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**Paper 225**

**SUCCESSSES AND CHALLENGES – VANCOUVER B.C.'S  
2006 TRANSPORTATION PLAN PROGRESS REPORT**

**Session 2, Track: B Transportation Planning**

**ABSTRACT**

Vancouver British Columbia has consistently been ranked as one of the world's most livable cities. Vancouver's transportation system has played a key role in helping achieve this recognition. A recent progress report on Vancouver's 1997 Transportation Plan identifies successes to date and future challenges. The Plan set mode share targets for 2021 and outlined 76 major initiatives. Many of the mode targets have been achieved. Remaining initiatives will soon be completed.

Vancouver's population and employment has grown steadily over the last ten years, resulting in a 23% increase in trips. However, vehicles entering the City have decreased 10%. New trips have been increasingly accommodated on transit, bike, and walk modes.

Vancouver's Downtown experienced dramatic growth in residents and continued growth in jobs. Trips increased 22% in ten years, yet vehicles entering Downtown decreased by 7%. New trips have been by transit, cycling and walking. In particular, walking has become the fastest growing and most important way of getting around.

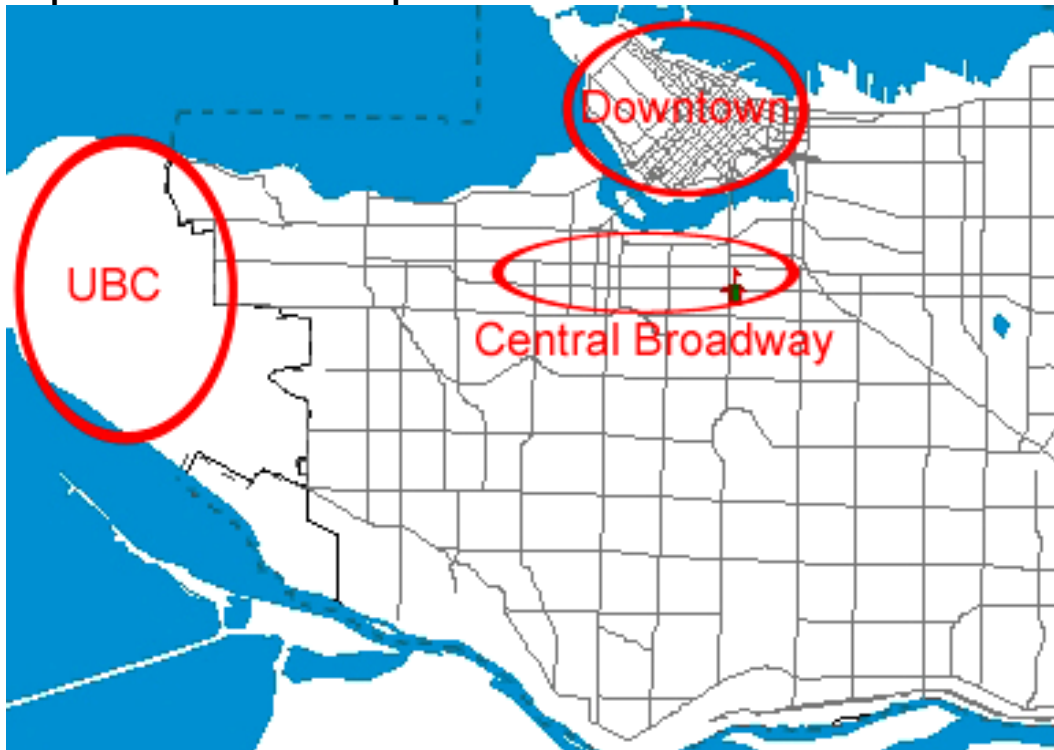
Central Broadway, the city's health and civic center, experienced a doubling in transit trips. It has a similar dense, mixed-use development as Downtown, but trips are increasingly auto-oriented. With bus service nearing capacity it is unlikely that the City's targets can be achieved until rail rapid transit is extended.

Beyond the major initiatives and the mode share targets, the 1997 Transportation Plan has helped guide land use developments, such as parking requirements. It has provided a vision and a policy framework for transportation planning that City departments strive to achieve.

## PROGRESS REPORT SUMMARY

Vancouver's Transportation Plan set transportation mode share targets for the year 2021, outlined 70 major initiatives, and established transportation policy for the City. Sub-area targets were included for the Downtown, University of British Columbia (UBC), and Central Broadway – see Map 1 below. In the years following adoption, six initiatives were added to the Plan. Work has begun on all 76 major initiatives: 50 are complete and most of the 26 that are currently underway will be completed within one to three years.

**Map 1 – Vancouver Transportation Plan Sub-areas**



Overall, the City's transportation policies have been successful in achieving the desired results. Population and employment in Vancouver has grown steadily over the last ten years, resulting in a 23% increase in trips to Vancouver. However, vehicles entering and leaving the City have actually decreased by 10% over the same period. New trips to and within Vancouver have been increasingly accommodated on transit, bike, and walk modes. This trend is in contrast to the rest of the region where auto modes are increasing.

Vancouver's Downtown has experienced dramatic growth in residents and continued growth in jobs, creating an efficient, high-density, mixed-use centre. Trips to Downtown have increased 22% in ten years, yet vehicles entering and leaving the Downtown have decreased by 7%. New trips to Downtown have been by transit, cycling and walking. In particular, walking has become the fastest growing and most important way of getting around the Downtown.

Central Broadway, the city's health and civic centre, is the largest destination outside of the Downtown. Broadway has experienced a doubling in transit trips to the area. It has a similar dense, mixed-use development as the Downtown, but trips to Central Broadway are increasingly auto-oriented. It has an auto mode share that is more comparable with the Greater Vancouver region than with the Downtown. Central Broadway is not currently served by rail rapid transit, a factor contributing to the high auto mode share of trips destined to this area. With bus service on Broadway nearing capacity it is unlikely that the City's mode share targets can be achieved until rail rapid transit service is extended. The Transportation Plan targets for Central Broadway were based on two new rapid transit lines: Downtown to Richmond (Canada Line) and Central Broadway to Lougheed (Millennium Line). Both of these lines were to have been in place by 2006 according to the region's long range transportation plan. With the Canada Line construction currently in progress, the Millennium Line completion (westerly extension to Central Broadway) is still needed to achieve mode share targets.

UBC has experienced a near tripling of transit trips in the last ten years, largely due to the introduction of the U-Pass program. Transit trips to UBC have now exceeded the 2021 mode share target.

