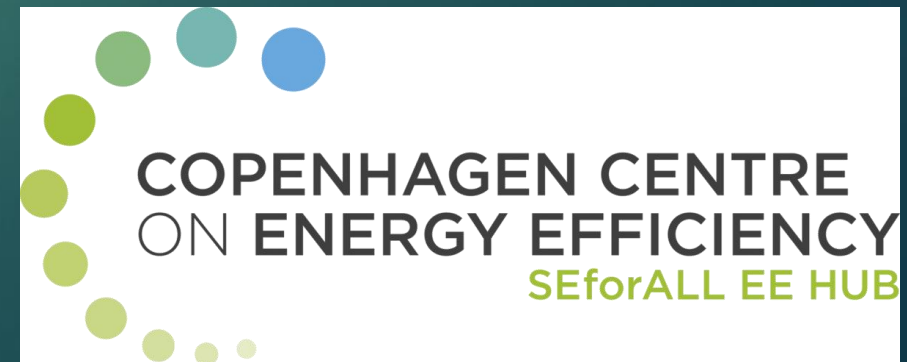
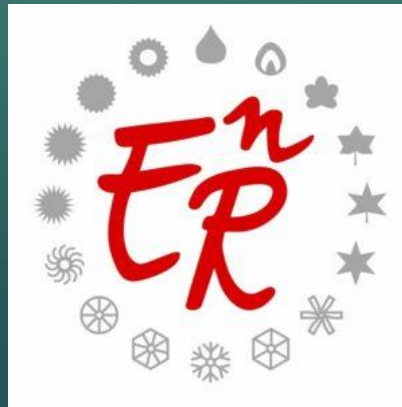


# Location Efficiency and Home Location Choice Behavior

ENERGY EFFICIENCY AND HOUSING CHOICE – A NORTH AMERICAN  
CASE STUDY

KURT BORTH PhD – UNIVERSITY OF ALBERTA – CANADA



# What is Location Efficiency?

**Location efficient** communities are dense and vibrant, with walkable streets, access to transit, proximity to jobs, mixed land uses, and concentrations of retail and services.



# Suburban Greenfield Development (Sprawl)

Studies of housing location preferences show that up to **81%** of homebuyers surveyed would rather live in a more location efficient home

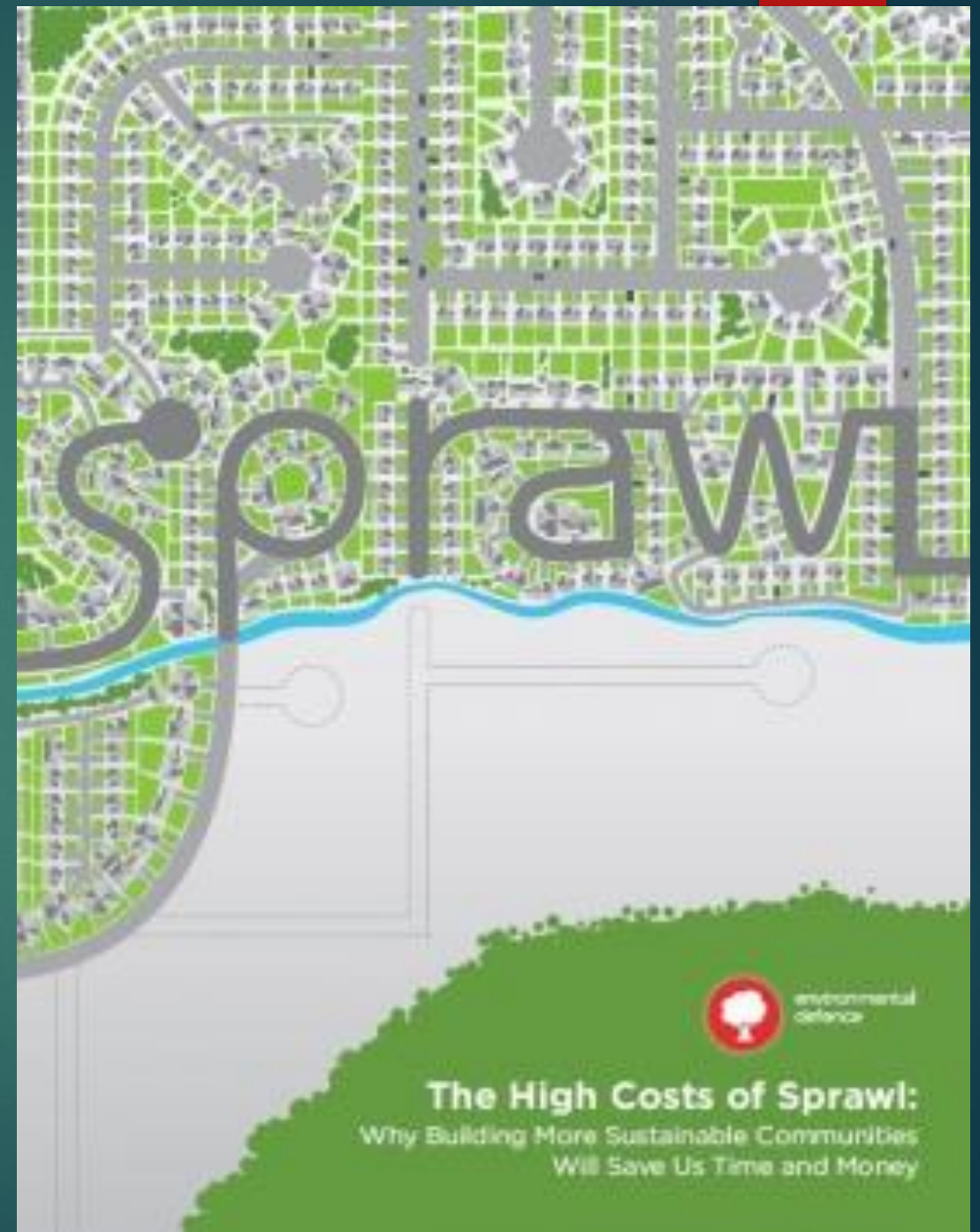
(Burda, 2014, 2016; NHBS, 2017)



