

UBC TREK Program Centre

# Transportation Status Report

Fall 1997 to Fall 2003

Prepared for the UBC TREK Program Centre  
By Urban Systems Ltd.  
Vancouver, BC  
March 2004



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# SUMMARY

Since 1997, UBC has been working to change travel patterns for trips to and from campus. Through the TREK Program Centre and in co-operation with many partners, UBC has developed and implemented a range of transportation facilities and programs intended to reduce single-occupant vehicle travel and encourage use of more sustainable modes of transportation. UBC's efforts culminated in the introduction of the student U-Pass in Fall 2003.

This status report provides a snapshot of transportation conditions at UBC following introduction of the U-Pass, and identifies changes in travel patterns which have occurred since 1997. Each year, counts are undertaken of trips to and from UBC by all modes of transportation. The first counts were undertaken in 1997, and established benchmark conditions. The most recent counts were undertaken in October 2003.

Throughout this report, changes in travel patterns are measured in two ways — as total numbers, and as a ratio of trips per person. In the first case, total numbers of person trips and numbers of vehicles travelling to and from UBC are compared from year to year, and for each mode of travel. In the second case, numbers of person trips have been divided by the number of persons on campus during the daytime, to provide a measure of the *trip rate* per person. Considering trip rates is useful as it negates the effects of growth, and provides an apples-to-apples comparison from year to year.

Highlights of the changes in travel patterns at UBC from 1997 to 2003 include:

- **Transit use has doubled in six years.** Since 1997, the number of daily transit trips per person at UBC has increased 99%, effectively doubling. In the last year alone, due to the introduction of U-Pass, the number of daily transit trips per person increased 48%.
- **Single-occupant vehicle (SOV) travel has decreased by almost 20%.** Since 1997, the number of daily SOV trips per person at UBC has decreased 18.5%. The total number of SOV trips in Fall 2003 is 1,000 trips per day less than in Fall 1997.
- **Daily traffic volumes are lower than in previous years.** The daily traffic volume to and from UBC in Fall 2003 is 59,800 vehicles — a reduction of 4,800 vehicles or 7.4% from Fall 1997 levels.

**Table S.1** provides a summary of travel patterns in Fall 1997, Fall 2002 and Fall 2003. The Fall 2003 figures reflect the effects of the student U-Pass introduced in September 2003.

**Table S.1 – 1997, 2002 and 2003 Daily Trips To/From UBC**

Person Trips	Fall	Fall	Fall		% Change Since 1997
	1997	2002	2003		
Single-occupant vehicles	46,000	48,400	45,000	38%	-2.2%
Carpools and vanpools	36,100	29,100	21,700	18%	-40%
Transit	19,000	29,700	45,400	39%	+139%
Bicycles	2,700	3,300	2,800	2%	+3.7%
Pedestrians	1,400	1,600	1,500	1%	+7.1%
Other	900	1,400	1,400	1%	+56%
<b>Total daily person trips</b>	<b>106,100</b>	<b>113,500</b>	<b>117,800</b>	<b>100%</b>	<b>+11.0%</b>

The most significant change since 1997 is a 139% increase in the total number of daily transit trips. The other significant change is a 40% reduction in the total number of daily carpool and vanpool trips. For other modes of travel, the numbers of daily trips have remained relatively constant since 1997.

Improvements to transit service and introduction of the student U-Pass significantly increased the attraction of transit. As a result, many people who previously commuted to and from UBC by carpool and vanpool switched to transit. Over 14,000 daily trips have shifted to transit from carpools and vanpools since 1997.

It is important to recognize that total numbers of trips include new trips generated by growth in the campus population. Since 1997, the daytime population at UBC has grown 20%. As **Table S.1** indicates, all of the additional travel generated by this extra 20% population has been accommodated on transit — total numbers of trips by other modes have remained constant or decreased.

**Table S.2** provides a similar summary of travel patterns by mode for 1997, 2002 and 2003, but in this case, trip rates (trips per person) are indicated. Trip rates for transit have doubled since 1997, while trip rates for all other modes have decreased.

