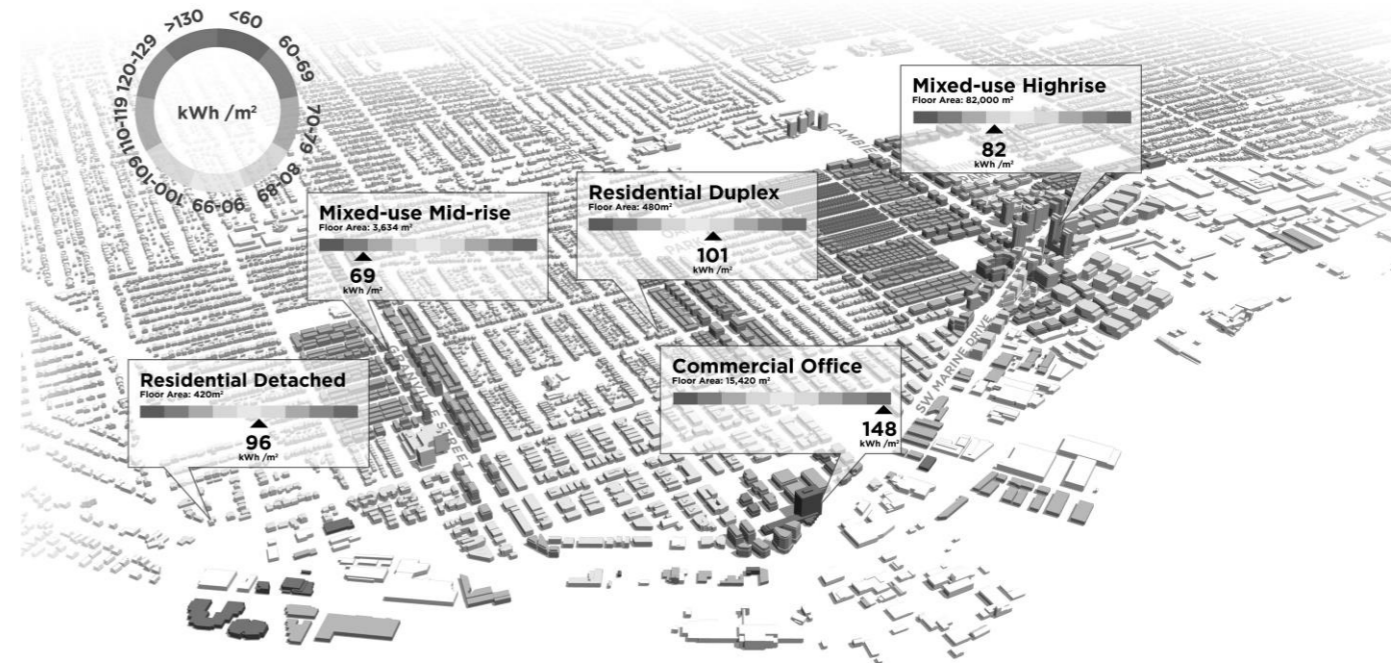


A MARPOLE BUILDING MAPPING EXAMPLE

ENERGY USE

The energy map example showcases the potential of having a robust building energy demand dataset. In particular, a spatial map of building energy use can facilitate 1) targeted energy retrofit programs, 2) district energy feasibility studies, and 3) energy benchmarking for future compliance programs. 3D visualization can also provide a way of presenting complex energy information in a compelling and transparent way to aid in non-expert engagement. Furthermore, a robust, spatial-based 3D energy model would aid in tracking existing projects and evaluating future energy scenarios within the city (e.g. building retrofits, building code compliance, district energy hookup).

LEGEND (ANNUAL SPACE HEATING + HOT WATER ENERGY USE)



