

UBC

S STRATEGIC

T TRANSPORTATION

P PLAN

November 18, 1999



Improving Your Transportation Choices  
UBC Transportation Planning A Division of Land & Building Services

# PREFACE

UBC Transportation Planning, also known as the UBC TREK Program Centre, compiled this report for the Associate Vice President of Land & Building Services. Many people have been involved in gathering and analyzing data, soliciting public input on issues and options, reviewing options and recommendations, and writing the final report. Over thirty-five on- and off-campus stakeholder groups have been represented through the UBC Transportation Advisory Committee, its associated Action Teams, and Bicycle, Pedestrian and Transit User Groups.

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# EXECUTIVE SUMMARY

This UBC Strategic Transportation Plan (STP) recommends a comprehensive and integrated transportation demand management (TDM) strategy in support of the UBC Trek 2000 Vision and Principles for Physical Planning at UBC. The STP also recommends policies to fulfill UBC transportation-related commitments under the Greater Vancouver Regional District's (GVRD) Official Community Plan (OCP) for Part of Electoral Area A Bylaw. Primary responsibility for development and implementation of the UBC STP rests with the Director of Transportation Planning and the UBC TREK Program Centre (TREK). Consultation and partnering with stakeholders, both on- and off-campus, is critical to the successful implementation of the STP.

This Strategic Transportation Plan is a living document that provides a policy framework in support of Trek 2000 and OCP implementation through the year 2021. Inherent in this STP are policies for regular reviews, ongoing policy references, and STP updates as needed to best serve the transportation needs of the UBC community. While the STP policies provide a long-term framework, the STP targets have a deliberate short-term focus because the OCP and local area land use planning processes (i.e. Comprehensive Community Plan) are just getting underway and not yet complete. Minor STP reviews and adjustments will be conducted annually. Major STP updates will be completed as part of the OCP updates, the first of which is expected in 2004, at which time the TDM targets will be revised to reflect the next planning horizon.

## Mission

*The UBC TREK Program Centre will pursue the following TDM results:*

- **Reduce 24-hour Single Occupant Vehicle (SOV) traffic volumes to and from UBC by 20% below 1997 levels by November 2002;**
- **Increase 24-hour ridership on public transit to UBC by 20% above 1997 levels by November 2002;**
- **Be the lead agency in creating a U-Pass (U-TREK) system in collaboration with the City of Vancouver, TransLink (formerly BC Transit) and UBC neighbours;**
- **Develop and implement, as a top priority, a comprehensive and integrated transportation management strategy (known as the STP);**
- **Reduce the impact of heavy truck traffic to and from campus, by improving coordination of goods and service vehicle movements, and by requiring UBC-related trucks to use the City of Vancouver's truck routes; and**
- **Implement an accessible, safe, environmentally-friendly, and cost-effective campus shuttle system.**

TREK developed this Strategic Transportation Plan over a two-year consultation process, initiated in November 1997. Over 35 different on- and off-campus stakeholder groups and agencies were invited to provide input to identify issues, assess options, make recommendations and partner in implementation. A UBC Transportation Advisory Committee (TAC) and numerous sub-committees were used throughout the process. Over 40,000 students, staff and faculty were approached directly via e-mail, telephone, public meetings and/or special events, with over 5,000 resulting participants providing written and/or electronic input. After several preliminary public discussion papers, a first draft of the STP was released in February 1999. A series of meetings with stakeholder groups and TAC members were used to refine the document, with a final draft STP issued the fall of 1999. Final recommendations were presented to the UBC Board of Governors in November 1999.

The benchmarked targets and measures that will be used to monitor TREK effectiveness are summarized in Table 1 below:

**TABLE 1: TREK BENCHMARKED TARGETS\***

(Monitored annually)

Measure	1997 Base Year	Year 2002	Year 2002
	Count (%Split)**	STP Target (%Split)**	Expected U-TREK Card Results (%Split)**
SOVs (per day)	46,000 (44%)	42,800 (35%)	36,800 (30%)
Transit riders	19,000 (18%)	26,500 (22%)	30,000 (25%)
Heavy Trucks	300 maximum	300 maximum	300 maximum
Shuttle Rides	100	1,000	1,000

Other benchmarked measures and targets related to transit, bicycling, walking, land-use, and car/van pooling TDM strategies are given in Table 2.

Note: \* Targets are based on OCP commitments and subject to successful regional partnerships.

\*\*Mode split % based on 105,000 person trips to and from UBC each day.

This STP document contains a total of 55 policy recommendations to address the five transportation-related goals set out in the Memorandum of Understanding (MOU) between The Greater Vancouver Regional District (GVRD) and The University of British Columbia (UBC) Concerning Implementation of the Official Community Plan for the UBC Area. These are the recommended policies:

### Single Occupancy Trip Reduction

1. The 20% SOV trip reduction targets are listed in Table 2. Progress will be monitored and reported to the Board of Governors and UBC Transportation Advisory Committee annually.

**TABLE 2: UBC TRANSPORTATION TARGETS**

(Recommended vs. Current Trends for 2002)

	1997 Person Trips	2002 Current Trends	2002 STP Target	2002 Change from Trend	2002 Expected U-TREK Results	2002 Change from Trend
Single-occupant vehicles	46,000	53,500	42,800	- 20%	36,800	- 30.1%
Carpools and vanpools	36,100	41,900	46,200	10%	48,000	15%
Transit	19,000	22,100	26,500	20%	30,000	36%
Bicycle	2,700	3,100	4,900	58%	5,400	74%
Pedestrians	1,400	1,600	1,800	13%	2,000	25%

Note: 1. Travel demand growth from Year 1997 to Year 2002 of 17,000 person trips per day has been extrapolated based on:  
• 2% annual enrolment increase (30 year historic average) and 175 new dwelling units/year (OCP)

2. U-TREK Card transportation results subject to regional partnerships (e.g. City of Vancouver, GVRD, TransLink, AMS, etc.).

2. Access by vehicles, pedestrians and cyclists across campus should continue to be governed by the road use priorities set out in the 1992 Main Campus Plan, as shown in Figure 7. Figures 8, 9, and 10 show areas where access is restricted to emergency, service, and disabled persons. (See pages 11 & 12.)
3. TREK will participate in regional transportation initiatives to ensure that UBC will have proactive involvement in regional transportation planning activities and partnerships with the GVRD, GVTA, AMS, and other organizations that serve to promote UBC's trip reduction mandate.

### Parking

4. TREK will conduct annual transportation demand management (TDM) audits and submit reports to the Board of Governors, UBC Planning Team, Parking Services, Housing and Conferences, and the UBC TAC. The review will be based on current TDM standards and follow established TDM Audit Guidelines. (See Appendix A.)

5. TREK will work with the University Architect and Director of Planning in the initial planning of all developments to ensure that the planning and design of all buildings consider STP policies. (See Appendix B and Figures 9 and 10.)
6. Conflicts over bicycle safety and parking on roads with open shoulders (e.g. 16<sup>th</sup> Avenue shoulders through Pacific Spirit Park between Wesbrook Mall and Blanca Street) should be resolved by working with the respective road authorities (e.g. Ministry of Transportation & Highways (MoTH)) to:
  - Install a shoulder bike buffer zone in each direction between parked cars and the traffic lanes; and
  - Restrict parking in a consistent manner, subject to full public consultation (both internal and external to UBC).
7. Conflicts over bicycle safety and parking on narrow arterial roads with curbs (e.g. Marine Drive between Gates 4 and 8 fronting UBC and Pacific Spirit Park) should be resolved by working with the respective road authorities (e.g. MoTH) to:
  - Reduce speed limits to minimize the bicycle/vehicle speed differential; and
  - Permit the installation of parking meters along the subject roadway (e.g. on Marine Drive, with meter revenues being shared with GVRD Parks to fund road widening for bike lanes and other area amenities), subject to full public consultation (both internal and external to UBC).
8. TREK will identify the costs and opportunities for the supply of alternate forms/locations of residential parking (e.g. on-street, shared with B-lot, etc.) in consultation with UBC Parking Services, UBC Properties, the Director of Housing and Conferences, and other stakeholders (e.g. City of Vancouver, UEL). There will be consideration to giving all rental tenants the option of not having a reserved parking stall in return for reduced rent, or preferably, all rental tenants would pay separately for the rental of parking space.
9. When reliable “SMART” card (or similar) technology and resources are available, the Director of Parking Services, in consultation with TREK, will consider a parking price structure and technology that allows commuters to UBC to buy a “bundle” of parking credits that do not expire until used. (Associate parkade day-passes for staff/faculty are already available now, at roughly \$9 per day for occasional use for non-parking permit holders.) Permit parkers currently pay an equalized amount for 12 months (staff/faculty pay monthly, students pay per term) which includes times when they are on vacation or otherwise off campus. If implemented, a new pricing plan would be required to address revenue/cost impacts on UBC Parking Services and its customers.
10. TREK will work with UBC Parking Services to explore expanded priority parking locations for registered motorcyclists with a valid U-TREK Card, allowing them to park in designated preferential locations throughout the campus.
11. TREK, in consultation with staff from UBC Parking Services, UBC Housing and Conferences, UEL, MoTH, GVRD Parks, and the City of Vancouver, will conduct UBC area parking studies on a regular basis. Studies will include pricing, enforcement, restrictions, and supply practises, and will provide a Geographic Information System (GIS) database and map for all agencies to use as the basis for ongoing, coordinated, and successful parking management and TDM strategies.
12. TREK, in consultation with the UBC Transportation Advisory Committee, will initiate regular meetings with staff from UBC Parking Services, UBC Housing and Conferences, UEL, MoTH, GVRD Parks, UBC Hospital, and the City of Vancouver. The purpose of these meetings is to promote coordinated parking management and successful TDM strategies, including ticketing, towing, supply, pricing, signage, cooperation, and communication.

13. TREK, in consultation with the UBC Purchasing Agent and the Directors of Food Services, Housing and Conferences, Bookstore, and Plant Operations, will develop recommended access and parking procedures in order to respect designated pedestrian/bicycle core areas and parking restrictions. (See Figure 9.)
14. TREK will work with the UBC Treasurer, UBC Parking Services, and UBC Properties to draft recommended parking management clauses for use in all Agreements respecting UBC property that might impact UBC trip making and/or parking. This will include all private, leasehold and/or other non-UBC controlled developments on UBC property. The intent is that, where possible, parking at UBC should be pay and/or permit controlled and enforced by UBC or other recognized agencies. Secured parking structures (under and above ground) are excluded.

## Transit

15. TREK will create a formal on-campus UBC Transit User Group (TUG) for ongoing GVTA/UBC transit user liaison/feedback.
16. TREK will work with TransLink, the UBC Transportation Advisory Committee, the UBC Transit User Group, and other regional partners to secure the following system improvements:
  - Address existing capacity, crowding, and pass-by problems in UBC service;
  - Transit Service Design Guidelines to fairly prioritize system improvements;
  - Bike racks on all bus routes to UBC by 2005;
  - Accelerate bus orders to speed up delivery of new buses;
  - Integrate campus shuttles with the Cambie Corridor Consortium Shuttle program;
  - Transit service and capacity improvements for the launch of the U-TREK Card;
  - A comprehensive regional and UBC transit monitoring system, using state-of-the-art technology;
  - Clean-fuel transit technology (e.g. electric, natural gas), including promotion of partnerships with UBC-related research and/or development enterprises (e.g. Wesport); and
  - Service improvements for riders from the North Shore, Richmond, South Burnaby, and South Vancouver.
17. TREK will work with the City of Vancouver, TransLink, GVRD, and other regional partners to conduct a study on costs, benefits, and route options for a Light Rapid Transit (LRT) or Skytrain line to UBC.
18. TREK will undertake bi-annual UBC Transit Service Plan reviews working with TransLink, UBC TAC, UBC TUG, the City of Vancouver, GVRD, and other partners.

## U-TREK Card

19. TREK will manage the U-TREK Card Program in partnership with the AMS, Bookstore, Libraries, Parking Services, and/or others as necessary to produce the Program for UBC students, staff, and faculty at the lowest possible cost.
20. The UBC U-TREK Card will encourage UBC commuters to use alternatives to SOVs in support of the 20% SOV reduction mandate while not penalizing those without reasonable commuting alternatives. UBC commuters who regularly use SOV alternatives will see a significant decrease in their monthly travel costs. The goal is that UBC SOV commuters who make the switch to a non-SOV mode of travel one day per week via a U-TREK Card will see no increase in their total travel cost relative to driving alone daily.
21. Bi-annual transportation planning surveys of students, staff, and faculty will be conducted to ensure that the U-TREK Card meets system user needs of low price and optimal flexibility. Surveys will be conducted in full consultation with TransLink, the AMS, and the City of Vancouver.
22. The U-TREK Card will rely on advanced technology with other GVTA and UBC systems, where possible, in order to enhance integration and reduce the administrative burdens of both TransLink and UBC.



## Bikes, Pedestrians & Wheelers

23. TREK will work with the UBC TAC, AMS Bike Co-op, GVRD Parks, City of Vancouver, MoTH, UEL, and other agencies to create an integrated, on-/off-road Bicycle Route System to, from, and across campus. (See Figure 14.)
24. TREK will monitor the planning, design, and operation of all UBC transportation infrastructure, and make recommendations to facilitate trips made by wheelchair, foot, and bicycle. (See Figure 15.)
25. TREK will work with the University Architect and Director of Planning to ensure that all end-of-trip facilities in **new** developments, depending on the size and intended use of the development, make provision for showers, change rooms, lockers, bike racks, and/or secure bike storage facilities which support STP policies. (See Appendix B and Figure 13.)
26. TREK, in consultation with the University Architect and Director of Planning, will review all end-of-trip facilities in **existing** developments to address deficiencies, respond to complaints, and identify further opportunities to promote walking and cycling. Once the review is complete, a prioritized Capital Plan will be prepared to provide end-of-trip facilities to support Trek 2000.
27. TREK will promote and provide inter-modal opportunities (e.g. bike racks on buses and vanpools) where possible to enhance SOV-alternative modes.
28. TREK will formally establish a Bicycle/Pedestrian/Wheeler User Group (BUG) to ensure that TREK Program initiatives are supported and effective in meeting user needs, and to identify any system deficiencies that need to be addressed.
29. TREK will perform, and report on, annual TDM audits of the capital budgets and business plans in Land & Building Services, Housing, and UBC Parking Services, and will make recommendations to the respective Directors regarding promotion of, and opportunities for, bicycling, walking, and wheeling, as well as other STP policies.
30. TREK will partner with the AMS Bike Co-op to provide cycling-related services, and a discount bike purchase program for students, staff and faculty.

## Carpooling

31. Priority parking will be provided for registered UBC vanpools with a valid U-TREK Card, allowing them to park at no additional cost in designated preferential areas throughout the campus. Parking Services' costs to provide this 'no-fee' parking for vanpools will be recovered as part of the price of the staff/faculty U-TREK Card. Until a U-TREK Card program is implemented, priority parking locations will be considered for carpools and vanpools with valid parking permits.
32. TREK will work with UBC Parking Services to explore affordable, priority parking, for registered three-plus carpools with a valid parking permit, in designated preferential locations throughout the campus.
33. TREK will work with providers of rideshare and/or car/van pool programs to promote innovative shared vehicle, car/van pool, and other local shuttle programs. Where possible this should include the use of existing campus fleet vehicles. TREK will continue with successful partnerships (e.g. Jack Bell Foundation), and pursue opportunities with other organizations (e.g. Co-operative Auto Network and Dynasty Motor Cars) to encourage reduced auto ownership and use by UBC residents, departments, and commuters. These programs will borrow successful tools from other programs where possible (e.g. new Rideshare Software, San Francisco Shared Vehicles, and Cambie Corridor Consortium Shuttle Program).

## Campus Shuttles

34. Through innovative partnerships and programs, TREK will establish a family of cost-effective, environmentally-friendly, and accessible campus shuttle services to meet the needs of students, staff, and faculty. These shuttles will have both fixed and destination/demand-oriented routes, and will be launched as part of the U-TREK Card program. Shuttle administration will be subject to individual partnerships and shuttle formats.
35. TREK, in partnership with the AMS, Campus Security, Parking Services, Athletics, Theatres, Museums, UBC Properties, and/or other trip generators/trip attractors/service providers, will promote shuttles for special events. Shuttle administration will be subject to individual partnerships and shuttle formats.

## Education and Promotion

36. TREK will publish a UBC Commuter Guide each year for all first year students, new staff, and new faculty. The UBC Commuter Guide will be posted on the TREK website, and distributed at orientation sessions. TREK will also offer trip-planning advice to all students, staff, and faculty.
37. TREK will budget annually for on-campus SOV-alternative education and promotional programs.
38. TREK will request that the RCMP regularly conduct enforcement “information post” campaigns along major routes (e.g. photo-radar, crosswalks, intersection violations, bicycle helmets, and lights at night) to maintain safety for UBC residents, neighbours, and commuters.

## Traffic Calming

39. TREK will work with Campus Security and the RCMP to issue regular departmental reminders and enforce the non-vehicular areas on campus.
40. TREK will work with the Director of Plant Operations and the University Landscape Architect to address core and perimeter area traffic calming concerns. Traffic engineering standards will be based on the new Transportation Association of Canada/Institute of Transportation Engineers “Canadian Guide to Neighbourhood Traffic Calming,” to enhance the pedestrian/bike environment and connections between residences and academic areas.
41. TREK will work with the Director of Plant Operations, Housing, Food Services, and other campus stakeholders as necessary, to consider the implementation of a campus-wide fleet management program that includes a “Green Vehicle” purchase, operation, and maintenance policy.

## Other Alternatives

42. TREK will, after consultation with stakeholders, take a leadership or partnership role in researching and/or promoting emerging technologies and innovative work programs which reduce SOV use while still respecting the core UBC academic and research missions. This includes:
  - Supporting the expansion of tele-study and tele-commute programs because they have a direct and immediate TDM benefit in reducing SOV trips to/from UBC; and
  - Facilitating increased flexibility in work hours for staff who are involved in recognized TDM initiatives, in consultation with supervisors regarding work performance and customer service criteria.
43. TREK will request that ICBC develop and issue insurance plans based on mileage driven, auto-occupancy, and/or work/non-work use, with the intent to enhance savings for those reducing SOV use. Rather than using this as a “stick” to increase costs for existing commuters, the intent would be to use it as a “carrot” to offer savings for those who can reduce auto kilometres driven to/from UBC.
44. TREK will work with the Registrar, Deans, Plant Operations, and other stakeholders as necessary to consider a plan to re-schedule class start times to begin at 8 a.m. and end at 6 p.m. If possible, this plan should target coordination with the launch of the U-TREK Card and take advantage of the existing unused transit capacity in the peak “shoulder” periods.

## Housing, Land Use & Transportation Integration

45. TREK will work with the University Architect, Director of Planning, and UBC Properties to ensure that all UBC Local Area Plans and developments consider STP policies.
46. TREK, in consultation with the Directors of Plant Operations and Planning, and the University Landscape Architect, will develop and implement a comprehensive Campus Traffic Management System (CTMS). The purpose of this system will be to control traffic congestion and flows (e.g. visitor centres/guide signage), review and maintain traffic safety (e.g. annual safety reviews), and promote sustainable traffic engineering devices and practises (e.g. roundabouts versus traffic signals, yields versus stop signs).
47. The UBC Transportation Advisory Committee, with on-/off-campus representation, will continue to hold regular meetings to provide for ongoing monitoring and feedback throughout the implementation of the STP and related traffic matters (i.e. CTMS).

## Trucks

48. TREK will work with stakeholders on- and off-campus to promote efficient and safe practises for commercial trucking to, from, and across the campus. This will include liaison with the MoTH, ICBC, Plant Operations, Bookstore, Purchasing, and the City of Vancouver regarding truck bylaw/legislation provisions.
49. TREK will request and participate in regular joint UBC/ICBC/RCMP/Vancouver Police roadside spot truck inspections on truck routes to UBC.
50. TREK will work with UBC Purchasing, Bookstore, and Plant Operations to consider the award of one shipping contract for **all** major (i.e. > 22 kg) UBC shipments to a single, integrated, inter-modal shipper for consolidation at an off-campus depot and once-daily UBC deliveries and pick-ups.
51. TREK will work with the Director of Plant Operations, the University Architect, the University Treasurer, and UBC Properties to develop a Project Traffic Management Program to reduce heavy truck impacts on adjacent neighbourhoods, and to reduce campus traffic impacts on students, staff, and faculty. (See Appendix C.)
52. TREK will work with all fleet managers on campus to encourage evaluation of all new UBC trucks running on natural gas, electric or other “clean” fuel technology.
53. TREK will offer prizes for innovative suggestions to reduce campus truck traffic and its impact on UBC and surrounding communities.

## Implementation

54. The UBC Strategic Transportation Plan will be reviewed annually and minor updates will be made by TREK in consultation with the UBC TAC. Major STP updates, with full stakeholder consultation, will be made by TREK as a complementary process to major updates of the OCP.
55. TREK will provide regular reports to the UBC Board of Governors, Design Panel Advisory Committee, UBC Planning Team, UBC TAC, and other stakeholders as necessary regarding progress on implementation of this STP.

Research conducted by the Canadian Automobile Association, TREK, and Better Environmentally Sound Transportation (B.E.S.T.) agencies suggests typical costs for commuting to UBC by various modes. Walking/bicycling costs are based on short commute distances (less than 8 kilometres to UBC). Costs for all other modes assume an average 20-km one-way commute distance. Vehicle costs allow for: parking, fuel, maintenance, insurance, and replacement.

*Stay in the Black*

**GO GREEN**

Walking.....\$12/month  
Biking.....\$23/month  
Transit.....\$54-103/month  
Telecommuting.....\$83/month  
Car/VanPooling.....\$130/month  
Car (single occupant).....\$700/month

**UBC TREK PROGRAM**  
[www.trek.ubc.ca](http://www.trek.ubc.ca)

**827-TREK**

# INTRODUCTION

*The quality campus life that distinguishes UBC as a leading academic and research institution, is built upon access to the best students, faculty, and staff in the world.*

The needs of a complete and sustainable UBC community are set out in the UBC TREK 2000 Vision, Principles for Physical Planning at UBC, and GVRD Official Community Plan for Part of Electoral Area A Bylaw. This Strategic Transportation Plan (STP) will support and facilitate these policies.

