

Metro Vancouver

**Regional Growth Strategy Projections
Population, Housing and Employment**

2006 - 2041

Assumptions and Methods

December 2011



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Metro Vancouver Regional Growth Strategy Projections Population, Housing and Employment 2006 - 2041 Assumptions and Methods

EXECUTIVE SUMMARY

Metro Vancouver's Regional Growth Strategy, Metro Vancouver 2040 (RGS), provides population, housing and employment growth projections as a collaborative guide for land use and infrastructure planning initiatives among Metro Vancouver, member municipalities and regional agencies. This document provides interpretive background on the assumptions, methods and information sources used in preparing and updating Regional Growth Strategy projections.

RGS projections are prepared by Metro Vancouver in association with member municipalities, the Province of BC and Statistics Canada Census of Canada to provide a best estimate of current and projected regional and municipal growth based on the information available in 2006, and the anticipated implementation of Metro Vancouver 2040 and municipal plans to the year 2041.

The Metro Vancouver approach can be described within the following components:

- Establishing 2006 base year estimates.
- Preparing regional level population, housing and employment projections.
- Preparing municipal population, dwelling unit and employment projections.
- Preparing submunicipal population and employment projections.
- Growth monitoring and preparing annual updates.

2006 Base Year Estimates

The 2006 base year estimates coincide with the most recently available Census of Canada data, which is used in many aspects of the growth modeling and projection process. The Census counts and related Census sample surveys provide the basis for all population, dwelling units and employment figures, and are adjusted include a Census undercount estimated by BC Stats to be 3.9% for Metro Vancouver.

Metro Vancouver's published 2006 Census population count of 2,113,000 (excluding Bowen Island), and with the Census undercount of 3.9% is estimated at 2,195,000. This same Census plus undercount approach, although varying for each municipality, was used in preparing all 2006 municipal and submunicipal base year estimates (See Table 1. Population, Dwelling Units and Employment Projections for Metro Vancouver and Member Municipalities). Dwelling unit estimates for the region and municipalities use 2006 Census counts of private occupied dwellings, as opposed to total dwellings, in order to maintain a consistent relationship between population and housing in subsequent projections. Metro Vancouver's published 2006 Census count of 817,000 occupied private dwellings with undercount is estimated at 848,000.

Metro Vancouver's 2006 total employment, and employment by Industry and Occupation sectors, is taken from the 2006 Census *Place of Work (POW)* sample data. The Census POW counts are then revised to include the estimated Census undercount to be consistent and comparable with the Census plus undercount totals for population and labour force.

The Census Place of Work sample data estimates there were 1,115,000 jobs located within Metro Vancouver in 2006. Of this total 886,000 worked in fixed locations, 91,000 were home based and 138,000 had no fixed location. The Census undercount of 3.9% is added to the Census count to provide a total regional employment estimate of 1,158,000. Regional jobs with no fixed location were proportionally allocated by Industry sector among municipalities largely according to each municipality's regional share of current employment in that sector.

Many elements of the projection methodology utilize 2006 base year, and historic, estimates from the Census. Each of those sources is described within the relevant sections of the document. There has been some concern expressed among municipalities regarding the accuracy of the 2006 Census counts and undercount in relation to observed municipal records and development activity during the 2001-2006 period. It is acknowledged that the Census is not absolute, and although there may be some discrepancies between the Census and observed development, the Census provides the most comprehensive and reliable common denominator for regional growth modeling.

Regional Projections

Population

Metro Vancouver's *regional level* population growth projections were prepared with reference to the Province of British Columbia BC Stats PEOPLE model (P33 2008). It was deemed appropriate to align with BC Stats provincial and regional projections both to incorporate their significant modeling and information resources, and to maintain general regional consistency with provincial projections and related programs.

Metro Vancouver is projected to grow by 1.2 million residents between 2006 and 2041, for a total of 3.4 million by 2041. Because growth projections are not intended to be precise, the Metro projections include an advanced and a retracted regional growth projection range (plus/minus 5 and 10 years) to assist regional transportation and infrastructure planning initiatives. Regional growth will be driven by immigration with some marginal growth coming through migration from other areas of Canada. Natural increase (births minus deaths) will decline significantly through the 2030s as the large baby boomer component of the population proceed through their life cycle.

Subsequent annual versions of the BC Stats PEOPLE model since 2008 have increased the provincial and regional population projections. However, it was concluded that the variance did not significantly alter long term Metro Vancouver projections to a degree that would necessitate revision to the RGS regional and municipal projections. It is intended that the RGS be reviewed every 5 years, including a review of regional growth projections in relation to the latest Census and PEOPLE model data.

Housing

The RGS projections employ a household maintainer rate method to estimate the number of dwelling units corresponding to the population projection. Household maintainer rates are calculated in the Census to provide the number of persons in a given age group that identify themselves as the primary maintainer of a household and particular dwelling type. Each household maintainer is assumed to equal one occupied dwelling unit. Housing projections are calculated by multiplying the projected population in each age cohort by the household maintainer rate for the corresponding age cohort and dwelling type. Household and housing types are aggregated into ground oriented (single detached, semi-detached, row housing) and apartments.

Of significant importance for Metro Vancouver housing projections over the next 30 years will be the effect of the aging of the baby boom generation through the senior age cohorts. The proportion of housing / households led by persons over 65 will increase from about 19% in 2006 to about 32% in 2031. This will generate demand for the future housing stock to accommodate the large number of seniors households with a high propensity to live in apartments or smaller unit ground oriented units.

In total, household demand projections estimate that an additional 575,000 housing units will be required in Metro Vancouver from 2006 to 2041. Housing development between 2006 and 2011 shows a continuing trend toward multiple unit forms of housing. This trend can be related to a number of factors including aging/smaller households, the cost of housing and lifestyle preferences, and it is anticipated that this trend will continue through the projection period. Housing projections estimate that about 55% - 65% of the new housing units will be apartments and 35% - 45% ground oriented, shifting the current apartment share of total housing stock from 40% toward 50% by 2041.

From the regional population and dwelling unit forecast, a regional average household size is calculated for the total households, and for the ground oriented and apartment units. From a 2006 average household size of 2.56 for all units, with 3.0 for ground oriented and 1.8 for apartment, the 2041 average household size is projected to be 2.40 for all units, with 2.73 for ground oriented and 1.9 for apartment. These projected household size averages provide a regional control guide in projecting municipal household size and population.

Employment

In preparing regional employment growth projections Metro Vancouver reviewed existing studies and contracted consultant¹ studies to estimate how future employment growth is likely to relate to future population labour force and economic growth, and how employment within the component industry sectors is likely to evolve in future years. While all studies indicate a continuing shift in employment from goods producing to service industries, and continuing increases in technology and productivity affecting the overall employment, the studies provided a range of possibilities for change from the current employment profile. Possibilities ranged from only modest differences in all employment indicators to significant decreases in the ratio of employment to population, and significant changes in the component employment sectors.

Given the range of possibilities, it was decided to take a more conservative approach to potential changes in future employment, assuming a marginal decrease in the ratio of

¹ Studies were commissioned from Urban Futures Inc. and the Conference Board of Canada.

employment to population, with the component employment sectors shifting generally toward increases in service industries and modest changes in the share of employment within the individual sectors.

Metro Vancouver's regional employment growth projections are based primarily on the projected population and a projected employment to population ratio. The 2006 Census indicates that Metro Vancouver had a regional job to population ratio of 0.527. It is assumed that by the year 2041 this ratio will decrease to 0.517. Controlling for the projected Metro Vancouver population discussed in the previous section, the 2006 base employment of 1,158,000 is projected to increase by about 595,000 jobs for a total of 1,753,000 by the year 2041.

Municipal Projections

Projected growth among municipalities is determined both within the regional and municipal planning context, following an iterative method that combines a regional share approach with a local development plan / capacity approach. The regional population and dwelling unit projections provide the overall control totals, while the projected municipal distribution combines RGS objectives for Urban Containment and concentrated growth in Urban Centres and Frequent Transit Development Areas (FTDAs) with advice from municipal planners regarding existing municipal land use plans, growth projections and long term land development potential.

Housing

Municipal projections are derived as a share of annual regional housing projections. For each year to 2041, regional housing growth is attributed among municipalities through an absorption rate that is derived from a combination of factors including growth share trends and planned municipal capacity. Each municipality's capacity includes the remaining development capacity estimated through land uses, intensification potential, and anticipated growth potential in Urban Centres and candidate FTDA locations within the respective municipalities. Metro Vancouver conducted a residential capacity analysis that included existing land use plans and gross development potential as guidance for the capacity allocations². Metro Vancouver also conducted a review of Urban Centre development capacities, as well as a review of gross development capacity along candidate FTDA corridors, as further guidance for targeting concentrated housing growth allocations within municipalities. Dwelling unit projections are allocated as ground oriented or apartment according to the relative capacity estimates for those housing types within each municipality.

Population

In conjunction with the municipal housing projection allocations, a corresponding municipal population equivalent was calculated based on an average household size per dwelling unit. Each municipality's 2006 Census average household size by dwelling type was projected annually to the year 2041. As with the municipal housing projections, household size projections for each municipality are guided by regional household size projections, and it is assumed that divergent household sizes will gravitate toward the regional average as the urban characteristics of each municipality mature. For example, a municipality having a ground oriented household size higher than the regional average of 3.0 will trend toward the regional

² Metro Vancouver Residential Development Capacity Study, Regional Growth Strategy Backgrounder, April 2009. Metro Vancouver

average of 2.73. For each year of the projection period, the aggregate municipal housing and population must equal the regional housing and population projection. Throughout this iterative process, the municipal housing and population projections are compared with available municipal planning information to identify potential misallocations.

Employment

Municipal employment projections also use a regional share methodology, but with municipal growth shares based on an industry sector share approach that projects municipal employment growth in relation to each municipality's population growth, existing / established locations for sector employment and the availability of industrial land. Generally following a job distribution methodology used in previous Metro Vancouver projections, employment within each of the North American Industrial Classification System (NAICS) industry sectors is weighted according to the degree it is considered population serving or location related. Employment sector locations for retail, education and health tend to be more strongly associated with population location. Employment sector locations such as primary (agriculture) or manufacturing tend to be associated with particular areas where that activity is an established land use.

Annual projected regional employment in each sector was distributed among municipalities based on each sector's weighting, and each municipality's regional share of population growth, employment in that sector or remaining industrial land. As with the municipal population projections, annual totals were compared with available municipal planning information to identify potential misallocations.

Submunicipal Growth Projections

To assist with the implementation of the RGS and regional transportation / infrastructure planning initiatives, municipal level population and employment projections were further allocated into a 932 subarea traffic zone (TZ) model. The TZ model is based on the established municipal population and employment control totals, and is intended to anticipate municipal implementation of the RGS spatial growth concept. However, the TZ model is not officially part of the Regional Growth Strategy. It represents a current best estimate of projected submunicipal growth prepared collaboratively among Metro Vancouver and member municipalities based on available planning information.

Population and employment in TZs begins with 2006 Census counts provided for the custom TZ geographies by Statistics Canada. Census undercount estimates for the parent municipality are added to each TZ count. Growth projections among the TZs are prepared collaboratively by municipalities and Metro Vancouver based on land use plans, capacity, and knowledge of local development opportunities and constraints. The completed TZ model is used by Metro Vancouver in utility planning, and is provided to TransLink for regional transportation modeling.

Growth Monitoring - Annual Estimates

Metro Vancouver prepares annual estimates of population, dwelling unit and employment growth to monitor development and assess growth projections for the region and municipalities. As with growth projections, Metro Vancouver works collaboratively with member municipalities and the Province of BC / BC Stats in preparing and reviewing annual estimates.

Regional population estimates are prepared from estimates of net immigration, net migration and natural increase for the Metro Vancouver region as compiled and provided by BC Stats.

This regional population estimate provides a control total within which Metro Vancouver, in consultation with member municipalities, prepares annual housing and employment estimates for the municipalities and Traffic Zones. BC Stats' regional population estimate suggests Metro Vancouver growth of 175,000 residents between 2006 and 2010, for a total of 2.37 million in mid year 2010.

Regional and municipal housing estimates are calculated from net additions to the region's housing stock by dwelling type using Canada Mortgage and Housing Corporation's (CMHC) market activity reports on housing completions. Housing demolition estimates are subtracted to calculate net change in total housing stock. Net dwelling unit growth from CMHC records, including assumptions on secondary dwelling units, suggests an increase of 70,000 dwelling units for a total of 917,400 units for Metro Vancouver in mid year 2010.

Municipal housing and population estimates are based primarily on the municipal distribution of net housing completions. Net completions are added to existing stock for a total housing estimate in each municipality. Total housing units are multiplied by an average household size (based on 2006 Census) to estimate a population total. The municipal aggregate population is then compared with the regional population control total as estimated by BC Stats. In the 2006 - 2010 period, BC Stats regional population growth estimates exceeded the population growth estimates calculated from net housing completions. This excess was attributed to the high immigration rates in 2008 and 2009, and it was assumed this recent immigrant population was absorbed within existing households / housing stock or within newly created secondary dwelling units. This growth was then allocated among municipalities based on the proportional regional share of recent immigrants settling in each municipality between 2001 and 2006 – as reported in the 2006 Census.

