

1 Executive Summary

The Vision

The vision for Vancouver is to be the most liveable city in the world. This vision has been achieved in the recent past and can continue to be achieved in the future. One of the most important aspects of a liveable city is its transportation system, at the centre of the city.

For downtown Vancouver, the transportation vision is to be the most accessible place in the region. Achieving this vision will contribute to a thriving and prosperous business community and create a downtown where people want to work, live and play. For all trips, whether on foot, by bike, on a bus, or in a car, the experience of travelling around the downtown will be pleasant. Downtown is a place where the transportation network can offer choices that are extensive and exciting, such that getting to and around downtown is an attraction in itself.

The Transportation Challenge

The transportation challenge facing the downtown is to accommodate more people travelling in the future without adding traffic lanes to the existing bridges and roads leading to the downtown. At the same time, there is an expectation to minimize congestion. At first glance the challenge appears enormous. However, this plan presents a strategy that meets the challenge.

In 1997, the *Vancouver Transportation Plan* recognized that road capacity is finite and that even if more roads were to be built they would soon be congested with more cars. The solution is to decrease the demand for auto trips by providing additional transportation choices, particularly transit. Although the transportation solution may seem simple, the transportation issues are much more complex within the downtown peninsula.

Downtown's transportation system is closely tied to its economic health and liveability. Businesses downtown depend on the transportation system to allow employees and customers to travel easily to their place of business. As well, many of these businesses rely on the road network to deliver and receive goods and services. If roads become congested, the cost of business would increase and the downtown economy could suffer.

Congested roads also affect the liveability and the desirability of being downtown. This is especially important because of the residential growth in the downtown peninsula. Reducing traffic congestion and the resulting air and noise pollution, creating more pedestrian friendly streets, providing more sustainable choices like transit and bicycling will help keep downtown an attractive place for businesses and residents alike.

The downtown transportation system must also address its role as an entertainment and recreational destination. Downtown is home to the region's largest sport venues (BC Place stadium and GM Place arena). It is also the region's primary tourist destination with major convention centre facilities, a thriving cruise ship industry and the majority of the region's hotel rooms.

To the benefit of Vancouverites, downtown Vancouver is economically successful and already very liveable. Vancouver has been ranked as the most liveable city in the world. To maintain this status in the future, efforts must be taken now to avoid the transportation problems facing many other North American cities. The Downtown Transportation Plan is the means to this end. It builds upon the success of the past and helps to guide transportation decisions to 2021.

Foundations of the Plan

Transportation planning in the city and region is an ongoing activity. The need for the Downtown Transportation Plan did not occur overnight. It has evolved and developed over the last ten years from a continuum of city and regional plans. These plans include:

- Central Area Plan (City of Vancouver, 1991)
- Transport 2021 (GVRD, 1993)
- Livable Region Strategic Plan (GVRD, 1995)
- CityPlan (City of Vancouver, 1995)
- Vancouver Transportation Plan (City of Vancouver, 1997)

The Downtown Transportation Plan moves the city forward by taking the city and regional goals and applying them. The terms of reference included:

- The increase in peak period trips to downtown should be accommodated by a major expansion in transit;
- Overall road capacity into the downtown will not be increased above the present level;
- Facilities for pedestrians will be improved within downtown;
- Bicycle access both to and within downtown will be improved by providing bike facilities on bridges, and providing a safe and effective network of routes throughout downtown;
- The downtown street circulation system will be reviewed to support downtown neighbourhoods;
- Short-term parking will be managed to ensure there is sufficient parking to meet normal demand; and
- Parking and unloading of trucks in downtown commercial lanes will be reviewed with the intention of improving essential access to businesses.

The fundamental principle of the plan is to create a sustainable transportation system that will meet the needs of the present without compromising the future. The land use component of this principle is already well entrenched, and the resulting travel trends are promising.

The Central Area Plan encouraged the development of downtown residential land uses. In the past 10 years, the number of residents living downtown has increased by about 54%. This is projected to increase another 31% by 2021. Downtown employment is also projected to increase by about 30% in 2021. This increase in downtown population has helped to reduce the burden on the city's transportation network by allowing residents to live closer to work. The downtown is a complete community, placing most residents within walking distance of most destinations. This proximity provides commuters with more transportation choices, particularly walking and cycling. This is confirmed by the walking and cycling trends between 1994 and 1999. In 1994, walking and cycling trips made up 20 percent of all daily trips into the downtown and together made up the third highest mode used behind auto and transit trips. In 1999, walking and cycling trips made up 35 percent of all daily trips and are now the most frequently used mode, followed closely by car and transit trips. At the same time, car trips into downtown have remained relatively constant. In the future, transit is expected to handle most of the new trips.

Process

A multi-disciplinary and inter-departmental staff team was created to develop the Downtown Transportation Plan. An extensive public consultation process was established to seek input from a wide range of stakeholders, including business, community and resident groups. The public process included the following:

- 17 workshops, open houses and walkabouts were held to address transportation issues from both travel mode and neighbourhood perspectives. Approximately 500 people participated in these events.
- Three newsletters were created and widely distributed for public information. Each newsletter included a survey on key issues. Over 1,500 people responded to these surveys with the majority indicating that the plan was on the right track.
- A random sample telephone survey was conducted in early 2002 to gauge support for the plan. The responses indicated that the majority of the public supported both the direction of the plan and its specific proposals.
- Numerous additional meetings were held with stakeholder groups to deal with specific issues and interests. A regular presence was established at meetings of the major downtown business groups over the course of the plan's development.

Plan Components

The Downtown Transportation Plan is separated into 7 main components. Although they are presented separately, all the components were concurrently developed through an iterative process due to the interactions amongst them.

- 1. Road Network Plan**
- 2. Transit Plan**
- 3. Pedestrian Plan**
- 4. Bicycle Plan**
- 5. Goods Movement Plan**
- 6. Parking**
- 7. Intelligent Transportation Systems**

1) Road Network Plan

Four key principles guide the plan's approach to the road network.

- Minimize Traffic Congestion. Traffic congestion not only affects auto traffic, but it affects the operation of transit buses and commercial vehicles, and decreases comfort for pedestrians and cyclists. Ultimately it reduces the economic health of the area and the quality of life for its inhabitants.
- Provide access to key destinations and support new land uses in the downtown. The maturing residential neighbourhoods in the downtown are an example of changing land uses that may require supportive changes to the road network.
- Provide a balanced transportation system. A range of transportation options needs to be provided within the downtown to meet demand and allow choice.
- Enhance safety and user comfort for all modes.

Road Network Recommendations

Several downtown streets are designated as part of TransLink's Major Road Network (MRN). The purpose of the MRN is to help maintain regional mobility and provide continuity through municipalities for all types of traffic. A review of the existing designated streets (Hastings, Georgia, Smithe, Nelson, Howe, Seymour and Main Street (south of Prior)) confirms that they are appropriate. A review of other streets showed that Burrard Street and Granville Street are potential candidates for inclusion. Other streets like Dunsmuir and Main (north of Prior) could be reviewed in the future.

The plan also proposes a number of changes to the road network to better match street form and function. Particular effort has been made to propose changes to streets in areas that were formerly commercial or industrial and which have since developed residential uses. These changes are designed to increase downtown liveability, while accommodating transportation needs.

Proposed changes to the road network include:

- Convert Carrall, Abbott, Beatty, Cambie and Homer to two-way streets to provide better accessibility and to better serve transit and cycling needs without hindering traffic circulation in the area.
- Maintain Granville Street as a transit, pedestrian and service vehicle corridor, entertainment district and future greenway. Transit efficiency along Granville Street should not be diminished.
- Review Granville Street south of Smithe Street to improve traffic circulation, widen sidewalks and reduce conflicts.
- Maintain Water and Cordova Streets as one-way streets for a better overall functioning of those streets, including the pedestrian realm.
- Further evaluate Pender Street between Cambie and Howe for potential conversion to a one-way eastbound street to facilitate the creation of a bike lane and permanent parking and loading lane.
- Widen roadways at specified locations to facilitate vehicular circulation.
- Redesign intersections with unusual geometry or where conflicts are common to improve comfort and safety.
- Adjust the traffic signal system to encourage traffic to flow (with "green waves") at 40 km/h, rather than 50 km/h at present.

2) Transit Plan

Transit carries the largest share of commuters to downtown by all modes, with about 40% of commuters travelling by bus, SeaBus, West Coast Express, and SkyTrain. This share is expected to increase to 45% by 2021.

The transit goals of the plan are to improve transit service both for trips within the downtown and trips to and from the downtown. In recognition of areas such as Central Broadway and the False Creek Flats in the metropolitan core, the plan also works to improve connections to these areas. These improved connections will likely first be made by bus, but these will be supplanted in the longer term by rail connections.

Transit Plan Recommendations

One way of providing better service is to create a more equitable fare structure for the short trips that tend to be made in the metropolitan core. A review of the fare structure, with reference to free or reduced fare zones in other cities, is recommended.

A rapid transit line between Vancouver and Richmond has long been part of regional plans. Several potential route alignments for different rapid transit technologies have been preserved in downtown Vancouver. The Downtown Transportation Plan has reviewed the alignments and recommends that the line be underground downtown with stations located in Downtown South, the Central Business District, and at Waterfront Station.

Options to expand rail rapid transit to the North Shore and along the Hastings corridor should also be preserved for future consideration.

City Council approved a basic downtown streetcar route network in 1999, which has been incorporated into the Downtown Transportation Plan. The routes use a variety of available rights-of-way to connect new neighbourhoods, transit hubs and tourist attractions. The service would act to complement the existing transit system and should be integrated in terms of fares and service. Some modifications of the streetcar network approved in 1999 are recommended. In general these modifications will better integrate the network with existing facilities and expand service to the False Creek Flats area, which has recently emerged as a desirable destination.

With the growth in new residential neighbourhoods downtown comes new demand for transit to serve these areas. In addition, some connections between existing neighbourhoods (e.g. the West End and Central Broadway) are not convenient. The plan's local transit proposals seek to address these issues through the creation of several simple, convenient local bus routes. These routes will be designed to complement liveability through the use of quiet electric trolleybuses or low-noise Community Buses. These changes will be pursued through TransLink's Vancouver Area Transit Plan, scheduled to start in 2002.

Several downtown locations function as major interconnection points in the transit system. These include Waterfront Station, Granville Street, Burrard Station, and Main Street Station. The plan proposes that these facilities be improved to increase their convenience, comfort and effectiveness as major transit nodes.

3) Pedestrian Plan

Walking is an efficient, healthy and popular means of travel over short distances, such as those found in downtown Vancouver. Not only do downtown residents walk to downtown destinations, but people arriving in the downtown by other travel modes frequently walk some distance to get from the bus stop, SkyTrain station or parking garage to their destination. Thus improving the walking environment benefits the users of all travel modes. Furthermore, the growing downtown population is dramatically increasing the number of walking trips made, while car and transit trips have remained steady. The goal of the plan is to increase the comfort, interest, accessibility and convenience of the pedestrian environment.