When implemented, this STP will also serve to enhance UBC's environment and reputation, and to attract and retain outstanding faculty, staff, and students. The UBC Transportation Planning Office, re-named the UBC TREK Program Centre (TREK) by stakeholders, is responsible for this STP document, and is part of the Land & Building Services portfolio.

Everyone in a complete UBC community requires a proper transportation system for trips to, from, and across campus. We all need healthy, safe, efficient, livable, and environmentally-friendly access. Air quality is getting worse, traffic congestion is growing, and fiscal pressures are restricting our ability to increase road capacity.

We should all take responsibility for the fact that it is taking longer and costing us more to drive in single occupant vehicles (SOVs). In 1997, SOVs comprised 46,000 (44%) of all person-trips made to and from UBC (Source: UBC Traffic Counts, 1997). Continued reliance on SOVs will not achieve the goals of a complete community, is not sustainable, and therefore must somehow decrease.

Changing our commuter habits is achievable, but will take time, and must be implemented in a manner that is sensitive to UBC realities. Members of the UBC community need reasonable alternatives to SOVs that consider both time and money. These include uncrowded and reliable transit service; flexible and convenient car/van pool programs; comfortable and secure bicycle/pedestrian facilities; accessible, yet cost effective, campus shuttle systems; and flexible work/study programs. UBC is the second largest GVRD commuter destination and perched at the western edge of a massive GVRD service area. In view of UBC's geographical and jurisdictional realities, provision of effective SOV-alternatives will depend heavily on regional partnerships (e.g. for an improved level of transit service).

This Strategic Transportation Plan is a living document that provides a policy framework in support of Trek 2000 and OCP implementation through the year 2021. Inherent in this STP are policies for regular reviews, ongoing policy references, and STP updates as needed to best serve the transportation needs of the UBC community. While the STP policies provide a long-term framework, the STP targets have a deliberate short-term focus because the OCP and local area land use planning processes (i.e. Comprehensive Community Plan) are just getting underway and not yet complete. Minor STP reviews and adjustments will be conducted annually. Major STP updates will be completed as part of the OCP updates, the first of which is expected in 2004.

This STP document presents policy recommendations to reduce SOV reliance, based on over two years of consultation with the UBC Transportation Advisory Committee (TAC) and over 5,000 other on- and off-campus stakeholders. The analysis in preparing this plan relies heavily on a demographic and transportation planning survey that was e-mailed to 34,000 UBC students, staff, and faculty in January, 1998. There are other UBC planning initiatives underway that complement the STP. These initiatives deal with the provision of increased opportunities to live and work on campus, and with the enhancement of community services for UBC residents. (See [www.ocp.ubc.ca](http://www.ocp.ubc.ca).)

## Relevant Policies

### Federal & Regional

In response to commitments made at the 1997 Kyoto, Japan summit on Global Warming, the Canadian Government has made a commitment to take the necessary steps to reduce Canadian emissions by 19% of 1990 levels by the Year 2021.

In response to regional livability concerns regarding growth, and the resulting air pollution and traffic congestion, the GVRD has adopted and begun implementation of a 30-year growth management strategy: the GVRD Livable Region Strategic Plan and its companion document on regional transportation planning, Transport 2021.

## UBC TREK 2000, Official Community Plan & Other Related Policies

Under TREK 2000, UBC is committed to keeping “both the campus community and the external community fully informed about developments in the Official Community Plan (OCP), and ensuring that proper consultation procedures are followed.” UBC is also committed to providing a “sustainable community and campus: safe, livable and environmentally-friendly” and to “improving services to students.”

Through the establishment of the Principles for Physical Planning, UBC will ensure that all development contributes to UBC’s goals of becoming a complete community, a unique place, and a regional and global leader. These Principles are being used to review and evaluate all UBC development proposals.

UBC is following the GVRD’s OCP for Electoral Area A Bylaw, 1997, which requires the pursuit of stringent transportation demand management and goods movement coordination targets. This STP is meant to provide “...a comprehensive and integrated transportation management strategy. This strategy will include a staged implementation plan and will be completed prior to adoption of the first local area plan.” Under the OCP, an additional 8,500 UBC residents will live at UBC by the Year 2021 (i.e. undergraduate, graduate and professional students; staff and faculty; and market housing) in addition to several commercial enterprises.

The UBC Rick Hansen Foundation/Disability Resource Institute Draft Strategy 2010 document sets a course for UBC to provide access for persons with disabilities to all areas of UBC by the Year 2010.

Under the 1998 to 2002 UBC Parking Business Plan, there are 10,700 parking spaces planned on campus for commuters. This number will decrease by 500 as development occurs over existing surface lots. No additional parkades are planned.

Under the 1992 Main Campus Plan, the campus core is dedicated to non-vehicular, pedestrian/bicycle only access, except for emergencies and special permit service vehicles. Access for service and handicap vehicles in the core is via alternate routes from East Mall and West Mall.

## Mission

The TREK mission is based primarily on the foregoing policy documents and has subsequently been refined to reflect stakeholder input.

A successful UBC TREK Program Centre will pursue the following TDM results:

- Reduce 24-hour Single Occupant Vehicle (SOV) traffic volumes to and from UBC by 20% below 1997 levels by November 2002;
- Increase 24-hour ridership on public transit to UBC by 20% above 1997 levels by November 2002;
- Be the lead agency in creating a U-Pass (U-TREK) system in collaboration with the City of Vancouver, TransLink (formerly BC Transit) and UBC neighbours;
- Develop and implement, as a top priority, a comprehensive and integrated transportation management strategy (known as the STP);
- Reduce the impact of heavy truck traffic to and from campus, by improving coordination of goods and service vehicle movements, and by requiring UBC-related trucks to use the City of Vancouver’s truck routes; and
- Implement an accessible, safe, environmentally-friendly, and cost-effective campus shuttle system.

# Targets

As part of the OCP process, UBC has committed to restrain SOV travel to and from UBC using a comprehensive Transportation Demand Management (TDM) program. The objective of TDM is to reduce the **amount** of travel (i.e. fewer trips per person per day), change the **mode** of travel (i.e. fewer SOVs and less pollution), and/or change the **time** of travel (i.e. less rush-hour traffic and collisions). Tactics employed include ridesharing (e.g. transit, car/van pooling), human powered transportation (e.g. cycling, walking, wheeling, running), parking management (e.g. supply, pricing, enforcement), tele-commuting (e.g. tele-work, tele-study), and variable work hours (e.g. flex-hours, four-day workweek). On-campus housing development is also expected to assist in reducing SOV trips. Figures 1 to 5 detail current UBC travel patterns and mode-splits. Table 1 summarizes UBC transportation targets based on OCP commitments. A TDM tool critical to reaching this target is the U-TREK Card. Research on university TDM programs across Canada and the US suggests that the OCP target is achievable. SOV reduction targets are routinely exceeded when a U-TREK-type card is implemented in partnership with regional transit authorities.

**TABLE 1: TREK BENCHMARKED TARGETS\***  
(Monitored annually)

Measure	1997 Base Year	Year 2002	Year 2002
	Count (%Split)**	STP Target (%Split)**	Expected U-TREK Card Results (%Split)**
SOVs (per day)	46,000 (44%)	42,800 (35%)	36,800 (30%)
Transit riders	19,000 (18%)	26,500 (22%)	30,000 (25%)
Heavy Trucks	300 maximum	300 maximum	300 maximum
Shuttle Rides	100	1,000	1,000

Other benchmarked measures and targets related to transit, bicycling, walking, land-use, and car/van pooling TDM strategies are given in Table 2.

Note: \* Targets are based on OCP commitments and subject to successful regional partnerships.

\*\*Mode split % based on 105,000 person trips to and from UBC each day.

**Figure 1: SOV and HOV Arrivals - Fall 1997 (Base Year)**

**UBC Screenline**

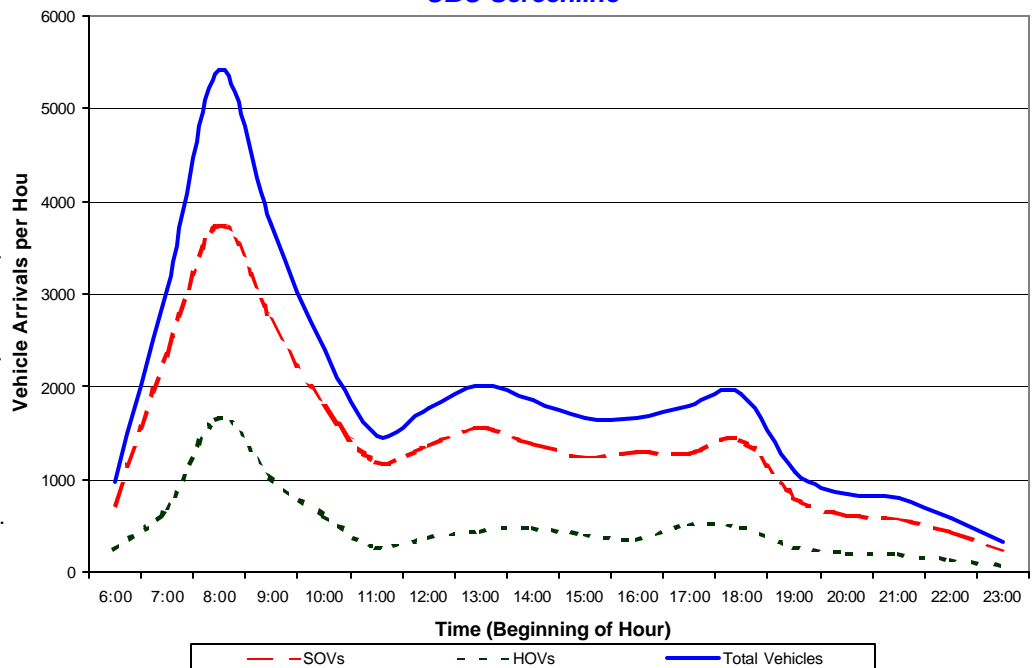


Figure 1 shows that UBC commuter arrivals peak between just before 8:30 a.m., at 5,000 vehicles per hour, then taper quickly off to an average 2,000 vehicles arriving per hour until 6 p.m., after which arrivals taper off to zero. Mid-day peaking suggests students arriving for afternoon classes, and/or personnel returning from off-campus lunch destinations. A 6 p.m. peak is caused by those arriving for evening classes.

**Figure 2: SOV and HOV Departures - Fall 1997 (Base Year)**

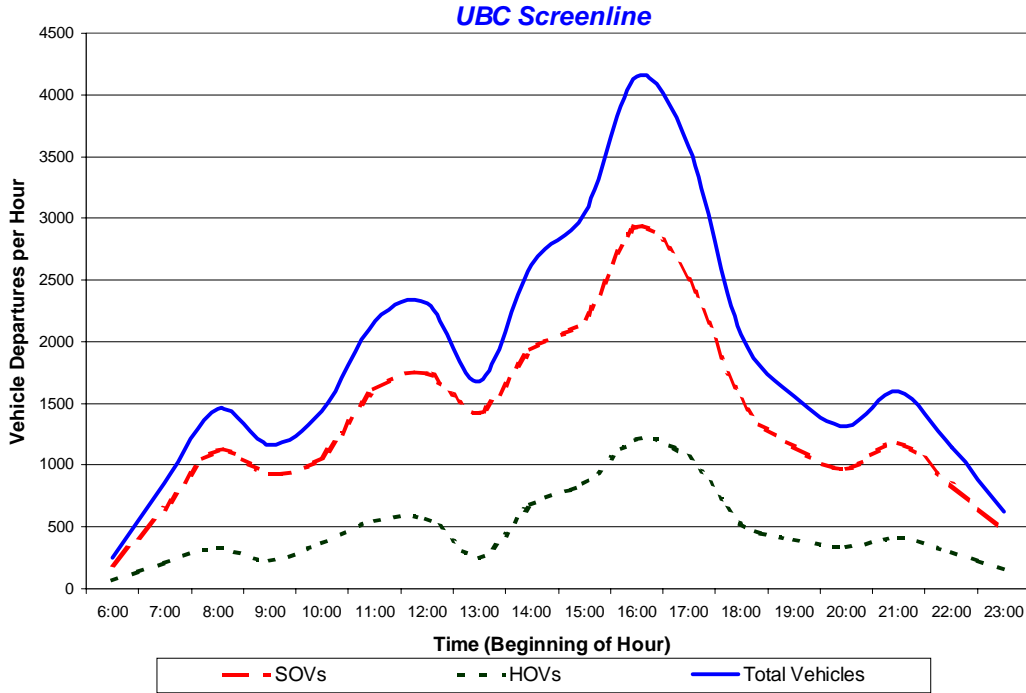


Figure 2 shows many distinct peaks in vehicle departure patterns, with a climax of just over 4,000 vehicles per hour at 4 p.m. An 8:15 a.m. peak of 1,500 departing vehicles/hour suggests a significant "kiss-and-ride" component (i.e. 30% of the 5,000 arriving vehicles at the same time). A second peak of 2,500 vehicles/hour just before noon suggests students leaving for the day after morning classes and/or personnel leaving for lunch. A late peak of just over 1,500 vehicles at 9:15 p.m. occurs as night school/continuing education classes end.

**Figure 3: SOV and HOV Accumulation - Fall 1997 (Base Year)**  
(Commuter and Visitor Parking Demand - UBC Campus)

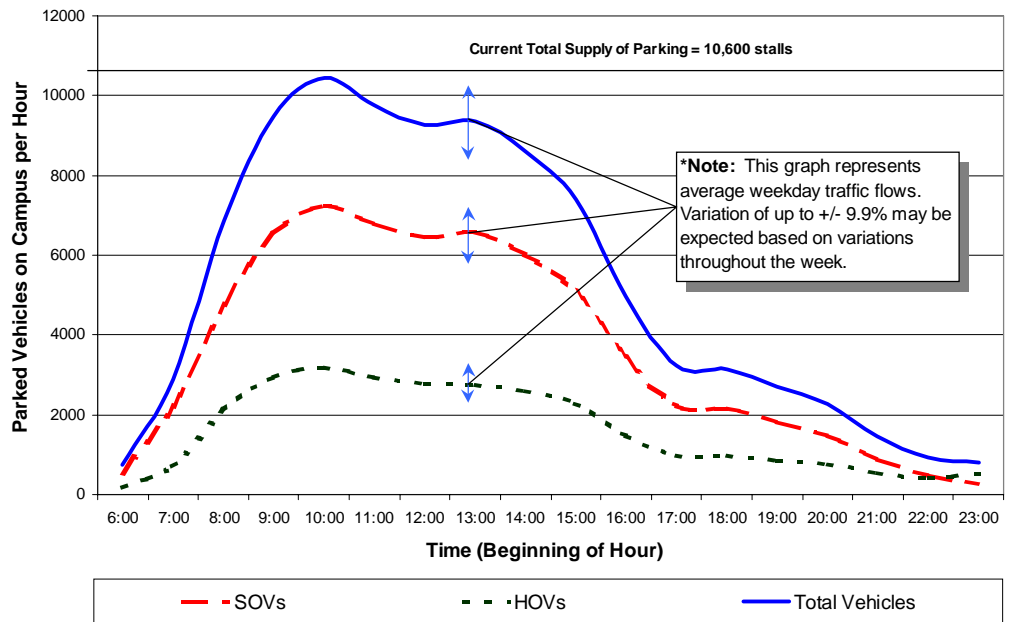


Figure 3 is derived by subtracting departing vehicles from arriving vehicle volumes, and provides several keys to understanding the demand for and supply of parking on campus and reveals that there is a surplus of at least 1,000 stalls on an average day. The key is then in providing stalls in desired locations, and in guiding drivers to available stalls through HOV programs such as preferential parking. Second, peak demand for parking occurs between 10 and 11 a.m., at just over 10,000 stalls, then drops off to just over 9,000 stalls until 2 p.m.

**Figure 4: Transit Passenger Trips - Fall 1997 (Base Year)**  
**Arrivals and Departures**

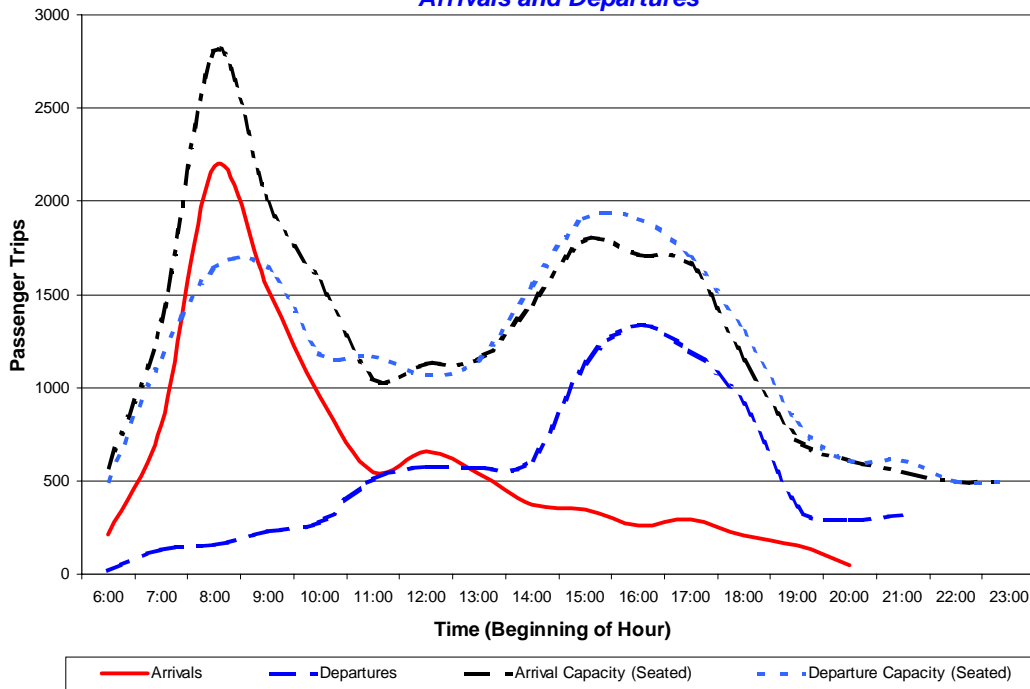
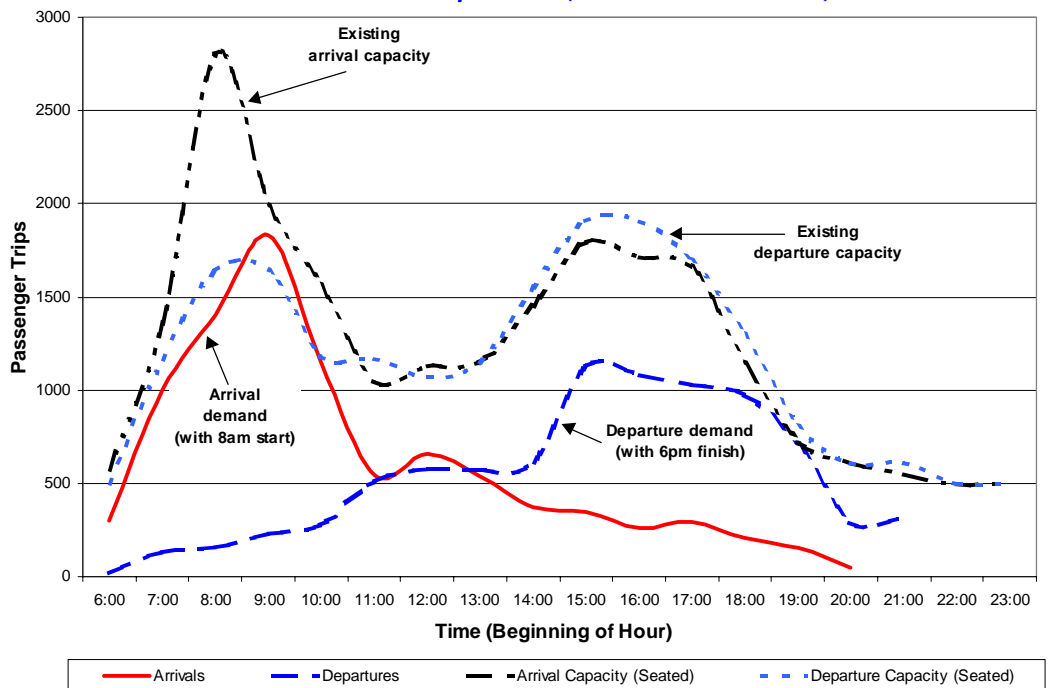


Figure 4 shows demand for and available transit rides summed across all routes serving UBC. TransLink states that current UBC service in practical terms is at "capacity." This correlates with UBC user surveys which indicates a strong latent demand for increased transit capacity. Based on 1997 ridership counts provided by TransLink, there are general needs to improve peak period and late night capacity, as well as mid-day and other deficiencies on specific routes (e.g. # 99, 41, 44, 25, 49, and 480). The first peak is extremely focused, with just over 2,000 arriving riders per hour beginning just after 8:15 a.m. The afternoon peak is much more spread out, between 3 and 6 p.m., at less than 1,500 riders leaving per hour.