Tools for Engaging Youth in Urban Design + Emissions Reductions

Cynthia Girling
for the elementsLab

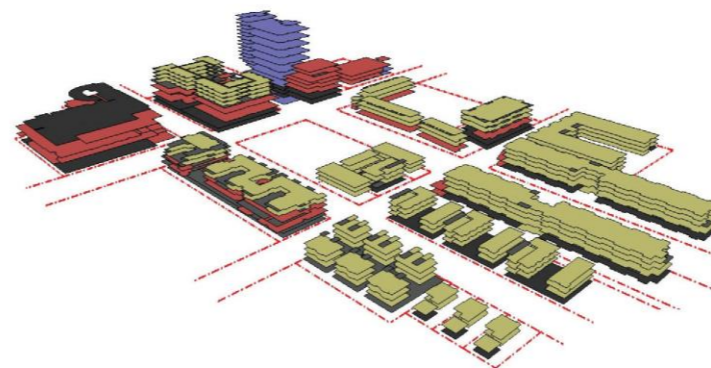
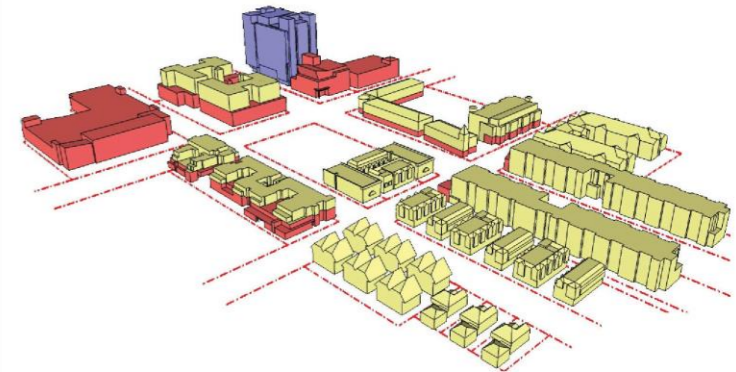
***Elevate—
awareness and knowledge of
urban design + climate change***

compactness
diversity
energy efficiency
access to amenities
walkability
+ emissions ...

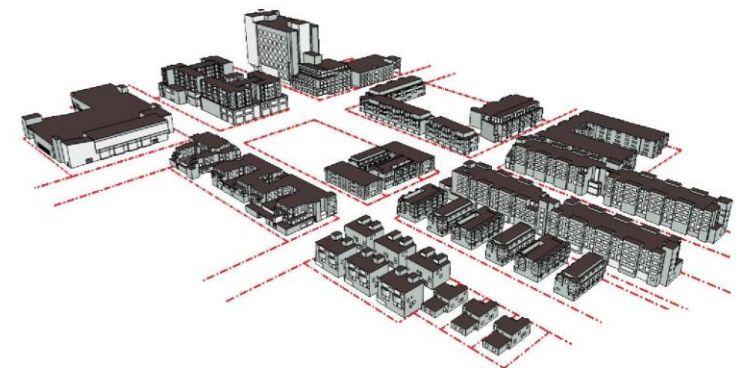
83% impervious surface
30% tree canopy
Cover



24% residential
22% mixed use
13% commercial
2% civic
8% open space
31% streets
Land Use



Capacity
97,000 m² residential floor area
54,000 m² employment floor area
~ 800 population / ~ 2100 jobs



