Infrastructure Servicing Costs and Residential Development Forms

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Metro Vancouver Regional District

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PIBC received funding from the Province to design and deliver a Peer Learning Network. The PLN supports peer-to-peer learning concerning housing solutions, emerging practices, and policy development.

PIBC PLANNING INSTITUTE OF BRITISH COLUMBIA

PEER LEARNING NETWORK

Upcoming actions include:

- Topic-specific webinars & targeted research
- Continued access to legal information
- Development of a digital knowledge centre

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PRESENTATION OUTLINE

- Metro Vancouver Regional Growth Management
- Cost of Sprawl and Benefits of Smart Growth
- City of Surrey Local Area Planning Examples
- Costs of Providing Infrastructure and Residential Densities Study
- Closing Q&A / Discussion

TOGETHER
WE MAKE OUR REGION
STRONG

metrovancouver

21 Municipalities

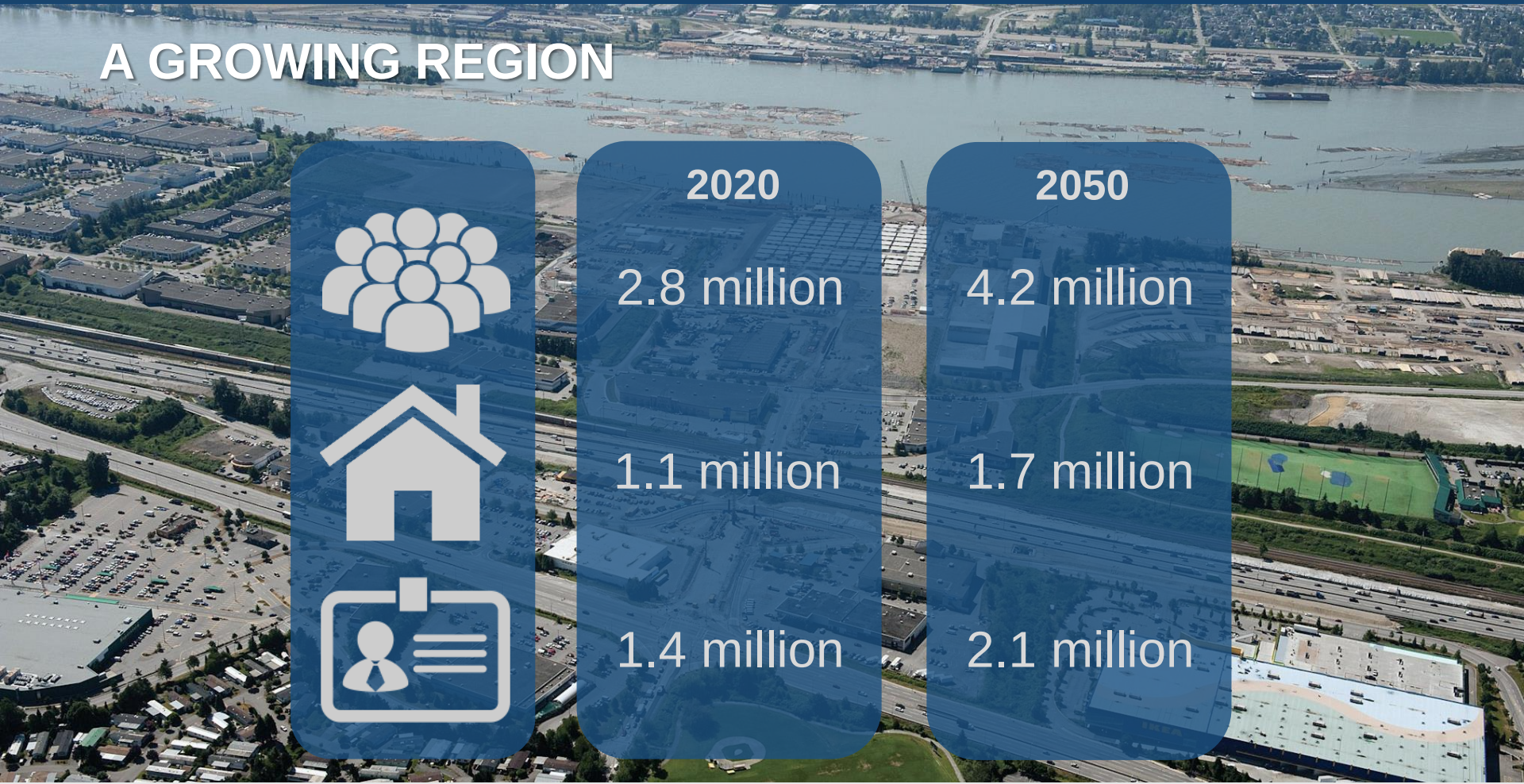
1 Electoral Area

1 Treaty First Nation

3.0 Million Residents

1.7 Million Labour Force

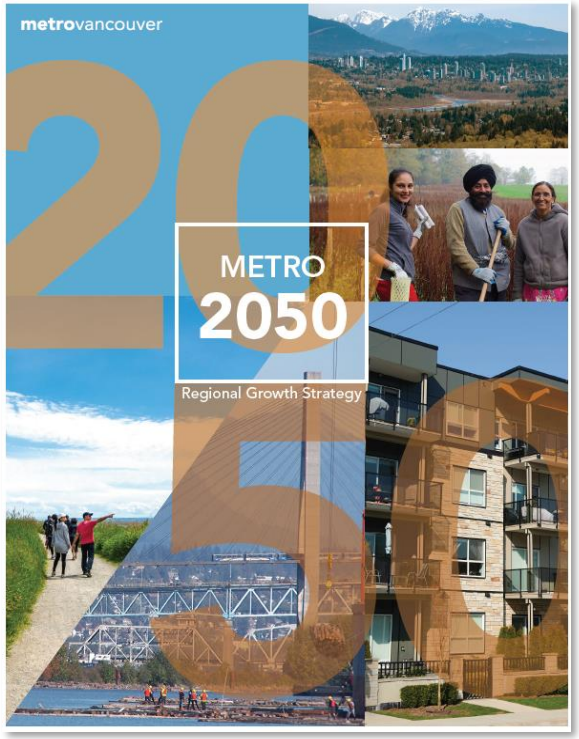
A GROWING REGION



	2020	2050
	2.8 million	4.2 million
	1.1 million	1.7 million
	1.4 million	2.1 million