Pedestrian Plan Recommendations

The plan proposes a broad range of improvements for pedestrians that can be summarized as follows:

- Create a legible system of pedestrian routes that connect key destinations and places of interest.
- Increase comfort and safety at crossings with pedestrian bulges, selective introduction of mid-block crossings, modified treatment of sidewalk/lane crossings, wider crosswalks at busy intersections, and removal of selected pedestrian hold (delayed walk) signals.
- Increase accessibility with better curb ramp design and barrier-free access where grade transitions now require the use of steps.
- Encourage walking by extending guidelines promoting weather protection, such as canopies and awnings to more streets.

Enhanced treatments are proposed for many streets with the greatest intervention on Greenway routes on Granville, Comox/Helmcken, and Carrall streets. Wider sidewalks are proposed for Davie Street and the portion of Granville Street south of Nelson.

4) Bicycle Plan

A comprehensive network of bicycle routes on local streets has been developed in Vancouver since the adoption of the 1992 Cycling Network Study. The missing link in this network is the downtown, where an absence of low-traffic streets makes it impossible to extend the same strategy taken in the rest of the City. Recognizing this difficulty, the City's 1997 Transportation Plan recommended the creation of a network of bike lanes downtown.

Although recent trends show that cycling is growing rapidly as a commuting mode. A lack of cycling facilities in the downtown may be discouraging some people from cycling. Travel surveys performed during the wet weather months indicate that the number of cycling trips to downtown doubled between 1994 and 1999. This occurred in the absence of any major improvements to downtown cycling facilities. The number of bike trips is expected to more than double again by 2021. Experience in other cities indicates that bicycle lanes offer the most benefit in attracting cycling traffic and improving safety for all users. For this reason the Downtown Transportation Plan focuses on creating a network of bike lanes.

Bicycle Plan Recommendations

A basic network of bike lanes connecting key entry points (bridges, existing bikeways) to the downtown with major activity centres is proposed. This 25 kilometre network has been designed to minimize its effects on other road users by preserving on-street parking and traffic lanes

wherever possible. In many cases travel lanes will be narrowed slightly in order to allow bike lanes to be introduced. In a few instances parking will be removed but this is often accompanied by benefits to traffic and transit. The cycling network would be introduced with a way-finding system to promote the use and presence of the network.

Local streets in the West End and new waterfront neighbourhoods are being designated as “bicycle-friendly” streets given their low traffic volumes and importance in providing local access. From a cycling perspective, these streets are analogous to the established bikeways outside of downtown. Changes are proposed to make some of the traffic diverters in the West End more permeable to cyclists.

End-of-trip facilities (bicycle storage, showers, change rooms) will continue to be pursued in new developments through the City’s land use controls.

Use of the cycling facilities will be monitored over time to ensure they are appropriate to demand. The network as proposed should be reviewed periodically for its effectiveness in meeting demand.

5) Goods Movement Plan

The ability to move goods and services efficiently is important to the economic health of the central business district. Downtown includes a truck route network and extensive truck area for the purpose of accommodating goods movement activities. As the vast majority of this movement takes place on the road network, minimizing congestion is vital. Reducing congestion by encouraging the use of non-automotive means of commuting will help achieve this end. Additionally, goods movement needs to be compatible with the neighbourhoods it serves and traverses.

Downtown Vancouver is fortunately situated such that through movements of heavy trucks are not an issue. The Lions Gate Bridge is closed to heavy trucks, effectively making downtown a destination only for heavy truck traffic.

Goods Movement Plan Recommendations

The plan proposes that truck access be restricted in areas where industrial and commercial uses have been replaced by residential uses. Additional streets will be designated as truck routes in commercial areas to improve the connectivity of the network and reduce the need for circuitous routings.

Loading activities will continue to be encouraged to take place in off-street facilities where these exist. Rear lanes in commercial areas will continue to be dedicated primarily to goods movement since they reduce the burden on street frontages where competition with other users is greater. Only where alternatives have been exhausted should on-street loading spaces be provided. In such cases they would be considered a high-priority use.

Tour buses are regulated by the truck route system but also have special needs. The plan considered creating a parallel network of designated streets for tour buses. However, routings would be better managed on a case-by-case basis to balance the needs of tour bus operators and minimize negative impact on residential and other sensitive areas.

6) Parking Plan

Regulating the number of off-street parking spaces is one of the few means currently available to the City to control the number of vehicles coming into downtown. The City establishes minimum and maximum parking standards for developments in order to ensure that an adequate, but not excessive, parking supply is available.

Controlling the off-street parking supply indirectly controls the market price of parking, which in turn influences its use. Since parking is one of the few out-of-pocket expenses car-owning commuters typically consider, maintaining an appropriate number of spaces can influence travel behaviour through the price mechanism and simple availability.

Short-term parking is important in maintaining the competitiveness of shopping, entertainment and tourism uses in the downtown. Thus it is a separate issue from off-street commuter parking. Short term parking should be provided wherever practical.

Parking Plan Recommendations

The plan recommends that a review of downtown parking standards be conducted as transit service increase, such as after the opening of the Millennium SkyTrain line. This is to ensure that the off-street parking requirements stipulated in the Parking By-law reflect actual demands and that excessive parking supplies are not provided that would work against the transportation goals of the downtown. As well, a review of parking deficient areas within the downtown is recommended to allow the development of free-standing parking facilities only where required.

A major challenge for the City is that parking is less tightly regulated elsewhere in the region. If downtown parking becomes overly scarce and expensive relative to the rest of the region, inequalities would be created that would be damaging to the economic health and competitiveness of downtown businesses. For this reason TransLink is encouraged to develop and implement a regional parking policy that supports regional liveability and transportation goals.

In recognition of the importance of on-street parking as a source of short-stay parking, the plan proposes to introduce an additional 570 parking spaces during the rush hours. In terms of full time parking spaces available, the plan proposes no net loss, although some spaces are reallocated in order to meet other plan objectives.

7) Intelligent Transportation Systems

Intelligent Transportation Systems (ITS), refers to the use of technology to make our transportation system safer and more efficient. Some ITS services are already being used in Vancouver, such as the centrally co-ordinated traffic signal management system, red light cameras, and automatic vehicle location and real-time travel information on the 98 B-Line bus service.

ITS Recommendations

The Downtown Transportation Plan proposes that ITS technologies be pursued to make downtown travel by pedestrians, cyclists and transit passengers more convenient and safe, and minimize overall road congestion. Some proposed applications include:

- Microwave detection to give priority to pedestrians, cyclists or transit buses at intersections;
- Use of the traffic signal control system to establish a 40 km/h progression speed;
- Real-time transit schedule information at all bus stops and through the internet;

- Use of ITS for road pricing and other transport demand management measures in coordination with TransLink;
- Provision of traveller information through wireless technology, roadside displays, the telephone or the internet; and
- Use of wireless technology or smart cards to manage and operate parking meters.

Plan Evaluation

An evaluation of the transportation network was completed using the downtown sub-area model of the regional EMME/2 transportation model. With the implementation of all recommended changes in the Downtown Transportation Plan, the model shows that the plan will help reduce overall traffic congestion by encouraging more transit ridership. Assuming regional transportation demand management measures are implemented, the model shows that average vehicle speeds in 2021, in comparison to 1996, would increase by 3 percent and average transit speeds would increase by 14 percent. This result is significant considering that, while the number of trips made into the downtown increases, there is no increase in road capacity and additional facilities are provided for pedestrians and cyclists. The analysis also indicates that the implementation of regional transportation demand management measures and a rapid transit line to Richmond contribute significantly to minimizing congestion in the downtown.

From an environmental perspective, the Downtown Transportation Plan should have a positive impact. Air quality and noise levels within the downtown should remain acceptable given the projection of no increase in automobile traffic, the continued use of trolley buses and future use of rapid transit. A model for assessing the streetscape environment in relation to land uses and traffic was developed. This model could be used during the implementation of various components of the plan to ensure compatibility between land uses and transportation, and that high-quality pedestrian environments are created.

The above shows that a highly accessible and liveable downtown can be achieved despite the constraints. Downtown can remain the most accessible town centre in the region and be economically competitive.

Implementation

Many of the recommendations in the Downtown Transportation Plan provide a specific course of action. However, the recommendations need to be reported back with additional analysis, public consultation, design details and budget allocations prior to implementation. Many, like painting lane lines on the roadway, adjusting the traffic signal control system, and constructing corner bulges are an application of existing traffic management tools and can be implemented relatively quickly from a reallocation of existing resources. Others, like the application of intelligent transportation system and constructing a rapid transit line, are more complex and require more time and resources. To begin the prioritization process, a number of proposals to be pursued in the short term (within three years) have been identified.

To capture many of the ideas generated and to illicit further discussions, over 50 conceptual designs and spot improvements are presented. These represent potential solutions to the many problem locations identified and could be a starting point for future changes.

Conclusion

In furthering the city's transportation goals and objectives as outlined in the 1997 Vancouver Transportation Plan, and consistent with other city and regional policies, an extensive public consultation process was undertaken to develop the Downtown Transportation Plan. From the public input received and analysis completed, proposals have been developed that move towards actual implementation. Most of the proposals build upon past work to ensure that the transportation network will serve the downtown well to 2021. In fact, past trends are promising, but there is a need to keep striving for the best transportation network possible. With the anticipated growth, this plan moves towards a more balanced transportation system. It will help to minimize congestion, increase accessibility, improve liveability, and achieve a sustainable transportation system. All these are key to the overall health and economy of the city's central business district and will contribute to Vancouver's status as one of the most liveable cities in the world.

2 The Transportation Challenge

The transportation challenge facing the downtown is to accommodate more people travelling into the downtown in the future without adding traffic lanes to the bridges and roads leading to the downtown. At the same time, there is an expectation to minimize congestion. At first glance the challenge appears enormous. This plan presents a strategy that meets the challenge.

The **Vancouver Transportation Plan**, 1997, recognized that road capacity is finite and that even if more roads were to be built they would soon be congested with more cars. That solution is to reduce the demand for auto trips by providing further transportation choices, particularly transit.

Downtown's economic health is closely tied to its transportation network. Transportation is as much about economy and liveability as it is about travelling and commuting. Business downtown depend upon the transportation system to allow employees and customers to travel easily to their place of business. As well, many of these businesses rely on the road network to deliver and receive goods and services. If roads become congested, the cost of business would increase and the downtown economy could suffer. Businesses might then relocate to more accessible locations where they can be more competitive.

Congested roads also affect the liveability or the desirability of being downtown. This is especially important because of the residential neighbourhoods in the downtown peninsula. Reducing traffic congestion and resulting air and noise pollution, creating more pedestrian friendly streets, providing more sustainable choices like transit and bicycling will help keep downtown an attractive place for businesses and residents alike.

The downtown transportation system must also address it's role as an entertainment and recreation destination. Downtown is home to the region's largest sports venues (BC Place stadium and GM Place arena). It is also the region's primary tourist destination with major convention facilities and over 55 percent of the region's hotel rooms. The tourist industry is anticipated to grow 6 percent annually to 2021 (Colliers International). The cruise ship industry currently attracts over one million passengers annually.

The **Vancouver Transportation Plan** acknowledged the complexities of the downtown transportation system by recommending the preparation of the Downtown Transportation Plan. Specifically, it recommended the preparation of a *"...transportation and circulation plan for the Downtown, including a complete review of the Downtown transit system to improve service and choice, improve regional connections and airport links, evaluate alternative transit vehicles (such as mini-buses), establish priorities for 'Great Streets', improve route and destination signage, create pedestrian priority areas and implement bike lanes and street improvements."*

To the benefit of Vancouverites, downtown Vancouver is economically successful and already very liveable. Vancouver has been ranked as the most liveable city in the world. To maintain this status in the future, efforts must be taken now to avoid the transportation problems facing many other major North American cities. The Downtown Transportation Plan is the means to this end and will help guide transportation decisions to 2021.