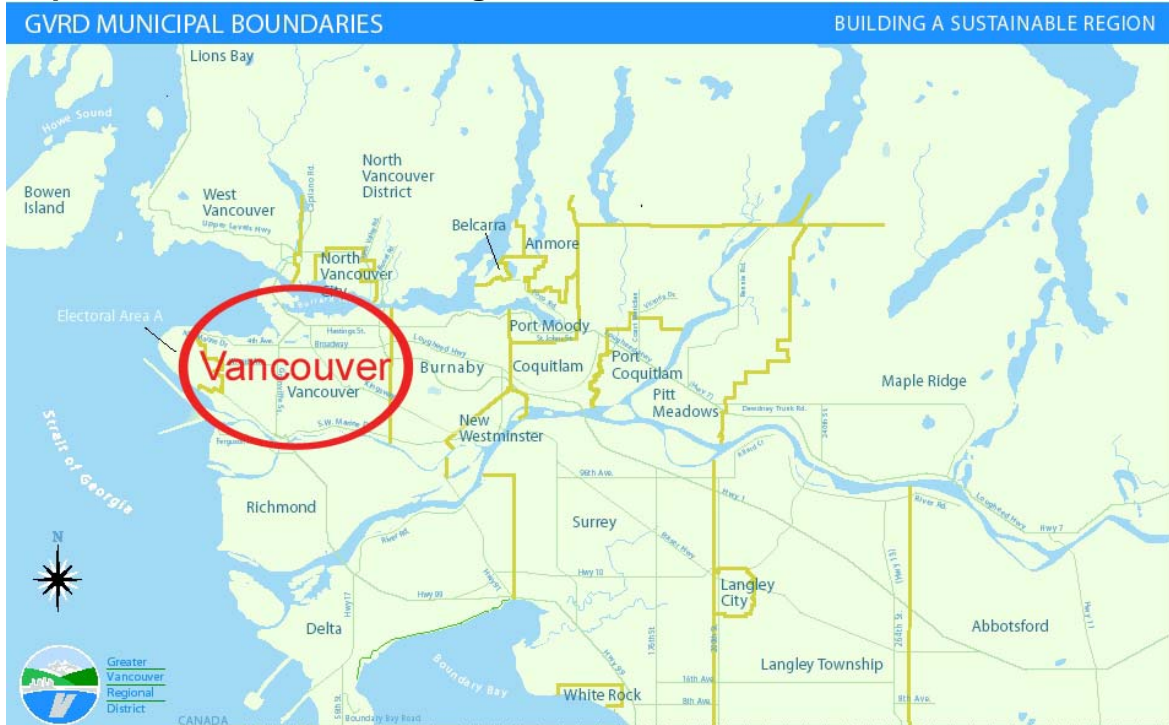
Cycling trips in Vancouver have doubled in the same period the City doubled the size of the bikeway network. In the morning peak period there are some 2,700 bike trips into the Downtown alone and on an average day there are over 50,000 bike trips to Vancouver destinations.

The City's 1997 Transportation Plan has been largely implemented. Many of the mode share targets that were set for 2021 have already been achieved. The remaining initiatives will soon be completed. The region is updating the Liveable Region Strategic Plan and is embarking on the creation of a new regional transportation plan for 2031. Staff will be reporting back on establishing new mode share targets and the development a new long range transportation plan with a planning horizon of 2031.

## **VANCOUVER CONTEXT**

Vancouver and adjacent municipalities form Canada's 3<sup>rd</sup> largest metropolitan area. Vancouver itself has a population of 588,000 within Greater Vancouver's population of 2,181,000 (based on 2006 estimates). The Greater Vancouver Regional District (GVRD) is comprised of a total of 21 individual municipalities (see Map 2 below).

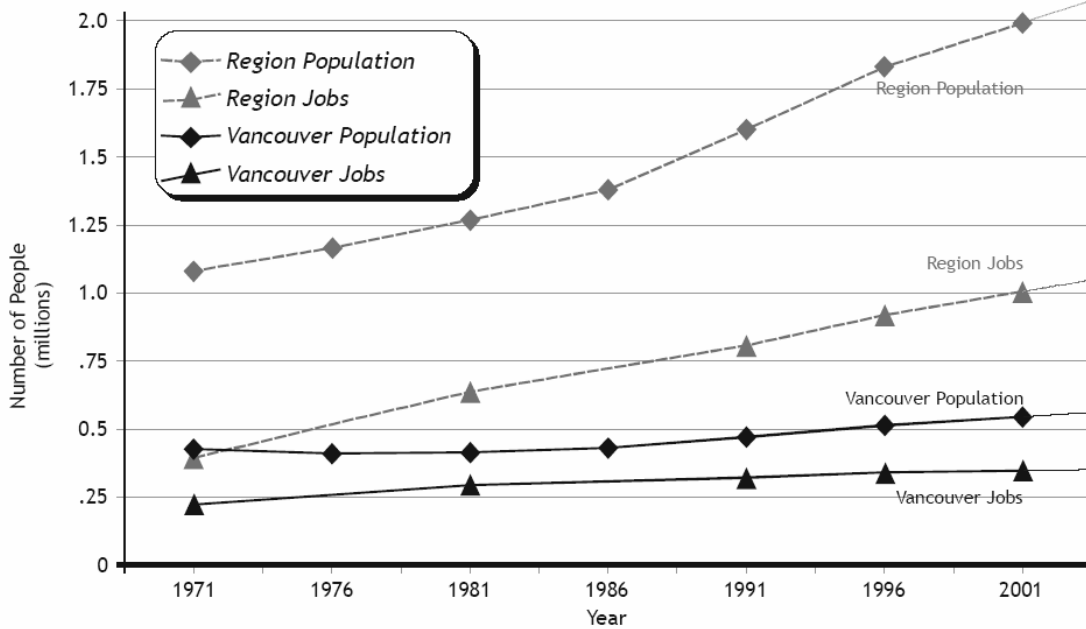
## Map 2 – Greater Vancouver Regional District



The GVRD provides a number of regional services including land use planning. Its Liveable Region Strategic Plan is closely linked to the region's long range strategic transportation plan – Transport 2021. Together, these two documents have served to guide Vancouver's own land use and transportation plans. Regional transit service, transportation planning and bicycle and road cost-sharing have been provided by TransLink (the Greater Vancouver Transportation Authority) since 1999.

Jobs and population have been increasing steadily in Vancouver over the past thirty years. As shown in Figure 1, the population and job growth rates have been very similar. Since the 1980s, population has grown slightly faster than jobs in the city. Over the same period, population and jobs in the region have also grown, although much more rapidly than in Vancouver. This growth is responding to regional plans to concentrate more people and jobs in the region's suburbs.

