



MEASURED VISUALIZATIONS of the CAMBIE CORRIDOR PLAN

Council summary: 5 MAY 2011

CYNTHIA GIRLING
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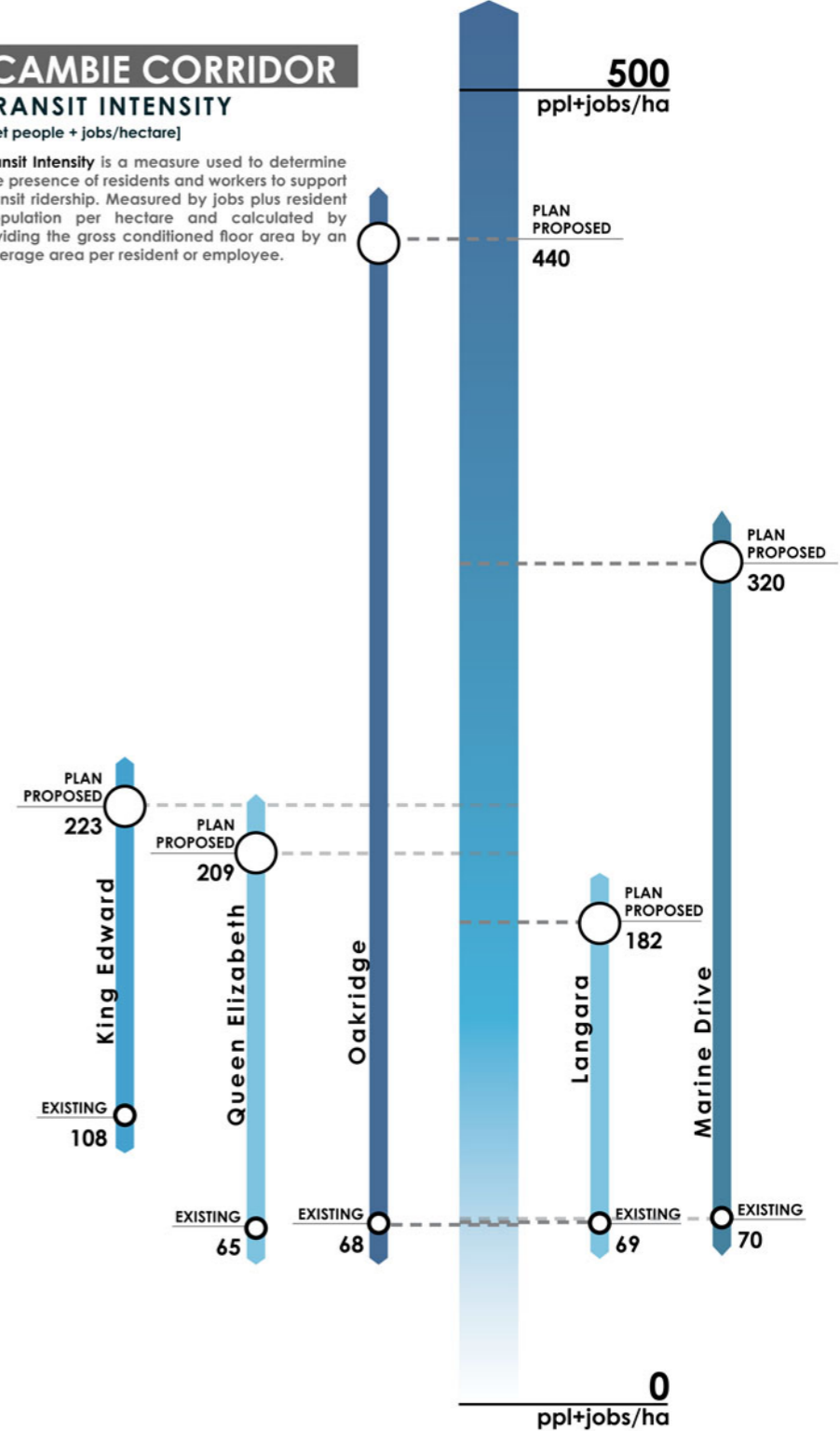
with

Inna Olchovski, Phil Riley, Elsa Snyder,
Michael van der Laan

CAMBIE CORRIDOR TRANSIT INTENSITY

[net people + jobs/hectare]

Transit Intensity is a measure used to determine the presence of residents and workers to support transit ridership. Measured by jobs plus resident population per hectare and calculated by dividing the gross conditioned floor area by an average area per resident or employee.



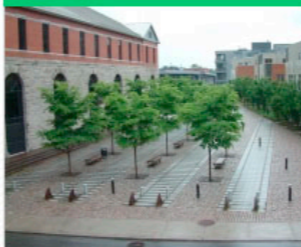



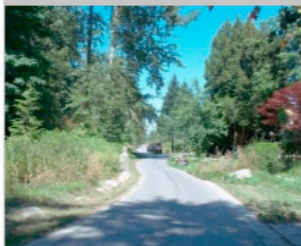



We create tools and methods to inform urban planning processes

HOME BROWSE SEARCH CASE SETS ABOUT HELP

ABOUT ELEMENTS

elementsDB provides the tools and examples to develop responsible urban plans. This resource catalogues comparably illustrated and measured examples of urban land uses. Database cases are built from field-measured examples of the land use 'elements' of urban form—parks and open spaces, streets, residential, commercial, civic and industrial parcels and buildings. Each case is rigorously measured and illustrated using comparable standards and graphic conventions. elementsDB is now the beta version of this resource and is changing weekly. We are constantly adding new cases.

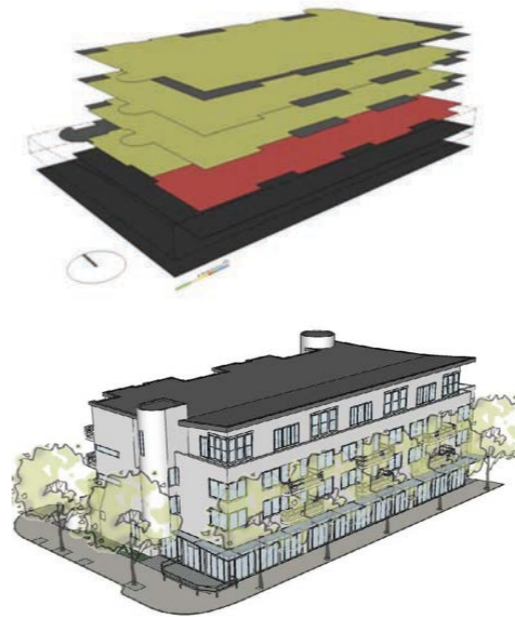
RANDOMLY SELECTED CASES

Open Space  View Case	Residential  View Case	Civic  View Case	Mixed  View Case
Street  View Case	Commercial  View Case	Industrial  View Case	Mixed  View Case

Cities . . . are (mostly) built from familiar, replicable, measurable components that can be translated as . . .