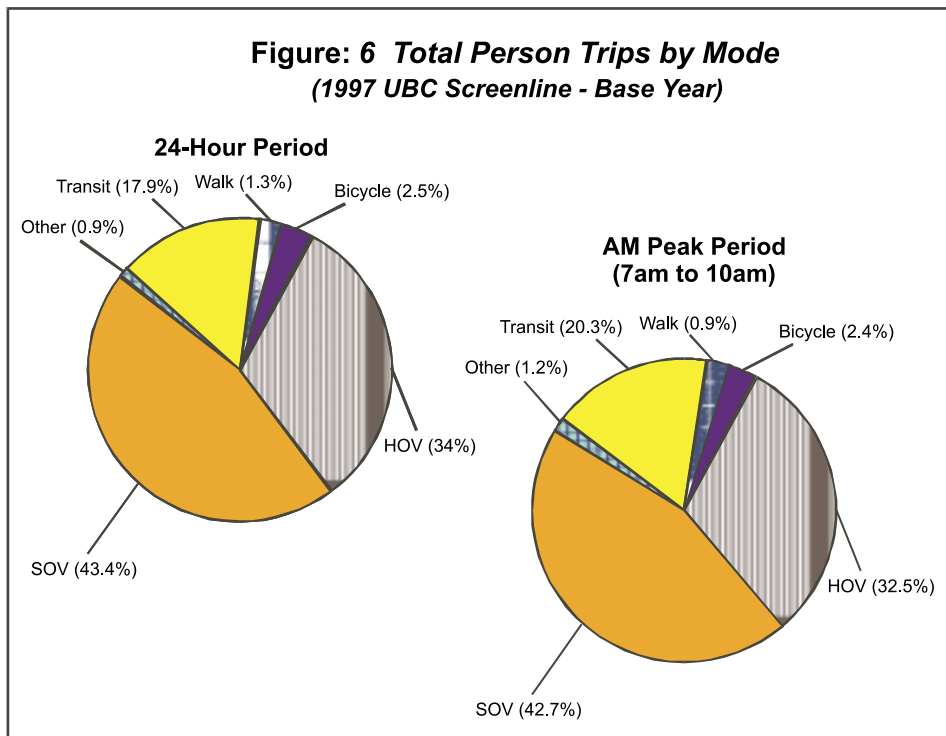
**Figure 5: Transit Passenger Trips: Modified Start/Finish Times**  
**Arrivals and Departures (Vancouver/UEL Screenline)**



TransLink staff have suggested that significant additional transit capacity is available at no cost if UBC can shift class start times to an 8 a.m. start and 6 p.m. finish. This would help "spread out" and reduce the peak arrival/departure volumes into time periods where buses with empty seats serving other regional commuter flows are available.



**Figure: 6 Total Person Trips by Mode  
(1997 UBC Screenline - Base Year)**



Current mode splits for 24-hour and morning “rush-hour” periods. UBC is the second largest commuter destination in the Lower Mainland, next to the Downtown, with a 24-hour transit rideshare (18%) that is second in Canada only to Toronto. Surveys indicate that campus residents bicycle (25%) and walk (75%) to campus, which would push the total UBC walk/bike mode split to over 17%, making UBC the highest in the GVRD.

## Consultation

Development of the Strategic Transportation Plan was a significant initiative involving extensive consultation. The process began in November 1997, and has included the following major tasks:

1. The UBC Transportation Advisory Committee (TAC) was created, and has held regular meetings since spring 1997.
2. A Director of Transportation Planning was hired in the fall of 1997.
3. Annual Baseline Traffic Monitoring was launched in the fall of 1997.
4. Outreach activities included:
  - Launching the TREK Program Centre website at [www.trek.ubc.ca](http://www.trek.ubc.ca) on January 1, 1998;
  - Creating and circulating Discussion Papers;
  - Conducting public forums to discuss issues and options;
  - Conducting the UBC Transportation Planning Survey via 34,000 e-mails in January 1998;
  - Making presentations to UBC Health & Safety Committee, MADHU, AMS, AAPS, Unions, administrative business heads of faculties, and student development committees;
  - Holding “Clean Air” events annually in March, June, and September;
  - Organizing Go Green Coordinator training and new employee orientation sessions; and
  - Publishing the GREAT TREKS Newsletter.

5. Partnerships & Pilot Projects initiated include:
  - Jack Bell Foundation–pilot campus shuttles, shared pool vans;
  - Alma Mater Society–Bike Co-op, Bike Kitchen, Public Bikes, U-TREK Card, bike racks on buses, bike lanes on University Boulevard;
  - International Student Services–UBC-Airport shuttle vans;
  - TransLink/GVRD–UBC Go Green Coordinator training, U-TREK Card, Transportation Planning Survey, Bike Racks on 99 B-line buses;
  - UBC Food Services–Promotions for clean air events, University Centre lunch shuttle;
  - UBC Athletics–Promotions for clean air event prizes;
  - UBC Parking Services–priority parking for car and van pools; and
  - UBC Security Services–Bike Rodeo.
  
6. An analysis of pilot projects, partnerships, options, costs and benefits was performed. The results were integrated into a cost-effective plan designed to meet established targets.
  
7. A preliminary outline was presented to the Board of Governors in November 1998. The first draft of the STP was released for public review in February 1999.
  
8. The TREK Director presented the STP draft to individual stakeholder groups during spring, summer, and fall 1999.
  
9. A final draft STP, based on input from stakeholders, was recommended to the UBC Board of Governors in November 1999.

### **AT A GLANCE - Targets: How were they set?**

- |                             |  |
|-----------------------------|--|
| • Trek 2000 Vision          | • UBC Planning Principles                |
| • Where We Are Today        | • OCP/MOU Commitments                    |
| • Local & Regional Trends   | • UBC Transit Service Planning           |
| • U-Pass Programs Elsewhere | • January 1998 UBC Transportation Survey |
| • Input from Stakeholders   | • Professional Judgement                 |

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# SINGLE OCCUPANT VEHICLE (SOV) TRIP REDUCTION



***UBC is committed to reducing commuter reliance on SOVs by 20% using aggressive transportation demand management (TDM) strategies that provide reasonable alternatives to driving alone.***

The GVRD has recently confirmed that rush-hour is now an all-day occurrence in the Lower Mainland, leading to increased air pollution and traffic collisions. Over 75% of GVRD air pollution is commonly attributed to vehicle exhaust emissions. On average, each vehicle emits more than its own weight in pollutants annually. Although there has been a general decline in injury and fatal vehicle crashes in the past 30 years (primarily due to improvements in vehicle technology and highway design), traffic collisions are still the leading cause of death for adults aged 18 to 25. Each year nearly 500 people are killed on roads in BC, and over \$2 billion is paid by ICBC in auto collision claims. Over 90% of collisions are now attributed to driver error. Research being conducted at UBC and across North America confirms that reduced traffic congestion, as a result of successful TDM programs, produces significant benefits in public health and safety.

Parking management is one of the most effective yet controversial strategies employed so far to reduce reliance on driving alone. A critical success factor of every TDM program is close coordination and integration with a proactive Parking Management plan. Recent studies of Canadian cities by the Canadian Institute

of Transportation Engineers suggest that, regardless of price, just by reducing commuter parking supply to one stall per five employees would be sufficient to induce a 30% transit mode split. (Source: Morrall, J. and Bolger, D., "The Relationship Between Downtown Parking Supply and Transit Use," *ITE Journal*, 1996/02 66[2] pp 32 [3 Fig., 2 Tab., 9 Ref.]) This research is directly applicable to university environments and especially to that of UBC, which holds a dominant influence on regional commuter patterns and geographically is very similar to Downtown Vancouver in size and demographics.

It is also important to note that there is collaborative decision making between the Parking and TREK Offices on TDM at UBC. UBC Parking Services is a self-sustaining ancillary business responsible for the management and maintenance of parking facilities on campus. This STP recognizes that Parking Services operates as a business unit with an established five-year parking business plan. Parking Services recognizes the goals of the STP and will work to implement STP policies in support of Trek 2000 and OCP commitments. TREK recognizes the goals of Parking Services and will work with them in support of TREK 2000. To meet STP targets, it is critical that this collaborative decision making between Parking and the TREK Offices continue.

## Goals

1. Review on-campus parking fees, supply and enforcement, including market comparisons, price-elasticity of demand, and pricing structures.
2. Discuss concerns over bicycle safety and TDM related to unrestricted parking along roads adjacent to the campus with the Ministry of Transportation and Highways (MoTH).
3. Pursue improved enforcement strategies.
4. For special events, promote alternatives to driving and parking.
5. Perform a parking review to confirm long term targets.
6. Coordinate UBC Parking management with other parking providers on and adjacent to campus, including UBC Housing, UBC Athletics, UEL, MoTH, and GVRD Parks.
7. Develop policies that favour HOV, motorcycle and bicycle parking.
8. Establish benchmarks for a goal of 20% reduction in SOVs.

### QUOTE:

*"If more affordable, convenient and environmentally sound transportation alternatives were made available to the UBC populous, I believe that we would see a dramatic number of people change the way that they travel to, from, and around the UBC campus."*

*James Gould  
UBC Law Student*

The following factors were identified and taken into consideration during the development of the recommended policies in this plan:

### Supply

- Visitors
- Commuters (students, faculty, and staff)
- Residents and their visitors
- Couriers and vendors (short-term)
- Service vehicles and park visitors, over one hour (long-term)
- Preferential parking–location and/or price

### Management

- Coordination between agencies over control, pricing, supply and enforcement matters
- Ultimate number of parking stalls at UBC

### Pricing

- Relative to other similar markets
- Impact on evening and extra-curricular UBC activities, events, and businesses
- Rationale, perception, and equity/fairness
- HOV pricing
- Improvement of reasonable alternatives

### Enforcement

- Signs mean nothing if not enforced
- Repeat offender towing

## Recommended Policies

### Single Occupant Vehicle (SOV) Trip Reduction

1. The 20% SOV trip reduction targets are listed in Table 2. Progress will be monitored and reported to the Board of Governors and UBC Transportation Advisory Committee annually.

TABLE 2: UBC TRANSPORTATION TARGETS  
(Recommended vs. Current Trends for 2002)

	1997 Person Trips	2002 Current Trends	2002 STP Target	2002 Change from Trend	2002 Expected U-TREK Results	2002 Change from Trend
Single-occupant vehicles		46,000	53,500	42,800	- 20%	36,800
30.1%						
Carpools and vanpools	36,100	41,900	46,200	10%	48,000	15%
Transit	19,000	22,100	26,500	20%	30,000	36%
Bicycle	2,700	3,100	4,900	58%	5,400	74%
Pedestrians	1,400	1,600	1,800	13%	2,000	25%

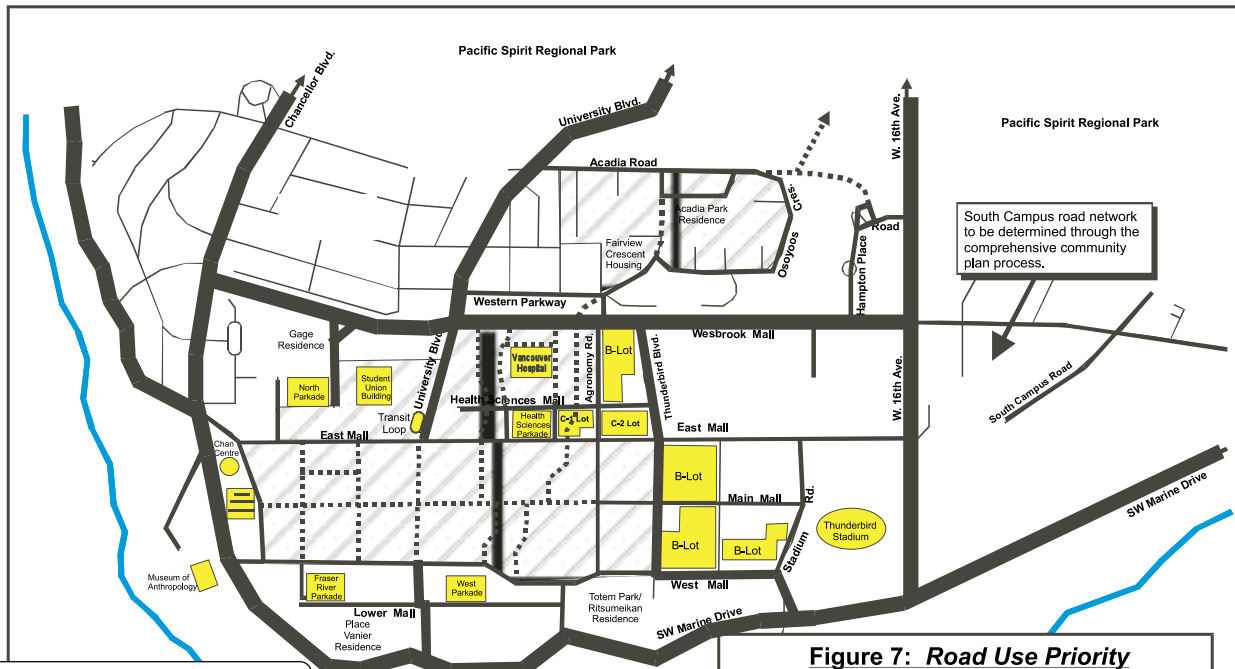
Note: 1. Travel demand growth from Year 1997 to Year 2002 of 17,000 person trips per day has been extrapolated based on:  
• 2% annual enrolment increase (30 year historic average) and 175 new dwelling units/year (OCP)

2. U-TREK Card transportation results subject to regional partnerships (e.g. City of Vancouver, GVRD, TransLink, AMS, etc.).

2. Access by vehicles, pedestrians and cyclists across campus should continue to be governed by the road use priorities set out in the 1992 Main Campus Plan, as shown in Figure 7. Figures 8, 9, and 10 show areas where access is restricted to emergency, service, and disabled persons.
3. TREK will participate in regional transportation initiatives to ensure that UBC will have proactive involvement in regional transportation planning activities and partnerships with the GVRD, GVTA, AMS, and other organizations that serve to promote UBC's trip reduction mandate.

### Parking

4. TREK will conduct annual Transportation Demand Management (TDM) audits and submit reports to the Board of Governors, UBC Planning Team, Parking Services, Housing and Conferences, and the UBC TAC. The review will be based on current TDM standards and follow established TDM Audit Guidelines. (See Appendix A.)
5. TREK will work with the University Architect and Director of Planning in the initial planning of all developments to ensure that the planning and design for all buildings consider STP policies. (See Appendix B and Figures 9, and 10.)



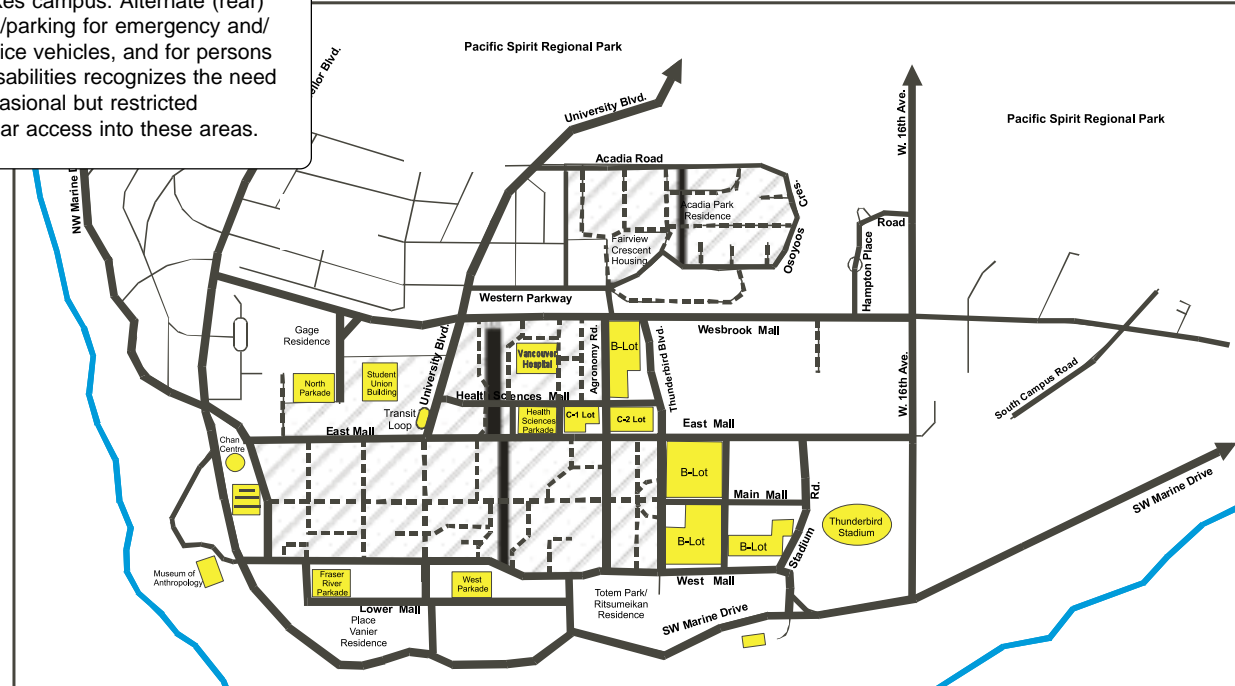
South Campus road network to be determined through the comprehensive community plan process.

Figures 7 to 10 are based on the existing pedestrian core policy in the 1992 Main Campus Plan. Well over half the campus is closed to all but pedestrians, bicyclists, and emergency/service vehicles. Consistent campus development and traffic management practises are needed to maintain campus safety in what has become a predominately ped/bikes campus. Alternate (rear) access/parking for emergency and/or service vehicles, and for persons with disabilities recognizes the need for occasional but restricted vehicular access into these areas.

**Figure 7: Road Use Priority**

- Pedestrian / Bicycle Core Area**  
Emergency access only. All other vehicles require access permit from Parking and Security Services.
- Pedestrian/bicycle areas - Occasional use by emergency vehicles.**
- Lightly travelled campus roads - Pedestrian/ bicycle priority, multiple stops and walkway crossings.**
- Heavily travelled campus roads - Pedestrian crossings at intersections.**
- Perimeter roads - Automobile priority except at signalized intersections.**

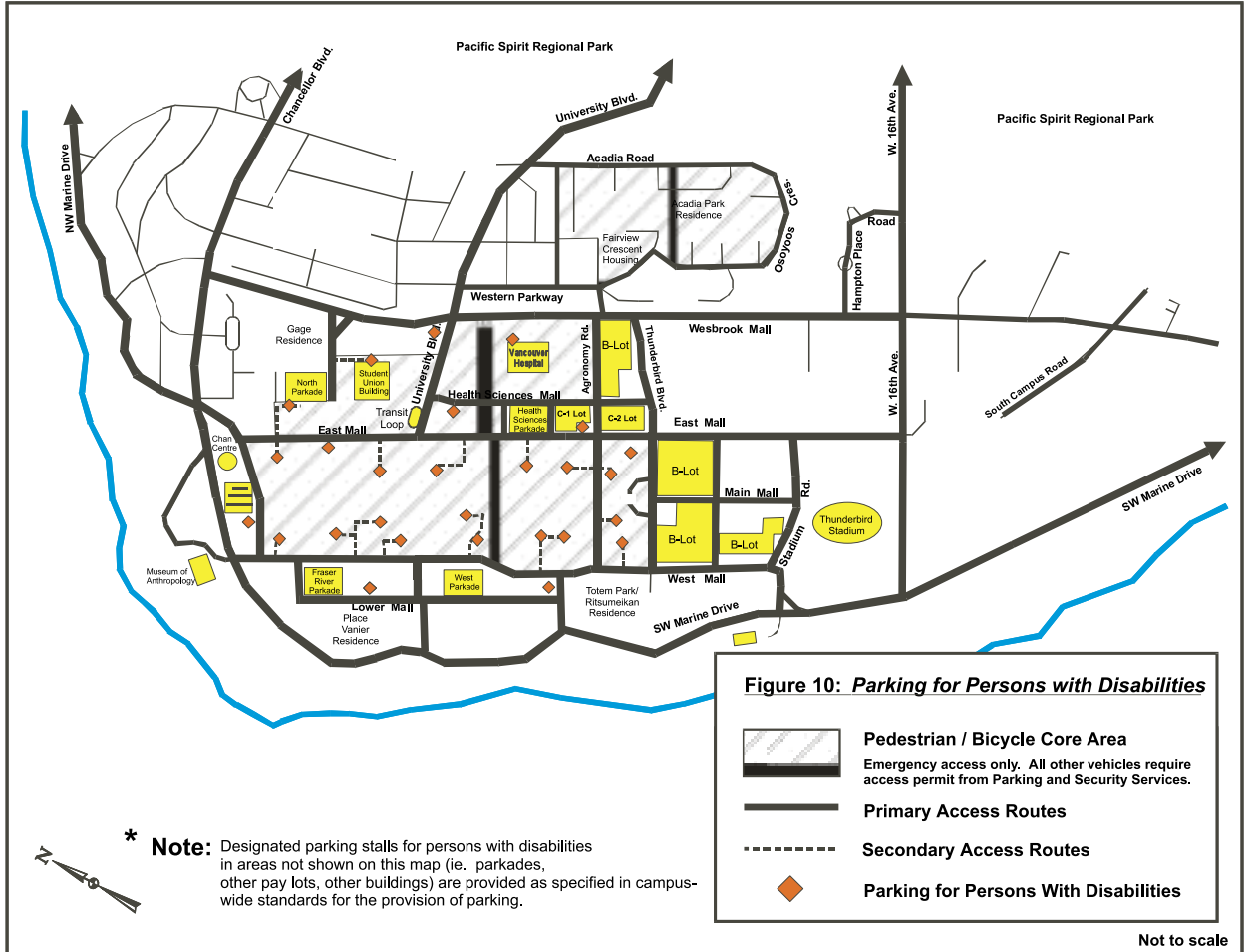
Not to scale



**Figure 8: On-Campus Emergency Access**

- Pedestrian / Bicycle Core Area**  
Emergency access only. All other vehicles require access permit from Parking and Security Services.
- Primary Emergency Access Routes**
- Secondary Emergency Access Routes**

Not to scale



## Recommended Policies (continued)

6. Conflicts over bicycle safety and parking on roads with open shoulders (e.g. 16<sup>th</sup> Avenue shoulders through Pacific Spirit Park between Wesbrook Mall and Blanca Street) should be resolved by working with the respective authorities (e.g. MoTH) to:
  - Install a shoulder bike buffer zone in each direction between parked cars and the traffic lanes; and
  - Restrict parking in a consistent manner, subject to full public consultation (both internal and external to UBC).
7. Conflicts over bicycle safety and parking on narrow arterial roads with curbs (e.g. Marine Drive between Gates 4 and 8 fronting UBC and Pacific Spirit Park) should be resolved by working with the respective road authorities (e.g. MoTH) to:
  - Reduce speed limits to minimize the bicycle/vehicle speed differential; and
  - Permit the installation of parking meters along the subject roadway (e.g. on Marine Drive, with meter revenues being shared with GVRD Parks to fund road widening for bike lanes and other area amenities), subject to full public consultation (both internal and external to UBC).
8. TREK will identify the costs and opportunities for the supply of alternate forms/locations of residential parking (e.g. on-street, shared with B-lot, etc.) in consultation with UBC Parking Services, UBC Properties, the Director of Housing and Conferences, and other stakeholders (e.g. City of Vancouver, UEL). There will be consideration to giving all rental tenants the option of not having a reserved parking stall in return for reduced rent, or preferably, all rental tenants would pay separately for the rental of parking space.
9. When reliable “SMART” card (or similar) technology and resources are available, the Director of Parking Services, in consultation with TREK, will consider a parking price structure and technology that allows commuters to UBC to buy a “bundle” of parking credits that do not expire until used. (Associate parkade day-passes for staff/faculty are already available, at roughly \$9 per day for occasional use for non-parking permit holders.) Permit parkers currently pay an equalized amount for 12 months (staff/faculty pay monthly, students pay per term) which includes times when they are on vacation or otherwise off campus. If implemented, a new pricing plan would be required to address revenue/cost impacts on UBC Parking Services and its customers.
10. TREK will work with UBC Parking Services to explore expanded priority parking locations for registered motorcyclists with a valid U-TREK Card, allowing them to park in designated preferential locations throughout the campus.
11. TREK, in consultation with staff from UBC Parking Services, UBC Housing and Conferences, UEL, MoTH, GVRD Parks, and the City of Vancouver, will conduct UBC area parking studies on a regular basis. Studies will include pricing, enforcement, restrictions, and supply practises, and will provide a Geographic Information System (GIS) database and map for all agencies to use as the basis for ongoing, coordinated, and successful parking management and TDM strategies.
12. TREK, in consultation with the UBC Transportation Advisory Committee, will initiate regular meetings with staff from UBC Parking Services, UBC Housing and Conferences, UEL, MoTH, GVRD Parks, UBC Hospital, and the City of Vancouver. The purpose of these meetings is to promote coordinated parking management and successful TDM strategies, including ticketing, towing, supply, pricing, signage, cooperation, and communication.
13. TREK, in consultation with the UBC Purchasing Agent and the Directors of Food Services, Housing and Conferences, Bookstore, and Plant Operations, will develop recommended access and parking procedures in order to respect designated pedestrian/bicycle core areas and parking restrictions. (See Figure 9.)
14. TREK will work with the UBC Treasurer, UBC Parking Services, and UBC Properties to draft recommended parking management clauses for use in all Agreements respecting UBC property that might impact UBC trip making and/or parking. This will include all private, leasehold and/or other non-UBC controlled developments on UBC property. The intent is that, where possible, parking at UBC should be pay and/or permit controlled and enforced by UBC or other recognized agencies. Secured parking structures (under and above ground) are excluded.