Regional employment estimates use Census based trends for regional population to employment ratios, and reference to Statistics Canada's Labour Force Survey estimates of the current number of employed Metro Vancouver residents. Metro Vancouver's 2006 Census employment to population ratio of 0.527 jobs per resident provides a benchmark to guide regional employment growth estimates. Using this ratio, the 2010 population of 2,370,000 would estimate employment at 1,249,000, an increase of approximately 91,000 jobs from the 1,158,000 jobs in 2006. The 2010 Statistics Canada Labour Force Survey provides an estimate of the employed labour force residing within Metro Vancouver. Normalizing the Labour Force Survey employed labour force estimate to the Metro Vancouver 2010 population, net inter-regional employment commuting, and the 2006 Census base unemployment rate provides a 2010 employment estimate in the range of 1,250,000 – generally consistent with the population ratio estimate.

Municipal employment estimates rely upon the regional share employment projection method previously described, and guidance from municipal planners' knowledge of development activity and locations within each municipality.

All annual estimates calculated between Census years are considered interim and will be revised for consistency with the results of the 2011 Census.

Conclusion

The intent of Metro Vancouver's approach to growth modeling is to promote collaboration and consistency among provincial, regional and municipal planning agencies and to establish a common basis of information, assumptions and methods for future growth and policy implementation.

Table 1. Regional Growth Strategy Population, Dwelling Unit and Employment Projections

	Total Population			Total Dwelling Units			Total Employment		
	2006	2021	2041	2006	2021	2041	2006	2021	2041
Metro Vancouver	2,195,200	2,780,200	3,400,400	847,580	1,130,110	1,421,990	1,157,940	1,448,410	1,752,540
Anmore	1,900	2,800	4,400	560	850	1,310	300	660	1,250
Belcarra	700	800	1,000	260	320	390	90	150	220
Burnaby	210,500	277,000	345,000	81,110	115,000	149,300	136,000	169,000	203,000
Coquitlam	119,600	176,000	224,000	42,960	67,700	94,100	46,000	70,000	94,000
Delta	99,000	109,000	123,000	34,300	40,300	48,000	55,000	63,000	75,000
Electoral Area A	11,600	24,000	30,000	5,100	10,800	14,200	19,000	20,000	21,000
Langley City	24,900	32,000	38,000	11,160	14,500	17,100	17,000	21,000	25,000
Langley Township	97,300	146,000	211,000	34,510	53,700	79,900	49,000	71,000	100,000
Lions Bay	1,400	1,600	2,000	550	640	790	310	400	570
Maple Ridge	71,500	95,000	132,000	25,920	36,100	50,900	23,000	34,000	48,000
New Westminster	60,500	80,000	102,000	28,040	37,100	47,000	28,000	37,000	48,000
North Vancouver City	47,500	56,000	68,000	22,360	25,600	30,200	29,000	34,000	40,000
North Vancouver District	87,000	98,000	114,000	31,260	37,500	45,000	27,000	33,000	40,000
Pitt Meadows	16,600	22,000	24,000	6,100	8,200	9,400	5,000	8,000	9,000
Port Coquitlam	54,500	68,000	85,000	19,400	26,300	34,300	21,000	28,000	35,000
Port Moody	28,700	39,000	50,000	10,510	15,600	19,900	8,000	13,000	18,000
Richmond	182,700	225,000	275,000	64,000	88,400	115,500	130,000	154,000	181,000
Surrey	413,000	578,000	740,000	136,580	211,200	285,200	143,000	217,000	290,000
Tsawwassen First Nation	800	3,000	5,000	300	1,300	2,100	240	1,200	1,500
Vancouver	601,200	673,000	740,000	264,500	306,700	339,500	393,000	441,000	482,000
West Vancouver	45,400	51,000	60,000	18,200	20,600	24,500	21,000	24,000	29,000
White Rock	18,900	23,000	27,000	9,900	11,700	13,400	7,000	9,000	11,000

Table Notes:

Figures for the year 2006 are based on Census of Canada 2006 plus Census undercount estimates.

All municipal totals include Indian Reserve or First Nation communities located within the respective municipal boundaries, with the exception of Tsawwassen First Nation.

All figures are rounded and may include minor inconsistencies for summary totals.

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1 Introduction

Metro Vancouver's Regional Growth Strategy, Metro Vancouver 2040, (RGS) provides population, housing and employment growth projections as a collaborative guide for land use and infrastructure planning initiatives among Metro Vancouver, member municipalities and regional agencies. Regional Growth Strategy projections are prepared by Metro Vancouver and member municipalities in association with the Province of BC and Statistics Canada, Census of Canada, to provide a current best estimate of projected regional and municipal growth based on the information available in the 2006 Census, the anticipated implementation of Metro Vancouver's Regional Growth Strategy to the year 2041, and applicable municipal land use plans.

This document provides an overview of the methods and assumptions used in the Regional Growth Strategy projections. The methodology is based on an iterative regional (top down) and municipal (bottom up) approach. Regional population, housing and employment growth projections are prepared as control totals, with growth allocated among member municipalities through a combination of factors including implementation of the Regional Growth Strategy, reference to municipal land use plans, municipal development capacity estimates, historic and projected growth trends and collaborative analysis among Metro and municipal planners.

Section 2 of this document describes the information, methods and assumptions used to establish regional population and housing projections, and Section 3 describes how the regional projections are applied in preparing the municipal growth projections. Section 4 describes regional employment projections and Section 5 describes how the regional control totals are applied in preparing municipal employment projections. Section 6 describes the process of preparing submunicipal growth projections through the allocation of municipal population and employment control totals among 932 submunicipal traffic zones. Section 7 describes the process of preparing annual updates to regional and municipal population, housing and employment baseline estimates.

The intent of Metro Vancouver's approach to growth projections is to promote collaboration and consistency among provincial, regional and municipal planning agencies and to establish a common basis of information, assumptions, methods and agreement for future growth and policy implementation. The Metro Vancouver / municipal growth projections are monitored through an annual review of growth activity, and will undergo a major review with the release of 2011 Census data in 2012. Future review of Metro Vancouver/ municipal growth projections is also related to the adoption of Metro Vancouver's Regional Growth Strategy, anticipated in 2011, and the subsequent preparation of municipal Regional Context Statements within two years of that adoption.

2 Regional Population and Housing Projections

2.1 Regional 2006 Base Year Population and Dwelling Units

Metro Vancouver growth projections use 2006 as the base year, coinciding with the most recently available Census of Canada which is used in many aspects of the growth modeling process. The published 2006 Census data has been adjusted to include an estimate of Census undercount. BC Stats in collaboration with Statistics Canada has estimated a Census undercount of 2.9% for the Province of British Columbia, and 3.9% for Metro Vancouver. BC Stats has also calculated 2006 Census undercounts estimated for municipalities, which vary based on the demographic composition of each municipality.

Metro Vancouver's published 2006 Census population count of 2,113,000 (excluding Bowen Island) with undercount is estimated at 2,195,000. This same method was used in preparing 2006 municipal and submunicipal base year estimates. Dwelling unit estimates for the region and municipalities apply 2006 Census counts of private occupied dwellings, as opposed to total dwellings, in order to maintain a consistent relationship between population and housing in subsequent projections. Metro Vancouver's published 2006 Census count of 817,000 occupied private dwellings with undercount is estimated at 848,000.

There has been some concern expressed among municipalities regarding the accuracy of the 2006 Census counts and undercount in relation to observed municipal records and development during the 2001-2006 period. It is acknowledged that the Census and undercount estimates are not absolute. However, the Census based estimates do provide the most reliable and historically consistent data available, and provide a large array of related demographic, housing and employment information that is crucial to growth modeling. Therefore, although there may be some discrepancies between the Census and observed development, the Census provides the most reliable common denominator for regional growth modeling.

2.2 Regional Population Projections to 2041

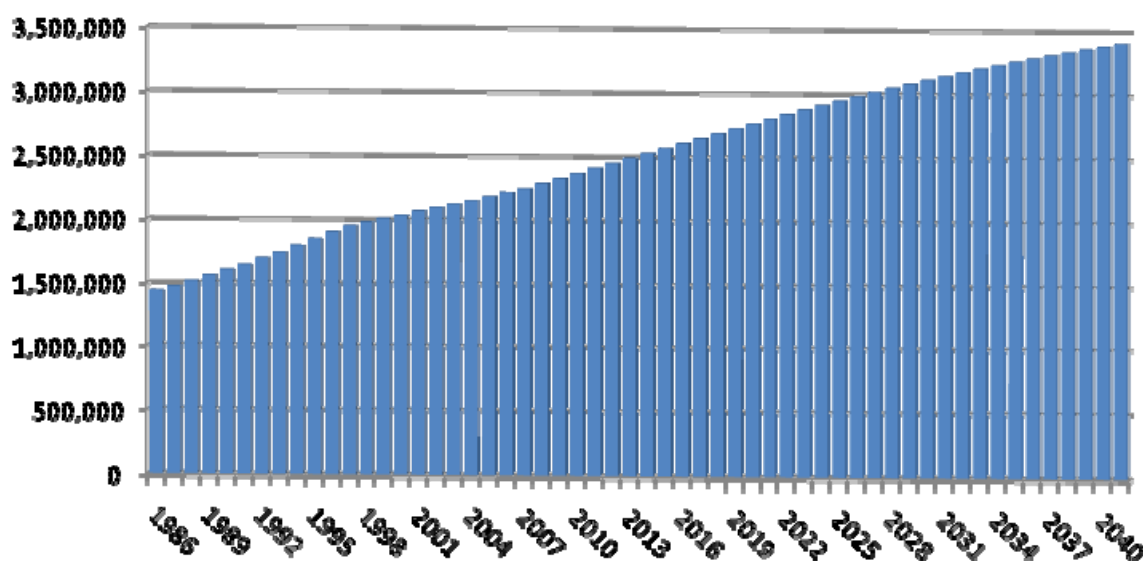
Metro Vancouver's regional level population growth projections were prepared with reference to the Province of British Columbia BC Stats PEOPLE model (P33 2008). Collaborating on regional population projections with provincial agencies utilizes the existing resources and expertise provided by the province, and provides for general consistency in associated regional and provincial policy initiatives. The PEOPLE model guides regional level growth projections, but Metro Vancouver applies some modification of the PEOPLE projections based on subsequent analysis of municipal land use plans and development capacities.

The PEOPLE model projects regional population to the year 2036. Metro Vancouver extrapolates the trend line of the 2036 PEOPLE projections to the year 2041, with consideration for long term population projection scenarios for Canada and the Provinces prepared by Statistics Canada. Metro Vancouver also prepares regional growth extrapolations beyond 2041 to assist with regional utility and transportation modeling. Extrapolations beyond 2041 are derived with guidance from the Statistics Canada long term population projection scenarios.

BC Stats PEOPLE 33 projects that Metro Vancouver will grow from a base population of 2,195,000 in 2006 to 3.29 million in 2036. This projection was extrapolated by Metro Vancouver

to estimate a population of 3.4 million for the year 2041. Through the period 1986 to 2006 Metro Vancouver grew by an average of 37,000 residents per year. With continuing strong immigration averaging in the range of 30,000 to 35,000 per year, this average annual growth is expected to continue over the next 15-20 year period, but with the natural increase (births minus deaths) beginning to decrease in the mid 2020s as the baby boom generally reaches the end of their life cycle.