Envelope
39% insulated roof
36% insulated wall
25% glazed openings

Tools for engagement



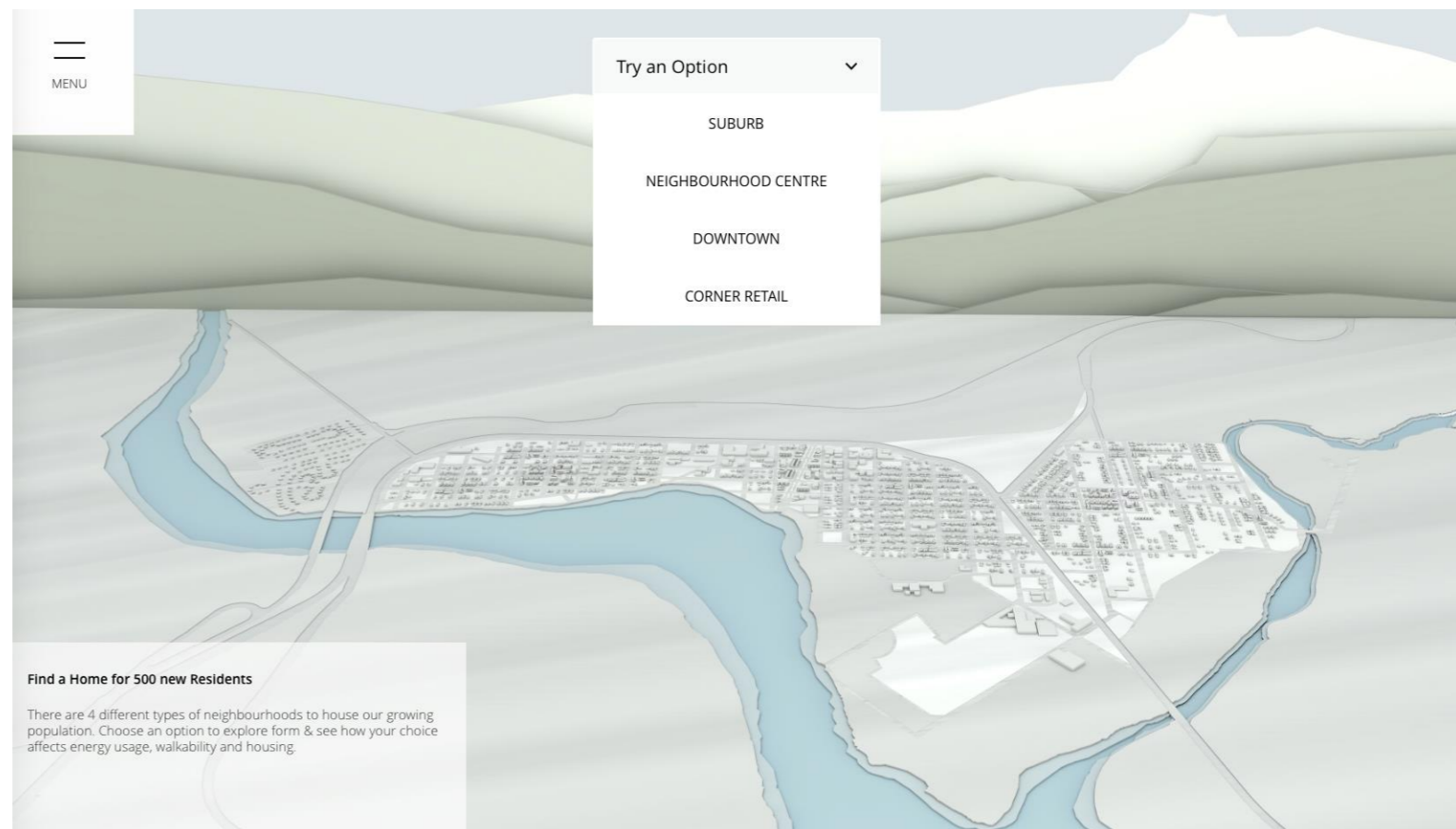
UD Co-spaces

A collaborative urban design tool



Climate & Community:

an on-line interactive planning simulation



UD Co-spaces



3D view

Touch table



iPad metrics





Cities as if energy mattered



THE UNIVERSITY OF BRITISH COLUMBIA
School of Architecture + Landscape Architecture



What if...
you could design the
redevelopment of
Lansdowne Mall
...as if energy
mattered?