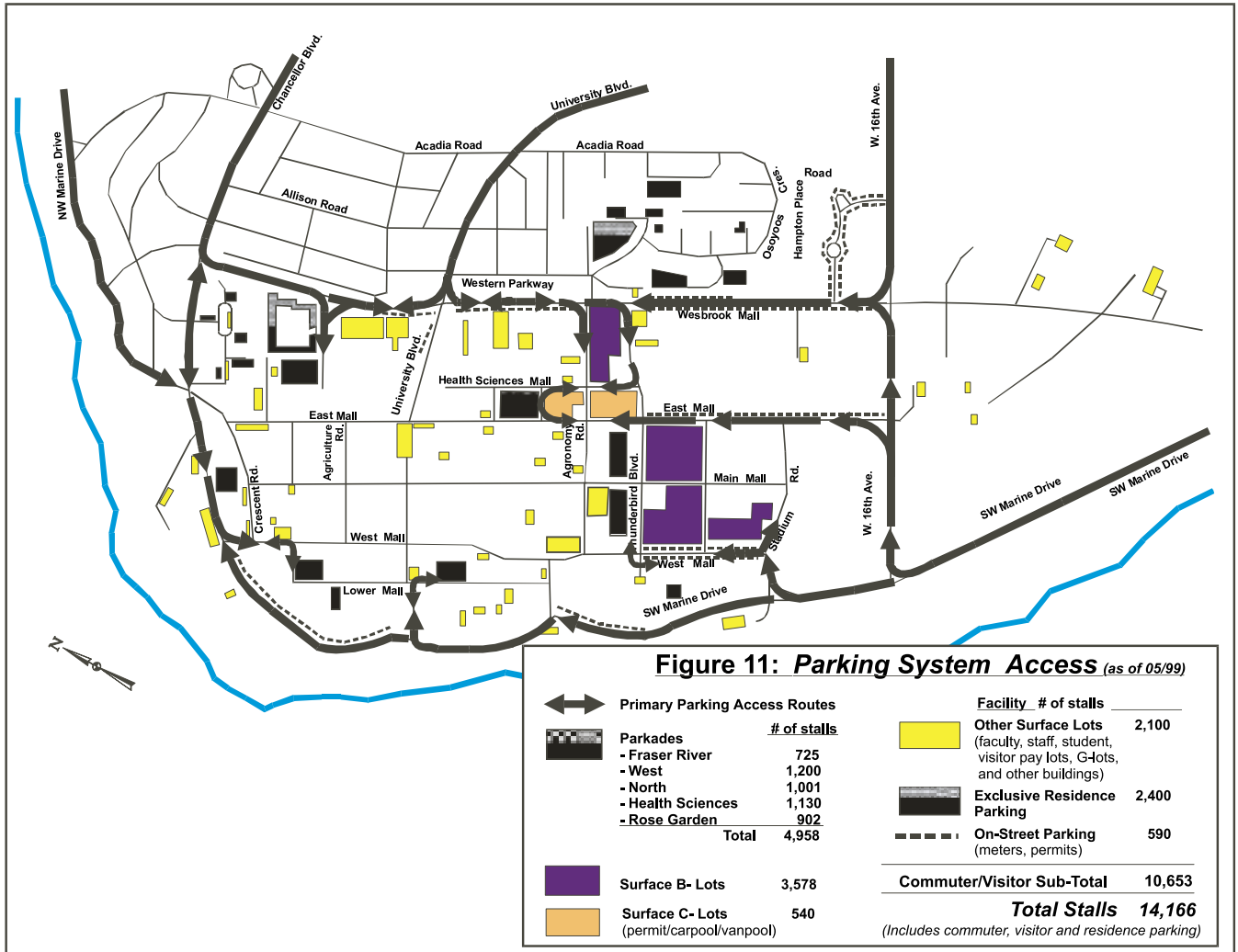


Figure 11 shows all residential, visitor, and commuter campus parking locations and reveals that over 14,000 stalls exist on campus. The black arrows indicate the shortest route to parking lots and will be used as reference in working with various agencies to install guide signage facilities.



## AT A GLANCE - SOV Trip Reduction Strategies

- Annual Monitoring (Policies 1 & 11)
- Agency Coordinating (Policies 3, 6, 7 & 12)
- Flexible Parking (Policies 8 & 9)
- Third Party Parking Management (Policy 10 & 14)
- Protected Campus Core (Policy 13)
- Access Priorities (Policy 2)
- TDM Audits (Policies 4 & 5)
- Smart Technology (Policy 9)
- Motorcycle Parking (Policy 10)

# TRANSIT RIDERSHIP



***UBC is committed to pursuing customer service improvements to UBC transit service delivery in support of the 20% SOV trip reduction and transit ridership increase targets.***

Apart from downtown Vancouver, UBC is the largest transit destination in the province, with over 19,000 people taking transit daily (over 5,000 in each peak period alone). While other transit markets in North America have experienced recent ridership declines, BC Transit has won awards as the largest and one of the few transit agencies to experience consistent ridership growth this decade. Much of this growth can be attributed to customer response to innovative service improvements such as Skytrain extensions and the 99 B-line bus service to UBC.

There is tremendous potential to increase transit ridership to UBC. The average travel time to campus for **all** UBC commuters is only 30 minutes, as two-thirds of commuters live in the City of Vancouver (Source: January 1998, UBC Transportation Planning Survey, [www.trek.ubc.ca](http://www.trek.ubc.ca)). There is also a tremendous need for improved service to UBC from Richmond, the North Shore and south-east Vancouver/Burnaby.

Despite eleven bus routes serving the campus, buses to and from UBC are almost full much of the day, including both peak and midday periods. To accommodate targeted transit ridership growth means that weekday transit service levels would need to be increased by well over 20%. (Source: TREK Technical Report #5: U-TREK Card Program, [www.trek.ubc.ca](http://www.trek.ubc.ca).)

## Goals

1. Update previous UBC transit route and service evaluations.
2. Pursue bicycle racks on all transit routes to UBC.
3. Determine on-campus transit needs.
4. Establish benchmarks for an increase in transit ridership to achieve a 20% SOV reduction.
5. Establish an on-campus Transit User Group (TUG) as a focus for quick liaison/feedback with users regarding transit planning matters.
6. Identify and facilitate strategic opportunities to encourage Light Rapid Transit (LRT) or Skytrain (ALRT) connections to UBC.
7. Explore governance issues around GVTA and possible alternative service models.
8. Promote route, schedule and frequency changes on existing TransLink routes and/or new routes closer to campus core (e.g. campus shuttles) and/or residential areas to meet STP targets.

## Issues

The following issues were identified and taken into consideration during the development of the recommended policies in this plan:

### Capacity

- Existing buses are at or over capacity on most routes at certain times of the day
- Additional capacity to UBC is needed within five years to meet ridership growth targets
- TransLink support services (e.g. bus garages) for more buses are at capacity
- New transit centres are not expected until fall 2000 (Source: TransLink)
- New buses take one to two years from date of order to date of delivery

#### QUOTE:

***“People would be more willing to take public transit if it were faster, more reliable, more convenient, less jam-packed, and better timed to their schedules.”***

*Darren Peets  
UBC Student*

## Issues (continued)

### Service Levels

- Customer consultation
- Reliability - pass-bys, cancellations, late arrivals (e.g. #44, 286)
- Connections with other areas
- Seasonal service reductions
- Inadequate service to UBC from the North Shore, Richmond, and south Burnaby
- Report back on Route 286 service reinstatement

### Cost Sharing

- Funding formula for expanded bus capacity
- High cost (and low cost recovery) on existing shuttle buses

### On-Campus Transit

- Insufficient connections from the bus loop to the Chan Centre, Stadium, Research Park, and other non-central campus destinations
- Location of existing and future (i.e. south campus) bus loops

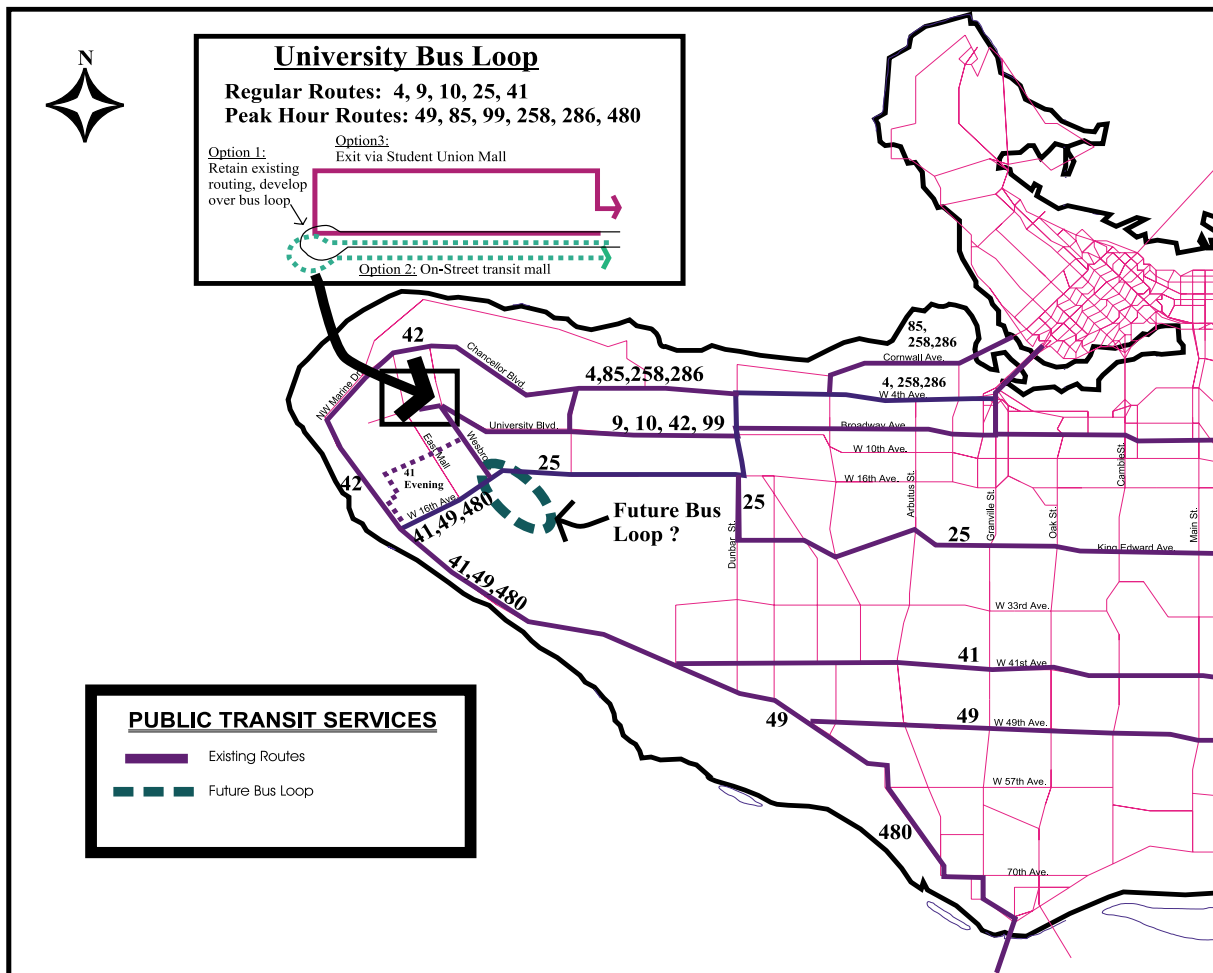


Figure 12 shows all existing transit routes ending at UBC. Possible options for the existing and future campus transit exchanges, and for routes serving north and south campus lands are also shown, as is a possible LRT alignment. In all cases, East Mall (south of University Boulevard), 16<sup>th</sup> Avenue, and Wesbrook are being planned as major transit corridors. Campus shuttles/transit to other parts of campus would be integrated with this mainline.

## Recommended Policies

15. TREK will create a formal on-campus UBC Transit User Group (TUG) for ongoing GVTA/UBC transit user liaison/feedback.
16. TREK will work with TransLink, the UBC Transportation Advisory Committee, the UBC Transit User Group, and other regional partners to secure the following system improvements:
  - Address existing capacity, crowding, and pass-by problems in UBC service;
  - Transit Service Design Guidelines to fairly prioritize system improvements;
  - Bike racks on all bus routes to UBC by 2005;
  - Accelerate bus orders to speed up delivery of new buses;
  - Integrate campus shuttles with the Cambie Corridor Consortium Shuttle program;
  - Transit service and capacity improvements for the launch of the U-TREK Card;
  - A comprehensive regional and UBC transit monitoring system, using state-of-the-art technology;
  - Clean-fuel transit technology (e.g. electric, natural gas), including promotion of partnerships with UBC-related research and/or development enterprises (e.g. Wesport); and
  - Service improvements for riders from the North Shore, Richmond, South Burnaby, and South Vancouver.
17. TREK will work with the City of Vancouver, TransLink, the GVRD, and other regional partners to conduct a study on costs, benefits, and route options for an LRT or Skytrain line to UBC.
18. TREK will undertake bi-annual UBC Transit Service Plan reviews, working with TransLink, UBC TAC, UBC TUG, the City of Vancouver, the GVRD, and other partners.



### AT A GLANCE - Transit Ridership Increase Strategies

- **Transit User Group** (Policy 15)
- **Liaison with TransLink** (Policy 16)
- **Increased Buses** (Policy 16)
- **Clean Fuel Technology** (Policy 16)
- **Improved Richmond Access** (Policy 16)
- **LRT to UBC (long-term)** (Policy 17)
- **Deep Discount Monthly Bus Pass** (Policy 16)
- **Bike Racks on all Buses by 2005** (Policy 16)
- **Improved North Shore Access** (Policy 16)
- **Integrated Campus Shuttles** (Policy 16)
- **Ongoing Monitoring** (Policy 16 & 18)
- **UBC Transit Service Plan Reviews** (Policy 18)

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# U-TREK CARD PROGRAM

UBC U-Trek Card

Building on the collaborative and other support from strategic partnerships with the City of Vancouver, TransLink, and the GVRD, UBC is committed to being the lead agency in implementing a U-TREK Card program to help realize trip reduction goals.

UBC has been the lead agency in promoting a UBC U-TREK Card program based on other similar (i.e. U-Pass) programs that have resulted in 20% plus SOV trip reductions at major university campuses across Canada and the US. The U-TREK Card is a multi-modal transportation pass that provides unlimited use of regional transportation services, as well as access to a range of other transportation services and products. At the University of Washington, the U-Pass program increased transit ridership by 60% during the first six years. The University of Victoria introduced a U-Pass program in the fall of 1999.

TREK staff have been working together with members of the UBC Transportation Advisory Committee (TAC) and regional partners to design a "made in UBC" U-TREK Card program. The shared vision includes "carrots" (such as improved public transit, carpooling, bicycling services, and guaranteed rides home) which can be bundled with "sticks" (such as coordinated parking enforcement) to enhance the attractiveness of SOV alternatives. U-TREK Cards will not only benefit UBC commuters and the surrounding community, but will also provide the rest of the region with an example of a successful tool (i.e. U-Pass) that can be used to meet the GVRD Transport 2021 objectives.

The U-TREK card program is planned to be implemented in two phases. Phase-one is for students, and is scheduled for 2001, subject to TransLink bus availability. TransLink has required that any U-TREK Card Program for students be mandatory to minimize administrative burden. This requires a mandatory student fee, subject to an AMS referendum. Phase-two includes staff and faculty. Timing on phase-two is subject to the success of phase-one and consultation with TransLink and UBC faculty and staff.

A preliminary social cost-benefit analysis of the U-TREK Card program revealed a 6:1 benefit-cost ratio. For more information on the U-TREK Card and its benefits and costs, see Research Paper #6, "University TDM Program Evaluation: The Business Case for UBC's U-Pass (TREK) Program" at [www.trek.ubc.ca](http://www.trek.ubc.ca). A summary of the five-year TREK financial projections is presented in Table 4 on page 41 of this document.

## Goals

1. While working on program development, the City of Vancouver, the GVRD, and TransLink will share databases as required for related technical analyses and reviews.
2. Identify and quantify travel requirements of UBC students and personnel.
3. Develop a Five-Year Business Plan for a U-TREK Card system.
4. Pursue additional funding resources.
5. Define the "revenue neutral" positions of each partner.

## Issues

The following factors were identified and taken into consideration during the development of the recommended policies in this plan:

### Political Risk

- Fairness and equity
- Distribution of costs, benefits, and externalities (who pays vs. who should pay)
- Student referendum required for mandatory program
- Willingness to try something new

#### QUOTE:

"Without the improved transportation choices the U-TREK will provide, getting students out of their cars is nothing but wishful thinking."

Jesse Jackson  
UBC Student

## Issues (continued)

### Financial Risk

- TransLink wants to remain cost and revenue neutral beyond any increases in service above current plans (Source: TransLink)
- Product design and pricing
- Participation rate vs. program costs

### Administrative Risk

- New programs require new staff or reallocation of existing staff
- Limited experience in the Canadian market, labour and fiscal climate
- Few ways to increase capacity in the short-term to meet anticipated growth in demand

### Technology

- Program administration and enforcement costs
- Electronic fare box technology will not be available at TransLink for another two years

### Environment

- True cost accounting, user pay benefits
- Less air pollution and traffic congestion, health and safety benefits
- Resource utilization, economic efficiency benefits
- No more parkades, parking lots, reduced land base demand
- High student propensity for flexibility and improved transit service

## Recommended Policies

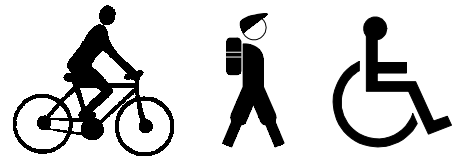
19. TREK will manage the U-TREK Card Program in partnership with the AMS, Bookstore, Libraries, Parking Services, and/or others as necessary to produce the Program for UBC students, staff, and faculty at the lowest possible cost.
20. The UBC U-TREK Card will encourage UBC commuters to use alternatives to SOVs in support of the 20% SOV reduction mandate while not penalizing those without reasonable commuting alternatives. UBC commuters who regularly use SOV alternatives will see a significant decrease in their monthly travel costs. The goal is that UBC SOV commuters who make the switch to a non-SOV mode of travel one day per week via a U-TREK Card will see no increase in their total travel cost relative to driving alone daily.
21. Bi-annual transportation planning surveys of students, staff, and faculty will be conducted to ensure that the U-TREK Card meets system user needs of low price and optimal flexibility. Surveys will be conducted in full consultation with TransLink, the AMS, and the City of Vancouver.
22. The U-TREK Card will rely on advanced technology with other GVTA and UBC systems, where possible, in order to enhance integration and reduce the administrative burdens of both TransLink and UBC.