**Figure 1**  
Population & job growth in Vancouver and the Region (1971~2001)



Vancouver's role as a major regional job destination means that it continues to be a net importer of trips. As shown in Figure 2, there are nearly twice as many trips entering Vancouver from the suburbs as there are trips leaving Vancouver to the suburbs during the morning peak period.

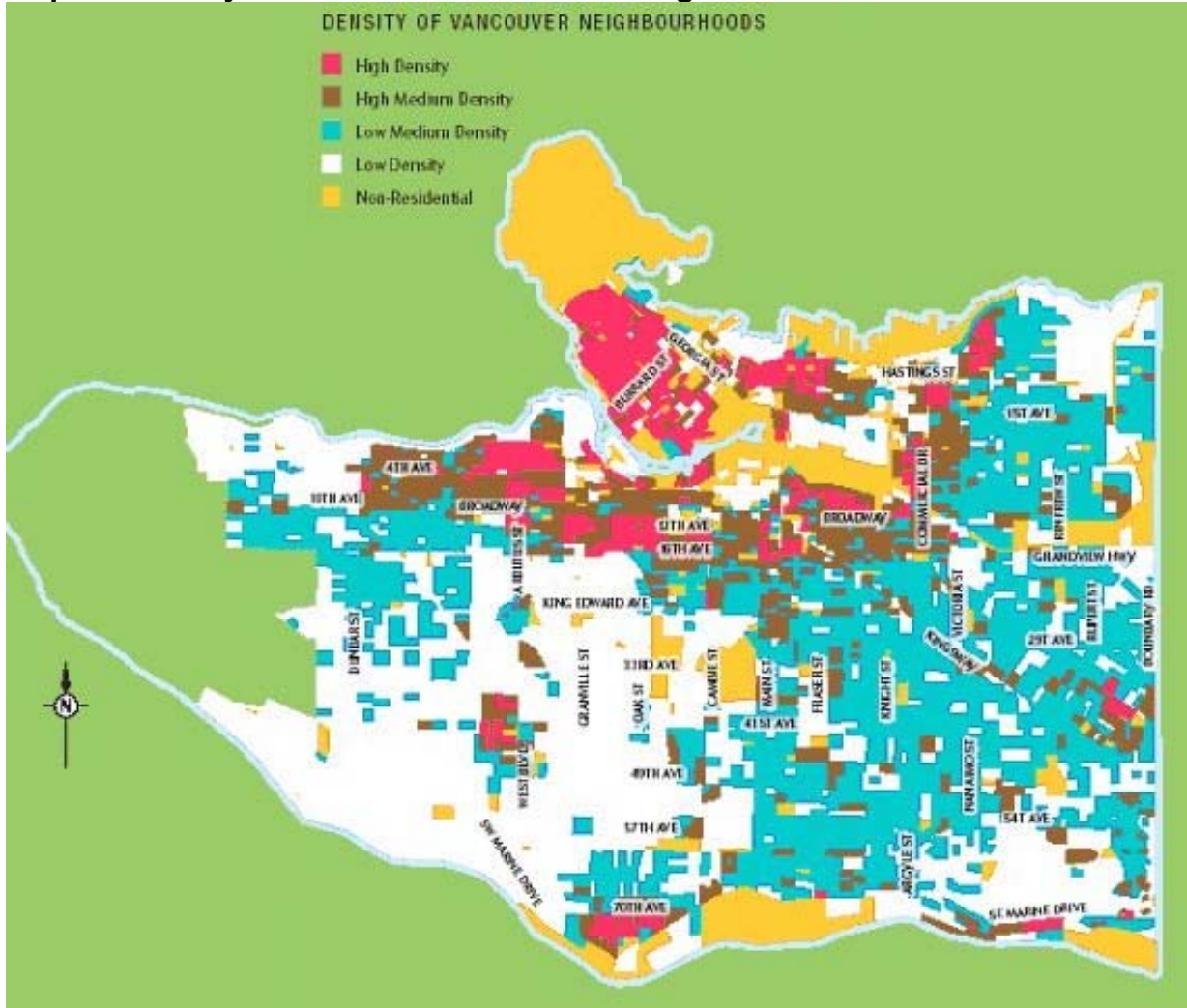
**Figure 2**  
Trips entering and leaving Vancouver during the AM peak period (7-9am) (2004)



Overall, population and employment growth has resulted in a 23% increase in trips to Vancouver. However, vehicles entering and leaving the City have actually decreased by 10% over the same period. Similarly, trips to Downtown have increased 22% in ten years, yet vehicles entering and leaving the Downtown have decreased by 7%.

Higher density residential neighbourhoods are located primarily in and near the City's downtown (see Map 3 below). Over the last 25 years, population in the downtown has grown by approximately 40,000 residents.