**Table S.2 – 1997, 2002 and 2003 Daily Trip Rates**

Mode	Fall 1997	Fall 2002	Fall 2003	
	Trip Rates	Trip Rates	Trip Rates	% Change since 1997
Single occupant vehicles	1.09	0.99	0.89	-18.5%
Carpools and vanpools	0.85	0.59	0.43	-50%
Transit	0.45	0.61	0.89	99%
Bicycles	0.06	0.07	0.06	-13.6%
Pedestrians	0.03	0.03	0.03	-10.8%
Heavy trucks	0.01	0.01	0.01	-16.7%
Motorcycle, other	0.01	0.02	0.02	53%

Most significant is the change in the SOV trip rate. Since 1997, SOV trips per person have decreased 18.5%, from 1.09 trips per person in Fall 1997 to 0.89 trips per person in Fall 2003. More than half of this decrease occurred in the past year, as a result of the introduction of the student U-Pass.

In Fall 1997, there were on average 2.4 times as many SOV trips per person as transit trips. By Fall 2003, the number of SOV trips decreased and the number of transit trips increased to the point that on average there is the same number of transit trips per person as SOV trips.

Reductions in SOV trips and carpool and vanpool trips mean that daily traffic volumes to and from UBC are lower than in previous years. **Table S.3** provides a summary of daily traffic volumes by corridor.

**Table S.3 – 1997, 2002 and 2003 Daily Traffic Volumes**

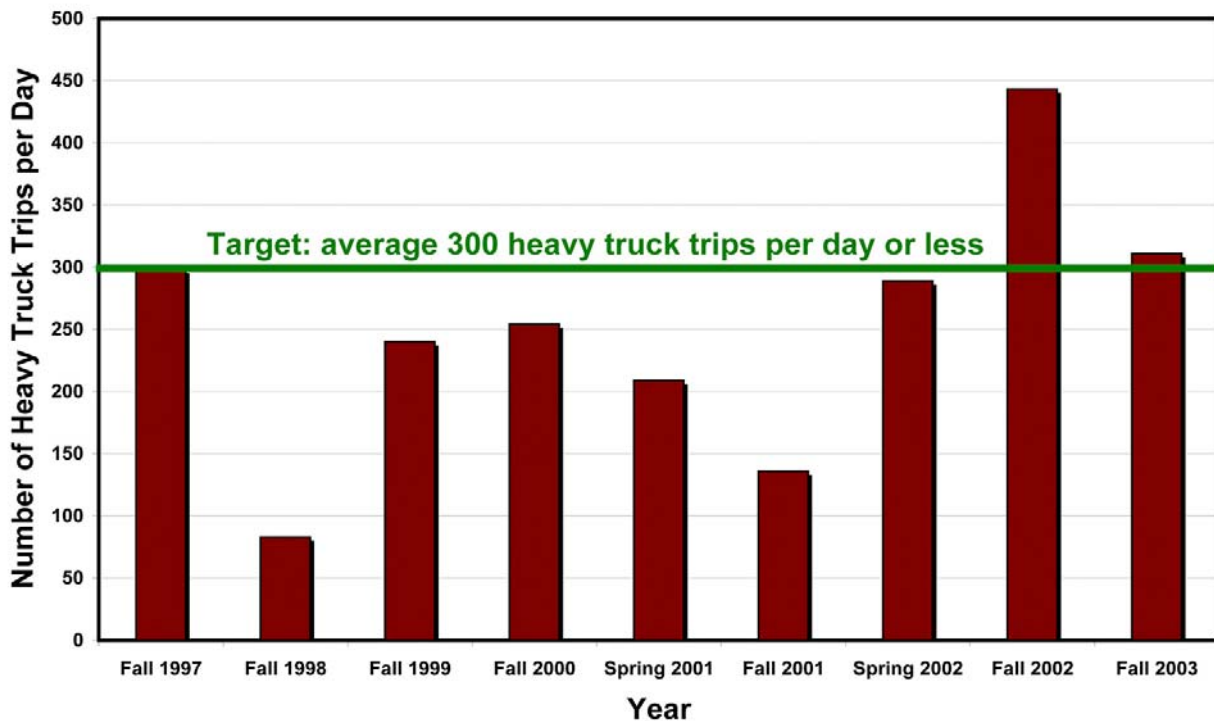
Route	Fall 1997	Fall 2002	Fall 2003	
	Daily Traffic	Daily Traffic	Daily Traffic	Percent
NW Marine Drive	2,000	1,600	2,020	3.4%
Chancellor Boulevard	11,700	11,500	10,670	17.8%
University Boulevard	14,600	13,400	11,770	19.7%
16th Avenue	12,900	13,500	12,750	21.3%
41st Avenue	23,400	10,100	9,000	15.0%
SW Marine Drive		15,100	13,600	22.7%
<b>Total daily traffic</b>	<b>64,600</b>	<b>65,200</b>	<b>59,810</b>	<b>100%</b>

Daily traffic volumes to and from UBC decreased from Fall 1997 to Fall 2003, due to reductions in SOV trips and particularly carpool trips. From 1997 to 2003, daily traffic volumes decreased 7.4%. Because of typical fluctuations in traffic numbers from year to year, the decrease from 2002 to 2003 was slightly higher — 8.3%.