### AT A GLANCE - U-TREK Card

- **Low Cost** (Policy 19)
- **Meets User Needs** (Policy 21)
- **All-in-one Pass**
- **Increased Choice**
- **Phased In** (Policy 20)
- **Agency Coordination** (Policy 22)
- **Similar to UCLA/UofW**
- **Requires Student Referendum**

# BIKES, PEDESTRIANS & WHEELERS



***UBC is committed to improving wheeling, bicycling and walking facilities to, from and across campus. Improvements will create efficient transportation alternatives that are good for people and the environment.***

While recent surveys indicate that over 45% of commuters feel they live close enough and would like to bicycle or walk to UBC, less than 10% do. As such, there is a tremendous potential to increase the number of people walking and cycling to UBC. This can be done by working with partners to provide new facilities, and to improve existing facilities both on-route and on-campus.

Current campus policy on pedestrians and bicyclists is found in the 1992 Main Campus Plan. The academic core is to be a pedestrian/bicycle only area. The only exception is for emergency vehicles; even service vehicles must, under current policy, obtain approval to drive into and/or through the pedestrian/bicycle core. As part of that policy, an alternate access plan for service vehicle access and for accessible vehicle access has been developed.

## Goals

1. Promote pedestrian/bicycle education and safety programs.
2. Make bicycles available at favourable prices.
3. Improve pedestrian/bicycle networks, paths, and end-of-trip facilities.
4. Provide free “campus bikes” for on-campus use.
5. Establish an on-campus Bicycle User Group (BUG) as a focus for quick liaison/feedback with users on planning matters.
6. Support initiatives to make UBC more accessible to persons with disabilities.

## Issues

The following factors were identified and taken into consideration during the development of the recommended policies in this plan:

### On-Campus

- Enforce against unauthorized vehicles in ped/bike-only core
- Vehicles don't stop for crossing pedestrians in non-core areas (as required under the Motor Vehicle Act)
- Bike route and sidewalk surface conditions
- Lack of ramps
- Improved end-of-trip facilities
- Location, aesthetics, personal security, lighting, capacity, and shelter
- Overall cost savings

### Off-Campus

- Ped/bike route coordination with MoTH, GVRD Parks, UEL, and City of Vancouver (e.g. Chancellor & University Blvds, 16th Ave., Marine Drive, Pacific Spirit Park)
- Bicycle/vehicle interaction

#### **QUOTE:**

***“Improvements to bicycling facilities are essential to reducing SOV trips to UBC. We need a systematic cycling network and the AMS Bike Co-op is looking forward to working with the TREK Program to improve the cycling environment at UBC.”***

*Ted Buehler  
AMS Bike Coop President*



## Recommended Policies

23. TREK will work with the UBC TAC, AMS Bike Co-op, GVRD Parks, City of Vancouver, MoTH, UEL, and other agencies to create an integrated, on-/off-road Bicycle Route System to, from, and across campus. (See Figure 14.)
24. TREK will monitor the planning, design, and operation of all UBC transportation infrastructure, and make recommendations to facilitate trips made by wheelchair, foot, and bicycle. (See Figure 15.)
25. TREK will work with the University Architect, UBC Properties, and the Director of Planning to ensure that all end-of-trip facilities in **new** developments, depending on the size and intended use of the development, make provision for showers, change rooms, lockers, bike racks, and/or secure bike storage facilities which support STP policies. (See Appendix B and Figure 13.)
26. TREK, in consultation with the University Architect and Director of Planning, will review all end-of-trip facilities in **existing** developments to address deficiencies, respond to complaints, and identify further opportunities to promote walking and cycling. Once the review is complete, a prioritized Capital Plan will be prepared to provide end-of-trip facilities to support Trek 2000.
27. TREK will promote and provide inter-modal opportunities (e.g. bike racks on buses and vanpools) where possible to enhance SOV-alternative modes.
28. TREK will formally establish a Bicycle/Pedestrian/Wheeler User Group (BUG) to ensure that TREK Program initiatives are supported and effective in meeting user needs, and to identify any system deficiencies that need to be addressed.
29. TREK will perform, and report on, annual TDM audits of the capital budgets and business plans in Land & Building Services, Housing, and UBC Parking Services, and will make recommendations to the respective Directors regarding promotion of, and opportunities for, bicycling, walking, and wheeling, as well as other STP policies.
30. TREK will partner with the AMS Bike Co-op to provide cycling-related services and a discount bike purchase program for students, staff, and faculty.

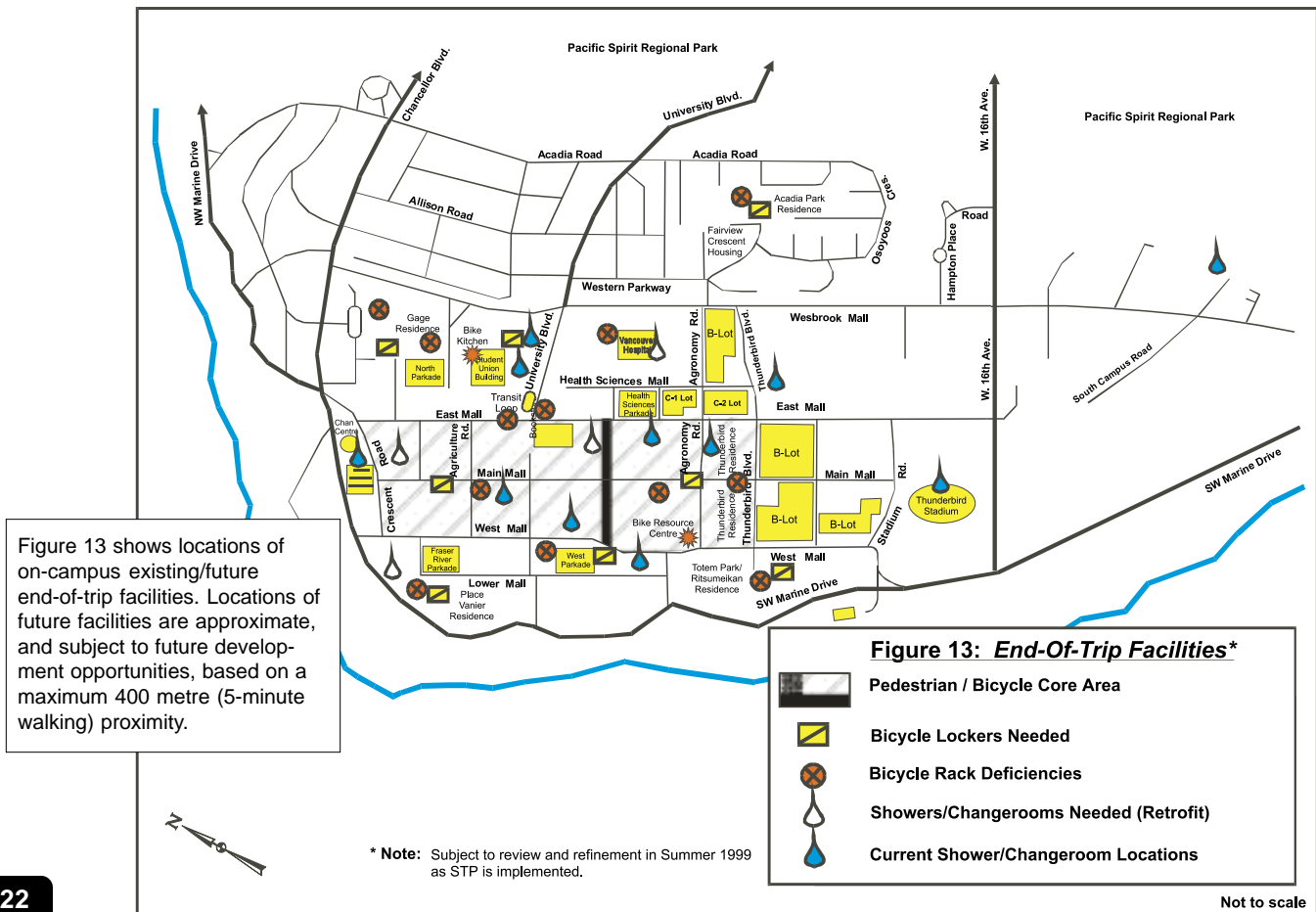


Figure 13 shows locations of on-campus existing/future end-of-trip facilities. Locations of future facilities are approximate, and subject to future development opportunities, based on a maximum 400 metre (5-minute walking) proximity.

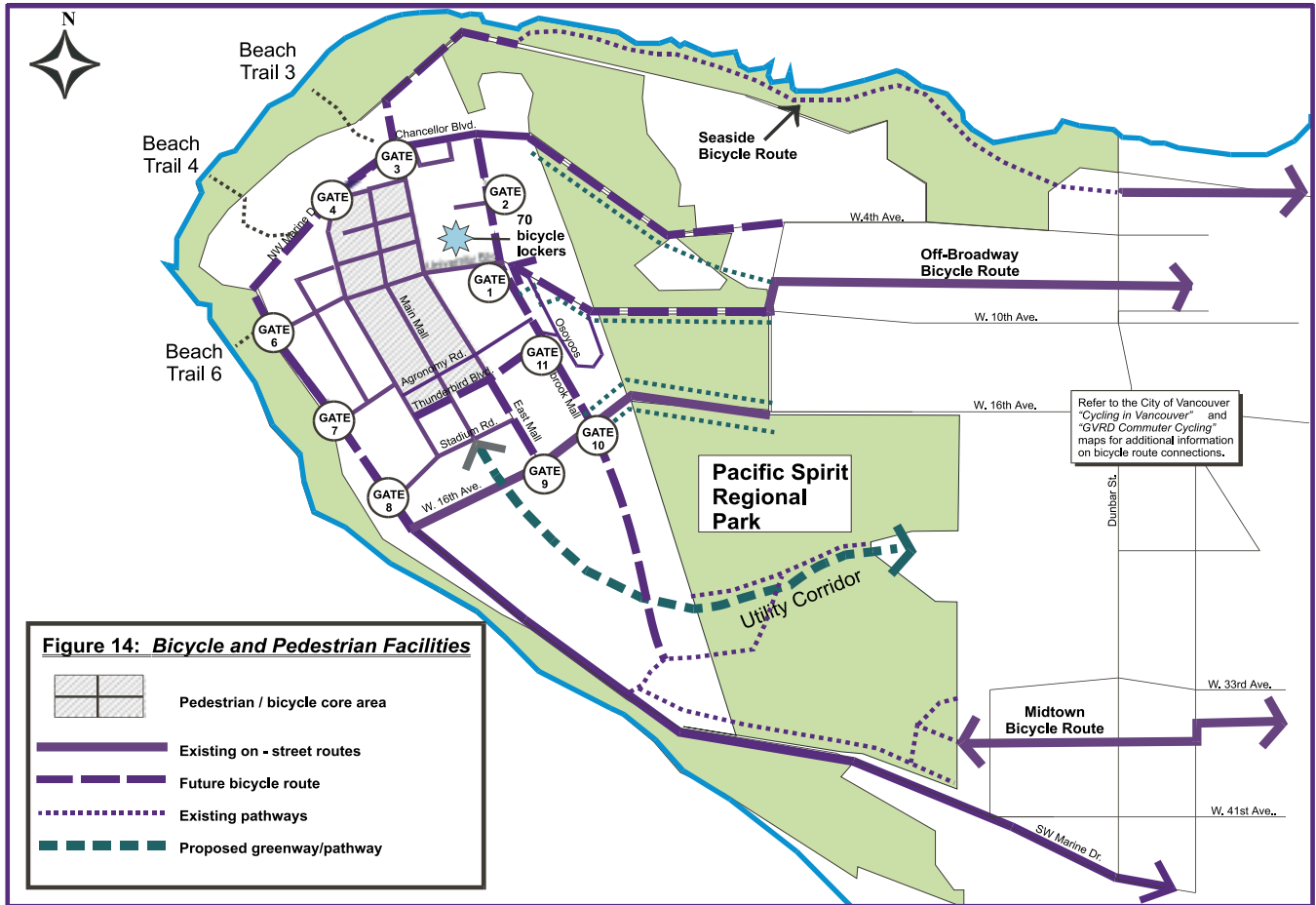
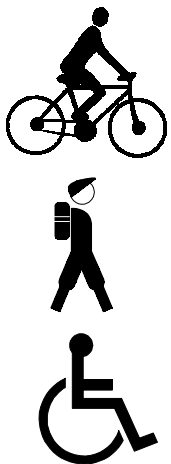


Figure 14 shows the primary corridors used to access, cross and circumnavigate the campus. In almost every case, these facilities cross several jurisdictions and will require extensive consultation and partnerships. In a January 1998 survey, 45% of UBC commuters would walk or bike to UBC if there were better routes and end-of-trip facilities. This correlates well with demographics which show that nearly 70% of UBC commuters live within Vancouver. The current walk/bike mode split is only 4%.



## AT A GLANCE - Bicycles, Pedestrians & Wheelers

- Integrated Route System (Policy 23)
- Improved Liaison on/off Campus (Policies 23 & 28)
- More Racks, Showers & Lockers (Policies 25 & 26)
- Educational Seminars (Policy 30)
- Public Bikes (Policy 30)
- Fewer Curbs, Slips & Trips (Policies 24 & 29)
- Bike Racks on Vehicles (Policy 27)
- Bike Purchase Program (Policy 30)
- Campus Bike Shop (Policy 30)

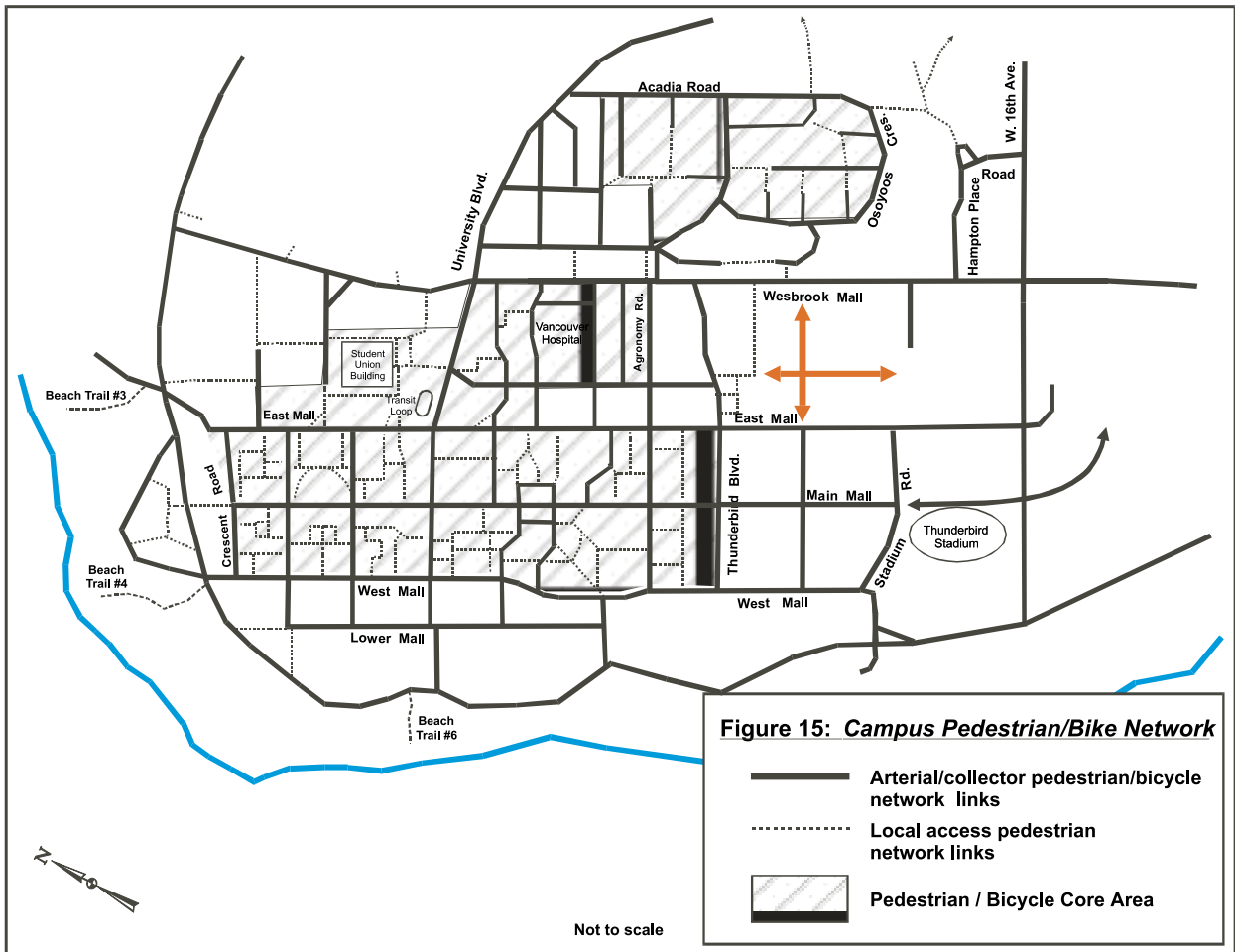
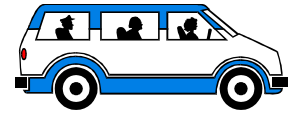


Figure 15 shows on-campus primary pedestrian/bicycle access network. It should be noted that, in accordance with the BC Motor Vehicle Act, all UBC roads are public and open to bicycles and pedestrians.

# CARPOOLS, CAMPUS SHUTTLES & OTHER SOV ALTERNATIVES



**UBC is committed to identifying other alternatives in support of the OCP 20% SOV reduction target.**

There are many other strategies that influence SOV trip reduction: car/van pooling, educational/marketing programs, tele-commuting, tele-study, flex-time work hours, ridesharing, free bikes, and motorcycles. These alternative programs have tremendous potential to reduce UBC SOV traffic. For example, in 1997, just over 36,000 people car pooled to/from UBC each day, but over 95% of these were in two-person pools. An aggressive car pool program that could convert even 50% of these to three-person pools would reduce auto trips to UBC by over 3,000 vehicles per day.

## Goals

1. Investigate feasibility of changing class scheduling.
2. Investigate feasibility of flex-time for staff.
3. Investigate feasibility of using Cooperative Auto Network (C.A.N.).
4. Continue to promote tele-commuting by University personnel.
6. Explore tele-study programs for students.
7. Continue to promote Ridesharing (i.e. car/van pooling) by students, staff, and faculty.
8. Review how motorcycle use can be promoted while not conflicting with Regional and UBC air quality and SOV trip reduction plans.

## Issues

The following factors were identified and taken into consideration during the development of the recommended policies in this plan:

### Car/Van Pools (HOV's)

- Preferential parking prices
- Overall economic attractiveness
- Aggressive promotional/educational campaign
- Car/van pool scheduling
- Promotion of higher average auto occupancy

### Motorcycles

- Get over twice the gas mileage and take up less parking space
- Still cause pollution, especially if out of tune

### Education on SOV Alternatives

- Costs/benefits
- Who to educate

### On-Campus Transportation Alternatives

- Shuttles
- Electric golf carts – insurance
- Pedicabs/rickshaws
- Public bikes
- In-line skates

### Clean Vehicle Technology

- Human powered
- Electric
- Natural gas

### Scheduling & Flexibility

- Tele-commuting
- Flex-hours
- Tele-study

#### QUOTE:

**"If UBC is serious about reducing the number of cars on campus and see that vanpooling is one of the many solutions, I would think that UBC would offer some real incentives for people to vanpool."**

*Connie Fabro  
UBC Staff Member*

## Recommended Policies

### Carpooling

31. Priority parking will be provided for registered UBC vanpools with a valid U-TREK Card, allowing them to park at no additional cost in designated preferential areas throughout the campus. Parking Services' costs to provide this 'no-fee' parking for vanpools will be recovered as part of the price of the staff/faculty U-TREK Card. Until a U-TREK Card program is implemented, priority parking locations will be considered for carpools and vanpools with valid parking permits.
32. TREK will work with UBC Parking Services to explore affordable, priority parking, for registered three-plus carpools with a valid parking permit, in designated preferential locations throughout the campus.
33. TREK will work with providers of rideshare and/or car/van pool programs to promote innovative shared vehicle, car/van pool, and other local shuttle programs. Where possible this should include the use of existing campus fleet vehicles. TREK will continue with successful partnerships (e.g. Jack Bell Foundation), and pursue opportunities with other organizations (e.g. Co-operative Auto Network and Dynasty Motor Cars) to encourage reduced auto ownership and use by UBC residents, departments, and commuters. These programs will borrow successful tools from other programs where possible (e.g. new Rideshare Software, San Francisco Shared Vehicles, and Cambie Corridor Consortium Shuttle Program).

### Campus Shuttles

34. Through innovative partnerships and programs, TREK will establish a family of cost-effective, environmentally-friendly, and accessible campus shuttle services to meet the needs of students, staff, and faculty. These shuttles will have both fixed and destination/demand-oriented routes, and will be launched as part of the U-TREK Card program. Shuttle administration will be subject to individual partnerships and shuttle formats.
35. TREK, in partnership with the AMS, Campus Security, Parking Services, Athletics, Theatres, Museums, UBC Properties, and/or other trip generators/trip attractors/service providers, will promote shuttles for special events. Shuttle administration will be subject to individual partnerships and shuttle formats.

### Education and Promotion

36. TREK will publish a UBC Commuter Guide each year for all first year students, new staff, and new faculty. The UBC Commuter Guide will be posted on the TREK website, and distributed at orientation sessions. TREK will also offer trip-planning advice to all students, staff, and faculty.
37. TREK will budget annually for on-campus SOV-alternative education and promotional programs.
38. TREK will request that the RCMP regularly conduct enforcement "information post" campaigns along major routes (e.g. photo-radar, crosswalks, intersection violations, bicycle helmets, and lights at night) to maintain safety for UBC residents, neighbours, and commuters.

### Traffic Calming

39. TREK will work with Campus Security and the RCMP to issue regular departmental reminders and enforce the non-vehicular areas on campus.
40. TREK will work with the Director of Plant Operations and the University Landscape Architect to address core and perimeter area traffic calming concerns. Traffic engineering standards will be based on the new Transportation Association of Canada/Institute of Transportation Engineers "Canadian Guide to Neighbourhood Traffic Calming," to enhance the pedestrian/bike environment and connections between residences and academic areas.
41. TREK will work with the Director of Plant Operations, Housing, Food Services, and other campus stakeholders as necessary, to consider the implementation of a campus-wide fleet management program that includes a "Green Vehicle" purchase, operation, and maintenance policy.

