

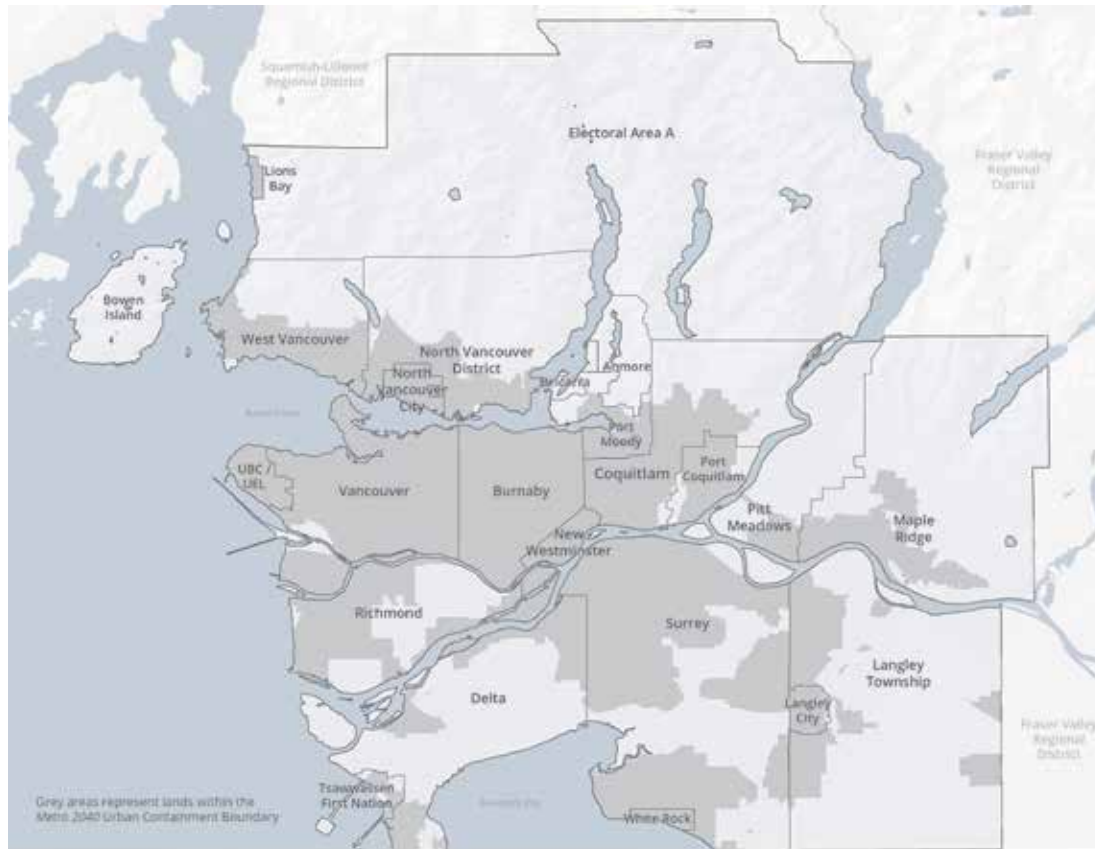


The Metro Vancouver HOUSING AND TRANSPORTATION COST BURDEN STUDY

A NEW WAY OF LOOKING AT AFFORDABILITY

Metro Vancouver

Metro Vancouver operates under provincial legislation as a regional district and three greater boards to deliver regional services, policy, and political leadership on behalf of 23 local authorities. These local authorities comprise 21 municipalities, one treaty First Nation, and one electoral area.



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Executive Summary

The Metro Vancouver Housing and Transportation Cost Burden Study (H+T Study) presents a new way of looking at housing affordability in the region. Typically, housing is considered affordable if a household is spending less than 30% of pre-tax income on it. However, housing and transportation choices are closely linked and represent the two largest expenditures for many working households. Intuitively, people understand that there is a trade-off between housing costs and transportation costs and that as they move to more suburban locations to achieve more affordable housing, their transportation costs will increase. For the first time in this region, the H+T Study quantifies transportation costs and combines them with housing costs to provide a more complete picture of affordability for working households.

KEY FINDINGS

Conversations about affordability in this region must include both housing and transportation costs. Region-wide, owners with mortgages paid 40% of their pre-tax income for housing and transportation; renters paid 49%. Many families are struggling under the weight of a heavy housing and transportation cost burden, leaving them with difficult choices about what to spend on food, clothing, child care, and other expenses.

Renters and lower income families are feeling it the most. Lower income renter households earning less than \$50,000 can spend up to 67% of their pre-tax income on housing and transportation costs.

Living near frequent transit makes it easier to absorb high housing costs. Access to the Frequent Transit Network helps to absorb high housing costs for many

working households by giving them the choice to spend less on personal vehicles, save money by using transit, and not sacrifice mobility in making that choice. There are two ways to improve access to frequent transit. First, expand frequent transit so that households can reduce transportation costs and live more affordably. The second way is to recognize that every strategically located frequent transit stop is an opportunity to stabilize and add more affordable housing.

High housing and transport costs together make the region less competitive. In the long term, high costs for housing and transportation make it challenging to attract and retain a thriving workforce, which is key to sustaining the region's economy and world-class reputation for livability. It's challenging to attract and keep that workforce when other regions like Calgary and Ottawa have lower annual monthly housing costs and higher incomes.

MOVING FORWARD

When housing and transportation costs are looked at together, a more complete picture of the burden faced by working households emerges. In particular, the H+T Study reveals that low and moderate income households shoulder a heavy housing and transportation cost burden that is beyond their financial capacity. Improving access and expanding the reach of frequent transit in the region will help households in rapidly growing communities be less auto-dependent and reduce their transportation expenditures. Consequently, a new conversation among multi-sector stakeholders is needed to better understand the connections, challenges, and integrated solutions that are possible when housing, transportation, and the economy are considered together.



Study Purpose

The Metro Vancouver Housing and Transportation Cost Burden Study sets out a new way of looking at affordability for working households. The traditional measure of affordability is the share of pre-tax household income going towards housing costs. By this measure alone, housing in the region exacts a heavy burden on many households. But the relative cost burden can vary greatly in the region depending on whether affordability includes housing costs only, or a combination of housing and transportation costs – typically the top two household expenditures. Adding to the complexity is the divergence between housing and transportation costs and household incomes.

The study sets out to answer the following questions:

1. What is the effect on affordability when transportation costs are added to housing costs?
2. Do working owner and renter households have different cost burdens?
3. Are transit-oriented locations more affordable for certain households when the combined housing and transportation cost burden is considered?

This report is timely. It brings to the attention of public and private decision-makers the opportunities to strengthen the alignment between land use, affordable housing, and transportation policy in the implementation of *Metro 2040* – Metro Vancouver’s regional growth strategy; to accelerate affordable housing supply to meet unmet demand; and, to improve the economic outcomes for working households. The report is also timely as the region pursues an ambitious transit expansion program, which can be catalytic for affordable transit-oriented communities.

WHAT ARE HOUSING AND TRANSPORTATION COSTS?

Housing costs are either monthly gross rents or owner’s major payments. Monthly gross rents include, where applicable, the monthly rent and the costs of electricity, heat, water, and other municipal services. Owner’s major payments include, where applicable, the mortgage payment, the costs of electricity, heat, water and other municipal services, property taxes and condominium fees.

Transportation costs comprise transit and personal vehicle payments. Transit costs include, where applicable, cash fare, faresaver tickets, monthly passes, U-Pass, etc. Personal vehicle payments include fixed costs (insurance, license and registration fees, sales taxes, and depreciation) and operating costs (fuel, maintenance, and tire wear). Bridge tolls, parking fees, car rental, taxi fares, car share fees, and travel time costs – although potentially high for many households – were excluded due to data and methodological limitations. Please see page 35 for the methodology.

WHAT IS A COST BURDEN?

In this study, cost burden refers to the combined household expenditures on housing and transportation relative to gross household income. The accepted threshold for housing-only cost burden is 30 percent.

WHAT IS METRO 2040?

Metro 2040 is the region’s growth strategy to accommodate one million additional residents and half-million jobs in the region by 2040 in a way that is livable. The plans calls for 68 percent of that growth to be focused in Urban Centres and along the Frequent Transit Network. *Metro 2040* also sees a transformative role for transit to create complete and healthy communities. Transit provides mobility and access to residents while reducing their dependence on car ownership and driving. Transit shapes land use development by creating the nodes and corridors for municipalities to focus growth and infrastructure. And, transit can be a means of creating housing and economic opportunities that are inclusive of low and moderate income working households.

For more information, go to:

www.metrovancouver.org/services/regional-planning/metro-vancouver-2040

A Focus on the Working Household

Working renters and owners with mortgages – representing three quarters of all working households in the region – are the focus of this report, with particular attention paid to households earning less than \$75,000 per year (roughly 120 percent of the regional median household income). These low and moderate income households make up 37 percent of owners with mortgages, and 70 percent of renters.

A prosperous metropolitan area requires a stable workforce to provide the skills, services, and innovation essential for maintaining a high quality of life. Equally important, the workforce, through general and income taxation, provides the means for governments to invest in public infrastructure and services, to support the increasing number of retired workers, and to support the education and training of the new generation of workers. But housing and transportation costs are weighing down many working households.

TABLE 1: KEY FACTS ABOUT WORKING HOUSEHOLDS

KEY FACTS	WORKING HOUSEHOLDS: OWNERS WITH MORTGAGES	WORKING HOUSEHOLDS: RENTERS	TOTAL
TOTAL HOUSEHOLDS	304,965	224,040	529,005
MEDIAN BEFORE-TAX INCOME	\$92,281	\$52,153	\$73,577
LESS THAN \$30,000 (LOW INCOME)	24,025 (8%)	52,395 (23%)	76,415 (14%)
\$30,000-\$50,000 (LOW-TO-MODERATE INCOME)	33,665 (11%)	53,815 (24%)	87,475 (17%)
\$50,000-\$75,000 (MODERATE INCOME)	55,270 (18%)	50,555 (23%)	105,830 (20%)
\$75,000 AND HIGHER (ABOVE MODERATE INCOME)	192,000 (63%)	67,275 (30%)	259,275 (49%)
CENSUS FAMILY HOUSEHOLDS WITH CHILDREN	62%	37%	51%
ONE PERSON HOUSEHOLDS	15%	34%	23%
HOUSEHOLD MAINTAINER AGE 25-34	15%	28%	21%
HOUSEHOLD MAINTAINER AGE 35-44	28%	25%	27%
HOUSEHOLD MAINTAINER AGE 45-64	50%	36%	44%

Source: 2011 National Household Survey (non-farm working households having at least one household member in the employed labour force and income greater than zero).