ENERGY is an 'urban design' issue
URBAN DESIGN is an 'energy' issue

↑ ~ 50 % of global population

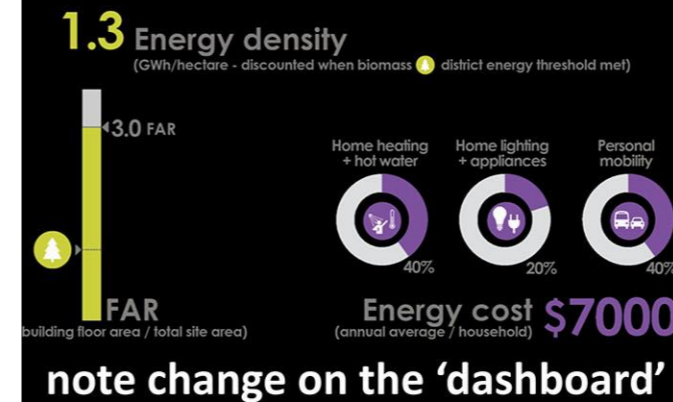
↑ ~ 75 % of energy use

↑ ~ 80 % of carbon emissions
CO₂

are all attributable to cities
and increasing daily

SOURCE: Grimm et al.,
Global change and the ecology of cities

each group adds buildings to blocks 1, 2 and 3



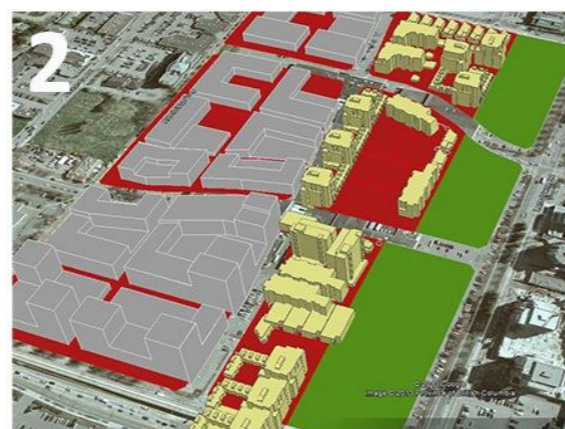
townhouses

mid- high rises



Which block is the best?
Is the density about right?
Is there enough density at the
Skytrain station?
Is the land use mix right?
Is there enough shopping?
Are the buildings by the park right?
Is the energy efficiency OK?
Would you live here?





MyRevelstoke2030

Imagine the future of two
neighbourhood centres under
the Unified Development
Bylaw

Testing cutting edge design visualization technology