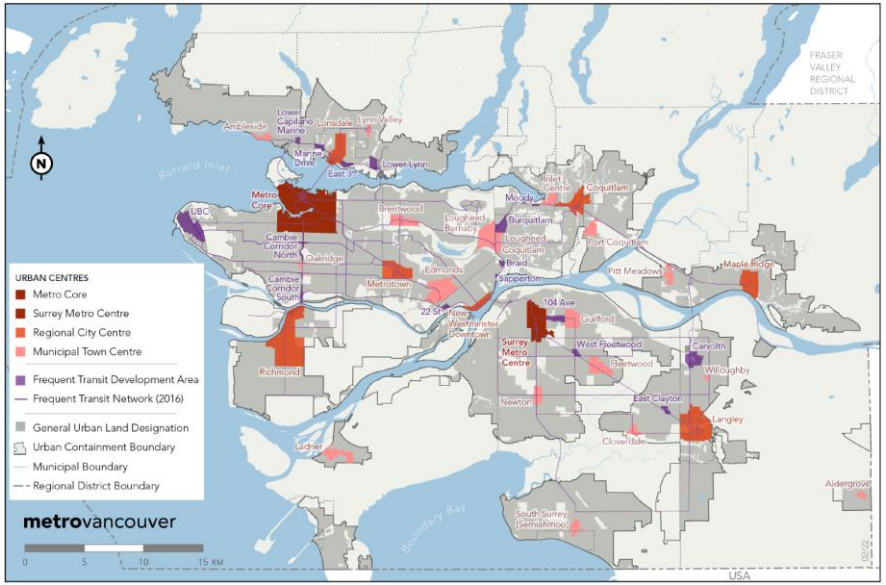
REGIONAL PLANNING PRINCIPLES

- Put growth in the right places (Urban Centres & Transit Corridors)
- Protect important lands (agricultural, ecological, industrial)
- Support complete, healthy, resilient communities
- Diverse and affordable housing, better mobility, a prosperous economy
- Efficient urban infrastructure (utilities, transit)



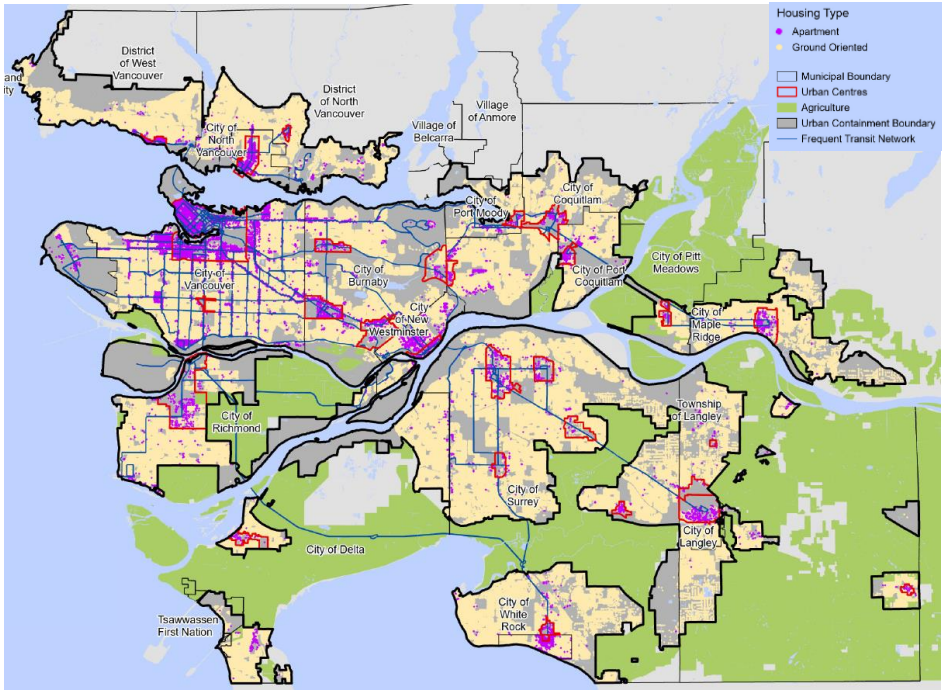
GOAL 1: CREATE A COMPACT URBAN AREA

- Contain growth within the Urban Containment Boundary
- Focus growth in Urban Centres and along Transit Corridors
- Support the development of resilient, connected and complete communities
- Protect Rural lands