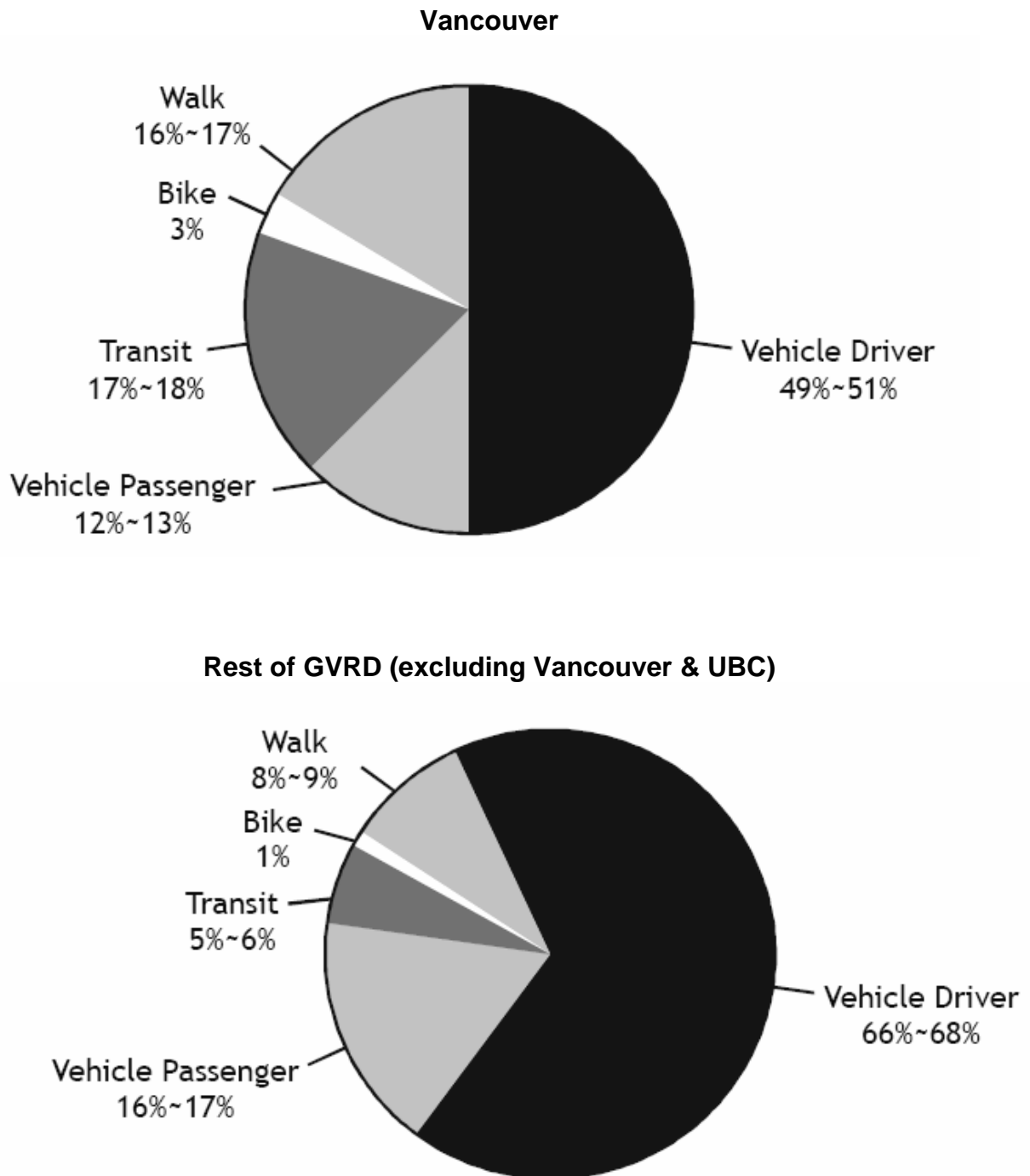
**Map 3 – Density of Vancouver Residential Neighbourhoods**



### **GENERAL TRANSPORTATION TRENDS**

As noted in the previous section, trips to Vancouver are growing. As in most other major cities in North America and the region, single occupant vehicle trips continue to be the dominant mode of transportation in Vancouver. What helps set Vancouver apart from other cities, however, is the relatively high percentage of walking and transit trips. Figure 3 shows mode share distribution for Vancouver and the rest of the Greater Vancouver region.

**Figure 3**  
**Trips to and within Vancouver / Rest of GVRD in a 24-hour period**



## **Vancouver Driving Mode – 50%**

The share of driver trips to and within Vancouver is about the same as it was a decade ago. The minimal change in auto use in Vancouver may be a function of a number of factors, including:

### **Transit Capacity**

In 2004, TransLink conducted a major survey of transit capacity in the region. Many of Vancouver's corridors were identified as operating at or near capacity. Transit capacity constraints along the Broadway Corridor and along sections of the Expo SkyTrain Line, in particular, are contributing to higher automobile use in the Broadway Corridor (south of False Creek) area and elsewhere;

### **Survey Timing**

The 2004 Trip Diary survey timing was different than the 1994 survey, which may mean that the 2004 survey is over-representing driver trips compared to the 1994 survey. The 2004 survey was partly conducted in the spring when post-secondary schools were out of session, whereas the 1994 survey was conducted in the fall. Since student populations have a higher propensity to take non-auto modes, their typical travel patterns would not have been captured in the 2004 survey. Also, TransLink transit ridership data shows that transit ridership in Vancouver is about 6 percent lower in the spring than in the fall. In the region as a whole, transit ridership is about 12 percent lower in the spring compared to the fall.

## **Vancouver Carpooling Mode – 13%**

Passenger trips have declined since 1994, a trend that is also occurring in the rest of the region. The decline in carpooling may be a result of the increasingly complex and dispersed nature of trip-making behaviour in the region, which make trips less conducive to carpooling. The decline in carpooling trips is likely contributing to the increase in both car and transit trips. Improvements in the past decade to the frequency, flexibility and accessibility of transit services have also helped to make it an attractive alternative to carpooling.

## **Vancouver Transit Mode – 18%**

Vancouver's transit mode share has remained relatively stable over the past decade, although the number of transit riders has increased with the overall growth in trips. Some areas such as Central Broadway and UBC have experienced dramatic increases in transit use corresponding with increases in transit service and the implementation of the Universal Pass (U-Pass) system for university students.

### **Vancouver Biking Mode – 3%**

Although cycling represents a small portion of overall trips, it has doubled its mode share in the past decade as the cycling network has expanded to nearly double what it was a decade ago. Cycling is the fastest growing mode in the City. The volume of cycling trips has increased by over 180 percent in the past decade. It is expected that cycling will continue to increase as new cycling facilities are completed in the Downtown and throughout the city and region.

### **Vancouver Walking Mode – 17%**

Both the share and number of walking trips has increased in the past decade. The mode share of walking trips has increased by 2 to 3 percent since 1994, which represents a 44 percent increase in the number of walking trips. Walking is the second fastest growing mode in the City, after cycling.

### **Vancouver Modes Compared to Rest of Region**

As shown in Figure 3, whereas about half of trips over a 24-hour period in Vancouver are by driving, about two thirds of trips for the rest of the region are by driving. Vancouver also exhibits correspondingly higher transit mode shares (17-18% versus 5-6% for the rest of the region) and walking mode shares (16-17% versus 8-9% for the rest of the region).