The importance of future transportation planning is demonstrated by the current success of the existing downtown transportation system. For more than half a century, Vancouver has nurtured an economically healthy and liveable downtown. In the 1940s and 1950s, the focus was on adjusting to increased auto use. It was apparent then that, while road access is important for commerce, attempting to satisfy all demands for road space would require unacceptable trade-offs with the objective of a liveable downtown. Plans for downtown expressways were formulated in the 1960s but were later suspended because of the disruption they would have created, both in terms of land occupied and neighbourhoods affected.

Building public transit links (particularly rapid transit) to the downtown peninsula then became paramount to maintaining suitable access. A passenger ferry from Lonsdale Quay in North Vancouver to Waterfront Station began operating in 1974. The region's first rapid transit line, SkyTrain, was opened from downtown to New Westminster in 1985, with an extension to Surrey a few years later. In 1992, the region's first commuter rail line was opened from Mission to Waterfront Station.

The result of the past efforts is a highly accessible downtown. This success is reflected by its large concentration of residents, employment and trips within the city. With 560 hectares, downtown comprises about five percent of the city's total land area. However, it is home to 13 percent of the city's residents, accommodates 39 percent of the city's jobs, and receives 21 percent of the city's trip destinations. In the future, more residents, more employment and more trips destined to the downtown are anticipated. The Downtown Transportation Plan builds upon the success of the past to meet the needs of the future.

This section provides the context for the development of the Downtown Transportation Plan.

Section 2.1 provides the city and regional context for downtown transportation planning.

Section 2.2 sets forth a vision for downtown and for a downtown transportation system.

2.1 The City and Regional Context

Plans for the City of Vancouver and for the Greater Vancouver region provide the context for the development of the Downtown Transportation Plan. Recommendations of the Downtown Transportation Plan support plans for the city and region.

2.1.1 City of Vancouver

In 1991 Council adopted the Central Area Plan Goals and Land Use Policy. The plan expressed the policies of the City of Vancouver related to office zoning, displacement of support activities from downtown, lively retail, central area housing, providing density bonuses, liveability and high density living. The main land use direction was to create more housing capacity by consolidating a compact downtown core central business district (CBD) and an uptown (Broadway corridor) office district. The reduction of zoned capacity for offices outside the CBD and uptown areas was another objective. This has since become widely known as Vancouver's "living-first strategy" for its Central Area. Other policies included protecting support service opportunities, creating complete neighbourhoods on the downtown peninsula with all necessary amenities, creating areas for "choice of use" (offices and housing), targeting retail to desired pedestrian shopping streets and adjusting land use policies to allow uses and scale that preserve heritage character.

Transportation objectives were an explicit aspect of the new land use policies. Orienting new office development to transit was one objective of office land use consolidations and deletions. They included consolidating zoned office capacity around rapid transit stations, bringing overall office and transportation capacity closer together and increasing housing on the downtown peninsula to reduce commuting times and congestion, and reducing the need for inner city neighbourhoods to accommodate through commuters to downtown. By calling for streets to be the "focal point of public life," the Central Area Plan calls for public realm improvements to foster movement on foot.

The Central Area Plan was followed in 1995 by CityPlan, the City of Vancouver's overall guide to future planning, development and civic decisions. It acknowledges that the public wanted to emphasize transit, walking and biking to slow traffic growth in neighbourhoods and improve the environment. CityPlan reinforced the vision for downtown. Finally, and perhaps most importantly for this report, it recommended the undertaking of a City of Vancouver Transportation Plan.

Also in 1995, a Vancouver Greenways Plan that identified conceptual multi-use and richly landscaped corridors providing greater priority to pedestrians and cyclists throughout the city, including downtown, was approved.

The City of Vancouver Transportation Plan (1997) set forth transportation policies for both the city as a whole and downtown for the period to 2021. It specified that growth in trip demand would be met by the existing road network. It recommended greater transportation choice and a more balanced downtown transportation system. It nonetheless acknowledged that the car would continue to be the major form of transport for trips by people travelling outside neighbourhoods, especially for trips for which transit does not offer a good alternative. It stressed the importance of good truck access to the city and of improving delivery access to the Port of Vancouver and the International Airport. This Downtown Transportation Plan is viewed as fulfilling the overall policy guidelines set forth in the Transportation Plan for downtown trips and transportation facilities.

2.1.2 The Greater Vancouver Region

The GVRD's 1993 regional transportation plan, **Transport 2021**, provides transportation policies and programs for the region. It identifies the need for regional land use policies that cluster population and jobs so that people can have an opportunity to live close to work. It recommends changing the look and feel of neighbourhoods and "streetscapes" such that walking and bicycling is given an opportunity to take hold. It proposes Transport Demand Management (TDM) as a tool to influence travel behaviour. This includes "carrots", such as encouraging telecommuting, encouraging employers to discourage car commuting, installing high-occupancy vehicle highway lanes and giving buses priority over cars. "Sticks" including higher and more generally applicable parking charges, higher fuel and other driving costs and bridge tolls, are also proposed. It also includes transit supply measures, including new rapid transit lines, bus priority measures and express buses. Transport 2021 also proposes using the "choke points" of the bridges and tunnels across the Fraser River and Burrard Inlet to limit access to geographical sub-areas within Greater Vancouver by single-occupant vehicles. The plan projected that the proportion of commuters using transit to travel downtown would increase from 37 to 48 percent from 1991 to 2021.

The 1995 **Livable Region Strategic Plan** (LRSP), which was formulated jointly with **Transport 2021**, guides decision-making for the Greater Vancouver Regional District (GVRD). The LRSP supports complete communities focused around town centres, a better balance in the distribution of jobs and housing and more effective transportation services. It envisages a compact metropolitan region in which a larger share of population is accommodated in the municipalities on the Burrard Peninsula and northern areas of Delta and Surrey. The plan calls for greater transportation choice as a way of minimizing congestion and dependence on private automobiles. The GVRD is commencing a review of the LRSP in 2002.

2.2 The Downtown Vision

Downtown Vancouver is the region's pre-eminent economic generator, as well as its international face to the Pacific Rim. It is the principal locale for Greater Vancouver's head office, business services and tourist functions. Downtown Vancouver is also the region's most prominent entertainment centre, the locale of the region's largest sports venues and the region's largest retail hub. Downtown Vancouver is also a special place with unique character areas, livable residential neighbourhoods, heritage resources, a unique skyline and active public spaces.

The key to maintaining an alive downtown is that it is both a place of commerce and of residence. The integration of residential neighbourhoods with the commercial core assures the presence of people on downtown streets outside of normal business hours. Residential neighbourhoods also complement the commercial objectives for downtown by providing a reservoir of workers and shoppers and entertainment venue visitors.

The objective of this Downtown Transportation Plan is to support and facilitate these important downtown functions. The vision for Vancouver is to be the most liveable city in the world. One of the most important aspects of a liveable city is its transportation system, especially in its downtown.

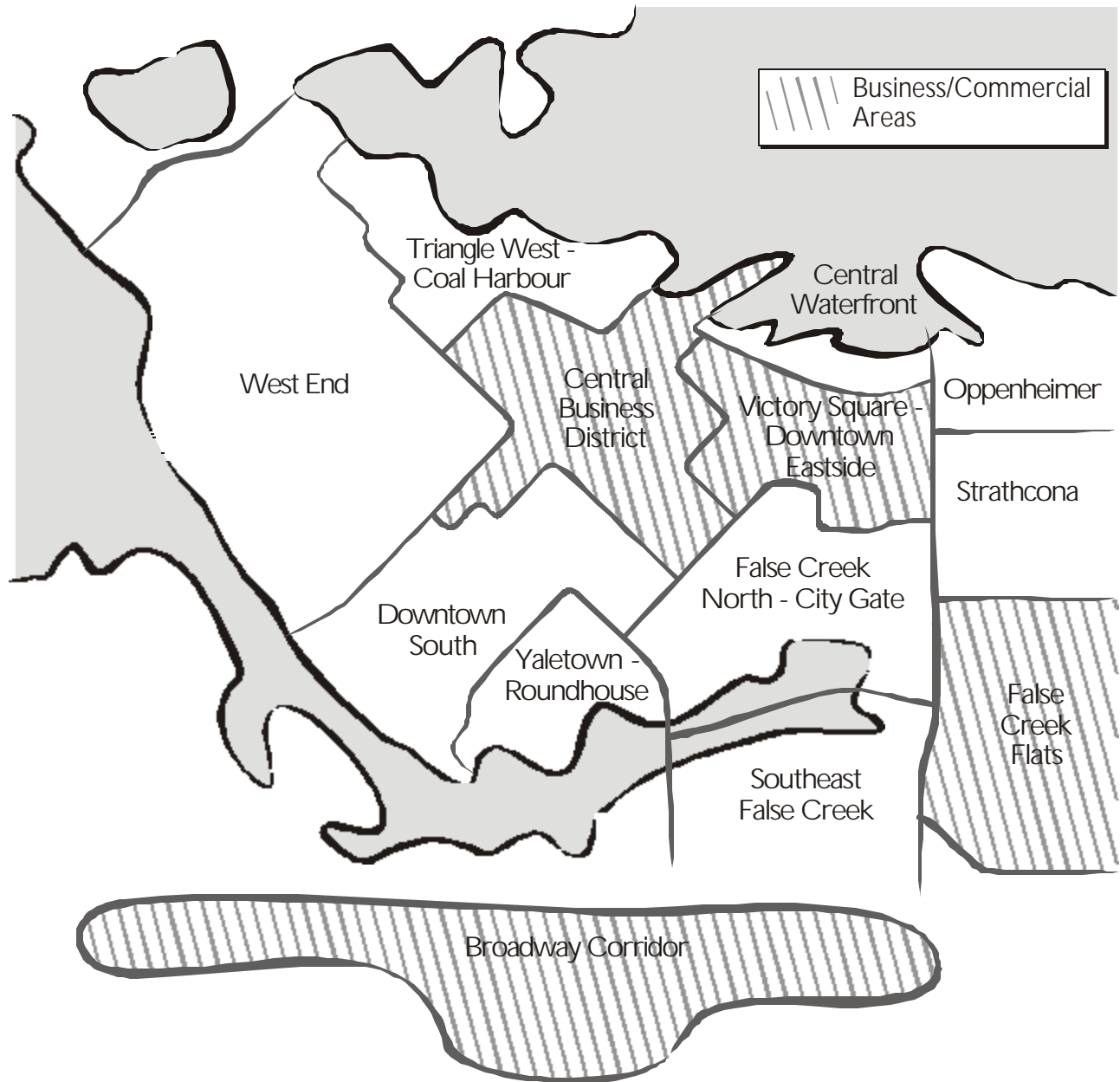
The Downtown Commercial Core in a Larger Central Area

While the most prominent component, downtown is one of three related nodes in a central area or 'metropolitan core' providing a wide range of employment and commercial services. Figure 2-A shows the three nodes. The three nodes function as an integrated metropolitan core accounting for more than one in five regional workers. A vision of the Downtown Transportation Plan is to reinforce the integrated nature of the metropolitan core, improving the economic functioning of the entire complex.