- ▶ **Health costs** of sprawling suburban development. (Hirsch, 2014; Hoehner, Barlow, Allen, & Schootman, 2012).
- ▶ **Time costs**, average Canadian commute is ~26 minutes one way. In Toronto that's ~42 minutes.
- ▶ **Environmental costs** of increased automobile use leads to higher greenhouse gas emissions and air pollution.



- ▶ **Taxpayer costs**, greenfield development on a city's edge requires significant new infrastructure investments.
- ▶ Costs difficult to accurately **forecast** and **recover** (City of Edmonton, 2016; Thompson 2013; Blais 2010).

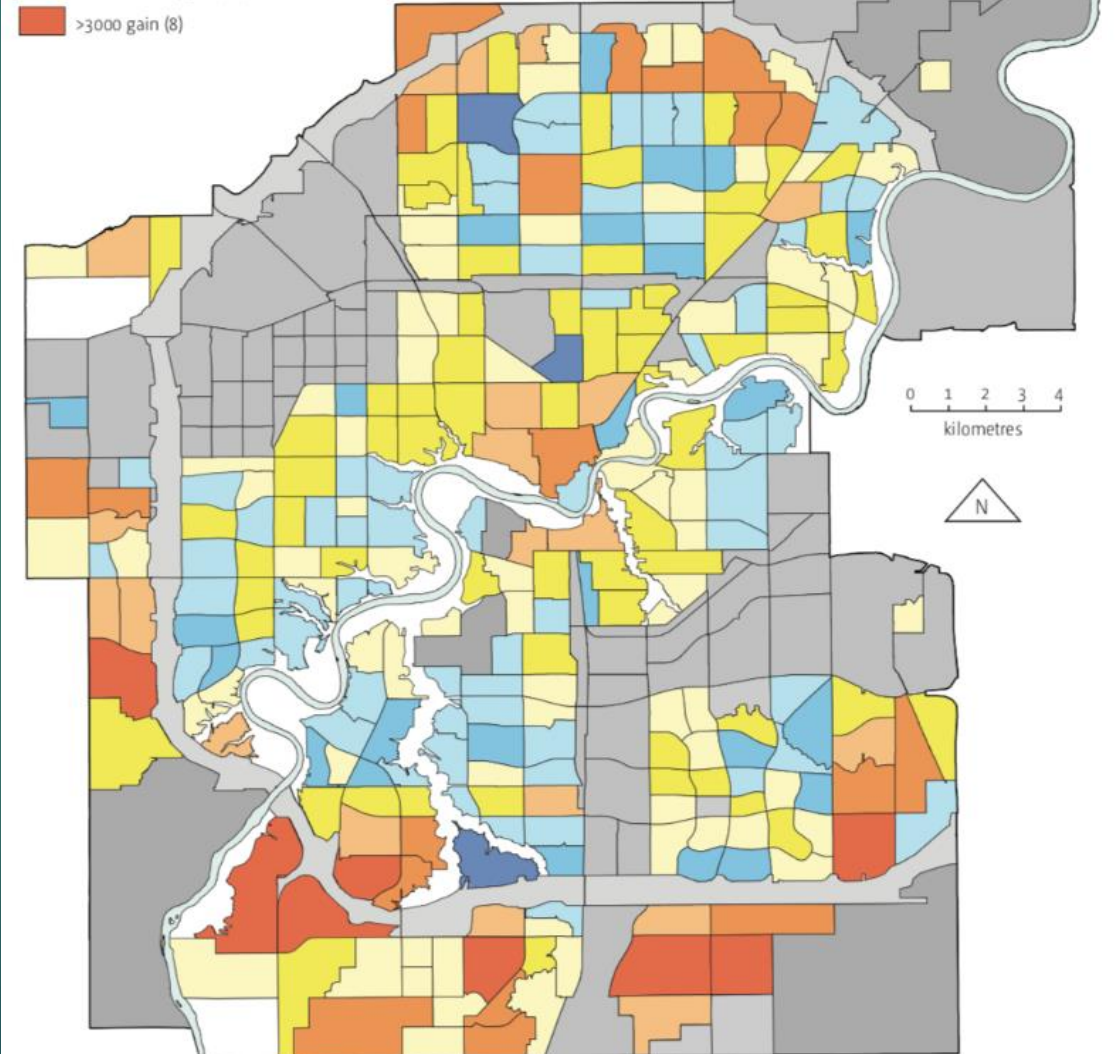


► Residents are still **overwhelmingly** choosing housing in traditional suburban developments.