words + images + numbers

highrise
midrise
lowrise
attached
detached
mixed use



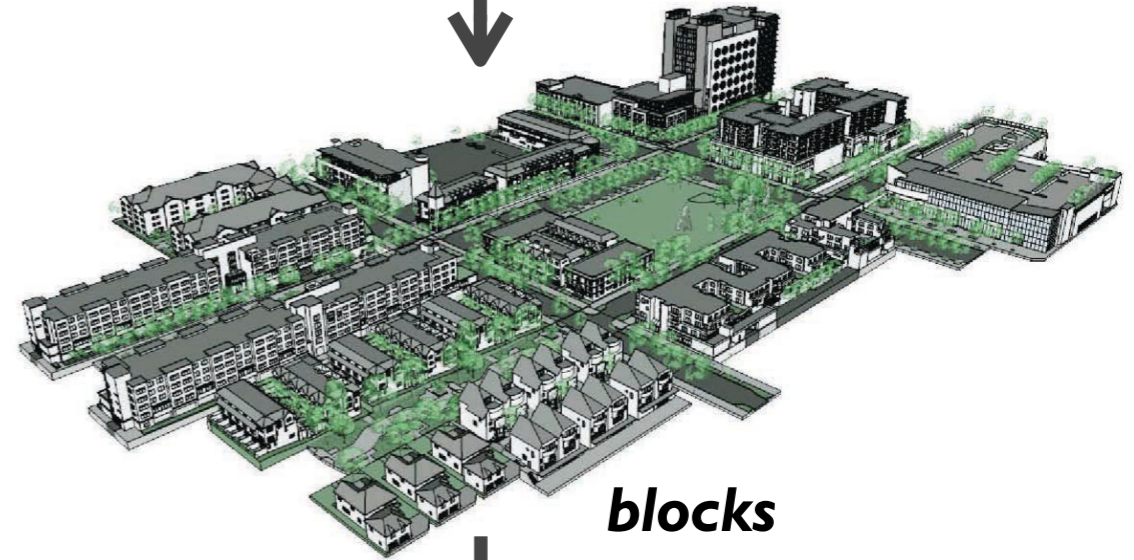
4storey
2.33far
250uph
65people / **35**jobs
90%impervious
2.13GWh/ha

“Tribeca” at 11th and Arbutus

which can be . . .

. . . aggregated

**To simulate the appearance of planning
and design alternatives**



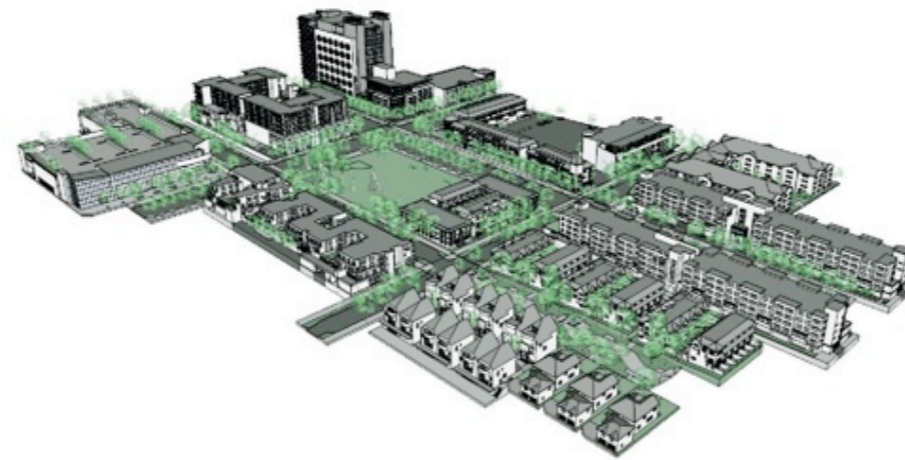
and . . .

... measured

To generate evidence of performance

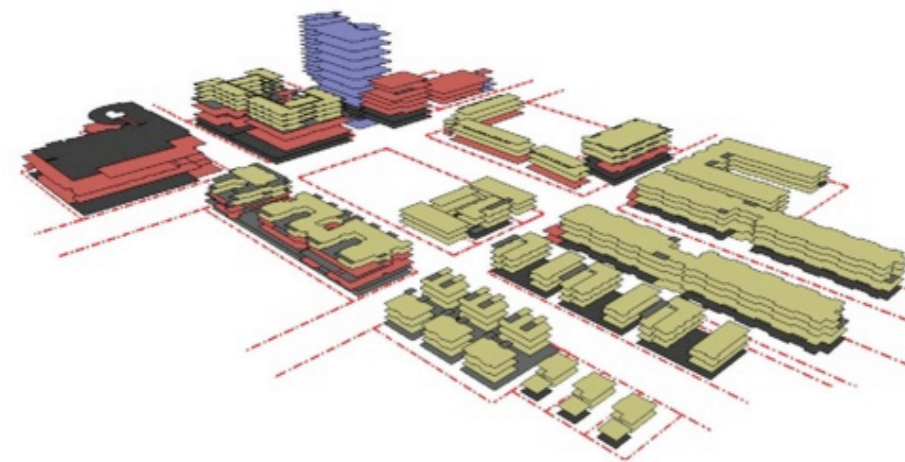
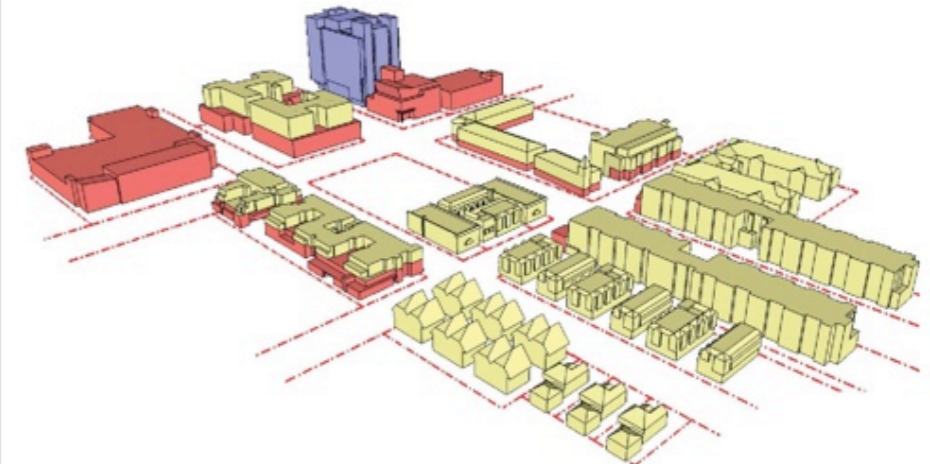
83% impervious surface
30% tree canopy