### **Vancouver Modes Compared to other North American Cities (Journey to Work)**

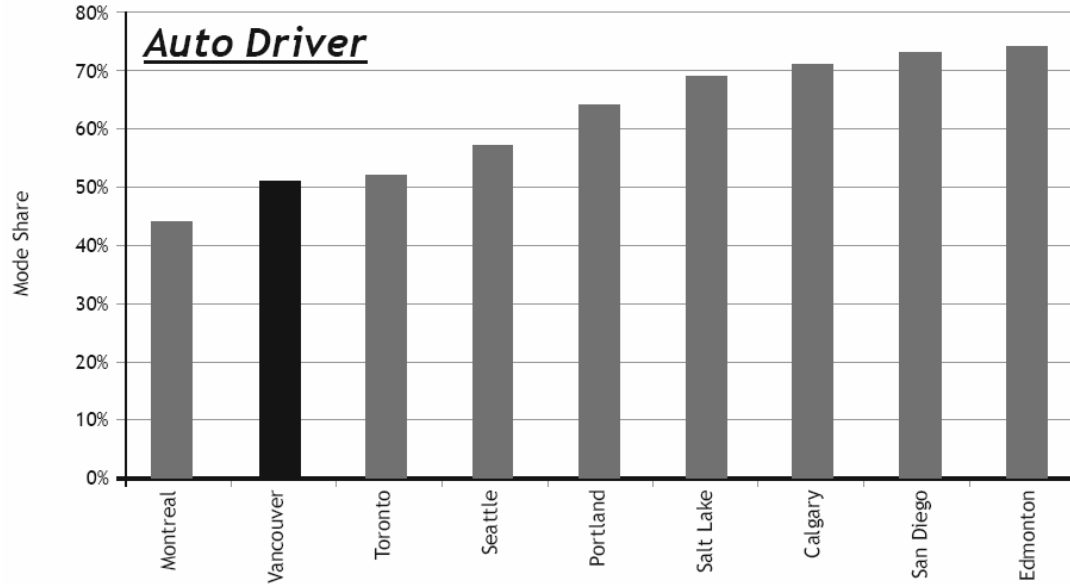
For trips to work, Vancouver and its Metro Core in particular, distinguishes itself from other major Canadian and US cities along the West Coast by the relatively high share of people walking and taking transit to work. Vancouver journey-to-work driver, carpool, transit and walk mode shares compared to other major Cities are shown in Figure 4, Figure 5, Figure 6, and Figure 7.

#### **Driving**

For journeys-to-work, Vancouver has an auto mode share lower than many other major North American cities. The auto mode share is higher than in Montreal, just under that of Toronto, and between 7 percent and 20 percent lower than other cities including Seattle, Calgary, Edmonton, Portland, and San Diego.

**Figure 4**

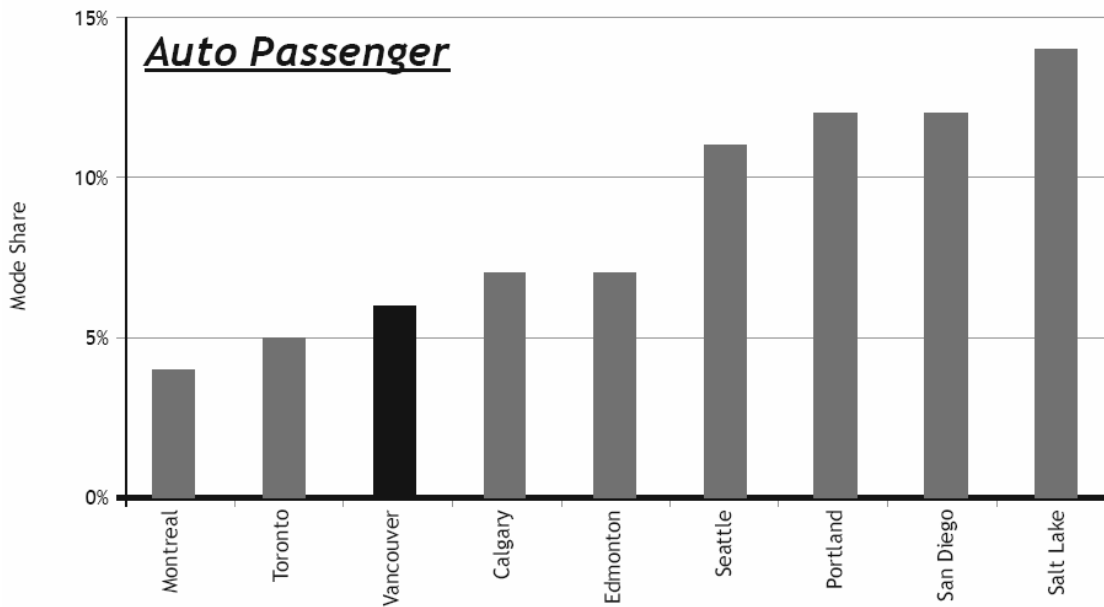
Comparison of auto driver mode share for journey-to-work trips originating in Vancouver and other Canadian and US cities



Source: US data from US Bureau of Census, 2000. Canadian data from Statistics Canada 2001 Census, except Vancouver, which is based on the 1996 Census. The 2001 Census data for Vancouver is not accurate due to a bus strike during the Census collection period.

**Figure 5**

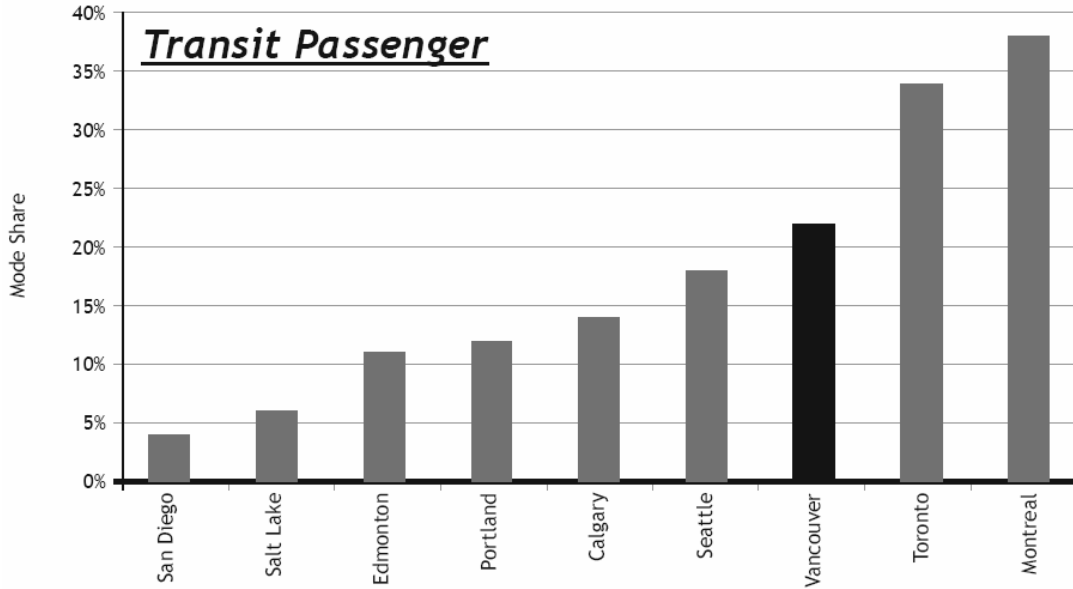
Comparison of auto passenger mode share for journey-to-work trips originating in Vancouver and other Canadian and US cities



Source: US data from US Bureau of Census, 2000. Canadian data from Statistics Canada 2001 Census, except Vancouver, which is based on the 1996 Census. The 2001 Census data for Vancouver is not accurate due to a bus strike during the Census collection period.