Downtown Transportation Vision

For downtown Vancouver, the transportation vision is to be the most accessible place in the region. Achieving this vision will contribute to a thriving and prosperous business community and create a downtown where people want to work, live and play. For all trip purposes by all modes, the experience of travelling around the downtown will be pleasant. Motorists will not be unduly delayed by congestion, transit users would be provided with a reliable and efficient transit system, pedestrians and cyclists of all ages and abilities will find downtown inviting and barrier-free. Downtown is a place where the transportation network offer choices that are extensive and exciting, such that getting to and around downtown is an attraction in itself.

Figure 2-A
Vancouver's Metropolitan Core



2.3 Sustainability and Transportation

Achieving sustainability is key to the health and economy of the city and region. Sustainable transportation will help Vancouver meet the needs of its present community without compromising the ability of future generations to meet their own needs. Recognising that transportation and land-use are fundamental components to achieving a sustainable city, the Downtown Transportation Plan seeks to address problems of pollution, noise, congestion, safety, energy consumption, and costs that are incurred in moving people and goods throughout the downtown. The challenge is how to increase access to goods, services, activities and destinations while reducing energy use, noise, pollution, congestion and, at the same time, increasing safety, security and liveability.

Vancouver has made significant progress toward sustainability and has been consistently rated as a leading city in terms of liveability. City Council has adopted plans that place high priority on creating a downtown where people have access to affordable transportation to move them between home, work, and places of leisure.

The Downtown Transportation Plan will make progress towards achieving sustainability by providing recommendations that:

- Help promote more efficient systems for moving goods and people;
- Encourage more sustainable transportation modes such as walking, transit, and cycling;
- Reduce vehicle kilometres travelled by providing jobs, entertainment venues and commercial and retail services in close proximity to where people live;
- Encourage alternative approaches to car travel including carpools, vanpools and car sharing networks;
- Increase safety by reducing the potential for conflicts between modes;
- Enhance access to information that increases the efficiency of goods and people movement through ITS; and
- Reduce average commuting times for downtown trips.

In short, the movement towards becoming a sustainable city requires policies and plans to provide guidance and incentives for people to modify their behaviour and pattern of travel. The Downtown Transportation Plan provides the mechanism for that change to happen.

“Sustainability is a direction rather than a destination. A sustainable city is one that protects and enhances the immediate and long-term well being of a city and its citizens, while providing the highest quality of life possible. Sustainability requires integrated decision-making that takes into account economic, ecological and social impacts as a whole”. (From Creating a Sustainable City, Report to City Council, April 1, 2002)

3 Foundations of the Plan

This section outlines the foundation of the plan and provides background for a better understanding of the goals and objectives and the process undertaken to develop the plan.

3.1 Terms of Reference

The terms of reference for the Downtown Transportation Plan were laid out by the **Vancouver Transportation Plan**. The Downtown Transportation Plan is intended to review the downtown transportation network in light of land use changes, future growth in residents and employment and the resulting increase in trips into and within the downtown to the year 2021.

Around the Central Business District, areas previously used for industrial, warehousing and railway purposes have developed or are being developed into residential neighbourhoods. These include the Downtown South, False Creek North, Granville Slopes, Coal Harbour and Triangle West neighbourhoods. These new neighbourhoods have different accessibility needs that are different from previous land uses. The Downtown Transportation Plan examines these needs and tries to resolve them while maintaining the accessibility requirements of the central business district.

3.1.1 Vancouver Transportation Plan Policies

The following policies, as approved by Council, were intended to provide the basis for the Downtown Transportation Plan:

1. The increase in peak period trips to downtown should be accommodated by a major expansion in transit. Regular bus services to and within downtown should also be substantially expanded, especially in peak periods.
2. Overall road capacity into downtown will not be increased above the present level.
3. To provide for the increase in transit within the downtown, bus only lanes may be appropriate. Other measures to facilitate buses, including bus bulges and queue jumpers, will be pursued where practical.
4. Transit services within the downtown should be improved with the addition of a downtown transit loop, new routes to under-served areas, a free or low fare zone, expanded ferry services and improved boarding facilities.
5. Facilities for pedestrians will be improved within downtown.
6. Bicycle access both to and within downtown will be improved by providing bike facilities on bridges and providing a safe and effective network of routes throughout downtown.
7. Other measures that encourage the use of alternatives to the car and encourage downtown residents to rely less on cars will be supported where possible.
8. The downtown street circulation system will be reviewed to support downtown neighbourhoods and to encourage a more pedestrian and resident friendly environment.
9. Within the downtown, existing maximum standards on commuter parking are proposed to be maintained, consistent with about one in four people driving a car to work.
10. Short-term parking will be managed to ensure there is sufficient parking to meet normal demand.
11. Residential parking standards will be reviewed as necessary to ensure they reflect the lower levels of car ownership of downtown residents and the objective of promoting transit, cycling and walking as alternatives to cars.

12. Parking and unloading of trucks in downtown commercial lanes will be reviewed with the intention of improving essential access to businesses for commercial vehicles.

3.1.2 Specific Issues

Council provided further direction and tasks to the Downtown Transportation Plan in a number of areas:

- a) **Third Crossing:** The issue of a Third Crossing across or beneath the Burrard Inlet was excluded from the terms of reference. It was noted that a Third Crossing raises issues outside of downtown and outside of the city that cannot be adequately addressed without a broader analysis. If a third crossing was to include general traffic, it would also be contradictory to the Vancouver Transportation Plan of no new road capacity into the downtown above present levels.

This was reconfirmed by City Council in March 2001. At that time it was noted that a new auto-oriented crossing of the Burrard Inlet would not become relevant until after the implementation time (2021) of the Downtown Transportation Plan and that consideration of such a crossing be deferred until, at the earliest, the next review of the long term regional strategic plan. In March 2002, City Council again reconfirmed its position by resolving that the City of Vancouver does not support a Fourth Crossing initiative for the Olympics, or prior to a full impact study on North Shore municipalities and the east-side neighbourhoods of Vancouver. Council changed the reference of a Third Crossing to a Fourth Crossing in recognition that a third crossing already exists as the SeaBus.

- b) **Granville Mall:** The potential reintroduction of general traffic along Granville Mall as desired by some downtown businesses and property owners was to be reviewed as part of the Downtown Transportation Plan. Although a recommendation is made in this plan, the details of the review was completed and reported to Council under a separate report.
- c) **Downtown Streetcar:** The downtown streetcar was included in the Downtown Transportation Plan's terms of reference for follow-up. This includes a review of the role of the streetcar within the downtown transportation system, potential downtown extensions and additional links to the Roundhouse Community Centre and Stanley Park.
- d) **Rapid Transit:** Previous studies have looked at various alignments for a north-south rapid transit line within downtown. Potential routes within downtown were to be re-examined to the extent possible.
- e) **Richmond Rapid Bus:** The Richmond Rapid Bus (98-B Line) began operation in August 2001. Confirmation of optional routes within downtown was to be considered in the broader context of the Downtown Transportation Plan. However, due to delays in opening the new express bus route and ongoing delays in fully implementing the service, the review has been deferred until after the completion of the Downtown Plan.
- f) **Pacific Boulevard:** An urban design study for Pacific Boulevard was to be undertaken in consideration of the broader downtown transportation planning program and the future role and function of Pacific Boulevard. This study was completed in conjunction with the Downtown Transportation Plan team and was reported to council separately. Council also approved further study of Pacific Boulevard west of Cambie bridgehead and that Expo Boulevard and Pacific Boulevard be studied further as part of a revised ODP for Northeast False Creek.
- g) **Major Roads:** Several downtown streets have already been designated as part of the region's Major Road Network. The Downtown Transportation Plan was to identify additional roads that may be suitable for nomination, and hence funding.

3.2 Methods

A number of tools were used to help develop and assess the Downtown Transportation Plan. One of these was the Greater Vancouver's regional transportation model (EMME/2). Others relating to the streetscape and environment were also developed and used. These are briefly described below.

3.2.1 EMME/2 Transportation Sub-area Model

EMME/2 is a computer program that is used to help plan transportation infrastructure. This particular computer model is used in 58 countries by over 580 organisations, including cities, metropolitan areas, transit agencies, consulting firms, and universities.

The main function of the EMME/2 model is to assign trips to a multi-modal transportation network (vehicle, transit, walk, etc.) based on the fastest (least expensive) mode and route for an individual trip. This emulates actual behaviour whereby, for example, people, through trial and error, are able to select the quickest route to work or school. This method of trip assignment onto a transportation system generally works well for vehicle trips and trips made on transit. However, the model is less accurate at predicting walk and bike trips. For walk and bike trips it is helpful to look at trends and demographics.

The model is most accurate as a comparative tool and should be used primarily in that role. This means the model can look at different transportation network options and different land-use and compare statistics such as the total travel time and transit ridership. These statistics then contribute to the over-all evaluation of the various network options.

The EMME/2 model created for the Downtown Transportation Plan by Ward Consulting is called an 'sub-area model'. This is because while it is based on the regional transportation computer model used by the Province, TransLink and the GVRD, it has greater detail in the downtown sub area. For example, the downtown sub area model divides the downtown peninsula into 190 traffic zones. This compares with 34 traffic zones in the regional model. Indeed, practically all downtown streets are represented in the model.

3.2.2 Environmental and Social Impact Assessment

The transportation network has an impact on the physical and social environments. These impacts need to be minimized to achieve the liveability goals of the Downtown Transportation Plan.

Measurements of noise, air pollution, traffic safety, streetscape impacts, and guidelines for social assessments were used to assess these impacts. These measurements could be used in conjunction with the EMME/2 transportation model in a multiple accounts framework to obtain the overall impact of the plan.

- a) **Noise:** Measurement of street noise levels was completed by the Vancouver-Richmond Regional Health Board at selected locations throughout the downtown peninsula. Standards used to evaluate the acceptability of noise levels are those recommended by the World Health Organization (WHO)
- b) **Air Pollution:** Air quality within the downtown is currently monitored by the GVRD's Air Quality Branch. Data from their monitoring station at Robson Square is used to assess air quality within the downtown and compared with other monitoring stations. It is noted that output of the Transportation Demand Sub-area Model enables the assessment of such variables as carbon dioxide (CO₂) generation.
- c) **Safety:** The City of Vancouver and the Insurance Corporation of British Columbia (ICBC) retained Hamilton Associates to undertake a study of traffic collision incidence throughout downtown Vancouver (study area focuses on the commercial core). Both intersection and mid-block crash data were analyzed between 1992-1996 inclusive. Crash data were adjusted for traffic volumes to obtain locations with highest frequency of collisions and over-representations of various crash types.

More current crash data (1998-2000) were obtained from the Police Department to supplement the safety study by Hamilton Associates. As well, Police data on assaults and thefts within the data were referenced as an indication of relative pedestrian safety.

- d) **Streetscape Impact:** Baker, McGarva, Hart Architecture (BMH) was retained to develop a framework for assessing the impact of transportation links on land uses and on the streetscape. The output consists of a data base displaying the current quality of the street environments and the quality of the relationship between street environments and land uses.
- e) **Guidelines for Social Impacts and Assessment** of the Downtown Transportation Plan were obtained from the City of Vancouver's Social Planning Department. Topics recommended to be referenced in the Downtown Transportation Plan include universality of accessibility, public benefits enhancement and community involvement in facility design.

