

Putting Energy and Emissions on the map: a hands-on introduction to integrated community energy mapping



FCM Sustainable Communities Conference
Victoria, BC
Wednesday February 9th, 2011



Agenda

- Welcome and introduction
- Speakers
 - Adrian Mohareb, City of Prince George
 - Councillor Brian McHattie, City of Hamilton
 - Duncan Cavens, UBC
- Community Energy Orienteering
 - Alex Boston, HB Lanarc
- For more information

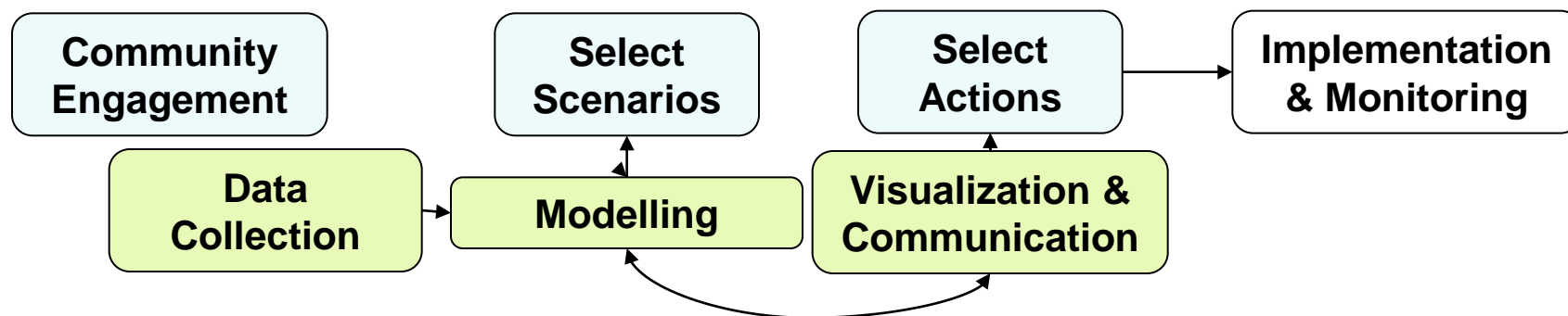


Integrated Community Energy Mapping

- **Data Integration**
 - Geographical Information Systems (GIS)
- **Modelling**
 - Scenario analysis at various scales in space and time
- **Visualization and Communication**
 - Outputs in numeric, graph and map form
- **Capacity Building**
 - Cross-cutting decision support for ICES

IT for IDP

- Spatial thinking
- Ranges from low to high tech
- Community engagement

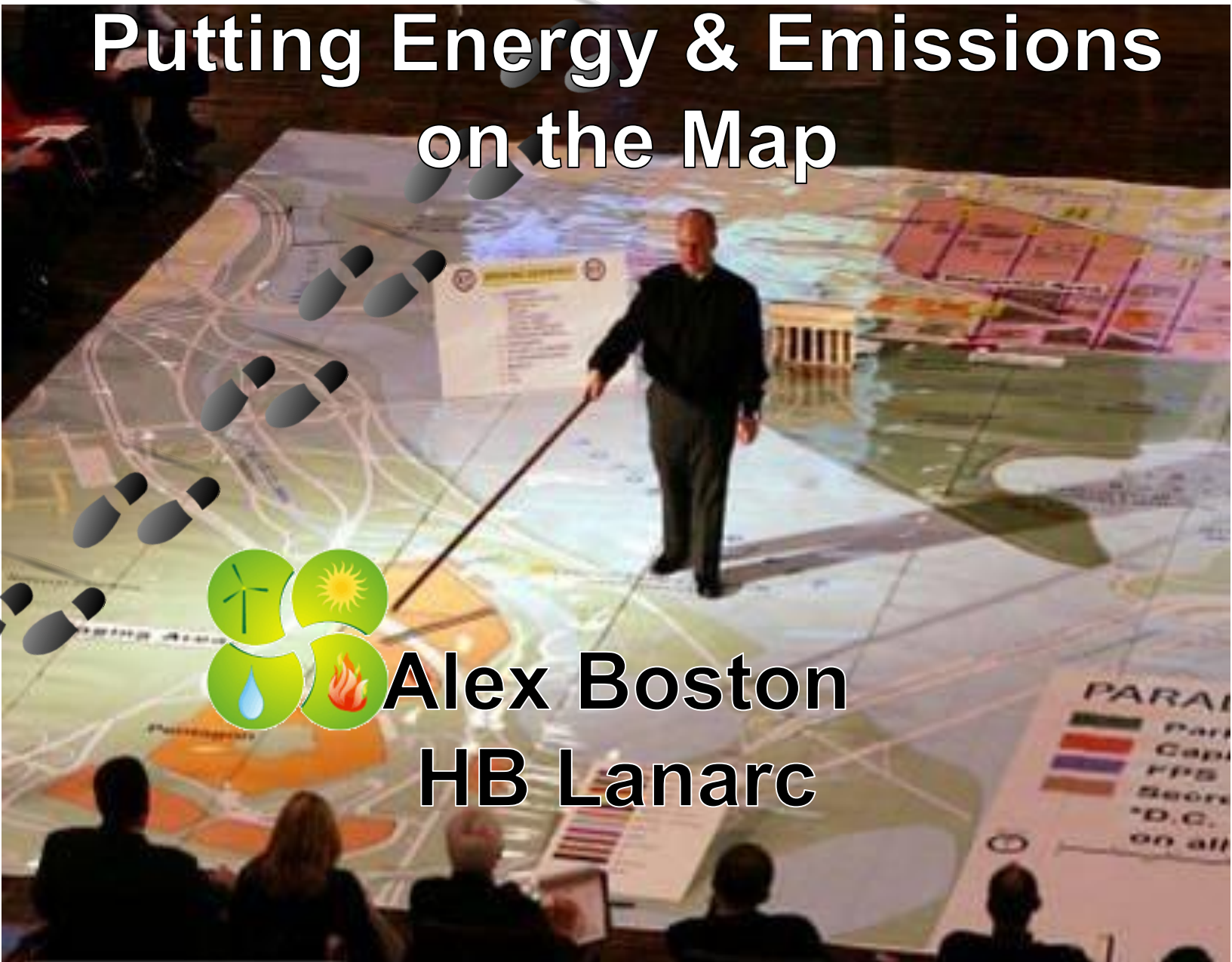




Speakers

- Adrian Mohareb, City of Prince George
- Councillor Brian McHattie, City of Hamilton
- Duncan Cavens, UBC

Putting Energy & Emissions on the Map



Alex Boston
HB Lanarc



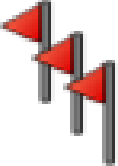


Destination

Enrich understanding of how mapping can be used to effectively manage community energy and emissions and support ongoing land use, transportation and infrastructure priorities.