**Figure 6**

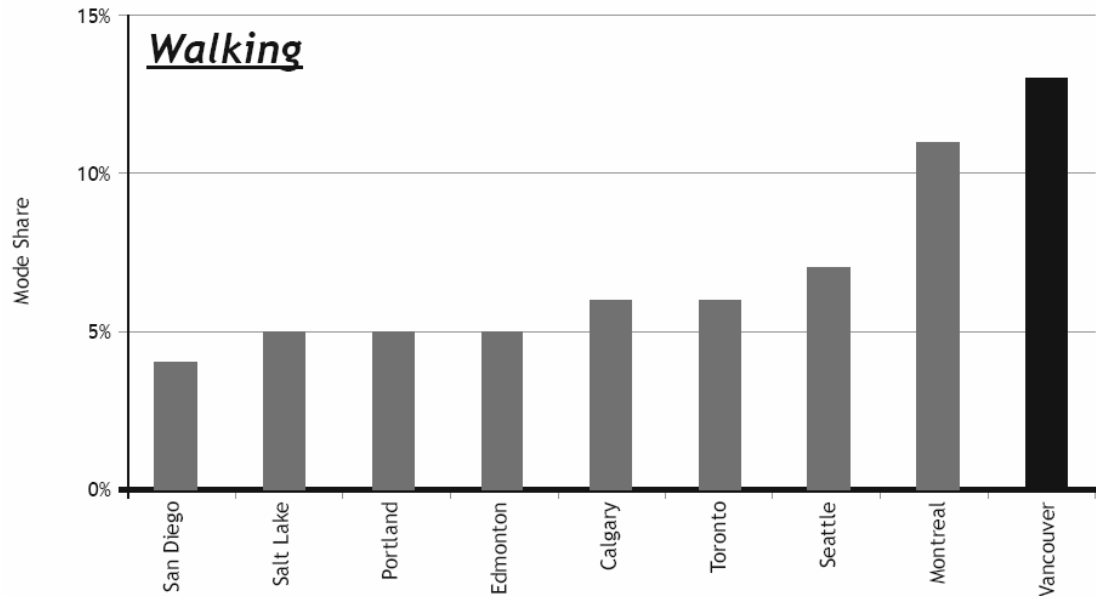
Comparison of transit mode share for journey-to-work trips originating in Vancouver and other Canadian and US cities



Source: US data from US Bureau of Census, 2000. Canadian data from Statistics Canada 2001 Census, except Vancouver, which is based on the 1996 Census. The 2001 Census data for Vancouver is not accurate due to a bus strike during the Census collection period.

**Figure 7**

Comparison of walk mode share for journey-to-work trips originating in Vancouver and other Canadian and US cities



Source: US data from US Bureau of Census, 2000. Canadian data from Statistics Canada 2001 Census, except Vancouver, which is based on the 1996 Census. The 2001 Census data for Vancouver is not accurate due to a bus strike during the Census collection period.

### **Auto Passenger (Car-pooling)**

Carpooling is clearly a less prominent mode in the large Canadian cities as compared to the major US cities along the West Coast. The carpooling mode share for Vancouver is in the middle of other Canadian cities (Montreal and Toronto are lower, Calgary and Edmonton are higher), and is about half as high as the US cities in this comparison.

### **Transit**

Transit use is much higher in Vancouver than in all the US cities. While transit use is relatively high in Vancouver, it is quite a bit lower (12 percent-16 percent) than in Toronto or Montreal.

### **Walking**

Vancouver has the highest percentage of people walking to work (13 percent). Apart from Montreal, all other Canadian and US cities in this comparison have about half as many people walking as does Vancouver.

Policies and infrastructure development in Vancouver that have limited overall vehicle capacity while encouraging transit and walking have helped reduce dependency on the single occupant vehicle.

## **VANCOUVER TRANSPORTATION PLAN TARGETS**

The Vancouver Transportation Plan used mode share estimates from 1992 to develop targets for 2021. A comparison of these mode shares to the most current 2004 mode shares and the 2021 targets set out in the Plan are summarized in Table 1. Each of the mode shares have been shaded to highlight their performance in 2004 relative to the 2021 targets set out in the Transportation Plan. As shown below, many of the Plan targets have been exceeded, particularly with respect to walking, biking and transit. While the Downtown has performed exceptionally well, the Central Broadway area continues to have relatively high automobile dependency.

### **Driver**

The driver mode share is about 5 percent to 7 percent under the 2021 mode share target. Motor vehicle volumes entering the City and the Downtown have declined over the last 10 years, by about 10% and 7% respectively, despite significant residential and employment growth. Analysis of greenhouse gas emissions for the City's Community Climate Change Action Plan, showed that average distances being driven by Vancouver registered passenger vehicles has decreased almost 30% between 1993 and 2002. To meet 2021 targets in the Plan, Vancouver's overall driving mode share needs to be reduced by an additional 2-5%.

### Car-pooling

Carpooling is below its target level by 2 percent to 3 percent. This does not present a significant concern, however, since people seem to be more attracted to transit, walking and cycling as non-auto modes.

### Transit

The transit mode share is about 5 percent to 6 percent below its target. The 2021 transit target was based on the assumption that Canada Line and Millennium Line extension to Central Broadway would be operating. These are the only remaining major transit projects that have not been completed.

**Table 1: 24 hour mode share for Vancouver, GVRD, Downtown, Central Broadway**

Mode	Downtown		Central Broadway		Vancouver		UBC		Rest of GVRD	All GVRD
	2004	2021 target	2004	2021 target	2004	2021 target	2005	2021 target		
Driver	30%	36%	54%	45%	50%	44%	37%	41%	67%	62%
Passenger	9%	12%	10%	15%	12%	15%	19%	16%	17%	15%
Transit	30%	34%	20%	25%	17%	23%	42%	33%	6%	10%
Bike	3%	18%	3%	15%	3%	18%	1%	10%	1%	2%
Walk	27%		12%		17%		1%		9%	11%

Legend for comparing 2004 mode share performance to 2021 targets		
	Exceeded objective	This mode share has surpassed the 2021 target set out in the Transportation Plan. Revised targets to reflect current and anticipated trends are required.
	Neutral	This mode share has not achieved its objective; however, this is not necessarily a negative trend for the City. It may be that it is on track to reach its target by 2021 or that shifting preferences for other non-auto modes means the target for this mode should be updated to better reflect current and anticipated trends.
	Under objective	More work needs to be done to achieve the 2021 targets. These targets would be achieved following the completion of the Canada Line and Millennium Line extension to Central Broadway, which were identified in the Plan.