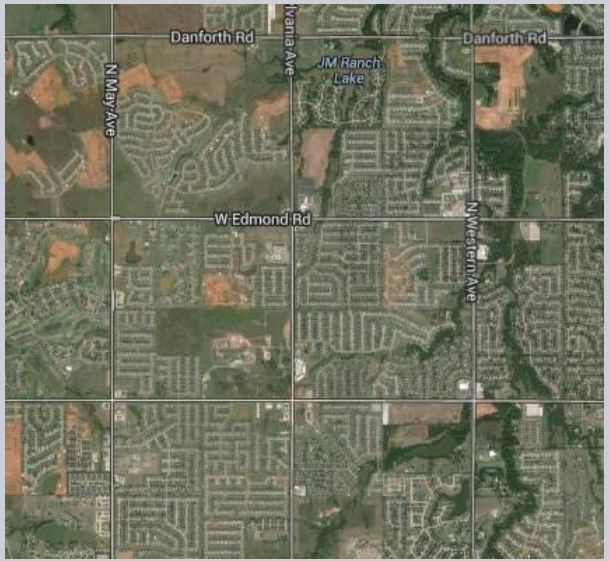
GOAL 4: DIVERSE AND AFFORDABLE HOUSING CHOICES

- Expand the supply and diversity of housing
- Protect tenants and expand supply of rental housing (affordable, near transit)
- Meet the housing needs of lower income households and people experiencing or at risk of homelessness



COMPARING SPRAWL AND SMART GROWTH

Suburban Sprawl



This suburb has residential development scattered among farms. Streets are disconnected, many lack sidewalks and there is little transit service. This results in high rates of automobile travel.

Source: Victoria Transport Policy Institute

Smart Growth

This town has concentrated and mixed development, with houses close to services and well-defined boundaries. A major portion of travel is by walking, bicycling and transit.

SPRAWL REPAIR

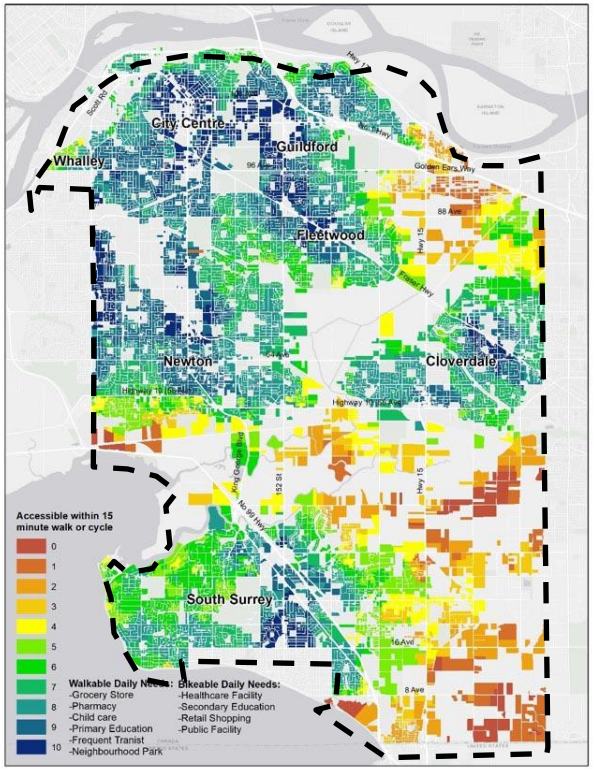
Source: Victoria Transport Policy Institute

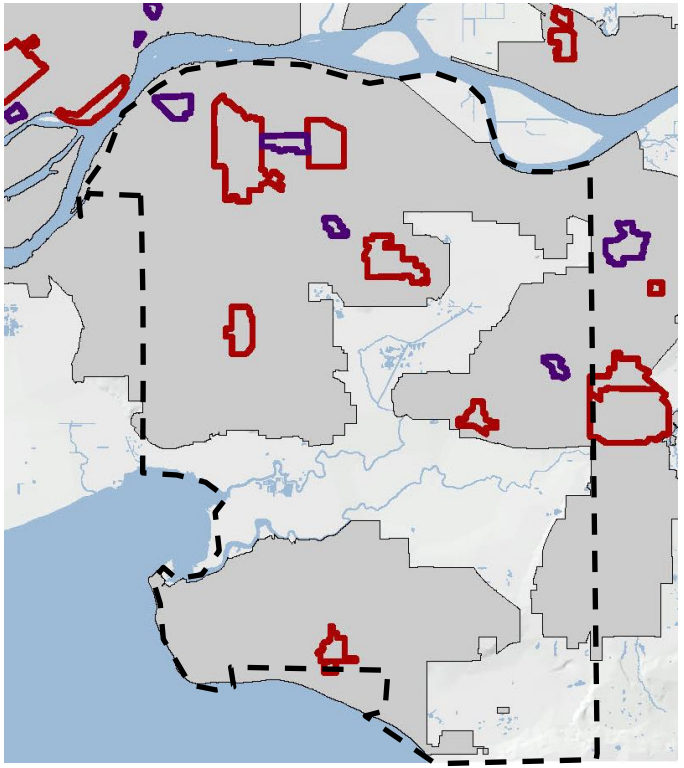
SMART GROWTH BENEFITS

Economic	Social	Environmental
• Traffic and parking congestion reduction. • Road and parking facility cost savings. • Consumer savings. • Agglomeration efficiencies, leading to increased economic productivity. • Farmland preservation increases agricultural productivity. • Reduced crash costs.	• More independent mobility for non-drivers, improving their economic opportunities. • Increased economic mobility (chance that a child born in a poor household becomes economically successful as an adult). • Reduced traffic casualties. • Improved public fitness and health. • Increased community cohesion.	• Openspace (farmland and wildlife habitat) preservation. • Reduced impervious surface, reduces hydrologic disruptions. • Energy conservation. • Pollution emission reductions. • Less road kill risks. • Reduced barriers to animal migrations. • More attractive streetscapes.