3.3 Goals and Objectives

The following are goals and objectives of the plan:

- **Maximize Access** - The provision of additional transportation choices will help to increase accessibility and promote an economically competitive downtown.
- **Minimize Congestion** - Maintaining the capacity on the major arterial road network in the downtown will help to minimize congestion. This is particularly important for goods movement.
- **Enhance Public Transit** - Improved transit services will improve the overall downtown accessibility. This includes new bus and rapid transit routes, transit priority measures and enhanced transit hubs.
- **Maintain Efficient Goods Movement** - Access by trucks and commercial vehicles are essential to an economically vibrant and healthy downtown.
- **Serve Adjacent Land Uses** - The road network should serve the needs of adjacent land uses. Residential land uses are becoming more dominant in many parts of the downtown and this needs to be reflected in the transportation network.
- **Promote Walking and Bicycling** - The promotion of walking and biking supports the objective of minimizing congestion and recognizes that walking and bicycling are very popular modes within the downtown.
- **Increase Pedestrian Comfort** - In addition to promoting walking routes, the whole of the downtown should be a pedestrian-friendly zone. The creation of streetscapes conducive to pedestrian activity and enhancing liveability is pursued.
- **Manage Parking** - On and off-street parking supplies need to be managed to help achieve the downtown transportation goals.
- **Promote Sustainability** - A sustainable transportation system will meet current needs without compromising the ability of future generations to meet their own needs.

Overall, by introducing greater transportation choices, a balanced transportation system will be achieved. Ideally, this balance would be achieved by providing more transportation facilities without compromising existing transportation facilities.

3.4 Land Use Planning

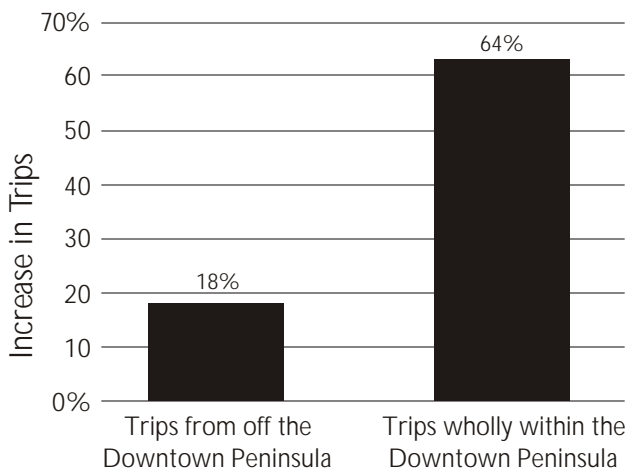
Transportation planning requires the interaction of land use planning and the engineering of transportation facilities. Land use planning in the transportation context is about arranging land uses in such a way that the need for transportation facilities is minimized. Changes in the relationship of land uses (places of employment and residence) can often accomplish with little or no expenditure of public transportation dollars more than billions of dollars in infrastructure expenditure. And the results – labelled ‘complete communities’ in the *LRSP* – are often perceived to be better and more interesting places in which to live and work.

Planning in the City of Vancouver has helped to rearrange land use development in such a way that the need for transportation facilities and links – roads, bridges and tunnels – is reduced. One of the primary objectives of Vancouver’s 1991 *Central Area Plan* was to increase downtown population as a way of offsetting the demand for trips to the downtown peninsula from off the peninsula. Underlying the plan was the assumption that increases in road capacity from Vancouver’s suburbs to downtown could not be substantially increased. The solution to the problem is to improve both public transit services and land use relationships so that downtown access is improved and neighbourhood disruption minimized.

New residents and new neighbourhoods on the downtown peninsula contribute to a lively, around-the-clock downtown, provide a valuable labour force pool and permit greater employment capacity on the peninsula. The effect of carrying out this policy is demonstrated in *Figure 3-A*. From 1996-2021, the number of trips from external sources to the peninsula is projected to increase by only 18 percent. The generation of AM peak hour trips entirely within the peninsula is projected to increase by 64 percent from 1996-2021. The proportion of total trips to downtown destinations in the AM peak comprised of trips from within the peninsula (trips with both origin and destination on the peninsula) is projected to increase from 23 percent in 1996 to 29 percent in 2021.

Figure 3-A
Projected Increase in Trips to Downtown Vancouver Destinations 1996 – 2021

Source: EMME/2 Transportation Demand Model



3.5 Transportation Trends

Downtown Vancouver generally offers a balance of transportation choice and is a place where people walk, bike and use transit in greater numbers than any other location in the region. The latest information from the 1999 TransLink Trip Diary Survey shows that, at the regional level, walking and cycling trips were the fastest growing trip types *Figure 3-B*. A similar but more pronounced trend is occurring for trips to Vancouver destinations where walk trips increased from 14 percent to 19 percent of all trips *Figure 3-C*. In downtown Vancouver the trend is particularly pronounced with walk trips increasing from 21 percent of all trips to 30 percent over the five year period *Figure 3-D*.

Overall, the trends for transportation in the City of Vancouver show that the City is moving towards more sustainable modes. In general, the number of;

- trips in private automobiles are not changing (or are slightly declining),
- trips on transit are increasing,
- bicycle trips are increasing significantly, and
- walk trips are increasing significantly.

It should be noted that the transit trips are expected to increase significantly for peak period travel.

The downtown transportation plan responds to these trends by recommending significant improvements for pedestrians, cyclists, and transit riders while maintaining sufficient road space for general traffic circulation.

Figure 3-B

Trips to all GVRD destinations over a 24 hour period.

Source: 1999 TransLink Trip Diary Survey

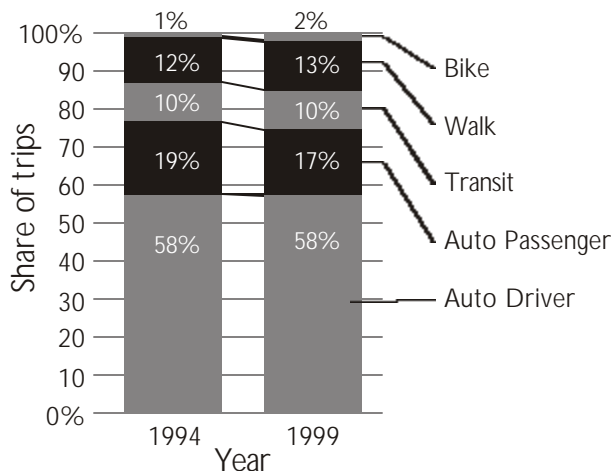


Figure 3-C
Trips to Vancouver destinations over a 24 hour period.

Source: 1999 TransLink Trip Diary Survey

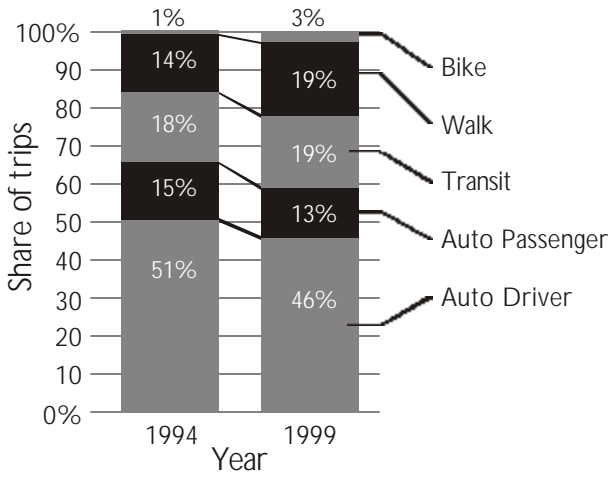
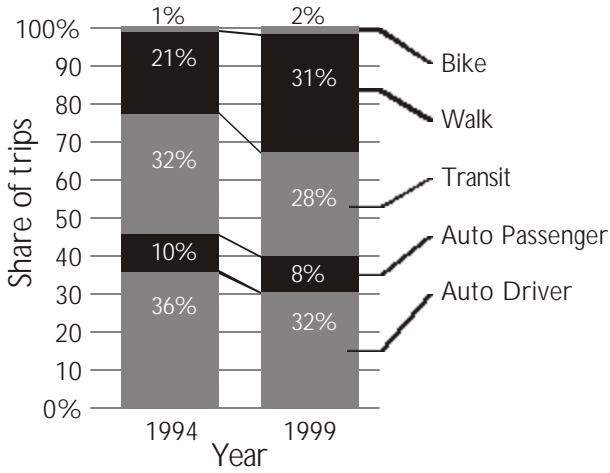


Figure 3-D
Trips to Downtown Vancouver destinations over a 24 hour period.

Source: 1999 TransLink Trip Diary Survey



3.6 Population and Employment Targets

Population and employment targets for the downtown peninsula provide the basis for projecting the demand for trips to, from and within downtown. The number and kind (transit, auto, walk, etc.) of trips by each transportation mode define the size and shape of the transportation system required to serve downtown.

Targets for future downtown population and employment are established on the basis of historical trends, city and regional targets, development opportunities and public policy. Regional population and employment targets for the Greater Vancouver Regional District (GVRD) and their distribution among area municipalities may be found in the 1993 GVRD report, *Managing Greater Vancouver's Growth* (pages 7-26), and in the 1996 *Livable Region Strategy Plan (LRSP)*. Based on then current official development plans and land use zoning in the municipalities, the *LRSP* reflects the commitment of both the GVRD and its municipalities to the allocation of growth targets within the region. The target population for 2021 for the region was 2,676,000 (3,000,000 including population in institutions and in unincorporated areas), while the employment target was 1,317,000. The 2021 population target for the City of Vancouver is 635,000, while the employment target is 435,000.

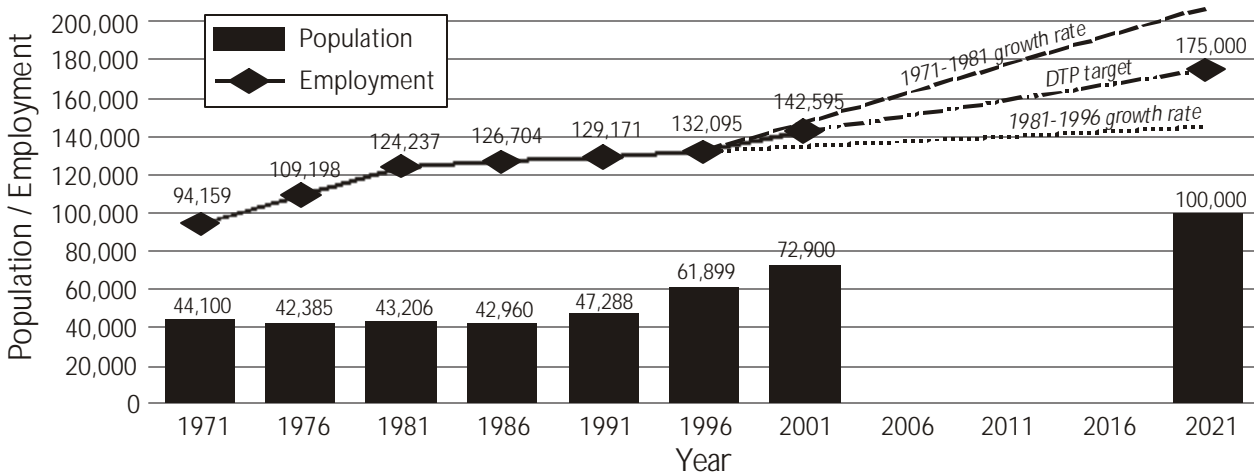
Note that the *LRSP* is subject to review every five years. The first review since approval by the GVRD board in 1996 is currently underway.