## POPULATION GROWTH BY RESIDENTIAL NEIGHBOURHOOD (2009 TO 2014)



Data compiled from 2014 Municipal Census

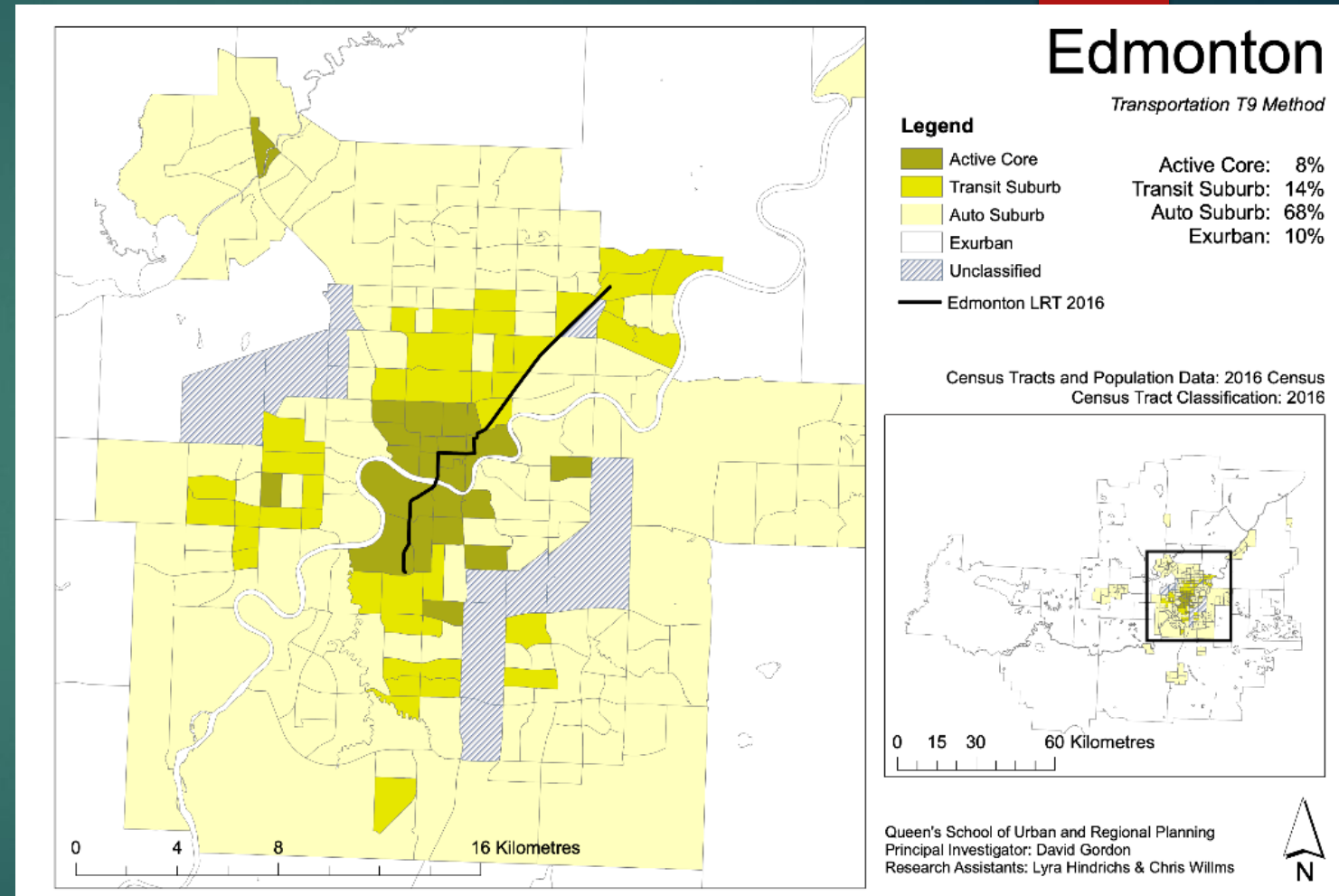


- ▶ Edmonton, Alberta, Canada.
  - ▶ 1.4 million greater metropolitan area