Figure 1. Metro Vancouver Past and Projected Population

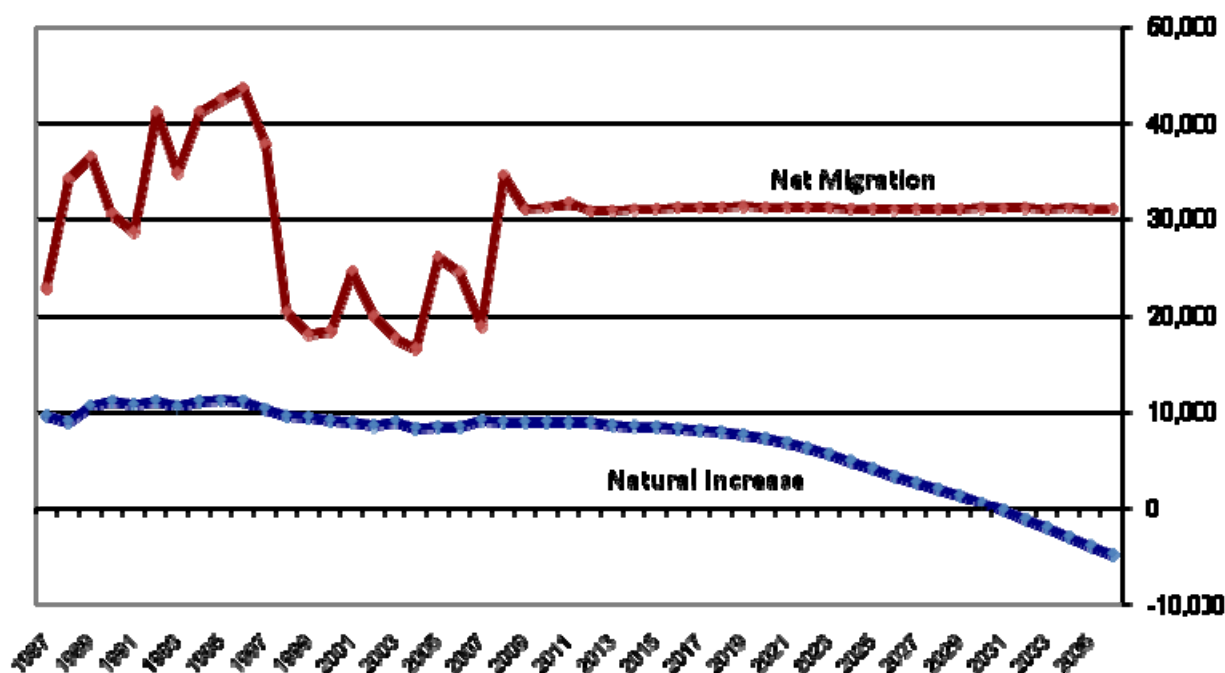


Source: BC Stats, Metro Vancouver

BC Stats PEOPLE 33 was prepared in 2008, and subsequent versions of the PEOPLE model have revised the provincial and regional district population projections. The 2008 PEOPLE 33 model was used for Metro regional growth projections because it coincided with the drafting and consultation process of the RGS during 2008 and 2009. A general consensus on regional / municipal growth projections was established among Metro Vancouver and member municipalities during this process, and this general consensus was maintained through completion of the draft plan process in late 2010.

Subsequent versions of BC Stats PEOPLE model show some variation in BC and regional population projection estimates. However, given the general consensus achieved in drafting the RGS, it was determined that the magnitude of these annual variations did not significantly alter the long term projections to a degree that would necessitate revision to the RGS regional and municipal projections. A growth monitoring program will provide annual estimates of regional growth and include a review of growth projections. Every five years a major review of growth projections will occur with the release of new Census data. If the trajectory of monitored growth trends shows a significant variation from RGS growth projections, an update to the RGS projections will be considered in the 5 year review of the RGS.

Figure 2. Components of Projected Metro Vancouver Population Growth



Source: BC Stats PEOPLE 33, 2008

Accounting for Non-Permanent Residents

A complicating factor in regional growth projections is the estimate of growth in non-permanent residents. Non permanent residents primarily include international students and foreign residents who have been issued work permits in Canada. This component provides an increasing resident stream (with the large majority being foreign workers) that BC Stats estimates could cumulatively add in the range of 5,000 persons per year to the regional population projection by the year 2041. The residential characteristics of the future non-permanent population are difficult to anticipate, and the allocation of this population within the housing stock and among municipalities discussed in subsequent sections of this document.

2.3 Regional Household and Dwelling Unit Projections to 2041

Conversion of the projected population to projected households / dwelling units is done using a household maintainer rate method, where projected population by age cohort is multiplied by a household maintainer rate for each corresponding age cohort by dwelling type. Age cohort projections are included as a component of the BC Stats PEOPLE model population projections. Household maintainer rates are included in each Census, and provide the number of persons in a given age group that identify themselves as the primary maintainer of a household and particular dwelling type. Each household has one maintainer, and each household maintainer is assumed to equal one occupied dwelling unit. The projected number of households and corresponding housing demand is calculated by summing the product of the projected age cohort maintainer rates multiplied by the projected population in each corresponding age group.

To simplify the modeling exercise maintainer rates, household and dwelling units were aggregated into ground oriented and apartment household units. Ground oriented household units includes the Census categories single detached, semi-detached, duplex, apartment in a detached duplex, and other non-apartment dwellings. Apartment units includes the Census categories apartment less than 5 storeys and apartment greater than 5 storeys.

Table 2. below shows historic Census data and Metro Vancouver projections for the proportions of population identified as primary household maintainers of ground and apartment units. In 2006, 38.6% of the total population were identified as primary maintainers of a household. Within each of the age cohorts, the data also indicates that just 4% of the young adult 15-24 cohort were maintainers, and 50% - 60% of people in the 35+ were household maintainers.

Table 2. Historic and Projected Household Maintainer Rates

Ground	1996	2001	2006	2021	2041	Apartment	1996	2001	2006	2021	2041
Total	0.24	0.24	0.23	0.23	0.22	Total	0.15	0.14	0.15	0.17	0.20
15-24	0.02	0.02	0.013	0.01	0.01	15-25	0.03	0.03	0.03	0.03	0.03
25-34	0.22	0.21	0.17	0.14	0.08	25-34	0.21	0.22	0.23	0.24	0.25
35-44	0.37	0.35	0.33	0.30	0.26	35-44	0.16	0.18	0.20	0.22	0.24
45-54	0.43	0.41	0.39	0.37	0.33	45-54	0.15	0.16	0.18	0.19	0.21
55-64	0.40	0.40	0.39	0.37	0.35	55-64	0.16	0.17	0.18	0.20	0.22
65-74	0.38	0.38	0.37	0.35	0.33	65-74	0.22	0.20	0.20	0.21	0.23
75+	0.29	0.31	0.32	0.31	0.30	75+	0.31	0.29	0.28	0.29	0.30

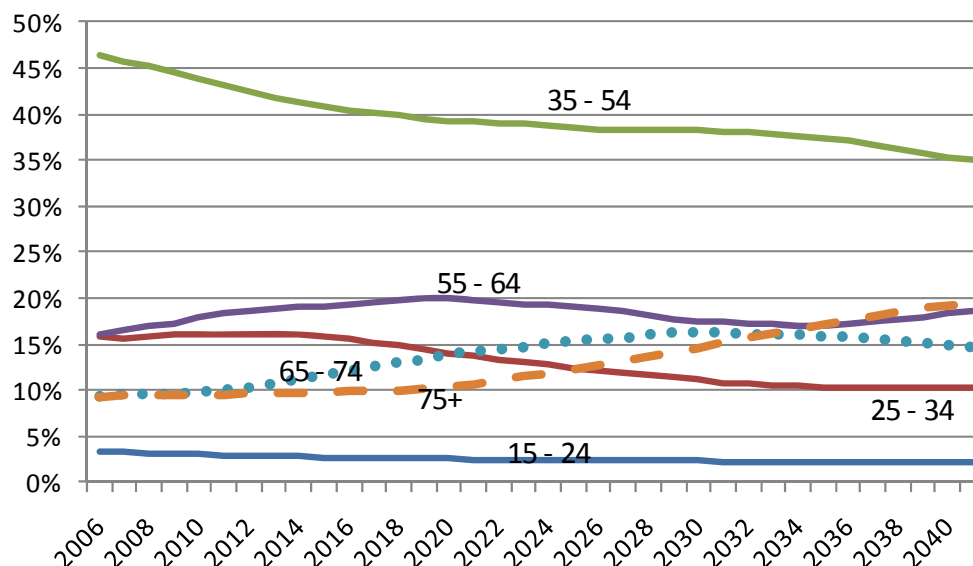
Source Census of Canada 1996 – 2006. Projections prepared by Metro Vancouver

Projected household maintainer rates and population age cohort projections are the basis for estimating the future regional housing demand. The household maintainer rate projections by age and dwelling type were derived from historic maintainer rates from 1996, 2001 and 2006 Census data. Significant trends in the data suggest a high but slightly decreasing propensity for seniors to occupy apartment units, and a lower but increasing propensity for under 65 age cohorts to occupy apartment units. However, the Census trend data must be applied with caution due to changes in the 2006 Census categorization of dwelling unit types. Consequently, base year 2006 maintainer rates are projected through to 2041 assuming that the trends observed through the 1996 to 2006 period would continue, but at a moderated rate.

While the maintainer rate projections indicate the likely housing preferences of the future population, it is the number of maintainers within each of the age cohorts that will determine the magnitude of future housing demand. The shifting age structure of the population, resulting from the aging of the baby boom generation through the senior age cohorts, will have a significant effect on Metro Vancouver housing demand over the next 25 years.

With this demographic shift, the proportion of housing for households led by persons over 65 will increase from about 19% in 2006 to about 32% in 2031, and approaching 40% by 2041. This bulge in household demand will have two effects. First there is the tendency for the older cohort households to generally prefer apartment units, although this will be offset somewhat by a counter trend for the 75+ cohort to remain in ground oriented units (with townhouse units increasing in popularity). Second, the average household size for the older cohorts is much lower than for the younger cohorts, requiring more housing units per person. Consequently, demographic projections suggest there will be pressure for the future housing stock to accommodate a higher proportion of seniors living alone or as couples in apartments or small unit ground oriented units.

Figure 3. Projected Change in Percentage of Households by Age Group



Housing demand was also modified to account for the addition of non-permanent residents to the population growth projections. Non-permanent resident growth will largely be related to increasing numbers of persons with work visas, along with a smaller and more stable component of foreign students. The temporary nature of housing for this population is likely to include a combination of accommodation options including purpose built collective (e.g. student residence) or commercial (hotel / motel) forms of housing, be extensions to existing households, and will simply be part of the demand for traditional market housing stock. Given the high degree of unpredictability for this component of growth, it was determined that non-permanent residents should be included as a simplified proxy calculation to distribute as 50% in ground oriented units and 50% were apartment units.

In total, household demand projections estimate that an additional 575,000 housing units will be required in Metro Vancouver, increasing from 848,000 units in 2006 to 1,422,000 units in 2041. In 2006 about 60% of Metro Vancouver housing was ground oriented and 40% was apartment. Projections estimate that about 55% - 60% of new housing growth would be in apartment units and 40%-45% in ground oriented units resulting the region approaching a 50% / 50% split between the two housing forms by 2041.

2.4 Regional Average Household Size Projections

To further establish the regional relationship between population and housing demand, and to assist in subsequent methodology for calculating municipal population and housing projections, current estimates and projections of average household size by dwelling type were prepared for the region. The 2006 baseline average household size for each dwelling type was established using Census counts for the total number of persons living in private occupied dwellings by dwelling unit type, and dividing by the total number of private occupied dwelling units for the corresponding dwelling types. Metro Vancouver's average household size for total, ground and

apartment units was projected from 2006 to 2041 based on the projected population and the projected dwelling unit demand.

Table 3. Regional Average Household Size Projections by Dwelling Type

	2006	2021	2031	2041
Total	2.58	2.46	2.40	2.40
Ground	3.00	2.86	2.76	2.73
Apartment	1.83	1.88	1.89	1.90

The Metro Vancouver 2006 Census average household size for all housing types was 2.56: broken out to 3.0 for ground oriented units and 1.8 for apartment units. Projected population and dwelling units result in a 2041 average household size for Metro Vancouver of 2.4: 2.73 for ground oriented units and 1.9 for apartment units. This change in average household size primarily reflects the housing characteristics of age demographics, and the movement of the baby boom generation into the 65+ age category over the coming 25 years. As seniors led households tend to be couple and single person households, the increasing the percentage of senior led households will result in lower household sizes for ground oriented units. Apartment unit household size is marginally trending upward as higher proportions of the mid-age cohorts are likely to be occupying apartment units.

2.5 Growth in Urban Centres and Frequent Transit Development Areas

A critical element of the Regional Growth Strategy is the strategic concentration of future growth within the 26 RGS designated Urban Centres and within the emerging Frequent Transit Development Areas. The Regional Growth Strategy provides targets for the share of regional growth to be concentrated in designated Urban Centres and Frequent Transit Development Areas (See Table 4. Region Growth Strategy Growth Targets for Urban Centres and Frequent Transit Development Areas).

Urban Centres

For Urban Centres, these targets were calculated with reference to historical growth rates in the region's urban centres, estimated development capacity with reference to municipal plans, and growth target scenario analysis of viable growth targets. A custom geography tabulation of 2006 Census data suggests that, in 2006, the RGS Urban Centres had about 26% of Metro's housing stock, and over the 1996 to 2006 period have absorbed about 34% Metro's residential growth. A large share of this growth occurred within the City of Vancouver Metropolitan Core and Burnaby's urban centres. These centres are expected to have continued growth, but all other major centres in the region, particularly - Surrey Metro Centre, Richmond City Centre and Coquitlam City Centre – are seeing increasing levels of development activity, and are expected to have significantly increased growth rates in the coming years.

With the increased momentum of centres growth throughout the region, the RGS established a target to achieve 30% of Metro's housing stock in the Urban Centres by the year 2041, requiring that about 40% of residential growth be absorbed by the Urban Centres. Many of the RGS designated Urban Centres have plans in place that are consistent with regional growth objectives. For other Urban Centres it is assumed that future revision of existing municipal plans will provide the development capacity needed to achieve RGS growth targets.