3.6.1 Downtown Population Targets

The 2021 population targets for the downtown peninsula are established largely on the basis of existing planning policies and land use zoning and anticipated future developments. The population target for 2021 is 100,000. *Figure 3-E* shows population and employment trends and future targets for the years 1971-2021.

Figure 3-E

Population and Employment in Downtown Vancouver

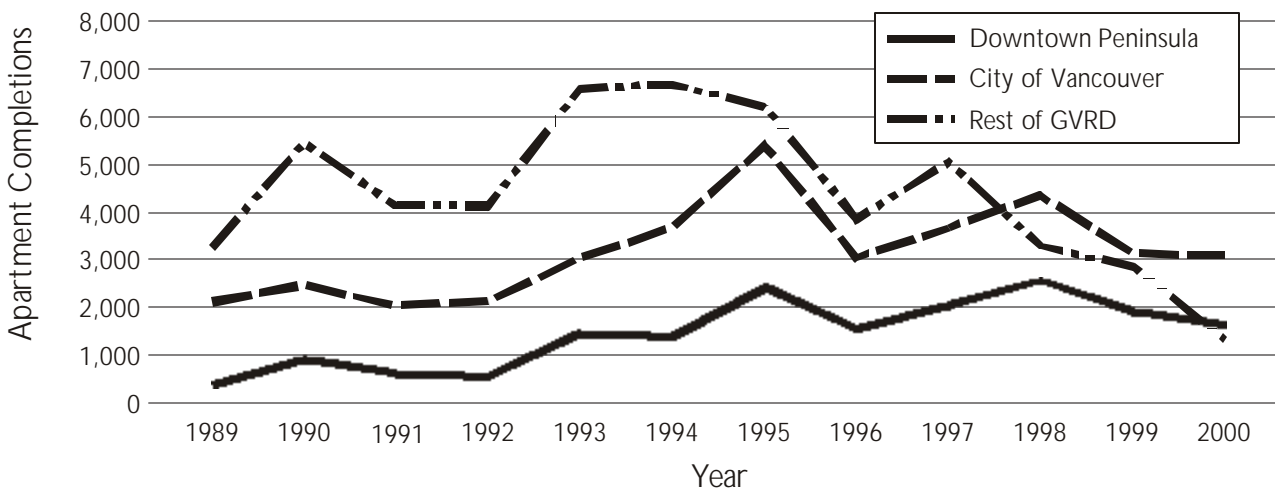


While this population target is about four percent above previous population targets for the downtown peninsula, it is considered to be a conservative one. Recent development has been occurring at a far greater rate than previously estimated. Population growth between 1991 when the *Central Area Plan* was approved and 2001 was 54 percent (*Census of Canada*). The 2021 target represents a 37 percent increase in population over 2001. Complete build-out under existing land use policies and zoning is currently estimated to accommodate a population of more

than 115,000. This capacity increases with development approvals for live/work studios, heritage bonus zoning and the like. A population in the 110,000 range by 2021 may be quite likely.

Living in downtown Vancouver has become extremely popular. The population of central Vancouver is approximately 30 percent greater than for central Toronto and nearly three times that of central Montreal (Transportation Association of Canada, *Urban Transportation Indicators*, 1999). Residential population growth from 1991-2001 was more than 1.5 times growth in the downtown populations of such cities as New York and Chicago. *Figure 3-F* portrays recent apartment completions in downtown Vancouver and the GVRD. Completions in 2000 in downtown were greater than in the remainder of the GVRD outside Vancouver. They were over 50 percent of the total for the City of Vancouver as a whole. While downtown apartment completions in 2000 were 35 percent off their 1998 peak, this performance is nonetheless far superior to that experienced in the GVRD outside the City, where apartment starts were 75 percent less in 2000 than their 1996 peak.

Figure 3-F
Apartment Completions (all tenure types)



Downtown’s residential population is complementary to the commercial purposes of the downtown core in providing a nearby labour force and a large pool of nearby consumers. Some companies, especially in the high-tech sector, have reportedly located near or in downtown Vancouver to take advantage of the readily available labour pool. The downtown population is also complementary to the transportation objectives in that it reduces trip length, making alternative modes of transportation more attractive, and displaces the origins of many trips to downtown destinations to origins also on the peninsula, reducing trip volumes into downtown from outside.

3.6.2 Downtown Employment Targets

A similar process to that used for targeting future population growth has been applied to employment. Choosing a realistic target for employment is more complex than for population. Employment is much more susceptible to economic cycles and other short-term events than is population. As well, commercial and office real estate development, which provides the majority of employment accommodation, is extremely cyclical and occurs sporadically. For instance, from 1990-1995, 3.1 million ft² of office space was absorbed, while construction of only 1.6 million ft² was initiated (Royal LePage for the GVRD; City of Vancouver construction data). While only 270,000 ft² in new office construction was initiated downtown in the 1996-2000 period, 1.6 million ft² was absorbed in the period. Also in the latter period, construction of 1.26 million ft² in hotel

space with almost 2350 rooms was initiated. These new hotels, ranging in size from boutique hotels of just over 60 rooms to two hotels of over 450 rooms, illustrate another variable in estimating employment generation in downtown Vancouver: most downtown sites are eligible for hotel, as well as office developments, and the two land uses differ substantially in trip generation characteristics. Approvals for almost 1.6 million ft² of offices occurred in 2001. The significant increase in new downtown office development applications in 2001 was the result of the decrease in office vacancies from 16 percent in 1992 to three percent in 2001.

Downtown employment in 1996 was 132,000, approximately 39 percent of the City's total. *Figure 3-E* above shows that the past history of downtown employment from 1971 to 1996. Growth in the two 1970s= five year periods was 14 and 16 percent. It hovered just above two percent for each of the five year periods from 1981 to 1996. Based on office absorption and hotel construction in the late 1990s, downtown employment estimates for 2001 were in the 138,000 to 139,000 range, more than a five percent increase from 1996.

The employment target for 2021 is 175,000, or about 40 percent of the City's total and 13 percent of targeted employment of 1,317,000 in the GVRD. This represents approximately a straight line projection of trends from 1971 to 2001 for a further 20 years. While the target is robust relative to short-term trends, both population and employment targets will be reviewed as part of the *LRSP* review. Under-estimating employment could be worse than over-estimating for providing adequate future access to downtown. In addition, other factors that influenced the target employment level include:

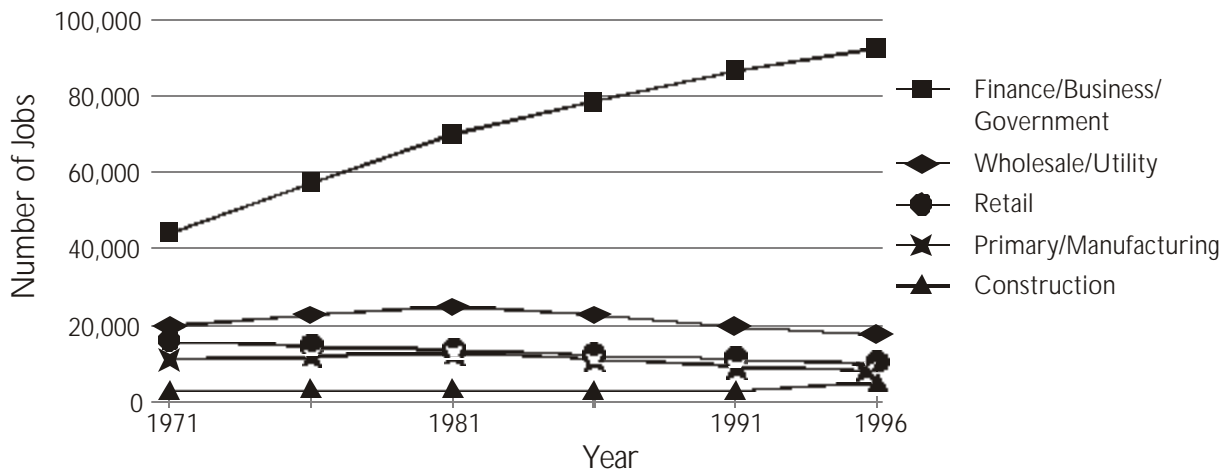
- Changes in industry structure;
- Office space absorption in the 1990s;
- Targets used for other transportation projects by the City of Vancouver and region;
- Potential for planned transportation projects to shape land use; and
- Private sector projections.

a) Industry Structure

The overall employment trend is the outcome of several related and parallel phenomena reflecting the performance of various industrial sectors on the downtown peninsula. On the one hand, some sectors have languished. *Figure 3-G* shows employment by industry from 1971 to 1996. Nearly 13,000 jobs were lost in the manufacturing, transportation, storage and communication and wholesale sectors from 1981 to 1996. These losses reflect in part the changing land uses in the downtown peninsula, especially the removal of manufacturing and transportation uses, as well as events in downtown office employment connected to British Columbia's economy. No further losses are anticipated in these sectors from major land use decisions. Another 3,500 jobs were lost in retail trade. Although major department stores seem to be having problems, mostly unrelated to their downtown stores, the number of recent retail development applications and expressions of interest by major retailers suggests that the period of retail decline may be over. Downtown residents and workers generate their own retail sales demand. On the positive side of the ledger, over 22,500 jobs, or an average of 7,500 in each five-year period, were gained from 1981 to 1996 in what are frequently identified as tertiary sectors. Nearly 85 percent of these were in services serving other businesses (business services), one of the industries that tends to occupy downtown office space. These employees occupied approximately 5 M ft² of office space. Similar growth in the 1996-2021 period without offsetting decreases in other sectors would result in employment totals slightly exceeding the suggested target. As well, some comfort can be taken in the knowledge that the downturn in the computer and telecommunications sector in 2000-2001 affected Vancouver considerably less than it did other metropolitan centres (Ottawa-Gatineau and Toronto) (Statistics Canada, *Perspectives*, April 2002).

Figure 3-G
Downtown Jobs 1971-1996 (by Industry)

Source: Census Canada



b) Office Space Absorption in the 1990s

The GVRD's study by Royal-LePage of office space absorption throughout the region from 1990-2000 concluded that approximately 6 M ft² of office space was absorbed in the 1990s in the metropolitan core, including downtown and central Broadway. This was 43 percent of the total absorbed in the GVRD and reflects a healthy downtown office sector.

c) Targets Used in Other City of Vancouver Transportation Projects

Downtown employment targets in the 167,000 to 174,000 range have been used in a number of other downtown transportation projects: Millennium SkyTrain line; Richmond/Airport-Vancouver rapid transit study; downtown streetcar; and 1997 City of Vancouver *Transportation Plan*.

d) Transportation Shaping Land Use

The *LRSP* has been based on the notion that transportation policies and projects influence land use development and vice-versa. In the case of downtown Vancouver, the completion of the Millennium SkyTrain line, as well as the construction of a north-south rapid transit line from downtown Vancouver to Richmond and the International Airport will make downtown Vancouver easily the most accessible employment centre in Greater Vancouver.

e) Private Sector Projections

Private sector real estate companies, notably Colliers International Realty Advisors, Inc., have recently projected demand for new office and hotel space in the context of downtown rezoning applications. A demand for 7.8 M ft², including projects currently under construction, from 2001 to 2021 is foreseen. Translated to anticipated employment, such a demand for space would likely see total downtown employment in the 170,000 range.