Cover



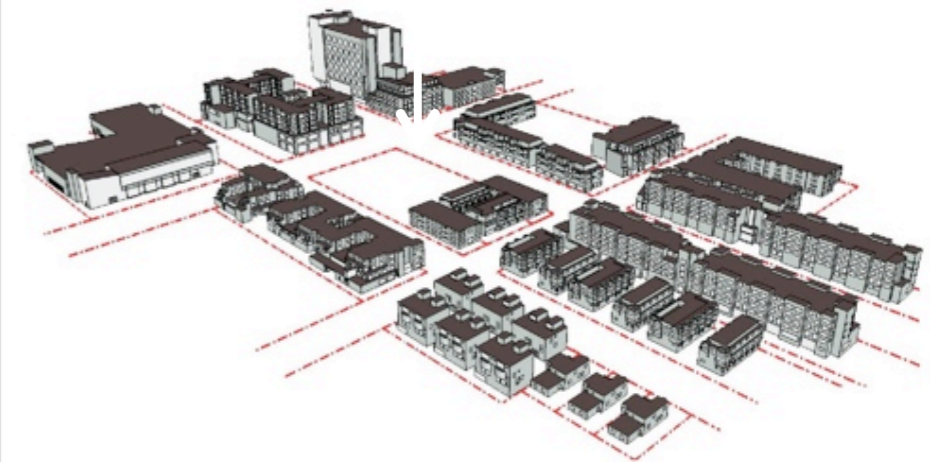
24% residential
22% mixed use
13% commercial
2% civic
8% open space
31% streets

Land Use



Capacity

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

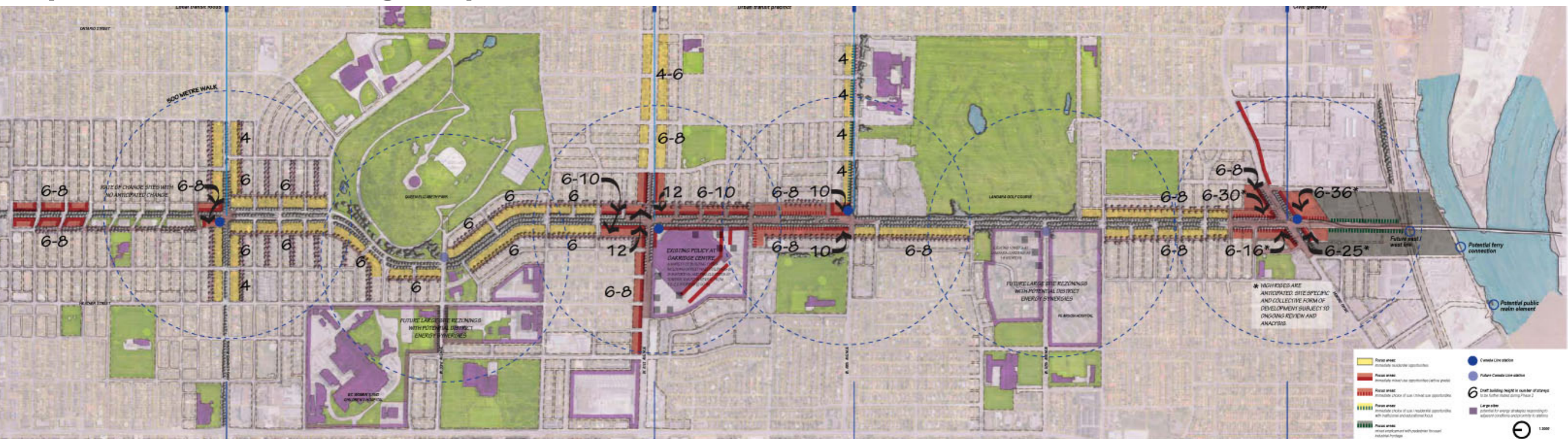


Envelope

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

Cambie Corridor: contemplated land use/building heights

City of Vancouver Planning, May 2010



- KEY QUESTIONS**
- 1. How much land use intensification ?**
 - 2. How distributed ?**
 - 3. How supportive of transit ?**
 - 4. How supportive of community energy ?**

Case-based modeling

Oakridge - Langara, for example



May 2010 sketch

Equivalent Vancouver cases

case set / Cambie Corridor- Oakridge-Langara

owned by: elements lab

Print

Order By Per Page

Page 1 of 2



Yew Street Low-rise

Case #: 33032-00 Landuse: Residential
Four Storey Residential

Added: 06/28/10



Yew Street Mid-rise

Case #: 33032-01 Landuse: Residential
Six Storey Residential (Derivative case with 2 floors added).

Added: 06/28/10



W12th Mid-rise

Case #: 33034-01 Landuse: Residential
Six storey mid-rise stacked residential.

Added: 06/28/10



W10th Mid-rise

Case #: 33037-00 Landuse: Residential
Seven storey stacked residential over grade-level townhouses.

Added: 06/28/10



W10th Housing Co-op

Case #: 33038-00 Landuse: Residential
Six storey mid-rise co-op housing. Two buildings on parcel, six storey mid-rise and three storey attached.

Added: 06/28/10



Chinatown Mid-rise

Case #: 33031-00 Landuse: Mixed Commercial Residential
9 storey mixed use building with commercial at grade and residential above.

Added: 06/28/10

measuring . . .

All corridor study areas

ON CORRIDOR areas
Case-based new buildings
+ Census + BCAA

UNIQUE areas
Census + BCAA
+ project proposals

OFF CORRIDOR areas
Census + BCAA

EXCEPTIONS
Large 'to be developed'
parcels not included



measuring . . .