TABLE 2: PLACE OF RESIDENCE

SUBREGION	WORKING HOUSEHOLDS: OWNERS WITH MORTGAGES	WORKING HOUSEHOLDS: RENTERS	TOTAL
BURNABY/ NEW WESTMINSTER	36,470 (12%)	31,515 (14%)	67,990 (13%)
DELTA	14,645 (5%)	4,635 (2%)	19,280 (4%)
LANGLEY CITY AND TOWNSHIP	22,115 (7%)	6,390 (3%)	28,510 (5%)
NORTHEAST SECTOR*	35,670 (12%)	14,180 (6%)	49,845 (9%)
NORTH SHORE**	23,590 (8%)	14,905 (7%)	38,495 (7%)
PITT MEADOWS/ MAPLE RIDGE	17,485 (6%)	4,785 (2%)	22,275 (4%)
RICHMOND	24,985 (8%)	11,475 (5%)	36,460 (7%)
SURREY/ WHITE ROCK	69,605 (23%)	32,240 (14%)	101,850 (19%)
VANCOUVER/ UEL	60,375 (20%)	103,900 (46%)	164,275 (31%)
METRO VANCOUVER	304,965 (100%)	224,040 (100%)	529,005 (100%)

Source: 2011 National Household Survey

*Northeast Sector: Anmore, Belcarra, Coquitlam, Port Coquitlam, and Port Moody

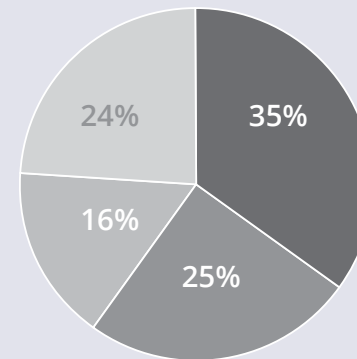
**North Shore: Bowen Island, Lions Bay, North Vancouver District and City, and West Vancouver



WHAT ABOUT OTHER HOUSEHOLDS?

Future reports will examine other household types: working owner households that have paid off their mortgage, and non-working households. The former represents 16 percent of all households; the latter represents about 24 percent of all households in the region.

CHART 1: THE MAKE-UP OF METRO VANCOUVER HOUSEHOLDS (888,000 HOUSEHOLDS IN 2011)



- Working Owners with Mortgages
- Working Renters
- Working Owner No Mortgage
- Non-working Households

A New Way of Looking at Affordability

Housing affordability is a longstanding challenge for working households in the region. The traditional threshold of affordability is whether a household spends less than 30 percent of pre-tax income on housing costs. But affordability is broader than housing alone. Decisions to live in one location over another can also affect how much must be spent on transportation. When housing and transportation costs are combined, a clearer picture of the trade-offs that working households make, whether implicitly or explicitly, is revealed, in addition to the cost burden relative to their incomes.

Housing Costs

Metro Vancouver is one of the most expensive places to live in Canada. Amongst Canada's six metropolitan areas with more than 1 million residents, Metro Vancouver ranked the highest in average monthly costs for homes with a mortgage, and just \$60 less than Calgary for the highest monthly rent in the country.

A significant factor for the "burden" experienced by working households in Metro Vancouver is the comparatively lower incomes. Metro Vancouver working households earn 83 percent of what households make in Calgary, but face 9 percent higher housing ownership costs, and pay nearly the same rent.

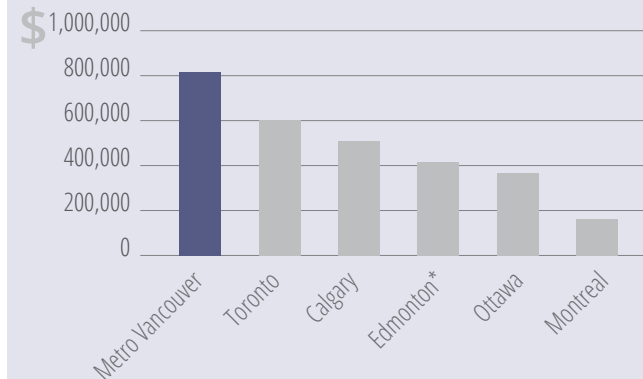
TABLE 3: HOUSING COSTS AND INCOME FOR WORKING HOUSEHOLDS

RANK	AVERAGE MONTHLY HOUSING COSTS FOR HOMES WITH A MORTGAGE (2011)	
1	Metro Vancouver	\$2,062
2	Toronto	\$2,030
3	Calgary	\$1,891
4	Edmonton	\$1,821
5	Ottawa-Gatineau	\$1,718
6	Montreal	\$1,479
RANK	AVERAGE MONTHLY RENT (2011)	
1	Calgary	\$1,184
2	Edmonton	\$1,125
3	Toronto	\$1,123
4	Metro Vancouver	\$1,120
5	Ottawa-Gatineau	\$981
6	Montreal	\$767
RANK	MEDIAN MONTHLY HOUSEHOLD INCOME (2010)	
1	Calgary	\$7,742
2	Edmonton	\$7,583
3	Ottawa-Gatineau	\$7,429
4	Toronto	\$7,000
5	Metro Vancouver	\$6,426
6	Montreal	\$5,590

COST OF BUYING A HOME

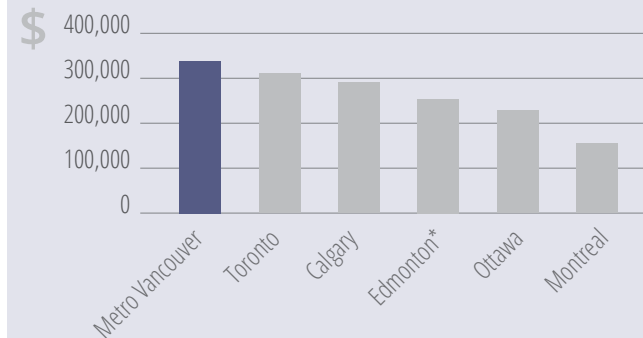
In 2014, Metro Vancouver sales prices for detached houses and apartments exceeded those of every other large Canadian metro area. Please note the average annual housing ownership cost data presented in this report represent the average for all homes with mortgages, and not just homes purchased during the run-up in prices in the past decade.

CHART 2: COMPARATIVE DETACHED HOUSE SALES PRICES 2014



Source: Canadian Real Estate Association Home Price Index Benchmark Price Single Family Dwelling July 2014.

CHART 3: COMPARATIVE APARTMENT SALES PRICES 2014



Source: Canadian Real Estate Association Home Price Index Benchmark Price Apartment/Condominium July 2014.

Metro Vancouver is combined Greater Vancouver Real Estate Board and Fraser Valley Real Estate Board areas.

*Edmonton Real Estate Board Median Sale Price Sept 2014.

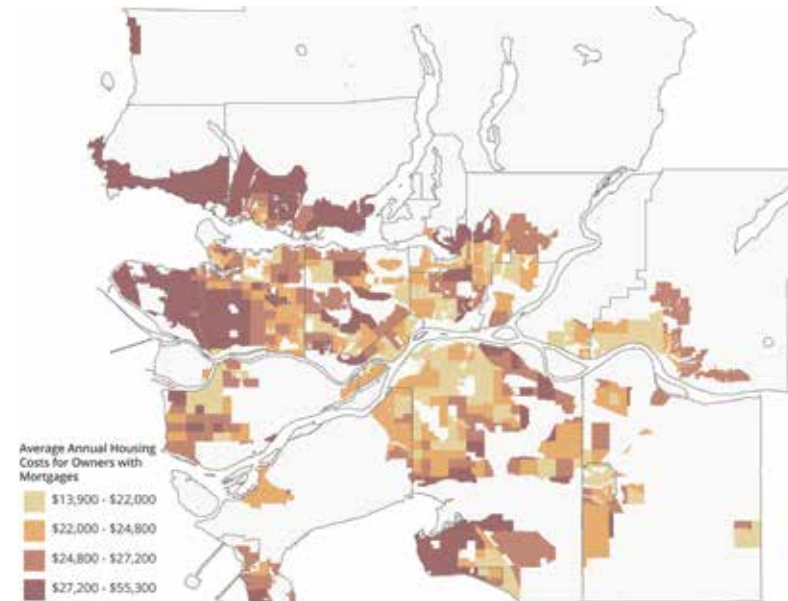


Housing costs vary dramatically across the region. Maps 1 and 2 show the annual housing costs for owners with mortgages and renters classified into quartiles – each group contains one-quarter of the working households. To a degree, the pattern of housing costs for both owners with mortgages and renters suggests relatively lower costs as households live further away from the traditional regional employment core of downtown Vancouver. But as the suburban communities continue to grow, so too will housing costs.

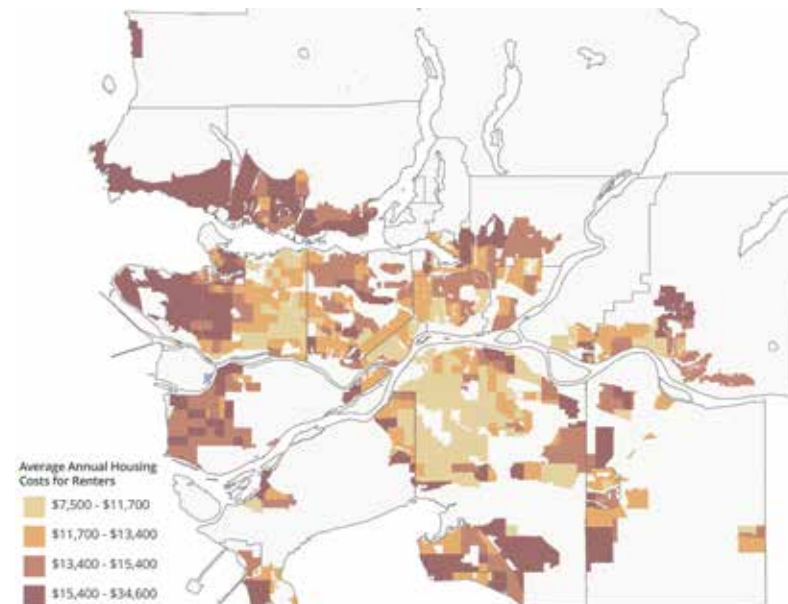
For working households with mortgages, the lowest two quartiles spent between \$13,900 and \$24,800 per year on housing. Many of these households live in the central and eastern parts of the region. In comparison, the top quartile of households resides predominantly in West Vancouver, North Vancouver District, the western half of Vancouver/UEL, and South Surrey.

For working renter households, the pattern is very similar to that of owners. Households in the lowest two quartiles spent between \$7,500 and \$13,400 per year on rent and live in the central and eastern parts of the region.

MAP 1: ANNUAL HOUSING COSTS FOR WORKING OWNERS WITH MORTGAGE (2011)



MAP 2: ANNUAL HOUSING COSTS FOR WORKING RENTERS (2011)



Transportation Costs

The region is served by an extensive regional transit system, with the densest concentration of frequent transit routes in Vancouver/UEL and Burnaby/New Westminster. The amount that working households spend on transit and auto-related expenses reflects to a large degree the density and quality of transit service, the current fare zone structure, and job locations.

The top two quartiles of average annual transit costs for working households were in the range of \$500-1,200 per year (the transit costs represent the average costs over all working households, whether they used transit or not). These households reside in areas served by the Frequent Transit Network. Some of these areas also tend to have a built environment, and accompanying infrastructure, conducive to walking and cycling – two very low cost transportation choices. Transit costs decline precipitously near the edge of the Frequent Transit Network, such as West Vancouver, North Vancouver District, Delta, south Surrey, Langley City and Township, Pitt Meadows, and Maple Ridge. In these areas, frequent transit is sparser and not used as often. The result are higher rates of auto ownership, usage, and costs.

The cost of owning and operating one or more personal vehicles greatly outweighs the cost of taking transit. The top two quartiles of average annual auto costs were in the range of \$13,500-\$17,700 per year, a significantly higher amount than the average annual transit costs.

When transit and auto costs are summed, the resulting pattern shows that working households living in areas highly-served by transit have relatively lower transportation costs. Households in communities on the North Shore, south of the Fraser River, and the eastern reaches of the region face higher costs. This pattern leaves no doubt that the “location efficiency” of communities is intimately tied to the regional transit system.