The 2001 employment estimate of 138-139,000, based on office space absorption and hotel construction throughout the 1990s lies approximately on this projection line. The employment target represents construction of some further 6.4 million ft² in office and retail development from 2002-2021 in addition to the 1.5 million ft² of office space under construction in 2002. A further 1.0 million ft² in hotel space with 1,500 rooms is also anticipated.

3.6.3 Downtown Employment and Population and Targets by Sub-Area

Population and employment targets for the future for each sub-area within downtown were obtained based on existing land use policies and regulations. *Figures 3-H and 3-I* illustrate population and employment by sub-area within the downtown peninsula. Downtown South and False Creek North are expected to absorb half of downtown’s population growth to 2021. The Triangle West - Coal Harbour area is targeted to absorb nearly 20 percent of total growth. The remaining downtown neighbourhoods are targeted to absorb about 30 percent of total growth.

The traditional Central Business District, or downtown commercial core, is expected to account for nearly half (49%) of total employment growth from 1996-2021. False Creek North is projected to account for 13 percent of employment growth, while the Central Waterfront District is anticipated to account for 12 percent of total targeted employment changes. The remaining sub-areas are anticipated to collectively accommodate about 25 percent of total employment growth.

Figure 3-H

Share of Downtown Population Growth by Neighbourhood, 1996 – 2021

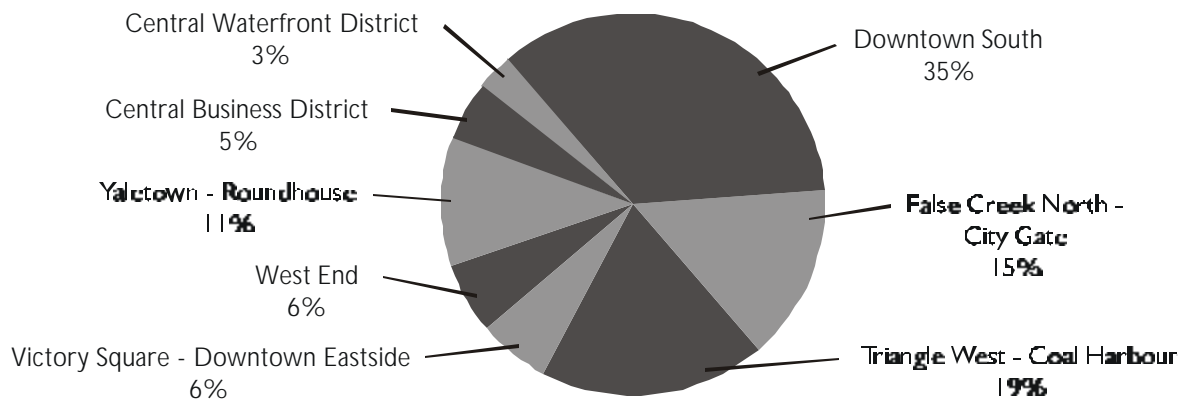
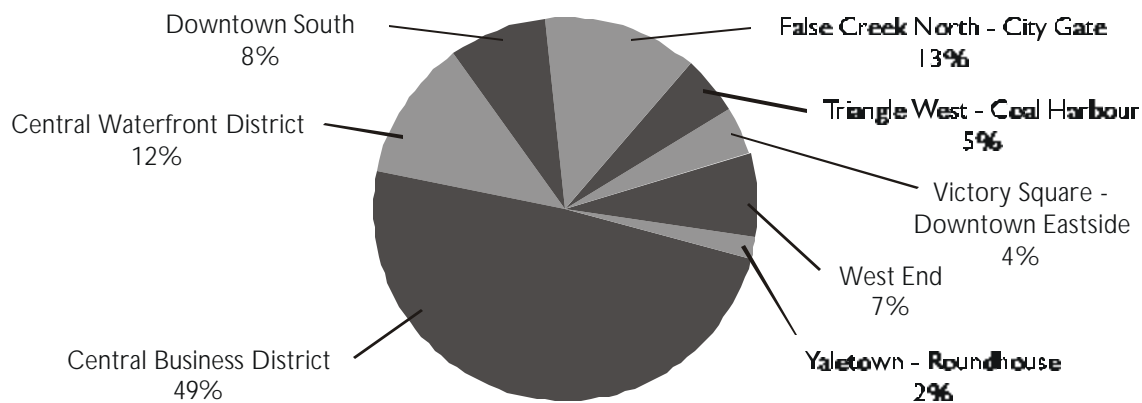


Figure 3-I

Share of Downtown Employment Growth by Neighbourhood, 1996 – 2021



3.6.4 Downtown and Vancouver’s Metropolitan Core

Vancouver’s downtown is one of three related commercial nodes that together comprise the ‘Metropolitan Core’ (See Figure 2-A above). The Central Broadway area, bounded by 12th Avenue and False Creek between Burrard and Main Streets, is designated to accommodate overflow office development from the downtown core. The Broadway corridor contained over 10.5 M ft² of office space in 2001, and another 3.5 M ft² is anticipated by 2021. The area had nearly 57,600 employees and 32,000 residents in 1996. Target employment for 2021 is 73,500, while target population is 38,500. The latter excludes an additional 4,000 people expected to live in Southeast False Creek.

The area east of Main Street and bounded by Prior Street on the north and Great Northern Way on the south, called False Creek Flats, has been partially rezoned to accommodate the high-tech industry. A further 75 hectares of industrial land is also available in the False Creek Flats area for downtown-serving industries. The Flats had employment of nearly 5,000 in 1996, and is expected to account for up to 25,000 employees and development of approximately 5 M ft² further of office-type space by 2021. See Figure 3-J.

This metropolitan core had 194,600 employees in 1996, almost one in five of the GVRD total, and the target for 2021 is 273,500 employees. This core had a residential population of just over 93,900 in 1996, and the target population for 2021 is 160,200. Total resident population was 48 percent of total employment in 1996 and the target for 2021 represents 52 percent of target employment. Overall, this core may account for about 21 percent of total employment in the GVRD in 2021 and slightly less than five percent of the GVRD’s target population. It will likely account for 63 percent of the City of Vancouver’s employment and 22 percent of its population.

The overall economic performance of the Metropolitan Core should be improved if it functions as a single interconnected entity and improved access from the remainder of the GVRD is provided.

Figure 3-J

Population & Employment by Sub-Area, Metropolitan Core, 1996 & 2021

	1996		2021	
	Population	Employment	Population	Employment
Downtown Peninsula	61,900	132,000	100,000	175,000
Central Broadway	32,000	57,600	42,500	73,500
False Creek Flats	0	5,000	200	25,000
Metro Core =	93,900	194,600	142,700	273,500

3.6.5 Employment and Population Targets and the Downtown Transportation Plan

This concluding note is intended to elaborate on the relationship between population and employment projections and the Downtown Transportation Plan. Failure to achieve the population target will result in both fewer home-to-work trips originating on the downtown peninsula, and likely fewer reverse commuting trips from the peninsula to areas external to the peninsula. Exceeding the population target might mean both fewer trips into the peninsula from external points, as well as a greater number of reverse commuting trips from the peninsula to jobs off the peninsula.

Over-shooting the population target would, all else being equal, increase the ratio of residents to jobs, generally a positive result, easing pressures on the performance of the transportation network. A major part of the favourable result in easing congestion on trips to and from the downtown peninsula from the late 1970s to the present and again between 1996 and 2021 is the result of a decreasing ratio of jobs to residents on the downtown peninsula. The ratio was approximately 2.94 in 1986 and will be approximately 1.75 in 2021 should both population and employment targets be met.

Failure to achieve the employment target would result in fewer trips to the peninsula from off the peninsula, as well as less walking and biking for all trips to downtown destinations. Over achievement of the target would likely result in increased numbers of commuters to downtown from off the peninsula.

Regardless of the result, it is also important to note that any implications of over or under achievement of targets are greater for transit than other modes. The number of vehicles travelling to the downtown peninsula in the AM peak hour was about the same in the late 1990s when employment approximated 135-140,000 as in the mid-1970s when employment was under 110,000. And the EMME/2 transportation demand sub-model indicates that number of vehicles projected to be travelling to the downtown peninsula in 2021 will be similar to the current level. The major change in both instances is in the number of people using transit. The reason transit trips increased is easily explained. Transit services have been improved since the 1970s. SkyTrain and the West Coast Express are the most significant additions. On the other hand, there have been few improvements in road access to the City of Vancouver and the downtown peninsula. Aside from the Port Road, access to which is limited to users of the port, no major increases in road capacity are anticipated in the future in the City of Vancouver. Future transit improvements contemplated include extension of the Millennium SkyTrain line both east and west, the construction of a rapid transit line to Richmond and the development of a downtown streetcar system.

Another and simpler way of saying the above is that future population and employment targets have little to do with future road congestion. Downtown road congestion will remain similar regardless of population and employment targets or achievements. On the other hand, the implications of the targets for transit ridership are significant.

3.6.6 Conclusion

Both population and employment targets are robust. However, no recent trends bring question to these targets, and the numbers will be reviewed as part of the larger review of the *Liveable Region Strategy Plan*. It is nonetheless important that development continues to be monitored closely as a part of plan implementation.

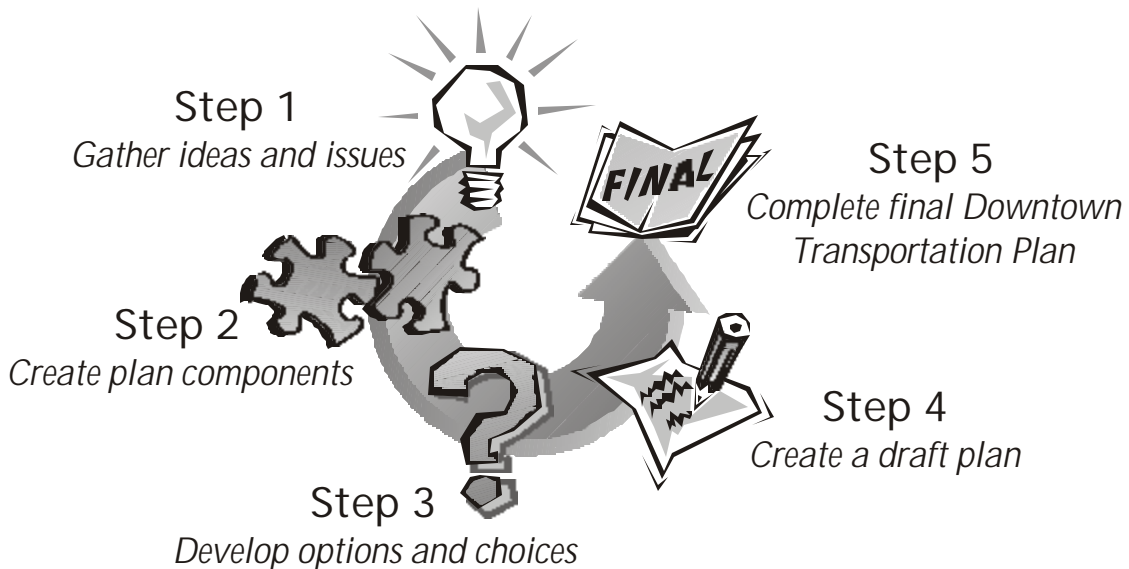
Recommendation PE 1: Undertake follow-up studies of the demand for and supply of residential and commercial space on the Downtown Peninsula and report back to Council in 2003.