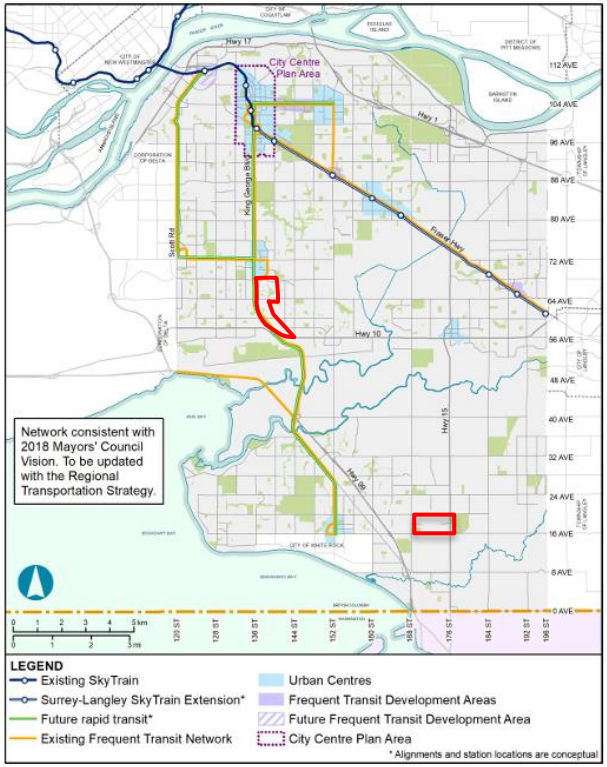
Source: Victoria Transport Policy Institute

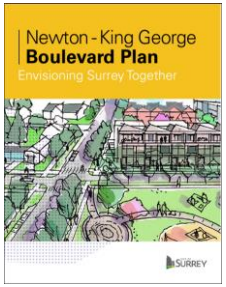
CITY OF SURREY LOCAL AREA PLANNING EXAMPLES





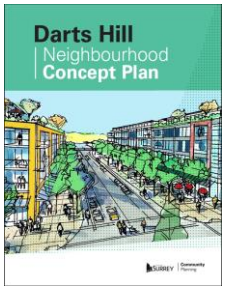
COMPARING TWO LOCAL EXAMPLES





Newton – King George Blvd Plan

- Infilling an old neighbourhood
- Approved February 2023

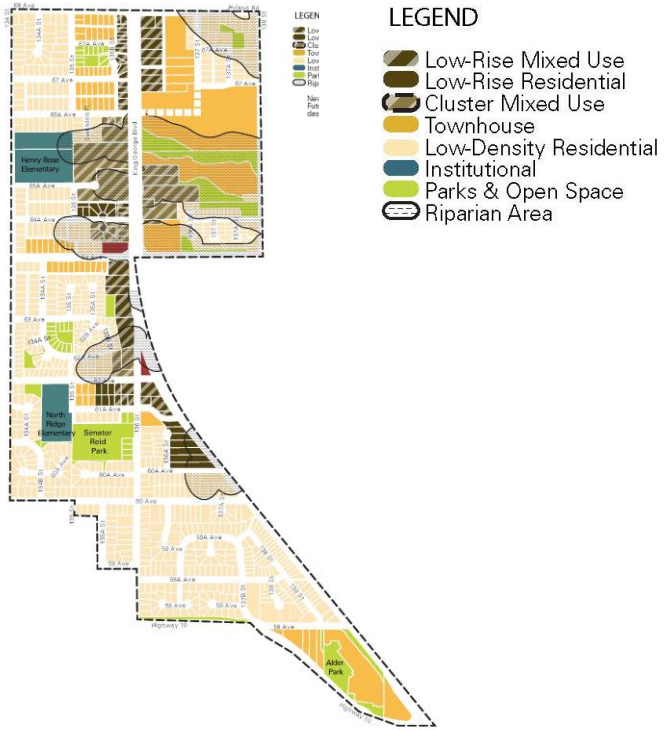


Darts Hill Plan

- Master planned from greenfield
- Approved May 2021

Source: City of Surrey

NEWTOWN PLAN



Infilling and densification of existing

- Multi-unit building forms along KGB
- Supported by Rapid Bus extension

Community Amenity Strategy

- 2 new neighbourhood parks
- New village centre

Added Growth Capacity

- +3,600 homes
- +10,000 new residents

Costing

- CACs: **$6,700 / DU**
- DCCs: **Surplus +$17,625,000**

Source: City of Surrey

DARTS HILL PLAN

Envisions a master planned neighbourhood

- New urban village
- New schools
- Protects key creeks & biodiversity corridors
- 11.4 ha (28 acres) of new parkland