A similar approach was taken for employment allocation among Urban Centres and FTDA's, although much less information is available to support the analysis and projections for employment growth in the centres, and particularly in FTDA's. A custom geography tabulation of 2006 Census Place of Work data suggests that, in 2006, about 40% of Metro Vancouver employment was located within the 26 designated Urban Centres. Primarily through a review of applicable municipal plans it was determined that approximately 295,000 jobs or 50% of Metro's projected employment growth would be an appropriate target for the combined Urban Centres. Achieving this target would increase the Urban Centre share of employment from 40% to 50% by 2041.

Frequent Transit Development Areas

Future growth in Frequent Transit Development Areas is a new concept in the RGS growth strategy. The FTDA concept is based upon TransLink's Frequent Transit Network Concept, as shown in TransLink's long term transportation strategy, Transport 2040. FTDA's are intended to include existing and future station areas (800 metre radius), and locations which will evolve along the network (generally within a 400 metre buffer area) over the next 30 years.

Anticipating growth potential and setting growth targets for FTDA's is problematic as most of the FTDA locations will only be identified by municipalities and TransLink in future years, and will be of various sizes and densities within the location context of each municipality. Therefore, identifying FTDA growth targets in the RGS involved a growth scenario exercise including existing rapid transit stations, and identifying residential land area and development potential proximate to the FTN concept corridors. Census data was used to estimate the number of dwelling units located in these areas in 2006, and the share of regional and parent municipal dwelling units currently in these locations. It was estimated that about 26% of regional dwelling units were within the selected FTN corridor buffers in 2006.

The scenario exercise then calculated the share of projected regional dwelling unit growth that would be required to maintain the current 26% share, and what range of potential increase in the share of regional, and parent municipal, dwelling unit growth could be viable. A range of density assumptions and dwelling unit growth shares were tested among the potential FTDA's. The results were assessed regionally in relation to the growth share in Urban Centres and General Urban Areas, and also assessed within each municipality in relation to the share of projected growth within Urban Centres and General Urban Areas.

The target exercise concluded that FTDA densities will differ in the context of each municipality, and no single density could be assumed in all potential FTDA locations. Using a high (30% plus) regional growth share scenario would result in excessive density requirements in many municipal FTDA locations, and also result in some municipalities having zero, or negative, growth in general urban areas. From this assessment it was considered viable to assume that about 28% (161,000) of Metro Vancouver's dwelling unit growth could be targeted within the potential FTDA areas. Achieving this growth target would increase the regional FTDA share of total housing from 26% to 27%.

Establishing employment targets in the FTDA's also followed a similar method as used for dwelling unit growth targets, but with less available information. The FTN is primarily located on major arterial routes intersecting with a large number of commercial and industrial areas. A custom geography tabulation of 2006 Census Place of Work data suggests that, in 2006, about 22% of Metro employment was located within the selected FTN corridor buffer areas. It is assumed that existing commercial areas along the FTN, many of which include low density

development with large parking areas, will be the primary locations for future FTDA's including both residential and commercial development. As these locations will provide neighbourhood services and amenities, it is anticipated that there will be retail and service related employment growth to meet the local demand created by the corresponding population growth in the FTDA's, in addition to the demand associated with a major transit stop, arterial traffic and the proximate neighbourhood. As well, there is likely to be a proportional (0.05 jobs per resident growth) home based job growth related to FTDA population growth.

In total, it is assumed there will be an increase of 0.5 jobs per resident within the FTDA's. The RGS targets about 27% of Metro employment growth within FTDA's, increasing the share of employment from 22% to 24% by the year 2041.

It is acknowledged that the Transport2040 Frequent Transit Network is conceptual, and that the Rapid Transit and Frequent Bus corridors are depicted only as candidate locations. Similarly, the RGS FTDA locations are conceptual and will be identified in future years by municipalities subject to municipal planning processes.

Table 4. Regional Growth Strategy Targets for Urban Centres and Frequent Transit Development Areas

Dwelling Units	2006		Target 2021		Target 2031		Target 2041		Growth 2006-2041	
	#	%	#	%	#	%	#	%	#	%
Vancouver Metro Core	88,000	10%	110,000	10%	116,000	9%	119,000	8%	31,000	5%
Surrey Metro Centre	8,300	1%	27,000	2%	36,000	3%	43,000	3%	34,700	6%
Regional City Centres	71,000	8%	110,000	10%	142,000	11%	162,000	11%	91,000	16%
Municipal Town Centres	49,000	6%	82,000	7%	106,000	8%	123,000	9%	74,000	13%
Urban Centres Total	216,300	26%	329,000	29%	400,000	31%	447,000	31%	230,700	40%
Frequent Transit Development Areas	217,000	26%	281,000	25%	337,000	26%	378,000	27%	161,000	28%
General Urban Area	382,000	45%	486,000	43%	535,000	41%	561,000	39%	179,000	31%
All Other Areas	33,000	4%	34,000	3%	35,000	3%	36,000	3%	3,000	1%
Metro Vancouver Total	848,000	100%	1,130,000	100%	1,307,000	100%	1,422,000	100%	574,000	100%

Employment	2006		Target 2021		Target 2031		Target 2041		Growth 2006-2041	
	#	%	#	%	#	%	#	%	#	%
Vancouver Metro Core	256,000	22%	286,000	20%	302,000	19%	313,000	18%	57,000	10%
Surrey Metro Centre	18,000	2%	31,000	2%	40,000	2%	49,000	3%	31,000	5%
Regional City Centres	124,000	11%	177,000	12%	208,000	13%	237,000	14%	113,000	19%
Municipal Town Centres	69,000	6%	107,000	7%	135,000	8%	163,000	9%	94,000	16%
Urban Centres Total	467,000	40%	601,000	42%	685,000	42%	762,000	43%	295,000	50%
Frequent Transit Development Areas	254,000	22%	323,000	22%	370,000	23%	412,000	24%	158,000	27%
All Other Areas	437,000	38%	524,000	36%	567,000	35%	579,000	33%	142,000	24%
Metro Vancouver Total	1,158,000	100%	1,448,000	100%	1,622,000	100%	1,753,000	100%	595,000	100%

Notes:

Frequent Transit Development Areas targets are conceptual and subject to future municipal and transit planning.

3 Municipal Housing and Population Projections

The Metro Vancouver growth projections for municipalities follow an iterative method that combines a regional share approach with a consultative local development plan / capacity approach. Regional population and dwelling unit projections provide the overall control totals for municipal projections which are prepared by Metro Vancouver in collaboration with municipal planners from each member municipality. The municipal projection process assumes implementation of the RGS objectives for Urban Containment and concentrated growth in Urban Centres and Frequent Transit Development Areas. Metro Vancouver and municipalities then consider the following combination of factors in preparing municipal projections: regional growth control totals, historic subregional growth trends, an assessment of municipal land use and plans, residential development capacity analyses, and reference to existing municipal growth projections.

Historic Regional Growth Shares

The historic municipal share of regional population and housing growth provides a trend base for growth allocations. However, the value of historic growth shares must be tempered as future growth must be related to subregional development capacities and evolving growth parameters (e.g. density assumptions, transportation / transit networks) within the region's limited land base. RGS strategies propose to shift growth toward a more concentrated pattern that will emphasize growth through redevelopment and intensification in addition to development within remaining available urban areas. As the potential supply and development of new urban land diminishes, conditions that facilitate redevelopment / intensification opportunities will become more prominent in regional growth patterns.

Municipal Land Use and Development Plans

For each municipality current Regional Context Statements, Official Community Plans and related development plans were reviewed to identify growth policies and development projections that could inform the municipal share allocation of projected regional growth. Each municipality is unique in the planning information available: some include detailed land use plans while others are more general policy based; growth estimates may be included as projections, general capacity estimates or in some cases not included at all; some plans were prepared up to 10 years ago and do not anticipate the significant trends toward higher density forms of residential development; the planning time horizon in most municipal plans is limited to 2021 or 2031.

Available growth information from municipal plans was incorporated into the growth modeling process, but was considered as guidance in preparing the municipal projections to 2041. For some municipalities the RGS projections have exceeded current municipal projections based on assumptions of increasing residential densities, the magnitude of regional growth and the trends in municipal shares, assessment of long term residential capacity and intensification potential. Following adoption of Metro Vancouver's Regional Growth Strategy, municipalities will review existing land use and development plans, and prepare Regional Context Statements linking municipal plans to the Regional Growth Strategy. Through this process it is anticipated that municipal land use plans, growth capacities and projections will be revised to be generally consistent with the Regional Growth Strategy and regional growth projections – particularly in regard to intensification capacity for Urban Centres and areas proximate to potential Frequent Transit network corridors.

Residential Capacity Analysis

An assessment of planned residential land and development capacity was undertaken by Metro Vancouver in 2007. The study identified the net land area that municipalities had designated for residential development, and calculated dwelling unit capacity based on dwelling type and density assumptions. A range of residential type and density assumptions were prepared including those specified in existing municipal land use regulations, as well as alternatives assumptions for higher density housing forms.

It is acknowledged that capacity is a hypothetical and relative concept. Commonly accepted and planned residential densities can and will change over time and in various locations. The residential capacity analysis provides municipal growth parameters guided by existing land use plans, but also brings consideration on the adequacy of existing land use plans in relation to long term residential development demand for the region. Growth modeling assumes that there will be a continuation of trends toward higher density forms of housing and intensification that would increase currently planned development capacities in all municipalities.

The analysis estimated that Metro Vancouver could accommodate capacity ranging from about 1.37 million dwelling units up to 1.66 million dwellings depending on assumptions for the number of secondary units in single detached dwellings. With 850,000 occupied units in 2006, this indicated a potential remaining capacity between 550,000 and 780,000 additional dwelling units.

Since the regional housing stock is projected to increase by 575,000 units to a total of 1.42 million units in 2041, this assessment suggests there is sufficient planned residential capacity to accommodate Metro's projected growth to the year 2041. However, the RGS intends to affect the development patterns of future growth and assumes current municipal plans and residential development capacities will shift toward greater intensification potential for Urban Centres and areas proximate to planned Frequent Transit Network corridors.

Preceding Regional and Municipal Growth Projections

The most recent growth projections prepared by Metro Vancouver were contained within Growth Management Scenario 5.2 (2004). These projections were based on the 2001 Census, with municipal population and employment growth projections for the years 2021 and 2031. In addition to a revised regional growth strategy and growth concept, there are a number of revisions and unresolved issues that require significant revision of GMS 5.2. For example, the projections are updated for the 2006 Census, the time horizon is extended to 2041, and there have been significant adjustments in the growth expectations for some municipalities. However, the GMS 5.2 growth projections do provide some useful guidance in consideration of municipal and submunicipal (Traffic Zone) growth allocations.

3.1 *Municipal 2006 Base Estimates and Growth 2007-2011*

As with the regional projections, municipal growth projections are based on the 2006 Census plus undercount estimates of population and occupied dwelling units. There has been some concern expressed by municipalities that the 2006 Census did not provide an accurate estimate

of municipal population and housing, and consequently that the 2006 baseline is not accurate. Metro acknowledges that the Census is not an absolute count, but the Census data does provide the best and only viable common denominator for regional projections. From the 2006 base year, municipal growth estimates have been prepared for the 2007-2011 period, and growth projections have been prepared for the 2012 – 2041 period.

Growth estimates for the years 2007-2011 were prepared using two approaches: current estimates of regional growth provided by BC Stats, and net new housing using housing completion data recorded by CMHC and housing demolition data provided by Statistics Canada. First, regional population control totals provided by BC Stats include estimates of regional net immigration, net intra and inter provincial migration and natural increase. Then, net new dwelling unit growth was calculated for the region and each municipality, and multiplied by corresponding 2006 Census average household size by dwelling type to estimate the population growth based on new housing development. For this period, total population estimates related to net new housing was considerably less than the BC Stats control total. In order to retain the BC Stat control total, the residual population was assumed to be comprised of recent immigrants, and considered to be absorbed within unrecorded secondary dwelling units or within existing households. The residual regional population was allocated among municipalities based on the 2006 Census allocation of recent immigrants (2001-2006) among municipalities. (Note: the 2007 to 2011 estimates are discussed in more detail in Section 7 of this document).

3.2 *Municipal Dwelling Unit Projections*

In this methodology, municipal projections of both dwelling units and population from 2012 to 2041 are developed primarily through a regional housing allocation methodology where Metro Vancouver's projected annual dwelling unit (ground and apartment) growth is distributed among municipalities using a regional share / capacity method. Municipal housing unit capacity estimates derived from Metro Vancouver's Residential Capacity Study and reference to existing municipal land use plans were used as a capacity parameter to guide growth distribution among municipalities. Annual regional housing growth was then allocated to each municipality based on a rate of capacity absorption based on the relative municipal share of regional capacity, trends in regional growth share, municipal land use plans, and RGS regional targets for growth in Urban Centres and Frequent Transit Development Areas.