3.7 Public Consultation Process and Results

The Downtown Transportation Plan team followed a public consultation process that engaged a variety of community representatives, business interests, transportation advocates, stakeholder groups, advisory bodies and individuals throughout the process. A variety of mediums were used to communicate and involve the public in developing the plan. Local television, radio, newspapers, newsletters, posters, roving displays, brochures, web-site and e-mail were used to convey information, build awareness and seek participation.

In June of 2000, the public consultation process was initiated with the first of three newsletters and an open house. Approximately 75 people attended the ‘kick-off’ open house that highlighted the major components being studied as part of the plan, the terms of reference and the key dates and events for public involvement throughout the planning process. Over the course of the planning program over 2,000 participants took part in varying capacities in helping to identify issues and concerns, generate ideas, and reviewing the proposals. The general 5-step public consultation process and timeline are illustrated in Figure 3-K.

Figure 3-K
Public Consultation Process



3.7.1 Newsletters and Informational Brochures

Staff produced three newsletters that were distributed city-wide through local newspapers and were made available at all neighbourhood community centres, libraries, fire halls as well as Vancouver City Hall. Each newsletter provided the public an opportunity to respond to specific and general issues relating to the plan through an attached questionnaire. Over 1500 people responded to the questionnaires. *Figure 3-L*

See Figure 3-L
 Newsletters with Questionnaire - distributed City-wide



The first newsletter was released in May of 2000 and introduced the transportation components to be studied, as well as an overview of policies that provided the guiding principles to be followed through the development of ideas and options. The newsletter also focused on some of the major transportation issues, problems and the challenges that the downtown faces in the years to come. Over 125,000 copies of the newsletter were distributed via the local papers to homes and businesses across the City.

Responses from the first questionnaire provided the following results:

- 29 percent suggested that improved transit service would encourage them to leave their car at home. 20 percent said they would leave their car at home if there were convenient alternatives to using the car;
- The most popular alternative transportation modes to driving vehicles were transit and cycling; and
- 66 percent of the respondents preferred bike lanes versus 21 percent who preferred shared wide curb lanes.

In April of 2001, the second newsletter was released which introduced the plan components and invited the public to participate in a series of workshops and “walk-about” to identify issues and generate ideas. This newsletter was distributed city-wide to homes and businesses. Over 500 people responded to the questionnaire that was included as part of the newsletter with some of the results highlighted below:

- The majority of respondents strongly agreed that Granville Mall should be maintained as a transit/pedestrian mall;
- Burrard, Granville, Pender, Pacific and Georgia Streets were indicated as the five key streets on which to create bike network; and
- The majority of respondents strongly agreed that commuter parking should be constrained to reduce congestion and encourage people to walk, bike, carpool or take transit.

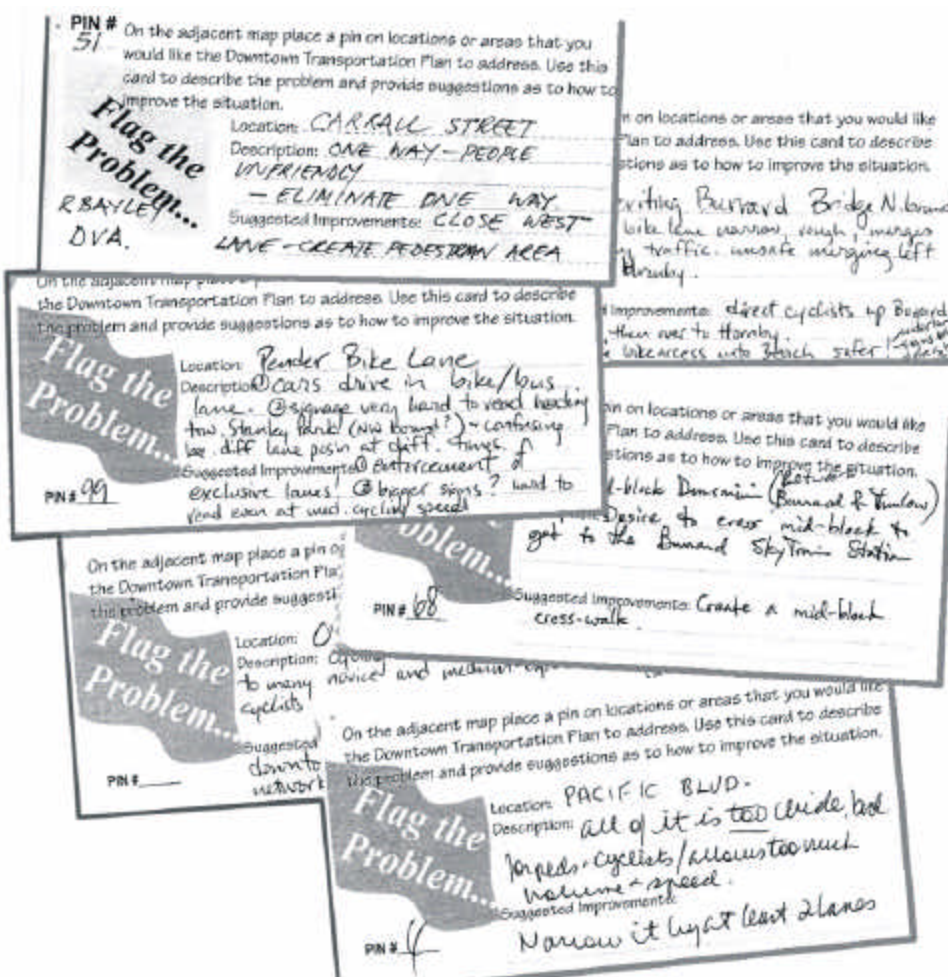
The third newsletter was released in November of 2001 and illustrated the proposed bicycle and pedestrian networks, transit improvements, parking changes, future streetcar routes, and other changes to the downtown road network. These newsletters were distributed city-wide as an insert in a local paper. Canada Post delivered the newsletters directly to homes and businesses throughout the downtown peninsula. A questionnaire was also included as part of the newsletter asking people to respond to specific proposals contained in the newsletter. Some of the general responses are highlighted below:

- Majority of respondents strongly agreed that a network of bike lanes should be developed downtown;
- A vast majority of respondents agreed that the use of sidewalks on Granville Mall should be used for outdoor seating and kiosks should be encouraged.
- The majority of respondents disagreed with introducing general traffic to Granville Mall; and
- A majority of respondents strongly agreed with redesigning Helmcken Street as part of the Greenway network to give pedestrians and cyclist more priority.

3.7.2 Public Workshops and ‘Walk-about’s

A series of 16 area and issue-specific workshops and ‘walk-about’s were held throughout the downtown. ‘Walk-about’s were conducted throughout downtown neighbourhoods to gain a first hand assessment of area specific issues and concerns. All of the observations and comments were documented on detailed maps and cards *Figure 3-M*. Workshop participants were also asked to “Flag the Problem” for additional issues that they wanted to be addressed. Many of these issues have been analysed and addressed through the *Spot Improvements* section of this plan. A summary of key messages from those workshops and ‘walk abouts’ are outlined below.

Figure 3-M
Public Input at Workshops - “Flag the Problem”



3.7.3 Key Messages from Public Consultation Process

Overall, there has been a high level of general support for the plan and its directions. There have been some specific concerns highlighted by various stakeholder groups. In general, the majority of the responses received were favourable to all components of the plan. This was confirmed both in our newsletter questionnaires and in a follow-up telephone random sample survey by Ipsos-Reid. There were, however, concerns such as the need for, and impact of bike lanes, the perceived bias against the car, the economic impacts, the underlying assumptions and overall vision of the plan. In response, the plan has been adjusted to provide additional details in these areas to allow a better appreciation of the issues and understanding of the recommendations. Staff has continued to consult with all concerned parties to address specific issues, provide additional information, and explain the comprehensive impact assessment used in analysing the proposed recommendations. Many of the original issues and concerns have been addressed through this process. A summary of the key messages is summarised for each of the major components below.

Pedestrians

- Create a network of clearly defined pedestrian routes that will provide safe, secure, interesting links that connect to major destinations and transportation modes.
- Provide pedestrians greater priority through pedestrian activated traffic signals, wider sidewalks, elimination of “delayed walk” at intersections, mid-block crossings and landscaped medians.
- Improve the pedestrian environment by providing better lighting, street furniture including benches, as well as other amenities including drinking fountains, public art and improved landscaping.

Bicycling

- Develop a network of bicycling routes that connect existing and future transit nodes, neighbourhoods and major destinations.
- Provide cycling infrastructure including painted bike lanes, bike racks, bike lockers, maps and destination/distance signage and change/shower facilities
- Provide incentives for developments that promote sustainable transportation alternatives such as carpooling, rideshare programs, and car sharing.
- Allow for bicycles on all forms of public transportation

Road Network

- Create a better balance for all transportation modes based on Council’s approved priorities.
- Discourage single occupant vehicles with measures including tolls, gasoline tax, parking tax, as well as encouraging more efficient use of vehicles through car sharing, van and car pools.
- Co-ordinate signal progression speeds that move traffic safely and efficiently.
- Create two-way streets to better serve residential neighbourhoods, hotels, and businesses.
- Provide transit priority along appropriate arterial streets.
- Remove truck routes in residential areas.

Public Transit

- Create a seamless network of transit routes to serve existing and emerging neighbourhoods and major destinations.
- Use parking pay-in-lieu to pay for transit improvements.
- Provide new low-floor trolley buses to be used on all routes.
- Provide a 'loonie loop' or 'free zone' that would be paid for by the downtown BIA's to help promote shopping and visiting downtown.
- Make transit fares reflect distance/time travelled.
- Create new routes in emerging neighbourhood areas.
- Provide a request stop service on all routes for non-peak hours.
- Create transport hubs that are well designed with amenities such as weather protection, security phones, change facilities, vending kiosks and washrooms.
- Encourage the development of Richmond-Vancouver Rapid Transit that would help to take some of the buses off of downtown streets.
- Create two-way bus routes on the same street to make it easier for users to understand.
- Provide real time display of when transit is coming.
- Create a downtown circulator to connect major retail streets.

3.7.4 Results from Random Sample Survey

In January of 2002, Ipsos-Reid conducted 900 telephone interviews with a randomly selected sample of downtown businesses and residents and commuters (300 businesses; 300 residents; and 300 commuters). In general, residents and business people are very supportive of the Downtown Transportation Plan. People generally support the plan because they believe it will improve traffic flow and reduce congestion. They also feel the plan will improve conditions for both cyclists and pedestrians. Those in opposition to the plan felt it did not focus enough on drivers/commuters and focused too much attention on pedestrians and cyclists.