Servicing to support plan under construction

Added Growth Capacity

- +4,000 new homes
- +10,000 new residents

Costing

- CACs: **$10,200 / DU**
- DCCs: **Deficit ($72,900,000)**

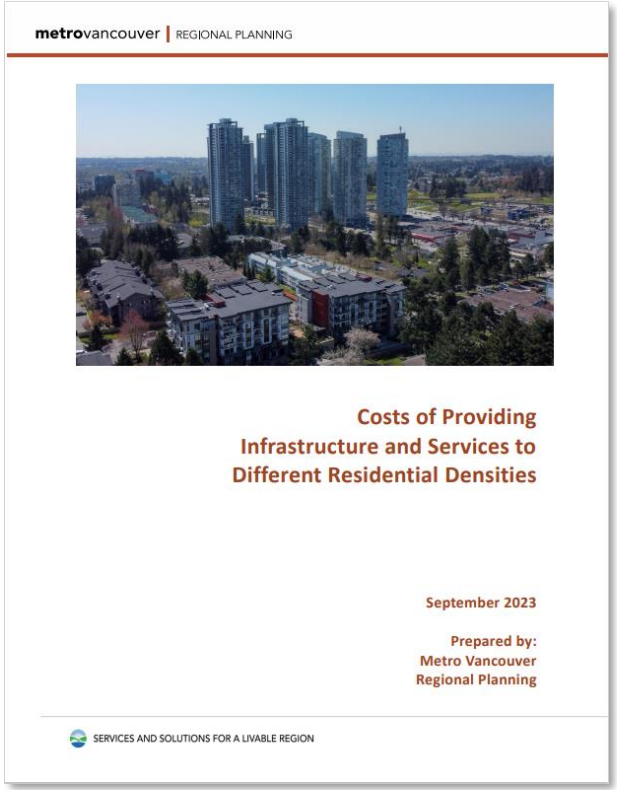
Source: City of Surrey

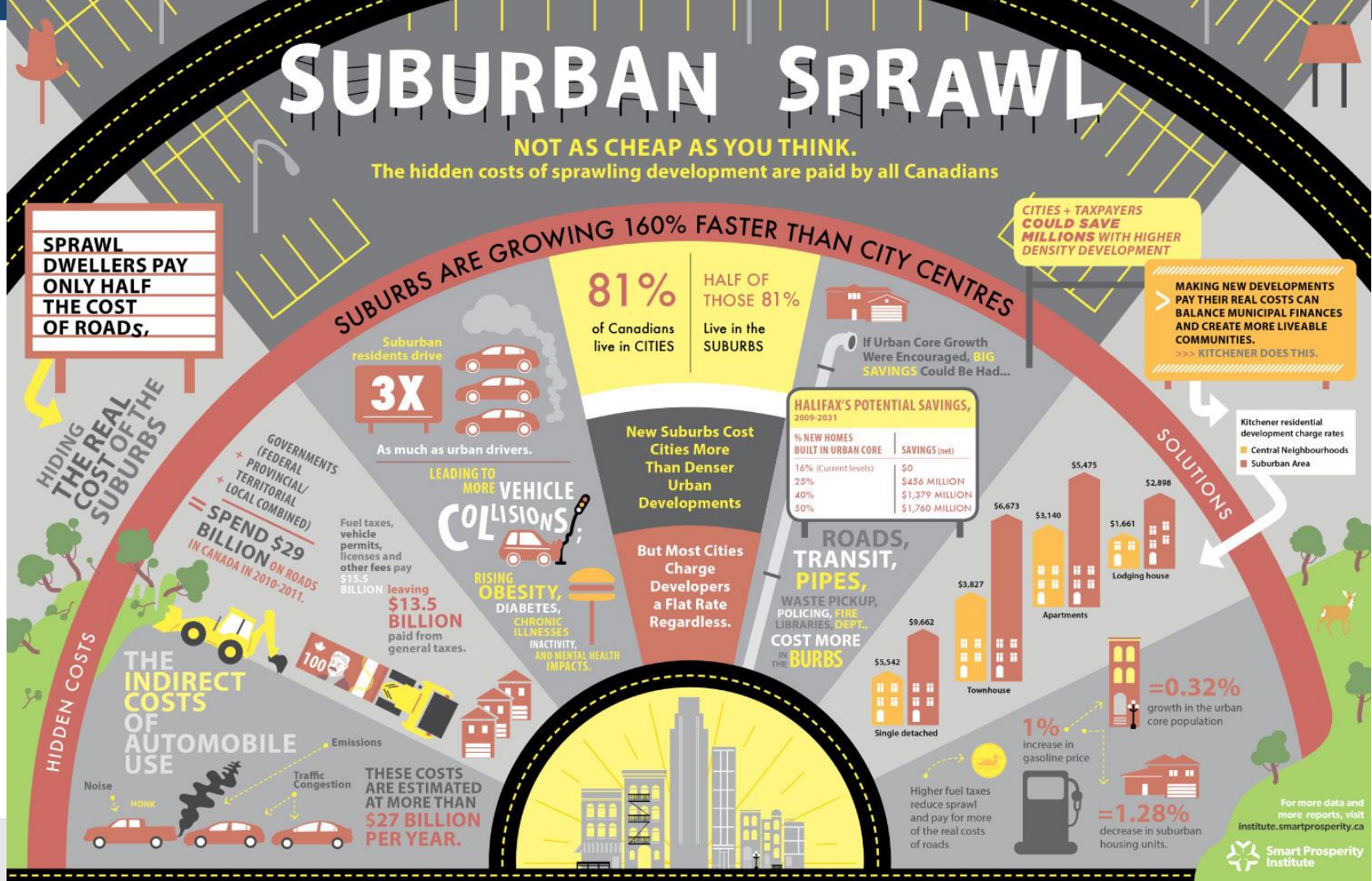
SMART GROWTH AND LOCAL EXAMPLES TAKEAWAYS …

- Smart Growth policies create compact, multi-modal communities
- Infill is typically slower; greenfield is more capital intense
- Policy, market, and consumer issues to consider
- Compact, dense development with amenities provide many benefits:
  - 10-30% lower infrastructure / services costs
  - 10-40% reduction in housing costs
  - 30-70% less driving, 10-60% reduction in transport costs
  - 10-60% reduction in energy consumption and pollution
  - More physically active, better health outcomes