Trip

| | | |
|---|---|-------|
|  | Start Intro | 10:20 |
|  | Orientation Procedures & Principles | 10:22 |
|  | Main Event Mapping in St Resilience | 10:30 |
|  | Ground Truthing “A” St Resilience Reality Check | 11:05 |
|  | Finish NRCan + Community E&E Mapping | 11:10 |



Orientation





Your Town

- Economy: Resource-based community in transition
- Growth: Residential & *some* commercial growth
- Mountains/Hills, Waterfront
- Energy & Emission Profile: *Unsustainable*
 - Single Passenger Auto Dependence
 - Growing Building Energy Demand

Your Role

- Stakeholder Advisory Committee Member

Your Task

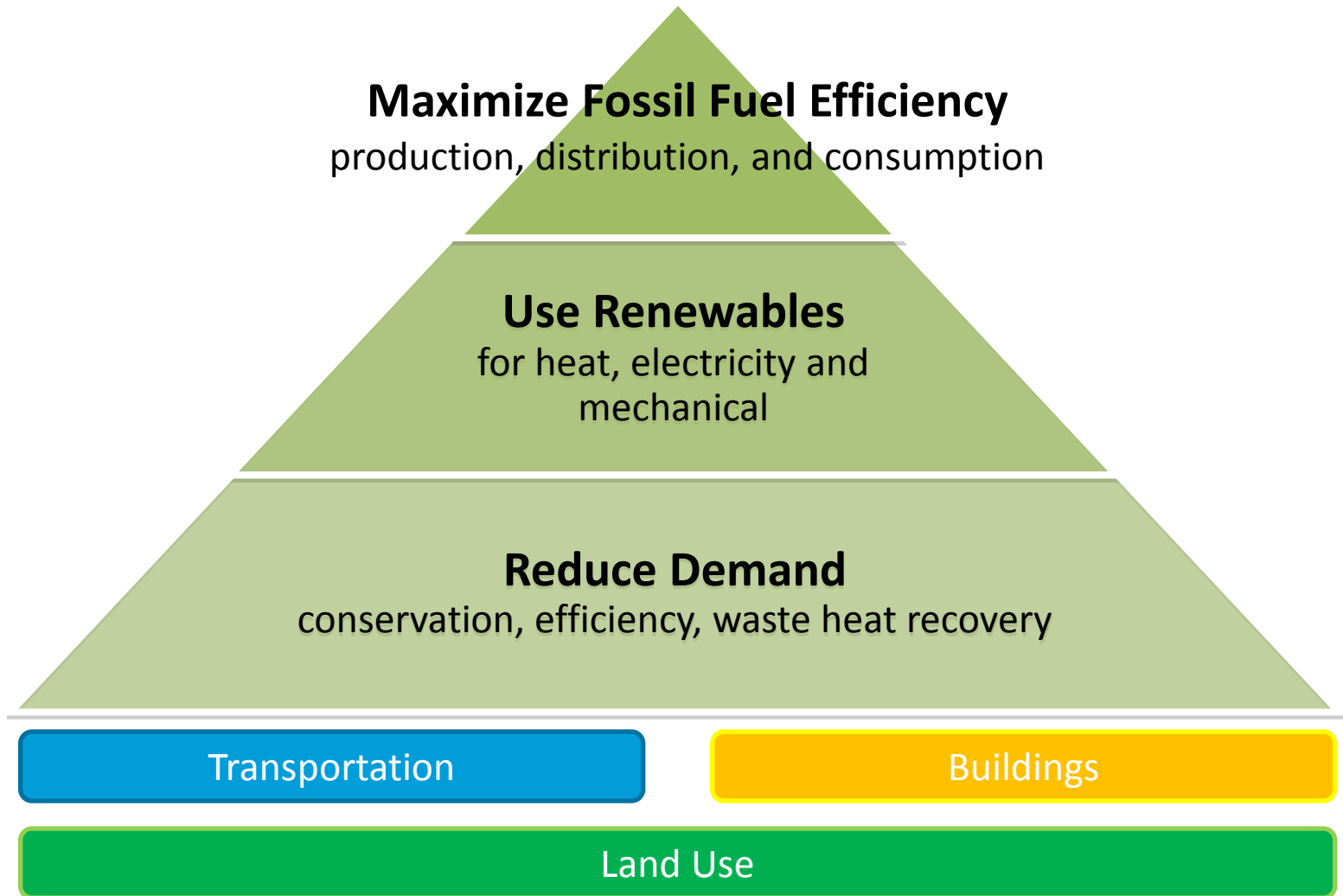
- High Level Opportunity Assessment

Resources

- Community Profile
- Large Map
- Stickers, Pens
- Knowledge & Creativity
- Expert – Carbon Coach