Note: The 2021 targets were based on 1992 transportation data and were adopted by Council in 1997.  
 Source: TransLink Trip Diary (2004), UBC Fall Status Report (2005), Vancouver Transportation Plan (1997)

The Canada Line is expected to be operational by 2009. The Millennium Line extension project scope and timing have not yet been determined. These two projects in combination would increase the transit mode share significantly in Vancouver;

### Walking/Biking

The walking/biking target has been exceeded by about 1 percent to 2 percent.

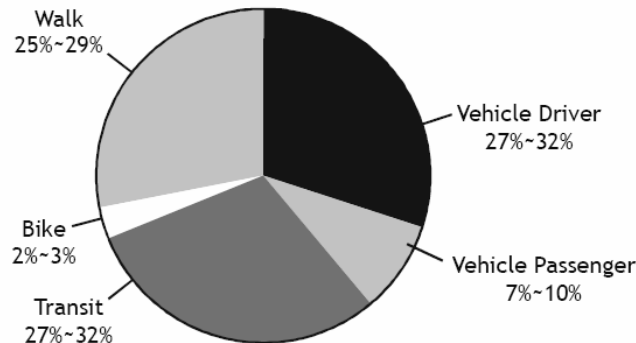
Significant walking, transit and cycling trends are described in more detail below.

### WALKING IN THE DOWNTOWN

Growth in walking in the Downtown has been particularly high, supported by large increases in residential population in the downtown core. As shown in Figure 8, about 30% of trips over a 24-hour period to and within the Downtown are made by walking. In terms of trips only within the downtown, the walking mode share is a remarkable 60-69% of all trips (see Figure 9.). The high level of walking Downtown has contributed to a driver mode share of about 30% which is already below the 2021 target of 36%. Large increases in pedestrian volumes Downtown between 1991 and 2002 were also verified in the City's 2001-2002 Pedestrian Study.

#### Figure 8

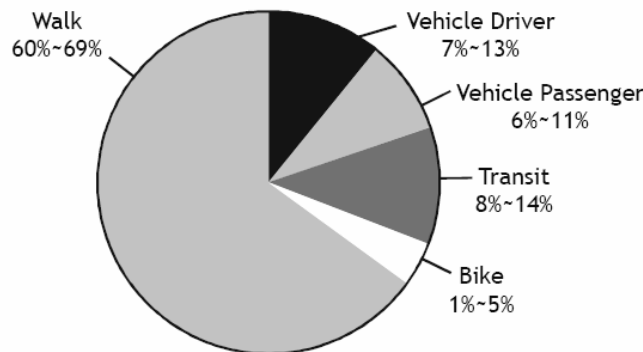
Trips to and within Downtown in a 24-hour period



Source: TranLink Trip Diary, 2004

#### Figure 9

Trips within Downtown in a 24-hour period

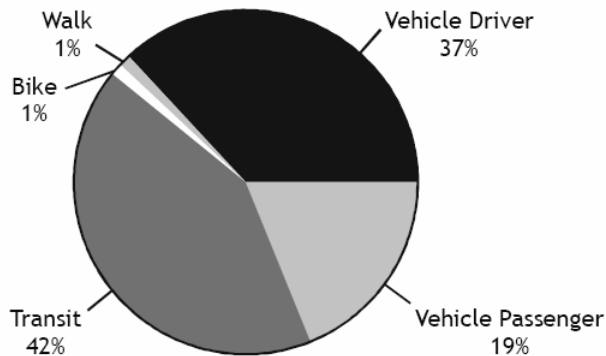


Source: TranLink Trip Diary, 2004

## TRANSIT TO UBC

Another area in which the Transportation Plan's 2021 mode share targets have already been exceeded is in 24 hour transit mode share to the University of British Columbia. Data reported by UBC for 2005 (see Figure 10 below) shows that transit mode share is at about 42% (compared to the Plan's 2021 target of 33%) and driver mode share at about 37% (compared to the Plan's 2021 target of 41%). Although UBC has a number of programs that promote alternatives to driving, the largest influence in the above mode share results has been the introduction of the universal transit pass (U-Pass) for students. With U-Pass, all students receive a discounted all-zone transit pass as part of their student registration fee. U-Pass was introduced in fall 2003, and resulted in the total number of UBC transit trips increasing from 16,000 per day in 2002 to 45,000 per day in 2005.

**Figure 10**  
Trips destined to UBC in a 24-hour period (2005)



Note: The U-Pass was implemented in the fall of 2003. The mode shares are based on screenline counts at the entrances to UBC.  
Source: UBC Fall 2005 Status Report.

## TRANSIT TO CENTRAL BROADWAY

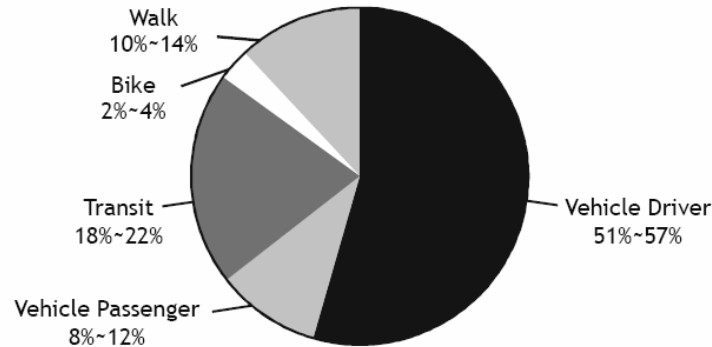
Central Broadway is the second largest destination in the City. Although recent mode share data has been encouraging for the city as a whole, and the Downtown and UBC sub-areas in particular, it raises some concern for the Central Broadway sub-area. Although this sub-area's employment and residential densities are closer to the downtown core's, as shown in Figure 11, the 2004 Trip Diary shows that its driving mode share is at least 6-12% above the Plan's 2021 Target of 45%.