STUDY PURPOSE / SCOPE OF WORK

- Document the costs of providing infrastructure and services to different residential densities
- Consider both capital and operating costs and revenues
- Compile available references, literature review, case studies, best practices, and informational interviews
- Create an accessible resource to inform municipal and regional decision-making

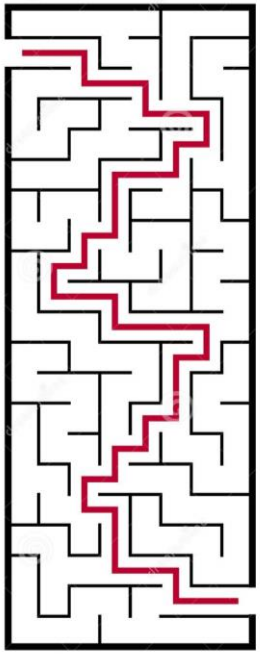




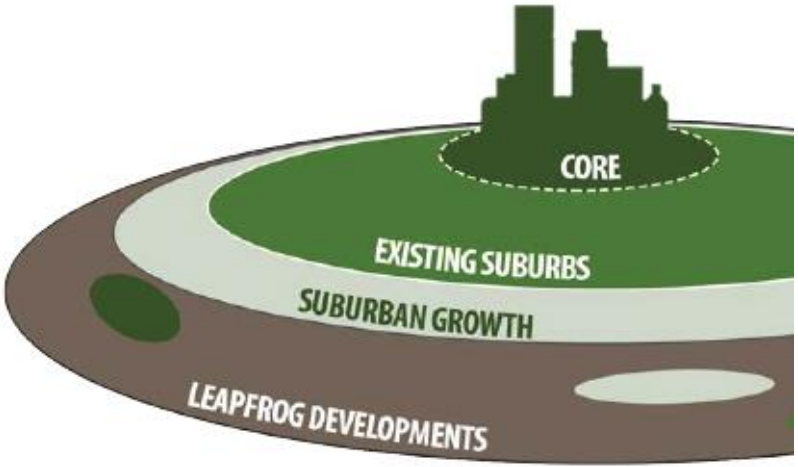
Source: Smart Prosperity Institute: The Cost of Sprawl, 2013

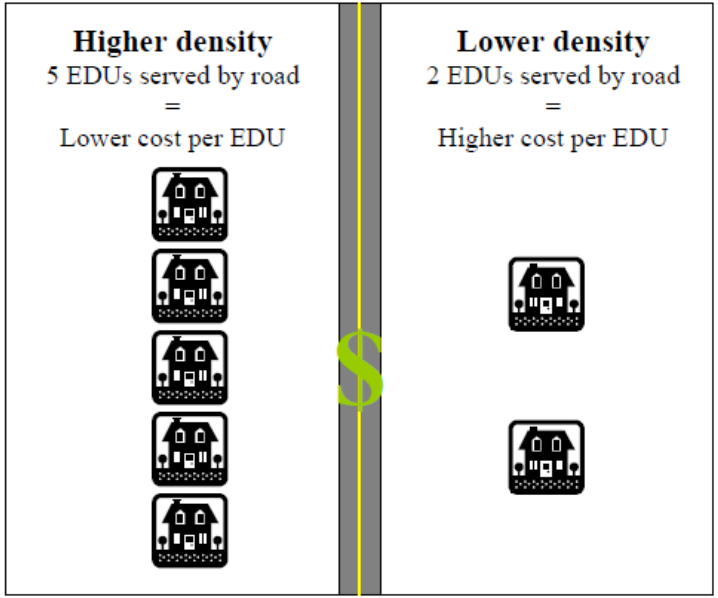
METHODOLOGICAL COMPLEXITIES

- Attributing costs and revenues for different services by asset class or unit type is a challenge
- Many municipal services / costs are more a function of population than density
- Capital-intensive infrastructure can benefit from economies of scale, while labour-intensive services do not
- Significant local considerations and contextual issues
- These complexities / limitations should temper expectations about precision



COSTS PER HOUSING UNIT VARY BY DENSITY / FORM





SERVICING COSTS BY UNIT TYPE

	Scenario	Unit Yield	Servicing Costs	Cost Per Unit	*Persons per Household*	Cost Per Capita
1	House (Low)	16	$640,000	**$40,000**	*3.10*	**$ 12,903**
2	House (High)	24	$880,000	**$36,667**	*3.10*	**$ 11,828**
3	Townhouse (Low)	40	$680,000	**$17,000**	*2.75*	**$ 6,182**
4	Townhouse (High)	60	$700,000	**$11,667**	*2.75*	**$ 4,242**
5	Apartment (Low)	100	$800,000	**$ 8,000**	*1.85*	**$ 4,324**
6	Apartment (High)	200	$900,000	**$ 4,500**	*1.85*	**$ 2,432**

- The costs for onsite infrastructure / servicing for a house vs. apartment are approximately 5 to 9 times more expensive on a per capita and per unit basis.
- When adjusted for number of persons per household the cost per capita is also lower as densities increase.