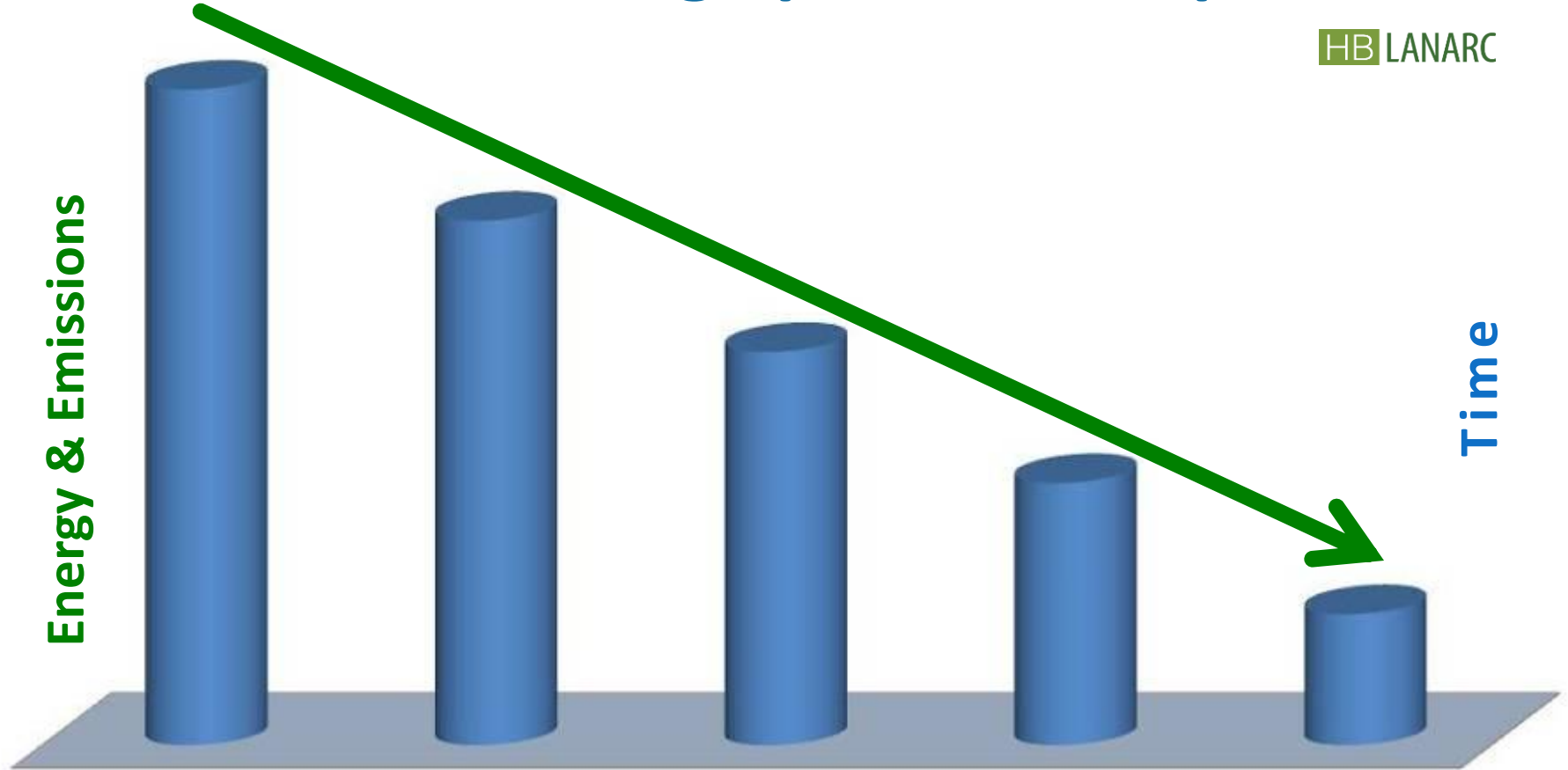


Sustainable Energy Hierarchy



E&E Planning Spatial Principles

HB LANARC



Region /
Community



Neighbourhood



Site



Building



Equipment



Sustainable Energy Land Use Synergies

Buildings & Energy Supply

Principle

Transportation

- Dist Energy: base load
- Buildings: smaller, shared walls

Density

- Transit: cost effective

- Dist Energy: balanced load

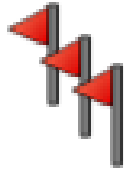
Diversity

- Walking & Transit: relevant, viable destinations

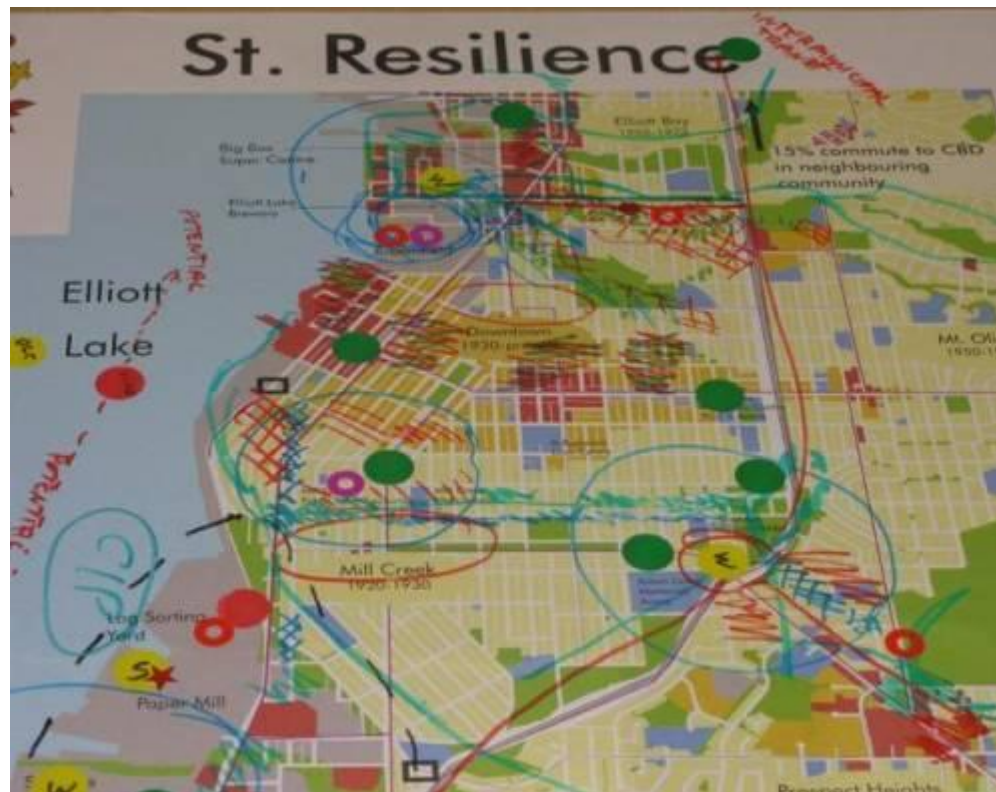
- Dist Energy: critical supply assessment, infrastructure integration, timely, cost effective

Design

- Walking & Transit: streetscape, infrastructure, amenity financing, public realm, cost effective