As previously noted, the municipal capacities are not absolute and the density assumptions applied to residential lands can vary considerably. Some municipalities have more specifically defined land areas and land development policies that provide a more refined estimate of development capacity. Other municipalities have a more generally designated residential land base, allowing a wide range of residential densities within that designation. As well, some municipalities have historically developed at a relatively low density and have considerable intensification and redevelopment capacity potential that is not specifically addressed in municipal plans.

Over the past ten years residential development trends have significantly shifted toward more efficient land use and higher density forms of development including apartments and smaller lot / multiple unit forms of ground oriented housing. In response, many existing municipal land use plans are being, or will be, revised to accommodate a broader range of residential built form and allowable density. A key assumption of the RGS is that existing low density residential

development proximate to future high capacity transit stations and corridors will provide a significantly large share of future residential development capacity in future years.

Consequently, the residential capacity parameters are used to guide growth allocation, but are flexible in the context of shifting development trends / policies and assumptions for concentrated growth in proximity to future transit stations / corridors. The municipal absorption rate is determined in the near term by trends in regional growth share and municipal development application activity, and in the longer term by regional share of land development capacity and the presence of Urban Centre and potential Frequent Transit Development Areas - growth concentration areas - within the municipality.

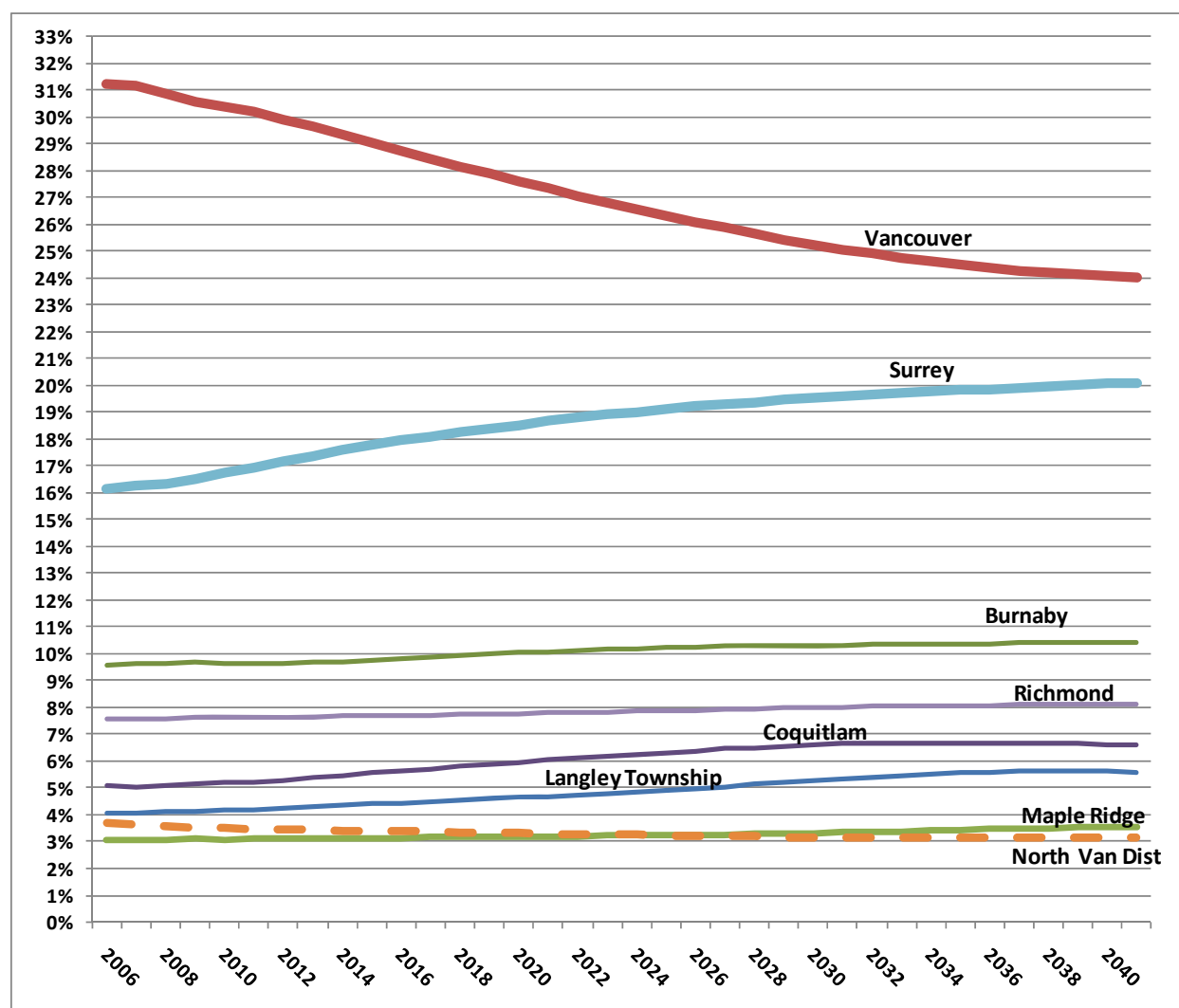
Table 5 below shows the cumulative total housing growth projections among Metro municipalities. Having by far the largest residential land base, as well as the largest potential for residential intensification, the City of Surrey is projected to absorb a 26% share of new housing growth to 2041. However, although the land base in the cities of Vancouver and Burnaby is developed, both cities have identified significant intensification and redevelopment potential for growth primarily in their major centres and around major transit access locations.

Table 5 Projected Dwelling Unit Growth in Metro Vancouver Municipalities

	Total Dwelling Units			Share of Total Dwellings			Growth 2006-2041	
	2006	2021	2041	2006	2021	2041	#	%
Metro Vancouver	847,580	1,130,110	1,421,990	100%	100%	100%	574,410	100%
Anmore	560	850	1,310	0.1%	0.1%	0.1%	750	0.1%
Belcarra	260	320	390	0.0%	0.0%	0.0%	130	0.0%
Burnaby	81,110	115,000	149,300	9.6%	10.2%	10.5%	68,190	11.9%
Coquitlam	42,960	67,700	94,100	5.1%	6.0%	6.6%	51,140	8.9%
Delta	34,300	40,300	48,000	4.0%	3.6%	3.4%	13,700	2.4%
Electoral Area A	5,100	10,800	14,200	0.6%	1.0%	1.0%	9,100	1.6%
Langley City	11,160	14,500	17,100	1.3%	1.3%	1.2%	5,940	1.0%
Langley Township	34,510	53,700	79,900	4.1%	4.8%	5.6%	45,390	7.9%
Lions Bay	550	640	790	0.1%	0.1%	0.1%	240	0.0%
Maple Ridge	25,920	36,100	50,900	3.1%	3.2%	3.6%	24,980	4.3%
New Westminster	28,040	37,100	47,000	3.3%	3.3%	3.3%	18,960	3.3%
North Vancouver City	22,360	25,600	30,200	2.6%	2.3%	2.1%	7,840	1.4%
North Vancouver District	31,260	37,500	45,000	3.7%	3.3%	3.2%	13,740	2.4%
Pitt Meadows	6,100	8,200	9,400	0.7%	0.7%	0.7%	3,300	0.6%
Port Coquitlam	19,400	26,300	34,300	2.3%	2.3%	2.4%	14,900	2.6%
Port Moody	10,510	15,600	19,900	1.2%	1.4%	1.4%	9,390	1.6%
Richmond	64,000	88,400	115,500	7.6%	7.8%	8.1%	51,500	9.0%
Surrey	136,580	211,200	285,200	16.1%	18.7%	20.1%	148,620	25.9%
Tsawwassen First Nation	300	1,300	2,100	0.0%	0.1%	0.1%	1,800	0.3%
Vancouver	264,500	306,700	339,500	31.2%	27.1%	23.9%	75,000	13.1%
West Vancouver	18,200	20,600	24,500	2.1%	1.8%	1.7%	6,300	1.1%
White Rock	9,900	11,700	13,400	1.2%	1.0%	0.9%	3,500	0.6%

Overall, the growth projections suggest a broadening residential distribution focused within the Urban Centres and FTDAs within Metro municipalities. Over the 35 year period the City of Vancouver will continue to have a substantial 13% share of Metro growth, and will continue to have more total dwelling units than any other municipality. However, Vancouver's share of metro housing stock will decrease from about 31% to 24% by 2041. By contrast, the City of Surrey will absorb about 26% of Metro's housing growth, increasing its regional share of the total Metro housing stock from 16% to 22%.

Figure 4 Projected Municipal Shares of Metro Vancouver's Total Housing Stock



3.2.1 Growth through Intensification versus Newly Developing Urban Areas

A review of municipal land use plans has identified the remaining semi-rural areas of the region that are currently planned for future urban development. Collectively, development plans for these areas estimate in the range of 100,000 to 120,000 dwelling unit capacity in newly developing urban areas – about 20%-25% of projected Metro Vancouver housing growth to the year 2041. This suggests a residential intensification rate of 75% - 80% (the percentage of

growth through intensification within established / developed urban areas), which is consistent with the historic rates of residential intensification in Metro Vancouver since the 1980s.

The City of Surrey and Langley Township contain about 80% of the remaining lands within the Urban Containment Boundary that have been planned for future urban development. Growth within Langley Township will occur primarily (70%) through the development of new urban areas. Surrey will have a significant amount of growth in newly developing urban areas, but about 70% of Surrey's growth over the next 30 years will be through the city's capacity for infill and intensification. Maple Ridge and Coquitlam have the remaining 20% of land available and planned for urban expansion.

3.3 *Municipal Population Projections*

Through the iterations of the municipal dwelling unit allocation process, corresponding municipal household size and population projections were calculated, triangulated and adjusted for cumulative consistency with regional population and housing control totals, and with reference to available population estimates provided in municipal plans.

For each municipality, the base year 2006 average household size by dwelling type (ground and apartment) was calculated from the 2006 Census count of population in occupied dwellings. The average household sizes for each municipality by dwelling type were then projected to the year 2041. As previously stated, the regional average household size is projected to decrease from 2.58 to 2.40 - due both to the aging population tendency for one and two person households and a corresponding increase in apartment unit households. Regionally, ground oriented households are projected to decrease from 3.0 to 2.73, while apartments will increase from 1.8 to 1.9 as more middle age households are trending toward apartment housing. Within each of the municipalities, it is assumed that household composition, housing stock and average household size will trend toward the regional average, such that the sum of each municipal projection will equate to the regional projection control totals.

Figure 5 shows the estimated average household size projections for selected municipalities. The City of Surrey shows a significant decrease in average household size due largely to an increasing share of apartment units, particularly related to Urban Centre and FTDA related development, and increasing development of multi-unit forms of ground oriented housing. However, Surrey will continue to have a large share of the regions ground oriented housing growth, and will remain well above the regional average household size. The regional trend toward increasing share of apartment units and multi-unit forms of ground oriented housing applies to varying degrees among all municipalities. The City of Vancouver is anticipated to maintain a relatively consistent average household size.

Figure 5 Projected Household Size for Selected Municipalities

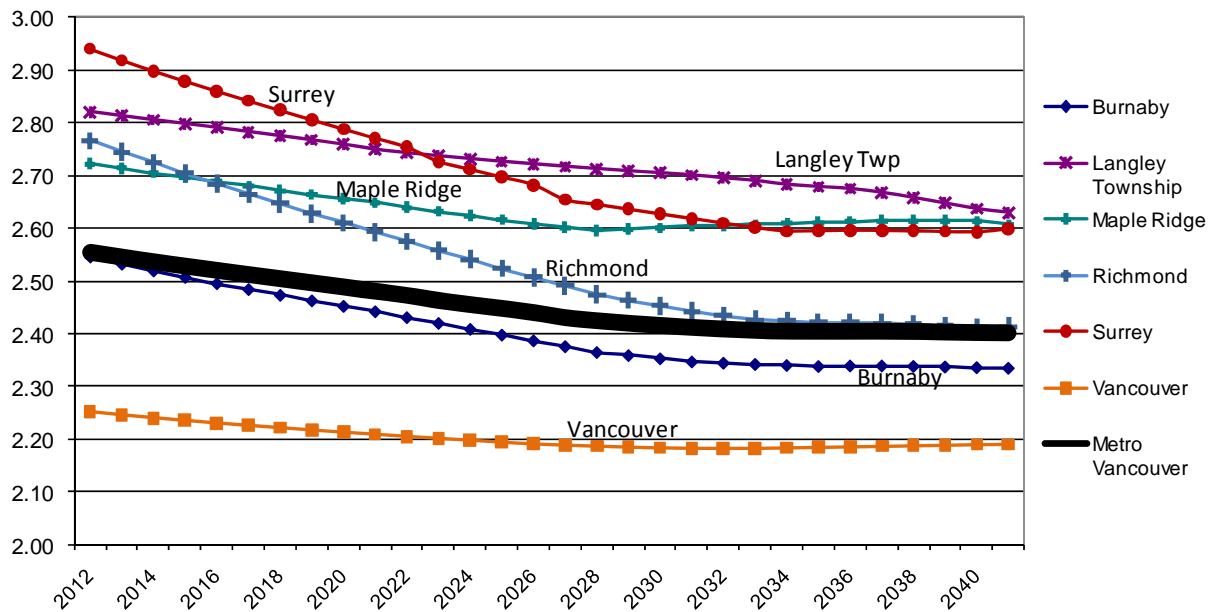


Table 6 shows the resulting population projections for municipalities. Reflecting the city's development capacity, the City of Surrey is projected to absorb about 27% of the region's population growth, more than doubling the share of growth taken by other growing municipalities and increasing its share of regional population from 19% to 22%. The City of Vancouver is expected to absorb about 12% of regional population growth. However, given its small household size, the City of Vancouver will take a lower regional share of population than of housing. Burnaby is anticipated to maintain a stable share of regional growth, primarily within established regional and municipal centres. Langley Township, Coquitlam and Richmond will also absorb significant shares of regional population growth. With Surrey's projected growth rate, Surrey is expected to approach and be roughly equal the projected population of the City of Vancouver by the 2040s.

