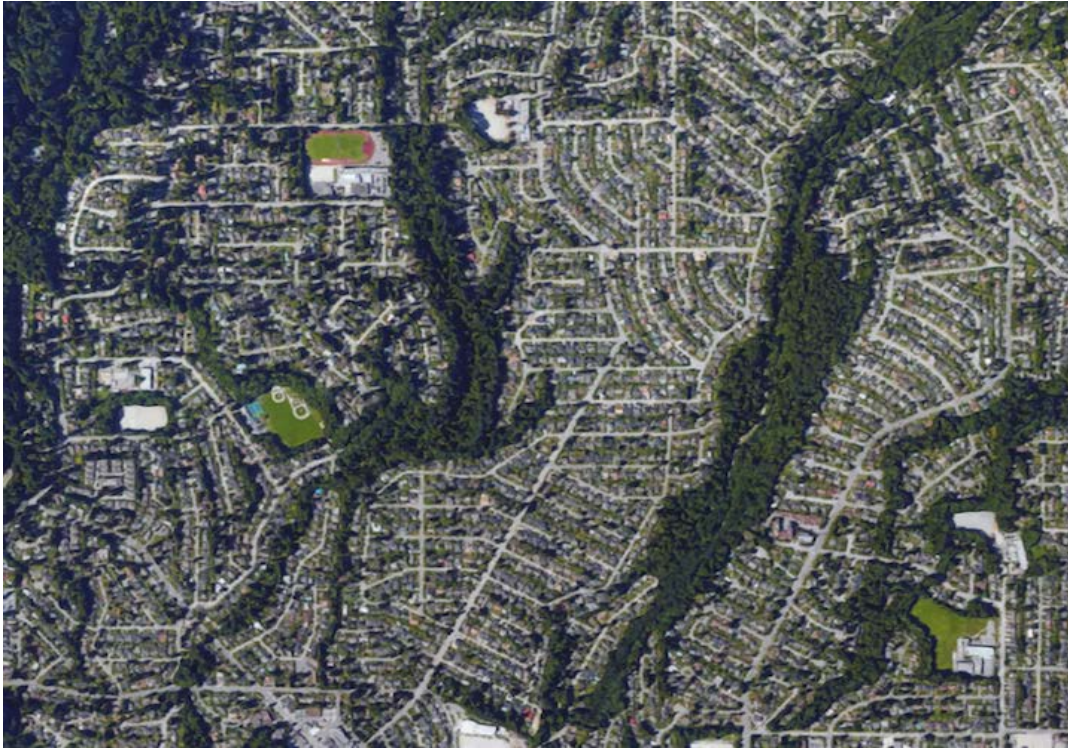
Newmarket ~ Davis Drive



# Nature at all scales = everyday wellbeing improvements



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Immersive forests



Micro-moments of green





*Action to reduce  
carbon emissions can  
also boost social  
wellbeing and  
community health.  
We can have it all!*







# Conclusion