Main Event



Carbon Coaching Team



Brian McHattie City of Hamilton

Robyn Wark BC Hydro

Heather Donison City of Hamilton

Rob Kerr City of Guelph

Duncan Cavens UBC

Caroline Jackson City of North Vancouver

Paul Bouman BC Hydro

Ken Bennett District of North Vancouver

Kim Charlesworth City of Nelson

Adrian Mohareb City of Prince George

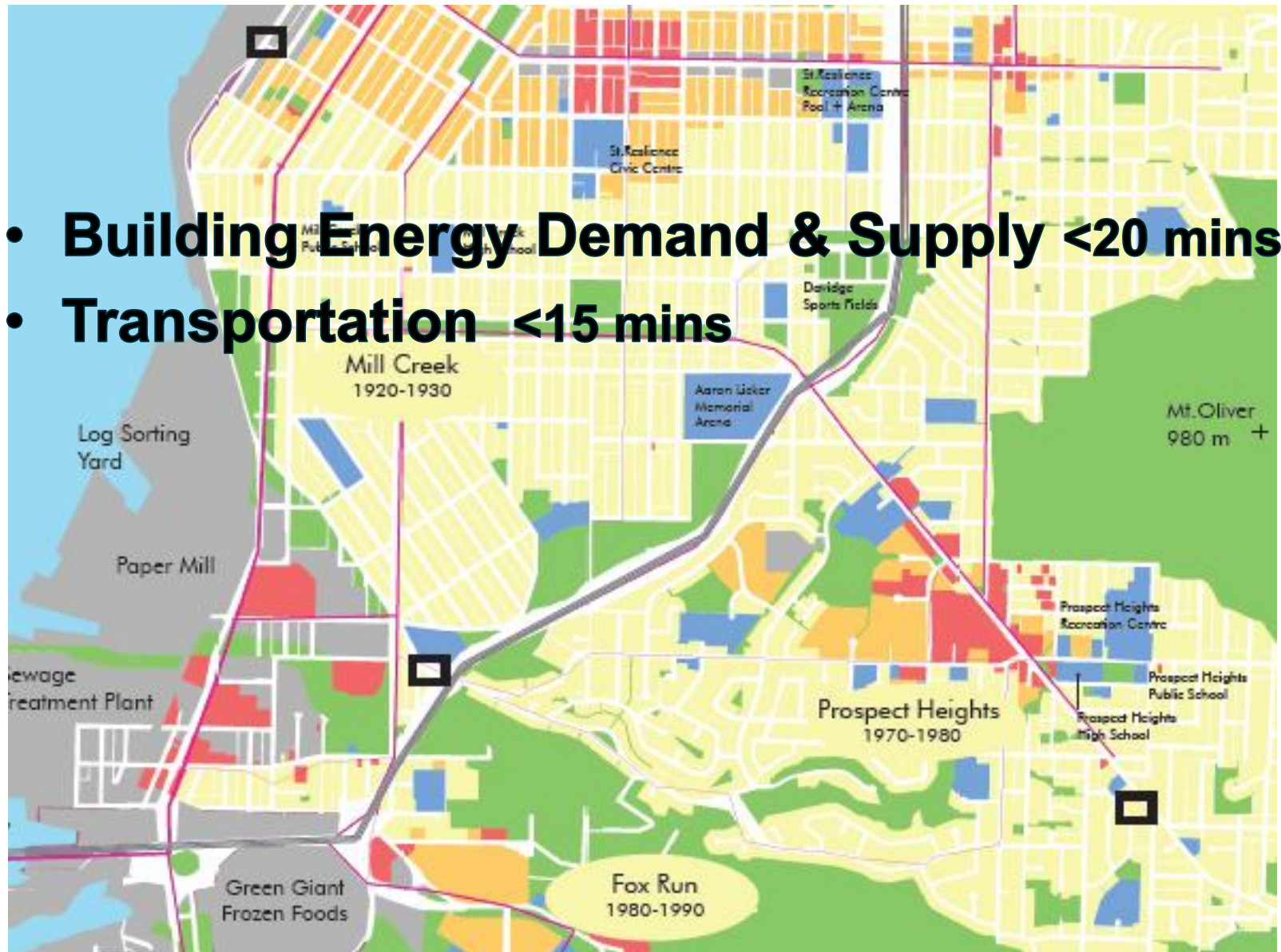
Amber Zirnheld Campbell River

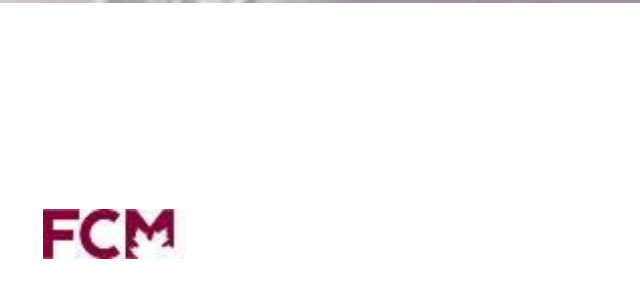
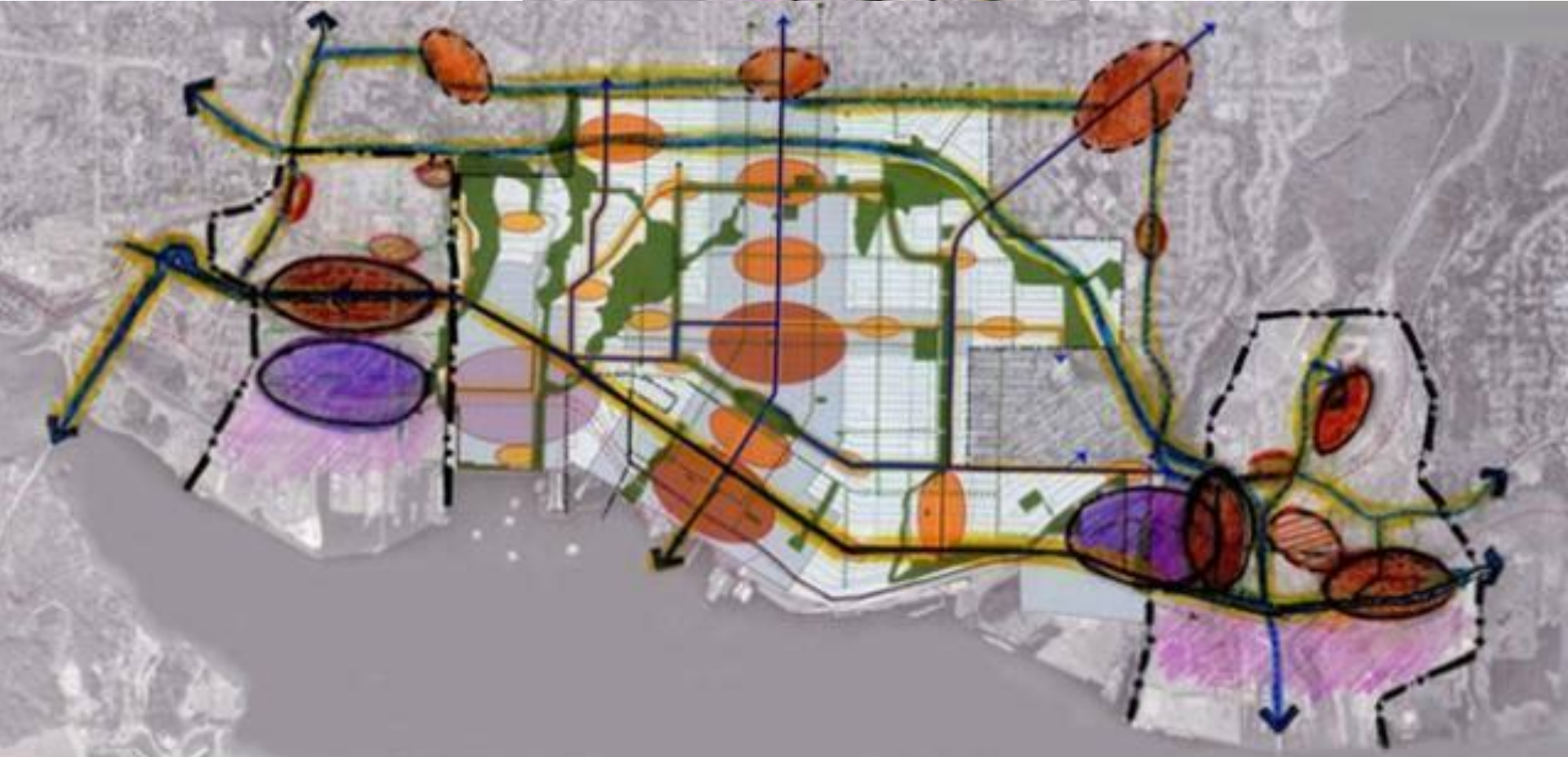
Renee Lazarowich NRCan