## Recommended Policies (continued)

### Other Alternatives

42. TREK will, after consultation with stakeholders, take a leadership or partnership role in researching and/or promoting emerging technologies and innovative work programs which reduce SOV use while still respecting the core UBC academic and research missions. Among other things, this includes:
- Supporting the expansion of tele-study and tele-commute programs because they have a direct and immediate TDM benefit in reducing SOV trips to/from UBC; and
  - Facilitating increased flexibility in work hours for staff who are involved in recognized TDM initiatives, in consultation with supervisors regarding work performance and customer service criteria.
43. TREK will request that ICBC develop and issue insurance plans based on mileage driven, auto-occupancy, and/or work/non-work use, with the intent to enhance savings for those reducing SOV use. Rather than using this as a “stick” to increase costs for existing commuters, the intent would be to use it as a “carrot” to offer savings for those who can reduce auto kilometres driven to/from UBC.
44. TREK will work with the Registrar, Deans, Plant Operations, and other stakeholders as necessary to consider a plan to re-schedule class start times to begin at 8 a.m. and end at 6 p.m. If possible, this plan should target coordination with the launch of the U-TREK Card and take advantage of the existing unused transit capacity in the peak “shoulder” periods.



### AT A GLANCE - Carpools, Campus Shuttles & Others

- **HOV Priority Parking Program** (Policies 31 & 32)
- **Campus Shuttle Program** (Policies 34 & 35)
- **Education & Orientation Programs** (Policies 37 & 38)
- **Campus Traffic Calming Program** (Policies 39 & 40)
- **Emerging TDM Programs** (Policies 42 & 43)
- **Campus Shared Vehicle Program** (Policy 33)
- **Rideshare Programs** (Policy 33)
- **UBC Commuter Assistance Program** (Policy 36)
- **“Green Vehicle” Program** (Policy 41)
- **Shift to 8 a.m. Class Start Times** (Policy 44)

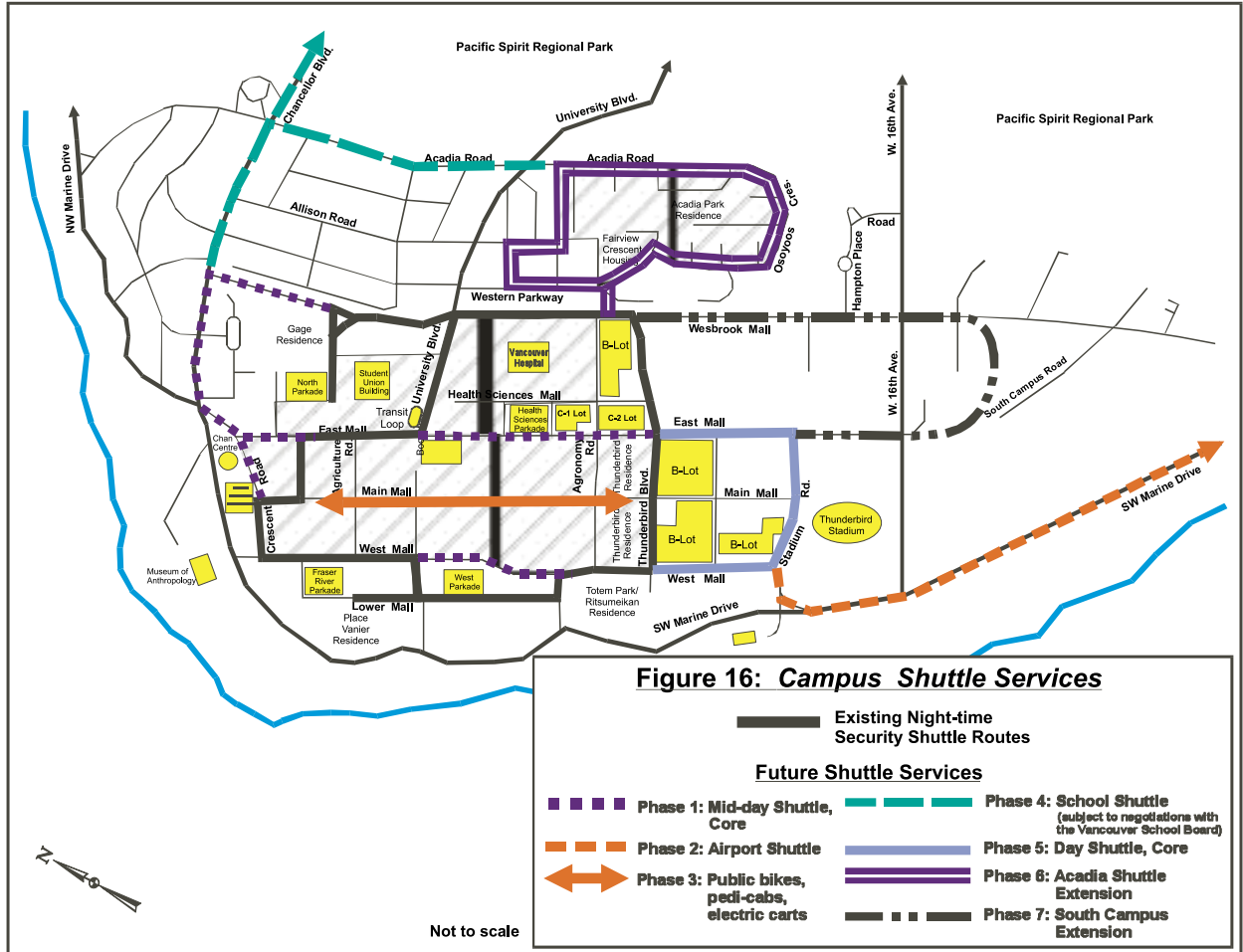


Figure 16 shows existing and future campus shuttle services. Future enhancements and/or extensions are being planned subject to future developments and partnerships.

# HOUSING, LAND USE & TRANSPORTATION INTEGRATION



***UBC is committed to developing guidelines which promote safe transit-, pedestrian- and bike-friendly development and land uses in support of the OCP and Trek 2000 Vision.***

Land use (housing, commercial, and academic) directly influences the amount, mode, and time period of trip making to, from, and between developments. Development layout, location, density, and end-of-trip facilities profoundly impact the trip frequency, mode and distribution. Hence it is critical that all land use and transportation planning be intimately coordinated via state-of-the-art TDM principles in order to achieve STP targets. Of students, staff, and faculty living on campus, 25% bike and 75% walk to campus each day; the highest percentages anywhere in the Lower Mainland. To encourage the planned additional 8,500 residents who move onto south campus to do the same, ongoing TDM audits of each new land use and development plan will be required.

## Goals

1. **Develop Transit/Ped/Bike friendly Street and Development Planning/Design Guidelines, including parking to unit ratios and shared parking policies that promote lower levels of car ownership and SOV use by UBC residents.**
2. **Develop TDM Incentive Program Guidelines for new developments.**
3. **Develop methodology and undertake ongoing Traffic Safety, Surveys, and other monitoring Programs as needed to attain goals.**
4. **Develop Traffic Management/Calming Guidelines.**
5. **Continue activities of UBC Transportation Advisory Committee.**
6. **Ensure that Advisory Committee has representation from neighbouring communities.**
7. **Establish benchmarks for attaining goal of 20% reduction in SOVs.**

## Issues

The following factors were identified and taken into consideration during the development of the recommended policies in this plan:

### Sustainable Development

- Residential and non-residential
- Inter-agency coordination of development
- Coordination of land use and transportation planning
- Guidelines for land use and transportation planning (pedestrians, transit, bikes, automobile, parking, access)
- Whether or not to replace surface parking displaced by development

### Who Pays

- Government, user, developer
- Replacement of parking displaced by development

### Accountability

- Monitoring and enforcement of guidelines
- Impact of new development on existing community
- Protection of residential and pedestrian areas from speeding and/or through traffic

#### **QUOTE:**

***“High house prices mean we can’t live near work, but commuting is unpleasant, time-consuming and polluting. Car-free housing near campus would be a creative, affordable alternative.”***

*Antony Hodgson  
UBC Faculty Member*



## Recommended Policies

45. TREK will work with the University Architect, Director of Planning, and UBC Properties to ensure that all UBC Local Area Plans and developments consider STP policies.
46. TREK, in consultation with the Directors of Plant Operations and Planning, and the University Landscape Architect, will develop and implement a comprehensive Campus Traffic Management System (CTMS). The purpose of this system will be to control traffic congestion and flows (e.g. visitor centres/guide signage), review and maintain traffic safety (e.g. annual safety reviews), and promote sustainable traffic engineering devices and practises (e.g. roundabouts versus traffic signals, yields versus stop signs).
47. The UBC Transportation Advisory Committee, with on-/off-campus representation, will continue to hold regular meetings to provide for ongoing monitoring and feedback throughout the implementation of the STP and related traffic matters (i.e. CTMS).



### AT A GLANCE

#### Housing, Land Use & Transportation Integration

- **TDM Audits of Local Area Plans & Developments** (Policy 45)
- **Campus Traffic Management System** (Policy 46)
- **Ongoing TAC Meetings to Implement STP** (Policy 47)

# TRUCKING & GOODS MOVEMENT COORDINATION



*UBC is committed to reducing heavy truck volumes to and from campus, through measures aimed at improving its goods movement coordination, and at increasing coordination with the City of Vancouver truck routes.*

Under the City of Vancouver Truck By-law, the definition of a truck is a vehicle that has a gross vehicle weight (GVW) greater than 4500 kg, and three or more axles in tandem. These are commonly referred to as heavy trucks. For example, UBC Plant Operations pick-ups and courier vans are lighter than 4500 kg and would not be considered “trucks.” Most Canada Post trucks would be considered heavy trucks. Each day, there are roughly 300 heavy truck trips, and another few hundred light truck/courier trips to and from UBC. These numbers generally remain stable, depending on the level of campus construction activity, but many concerns have been raised by adjacent communities to reduce heavy truck use, and to reduce reliance on the Marine Drive truck route.

## Goals

1. Develop measures under the University’s Preferred Vendors Program to reduce truck volumes by grouping certain goods and services.
2. Designate which goods and services will move along which truck routes.
3. Manage the implementation of truck volume and truck route programs by developing a penalty enforcement clause for UBC service and construction contracts.
4. Develop methods for re-using fill materials (i.e. construction and other wastes) created on-site and other trucking demand reduction techniques.
5. Create a recognition program for best new idea for reducing impact on neighbours from truck traffic.

## Issues

The following factors were identified and taken into consideration during the development of the recommended policies in this plan:

### Coordination & Control of Goods Movement

- UBC controls contracts for many university businesses
- There are private enterprises on campus over which UBC has varying degrees of contractual control
- As the OCP is implemented, there will be additional private enterprises with high trip generation uses

### On-campus Construction

- Volume of trucks through off-campus residential areas
- Safety of heavy vehicles through residential areas and in mixed traffic
- Truck route enforcement
- Environmental impacts (e.g. noise, air quality, dust, vibration)

### Trucking Alternatives

- Additional research needs to be done on trucking alternatives

#### QUOTE:

*“Although freight vehicles represent a relatively small portion of total vehicle trips, they tend to impose greater ...congestion, road and parking facility costs, air and noise pollution..., so the benefits of even a relatively small reduction may be significant”*

*Todd Litman*

*Victoria Transportation Policy Institute*

## Recommended Policies

48. TREK will work with stakeholders on- and off-campus to promote efficient and safe practises for commercial trucking to, from, and across the campus. This will include liaison with the MoTH, ICBC, Plant Operations, Bookstore, Purchasing, and the City of Vancouver regarding truck bylaw/legislation provisions.
49. TREK will request and participate in regular joint UBC/ICBC/RCMP/Vancouver Police roadside spot truck inspections on truck routes to UBC.
50. TREK will work with UBC Purchasing, Bookstore, and Plant Operations to consider the award of one shipping contract for **all** major (i.e. > 22 kg) UBC shipments to a single, integrated, inter-modal shipper for consolidation at an off-campus depot and once-daily UBC deliveries and pick-ups.
51. TREK will work with the Director of Plant Operations, the University Architect, the University Treasurer, and UBC Properties to develop a Project Traffic Management Program to reduce heavy truck impacts on adjacent neighbourhoods, and to reduce campus traffic impacts on students, staff, and faculty. (See Appendix C.)
52. TREK will work with all fleet managers on campus to encourage evaluation of all new UBC trucks running on natural gas, electric or other “clean” fuel technology.
53. TREK will offer prizes for innovative suggestions to reduce campus truck traffic and its impact on UBC and surrounding communities.



### AT A GLANCE - Trucking & Goods Movement Coordination

- “ Safe Trucking Program (Policy 48)
- “ Roadside Truck Inspections (Policy 49)
- “ Consolidated Shipper Program (Policy 50)
- “ Site Traffic Management Program (Policy 51)
- “ “Clean” Heavy Trucks (Policy 52)
- “ Promote Innovation (e.g. Wesport) (Policy 53)

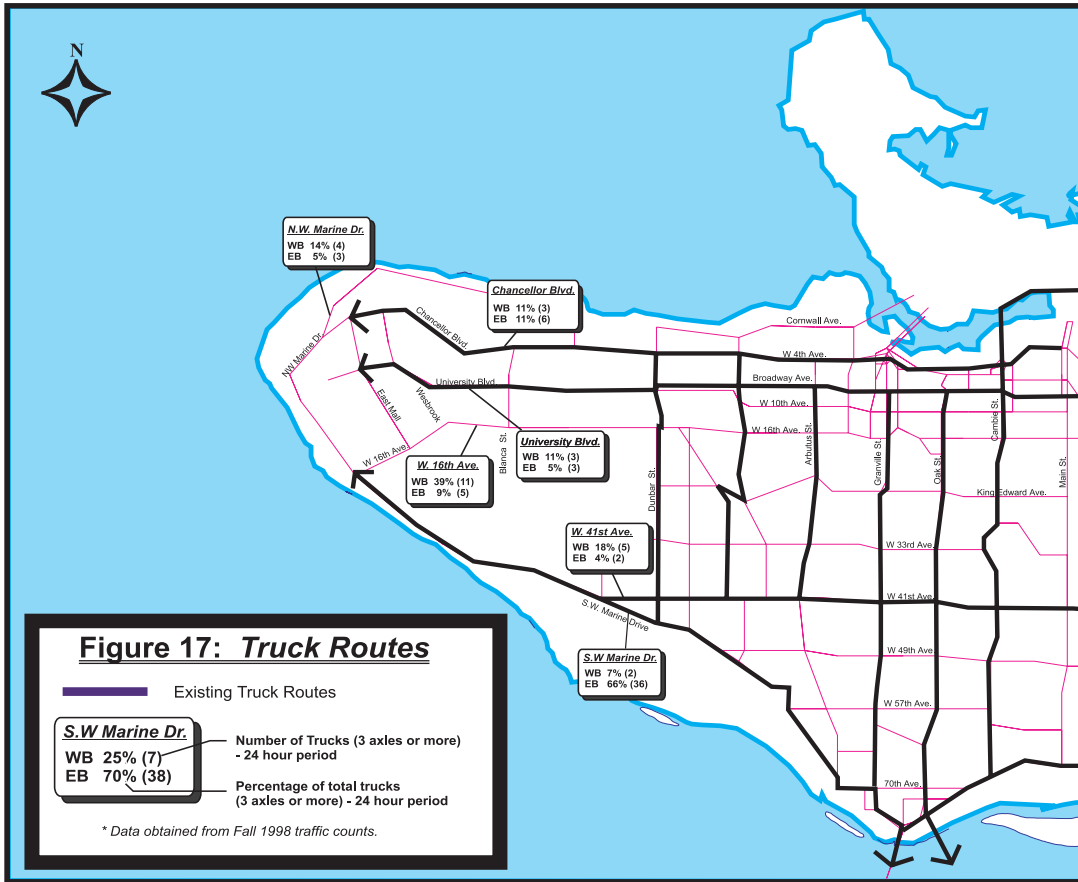


Figure 17 shows all current routes that heavy trucks may take through the City of Vancouver to UBC, together with data on 1998 heavy truck counts on each route (the approximate count location is noted by the box). It appears that while 16<sup>th</sup> Avenue is the popular route for trucks coming to campus (nearly 40%), Marine Drive is the popular route when leaving campus (nearly two-thirds). As 16<sup>th</sup> Avenue is NOT a truck route, efforts need to be undertaken to educate truckers on proper route procedures.

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# IMPLEMENTATION

*The recommended policies are intended to achieve the five-year 20% trip reduction targets and to guide UBC land use and transportation planning for the foreseeable future.*

As the STP is implemented, it is essential that key indicators be monitored to confirm the progress towards targets, and to provide sufficient opportunities for adaptive transportation demand management measures that will ensure that trip reduction targets are met. The expected results shown in Table 3 will be used to monitor TREK Program effectiveness. It is important to note that for the initial period, until U-TREK Card introduction, natural growth will occur in SOV volumes due to increased enrollment. Until partnerships are in place to support regional transit service improvements, together with the U-TREK Card, no significant shift from SOV to alternative modes can be expected. Things will very likely get worse before they get better. Progress towards trip reduction and mode shift targets are likely to follow a typical 'S' curve, as shown in Figure 18.

## Goals

1. **Develop a staged implementation plan.**
2. **Promote the use of transportation alternatives to the Single Occupancy Vehicle (SOV).**
3. **Raise awareness of SOV use; health, safety, and environmental impacts; and user costs.**
4. **Promote the U-TREK card.**

## Issues

The following issues were identified and taken into consideration during the development of the implementation section of this plan:

### Funding

- Parking is an ancillary (lack of general funding)
- Endowment funds are given "in trust" specific to academic and research purchases (lack of general funding)
- User-pay is the current trend of many local governments
- Affordable alternatives
- Parking fees are a "touchy" subject

### Attitudes

- People fear change
- People "love" their cars and want private space
- TREK is not yet perceived as working in the interest of the "average" UBCer
- TREK is a "bike-only" program (perception)
- Parking is a "cash cow" for UBC (perception)
- TREK is advocating a "no-car" policy (perception)
- Public transit is a "loser-cruiser" for people who can't afford a car (perception)
- TREK wants to punish SOVers by taking away their SOV "rights" (perception)
- Transit is an inconvenient, smelly, noisy, and unpleasant travel mode (perception)

## Recommended Policies

54. The UBC Strategic Transportation Plan will be reviewed annually and minor updates will be made by TREK in consultation with the UBC TAC. Major STP updates, with full stakeholder consultation, will be made by TREK as a complementary process to major updates of the OCP.
55. TREK will provide regular reports to the UBC Board of Governors, Design Panel Advisory Committee, UBC Planning Team, UBC TAC, and other stakeholders as necessary regarding progress on implementation of this STP.

## U-TREK Card

Promotion and introduction of the U-TREK Card is the ultimate marketing and communication campaign goal. All TREK activities are geared to successful implementation of the U-TREK Card. For students, the U-TREK Card requires a mandatory student fee, subject to an AMS Referendum. Promotional and informational material will be made available to support the AMS U-TREK Card referendum. A promotional campaign aimed at U-TREK Card optional purchasers (i.e. staff/faculty) is being developed. To promote maximum penetration into the staff/faculty segments, further discussion with respective groups is required.

## Expected Program Results

The expected results shown in Table 3 will be used to monitor TREK Program effectiveness. (See Appendix D for details.)

**Table 3: FIVE-YEAR TREK PROGRAM EXPECTED RESULTS<sup>1</sup>**

	1997	1998	1999	2000	2001	2002
<b>SOVs &amp; HOVs</b>	(actual)					
a. Lone drivers to/from UBC daily	46,000	49,300	50,000	42,000	39,000	36,800
b. Car/van poolers daily <sup>2</sup>	36,100	31,600	32,000	41,000	45,500	48,000
<b>Transit</b>						
a. Bus riders to/from UBC daily	19,000	19,400	20,500	25,000	28,000	30,000
b. Buses to/from UBC daily	1,000	1,050	1,140	1,200	1,250	1,300
<b>U-TREK Cards</b>						
a. Fare Cards/mo	3,000	3,300	3,700	4,000	26,000 <sup>3</sup>	33,000
b. Parking permits/mo <sup>3 &amp; 4</sup>	6,600	6,600	6,600	6,600	6,150	6,150
<b>Bikes Peds &amp; Shuttles</b>						
a. Bike riders to/from UBC daily	2,700	3,800	4,100	4,800	5,100	5,400
b. Shuttle rides across UBC daily	100	100	300	600	800	1,000
c. Pedestrians	1,400	1,600	1,700	1,900	2,000	2,000
<b>Land Use</b>						
a. Commuter showers	4	4	4.5	6	7	8
b. Bike racks	300	330	370	420	470	500
<b>Trucks</b>						
a. Heavy Trucks <sup>5</sup>	300	300	300	300	300	300

1. These accountability measures assume regional partnerships are in place to successfully launch U-TREK Card (See Table 2.).

2. This is person-trips in car/van pools, not number of vehicles.

3. Introduction of U-TREK Card replaces fare cards, and may be integrated with parking, subject to further review.

4. Parking permits per month are an estimate.

5. Upper Limit.

## Measuring Success

Accountability methods will be established to measure expected results, U-TREK Card sales, number of people participating in events, and awareness levels. Communication audits will be conducted in January 2000 to assess which communications activities are most effective in reaching our audiences.

