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 Greenways Plan (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 about 30% by 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.
- Reconfigure 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 form 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. Defined truck routes and restriction of heavy trucks using the Lions Gate Bridge effectively eliminates heavy trucks using the downtown as a bypass to other destinations.

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 co-ordination 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.