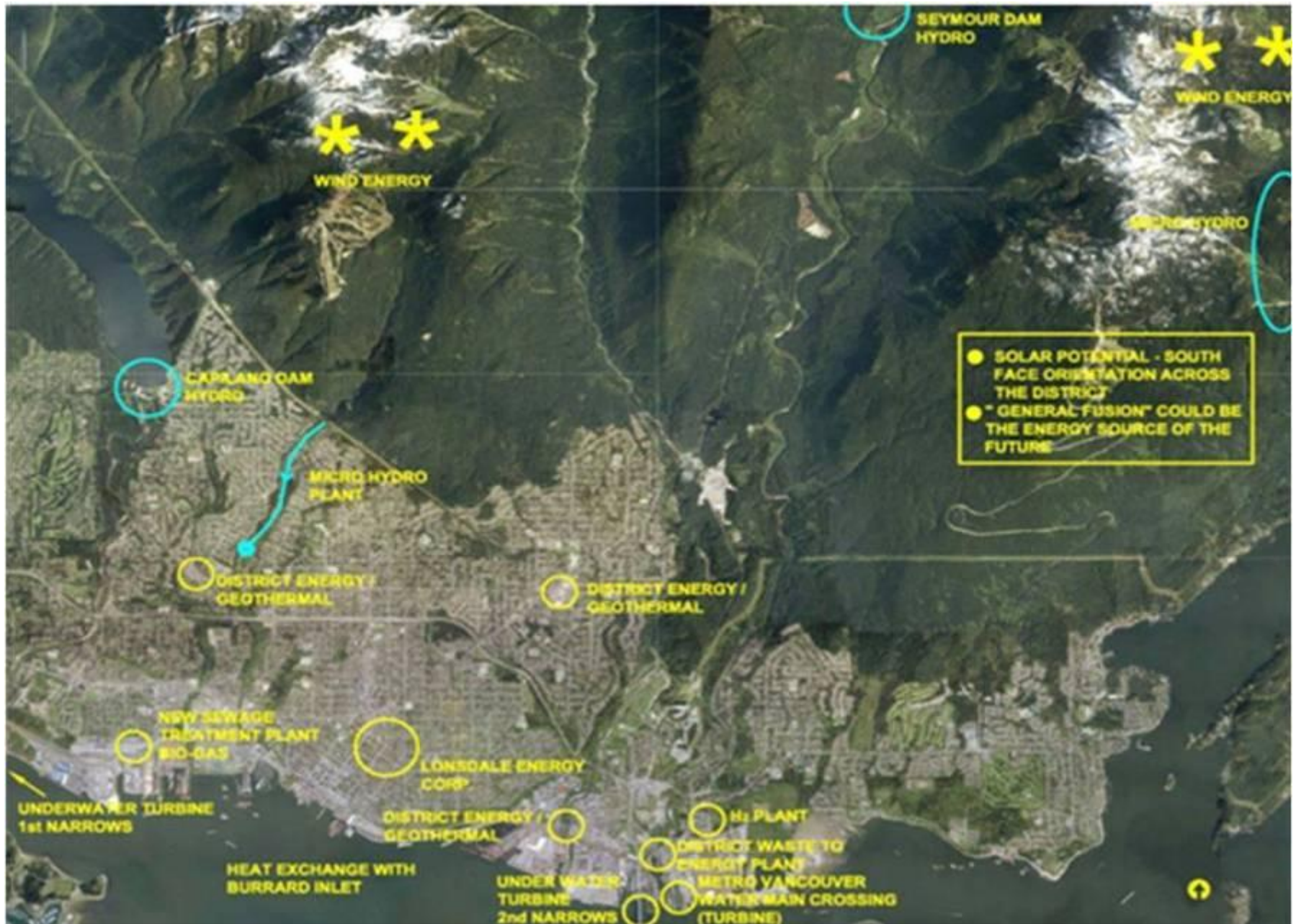
Allison Ashcroft City of Victoria

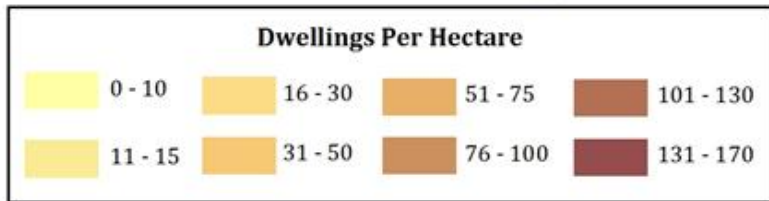
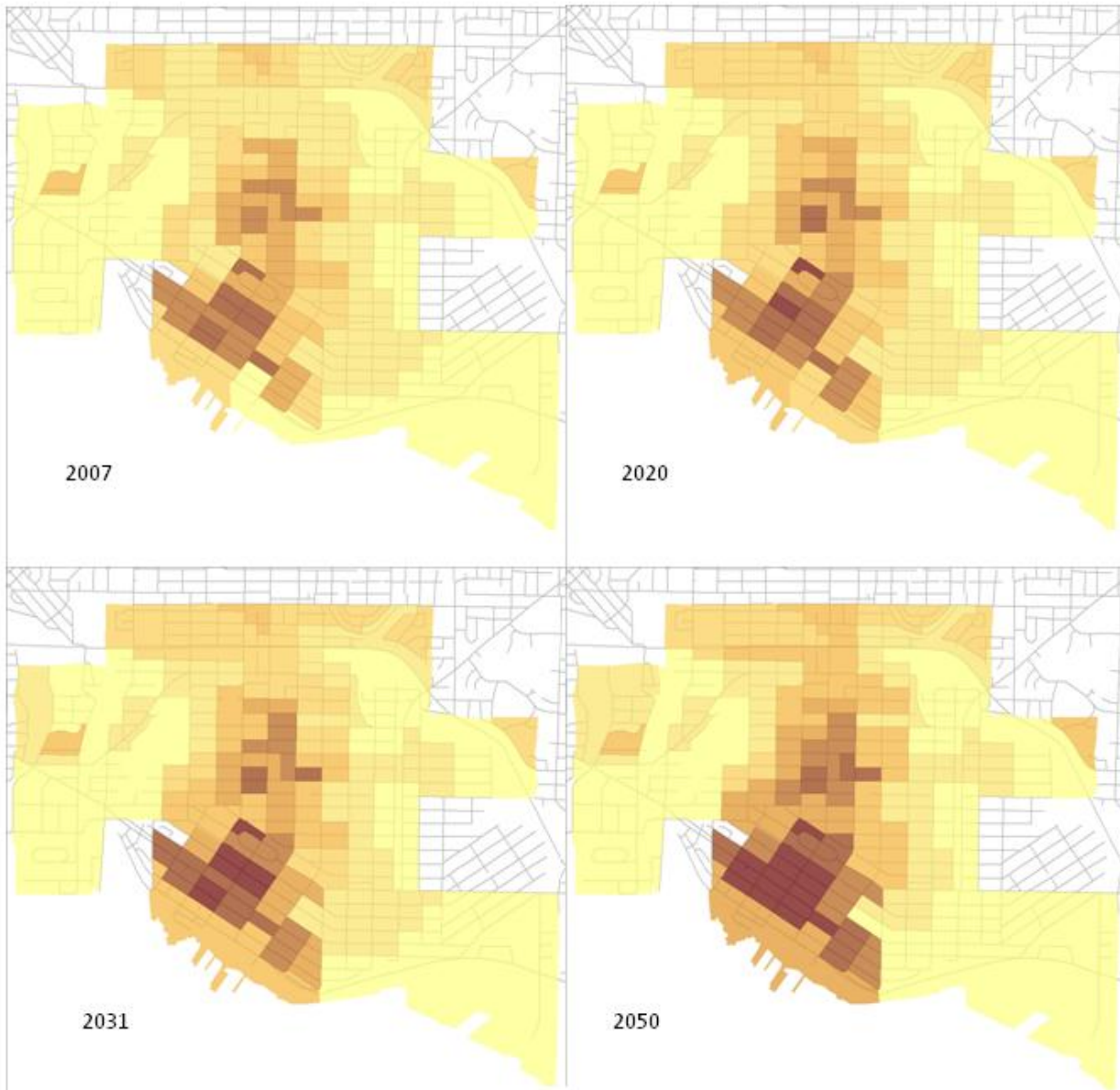
Mapping St Resilience