THE FREQUENT TRANSIT NETWORK

The Frequent Transit Network comprises bus and rapid transit corridors that provide users with reliable service at least every 15 minutes throughout the day and over the entire week. The Frequent Transit Network provides a network of routes around which municipalities can focus population and job growth. As of 2014, about 54 percent of the region’s dwellings and 65 percent of jobs were within walking distance of the Frequent Transit Network.

TAKING TRANSIT

As of 2015, an adult monthly transit pass for travel on bus, SeaBus, and SkyTrain services ranges from \$91 to \$170. An adult purchasing monthly 2-zone transit passes would spend \$1,488 over the course of the year. The cost of monthly transit passes can be claimed as federal tax credits.

TABLE 4: MONTHLY TRANSIT PASS COSTS (2015)

	1 ZONE	2 ZONE	3 ZONE
ADULT PRICE	\$91	\$124	\$170
CONCESSION PRICE	\$52	\$52	\$52

GETTING TO WORK

Job location is a factor that influences the amount spent on transportation. All but two subregions have a majority of employed commuter residents travelling outside their home subregion for work. The majority of work trips are by auto. One of the objectives of *Metro 2040* is to encourage more jobs to be located where people live.

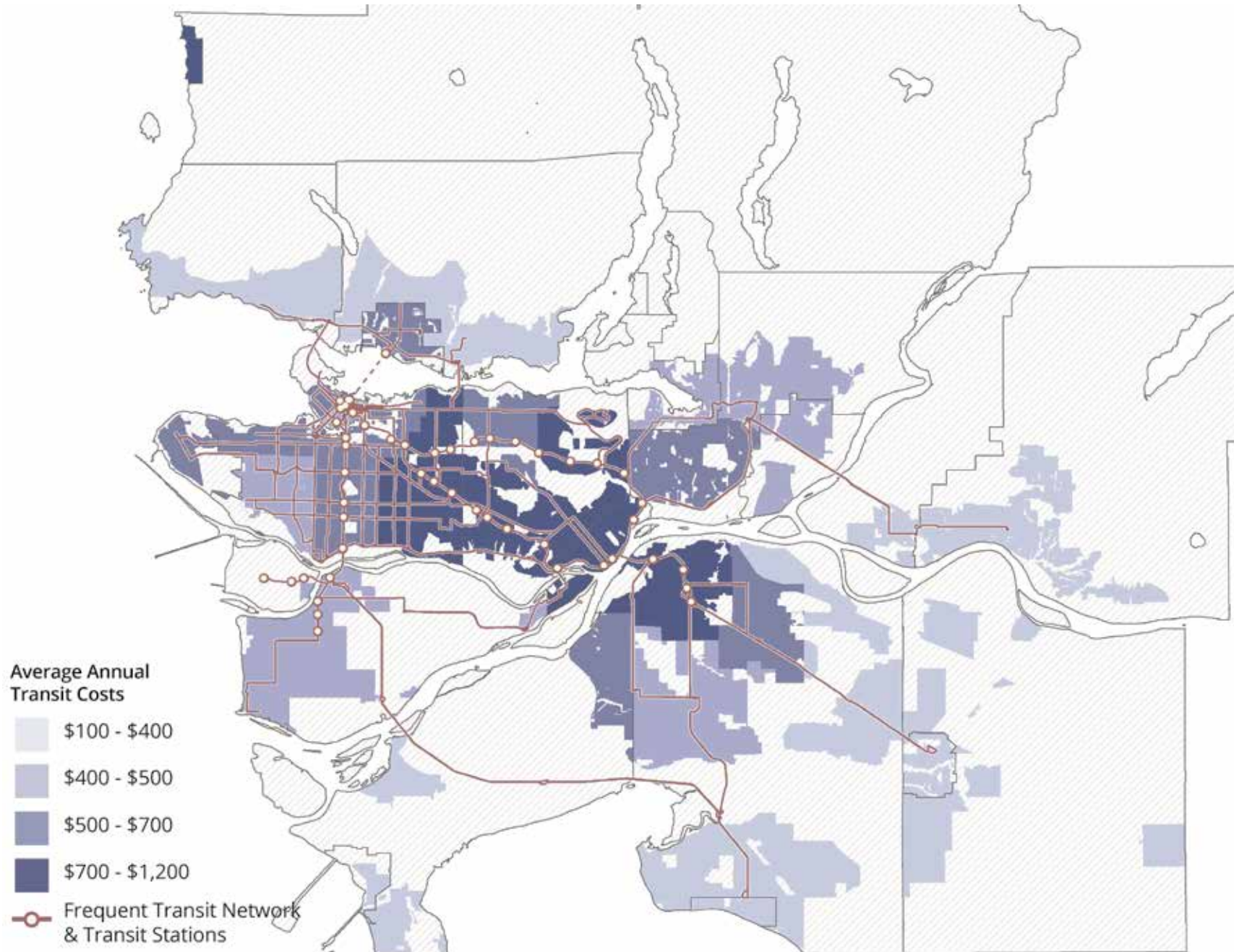
TABLE 5: PERCENT OF COMMUTERS WORKING OUTSIDE HOME SUBREGION (2011)

HOME SUBREGION	% OF COMMUTERS WORKING OUTSIDE HOME SUBREGION	SHARE OF COMMUTE TRIPS BY AUTO AS DRIVER OR PASSENGER	SHARE OF COMMUTE TRIPS BY TRANSIT
DELTA	70%	84%	14%
NORTHEAST SECTOR	64%	77%	20%
PITT MEADOWS/ MAPLE RIDGE	61%	84%	14%
BURNABY / NEW WESTMINSTER	61%	64%	34%
LANGLEY CITY AND TOWNSHIP	54%	94%	4%
SURREY / WHITE ROCK	53%	81%	17%
NORTH SHORE	53%	73%	22%
RICHMOND	45%	73%	25%
VANCOUVER	32%	67%	28%

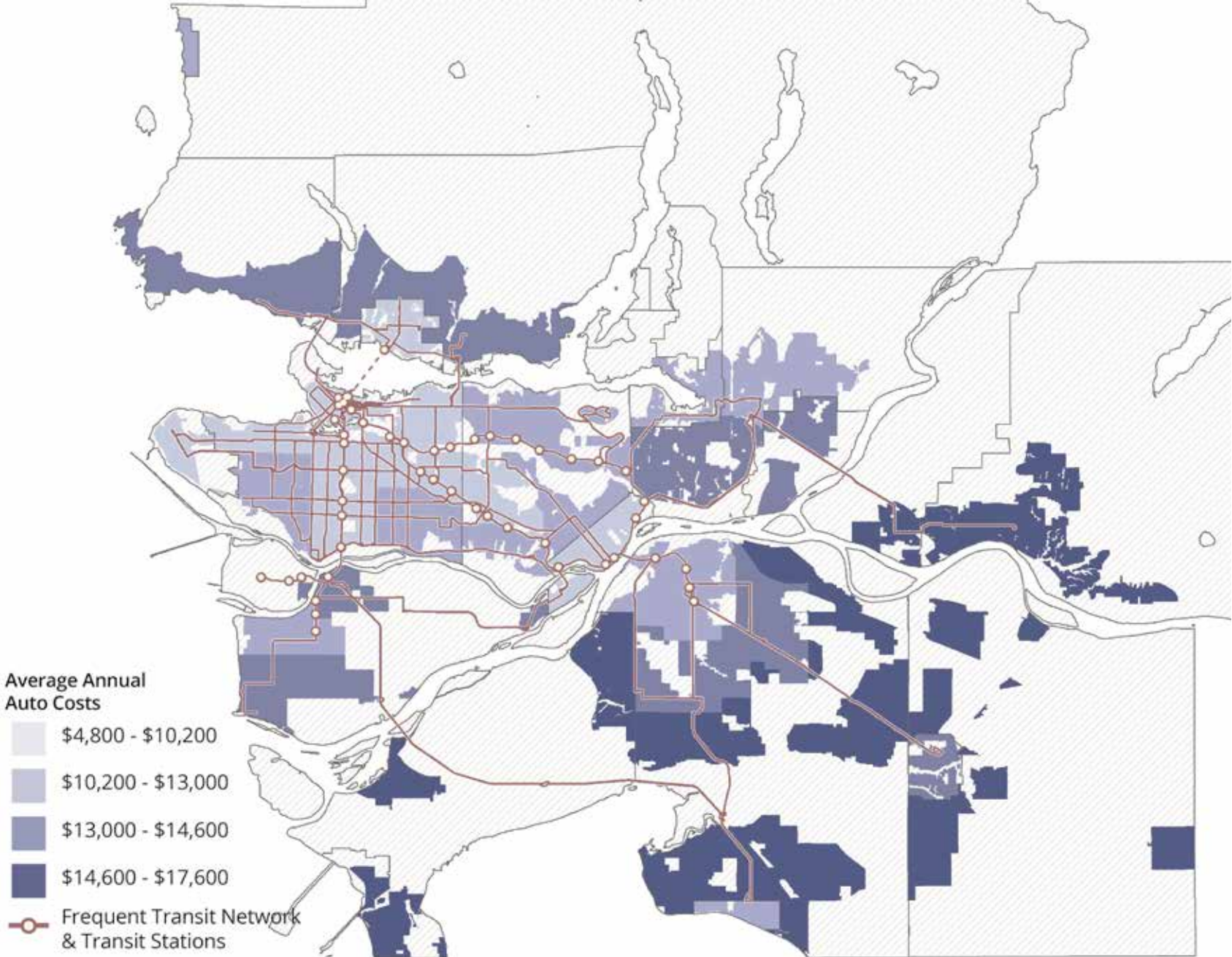
Source: 2011 National Household Survey. Excluding residents working at home or have no fixed work address.

UEL residents excluded from ‘Vancouver’ due to data suppression.