Oakridge-Langara, for example

Unique areas **2**

OAKRIDGE Mall

Oakridge Policy Document

1 On-corridor areas
MIXED USE CASES



+ data



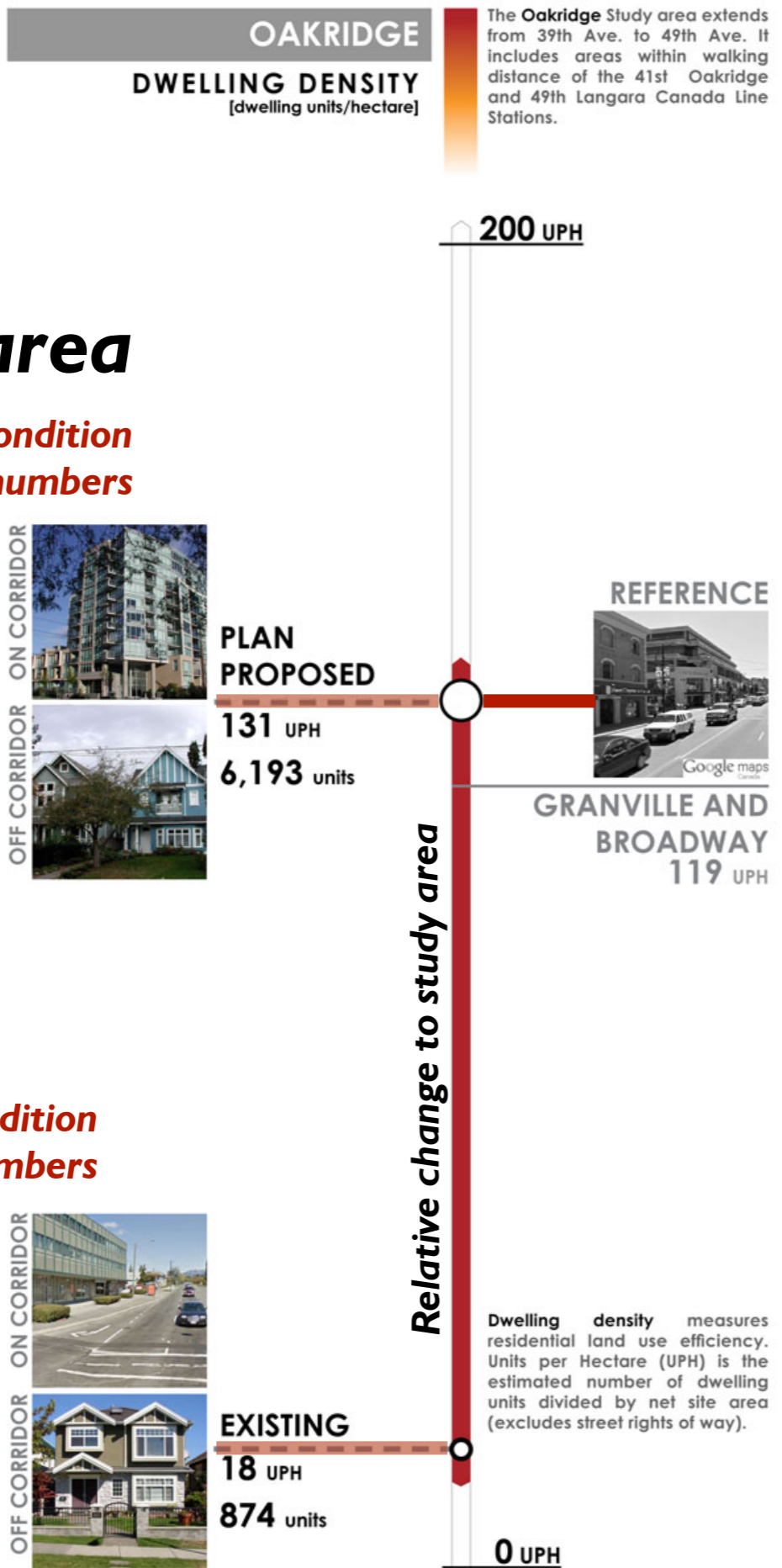
RESIDENTIAL CASES



3 Off-corridor areas
WITHIN 500m

3 dwellings per parcel average

reporting results . . .

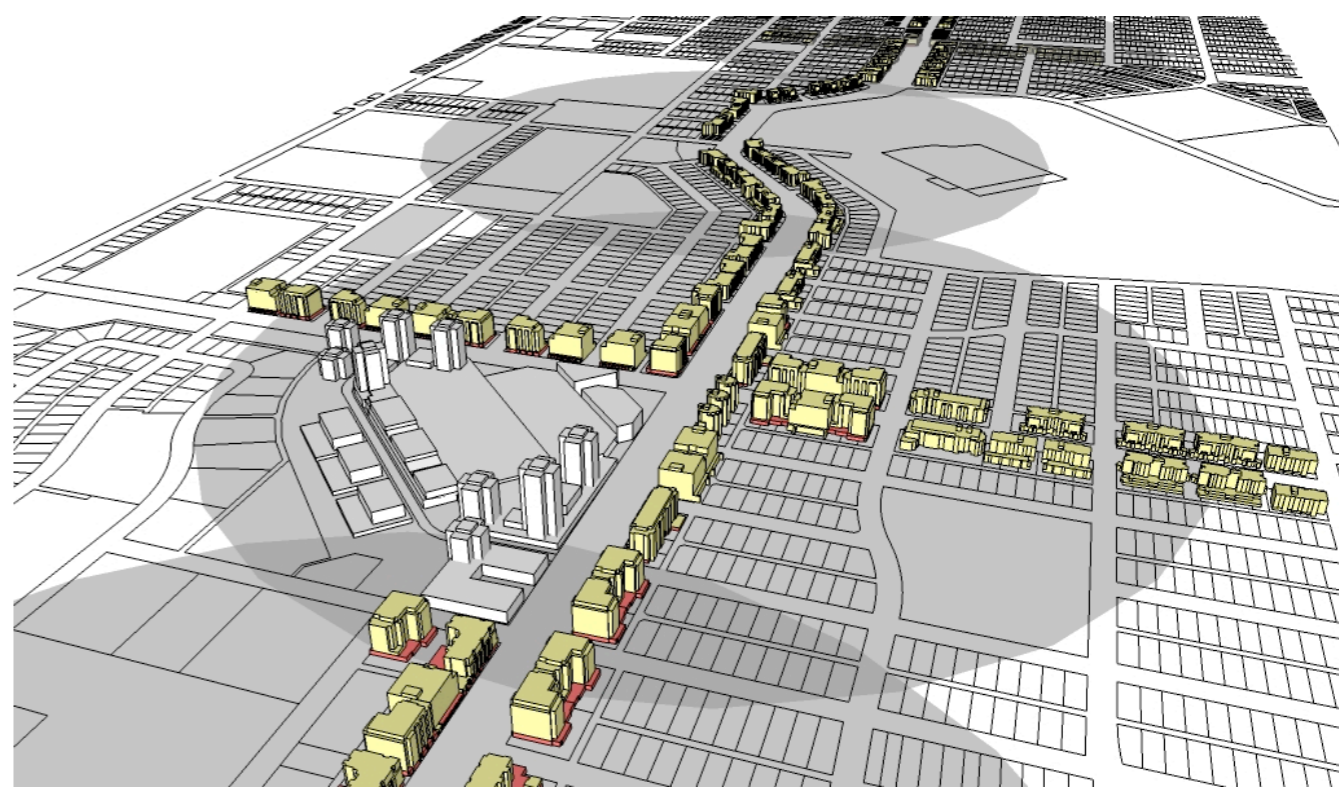


Built 3-d model of the corridor from 16th to Marine Drive

Calculated land use intensification, population and job change and thermal energy intensity for each block

Aggregated block results by 'study area' and 'whole corridor'