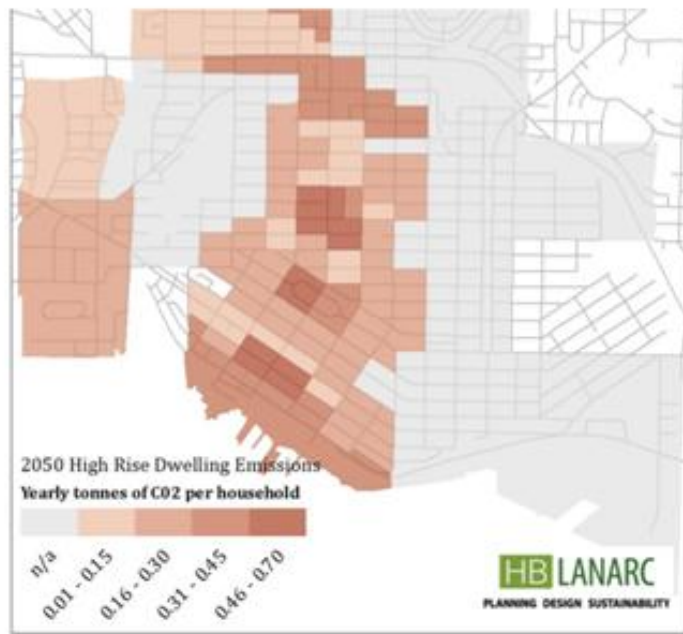
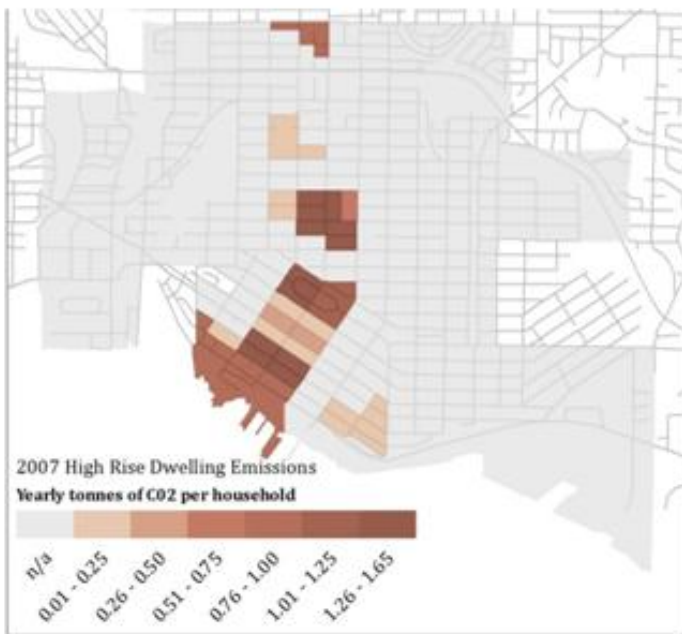
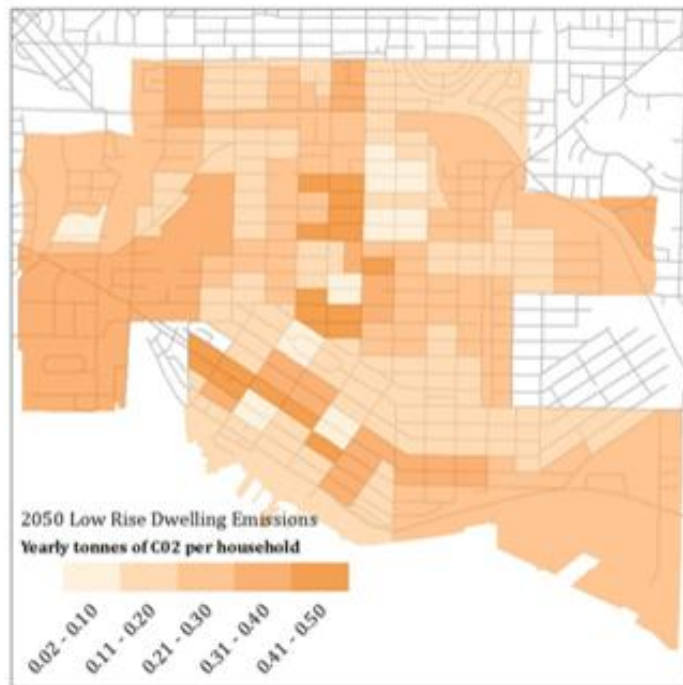
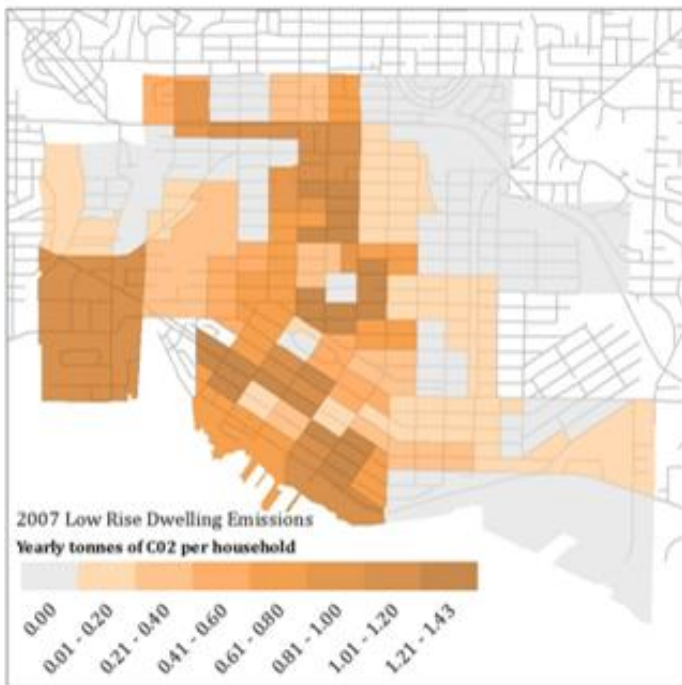
- **Building Energy Demand & Supply <20 mins**
- **Transportation <15 mins**