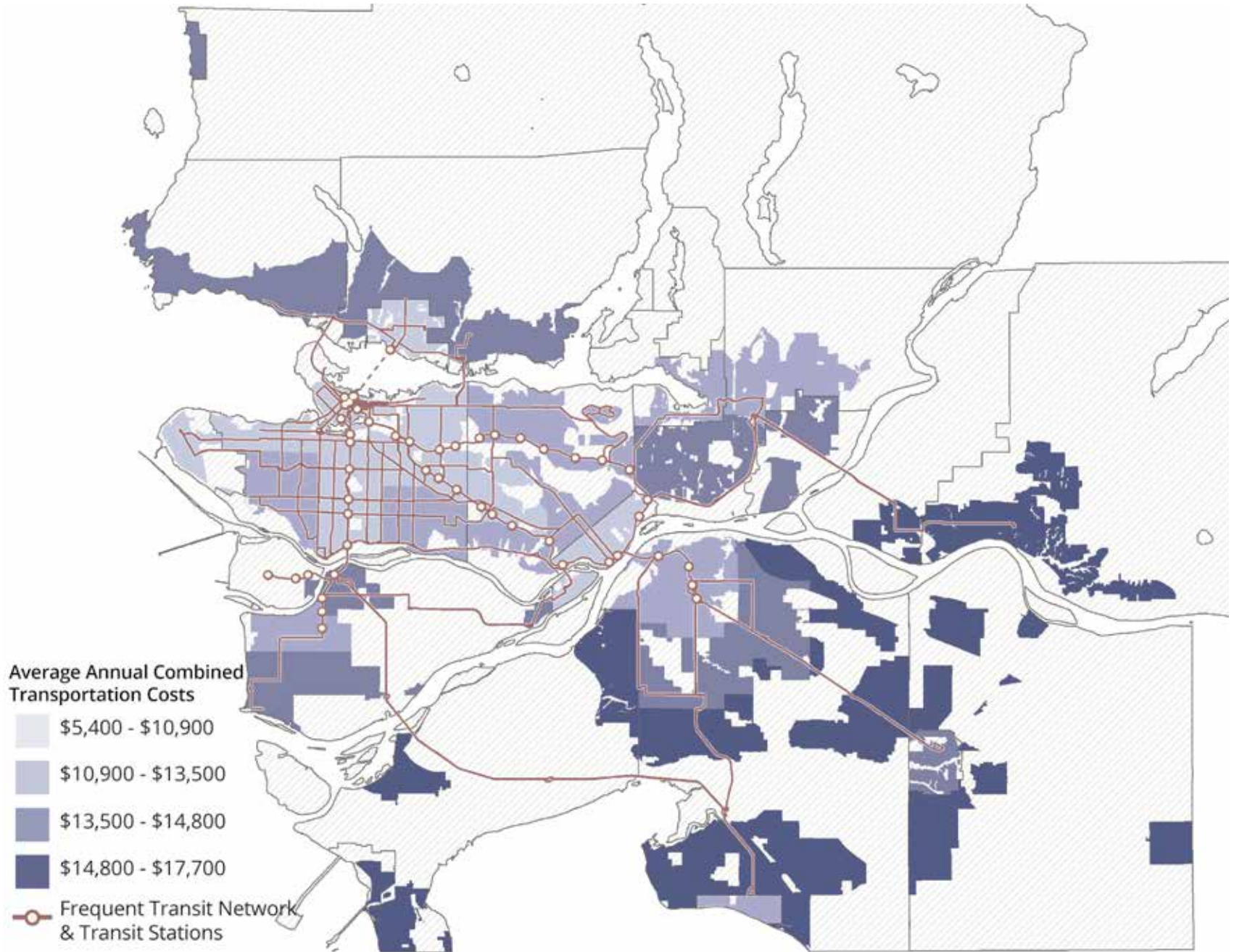
MAP 3: AVERAGE ANNUAL TRANSIT COSTS FOR WORKING HOUSEHOLDS (2011)



MAP 4: AVERAGE ANNUAL AUTO COSTS FOR WORKING HOUSEHOLDS (2011)

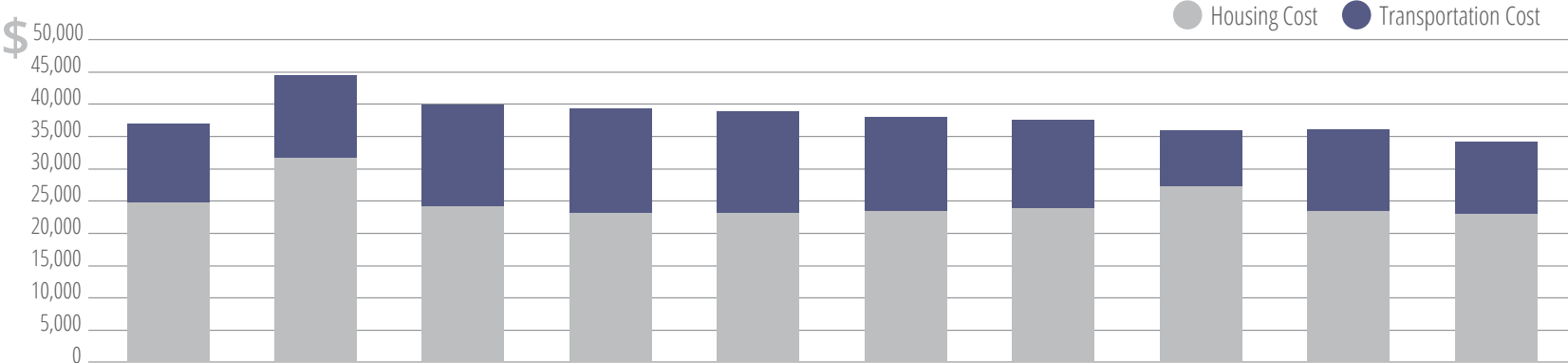


MAP 5: COMBINED AVERAGE ANNUAL TRANSIT AND AUTO COSTS FOR WORKING HOUSEHOLDS (2011)



Combined Housing and Transportation Cost Burden

CHART 4: WORKING OWNER HOUSEHOLDS WITH MORTGAGES



	METRO VANCOUVER	NORTH SHORE	DELTA	LANGLEY CITY AND TOWNSHIP	PITT MEADOWS/ MAPLE RIDGE	SURREY/ WHITE ROCK	NORTHEAST SECTOR	VANCOUVER/ UEL	RICHMOND	BURNABY/ NEW WESTMINSTER
HOUSING COSTS*	\$24,744	\$31,500	\$24,192	\$23,088	\$22,956	\$23,292	\$23,856	\$27,228	\$23,232	\$23,016
TRANSPORTATION COSTS**	\$12,301	\$13,036	\$15,769	\$16,345	\$15,974	\$14,685	\$13,827	\$8,989	\$12,823	\$11,133
H+T COSTS	\$37,045	\$44,536	\$39,961	\$39,433	\$38,930	\$37,977	\$37,683	\$36,217	\$36,055	\$34,149
SUBREGIONAL MEDIAN INCOME	\$92,281	\$113,793	\$104,435	\$93,281	\$93,585	\$89,902	\$95,660	\$92,452	\$80,460	\$84,925
H+T AS % OF SUBREGIONAL MEDIAN INCOME	40%	39%	38%	42%	42%	42%	39%	39%	45%	40%

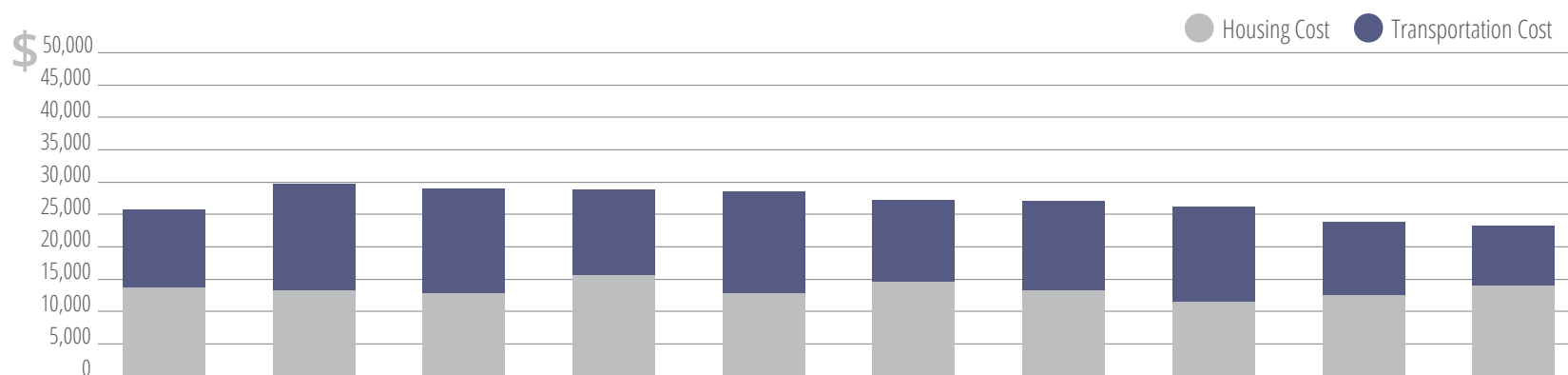
*Housing costs represent average payments for all homes owned by working households with mortgages.

**Transportation cost estimates are representative for working households, regardless of tenure.

Working households in Metro Vancouver can spend up to one-half of their pre-tax incomes on housing and transportation costs. Working owners with mortgages spend \$24,700 on housing costs; renters spend \$13,400 on housing costs. When the generalized cost of transportation for working households is added, the combined housing and transportation cost burden relative to regional median income is 40 percent for owners, and 49 percent for renters.

The housing and transportation cost burden does not vary across subregions as much as might be expected. While households living in the eastern or southern parts of the region with fewer transit options may have lower housing costs, the final cost burden is pulled up by higher transportation costs. The location efficiency of communities is an important finding.

CHART 5: WORKING RENTER HOUSEHOLDS



	METRO VANCOUVER	LANGLEY CITY AND TOWNSHIP	PITT MEADOWS/ MAPLE RIDGE	NORTH SHORE	DELTA	RICHMOND	NORTHEAST SECTOR	SURREY/ WHITE ROCK	BURNABY/ NEW WESTMINSTER	VANCOUVER/ UEL
HOUSING COSTS	\$13,440	\$13,344	\$12,912	\$15,684	\$12,804	\$14,604	\$13,236	\$11,352	\$12,516	\$14,004
TRANSPORTATION COSTS*	\$12,301	\$16,345	\$15,974	\$13,036	\$15,769	\$12,823	\$13,827	\$14,685	\$11,133	\$8,989
H+T COSTS	\$25,741	\$29,689	\$28,886	\$28,720	\$28,573	\$27,427	\$27,063	\$26,037	\$23,649	\$22,993
SUBREGIONAL MEDIAN INCOME	\$52,153	\$55,549	\$54,974	\$57,178	\$57,247	\$54,377	\$52,000	\$52,149	\$49,989	\$51,405
H+T AS % OF SUBREGIONAL MEDIAN INCOME	49%	53%	53%	50%	50%	50%	52%	50%	47%	45%

*Transportation cost estimates are representative for working households, regardless of tenure.

For example, although ownership and rental costs in Vancouver/Uel are the second and third highest in the region, respectively, and higher than the regional average, its annual transportation costs are nearly \$3,000 below the regional average of \$12,301. The combined housing and transportation cost in Vancouver/Uel is below the respective

regional averages for owners and renters. Working households in the eastern parts of the region and south of the Fraser – Pitt Meadows/Maple Ridge, Delta, Surrey/White Rock, and Langley City and Township – face some of the highest combined costs on an absolute basis and relative to median income.

The Frequent Transit Network Factor

Access to the Frequent Transit Network helps working households absorb high housing costs. As Tables 6 and 7 show, the relative cost burden of places in the region can vary greatly depending on whether affordability includes housing costs only, or a combination of housing and transportation costs.

As noted earlier, owners and renters in Vancouver/UEL face some of the highest housing costs in the region. But once transportation costs are factored in, Vancouver/UEL becomes relatively more affordable (dropping 6 spots in the cost burden ranking for owners, and 7 spots for renters). Other subregions that show improvements in relative affordability are Burnaby/Westminster, Richmond (for renters), and the North Shore – all areas served by the Frequent Transit Network. In contrast with other parts of the region well-served with frequent transit, Richmond’s higher cost burden for owners appears to be related to a relatively lower median income. Other subregions that are relatively more affordable with respect to housing ownership costs only can have relatively higher cost burdens after transportation costs are included.

Ultimately, households make trade-offs when choosing where to live. These decisions are based in part on personal preferences, housing price, available housing types and sizes, neighbourhood character, quality of services and amenities, and proximity to work, school, and social networks. Proximity to the existing Frequent Transit Network is an additional criterion that is worth considering. Looking ahead, improving access and expanding the reach of the Frequent Transit Network will help households in rapidly developing communities be less auto-dependent and reduce their transportation expenditures.