Reference points or benchmarks



by study area

Proposed condition in pictures and numbers

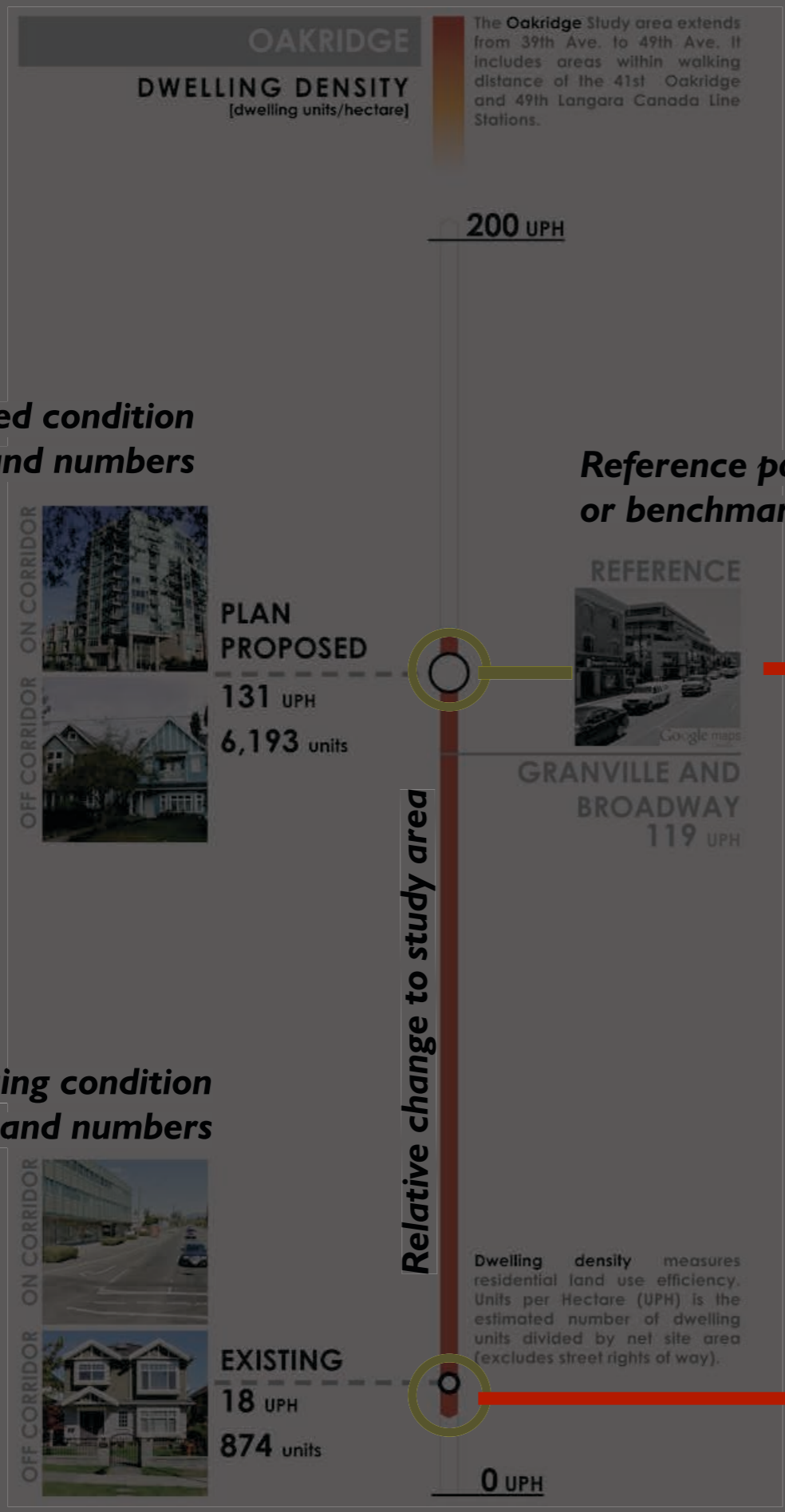


Existing condition in pictures and numbers



by study area . . .

by whole corridor . . .

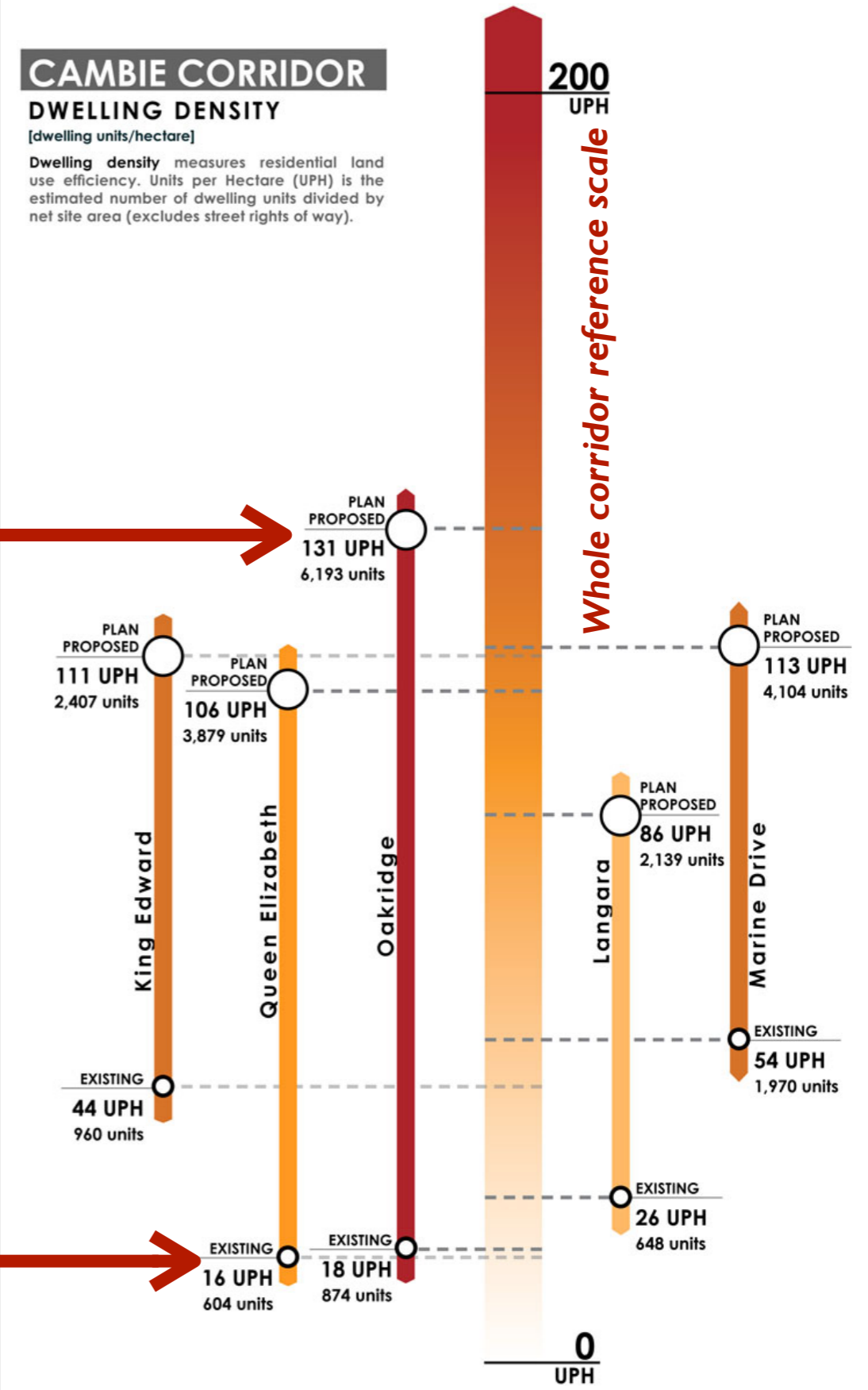


Proposed condition in pictures and numbers

Existing condition in pictures and numbers

CAMBIE CORRIDOR DWELLING DENSITY [dwelling units/hectare]

Dwelling density measures residential land use efficiency. Units per Hectare (UPH) is the estimated number of dwelling units divided by net site area (excludes street rights of way).