developed at UBC for use in Revelstoke

Photo: Jana Hanova

Are you interested in attending two
2-hour meetings, one at the beginning of
June and one in September, to visualize
different possible futures for Revelstoke
neighbourhoods?

To indicate your interest
please use your smart
phone with this code to
take you to the website
and provide your contact
information or visit



<http://blogs.ubc.ca/magedsenbel/my-revelstoke-2030>

This work is part of a research study entitled Measured visualization of
urban form scenarios as a means to community engagement in planning.
For information please contact Maged Senbel at the University of British
Columbia (maged.senbel@ubc.ca)

THE UNIVERSITY OF BRITISH COLUMBIA

School of Architecture + Landscape Architecture



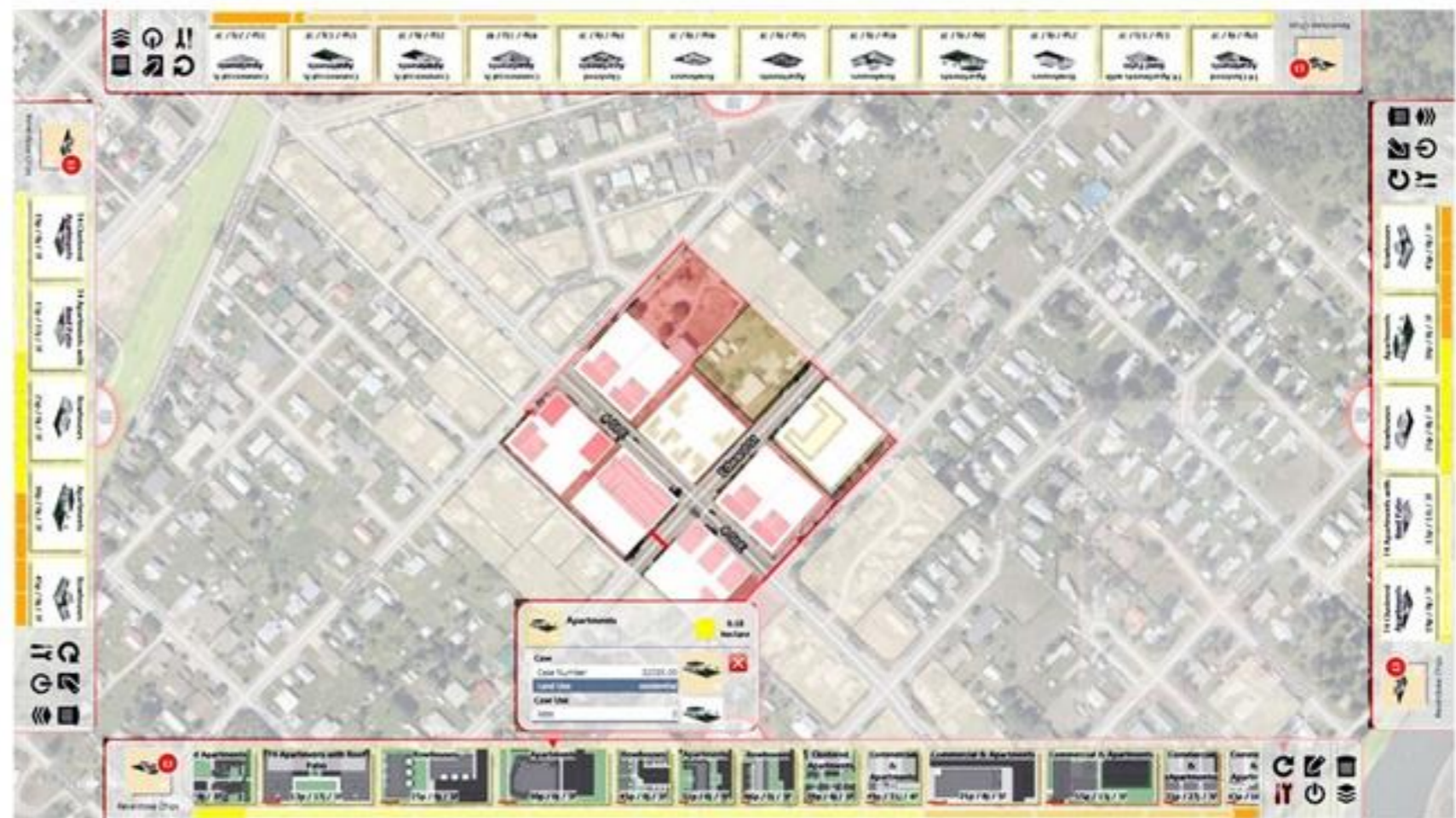
Task: 'Design' the neighbourhood centre you would like to see.....