Table 6 Projected Population in Metro Vancouver Municipalities

	Total Population			Share of Total Population			Growth 2006-2041	
	2006	2021	2041	2006	2021	2041	#	%
Metro Vancouver	2,195,200	2,780,200	3,400,400	100%	100%	100%	1,205,200	100%
Anmore	1,900	2,800	4,400	0.1%	0.1%	0.1%	2,500	0.2%
Belcarra	700	800	1,000	0.0%	0.0%	0.0%	300	0.0%
Burnaby	210,500	277,000	345,000	9.6%	10.0%	10.1%	134,500	11.2%
Coquitlam	119,600	176,000	224,000	5.4%	6.3%	6.6%	104,400	8.7%
Delta	99,000	109,000	123,000	4.5%	3.9%	3.6%	24,000	2.0%
Electoral Area A	11,600	24,000	30,000	0.5%	0.9%	0.9%	18,400	1.5%
Langley City	24,900	32,000	38,000	1.1%	1.2%	1.1%	13,100	1.1%
Langley Township	97,300	146,000	211,000	4.4%	5.3%	6.2%	113,700	9.4%
Lions Bay	1,400	1,600	2,000	0.1%	0.1%	0.1%	600	0.0%
Maple Ridge	71,500	95,000	132,000	3.3%	3.4%	3.9%	60,500	5.0%
New Westminster	60,500	80,000	102,000	2.8%	2.9%	3.0%	41,500	3.4%
North Vancouver City	47,500	56,000	68,000	2.2%	2.0%	2.0%	20,500	1.7%
North Vancouver District	87,000	98,000	114,000	4.0%	3.5%	3.4%	27,000	2.2%
Pitt Meadows	16,600	22,000	24,000	0.8%	0.8%	0.7%	7,400	0.6%
Port Coquitlam	54,500	68,000	85,000	2.5%	2.4%	2.5%	30,500	2.5%
Port Moody	28,700	39,000	50,000	1.3%	1.4%	1.5%	21,300	1.8%
Richmond	182,700	225,000	275,000	8.3%	8.1%	8.1%	92,300	7.7%
Surrey	413,000	578,000	740,000	18.8%	20.8%	21.8%	327,000	27.1%
Tsawwassen First Nation	800	3,000	5,000	0.0%	0.1%	0.1%	4,200	0.3%
Vancouver	601,200	673,000	740,000	27.4%	24.2%	21.8%	138,800	11.5%
West Vancouver	45,400	51,000	60,000	2.1%	1.8%	1.8%	14,600	1.2%
White Rock	18,900	23,000	27,000	0.9%	0.8%	0.8%	8,100	0.7%

4 Regional Employment Projections

While no growth projections can be considered as absolute or precise, employment projections, particularly among municipalities, are more speculative than residential projections. Metro Vancouver's employment projections follow a similar regional / municipal share structure used in residential projections. This method is strongly associated with regional and municipal population growth projections and industry sector allocation assumptions.

4.1 Regional 2006 Base Employment by Industry Sector

Metro Vancouver 2006 total employment and employment by Industry and Occupation sectors are taken from the 2006 Census *Place of Work (POW)*. The Census POW counts are revised to include the estimated Census undercount to be consistent and comparable with the Census plus undercount totals for population and labour force. The Census POW estimates there were 1,115,000 jobs located within Metro Vancouver in 2006. Of this total 886,000 worked in fixed locations, 91,000 were home based and 138,000 had no fixed locations. A Census undercount estimate of approximately 3.9% is added to the Census count to provide a total employment estimate of 1,158,000 jobs in the region.

4.2 Regional Employment Growth Projections

In preparing regional employment growth projections Metro Vancouver reviewed existing studies and contracted consultant³ studies to estimate how future employment growth is likely to relate to future population and labour force growth, and how employment within the component industry sectors is likely to evolve in future years. While all studies indicate a continuing shift in employment from goods producing to service industries, and continuing increases in technology and productivity affecting the overall employment, the studies provided a range of possibilities for change from the current employment profile. Possibilities ranged from only modest differences in all employment indicators to significant decreases in the ratio of employment to population, and significant changes in the component employment sectors.

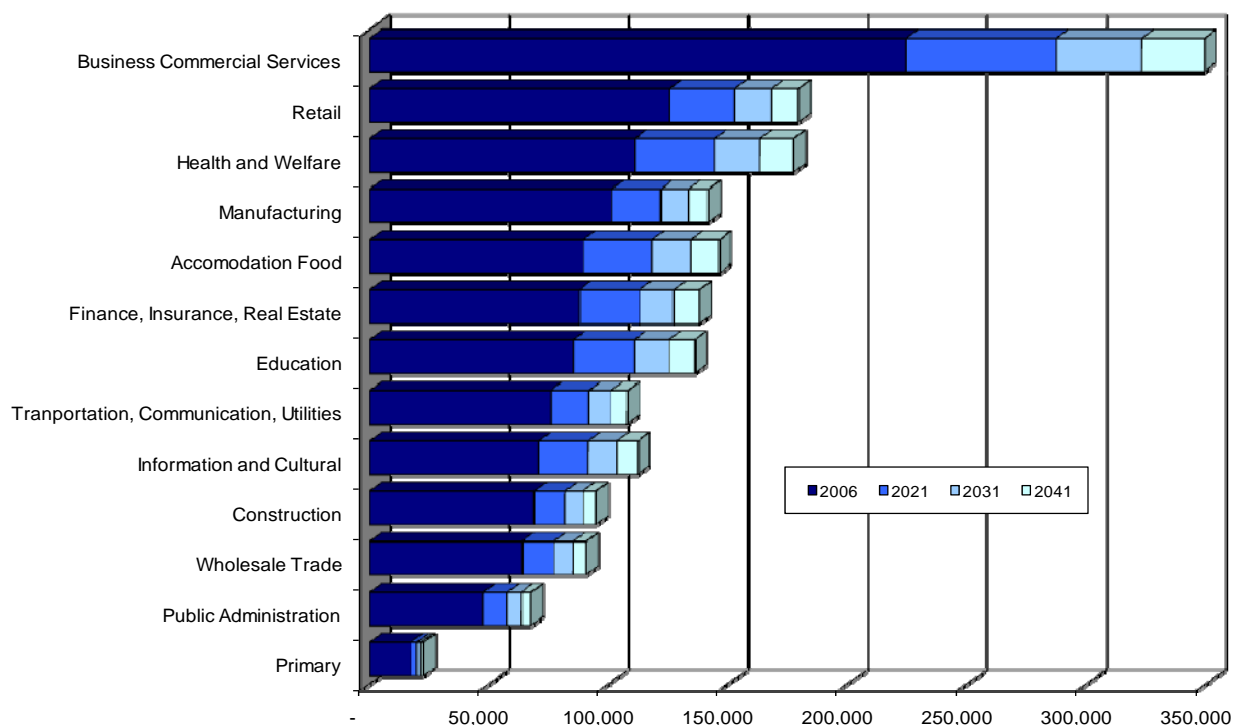
Given the range of possibilities, it was decided to take a more conservative approach to potential changes in future employment, assuming a marginal decrease in the ratio of employment to population, with the component employment sectors shifting generally toward increases in service industries and modest changes in the share of employment within the individual sectors.

Metro Vancouver's regional employment growth projections are based primarily on the projected population and a projected employment to population ratio. The 2006 Census indicates that Metro Vancouver had a regional job to population ratio of 0.527. By the year 2041 this ratio is assumed to decrease to 0.517. With a 2006 base employment of 1,158,000, the projected 2041 population of 3.4 million in projected employment of 1,753,000, an increase of about 595,000 jobs by the year 2041.

³ Studies were commissioned from Urban Futures Inc. and the Conference Board of Canada.

Regional employment growth projections by industry and occupation sectors were also prepared and were used as a basis for the subregional employment projection methodology.

Figure 6 Projected Metro Vancouver Employment Growth by Industry Sector



Projections suggest that business and commercial services, FIRE (finance, insurance, and real estate), retail services, accommodation/food services and information/culture employment will account for about 55% of future job growth. Health, education and public administration will provide for another 23% of growth. Manufacturing, transportation, wholesale trade and construction will take another 21%, with primary industry taking the remaining 1 percent.

5 Projected Municipal Employment Growth

The first step in the municipal process was to establish the 2006 base total employment and employment by industry sector. The 2006 Census Place of Work data provides municipal counts for employment in a fixed location and work at home. An estimate of the each municipalities share of the region's 138,000 no fixed place of work jobs by industry sector was done largely based on each municipalities share of regional employment in that sector. There was some variation for particular sectors such as construction where distribution took into consideration the rates of development activity within each municipality. The Census undercount estimate for each municipality was then included in the municipalities total employment for 2006.

Municipal employment growth allocation is based on a regional share methodology relating employment distribution to municipal shares of regional population growth, regional employment by Industry sectors (North American Industrial Classification System), and the municipal shares of regional industrial land capacity. The distribution process generally follows past sector allocation / location methods applied by Metro Vancouver to estimate the association of employment to these location distribution factors⁴. This method assumes that employment sectors tend to be population serving or location related. The relative strength of association of an employment sector in relation to the subregional distribution of population indicates whether the sector tends to be population serving. Consequently, the distribution of future employment growth in that sector will tend to follow the future distribution of population growth. Otherwise, it is assumed that the sector is more location dependent, and future employment in that sector will tend to locate in areas where that sector is more prominent. Locations include each municipality's share of the region's industrial land capacity.

The number of sectoral jobs in each municipality was compared to the population in each municipality. Statistical measures of association (correlation and regression) were used as a guide to estimate the degree that each sector's job distribution was related to population distribution. The less a job sector was related to population distribution, the more it was assumed to be related to location. For example, the distribution of Metro's total projected retail employment among municipalities was calculated to be 90% related to population growth in each municipality, and 10% related to the share of retail employment currently located within each municipality. The distribution of manufacturing employment among municipalities was calculated to be 30% related to municipal population growth, 30% related to the share of manufacturing employment currently located within each municipality, and 40% related to the share of industrial land located within each municipality (Census estimates indicate just over 50% of Metro Vancouver's manufacturing sector employment is located within designated industrial areas).

Using these allocation factors, Metro's Vancouver's projected annual employment growth by industry sector was allocated among municipalities based on each municipality's:

- Share of Metro Vancouver's projected population growth in the given year.
- Share of Metro Vancouver's employment in that sector in that given year.
- Share of Metro Vancouver's industrial land capacity in that given year.

⁴ A Context for Change Management in the Lower Mainland, Part II. Greater Vancouver Regional District (Metro Vancouver) and Urban Futures Incorporated, 2003.

Allocations for home based employment and employment with no fixed location were included within the municipal allocation respective industry sector.

Iterations of the growth distributions were discussed with municipal planners and compared with available municipal information and previous employment projections plans. Table 7 shows the resulting projections of employment growth among Metro Vancouver municipalities.