1. How much land use intensification ?

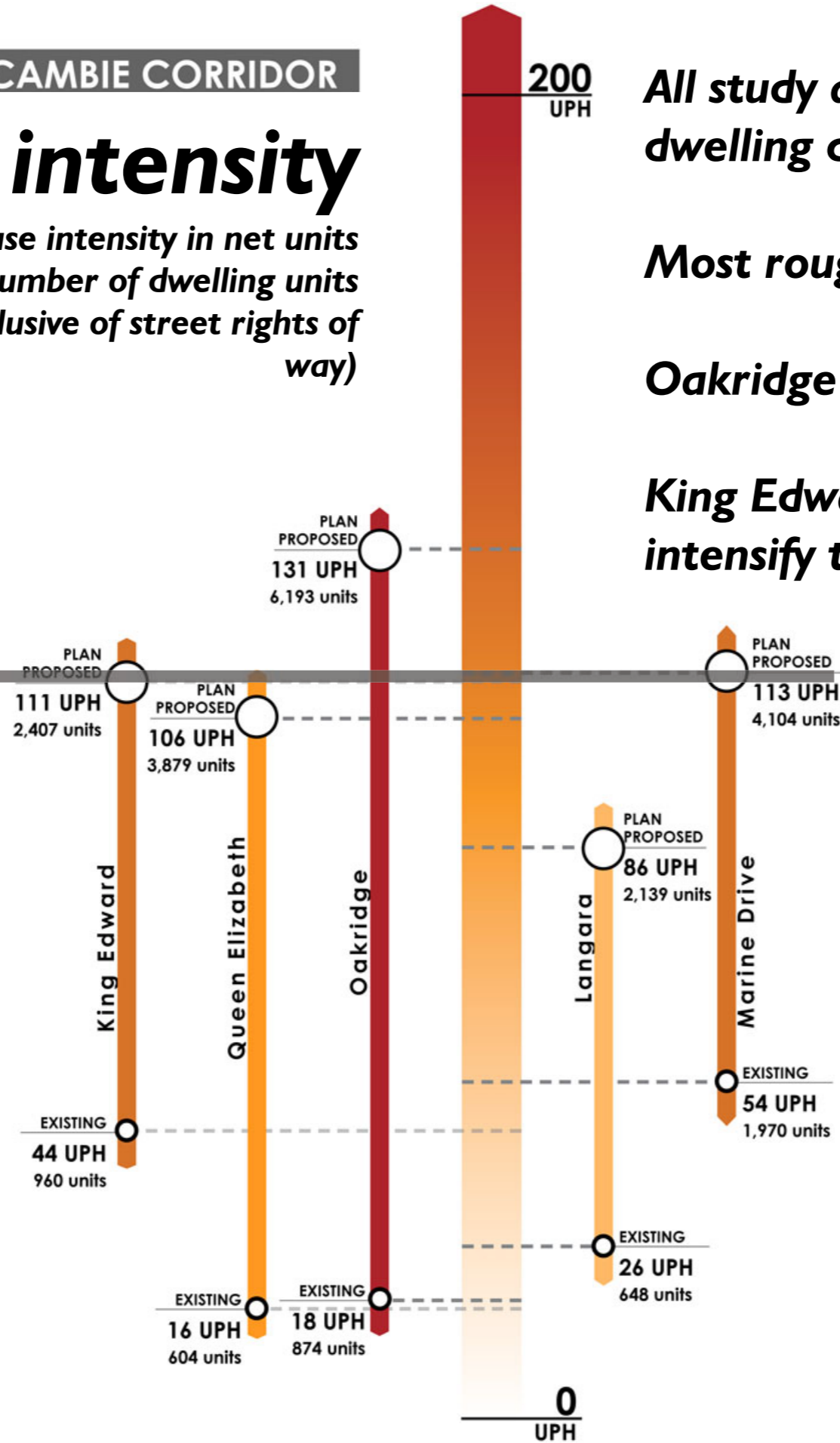
2. How distributed ?

CAMBIE CORRIDOR

Dwelling intensity

measures residential land use intensity in net units per hectare (estimated number of dwelling units divided by land area exclusive of street rights of way)

~ Joyce - Collingwood



All study areas more than doubled dwelling density

Most roughly equal to Joyce-Collingwood

Oakridge intensifies the most (7.3x)

King Edward and Marine Drive** intensify the least (<2.5x)