TABLE 6: TRANSPORTATION FACTOR ON COST BURDEN: OWNERS WITH MORTGAGES

1 = Highest Cost Burden 9 = Lowest Cost Burden				
	HOUSING AS % OF SUBREGIONAL MEDIAN INCOME	HOUSING + TRANSPORTATION AS % OF SUBREGIONAL MEDIAN INCOME	CHANGE IN RANK	CHANGE IN RELATIVE COST BURDEN
VANCOUVER/ UEL	1	7	-6	Improved
RICHMOND	2	1	+1	Worsened
NORTH SHORE	3	8	-5	Improved
BURNABY/ NEW WESTMINSTER	4	5	-1	Improved
SURREY/ WHITE ROCK	5	3	+2	Worsened
NORTHEAST SECTOR	6	6	0	No Change
LANGLEY CITY AND TOWNSHIP	7	2	+5	Worsened
PITT MEADOWS/ MAPLE RIDGE	8	4	+4	Worsened
DELTA	9	9	0	No Change

TABLE 7: TRANSPORTATION FACTOR ON COST BURDEN: RENTERS

1 = Highest Cost Burden 9 = Lowest Cost Burden				
	HOUSING AS % OF SUBREGIONAL MEDIAN INCOME	HOUSING + TRANSPORTATION AS % OF SUBREGIONAL MEDIAN INCOME	CHANGE IN RANK	CHANGE IN RELATIVE COST BURDEN
NORTH SHORE	1	5	-4	Improved
VANCOUVER/ UEL	2	9	-7	Improved
RICHMOND	3	4	-1	Improved
NORTHEAST SECTOR	4	3	+1	Worsened
BURNABY/ NEW WESTMINSTER	5	8	-3	Improved
LANGLEY CITY AND TOWNSHIP	6	1	+5	Worsened
PITT MEADOWS/ MAPLE RIDGE	7	2	+5	Worsened
DELTA	8	7	+1	Worsened
SURREY/ WHITE ROCK	9	6	+3	Worsened

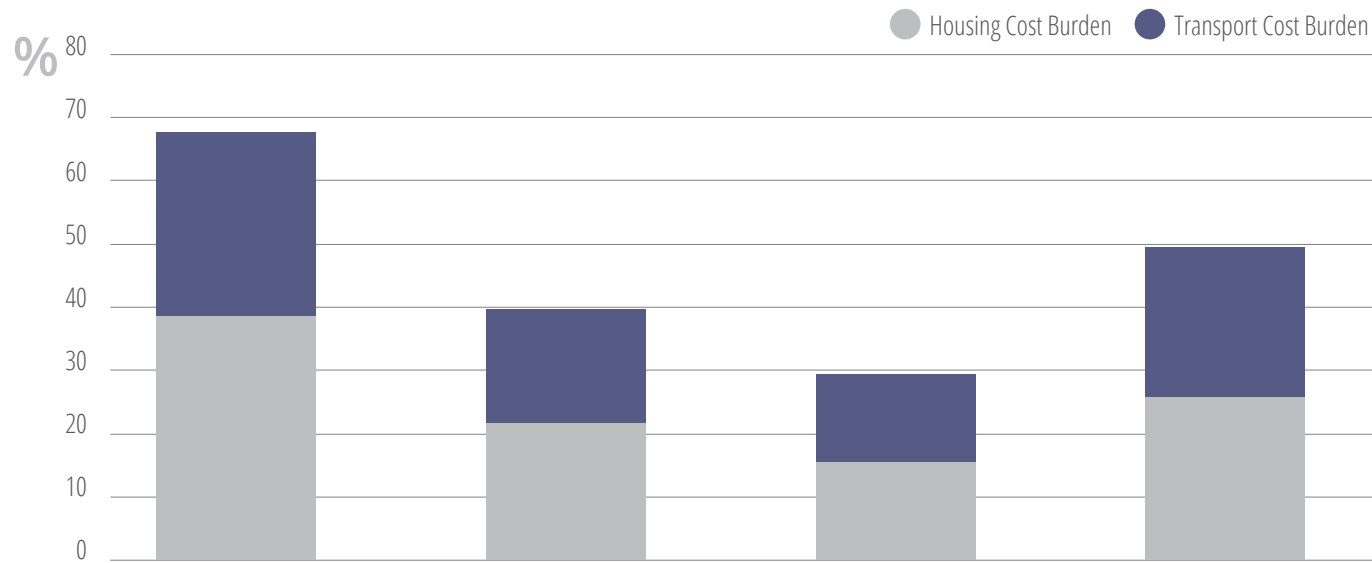
A Heavy Cost Burden for Renters

As household income grows, expenditures on private goods (larger homes, cars, food, leisure, air travel, and luxury goods) generally also rises. But, housing and transportation costs do not necessarily rise in lock-step with income levels. The study confirms that working households earning less than \$75,000 are feeling financially squeezed in Metro Vancouver.

Renter households making less than \$50,000 shoulder a housing and transportation cost burden (67%) that is grossly disproportionate to their financial capacity. Renter households earning between \$50,000 and \$75,000 are in a relatively better financial situation with a cost burden of 40 percent.

Managing the cost burden will require concerted efforts to improve the affordability of housing and transport, and to create opportunities for economic mobility and growth.

CHART 6: HOUSING AND TRANSPORTATION COST BURDEN FOR WORKING RENTER HOUSEHOLDS BY INCOME



	LESS THAN \$50,000	\$50,000 TO LESS THAN \$75,000	\$75,000 OR MORE	ALL RENTERS
# HOUSEHOLDS	106,210	50,555	67,275	224,040
H+T COSTS	\$20,144	\$24,252	\$30,480	\$25,741
MEDIAN INCOME	\$30,228	\$61,170	\$103,831	\$52,153
H+T COST BURDEN	67%	40%	29%	49%

Taking a Closer Look at Working Households

A BURNABY RENTER HOUSEHOLD

Julia lives with her 7-year old daughter and 4-year old son in a 2-bedroom rental apartment in Burnaby. She earns \$47,000 per year as an office administrator at a New Westminster health clinic. Julia pays \$1,276 per month rent, which is one-third of her monthly gross income. Julia drops her daughter off at primary school and her son at daycare by car before taking the SkyTrain to work (parking is not free at work).

Monthly Pre-Tax Income	\$3,941
Income Tax	(\$642)
Child Care Tax Benefits	\$342
Monthly After-Tax Income	\$3,641
Housing Cost	(\$1,276)
Transportation Cost	(\$680)
What's left for other expenses	\$1,685
Child care	(\$1,100)
Food	(\$522)
Clothing	(\$173)
Health care	(\$196)
Deficit at month's end	(\$306)

Methodology and data for vignettes:

Household income, housing costs, and transportation costs were derived from households exhibiting similar attributes using 2011 National Household Survey data and regional trip diary data for the subregion noted. Tax estimates were calculated from incometax.calculatorscanada.ca/britishcolumbia. Other expenses are estimates from Statistics Canada Survey of Household Spending BC 2011 for the relevant income quintile. Median child care costs were sourced from West Coast Child Care Resource Centre, Fee Survey for City of Vancouver. The Canadian Child Tax Benefit and the Universal Child Care Benefit made up the child care tax benefits. Other household expenses such as flights, recreation, gifts, and home furnishings were excluded and would have to come out of savings, borrowings, or reductions in other expenditures. The Provincial Sales Tax, Goods and Services Tax, and other applicable tax credits were excluded.

“As a single parent, I am lucky to have found an apartment near a SkyTrain station and near my children’s school and daycare. Without transit options, I would be in deeper debt every month, what with rent and child care being so expensive.”



“I take public transit to work and just to get around. I can’t afford to buy a home, and do not own a car. By not having to spend money on these big ticket items, I can save for retirement.”



A VANCOUVER RENTER HOUSEHOLD

Daniella is a single renter living in Vancouver with no children living at home. She takes transit to get to her job as a full-time retail sales person in a neighbouring municipality. She does not own a car. Daniella’s pre-tax income is \$33,000 per year, which is about one-half of the region’s median household income.

Owing to Vancouver’s stock of rental buildings and network of frequent buses and SkyTrain, Daniella’s housing and transportation costs take up 35 percent of her gross monthly pay – a burden much lower than the regional average. At month’s end, Daniella has \$506 left for savings and to pay for other household expenses like recreation, household operations, furniture, and gifts.

Monthly Income	\$2,742
Income Tax	(\$384)
Monthly After-Tax Income	\$2,358
Housing Cost	(\$851)
Transportation Cost	(\$110)
What’s left for other expenses	\$1,397
Child care	0
Food	(\$522)
Clothing	(\$173)
Health care	(\$196)
At month’s end	\$506

A SURREY OWNER HOUSEHOLD

Surajit is a manager of a wholesale shipping company – one of the top employing occupations in the province – earning about \$48,000 per year. Surajit’s wife, Reshmi, is a homemaker looking after their young children. Surajit drives a car to work, and Reshmi drives a second car to take their two children to primary school. Their monthly housing costs of \$1,320 represents 33% of their pre-tax income. When the cost of owning two cars are included, the housing and transportation cost burden for this moderate income household reaches 67 percent.

At month’s end, this Surrey family will have to reach into their savings, borrow money, or reduce expenditures on other household needs.

Monthly Income	\$4,019
Income Tax	(\$676)
Child Care Tax Benefits	\$242
Monthly After-Tax Income	\$3,585
Housing Cost	(\$1,320)
Transportation Cost	(\$1,354)
What’s left for other expenses	\$911
Child care	0
Food	(\$630)
Clothing	(\$210)
Health care	(\$214)
Deficit at month’s end	(\$143)

“South Surrey made sense from the standpoint of having space to grow as a family. The commute to work is long, but manageable. The school is close to home, so my wife does not have to drive far to drop off and pick up the children.”



“When we were making our housing decision, we wanted to live in Vancouver to be closer to work and transit but we could not afford the high housing costs. So we found a townhouse in Coquitlam that is more affordable and will allow us to grow as a family. We can’t wait for the Evergreen Line, which will probably allow us to sell one of our two cars.”



A COQUITLAM OWNER HOUSEHOLD

The Owens recently purchased a townhouse in Coquitlam. Dad and mom – both in their early 30’s – work full time as elementary school teachers. Due to having jobs in different municipalities and limited transit options, both parents drive to work. The Owens have a young child in full time daycare. The Owens’ combined gross annual income of \$94,000 puts them into the above moderate income category. At month’s end the family has \$326 to spend on other household expenses.

Monthly Income	\$7,871
Income Tax	(\$1,901)
Child Care Tax Benefits	\$174
Monthly After-Tax Income	\$6,144
Housing Cost	(\$2,218)
Transportation Cost	(\$1,353)
What’s left for other expenses	\$2,573
Child care	(\$900)
Food	(\$808)
Clothing	(\$306)
Health care	(\$233)
At month’s end	\$326



LIVE + WORK
RENT
HERE

A Path Towards Integrated Solutions

The evidence shows that working households in Metro Vancouver face high housing and transportation costs that cut into savings and spending on other basic necessities. Working owners with mortgages have an estimated housing and transportation cost burden of 40 percent; working renters have a cost burden of 49 percent.