Table 7 Projected Employment in Metro Vancouver Municipalities

	Total Employment			Share of Total Population			Growth 2006-2041	
	2006	2021	2041	2006	2021	2041	#	%
Metro Vancouver	1,157,940	1,448,410	1,752,540	100%	100%	100%	594,600	100%
Anmore	300	660	1,250	0.0%	0.0%	0.1%	950	0.2%
Belcarra	90	150	220	0.0%	0.0%	0.0%	130	0.0%
Burnaby	136,000	169,000	203,000	11.7%	11.7%	11.6%	67,000	11.3%
Coquitlam	46,000	70,000	94,000	4.0%	4.8%	5.4%	48,000	8.1%
Delta	55,000	63,000	75,000	4.7%	4.3%	4.3%	20,000	3.4%
Electoral Area A	19,000	20,000	21,000	1.6%	1.4%	1.2%	2,000	0.3%
Langley City	17,000	21,000	25,000	1.5%	1.4%	1.4%	8,000	1.3%
Langley Township	49,000	71,000	100,000	4.2%	4.9%	5.7%	51,000	8.6%
Lions Bay	310	400	570	0.0%	0.0%	0.0%	260	0.0%
Maple Ridge	23,000	34,000	48,000	2.0%	2.3%	2.7%	25,000	4.2%
New Westminster	28,000	37,000	48,000	2.4%	2.6%	2.7%	20,000	3.4%
North Vancouver City	29,000	34,000	40,000	2.5%	2.3%	2.3%	11,000	1.8%
North Vancouver District	27,000	33,000	40,000	2.3%	2.3%	2.3%	13,000	2.2%
Pitt Meadows	5,000	8,000	9,000	0.4%	0.6%	0.5%	4,000	0.7%
Port Coquitlam	21,000	28,000	35,000	1.8%	1.9%	2.0%	14,000	2.4%
Port Moody	8,000	13,000	18,000	0.7%	0.9%	1.0%	10,000	1.7%
Richmond	130,000	154,000	181,000	11.2%	10.6%	10.3%	51,000	8.6%
Surrey	143,000	217,000	290,000	12.3%	15.0%	16.5%	147,000	24.7%
Tsawwassen First Nation	240	1,200	1,500	0.0%	0.1%	0.1%	1,260	0.2%
Vancouver	393,000	441,000	482,000	33.9%	30.4%	27.5%	89,000	15.0%
West Vancouver	21,000	24,000	29,000	1.8%	1.7%	1.7%	8,000	1.3%
White Rock	7,000	9,000	11,000	0.6%	0.6%	0.6%	4,000	0.7%

In that the majority of employment growth was associated with population growth distribution, the pattern of employment growth is projected to become more broadly distributed throughout the region. The City of Vancouver, as the metropolitan core of the region, will continue to have strong employment growth and will continue to have substantially more jobs than all other municipalities. However, Vancouver's share of regional employment is projected to decrease from 34% to 27.5% as other municipalities take on an increasing share of population and jobs growth.

Employment growth will be most prominent in the City of Surrey, which is anticipated to take about 25% of Metro Vancouver's employment growth, and to increase its regional share of employment from 12% to 16.5%. Growth in the established employment areas of Burnaby and Richmond will continue to maintain a prominent regional share, while other municipalities such as Langley Township, Coquitlam and Maple Ridge will see some increase in regional share.

6 Submunicipal Population and Employment Projections

Metro Vancouver prepares submunicipal traffic zone (TZ) projections of population and employment as a basis for regional infrastructure and transportation modeling. Municipal population and employment projections provide control totals for the TZ growth projections within the respective municipality, with the specific TZ growth projections prepared through a collaborative process between Metro Vancouver and each member municipality.

Although the TZ projections are not officially included as part of Regional Growth Strategy, it is the intent that the TZ projection allocations be consistent with the strategies and policies contained in the Regional Growth Strategy, particularly in relation to the Urban Containment Boundary, General Urban Areas, Urban Centres and Frequent Transit Development Areas. It is anticipated that full ratification and Metro Vancouver Board adoption of the Regional Growth Strategy will occur in 2011. The current version of the TZ projections does not fully anticipate implementation of the Regional Growth Strategy as the growth policy concept is yet to be fully considered and incorporated into municipal plans.

Following adoption for Regional Growth Strategy, municipalities will be engaging a process of municipal plan review and preparation of a Regional Context Statement. Through this process each municipality will establish policies for implementation of the Regional Growth Strategy. As the current version of the TZ projections were prepared prior to municipal planning processes, TZ projections will be revised as municipal plans are completed. Currently, the TZ model is the best estimate in allocating submunicipal growth as of mid year 2011.

6.1 Traffic Zone 2006 Base Estimates

The TZ model includes estimates and projections for total population and total employment. For each of the 932 TZs, Census 2006 custom geography data was acquired and applied for population and employment estimates (See Appendix A, Map 3. Metro Vancouver Traffic Zones). The base population of each TZ was revised to include the Census undercount percentage for the parent municipality. The 2006 employment for each TZ was revised to include an estimated share of municipal jobs that have no fixed location, allocated according to each TZ share of the municipality's jobs with fixed location. The Census undercount percentage was then included to achieve the 2006 TZ employment total.

6.2 Traffic Zone Projections

Growth projections for the TZ are derived within each municipal context and are based on the projected growth for the parent municipality. Metro Vancouver prepares an initial draft TZ projection based on land use capacity estimates from municipal plans and the presence of Urban Centres and potential Frequent Transit Development Areas. Draft estimates are then provided to planners of the member municipalities for assessment and suggested adjustments based on local plans and knowledge.

TZ projections are intended to reflect the collaborative implementation of RGS strategies as interpreted by municipalities and incorporated into municipal plans. However, as the RGS was not yet adopted as this document was written, municipalities have not fully considered the

application of the RGS growth concepts within their respective municipal plans. Constraints on the TZ projection allocations include:

- Municipal plans and growth projections have a horizon year of either 2021 or 2031, and have not considered growth beyond those years.
- Municipalities do not have all relevant land plans in place, and are reluctant to identify growth areas prior to the completion of community planning processes.
- Detailed planning for the Frequent Transit Network needs to be done to determine the future alignment and station locations for Rapid Transit, and for the location and phasing of the future Frequent Bus Network corridors.

Given the current status of regional and municipal plans, there was a range of responses among municipalities. Some municipalities chose to accept the Metro Vancouver draft projections. Other municipalities chose to adjust the Metro Vancouver draft toward existing municipal land use plans, reducing emphasis on growth in the Urban Centre and FTDA concentration zones. In striking the balance between regional and local perspectives, the TZ projections strive for a best fit within the context of projected regional growth, the intent of the Regional Growth Strategy, established municipal land use plans and the anticipated growth capacity in specific locations. The TZ model will be updated as municipalities prepare revised municipal land use plans and growth projections and complete Regional Context Statements.

6.3 Additional Transportation Modeling Variables Included in TZ Projections

To support TransLink's EMME2 transportation modeling applications, the TZ projections were augmented to include base year estimates and projections for the following variables:

Population by Age Cohort

For 2006, Custom Census data for population by age was acquired for each zone. The age cohort proportions were applied to the Census plus Census undercount population base. For the forecast years, changes in age cohort proportions were based on BC Stats PEOPLE model projections of population by age for the parent Local Health Areas.

Employment by Industry Sector

For 2006, Custom Census data for Employment Place of Work was acquired for each zone. The industry sector proportions were applied to the TZ total employment estimate (Census, plus Census undercount, plus allocation of no-fixed place of work). For forecast years, employment growth for the TZ was allocated into sectors based on the TZ sector share of that municipal sector total and the projected growth of that sector within the municipality.

Post Secondary Students

Post Secondary Institutions are identified and located in the corresponding TZs. For base years, estimates of student full time equivalence (FTE) were acquired from the institutions. For forecast years, institution estimates of future enrolment were applied where available. However, minimal information was available from institutions on long term enrolments. To anticipate future FTE Metro Vancouver prepared forecasts of regional FTE students based on population to student ratios. Future FTE estimates were applied to existing institutions /

zones based on estimates of that institution's planned capacity. However, existing institutional capacity does not account for all projected FTE students in the region. It was also assumed that the remaining projected FTE students would be associated with new institutions, with the new institutions assumed to be located proportionally within the designated RGS Urban Centres.

7 Annual Estimates for Metro Vancouver Population, Housing and Employment

Metro Vancouver prepares annual estimates of population, dwelling unit and employment growth to monitor development and assess growth projections for the region and municipalities. As with growth projections, Metro Vancouver works collaboratively with the Province of BC and member municipalities in preparing and reviewing annual estimates.

7.1 Regional Population and Housing Estimates

Regional population estimates are prepared from estimates of net immigration, net migration, natural increase for British Columbia and the Metro Vancouver region, as compiled and provided by Statistics Canada and BC Stats. In monitoring growth during 2006 to 2010, the BC Stats regional population estimate suggests growth of 175,000 residents for a total of 2.37 million residents in mid year 2010. This control total is then compared with the population total calculated from an estimate of the region's 2010 total housing stock.

Net additions to the region's and each municipality's housing stock by dwelling type are identified using Canada Mortgage and Housing Corporation's market activity reports on housing completions. Housing demolition estimates from municipal records are subtracted to calculate the addition to the housing stock. The total 2010 housing stock by dwelling type is then multiplied by an average household size for each municipality and dwelling type to estimate the housing related population growth for each municipality and the region. The resulting regional population total is compared with the regional population totals compiled by BC Stats.

Net dwelling unit growth from CMHC records, including assumptions on secondary dwelling units, shows an increase of 70,000 dwelling units for a total of 917,400 units in mid year 2010. Multiplying the total 2010 housing stock by the Metro Vancouver average household size by dwelling type results in a population of approximately 2,350,000 - short of the BC Stats total. It is assumed that high immigration rates in 2009 and 2010 resulted in more population than can be accounted for by housing growth alone. This additional 20,000 recent immigrant population was assumed to be absorbed within existing households / housing stock or within newly created secondary dwelling units, and allocated among municipalities based on the 2006 Census data for the share of recent 2001–2006 immigrants residing in each municipality.

Regional employment is estimated using Census based trends for regional employment to population ratios, and reference to Statistics Canada's Labour Force Survey (LFS) estimates for the number of employed Metro Vancouver residents. Metro Vancouver's ratio of employment to population as calculated from the 2006 Census provides a benchmark to guide regional employment growth estimates. The 2006 Census ratio of 0.527 jobs per total residents was assumed to be consistent in the 2010 estimates. Using this ratio, the 2010 population of 2,370,000 would estimate employment at 1,249,000, an increase of approximately 91,000 jobs from the 1,158,000 total jobs in 2006.

The 2010 Statistics Canada Labour Force Survey (LSF) provides an estimate of the employed labour force residing within Metro Vancouver. Normalizing the LFS employed labour force estimate to the Metro Vancouver 2010 population, net employment commuting, and the 2006 base unemployment rate provides a 2010 employment estimate in the range of 1,250,000 – generally consistent with the population ratio estimate. The employed labour force in the LFS is

normalized to be consistent with the Metro Vancouver control population, inter-regional commuting patterns, and a constant unemployment rate consistent with the 2006 Census data.

7.2 *Municipal Housing and Population Estimates*

Population and housing estimates for municipalities are based on 4 factors:

- Net change in total housing stock by dwelling type.
- Census 2006 estimates of average household size by dwelling type for each municipality.
- Census trends 1996-2006 in the municipal distribution of recent immigrants living in Metro Vancouver.
- Review and verification by municipal planners.

Beginning with Census 2006 counts of occupied dwelling units by type (including Census undercount); net additions to each municipality's housing stock by dwelling type are identified using Canada Mortgage and Housing's market activity reports on housing completions. Housing demolition estimates from municipal records are subtracted to calculate the net addition to the housing stock. The total 2010 housing stock by dwelling type is then multiplied by an average municipal household size for each dwelling type to yield a population estimate.

Regionally, there were approximately 20,000 residents that could not be allocated through municipal housing stock calculations. This surplus was assumed to be recent immigrant population that was absorbed within existing households / housing stock or within newly created secondary dwelling units. This surplus was then allocated among municipalities based on the 2006 Census data for the share of recent immigrants residing in each municipality. Table 8 shows the 2010 municipal population and dwelling unit estimates for 2010.

7.3 *Regional Employment Estimates*

Regional employment is estimated using Census based trends for regional population to employment ratios, and Statistics Canada's Labour Force Survey estimates for the number of employed Metro Vancouver residents.

Metro Vancouver's ratio of employment to population as calculated in the 2006 Census provides a benchmark to guide regional employment growth estimates. Projections beyond 2006 assume a marginally declining employment to population ratio, and a constant, moderate (2006 Census based) unemployment rate. A constant 2006 unemployment rate is assumed as the regional growth model does not attempt to estimate economic cycles, related fluctuations in unemployment rates and the number of jobs at a given point in time. Because the growth model is used for infrastructure and service planning, the model estimates an average number of jobs that should be expected at given points in time under typical economic / employment conditions. The 2006 Census provides a ratio of .527 jobs per total residents in 2006, and it is assumed this ratio is maintained in 2010. Using this ratio, the 2010 population of 2,370,000 would estimate employment at 1,249,000, an increase of approximately 91,000 jobs from the 1,158,000 total jobs in 2006.

A second guide for estimating employment growth is provided by the Statistics Canada Labour Force Survey (LFS). The LFS provides estimates of Metro Vancouver's population (age 15+), labour force and employed labour force, but does not contain information on the place of work. To estimate total employment within Metro Vancouver, the LFS employed labour force information must be supplemented by estimates of the number of employed Metro Vancouver residents working outside of Metro, and the number of non-Metro residents working within Metro. The 2006 Census Place of Work / Place of Residence data indicates a net total employment addition of approximately 1.3% related to external commuting.