*Langara excludes significant pending off-corridor development

** Marine Drive study area includes significant non-residential land uses

CAMBIE CORRIDOR

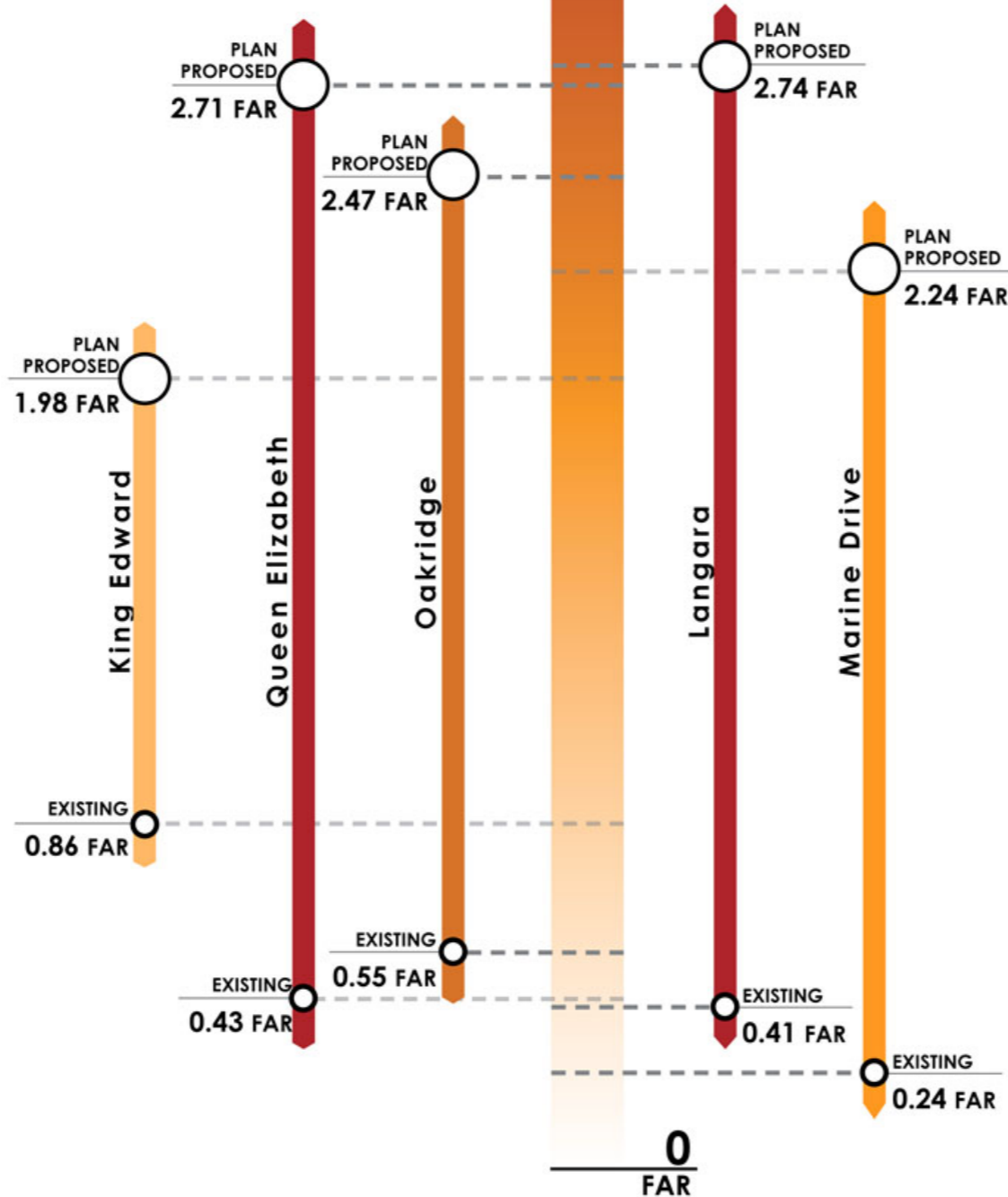
Floor space intensity

measures development intensity in average FAR
(estimated conditioned floor area divided by parcel area — only on corridor parcels)

All study areas more than doubled floor area intensity (FAR)

Marine Drive intensifies the most (9.3x)

King Edward intensifies the least (2.3x)



3. How supportive of transit ?

KEY FACTORS:

Density (ridership potential)

Distance (pedestrian accessibility)

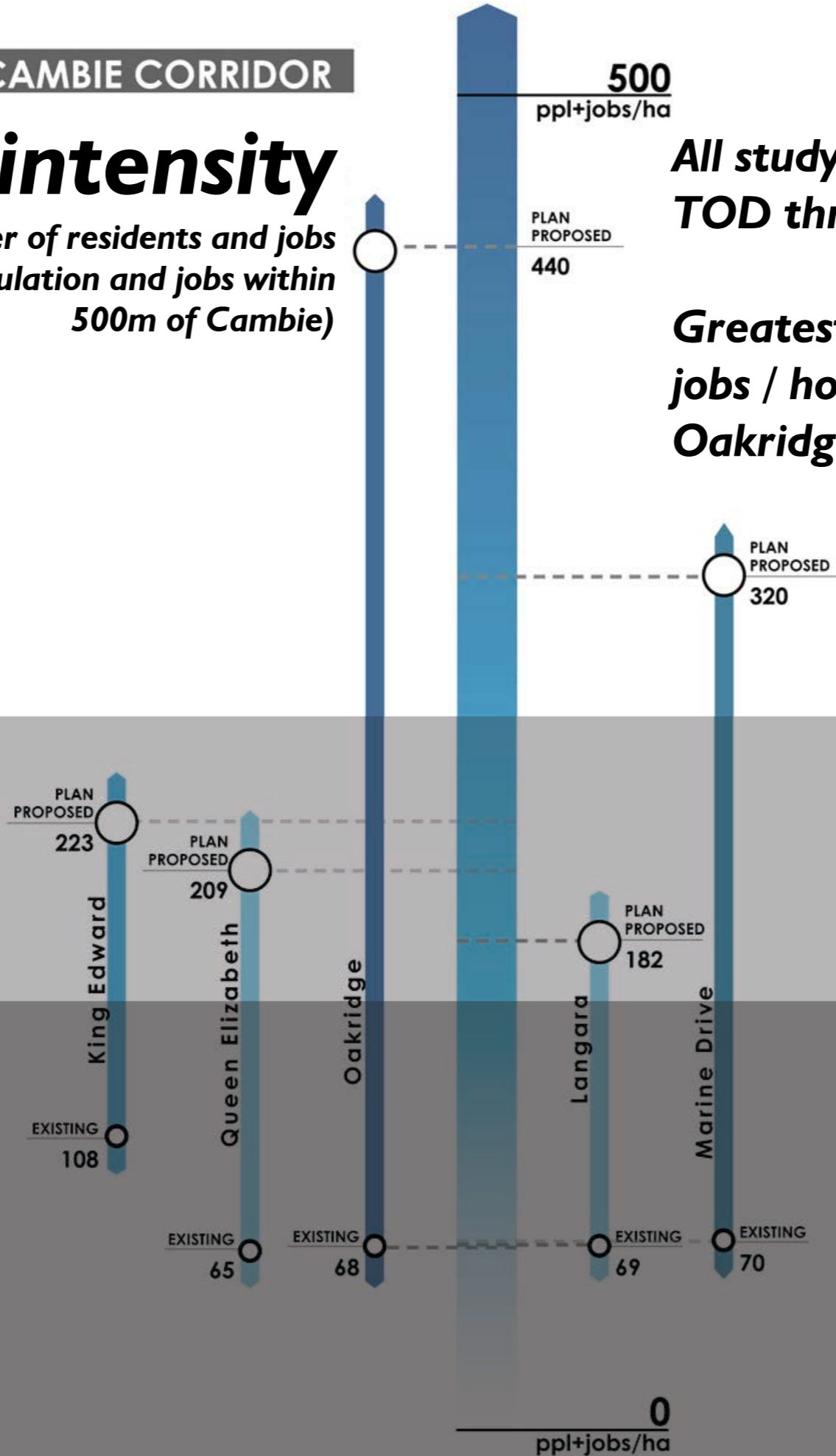
Diversity (destination / origin balance)

Design (vitality, livability)

CAMBIE CORRIDOR

Transit intensity

measures the number of residents and jobs
(estimated population and jobs within
500m of Cambie)



All study areas achieve neighbourhood
TOD threshold within 500m

Greatest concentration and closest
jobs / housing balance at key nodes —
Oakridge and Marine Drive

~ 250 p+j/ha
mid-range threshold
urban TOD

~ 150 p+j/ha
lower range threshold
at ~30% mode split
neighbourhood TOD

0
ppl+jobs/ha

4. How supportive of community energy ?

KEY FACTORS:

Land use intensity (load potential)

Land use diversity (load balance)

Proximity (distribution efficacy)

Building type and scale (connection efficacy)

Thermal energy intensity

was benchmarked against local examples
actual feasibility requires site-specific analysis