Note: Values are from 2023

DCCS BY UNIT TYPE

Residential Typology	Langley Twp	Langley City	Pitt Meadows	Coquitlam	Port Moody	Surrey	Richmond	DNV	AVG	*AVG HHS*	AVG per Capita
House (Low)	$40,104	$18,409	$13,493	$60,422	$33,453	$48,595	$41,533	$33,269	$ 36,160	*3.10*	$ 11,664
House (High)	$40,104	$18,409	$13,493	$60,422	$33,453	$43,050	$41,533	$33,269	$ 35,467	*3.10*	$ 11,441
Townhouse (Low)	$32,704	$14,503	$10,686	$35,807	$20,045	$38,790	$33,885	$23,808	$ 26,278	*2.75*	$ 9,556
Townhouse (High)	$32,704	$14,503	$10,686	$35,807	$20,045	$38,790	$33,885	$23,808	$ 26,278	*2.75*	$ 9,556
Apartment (Low)	$26,647	$ 9,549	$ 9,250	$22,694	$ 9,844	$23,488	$19,024	$13,653	$ 16,769	*1.85*	$ 9,064
Apartment (High)	$26,647	$ 9,549	$ 9,250	$22,694	$ 9,844	$23,200	$19,024	$13,653	$ 16,733	*1.85*	$ 9,045

- Municipal DCC rates by unit type vary considerably by municipality, yet within individual municipalities generally do not vary by location.
- DCCs range up to $60,000 for a house, to as low as $10,000 for an apartment.
- When calculating DCCs by number of household residents, there is a very close relationship between DCC rates and residents, averaging $10,000 per person.

Note: Values are from 2023

TAXES AND FEES BY UNIT TYPE

House	Unit Value	General Municipal	School	Regional District	Hospital	BCA, MFA and Other	Total Taxes	Total Charges	Total Taxes and Charges	Taxes as % of Total Tax & Charge	% of Total Taxes to City
Average	*$1,953,852*	*$3,192*	*$1,860*	*$100*	*$0*	*$510*	*$5,663*	*$1,718*	*$7,381*	*77%*	*56%*
Townhouse	**Unit Value**	**General Municipal**	**School**	**Regional District**	**Hospital**	**BCA, MFA and Other**	**Total Taxes**	**Total Charges**	**Total Taxes and Charges**	***Taxes as % of Total Tax & Charge***	***% of Total Taxes to City***
Average	*$1,050,133*	*$1,721*	*$999*	*$54*	*$0*	*$274*	*$3,048*	*$1,285*	*$4,333*	*71%*	*56%*
Apartment	**Unit Value**	**General Municipal**	**School**	**Regional District**	**Hospital**	**BCA, MFA and Other**	**Total Taxes**	**Total Charges**	**Total Taxes and Charges**	***Taxes as % of Total Tax & Charge***	***% of Total Taxes to City***
Average	*$737,119*	*$1,204*	*$700*	*$38*	*$0*	*$192*	*$2,135*	*$1,201*	*$3,336*	*64%*	*56%*

- Of the residential property taxes, about ½ goes to the local municipality, and the rest to other authorities.
- Of the total taxes & fees paid, ¼ to ⅓ goes towards utility fees.
- Approximately ⅓ of municipal expenditures are impacted to some degree by development form / density, while ⅔ are not.

Note: Values are from 2023

WHAT DOES IT MEAN AND WHAT TO DO?

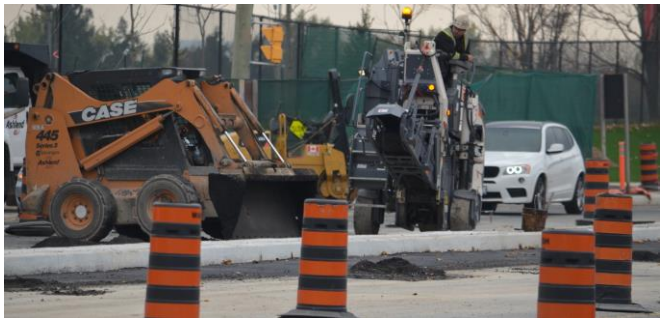
3 categories, 10 considerations about:

- Municipal property taxes and utility fees
- Cost-effective residential development
- Differences between theory and practice

1) TO DO: PROPERTY TAXES AND UTILITY FEES

- Price the costs of services and charge those who benefit
- Wherever reasonably possible, consider utility fees rather than property taxes
- Utility fees should not be focused simply on raising revenues

UTILITY METERS AND USER FEES



2) TO DO: COST-EFFECTIVE DEVELOPMENT

- Remove regulatory and financial barriers to urban densification in appropriate locations, such as urban centres
- Recognize that achieving compact, complete communities does not necessarily require extremely high-density development
- Apply Development Cost Charges that vary by residential unit type/size/density as well as sub-area geography
- Transparently illustrate and explain infrastructure / servicing costs and trade-offs when development scenarios are being considered

VARIABLE DCCS BASED ON DENSITY / LOCATION

	Road	Drainage	Sewage	Water	Park Acquisition	Park Development	Total Development Cost Charge
Residential 1 (per dwelling unit)	$16,889.00	$7,081.00	$665.00	$2,094.00	$15,596.00	$5,302.00	**$47,627.00**
Residential 2 (per dwelling unit)	$16,467.00	$2,853.00	$565.00	$1,777.00	$13,233.00	$4,499.00	**$39,394.00**
Residential 3 (per dwelling unit)	$14,356.00	$1,957.00	$444.00	$1,396.00	$10,398.00	$3,535.00	**$32,086.00**
Residential 4 (per dwelling unit)	$12,667.00	$1,246.00	$343.00	$1,079.00	$8,034.00	$2,732.00	**$26,101.00**

Residential 1 means residential developments having a density of 15 or less dwelling units (du) per hectare.

Residential 2 means residential developments having a density greater than 15 up to 44 dwelling units per hectare.