The LFS indicates an annual average employed labour force of 1,220,000 for Metro Vancouver in 2010. However, for the purpose of this regional modeling exercise the LFS employed labour force estimate was adjusted to: a) reconcile with Metro Vancouver's population control totals, and; b) to normalize the unemployment rate from currently high rate of 7.4% to the 2006 Census based rate of 5.5%. These adjustments, plus the additional 1.3% to account for external commuting, yields an employment estimate of 1,252,000. (Note: this description is highly abbreviated and further inquiries are welcome). Consequently, reference to the current population estimate, the 2006 Census based parameters for jobs to population, and the 2010 Labour Force Survey suggest that a regional 2010 employment estimate in the range of 1,250,000 is reasonable.

7.4 *Municipal Employment Estimates*

Metro Vancouver's preliminary draft estimates of 2010 municipal employment are based on a regional growth share modeling methodology. MV has not attempted to identify specific employment generating development as a basis for estimating employment within each of the municipalities, but seeks collaboration with municipalities to identify appropriate sources of information to guide further calculation of municipal employment estimates.

Metro Vancouver's preliminary employment estimates using the regional share method assume that business development and employment among economic sectors tends to grow both in relation to population serving activities and within established activity locations such as major commercial, industrial or agricultural areas. Estimated regional employment growth in each employment sector was weighted according to a population serving or location related association. Regional employment was then distributed among municipalities based on the municipal share of regional population growth and the current municipal share of regional employment within the particular sectors. This method is clearly not intended to produce a highly accurate estimate, but does provide a high level first-cut estimate for further discussion and revision based on more specific municipal development information.

Preliminary draft 2010 employment estimates for Metro Vancouver and member municipalities are contained in Table 8.

7.5 *Annual Population and Employment Estimates for Regional Traffic Zones*

The 2010 municipal level population and employment estimates establish control totals for municipal allocations among submunicipal traffic zones. Metro Vancouver co-ordinates with municipal staff in preparing 2010 traffic zone allocations by requesting those municipalities with available development activity information to assist with the traffic zone growth allocation

process. Where municipalities were not able to provide information, Metro Vancouver allocated growth among traffic zones in proportion to the projected 2006 – 2021 share of municipal growth within each traffic zone.

Table 8 2010 Estimates of Population, Dwelling Units and Employment

	Population			Dwelling Units			Employment		
	2006	Growth	2010	2006	Growth	2010	2006	Growth	2010
Metro Vancouver	2,195,469	174,329	2,369,790	847,474	69,886	917,360	1,158,510	90,883	1,249,393
Anmore	1,887	302	2,180	564	86	650	270	23	293
Belcarra	688	11	700	257	3	260	100	-	100
Burnaby	210,507	18,093	228,600	81,114	7,086	88,200	135,900	9,400	145,300
Coquitlam	119,607	11,393	131,000	42,957	4,543	47,500	46,200	5,300	51,500
Delta	99,388	2,912	102,300	34,303	1,097	35,400	55,060	2,800	57,860
Langley City	24,899	1,701	26,600	11,159	841	12,000	16,900	1,200	18,100
Langley Dist	97,335	10,665	108,000	34,514	3,686	38,200	48,500	5,300	53,800
Lion's Bay	1,406	4	1,410	545	5	550	300	-	300
Maple Ridge	71,453	5,747	77,200	25,919	2,381	28,300	23,000	2,800	25,800
New Westminster	60,533	6,367	66,900	28,039	3,061	31,100	28,000	2,900	30,900
North Van City	47,501	3,699	51,200	22,359	1,641	24,000	29,200	2,000	31,200
North Van Dist	87,004	1,296	88,300	31,258	742	32,000	26,800	1,000	27,800
Pitt Meadows	16,554	2,046	18,600	6,121	879	7,000	5,240	960	6,200
Port Coquitlam	54,543	3,657	58,200	19,351	1,749	21,100	21,500	1,900	23,400
Port Moody	28,747	5,553	34,300	10,507	2,493	13,000	7,600	2,400	10,000
Richmond	182,652	14,948	197,600	63,986	5,914	69,900	130,000	8,600	138,600
Surrey	412,847	47,653	460,500	136,581	16,919	153,500	143,100	21,600	164,700
Tsawwassen First Nation	800	-	800	300	-	300	240	-	240
Vancouver	601,203	32,497	633,700	264,492	14,108	278,600	393,200	19,800	413,000
West Vancouver	45,398	1,102	46,500	18,159	441	18,600	21,400	800	22,200
White Rock	18,916	1,184	20,100	9,884	616	10,500	6,900	600	7,500
UBC U.E.L.	11,600	3,500	15,100	5,103	1,597	6,700	19,100	1,500	20,600

8 Conclusion

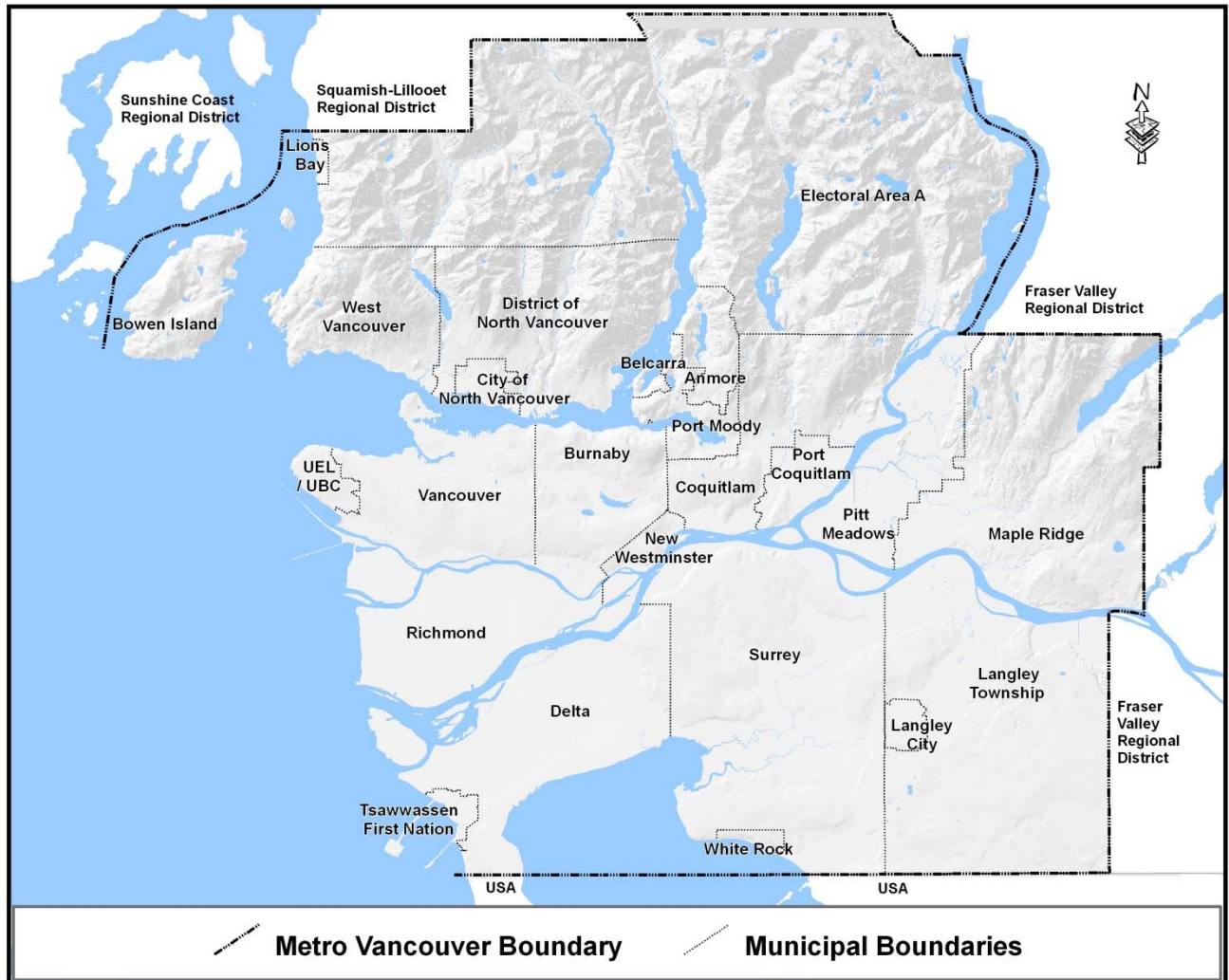
Metro Vancouver's Regional Growth Strategy, Metro Vancouver 2040, provides population, housing and employment growth projections as a collaborative guide for land use and infrastructure planning initiatives among Metro Vancouver, member municipalities and regional agencies.

The intent of Metro Vancouver's approach to growth modeling is to promote collaboration and consistency among provincial, regional and municipal planning agencies and to establish a common basis of information, assumptions and methods for future growth and policy implementation.

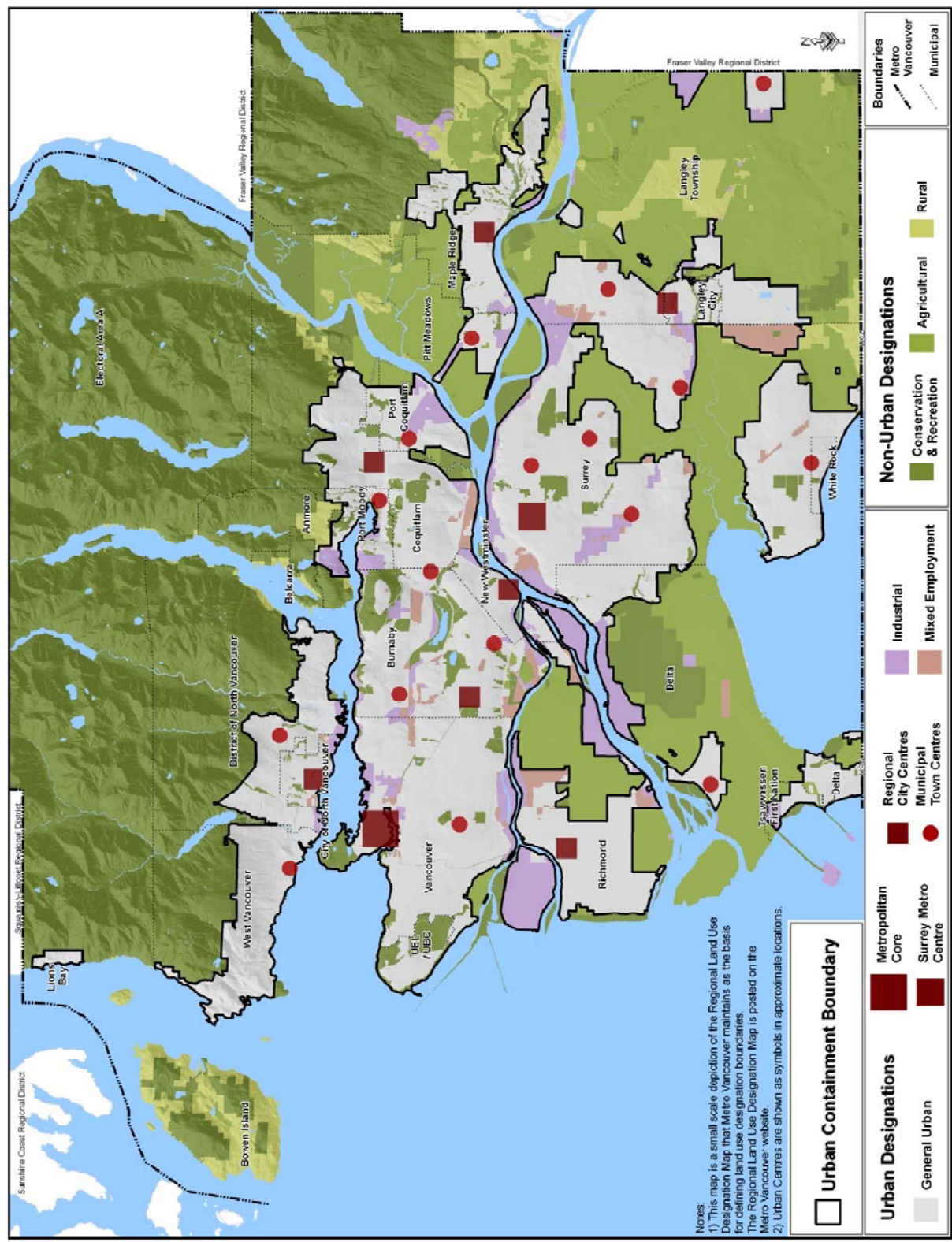
Metro Vancouver monitors annual population, housing and employment growth to prepare annual estimates for the region and member municipalities, and to evaluate current projections. With the release of Census data every five years, Metro Vancouver will review Regional Growth Strategy projections to determine any revisions that may be necessary.

APPENDIX A

Map 1. Metro Vancouver and Member Municipalities



Map 2. Metro Vancouver Regional Growth Strategy, Regional Land Use Designations



Map 3. Metro Vancouver Traffic Zones