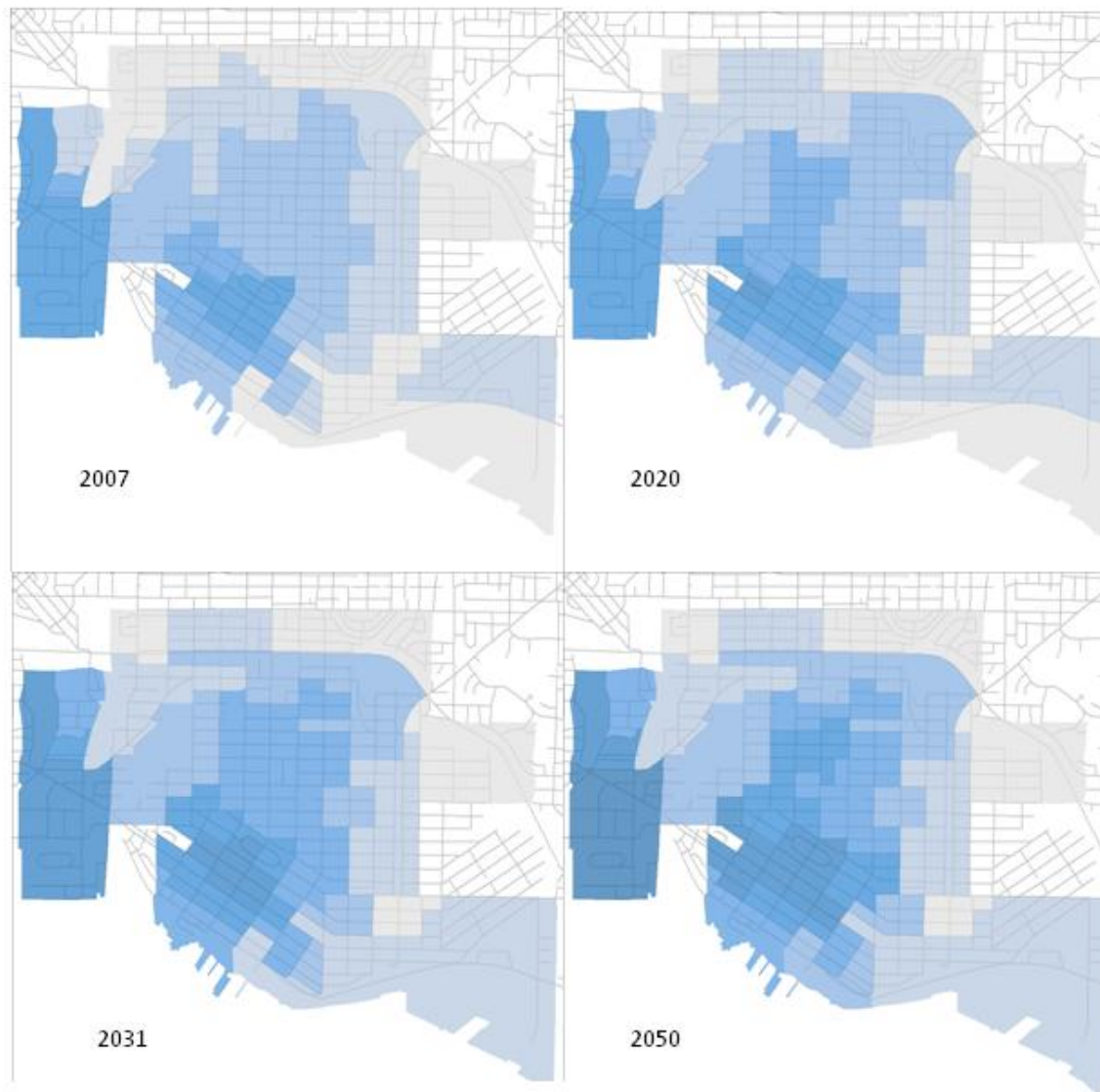












2007

2020

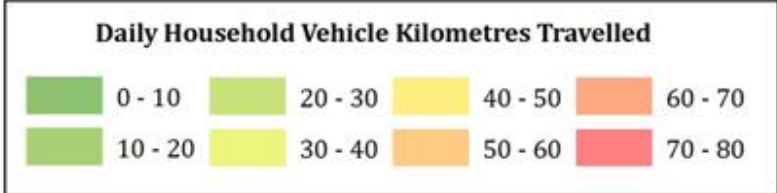
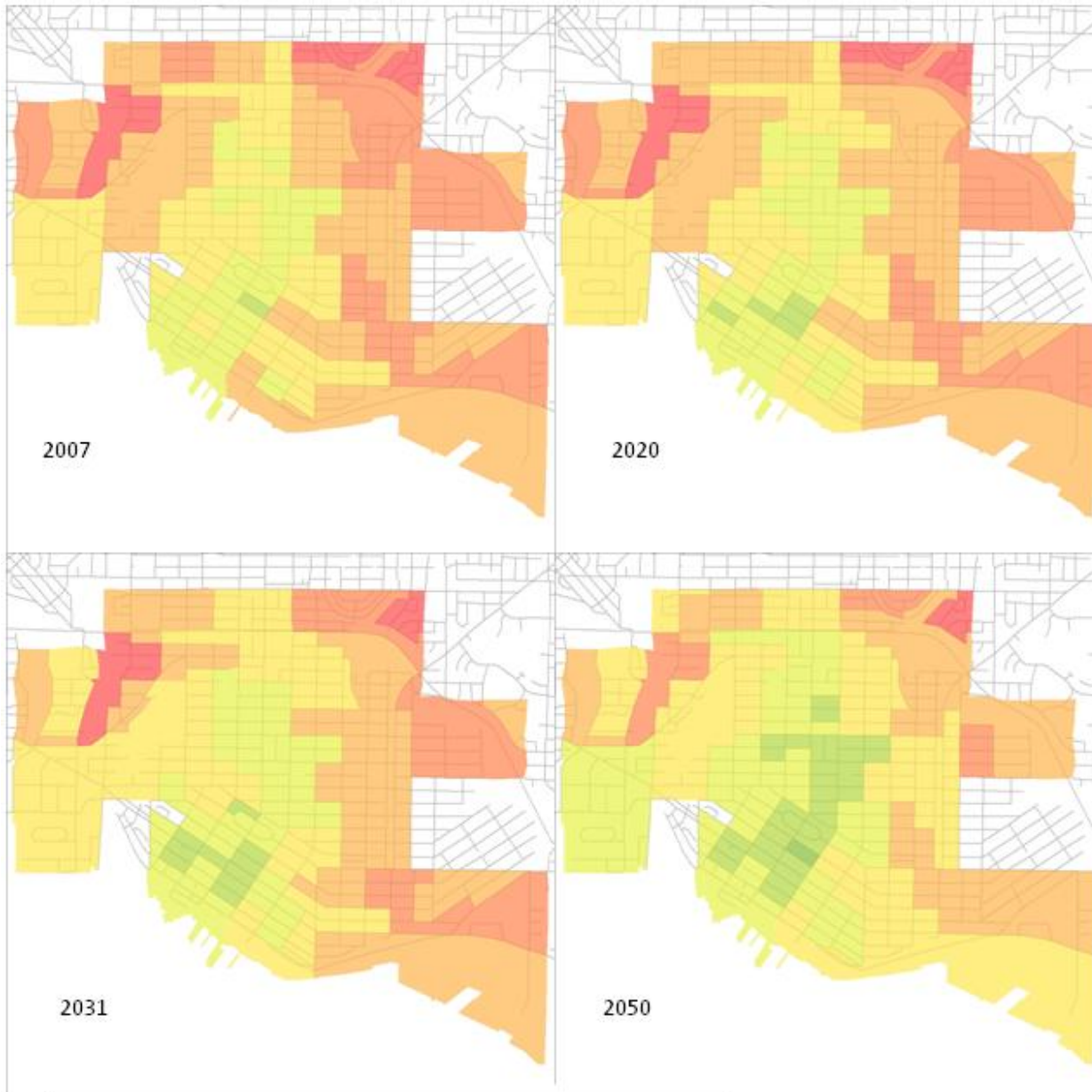
2031