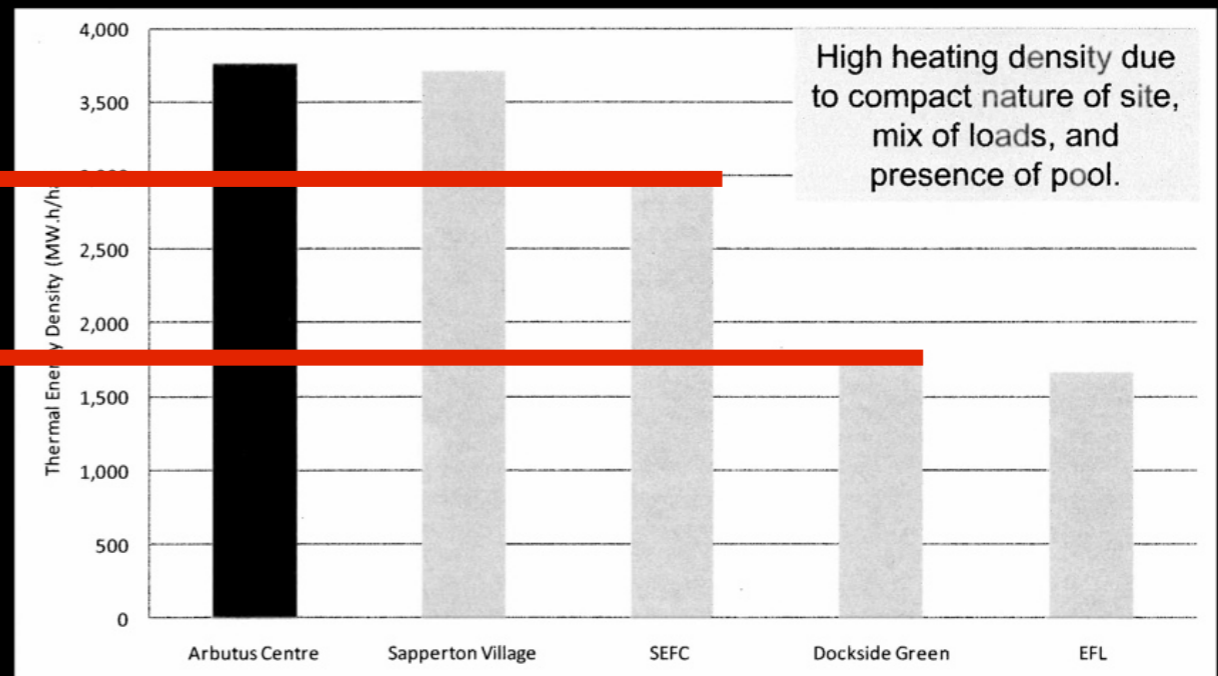


SEFC
~3.00 GWh/ha/year

Dockside Green
~1.75 GWh/ha/year



Comparison of Site Heating Density



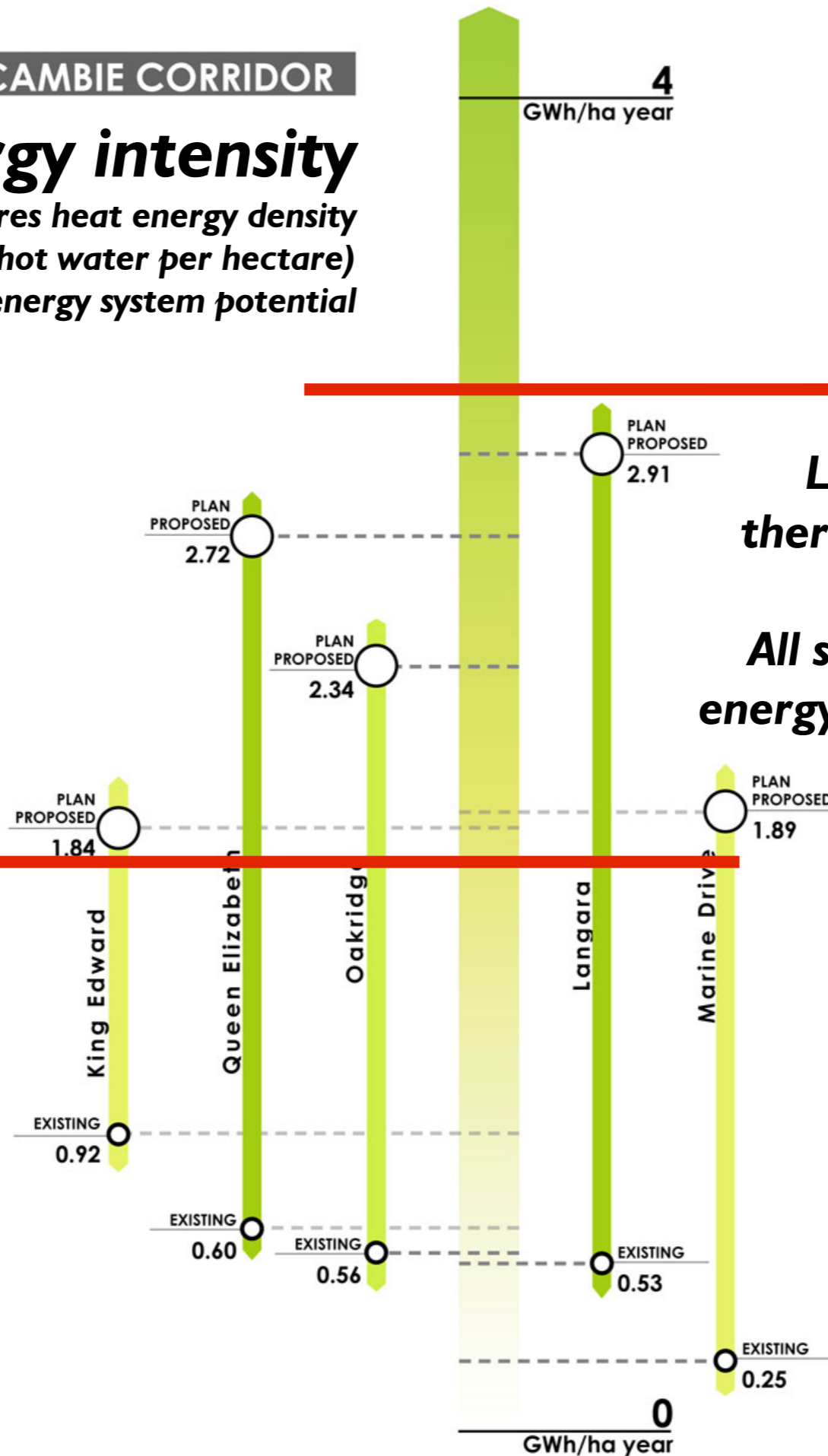
CAMBIE CORRIDOR

Thermal energy intensity

measures heat energy density

(space heating and hot water per hectare)

— an indicator of community energy system potential



4
GWh/ha year

SEFC

~3.00 GWh/ha/year

Langara study area achieves thermal energy density of SEFC

All study areas achieve thermal energy density of Dockside Green

Dockside Green

~1.75 GWh/ha/year

0
GWh/ha year



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