Despite its dense land use and a concentration of transit services, Central Broadway has a driving mode share that is more comparable to the GVRD as a whole than to Downtown. The high auto use is likely a function of some

significant transit capacity constraints on Broadway and the concentration of medical land uses, which tend to generate more car trips.

**Figure 11**

Trips to and within the Central Broadway Corridor (South of False Creek) in a 24-hour period



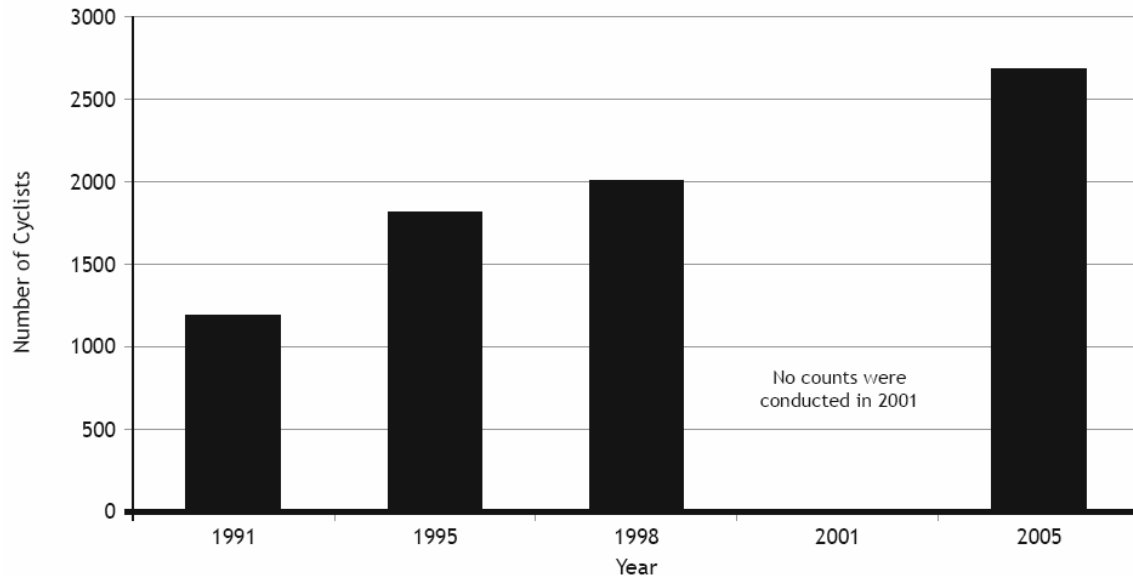
Source: TranLink Trip Diary, 2004

The recent increase in transit service on Broadway resulted in a doubling in transit use, indicating latent demand for more transit service. Despite this growth in transit, automobile use continues to be high and the transit system on this corridor is near its limit. The transit capacity constraint was a major finding of the Vancouver/UBC Area Transit Plan in 2005. The Area Transit Plan notes that measures need to be taken to extend rapid transit westward from the existing Millennium SkyTrain line and provide new connections to the Canada Line rapid transit corridor which is currently under construction.

### **CYCLING TRIPS ARE GROWING**

Cycling makes up a small but rapidly growing mode of transportation in Vancouver. In the last ten years the City has doubled the size of the Bikeway network from 80 km to 170 km. In the same period the number of bike trips doubled. As shown in Figure 12, in the morning peak period there are about 2,700 bike trips into the Downtown alone and in the City as a whole there are now over 50,000 bike trips a day to City destinations. In response to a Council request to achieve a 10% cycling mode share by 2010, staff reported back on how to accelerate the completion of the bike network. Completion of the bike network by 2010 would require a significant increase in capital funding. This incremental funding was not approved in the 2006-2008 Capital Plan, and therefore, staff will explore new funding opportunities and report back on updated targets for cycling.

**Figure 12**  
Cyclists entering the CBD in the AM peak (7-10 am) (1991-2005)



Source: City of Vancouver Bicycle Cordon Counts, 1991, 1995, 1998 and 2005

## NEXT STEPS

Vancouver’s 1997 Transportation Plan has provided a vision and policy framework that has helped Vancouver continue to be one of the world’s most livable cities. Work is in progress on the next steps to shape the City’s future, included updates of its transportation and land use plans.

### Interim Update – Transportation Plan Targets

The Transportation Plan Progress Report indicated that many of the Plan’s 2021 targets had already been surpassed. As an interim measure preceding the preparation of a new Transportation Plan, Council has approved hiring a consultant to assist the City in determining updated mode share projections for 2021, as well as some shorter term projections for 2011. The projections will be based on the City’s existing plans for land use and the transportation network.

### Other Planning Updates

Vancouver’s land use plans continue to evolve. Two current planning studies, which will have significant impacts on transportation services, are summarized below.

#### **Metro Core Jobs and Economy Land Use Plan**

Vancouver’s Metropolitan Core includes the downtown peninsula as well as the Central Broadway and Eastern Core areas. This area contains

200,000 jobs, or two-thirds of all the jobs in the city, and also plays an important role in the region's economy. The Metropolitan Core Jobs and Economy Land Use Plan is a comprehensive study that will help determine how the City uses its land in the future to accommodate business growth, economic activity, and transportation needs in the city.

The City is developing a policy that will guide how much, where, and what types of land supply and zoning would be best for supporting the economy and its transportation and infrastructure needs, and providing jobs, goods and services, and activities for people who live, work, and visit the Core now and in the future.

### **EcoDensity Planning Initiative**

The EcoDensity Initiative recognizes that although Vancouver has long enjoyed the status as one of the world's most livable cities, it also has a large ecological footprint. If everyone lived Vancouverites do, it would take four planets to sustain the world's population.

Three important challenges facing Vancouver are noted as being:

1. How to continue to grow in a way that is sustainable and reduces the city's ecological footprint;
2. How to grow in a way that maintains our livability; and
3. How to grow in a way that improves opportunities to create more affordable types of housing.

EcoDensity is an important part of the City of Vancouver's response to these challenges. The program is designed to create a plan for greater density throughout the city, in a ways that lowers impact on the environment; ensures the necessary physical and social amenities; and supports new and different housing types. It will be supported by a complementary EcoStructure system, which includes the transportation network.

Single-family dwellings still take up half of the land area in Vancouver. In fact, only 11 percent of the city's land area is currently used for multiple-unit dwellings. Consequently, EcoDensity will explore increasing density in a variety of contexts across the city (i.e. in lower density areas; along transit routes and nodes, neighbourhood centres,). The key will be to support density that is high quality, attractive, more energy efficient, and respects neighbourhood character, while lowering the City's ecological footprint.