myRevelstoke 2030
Visualize the Future of Two Neighbourhood Centres



Solutions: June workshop

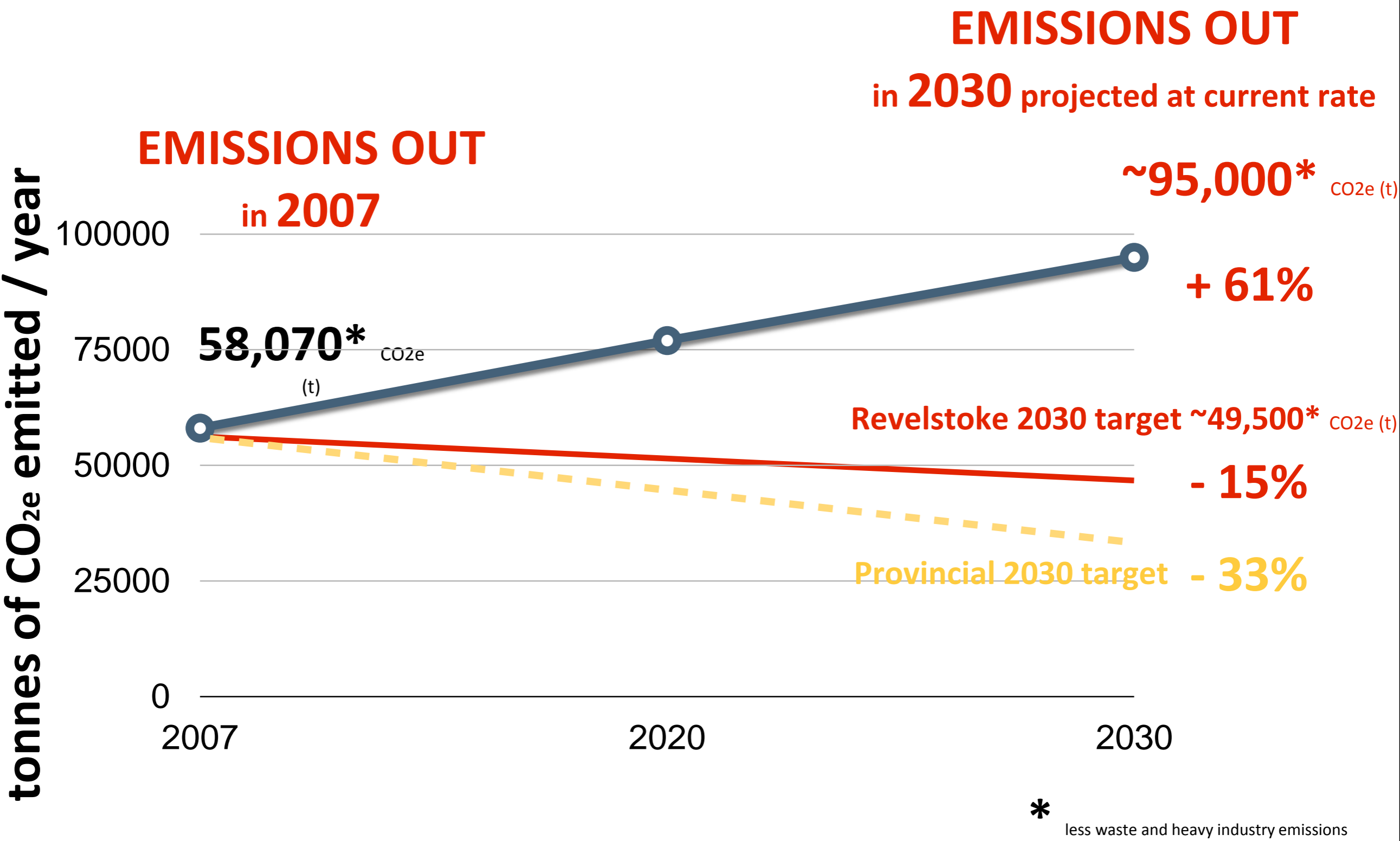
Group 4



Revelstoke:

Projected energy and emissions miss local targets by ~75%

(BC CEEI report, 2010)



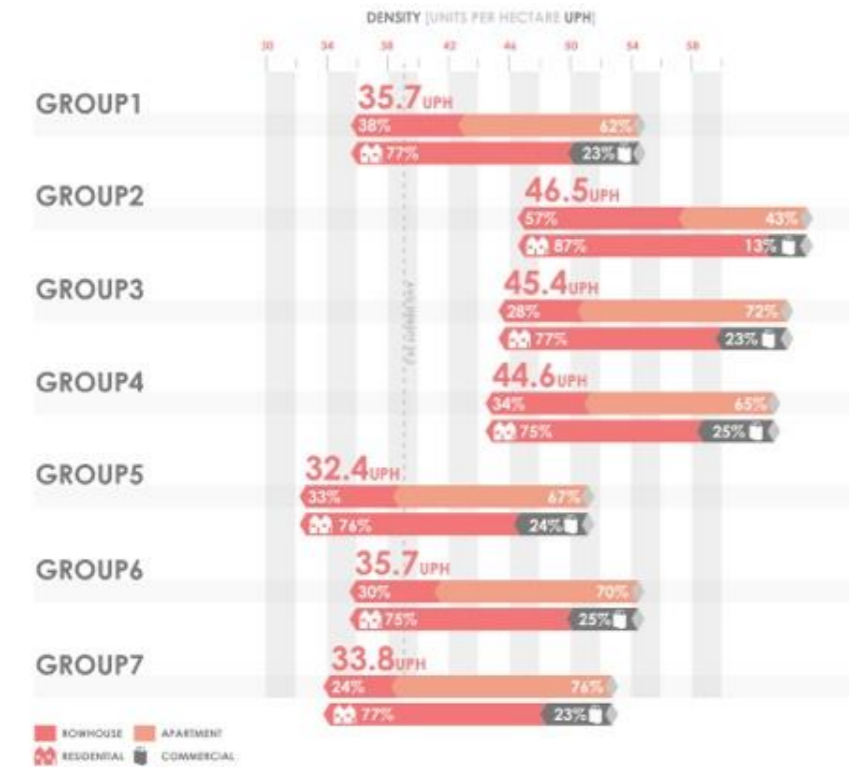
2nd workshop...reconvened 27 participants

EDWARD ST and 4TH ST EAST

Data gathered from the urban design exercises has been translated into charts which illustrate the differences in the group work outcomes.