**Figure18:UBC Trips by Mode**  
(Fall Counts Across UBC Screenline)

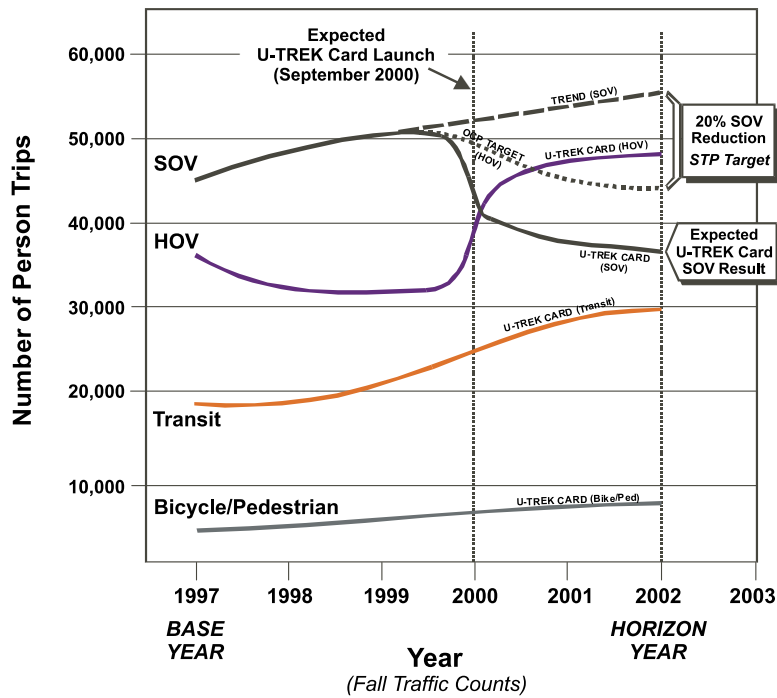


Figure 18 shows the number of two-way person trips that occur on an average day to/from UBC for each mode of travel, together with the targeted trips as per UBC's OCP commitments. Until the U-TREK Card is implemented, SOV trips are expected to continue to rise. Research on U-TREK programs elsewhere suggests that SOV trip reductions occur rapidly within the first year or two of implementation. A reduction of 20% or more is not unusual for U-TREK Card programs.

**Figure19:Cumulative UBC Trips by Mode**  
(Fall Counts Across UBC Screenline)

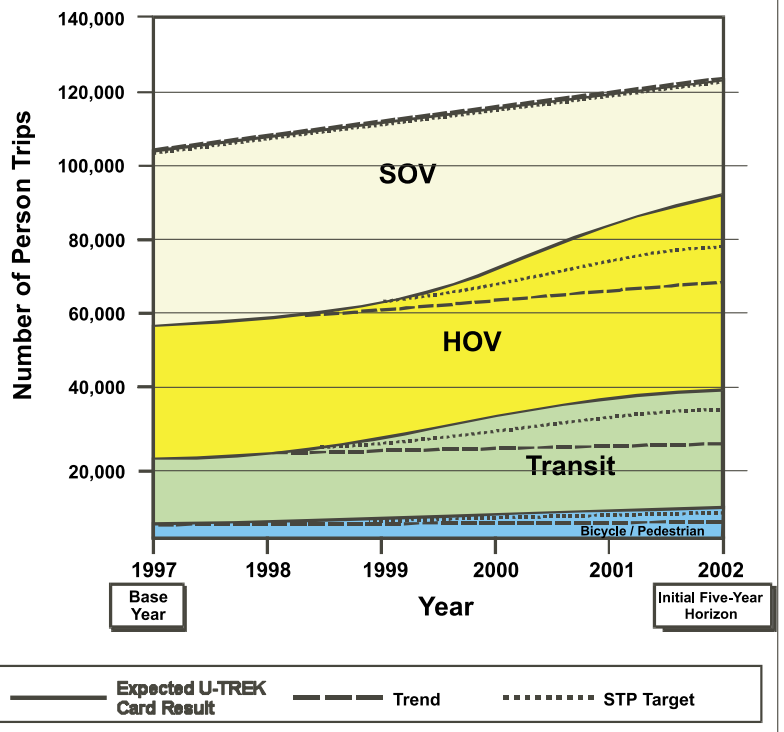


Figure 19 shows that while the SOV mode share is targeted to decline, total person-trips to/from UBC are expected to grow. Growth will occur due to enrollment growth (historically 2% per annum) and on-campus development.



## Staged Implementation Plan

TASK	TIMING	RESPONSIBILITY
Stage 1: Start-up		
Creation of Transportation Advisory Committee (TAC)	Spring 1997	
Hiring of Transportation Director	Fall 1997	AVP Land & Building Services (LBS)
Launching Annual Baseline Traffic Monitoring	Fall 1997	AVP LBS/Director/Consultants
Sourcing Consultants	1998	Director
Stage 2: Development		
Exploring Partnership Opportunities	Ongoing	Director/Consultants
Seek Low or No-Cost Promotional Opportunities	Ongoing	Marketing Consultant
Devel. of Educational/Promotional Material	Ongoing	Marketing Consultant
Development of TREK Logo, Slogan, Campaign	1999	Mini TAC/Marketing Consultant
Devel. of Car/Van Pool Web Site Registration	1999	Rideshare Consultants
Development of UBC Commuter Guide	Summer 1999	Marketing Consultant
Development of Campaign	1999/2000	Marketing Consultant
Stage 3: Approvals & Feedback		
U-TREK Card	1999/2000	AMS/Consultant/TransLink
Public Forums/Events/Displays	1999-2002	TREK Staff/Marketing Consultant
Campus Transportation Survey	Jan. 1998	Director/Research Consultant
Final STP Draft to Board of Governors	Nov. 1999	Director
Stage 4: Commissioning		
U-TREK Card Launch (students only) *	2001	Director/Consultants/TransLink
Start U-TREK Card Finance and Administration	1999	Finance Consultant
Establishing Partnerships	Ongoing	Director/Consultants
Publication of Great TREKS Newsletter	Ongoing	Marketing Consultant
Implementation of TREK Campaign	1999/2000	Marketing Consultant
U-TREK Card Promotional Campaign *	1999/2000	Mini TAC/Marketing Consultant
Bike Kitchen Launch	1998	AMS Bike Co-op/Director
Airport Shuttle	Ongoing	Director/Rideshare Consultant
Establish User Groups	1999	Director
End-of-trip Facility Coordination	Ongoing	Director
Campus Shuttles	1999/2000	Director
Secure Transit Service Improvements	Ongoing	Director
On- and off-campus Bike Route Systems	Ongoing	Director
Campus Traffic Management System	Ongoing	Director
Reschedule Class Time Plan	2000	Director
Green Fleet Program	Ongoing	Director
Roadside Spot Truck Inspections	Ongoing	Director/RCMP
Project Traffic Management Program	2000	Director
HOV Programs	Ongoing	Director/Rideshare Consultant
Stage 5: Monitoring & Refinement		
Traffic Counts	Semi-annual	Director/Consultant
Communications Audit	Jan. 2000	Marketing Consultant
Market Surveys	Ongoing	Director/Consultants
Campus Transportation Planning Survey	1999/2000	Director/AMS/TransLink
Reports to TAC and Board of Governors	Ongoing	Director
Transit Service Plan Reviews	Ongoing	Director
Annual TDM Audits	Ongoing	Director/TAC
Development Reviews	Ongoing	Director/TAC
Regular TAC Meetings	Quarterly	Director

\*U-TREK Card launch subject to regional partnerships.

## Consultants

Two consultants will be used to assist in the marketing and implementation of the TREK Program. The duration of these engagements is unknown and will depend on how the U-TREK card is administered. One consultant will be responsible for TREK Program Marketing & Communications. The consultant will coordinate the marketing and communication campaign and report to the Director of Transportation Planning. The responsibilities of this consultant include:

- Ensuring that activities of the director, administrative secretary, student assistants, other partners, and consultants support campaign goals;
- Developing campaign strategy and implementation details;
- Preparing, or have prepared, press releases and graphics; and
- Using marketing tools to craft the desired TREK Program Centre “identity.”

The second consultant will be responsible for Finance and Administration of the TREK Program Centre as well as:

- Developing U-TREK Card program implementation and administration procedures;
- Administering U-TREK Card and other partnership agreements;
- Hiring and training staff to administer the TREK Program, including U-TREK Card start-up; and
- Monitoring and refining the TREK Program financing and business plan.

## Marketing & Communications

### Creating Identity

The TREK Program is creating an identity that positions the TREK Program Centre as UBC’s Transportation Planning and Commuting Alternatives Resource Centre. The promotional tag line for TREK is *Improving Your Transportation Choices*. This tag line identifies the purpose behind TREK and what TREK does. The logo incorporates the TREK Program Centre and the UBC Crest and will be used with the tag line on all promotional material.

To date, the TREK Program Centre has gained visibility through the promotion of TREK sponsored activities. These include public outreach via Clean Air Day, March Forth and Imagine events; open houses, and an e-mail survey; development of a UBC Transportation Advisory Committee and Transportation Action Teams; partnerships with various on- and off-campus transportation groups; and development of the TREK website ([www.trek.ubc.ca](http://www.trek.ubc.ca)).

### Barriers

The TREK 20% SOV trip reduction mandate necessitates a “radical” change in UBC commuter mind set and behaviour patterns. As such, there are a number of “barrier” issues (e.g. personal perception) to be considered when implementing the TREK Program Centre communications strategy and educational campaign. These issues were identified on page 35.

### Target Market

Each day, over 110,000 person trips are made to and from UBC. The primary target audience is the 49,000 SOV daily drivers. This target audience is comprised of several segments: students, staff, faculty, and visitors. The promotional campaign will also significantly impact the general public in the rest of the region.

### Campaign Strategy

The promotional campaign will build awareness of the impact of SOV use on the environment, personal health, and personal safety, and educate the target audience on the alternatives available to travelling alone in their car.

Coordination of the marketing and communications strategy includes:

- Coordinating with all pertinent agencies;
- Developing consistent marketing material;
- Developing a coordinated media campaign; and
- Developing a display program for events.

## Campaign Objective

The long-term objective of the educational campaign is to change people's behaviour. Facilitating what is perceived to be a dramatic change in lifestyle will require a coordinated step-by-step approach that includes four main parts.

1. Build **awareness of the TREK mission** to decrease SOV use by 20% by November 2002.
2. Educate the target audiences on the impact of SOV use and the **alternatives available**.
3. Build the **conviction** that decreasing SOV use is the "right" thing to do.
4. Lead the SOV users to **take the final step** and decrease their SOV use by at least 20%, or one day per week (i.e. two trips out of an assumed 10-trip, five-day per week commute schedule), and encourage the purchase of a U-TREK Card.

## Campaign Material and Promotion

Educational and promotional material will include information on:

- Costs and stresses of driving alone, despite the obvious advantages;
- Personal health risks and environmental damage caused by vehicular pollution;
- Personal safety risks of traffic collision from increasing traffic congestion;
- Personal cost savings, health and safety benefits of alternative transportation methods; and
- How a person's actions do make a difference to personal well-being, UBC, and the rest of the region.

The TREK Program Centre will work with other organizations and community groups to use available resources and existing programs as much as possible. Feedback and participation mechanisms will be used to encourage public involvement and for ongoing assessment of the campaign.

An implementation guide will be developed that can be used as a guide by other institutions and organizations seeking to decrease SOV use and encourage alternative methods of transportation.

The campaign will consist of, but not be limited to:

- Advertising in various UBC media
- Awareness Contests
- Commuter Resource Guide
- Electronic Registration for Car and Van Pool
- Fact Sheets
- Great TREKs Newsletter
- Green Light Screen Saver/Wallpaper for PC
- Novelty Items promoting the TREK Message
- Participation in Training New Staff/Faculty
- Participation in Partners' Events
- Posters/Signs in strategic locations
- Press Releases
- Public Information Forums
- Shuttle Vehicle Advertising
- TREK Brochure Series
- TREK website
- Use of Existing Promotional Material
- Participation in Student Orientation

## Financial Projections

Revenues and expenses under this scenario are summarized in Table 4. The financial projections indicate that a system of this nature could be viable, subject to certain assumptions. Points to note include:

- The ongoing annual University contribution would be comprised of revenue from U-TREK Card and Parking Services.
- The Parking contribution is assumed to continue on after year five based on current commitments of \$350,00 per year.

- With the exception of the annual Parking contribution and the ongoing cost of the campus security shuttle, the TREK Program is entirely self-funding.
- TREK Program revenues assume a mandatory student fee of \$25 per month for students. Any increases in transit fares would result in an equivalent percentage increase in the per semester fee.
- The Program assumes all faculty and staff may purchase a U-TREK Card (3-zone transit pass plus other TREK benefits) at a cost of \$45 per month in phase 2.
- The annual University contribution will continue to fund the operations of the TREK office.
- Payments to TransLink (formerly BC Transit) are based on current ridership projections as supplied by TransLink.
- Other operating costs include the cost of issuing U-TREK Cards to students and participation monitoring.

**Table 4: SUMMARY OF FINANCIAL PROJECTIONS (\$'000)**

	<b>2001/02</b>	<b>2002/03</b>	<b>2003/04</b>	<b>2004/05</b>	<b>2005/06</b>
<b>Revenues</b>					
University Sources	6,976	7,005	7,025	7,058	7,095
<b>Expenses</b>					
Payment to TransLink (BCTransit)	5,800	6,000	6,050	6,100	6,150
Other U-TREK Card Services	518	501	480	489	499
TREK Program Services	613	494	485	469	446
TREK Non-operating Expenses	45	10	10	0	0
Total Expenses	6,976	7,005	7,025	7,058	7,095
<b>Net Annual Revenues (Expenses)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

The U-TREK Card Program would be managed by the TREK Program Centre as a stand-alone operation.

UBC TREK  
Improving Your  
Transportation  
Choices

### AT A GLANCE - Implementation

- Living Document (Policy 54)
- Staged Implementation Plan
- Financial Plan
- U-TREK Card Program of \$7 million
- Regular Board Updates (Policy 55)
- Marketing & Communications Plan
- Parking Contribution of \$350,000

## Appendix A

### TDM Audit Guidelines

These TDM Audit Guidelines will be reviewed annually, and updated by TREK as needed, to reflect state-of-the-art TDM audit practises.

- No additional parkades are planned at UBC.
- No new parking stalls are planned at UBC with the exception of those related to new institutional, commercial and/or residential developments.
- All new parking stalls for new buildings should be built underground to minimize physical barriers and traffic conflicts with pedestrians, bicyclists, and transit, except those built for short-term parking (i.e. commercial, courier, service, emergency, drop-off/pick-up) and/or ground-oriented residential uses.
- With reasonable SOV alternatives in place (e.g. U-TREK Card), the *maximum* number of *commuter* stalls on campus should be 25% of the total student, staff and faculty population (i.e. 10,000 stalls based on 1999 population of 40,000). In the long-term, as SOV alternatives are further improved, consideration should be given to providing preferably less than 20% of the total population (i.e. 8,000 stalls based on 1999 population of 40,000).
- There should be *no net gain in commuter* parking stalls where existing parking lots/stalls are to be re-habilitated, re-built, and/or re-configured; and/or where new parking stalls are built. Allowances for total enrollment growth and on-campus residential growth are permitted.
- Comparisons with other TDM programs, changes in the supply of transit, and HOV service levels.
- Parking comparisons with other TDM programs.
- Consider parking price levels in relation to the price, convenience, and capacity of SOV-alternatives (e.g. transit/HOV).
- Review of comparable markets, trends, and trip reduction progress.
- Minimum on-campus daily parking rate will be equal to or more than the standard single-zoned transit fare to and from campus (i.e. at 1999 transit rate, two bus rides @ \$1.50 each = \$3 total per day < minimum daily B-lot parking price).
- Advise directors and administrative heads of non-residential units with assigned parking of the number of assigned parking stalls, and annual costs of those stalls.

## Appendix B

### End-of-Trip Facilities

#### **Traffic Impact Assessments for major buildings will include:**

- Consultation with UBC Director of Transportation Planning
- Criteria to consider effects of noise, parking, access, circulation, peds/bikes
- TDM audit to consider ways of reducing reliance on SOVs, parking (e.g. shared)

#### **Accessible Parking (Figure 10)**

- Located nearest main building entrance
- Minimize intrusion into pedestrian/bicycle areas
- Minimum one stall, up to one percent of total parking provided
- Maximum based on a case by case assessment of need, alternatives

#### **HOV (i.e. car/van pools), Service (Figure 9), Emergency (Figure 10)**

- If in ped/bike core, case specific study will be conducted by Director of Transportation Planning in consultation with University Architect
- If outside ped/bike core:
  - Located next to Accessible Parking stall(s)
  - Minimum one stall reserved 24 hours per day for registered HOVs, Courier, Service, and Emergency vehicles
  - Minimum 40% of stalls to be signed “Reserved for registered car/van pools until 9:30 a.m.”

#### **Commercial**

- Short-term (patrons, couriers, vendors, visitors & service vehicles)
- Loading: Heavy truck loading zone if needed
- Drop-off/pick-up: Reserved courier/service stall if needed
- Alternative hourly otherwise
- Long-term—none

#### **Institutional**

- Accessible Parking, HOV, Service, Emergency—as above
- General purpose stalls (e.g. staff, students, faculty)—none

#### **Voluntary Capital Contributions to UBC TREK Programs**

- Reviewed on a site by site basis
- Consider cash in lieu to TREK for TDM use, or consider providing replacement or new parking stalls, recognizing actual costs to provide one parking stall are:
  - Surface lots - \$3,000 per stall, with \$300 annual maintenance costs
  - Parkades - underground - \$30,000 per stall, \$500 annual maintenance costs
    - above ground - \$15,000 per stall, \$500 annual maintenance costs

## **Residential**

- Market (Maximum) - Comprehensive Community Plan average, shared parking where possible.
  - 1.8 stalls per unit, 0.1 for visitor
  - 0.1 for Accessible Parking, relaxed for Accessible units
- Non-market
  - Single student—0.25 stalls per bed (maximum)
  - Family student—0.8 stalls per unit, plus up to 0.2 stalls shared if needed (maximum)
  - Visitors—0.1 stalls per unit (maximum)
    - Minimum 1 parking stall per 50 units for a cooperative auto network/shared vehicle parking stall
    - Neighbourhood Electric Vehicle (NEV) and Natural Gas Vehicle (NGV) recharging outlets at each building
    - Faculty/staff—1.0 stall per unit, a portion of which may be on the street or shoulder

## **Bike Racks**

The greater of:

- Two - 16-stall bike racks per building
- One - 16-stall bike rack per 100 people (students, staff, faculty, and/or visitors) expected to use the building on a normal day
- One - 16 stall bike rack per 20 residents (apartments)
- Secure storage for two bikes per three people (townhouses)
- CORA type rack or equivalent, colour to suit building finish
- Sheltered in high traffic areas to promote natural surveillance/low vandalism
- In residences, bike racks must be in heated, secure storage space

## **Secure Bike Storage Facilities**

- Director of Transportation Planning, in consultation with the UBC Landscape Architect, will prepare a plan of secure bike storage priority locations
- Lockers to be installed on a five-year cost recovery basis
- Secure bike storage facilities can consist of lockers or of staffed bike check facilities

## **Showers & Change Rooms:**

- Minimum one shower stall (excluding short term parking)
- Minimum of two showers (unisex or one male and one female) per 30 bike parking spaces
- One wash basin for each shower stall
- Clothes lockers - 14 for every 10 bike parking spaces, minimum 5
- Electrical outlets in each change room for blow dryers

## Appendix C

# Project Traffic Management Program

This plan is NOT meant to replace existing road closure policies. It is meant to reduce heavy truck impacts on adjacent neighbourhoods, and to reduce campus traffic impacts on students, staff, and faculty.

TREK will work with the Director of Plant Operations, the University Architect, the UBC Treasurer, UBC Properties, and/or individual project development managers as needed, to develop a Project Traffic Management Program.

The following Level One, Two and Three program provisions need to be considered:

### **LEVEL ONE**

(For all UBC construction sites that create a significant amount of heavy truck traffic.)

Development Managers to implement the following, in consultation with TREK, in the site lease and/or general conditions of the construction contract:

- Set the maximum truck traffic ratios to be used on various routes, based on annual UBC truck count program;
- If complaint(s) are received about trucks, the manager will discuss with drivers and terminate contract if necessary;
- Proof of annual safety inspection certificate for all trucks;
- Trucking hours, 7 a.m. to 7 p.m., maximum 2 hour extension in the evening on prior approval; and
- Awareness of and compliance with UBC ped/bike core areas, and truck routes.

### **LEVEL TWO** (For all major projects, greater than six weeks duration, with daily heavy truck traffic.)

Development Managers to implement a Construction Traffic and Parking Management Plan. TREK will prepare the Plan, in consultation with the Development Manager, and it will include the following provisions:

- All Level One provisions;
- Haul routes – spread over a minimum of two west-side Vancouver truck routes, which would then be alternated each day (e.g. Marine Drive and 41<sup>st</sup> Avenue);
- Flag persons, if required during loading/off-loading;
- On-site truck wash facilities;
- Worker vehicle parking/TDM plan; and
- Campus road detour/staging plans if road closures are required.

### **LEVEL THREE** (For all major third party projects, greater than six weeks duration, with daily heavy truck traffic.)

Provisions of Levels One and Two shall apply to the following types of heavy trucks:

- dump trucks
- concrete trucks
- concrete pump trucks



## Appendix D

# UBC Benchmark Transportation Data

The Benchmark Transportation Data collected by UBC is displayed in the attached Table 1. Because the UBC TREK Program Centre does not have the resources to undertake intensive manual transportation data collection efforts 7-days per week, 24-hours per day, some of the data presented in Table 1 had to be estimated based on 24-hour automatic traffic data. Provided below is a summary of the methodology used to collect, compile and present this data.

### Data Collection Locations

Figure 1 and Figure 2 identify the traffic data collection locations for 1997 and 1998, respectively. In 1997, traffic data was generally collected at locations near the border between the University Endowment Lands (UEL) and the City of Vancouver. Unfortunately, with this methodology, it was not possible to distinguish between UEL and UBC campus trips. This was especially important since the UBC TREK Program Centre was trying to achieve targets set for travel to and from the University campus. Thus, when data collection locations for 1998 were being reviewed, special care was taken to ensure that UBC trips and UEL trips would not be confused. Also, taking 24-hour vehicle counts at both the UBC Campus locations and the UEL-Vancouver locations, we could develop factors to determine the actual number of trips made to and from the UBC campus in 1997. The factoring process used in completing Table 1 are described below.