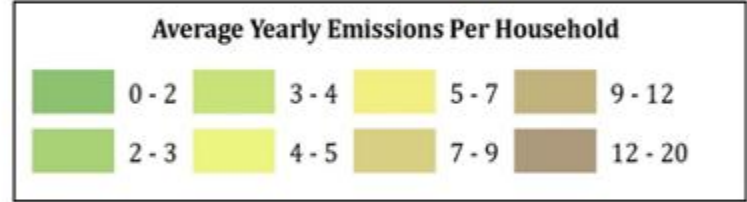
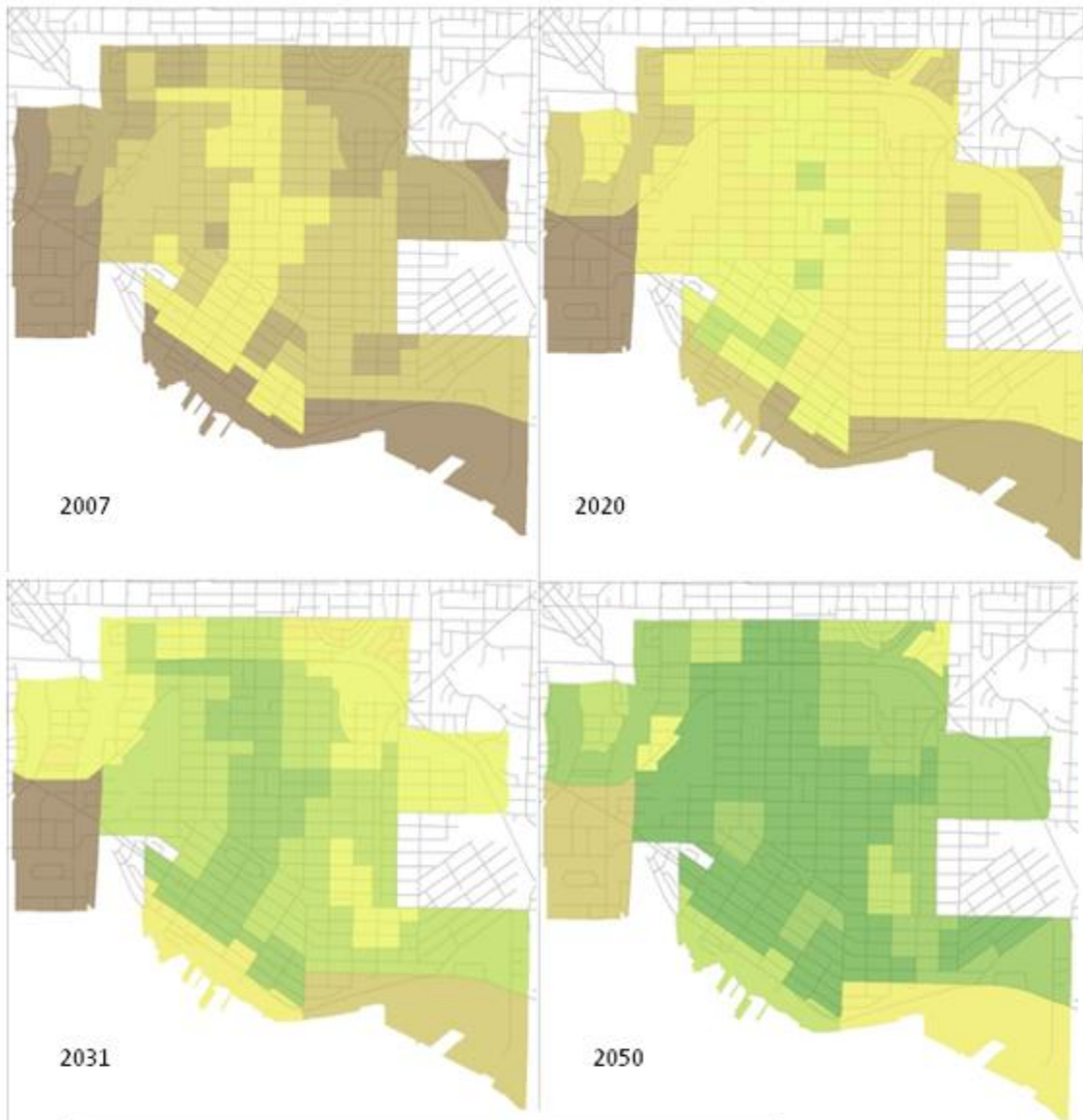
2050

Number of Jobs Within One Kilometre

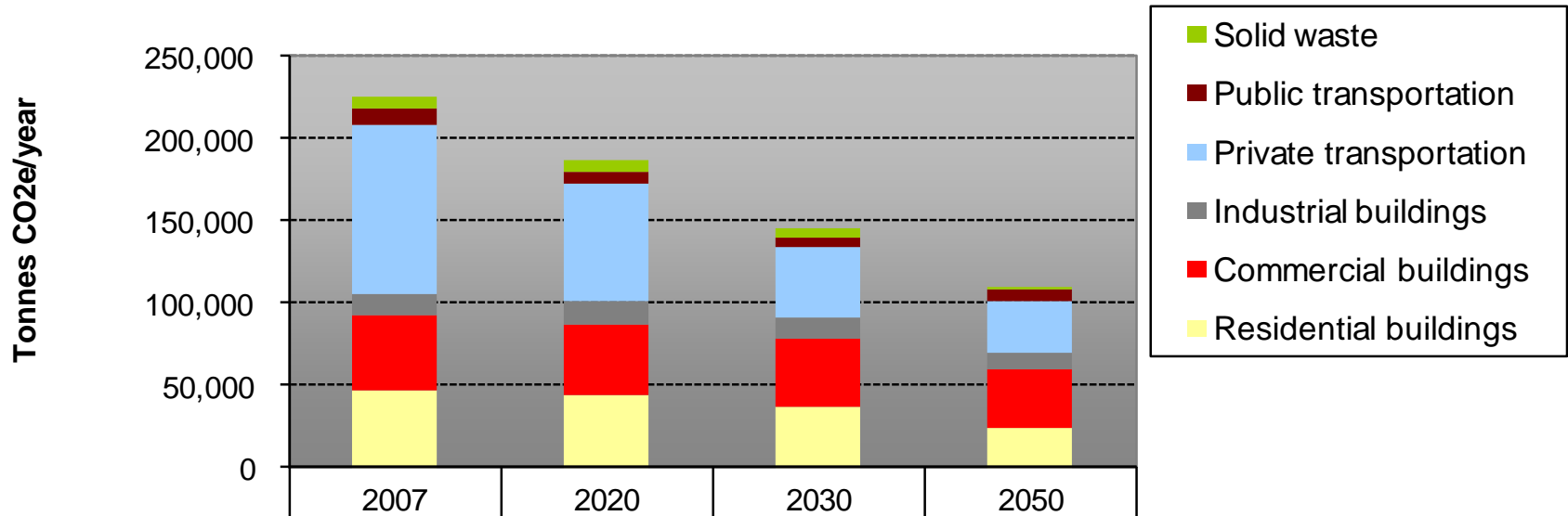








City of North Vancouver Low Carbon Path: GHGs By Sector



| | 2007 | 2020 | 2030 | 2050 |
|--------------------------|---------|--------|--------|--------|
| ■ Solid waste | 7,597 | 7,360 | 4,877 | 2,203 |
| ■ Public transportation | 9,096 | 7,998 | 6,044 | 6,412 |
| ■ Private transportation | 102,624 | 71,632 | 43,600 | 31,413 |
| ■ Industrial buildings | 13,237 | 13,248 | 12,573 | 10,640 |
| ■ Commercial buildings | 45,790 | 44,081 | 41,419 | 35,257 |
| ■ Residential buildings | 47,083 | 43,332 | 36,668 | 24,009 |

Total GHG reduction

-17%

-51%

Per capita reduction

-27%

-68%

Sustainable Communities Conference and Trade Show



Conférence et salon professionnel sur les collectivités durables



Natural Resources
Canada

Ressources naturelles
Canada

Canada



For more information:

www.canmetenergy.nrcan.gc.ca





Integrated Community Energy Modelling: technical barriers and knowledge gaps

- Clean Energy Fund Project # D11018

Activities:

1. Data Issues and Promising Practices Paper (BC, AB, ON)
 2. Ontario Utility Data Working Group (ON)
 3. 'Mapping the CEEI at the Neighbourhood level' (BC)
 4. Visualizing Energy Efficiency in the Smart Grid (NB, NS)
 5. Review of Tools to Model Community Energy and Emissions (Canadian, International)
- **Post- March 2012: ICEM Best Practices Guide**



Finish

Questions? Comments?

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