Although the combined housing and transportation cost burden is relatively consistent across the region, the amount of pre-tax income devoted to housing and transportation varies from area to area. In places where households spend more on housing, they may spend less on transportation, and vice-versa. While households in areas of the region with a dense network of frequent transit generally spend more on transit, they also spend considerably less on personal vehicles and driving. Access to the Frequent Transit Network helps working households absorb the high cost of housing.

Household income is a key component of the cost burdens. Higher income households can spend much more on housing and transportation, and still maintain a relatively affordable burden. In contrast, low and moderate income households shoulder a burden that is grossly disproportionate to their financial capacity.

These outcomes could only have been drawn by looking at affordability in a new way. When housing and transportation costs are combined, a more complete picture of the burden faced by working households emerges. The analysis also unveils the high cost of child care for young families. Future studies can examine the costs of different housing types, trends over time, the cost burden of non-working households, households with

children, the volatility of home and transportation energy costs, bridge tolls, and the cost of rising road congestion and travel times.

The analysis presents only the current challenges. With an additional 1 million people coming to the region by 2040, the cost burden on working households will only get heavier. Metro Vancouver's livability and prosperity depends on a thriving workforce that can afford to live in the region at a reasonable standard. But there is not one single solution or one single actor who can solve the high housing and transportation cost burden. Synergistic solutions could come about if housing, transit, and economic development stakeholders commit to shared objectives and collective action.

Given the scale of the challenges, a new conversation is needed among stakeholders from multiple sectors to better understand the connections, challenges, and integrated solutions that are possible when housing, transportation, and the economy are considered together. Four questions to initiate the new conversation are how to:

- **Match** affordable housing supply to demand?
- **Connect** transit and affordable housing?
- **Promote** regional economic prosperity?
- **Partner** to make solutions happen?

MATCHING affordable housing supply to demand

Metro Vancouver forecasts a total rental housing demand of 64,900 new units over the next 10 years. Of this amount, 21,400 units are needed for low income households and 25,400 units for low-to-moderate income households (generally requiring below market prices to achieve affordability). The remaining demand for 18,100 rental units is at market rents.

The housing market is working well for some segments of the population, and not for others. New ownership housing units are meeting ownership demand. The supply of market rental units is also starting to grow after years of stagnancy -- some of these rental units are affordable for low-to-moderate income households earning between \$30,000 and \$50,000. But neither the for-profit nor the non-profit sector is capable of producing an adequate supply of housing affordable to low income households (less than \$30,000) without significant government subsidy.

In the period 2011 to 2014, private and non-profit developers met 46% and 66% of the estimated demand for low and low-to-moderate income households, respectively. In contrast, market rental supply exceeded demand. This did not result in vacant market rental units, but rather many households having to dig deeper into their pockets to pay more than 30% of their income for housing.

CHART 7: METRO 2040 PROJECTED HOUSING DEMAND (2011-2021)

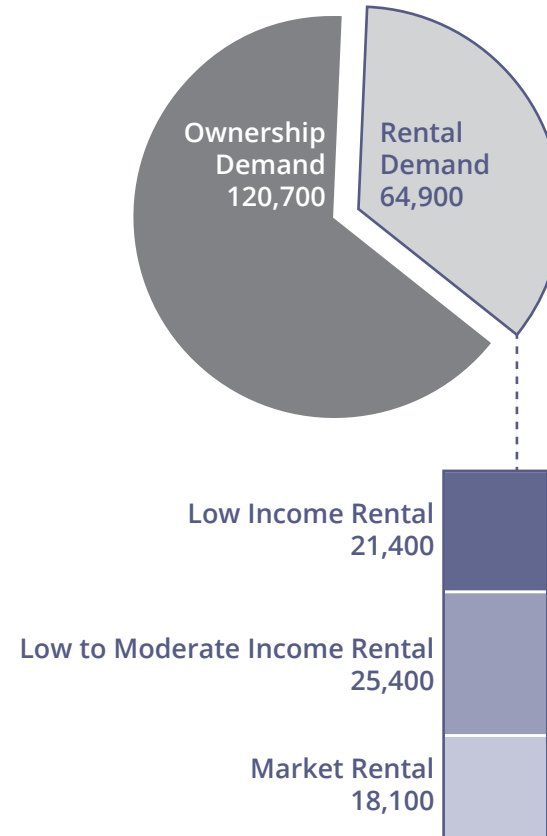


TABLE 8: RENTAL UNIT COMPLETIONS AS SHARE OF DEMAND (2011-2014)

HOUSEHOLD INCOME CATEGORIES	Pre-rent supplements	
	GAP BETWEEN ESTIMATED DEMAND AND COMPLETIONS	RENTAL COMPLETIONS AS A SHARE OF ESTIMATED DEMAND
LOW INCOME (<\$30,000/YR)	-3,900	46%
LOW-TO-MODERATE INCOME (\$30,000-\$50,000/YR)	-2,900	66%
MARKET RENTAL (\$50,000+/YR)	5,200	185%
TOTAL RENTAL UNITS	-1,600	93%

Demand Estimate: Average of Metro 2040 Housing Demand Estimates Table A4 and Statistics Canada annual change in rental housing supply between 2006 and 2011.

Supply Estimate: CMHC. Purpose built rental housing, rented condominiums, secondary suites, and rented duplexes and single family detached housing completions (net of apartment demolitions).



RENT SUPPLEMENTS: AN EFFECTIVE TOOL WITH UNINTENDED CONSEQUENCES

Provincial rent supplement programs help to make existing rental housing more affordable for low income elderly renters and working households with children by effectively raising household income so that the recipient can afford to pay market rents. Rent supplement programs do not create new housing supply. Between 2011 and 2014, the provincial government increased the number of new rent supplements to low income households by 2,700 in Metro Vancouver (as of March 31, 2014, 15,175 households in the region received a rent supplement). After accounting for 2,700 additional rent supplements, the affordability gap picture changes. Over 83 percent of housing demand for low income households was met, but only 35 percent of demand for households earning \$30,000-\$50,000 per year. The net effect, then, was to further strain the existing supply of housing affordable for households earning \$30,000-50,000.

TABLE 9: EFFECT OF RENT SUPPLEMENTS ON MEETING HOUSING DEMAND (2011-2014)

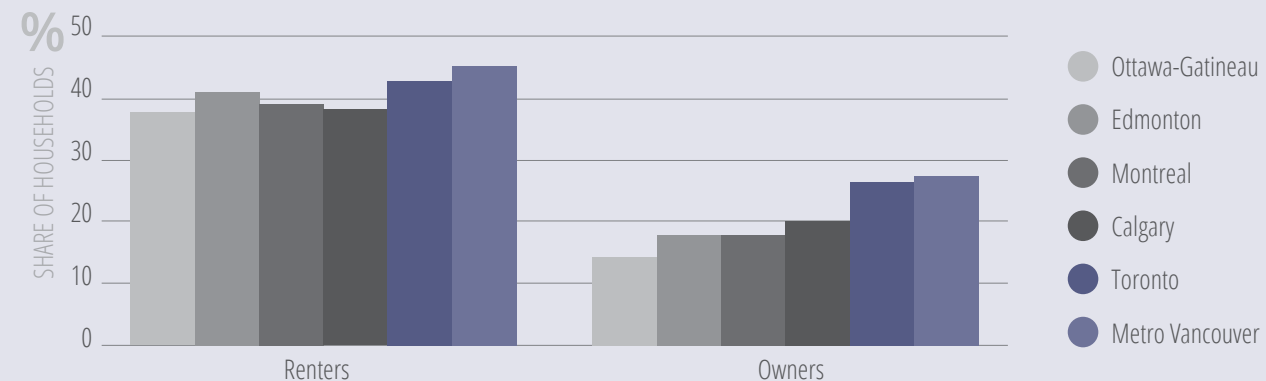
HOUSEHOLD INCOME CATEGORIES	BEFORE RENT SUPPLEMENTS	AFTER RENT SUPPLEMENTS
	RENTAL COMPLETIONS AS A SHARE OF ESTIMATED DEMAND	SHARE OF ESTIMATED RENTAL DEMAND ACHIEVED
LOW INCOME (<\$30,000/YR)	46%	83%
LOW-TO-MODERATE INCOME (\$30,000-\$50,000/YR)	66%	35%
MARKET RENTAL (\$50,000+ /YR)	185%	100%
TOTAL RENTAL UNITS	93%	93%

Source: BC Housing, Research and Corporate Planning Department. Unit Count History Pivot Table. March 31 of each year.

HOUSING COST BURDENS IN MAJOR CANADIAN METROPOLITAN AREAS

Metro Vancouver renter households are significantly worse off than owners, and in comparison to other regions outside of British Columbia. About 45 percent of renter households in the region had a housing cost burden of 30 percent or more – the highest amongst Canada’s large metropolitan areas.

CHART 8: SHARE OF HOUSEHOLDS EXCEEDING 30% HOUSING COST BURDEN (WORKING AND NON-WORKING)



Source: 2011 National Household Survey

CONNECTING Transit and Affordable Housing

Living in transit-oriented locations offer significant benefits for all households. Households have the option to own fewer personal vehicles and drive less, thereby lessening personal transportation costs and impacts on air quality and climate change. Residents have easier access to employment and educational opportunities via the Frequent Transit Network. And, because transit-oriented locations can be designed to accommodate walking and cycling, in addition to transit, households can benefit from a more active lifestyle.

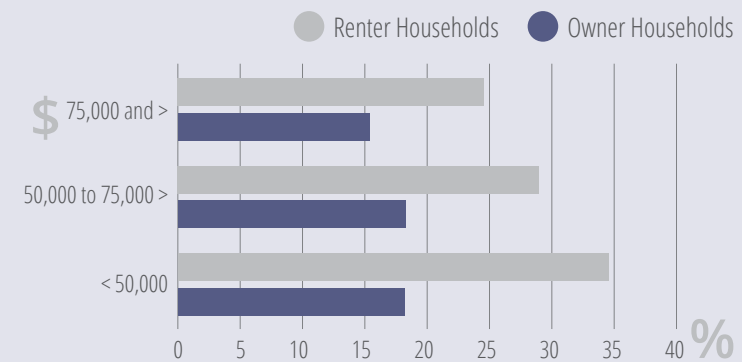
The challenge is to share the benefits of transit-oriented living with low and moderate income households. These households, especially renters, depend on transit to get to work and school. The current regional housing market values high density residential condominium and commercial developments in rapid transit station areas. Low and moderate income households can neither afford to buy nor rent new condominium units. Longstanding purpose-built rental housing buildings near transit are also vulnerable to redevelopment into condominium projects, further reducing the low and moderate income housing supply. Adding to the challenge are the higher land prices – reflecting the desirability of transit-oriented locations – that adversely affect the financial viability of affordable housing projects.

Looking ahead, the region has adopted an ambitious transit expansion vision which will see new rail rapid transit lines, new B-Line bus corridors, and more frequent bus routes throughout the region. Once implemented, the transit vision will greatly expand the number of transit-oriented locations. Each new transit-oriented location provides the opportunity to make the transit and affordable housing connection – but partnership and concerted efforts are necessary to make affordable housing a reality.

TRANSIT IS A LIFELINE TO JOBS

For many working households, transit is not a luxury, but a lifeline to get to work. In general, renters are more likely than owners to take transit to work. In particular, low and moderate income renters (earning up to \$50,000) depend on transit the most.