### Traffic Volumes

Actual traffic volumes were collected for 24-hour periods over 7-days using automatic counting equipment from TransTech Data Services Ltd. (hose counters), the Ministry of Transportation and Highways (in-pavement loop counters) and the City of Vancouver (hose counters). Estimates for traffic volumes were only required for the 1997 UBC screenline, since no counting equipment was placed at this screenline at this time. The 1997 UBC screenline volumes were calculated as follows:

$$1997 \text{ UBC vols.} = 1997 \text{ Vancouver vols.} * (1998 \text{ UBC vols.}/1998 \text{ Vancouver vols.})$$

The traffic volume data plays a significant role in estimating 24-hour person trips by mode, with the exception of transit ridership data, because only peak period data was collected for individual modes. Therefore, person trips by mode data collected manually had to be extrapolated over the 24-hour period using factors developed with the automatic traffic count data.

### Person Trips by Individual Modes

Person trip data for individual modes (i.e. SOV, HOV, bicycle pedestrian, motorcycle and truck) was manually collected for only the peak periods of the day as follows:

- AM Peak Period – 7:00am to 10:00am
- Midday Peak Period – 11:30am to 1:30pm
- PM Peak Period – 3:00pm to 6:00pm

The cost of undertaking these counts also limited manual data collection to only one screenline per year. For example, in 1997 these manual counts were undertaken at the Vancouver screenline. In 1998, however, the counts were undertaken at the UBC screenline to more accurately monitor travel to and from the UBC campus. Thus, the number of person trips for the 1997 UBC screenline and the 1998 Vancouver screenline had to be estimated in order to provide a full picture for both screenlines in 1997 and 1998.

When the manual occupancy counts were conducted, vehicles were categorized as follows:

- 1 person per vehicle
- 2 persons per vehicle
- 3 persons per vehicle
- 4 or more persons per vehicle (not including transit buses)

Thus, when calculating person trips, the number of vehicles for each category were multiplied by the number of persons per vehicle (i.e. 100 vehicles carrying 3 persons each is equivalent to 300 person trips).

Classification of other vehicles travelling to and from the University was undertaken as follows:

- Trucks
- Light Trucks (2 axles)
- Heavy Single Unit Trucks (3 or more axles, non-articulated)
- Heavy Articulated Trucks (semi-trailers)
- Buses
- Motorcycles
- Bikes
- Pedestrians

For both the 1997 UBC screenline and the 1998 Vancouver screenline data, person trip volumes were calculated using ratios derived from automatic traffic volumes. For example, the 1998 Vancouver screenline data for Single Occupant Vehicles (SOVs) was calculated as follows:

$$\text{1998 Vancouver (SOVs)} = \text{1998 UBC (SOVs)} * (\text{1998 Vancouver vols./1998 UBC vols.})$$

Similarly, 1997 UBC screenline data by mode was calculated by comparing 1997 UBC screenline traffic volumes with 1997 Vancouver screenline traffic volumes. However, a greater degree of estimation was used in this case because 1997 UBC screenline traffic volumes were originally derived by estimation. It is also important to note that some direction totals for individual modes were factored up to achieve a balance between inbound and outbound totals. The imbalance in directional totals, particularly for trucks and HOVs, is likely the result of surveying inbound and outbound traffic on different days.

For person trips by transit, automatic traffic volumes were not used to calculate estimates. Similar to all other mode data, transit data was collected manually by BC Transit employees at the Vancouver screenline in 1997 and the UBC screenline in 1998. However, transit load data was collected for 18-hour periods, rather than only peak periods, between 6:00am and 12 midnight. In order to determine person trips by transit for the screenlines that were not manually surveyed, a degree of estimation was required.

For the 1997 UBC screenline, it was estimated that only 5% of transit trips (1,000 trips) made to and from UBC and the University Endowment Lands (UEL) were actually UEL based transit trips. Thus, it was assumed that 19,000 transit trips were UBC based. Directional trip values were calculated using the proportions obtained from the manually collected 1997 Vancouver screenline transit load counts. Using the newly calculated 1997 UBC screenline load data, 1998 Vancouver screenline transit loads were estimated as follows:

$$\text{1998 Vancouver loads} = \text{1998 UBC loads} * (\text{1997 Vancouver loads/1997 UBC loads})$$

With the exception of transit trips, all 24-hour person trip estimates by mode were calculated for all screenlines as follows:

$$\text{24-hr. SOV} = \text{AM+PM Peak Period SOV} * (\text{24-hr. Traffic Volume/AM+PM Peak Period Traffic Volume})$$

#### **Total Person Trips – Modes Combined**

Total person trips for both screenlines and both years were calculated in the same manner. For all of the time periods – with the exception of the 24-hour period and the daytime period – total trips were calculated by adding up person trips for individual modes by time period. For motorcycle and truck trips, only one person per vehicle was assumed.

Total trips for the daytime period (7:00am to 6:00pm) were estimated as follows:

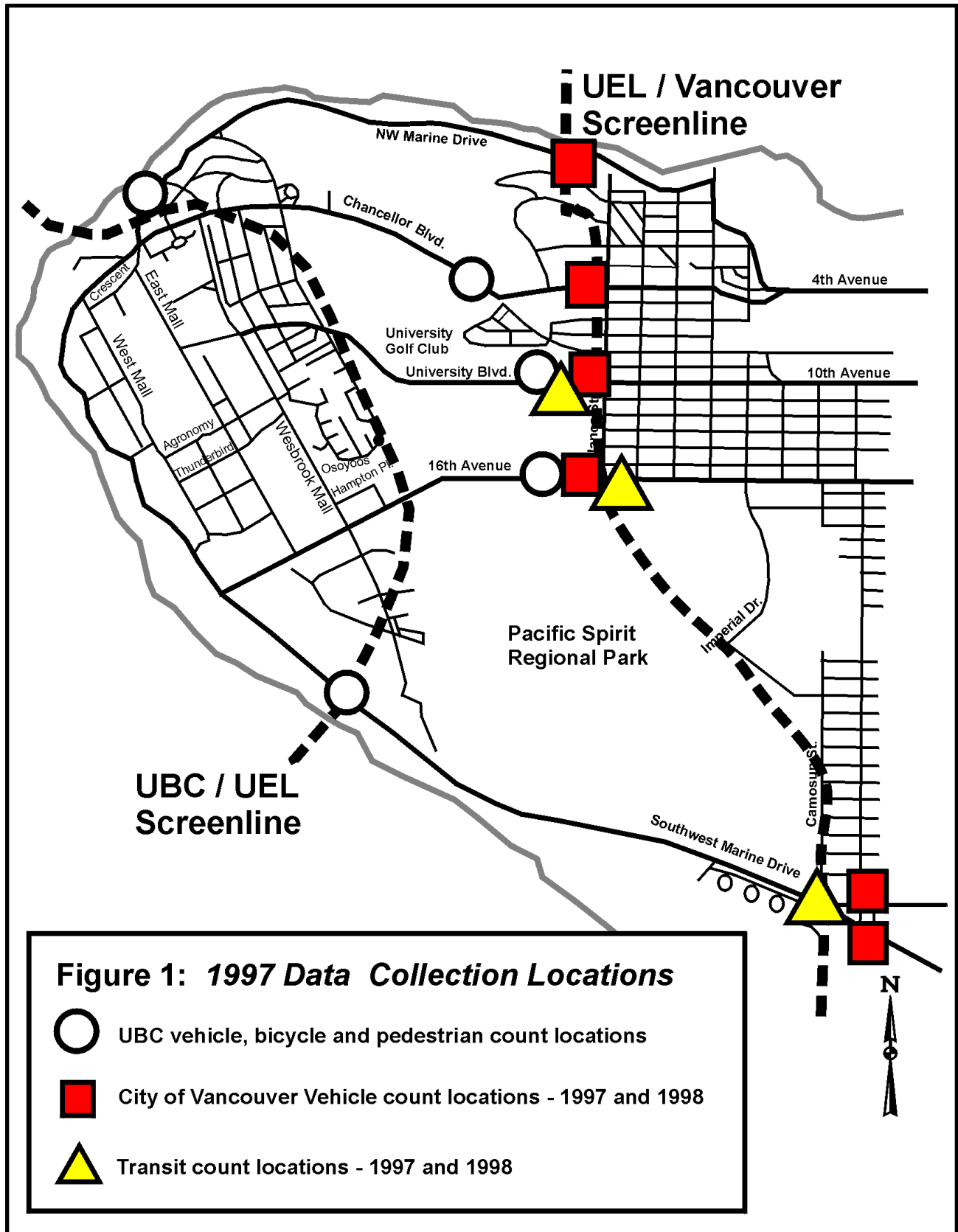
- It was assumed that the 6-hours of non-peak period traffic between the AM and PM peak periods (10:00am and 3:00pm) comprises two-thirds of the total non-peak period traffic.
- To calculate total non-peak period traffic (18 hours), total peak period traffic (AM+PM peak periods) was subtracted from 24-hour traffic.
- Two-thirds of total non-peak period traffic was then added to total peak period traffic to yield a value for the daytime period between 7:00am and 6:00pm.

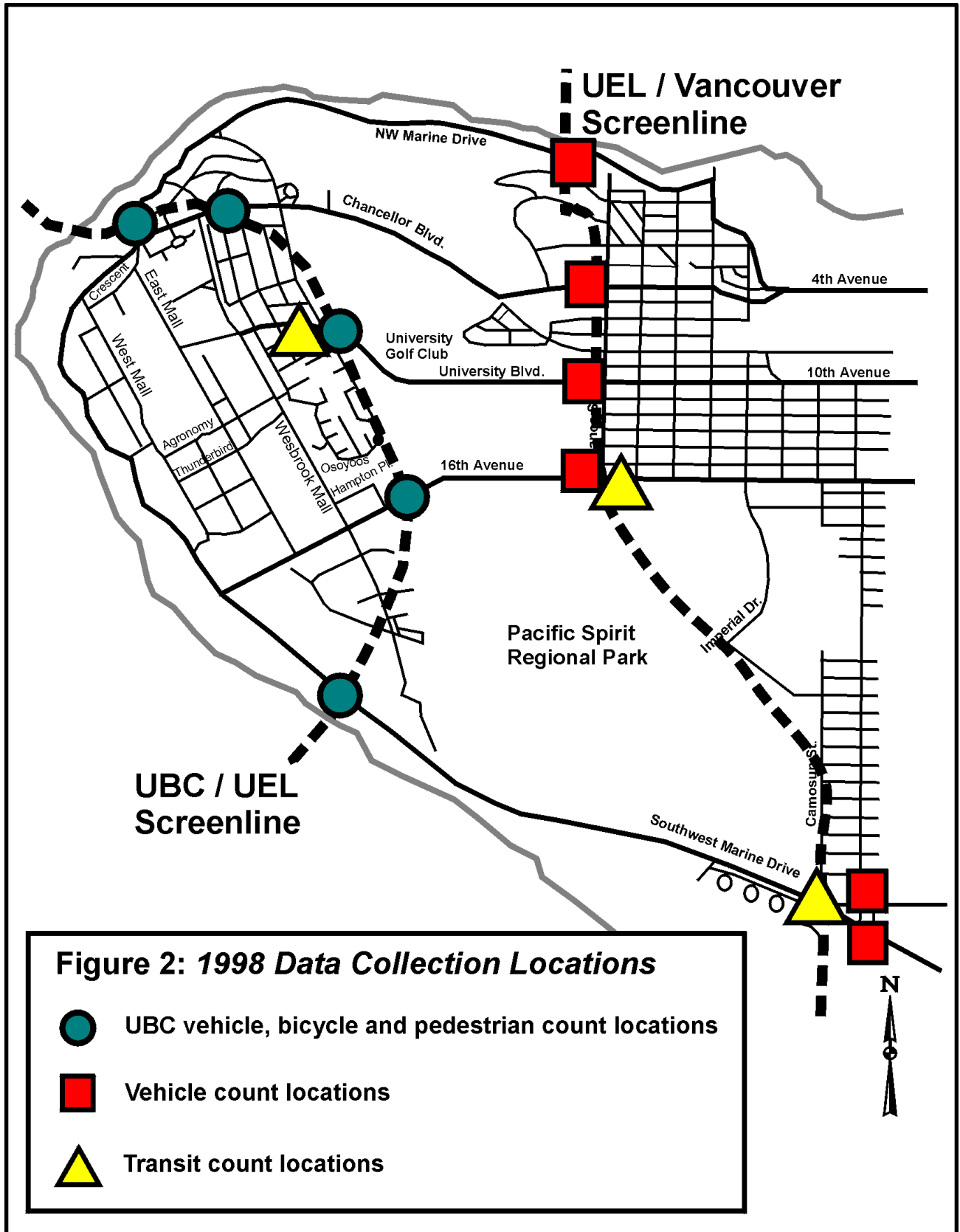
For 24-hour trip totals for both screenlines in both years, 24-hour person trip totals for individual modes were added together.

**Table 1: Characteristics of Travel To/From the University of British Columbia**




Last Updated: February 22, 1999

			1997 - UBC Screenlines				1997 - Vancouver Screenlines			
			Eastbound	Westbound	Total	Percentage	Eastbound	Westbound	Total	Percentage
Person Trips	24-Hour (estimated)		52061	54036	106097	100.0%	56048	57539	113587	100.0%
	AM Peak Hour	8:00-9:00 AM	1796	9362	11157	10.5%	1933	9969	11902	10.5%
	AM Peak Period	7:00-10:00 AM	4226	20478	24704	23.3%	4829	21805	26634	23.4%
	PM Peak Hour	4:00-5:00 PM	6681	2403	9085	8.6%	7193	2559	9752	8.6%
	PM Peak Period	3:00-6:00 PM	18186	6869	25055	23.6%	19400	7951	27351	24.1%
	AM + PM Peak Periods		22412	27347	49760	46.9%	24229	29756	53985	47.5%
	Midday 2 Hours	11:30 AM-1:30 PM	6602	5455	12058	11.4%	6884	5861	12745	11.2%
	Daytime (estimated)	7:00 AM-6:00 PM	42210	45339	87548	82.5%	45442	48278	93720	82.5%
Person Trips	24-Hour (estimated)	SOV	22491	23509	46000	43.4%	24506	26171	50677	44.6%
		HOV, 2 person	13357	14589	27947	26.3%	14457	15083	29540	26.0%
		HOV, 3 person	2628	3062	5690	5.4%	2844	2975	5819	5.1%
		HOV, 4+ person	1230	1256	2485	2.3%	1327	1148	2475	2.2%
		Transit	9597	9403	19000	17.9%	10140	9934	20074	17.7%
		Bicycle	1453	1247	2700	2.5%	1541	1322	2863	2.5%
		Pedestrian	774	626	1400	1.3%	664	537	1201	1.1%
		Motorcycle	110	71	181	0.2%	126	83	208	0.2%
		Light Truck (2 axles)	243	152	395	0.4%	256	160	416	0.4%
	Heavy Trucks (3 axles or more)	178	121	298	0.3%	187	127	314	0.3%	
Traffic Volumes	24-Hour		31915	31748	63663	100.0%	36326	37011	73337	100.0%
	AM Peak Hour	8:00-9:00 AM	1144	5036	6180	9.7%	1450	5506	6956	9.5%
	AM Peak Period	7:00-10:00 AM	2976	11280	14256	22.4%	3630	12623	16253	22.2%
	PM Peak Hour	4:00-5:00 PM	3870	1480	5351	8.4%	4296	1838	6134	8.4%
	PM Peak Period	3:00-6:00 PM	10405	4229	14634	23.0%	11697	5295	16992	23.2%
	AM + PM Peak Periods		13373	15466	28838	45.3%	15327	17918	33245	45.3%
	Midday 2 Hours	11:30 AM to 1:30 PM	4418	3746	8163	12.8%	4828	4328	9156	12.5%
	Daytime	7:00 AM to 6:00 PM	26928	27150	54077	84.9%	27426	29088	56514	77.1%
Traffic Volumes By Route	24-Hour	NW Marine Dr.	1005	1035	2041	3.2%	1062	1329	2391	3.3%
		Chancellor Blvd.	6006	5654	11660	18.3%	6512	6135	12647	17.2%
		University Blvd.	7860	6750	14610	22.9%	9383	8788	18171	24.8%
		16th Avenue	6486	6388	12875	20.2%	6915	7196	14111	19.2%
		41st Avenue	n/a	n/a	n/a	n/a	4128	5389	9517	13.0%
		SW Marine Dr.	11196	12216	23412	36.8%	8326	8174	16500	22.5%
			1998 - UBC Screenlines				1998 - Vancouver Screenlines			
			Eastbound	Westbound	Total	Percentage	Eastbound	Westbound	Total	Percentage
Person Trips	24-Hour (estimated)		53594	52701	106295	100.0%	59833	60922	120755	100.0%
	AM Peak Hour	8:00-9:00 AM	1860	8455	10315	9.7%	2077	9774	11850	9.8%
	AM Peak Period	7:00-10:00 AM	4755	19127	23882	22.5%	5643	21026	26669	22.1%
	PM Peak Hour	4:00-5:00 PM	7200	2794	9994	9.4%	8038	3230	11268	9.3%
	PM Peak Period	3:00-6:00 PM	18132	8355	26487	24.9%	19893	10025	29918	24.8%
	AM + PM Peak Periods		22887	27482	50369	47.4%	25536	31051	56587	46.9%
	Midday 2 Hours	11:30 AM-1:30 PM	6795	5899	12694	11.9%	7205	6507	13712	11.4%
	Daytime (estimated)	7:00 AM-6:00 PM	43358	44295	87653	82.5%	48406	51205	99611	82.5%
Person Trips	24-Hour (estimated)	SOV	25016	24300	49316	46.4%	28543	28389	56932	47.1%
		HOV, 2 person	11967	12750	24717	23.3%	13562	15139	28701	23.8%
		HOV, 3 person	2251	2186	4437	4.2%	2559	2872	5431	4.5%
		HOV, 4+ person	1530	874	2405	2.3%	1761	1343	3104	2.6%
		Transit	9701	9668	19369	18.2%	10249	10214	20464	16.9%
		Bicycle	1997	1850	3847	3.6%	2117	1961	4078	3.4%
		Pedestrian	837	755	1592	1.5%	718	647	1365	1.1%
		Motorcycle	165	179	345	0.3%	188	209	397	0.3%
		Light Truck (2 axles)	74	111	185	0.2%	78	117	195	0.2%
	Heavy Trucks (3 axles or more)	54	29	83	0.1%	57	30	87	0.1%	
Traffic Volumes	24-Hour		32466	31937	64403	100.0%	36953	37231	74184	100.0%
	AM Peak Hour	8:00-9:00 AM	1169	4812	5981	9.3%	1482	5261	6743	9.1%
	AM Peak Period	7:00-10:00 AM	3017	11152	14169	22.0%	3680	12480	16160	21.8%
	PM Peak Hour	4:00-5:00 PM	3801	1580	5381	8.4%	4219	1962	6181	8.3%
	PM Peak Period	3:00-6:00 PM	10135	4714	14849	23.1%	11394	5902	17296	23.3%
	AM + PM Peak Periods		13152	15866	29018	45.1%	15074	18382	33456	45.1%
	Midday 2 Hours	11:30 AM to 1:30 PM	4103	3633	7736	12.0%	4484	4198	8682	11.7%
	Daytime	7:00 AM to 6:00 PM	25551	27147	52698	81.8%	26024	29085	55109	74.3%
Traffic Volumes By Route	24-Hour	NW Marine Dr.	1079	1111	2190	3.4%	1140	1426	2566	3.5%
		Chancellor Blvd.	5802	5540	11342	17.6%	6291	6011	12302	16.6%
		University Blvd.	7058	6314	13372	20.8%	8426	8220	16646	22.4%
		16th Avenue	6867	6526	13393	20.8%	7321	7351	14672	19.8%
		41st Avenue	n/a	n/a	n/a	n/a	5104	5895	10999	14.8%
		SW Marine Dr.	11660	12446	24106	37.4%	8671	8328	16999	22.9%





**Figure 2: 1998 Data Collection Locations**

-  UBC vehicle, bicycle and pedestrian count locations
-  Vehicle count locations
-  Transit count locations

## Appendix E

### Supporting Documents

Available for viewing/downloading at [www.trek.ubc.ca](http://www.trek.ubc.ca)

- 1. Discussion Paper #1: Issues and Opportunities - The Next Trek Begins, January 1998**  
Initial results of public input and data collection on transportation patterns and issues to, from, and across UBC. To introduce the STP and TREK Program Centre, and to solicit input on whether any transportation issues had not been identified by TREK.
- 2. Discussion Paper #2: Options and Priorities, February 1998**  
Building on Discussion Paper #1, this paper presents options to address STP issues, with “soft recommendations” on suggested solutions/targets. For feedback at public forums and via survey form.
- 3. Discussion Paper #3: Process Design - How to Get There from Here, July 1998**  
This paper recommends the remaining consultation process for developing, refining, and implementing the Strategic Transportation Plan.
- 4. Technical Report: Benchmark Report, October 1999**  
Detailed review and analysis of UBC traffic monitoring program, including details on how transportation targets were derived, and analysis of January 1998 UBC Transportation Planning e-mail survey results.
- 5. Technical Report: U-TREK Card Program, November 1999**  
Defines what a U-TREK Card is, how it could be implemented, and expected results.
- 6. Research Paper: A Business Case - Cost Benefit Analysis of U-TREK Card Program, July 1999**  
This report examines the social cost benefit analysis for the proposed UBC U-TREK Card program.
- 7. Research Paper: Parking Review, October 1999**  
A UBC survey of parking management practices on- and off-campus, including residential, commuter, and commercial parking.
- 8. Technical Report: UBC Transit Service Plan, October 1999**  
A review of recommended UBC transit service improvements based on the January 1998 UBC Transportation Survey and current transportation service levels.
- 9. Technical Memorandum: STP Targets, October 1999**  
Describes how targets were set, experience elsewhere, and how targets will be met.
- 10. Technical Memorandum: UBC TREK HOV Program, October 1999**  
Describes how HOV targets were set, how they compare with experience elsewhere, and how the targets will be achieved.