  - ▶ Majority of development occurred alongside the automobile.



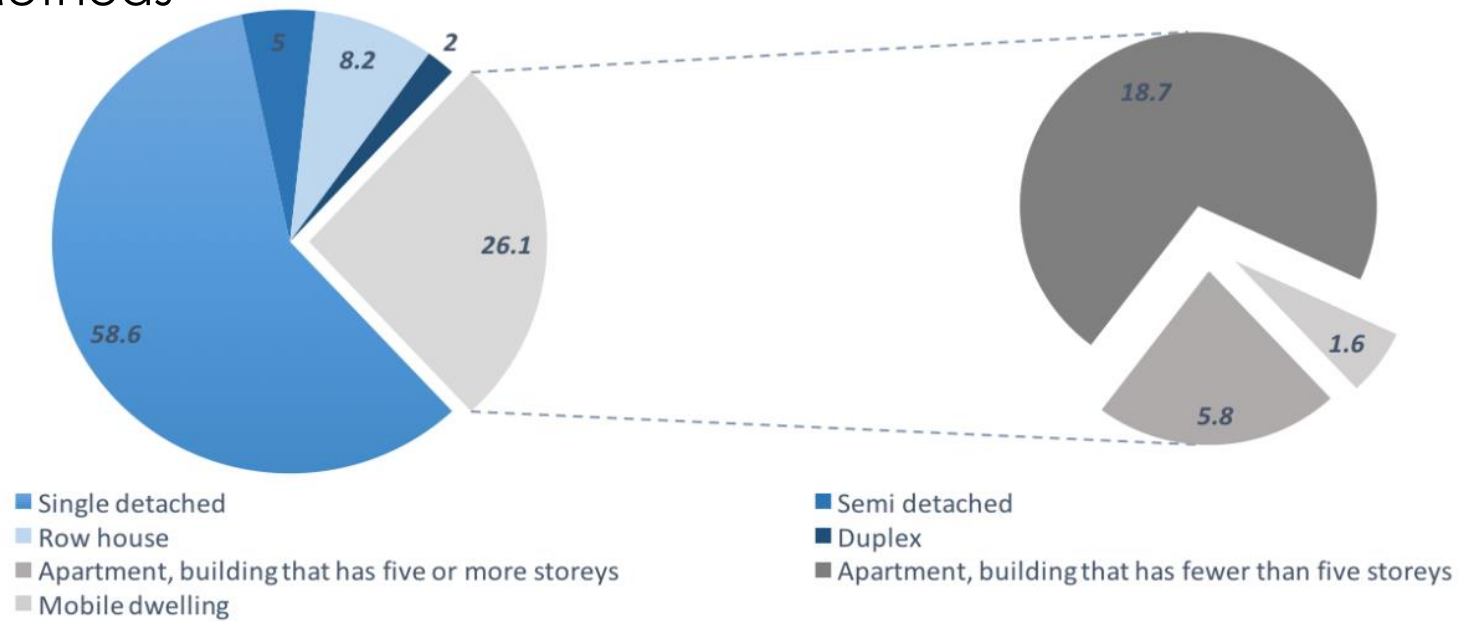
▶ From 2006-2016 Edmonton experienced the the highest 'automobile suburb' and exurban growth in Canada (33%) (amongst large CMAs).