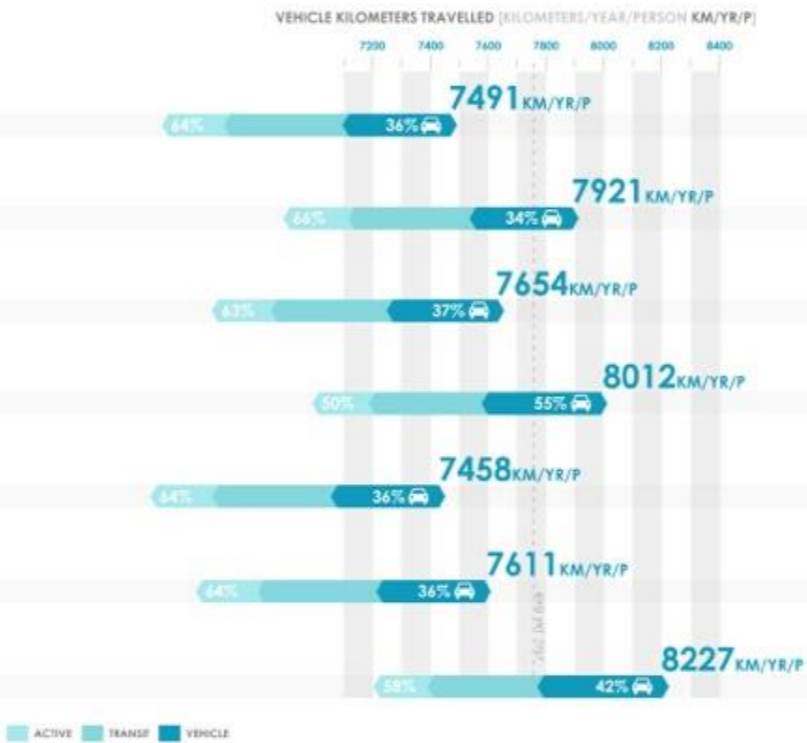
1 LAND USE and DENSITY

The building density data illustrated below shows the number of dwellings and dwelling type (rowhouse and apartment) for each group's scenario. The bars are arranged according to the density (dwelling units per hectare) as shown by the bolded numbers. A secondary bar is also illustrated for each group which shows the percentage of landuse (residential or commercial) for each group's scenario.



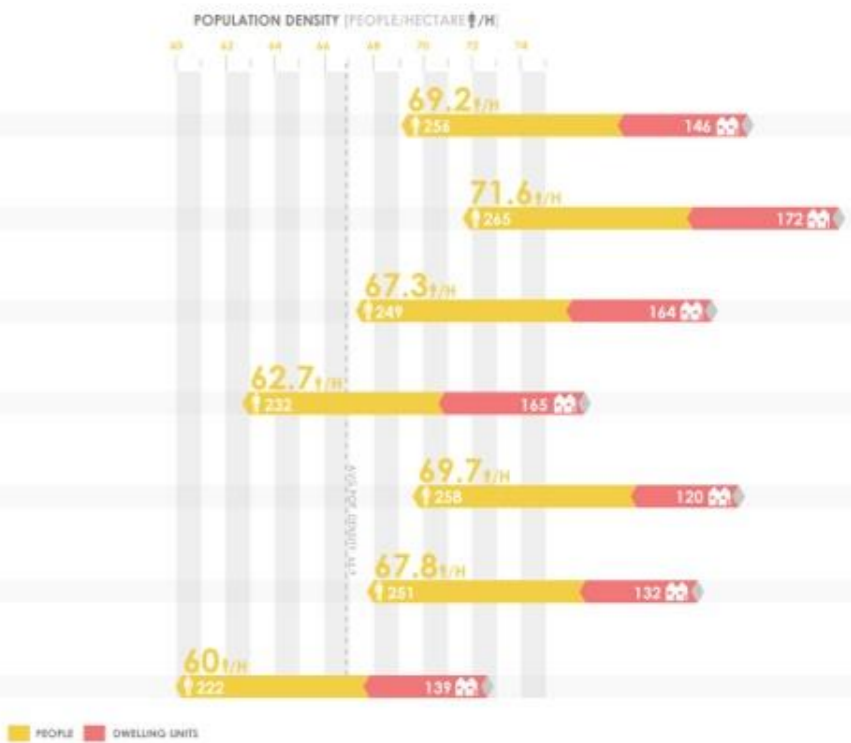
2 TRAVEL

The travel data illustrated below shows the number of kilometers travelled by private transportation per person and the breakdown of travel mode (biking and walking, transit and vehicle). The bars are arranged according to yearly travel distance (vehicle kilometers traveled per year per person) as shown by the bolded numbers.