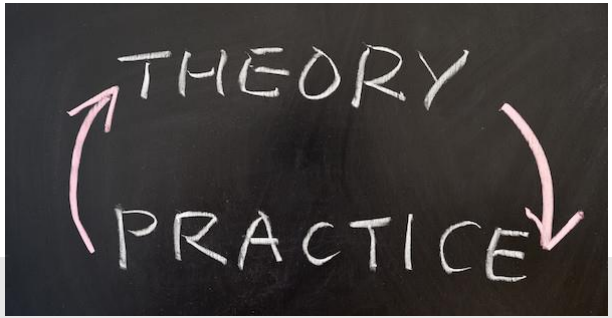
Residential 3 means residential developments having a density greater than 44 up to 74 dwelling units per hectare.

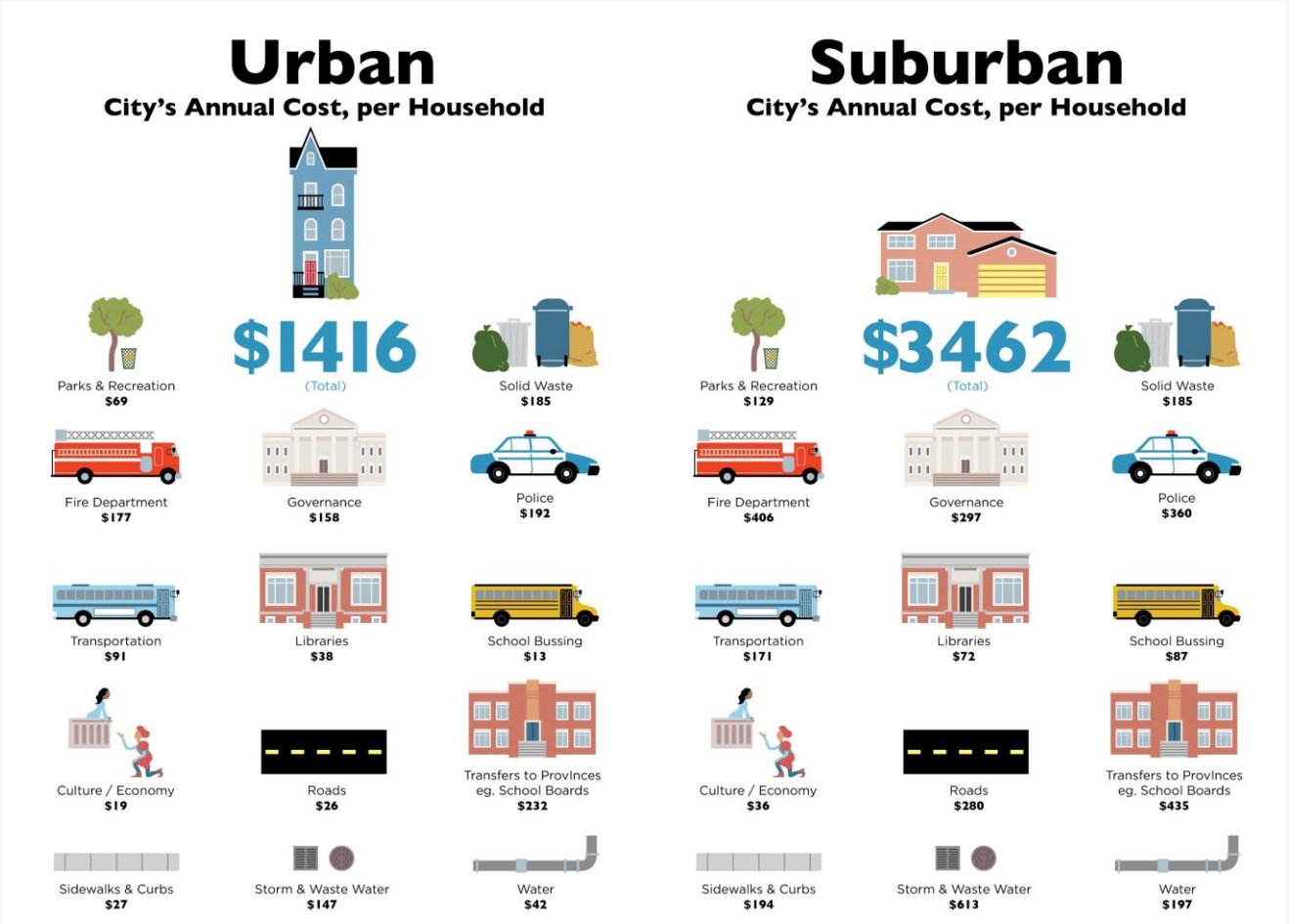
Residential 4 means residential developments having a density greater than 74 dwelling units per hectare.

Source: Township of Langley DCCs, 2023

3) TO DO: THEORY AND PRACTICE

- Better communicate the benefits of compact, complete development, mixed-use, walkable, and transit-oriented communities
- There are often some unintended imperfections and forms of cross-subsidization of municipal infrastructure and services
- Direct efforts towards items that matter the most with the greatest opportunity for improvement





Source: Smart Prosperity Institute: The Cost of Sprawl, 2013

STUDY KEY TAKEAWAYS …

- Servicing for low density housing cost more per unit
- Most of the capital costs are borne by the developer / homebuyer
- Ongoing operating costs are borne the entire community tax base
- Low density housing forms consume more resources (services, land, nature) and promotes auto-oriented transportation modes
- Communicate the importance and benefits of (cost) effective urban form and coordinated land use and infrastructure planning
- Focus development in urban centres and transit corridors

CLOSING Q&A / DISCUSSION

- What are challenges to applying these findings?
- What issues need to be further explored / addressed?
- How can land-related professionals further collaborate to advance financially sustainable development forms?

- Welcome further questions and discussion.
- Thank you.