CHART 9: JOURNEY-TO-WORK TRANSIT MODE SHARE BY INCOME AND TENURE



Source: 2011 National Household Survey



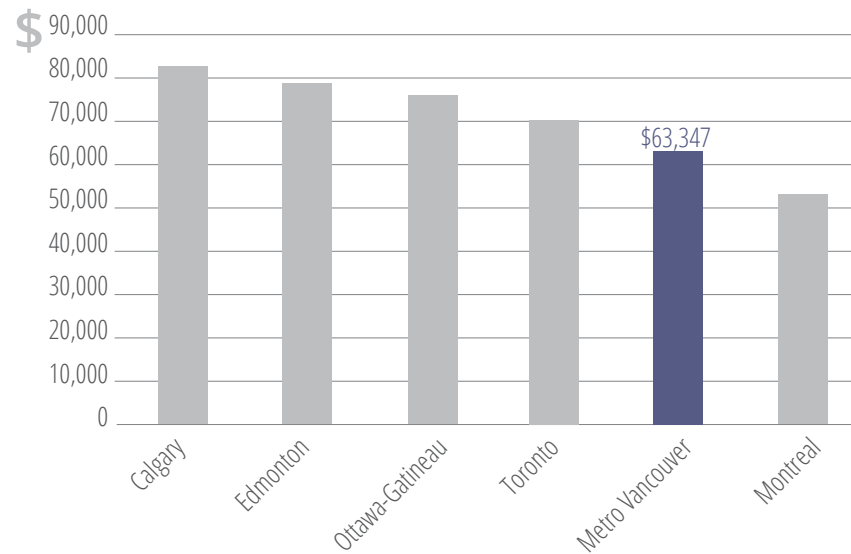


PROMOTING Regional Economic Prosperity

High housing and transportation cost burdens can affect the regional economy, by making it difficult for workers to afford to live near where they work or even to stay in the region. Better alignment between housing and transportation choices can have positive impacts for the workforce and regional economy.

Household income is also a key determinant of housing demand and affordability. Although Metro Vancouver has some of the highest housing costs in Canada, the region does not have a correspondingly high median income relative to other places in the country. Metro Vancouver's median household income of \$63,000 (for working and non-working households) falls at the low end of large Canadian centres, well below Calgary, Edmonton and Ottawa.

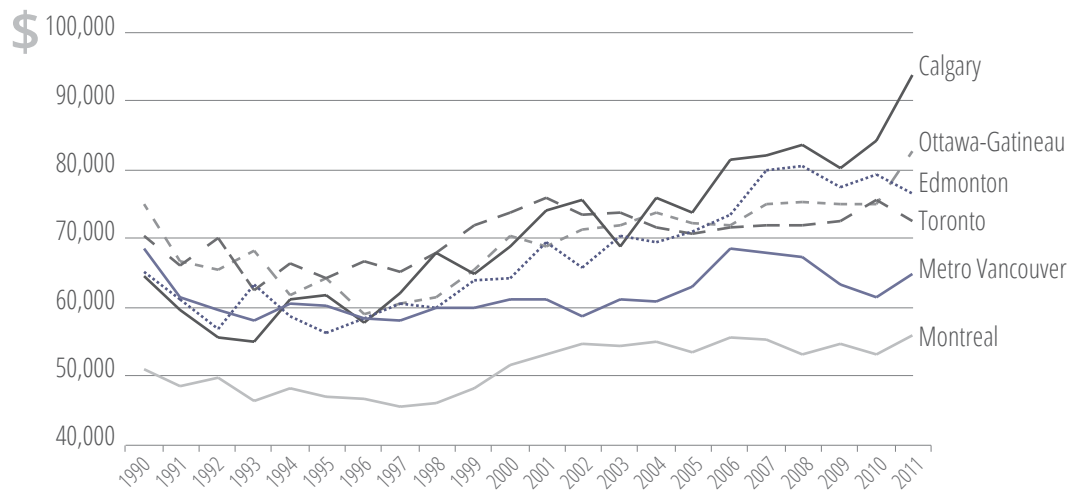
CHART 10: GROSS MEDIAN HOUSEHOLD INCOME (WORKING AND NON-WORKING HOUSEHOLDS)



Source: 2011 National Household Survey

Median household income in Metro Vancouver has remained below \$70,000 since 1990. The top income performers in the nation (Calgary, Edmonton, Toronto, Ottawa) began pulling away from Metro Vancouver in the mid-1990's.

CHART 11: MEDIAN HOUSEHOLD INCOME TRENDS, 1990-2011 (2011 DOLLARS)



Source: CMHC. Canadian Housing Observer, 2013.

Low incomes are symptomatic of the structure of the regional economy which, by employment, is heavily oriented towards lower wage service jobs. In March 2015, the provincial government announced an increase to the provincial minimum wage from \$10.25/hr to \$10.45/hr, which will be adjusted every year to match inflation. This and other efforts are needed to help many struggling wage earners in the region.

A LOW WAGE ECONOMY

The top occupations in Metro Vancouver in 2011 were also relatively low paying:

TABLE 10: TOP OCCUPATIONS BY SHARE OF EMPLOYED LABOUR FORCE (2011)

OCCUPATION	SHARE OF EMPLOYED LABOUR FORCE	MEDIAN SALARIES (BC)
SALES AND SERVICE	23.9%	\$33,180
BUSINESS, FINANCE, AND ADMINISTRATION	17.2%	\$46,440
TRADES, TRANSPORTATION, AND EQUIPMENT OPERATORS	12.0%	\$53,075

Source: 2011 National Household Survey. BC Incomes by Occupation Classification.

Metro Vancouver Census Bulletin #7. Labour Force Activity in Metro Vancouver.

PARTNERING to Make Solutions Happen

The challenges of matching affordable housing supply and demand, connecting transit and affordable housing, and promoting regional prosperity, cross multiple jurisdictional borders. The challenges are not exclusive to any one area in the region. Successful solutions in one community may have applicability in another. And, some solutions could be scaled up and applied across communities.

Most of the necessary elements are in place in Metro Vancouver to move effective solutions forward. Municipalities have all adopted Metro 2040 and the goal to focus growth strategically within a compact region. A grand vision for transit expansion has been adopted. Transit-oriented locations are highly sought after for redevelopment. And, people continue to come to this region to start new lives, to start businesses, and to take in the region's natural splendor.

But solutions do not happen without partnerships. Consider the complex web of decision-makers: housing development falls under the purview of municipalities, developers, and financial institutions; transit improvements are the responsibility of TransLink, the Mayors' Council, and senior levels of government; and, economic development is a core interest of industry, boards of trade, and most levels of government. Finding and implementing synergistic solutions will require bringing actors from different sectors together and creating partnerships where none exist today, or strengthening existing ones.

A thriving workforce is necessary for sustaining the region's world-class reputation for livability. This study helps to broaden this point of agreement by drawing out a new way of looking at affordability for working households, and the synergy that could be created by connecting housing and transportation in the context of the regional economy.

PARTNERING TO CONNECT THE DOTS

In 2012, two regional agencies in the San Francisco Bay Area initiated the *Bay Area Regional Prosperity Plan* – a partnership to address economic prosperity and workforce housing in addition to established land use and transportation policies:

1. **Economic Prosperity Strategy** – a regional approach for expanding economic opportunities for low and moderate income residents.
2. **Housing the Workforce Initiative** – provides research, tools, and grants to improve housing affordability near transit and stabilize existing affordable housing. Current funded research includes development of a regional early warning system to identify areas likely to experience loss of affordable housing.



Local Government Actions

MUNICIPAL ACTIONS

Metro Vancouver local government authorities have a track record of using policy, financial, and regulatory tools to facilitate new affordable housing and preserve existing affordable housing. The degree to which these efforts align with transit-oriented locations varies. For example, municipalities:

- Prepare Housing Action Plans that demonstrate how each municipality plans to achieve the estimated local housing demand, including that for low and moderate income households.
- Facilitate supportive and transitional housing for vulnerable populations by providing municipal land at low or no cost (Cities of Surrey and Vancouver).
- Use Housing Reserve Funds to lever the development of new non-profit housing by providing grants, purchasing land for non-profit use, and reducing permit fees (11 municipalities).
- Grant additional density to residential developers in exchange for either on-site affordable housing units or fees in lieu (City of Richmond, *Affordable Housing Strategy*).
- Set targets for market rental housing and affordable housing, including preservation of existing affordable housing, in transit corridors (City of Vancouver, *Cambie Corridor Plan and Marpole Community Plan*).
- Set strategic expectations for transit station areas to accommodate a mix of land uses and housing types, and, on larger sites, new on-site purpose built rental housing units (City of Coquitlam, *Transit-Oriented Development Strategy*).
- Provide incentives to owners and developers to retain, renew, and enhance the market rental housing supply (City of New Westminster, *Secured Market Rental Housing Policy*).



Athlete's Village Housing Co-operative –
City of Vancouver



The Robert (Market Rental) –
City of Vancouver



Kiwanis Towers (Non-Market Seniors Rental) –
City of Richmond



The First Place (Market Rental) –
City of North Vancouver

METRO VANCOUVER, TRANSLINK, AND MAYORS' COUNCIL ACTIONS

Metro Vancouver and TransLink deliver important regional services that can advance regional housing and transportation goals. The Mayors' Council on Regional Transportation is a key decision-making body. Sample actions include:

- *Metro 2040* sets the overall growth management framework for the region, and it includes a focus on complete communities with diverse and affordable housing.
- Metro Vancouver's *Regional Affordable Housing Strategy* presents regional actions to enhance housing diversity and affordability. The 2015 update will feature a new emphasis on affordable housing in transit-oriented locations.
- Metro Vancouver Housing Corporation, a non-profit entity wholly owned by Metro Vancouver, operates 3,500 units of mixed income housing throughout the region. One of its sites, Heather Place, is undergoing redevelopment to increase the supply of mixed-income housing. Heather Place is ideally situated near a Canada Line station in Vancouver. The Housing Corporation is looking at other long-term opportunities.
- Metro Vancouver waives regional sewerage development cost charges on qualifying affordable rental housing projects.
- Metro Vancouver provides research and analysis to support implementation of *Metro 2040* and the *Regional Affordable Housing Strategy*. Examples include *What Works: Affordable Housing Initiatives in Metro Vancouver Municipalities*; *The Purpose Built Rental Inventory and Risk Analysis*; *the Apartment Parking Study*; and, *the Car Share Study*.
- TransLink's Regional Transportation Strategy includes a commitment for the regional transportation authority to encourage affordable and rental housing along the Frequent Transit Network.
- The Mayors' Council vision for regional transportation is an ambitious 10-year program to expand the Frequent Transit Network and to invest in cycling, walking, and road infrastructure.

Despite these local and regional efforts, it is very difficult to achieve goals for housing that is affordable to low and moderate income households without senior government subsidies, other fiscal measures, and new partnerships.

THE CHANGING ROLES OF THE FEDERAL AND PROVINCIAL GOVERNMENTS

From the 1960s to 1990s, the federal and provincial governments played an active role in providing housing affordable to low and moderate income households. Federal tax measures provided incentives to private developers to build the rental apartment stock that is still prevalent today. Social housing programs provided non-profit and cooperative housing providers with funding to build and operate housing affordable for low and moderate income households. The province cost-shared many of these affordable housing supply programs.

Times have changed. Federal tax incentives for market rental housing are no longer available and the federal government withdrew from providing significant funding for new social housing in the early 1990s. Operating subsidies for existing non-profit and cooperative housing are also being phased out in the next few years. A small federal role remains in affordable housing provision through joint agreements with the province.