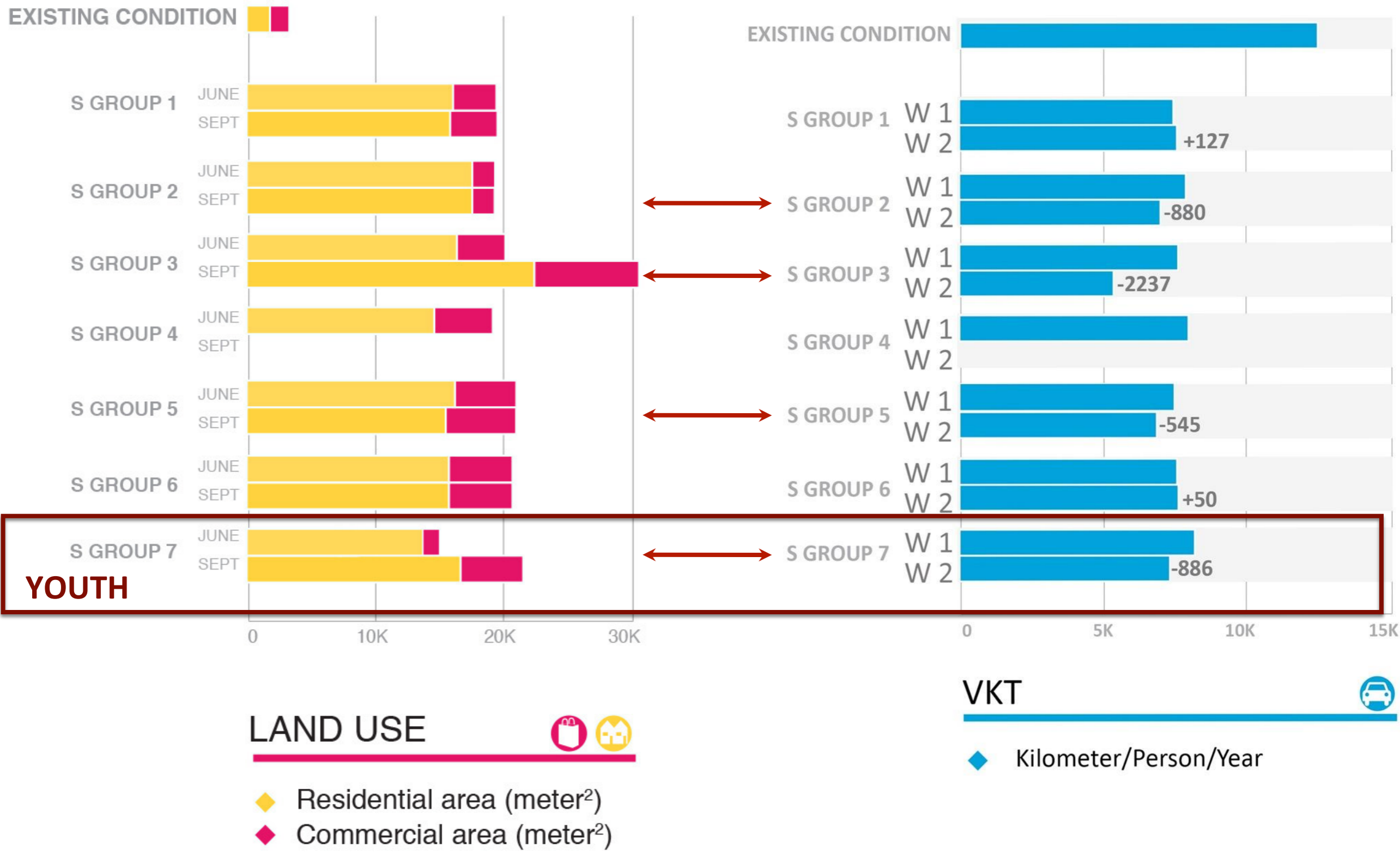
3 DWELLING

The population density data below shows the number of people and dwelling units for each group's scenario. The bars are arranged according to the population density (people per hectare) as shown by the bolded numbers.



Energy and emissions implications explained...

How did participants respond to new information about energy and emissions?





engaging workspace
interactive
3D visualization
embedded information

discourse
self-learning
peer learning
collaboration

CLIMATE AND COMMUNITY

Planning for climate change mitigation
in a Columbia Basin community