▶ In Canada's largest cities the percentage of 'suburban' residents is over 86% (Gordon et al, 2018).





## Methods

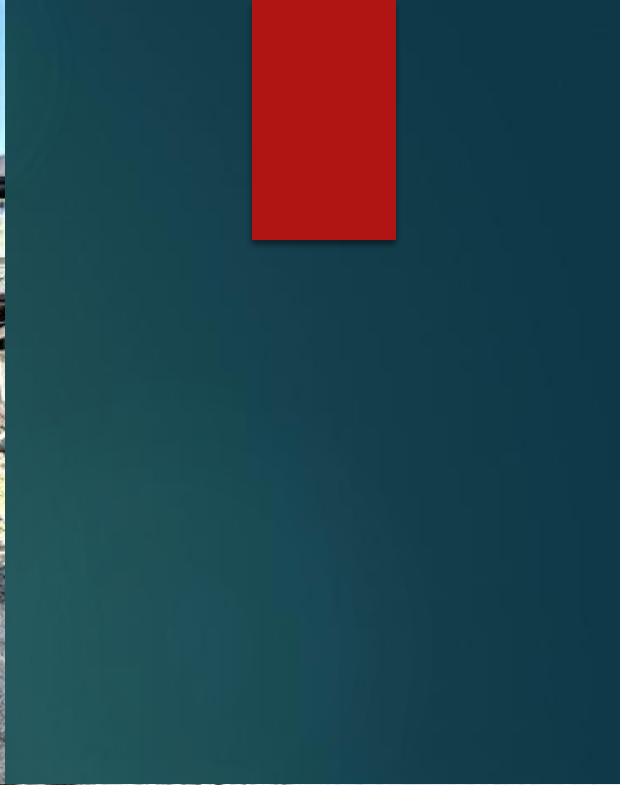


% Distribution of Housing by type in Edmonton, 2011 (Statistics Canada)

- ▶ Average Home size in Canada is ~2300 square feet = 213 square meters (that's without the ubiquitous basement which can add another 33% and sometimes double the square footage).

# Households

- ▶ Single Detached, Semi-detached, Row House, Duplex (72%).





# Results

- ▶ Commuting Transportation
  - ▶ Previous Commuting Experiences



*“I think that when we moved back to Edmonton ... we targeted this area as opposed to suburbs because we’ve lived in the suburbs in Toronto, **and we didn’t want the commute...I can’t stand commuting after that.**”*

*“So for me, I came from Saskatoon to Edmonton, so my entire post-high school life I’ve never in my life had to drive to either school or work. So I’ve always walked or biked everywhere. I basically don’t drive. **I had to be in a place where I could get on my own fuel to work consistently, because I just never, ever wanted to have to rely on a vehicle...**”*

# Results

- ▶ Commuting Transportation
  - ▶ Misinterpretation of transportation costs



*“no... we didn't think about transportation costs. We had a lot of expendable income. We didn't really care too much about that. Our transportation costs increased a little bit.”*

*“...not really. As long as the length of the commute wasn't too bad. The costs wouldn't be atrocious (~30km commute).”*

*“A little bit because when I was walking (to work) I didn't even have a transit pass, because I didn't need it. We figured it out per month. **Car (gas) doesn't really go into our budget.**”*

# Results

- ▶ Local Amenities and Neighbourhood Design
  - ▶ Past experiences with home attributes



*“...we had lived in a house with tenants downstairs, and I had lived in apartments in the past, and I find depending on who you have there, **you can end up with a bad situation**, like **smoking in the house**, different things. You can't control that, right. And I don't like that. **For choosing a house vs a condo, noise, privacy, was a huge factor, actually.**”*

*“**it's just about having your own space and you don't have to have the discussion about re-shingling the roof and you don't have to have the discussion about building a new fence**”*

## Conclusions

- ▶ Thematic evidence provides valuable data for the provision of updated building (material) information for shared-wall residences.

**FULLY SOUNDPROOF units  
from \$429,000**



# Conclusions

- ▶ Provide developers and municipalities alike with further evidence of the need for innovative inner urban/mature suburban infill developments.





# Conclusions

- ▶ Evidence for novel education/awareness programs that can address misperception of transportation costs (drive till you qualify).



# Key Points

- ▶ We can't assume people are performing accurate travel etc cost calculations with regards to their residential home location. We need to make these costs more **visible**.
- ▶ Location Efficiency needs to be a necessary step in the home location choice process.

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