Most recently, the provincial government made significant investments in transitional and supportive housing for the homeless. The provincial government's new housing policy direction is to provide low income households with rent supplements to make market rental housing more affordable. Currently, there are no federal or provincial housing supply programs for affordable housing.

What Other Regions are Doing

High housing and transportation cost burdens are not unique to Metro Vancouver. In other jurisdictions, ambitious transit expansion programs have created the opportunities to leverage the production of affordable housing in transit-oriented locations for low and moderate income households and to remove transportation barriers to work. Several efforts are noted here:

TRANSIT-ORIENTED INCLUSIONARY HOUSING TARGETS

- Denver, Colorado: the Denver Transit-Oriented Development Strategic Plan includes a target to develop at least 3,000 net-new affordable and workforce housing units through public, non-profit, and private partners between 2014 and 2018.
- Atlanta, Georgia: the Metropolitan Atlanta Rapid Transit Authority's transit-oriented development policy includes a target of having 20 percent affordable housing for any project proposed on the authority's properties.

TRANSIT-ORIENTED AFFORDABLE HOUSING FUNDS

With land prices in transit-oriented locations at a premium, a new financial tool has been created to catalyze the production and preservation of

affordable housing in these areas. The funds generate below-market loans for site and land acquisition, predevelopment, and construction costs. The funds are products of local partnerships between the public, private, and non-profit sectors.

- Denver Transit-Oriented Development Fund: Launched in 2010, the \$15 million fund focuses on affordable housing preservation and development within 800 metres of light and commuter rail, and 400 metres of high frequency bus routes. In the first four years, the fund created or preserved about 600 affordable homes within the City of Denver. In December 2014, the fund was expanded to \$24 million with a target to create 2,000 affordable housing units near transit over the next 10 years across all seven counties in the Denver metro area.
- San Francisco Bay Area Transit-Oriented Affordable Housing Fund: Launched in 2011, the \$50 million fund targets affordable housing development and preservation in Priority Development Areas – areas within 400 metres of rail rapid transit or high frequency bus routes. The region has a policy target to focus 80 percent of housing growth in Priority Development Areas over the next three decades. As of December 2014, the fund has deployed \$30 million towards seven projects representing 900 new affordable housing units.



THE US FEDERAL ROLE

In the United States, a strong federal role in affordable housing remains. The Low Income Housing Tax Credit program – created by Congress in 1986 – remains the largest source of developer financing for affordable housing. Nearly 90 percent of US affordable rental housing construction is funded in part by this program. Private investors contribute equity to the development of new and rehabilitated affordable rental housing for low income families. In return, investors receive a dollar-to-dollar reduction in their federal income taxes.



Appendix 1: Data and Methodology

HOUSING COSTS AND INCOME

Custom data files of the 2011 National Household Survey were acquired from Statistics Canada. The data files comprise attributes of private households in different census geographies (Indian Reserves were excluded due to high global non-response rates). The key housing cost variables are the monthly gross rents for renters and the major payments for owners. Monthly gross rents includes, where applicable, the monthly rent and the costs of electricity, heat, water, and other municipal services. Owner's major payments include, where applicable, the mortgage payment, the costs of electricity, heat, water and other municipal services, property taxes and condominium fees.

The custom data files are structured in a way to allow for multiple nestings and cross-tabulations. For example, housing costs and incomes for working households could be obtained by using any of the following variables in combination:

- Household Income (before tax): Less than \$30,000, \$30,000 to less than \$50,000, etc.
- Tenure: Non-farm owner, non-farm renter, etc.
- Geography: Census tract and municipalities within Metro Vancouver
- Working Household: At least one household member in the employed labour force, no household member in the employed labour force
- Age of Primary Household Maintainer: 15-24 years, 25-34 years, 35-44 years, etc.
- Structural type of dwelling: ground-oriented, apartment, etc.

Household income refers to monetary receipts from certain sources, before income taxes and deductions, during calendar year 2010. It includes employment income from wages, salaries, tips, commissions and net income from self-employment (for both unincorporated farm and non-farm activities); income from government sources, income from employer and personal pension sources; income from investment sources, such as dividends and interest on bonds, accounts, GICs and mutual funds; and other regular cash income, such as child support payments received, spousal support payments (alimony) received and scholarships.

The housing cost maps depict data at the census tract level.

TRANSPORTATION COSTS

The 2011 regional trip diary was the primary source for the transportation cost data. TransLink undertakes a regional trip diary survey of randomized households every 4-5 years to obtain information on 24-hour weekday travel. The study area comprises the Lower Mainland, from Lions Bay to Hope. The 2011 survey, conducted in the fall, resulted in 21,850 valid household survey returns (2.2 percent of the study area total), representing over 144,000 trips. These trips cover a wide range of purposes (work and post-secondary; primary and secondary school; school escort trips; social/recreational; and, shopping/personal business).

Transportation costs associated with households with at least one member in the employed labour force were determined. However, the trip diary did not ask for housing tenure (own or rent). Hence, the derived transportation costs represent generalized costs for all working households.

Transportation costs comprise transit and personal vehicle payments. Transit costs includes, where applicable, cash fare, faresaver tickets, monthly passes, U-Pass, etc. Each transit trip was assigned a cost based on the 2011 fare tariff. Fares vary by time of day, user type (adult, concession), service (conventional transit, West Coast Express, HandyDART), and fare product (cash, fares tickets). Transit passes include monthly passes, employer passes, and annual passes. Patronage of TransLink's transit system by Fraser Valley residents, and of transit services in the Fraser Valley by Metro Vancouver residents, were accounted for. The aggregated transit expenditures on TransLink's transit services was compared to 2011 actual fare revenues (\$434 million). A variance of 2.8 percent was achieved.

Personal vehicle payments include fixed costs (insurance, license and registration fees, sales taxes, and depreciation) and operating costs (fuel, maintenance, and tire wear). The trip diary provides the average number of vehicles per household and the distances travelled. The cost factor for the fixed cost of auto ownership (\$6,300) was based on Canadian Automobile Association estimates and Statistics Canada's Survey of Household Spending. The cost factor for auto operating costs was also based on Canadian Automobile Association's estimates (\$0.14/km).

Generally accepted expansion factors for purpose-specific trips were applied to the daily transit cash/fare and auto operating costs.

Several transportation costs were excluded. First, bridge tolls were excluded. The trip diary collects trip origins and destinations, but not specific routes that drivers take. While routes could be inferred from origins and destinations, there remain free alternatives to the lone tolled bridge at the time in 2011 – the Golden Ears Bridge (the new Port Mann

Bridge was opened to traffic in 2012), meaning any assignment of tolls to specific trips would be challenging. With the Golden Ears Bridge and Port Mann Bridge in operation for several years now, future analyses can take advantage of more stable travel patterns and available toll revenue information.

Second, parking fees were not included. The trip diary asks for the daily or monthly parking fee at work and school locations. However, the data has not been verified by TransLink against actual parking rates at these locations.

Third, the 2011 trip diary did not ask for costs associated with using taxis, rental cars, and car share. Car share, in particular, is an emerging mode of transportation in specific areas of the region and deserves closer investigation in future analyses.

Finally, travel time cost was not estimated. While travel time is not an out-of-pocket cost, sitting in traffic in a bus, train, or car does have economic impacts on personal and regional productivity. Travel time is usually monetized in transportation infrastructure studies. The trip diary asks for start and end times of trips, but the reliability of this variable requires review. Further, the computed trip duration is a synthetic value derived from the regional travel demand model. (A related source of data is the 2011 National Household Survey, which asked for the number of minutes it usually takes to get from home to work. At the time of this study, data was available at the regional level only.)

Due to privacy and data reliability concerns, trip diary data was available only at the "superzone" geographic level. The superzones are arbitrary geographies created for the purpose of ensuring sufficient sampling across the region. There are 40 superzones within Metro Vancouver. Data at the superzone level could be aggregated to municipal and subregional levels. The transportation cost maps depict data at the superzone level.

Appendix 2: Average Annual Housing and Transportation Cost Burden by Municipality

Average Annual Housing and Transportation Cost Burden by Municipality (2011)

WORKING HOUSEHOLDS - OWNERS WITH MORTGAGE

MUNICIPALITY	HOUSING COSTS	TRANSPORTATION COSTS	MEDIAN GROSS INCOME (2010)	H+T COST BURDEN
BURNABY	\$23,000	\$11,000	\$84,000	41%
COQUITLAM	\$24,000	\$14,000	\$94,000	40%
DELTA	\$24,000	\$16,000	\$104,000	38%
LANGLEY CITY	\$19,000	\$15,000	\$75,000	45%
LANGLEY TOWNSHIP	\$24,000	\$17,000	\$100,000	41%
MAPLE RIDGE	\$23,000	\$16,000	\$94,000	42%
NEW WESTMINSTER	\$22,000	\$11,000	\$86,000	38%
NORTH VANCOUVER CITY	\$25,000	\$10,000	\$92,000	38%
NORTH VANCOUVER DISTRICT	\$31,000	\$14,000	\$116,000	39%
PITT MEADOWS	\$23,000	\$15,000	\$94,000	40%
PORT COQUITLAM	\$22,000	\$14,000	\$93,000	39%
PORT MOODY	\$25,000	\$13,000	\$102,000	37%
RICHMOND	\$23,000	\$13,000	\$80,000	45%
SURREY	\$23,000	\$15,000	\$90,000	42%
UBC/UEL	\$31,000	\$9,000	\$105,000	39%
VANCOUVER	\$27,000	\$9,000	\$92,000	39%
WEST VANCOUVER	\$44,000	\$14,000	\$152,000	38%
WHITE ROCK	\$24,000	\$12,000	\$84,000	43%

WORKING HOUSEHOLDS - RENTERS

MUNICIPALITY	HOUSING COSTS	TRANSPORTATION COSTS	MEDIAN GROSS INCOME (2010)	H+T COST BURDEN
BURNABY	\$13,000	\$11,000	\$51,000	48%
COQUITLAM	\$13,000	\$14,000	\$49,000	54%
DELTA	\$13,000	\$16,000	\$57,000	50%
LANGLEY CITY	\$12,000	\$15,000	\$48,000	57%
LANGLEY TOWNSHIP	\$14,000	\$17,000	\$61,000	50%
MAPLE RIDGE	\$13,000	\$16,000	\$54,000	54%
NEW WESTMINSTER	\$11,000	\$11,000	\$47,000	46%
NORTH VANCOUVER CITY	\$14,000	\$10,000	\$54,000	46%
NORTH VANCOUVER DISTRICT	\$16,000	\$14,000	\$66,000	47%
PITT MEADOWS	\$13,000	\$15,000	\$59,000	48%
PORT COQUITLAM	\$13,000	\$14,000	\$53,000	51%
PORT MOODY	\$15,000	\$13,000	\$61,000	47%
RICHMOND	\$15,000	\$13,000	\$54,000	50%
SURREY	\$11,000	\$15,000	\$52,000	50%
UBC/UEL	\$17,000	\$9,000	\$40,000	65%
VANCOUVER	\$14,000	\$9,000	\$52,000	45%
WEST VANCOUVER	\$20,000	\$14,000	\$58,000	59%
WHITE ROCK	\$13,000	\$12,000	\$52,000	49%

Source: 2011 National Household Survey, 2011 TransLink Regional Trip Diary, Metro Vancouver estimates. Values have been rounded. Data for Anmore, Belcarra, Lions Bay, Bowen Island, and Tsawwassen First Nation are not shown due to data reliability considerations.



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