Traffic volumes have decreased on all roadways leading to UBC since 1997. Traffic volumes decreased the greatest amount on University Boulevard, likely as a result of the reduction in the number of traffic lanes from four to two, as part of the implementation of bicycle lanes on University Boulevard in 1999.

**Figure S.1** provides a summary of daily “heavy truck” traffic to and from UBC. Heavy trucks are those with three or more axles — a definition which is consistent with the City of Vancouver’s bylaws regulating truck traffic.

**Figure S.1 – 1997 to 2003 Daily Heavy Truck Trips (3+ Axles)**



UBC is pursuing a target of an average of 300 truck trips per day to and from UBC. This target was established in the Strategic Transportation Plan, based on historic levels of truck traffic. With the exception of Fall 2002, UBC has achieved this target each year. The number of truck trips exceeded the target in Fall 2002 due to a high level of construction activity on campus, particularly excavation of the new Life Sciences building.

UBC has implemented a Truck Management Program which is intended to reduce numbers of truck trips to and from campus. As a result of this program, the daily number of truck trips in Fall 2003 is similar to the number of truck trips in Fall 1997, despite

significantly more construction activity on campus in 2003 than in 1997. Ways in which truck trips have been reduced include on-campus storage of excavated material, use of pup trailers, and scheduling of construction activities to “even out” truck volumes from day to day.

Introduction of the student U-Pass has reduced the demand for parking on campus by more than 10%. Average parking utilization in surface lots and parkades decreased 21% and 10% respectively. The average daily parking demand in the B-Lots creased 12%, and 8% fewer parking permits were sold in Fall 2003 than in Fall 2002.

Introduction of the student U-Pass has also had an effect on parking off-campus in the Point Grey neighbourhood. Some students drive and park in Point Grey, and use their U-Passes to ride transit the rest of the way to UBC, thereby avoiding paying for parking at UBC. On a typical weekday, observations indicate that approximately 100 vehicles are parked on streets in Point Grey by students and others travelling to UBC. Locations where this is particularly noticeable include the 4500 blocks of West 9th and West 11<sup>th</sup> Avenues, as well as Blanca Street at 10th Avenue. The City of Vancouver is currently considering ways in which resident parking only zones can be implemented on streets where parking is an issue.



# 1.0 INTRODUCTION

As one of UBC's commitments made in the joint GVRD/UBC Memorandum of Understanding (MoU) regarding the GVRD's Official Community Plan (OCP) bylaw for the UBC area, UBC has undertaken a comprehensive transportation data collection and monitoring program. This program was implemented as part of the plan outlined in UBC's Strategic Transportation Plan (STP) that was created to help the University pursue the transportation targets laid out in the OCP.

The data collection program officially began in 1997 when the UBC TREK Program Centre was created. The data collected through this program are used to assess the effectiveness of the UBC TREK Program Centre in pursuing its goals of reducing single-occupant travel by 20%, increasing transit ridership, implementing a U-PASS program, and managing heavy truck traffic to and from UBC.

Each year, screenline, on-campus intersection, speed, volume, classification and bicycle and pedestrian counts are undertaken at and adjacent to the University. These data are summarised and compared with data from previous years to determine how the UBC TREK Program is progressing with its plans.

# 2.0 ANNUAL MONITORING PROGRAM

A number of different methods are used to collect travel data at UBC, as part of a comprehensive annual program. The majority of the data are collected during the Fall, providing a consistent basis for year-by-year comparison of traffic volumes, travel patterns, and mode split. Additional specialized data collection activities, such as travel surveys, are also conducted throughout the year and are used to obtain information regarding commuters' attitudes and needs. Localized traffic counts are also conducted, as required for other projects, to study additional issues that may not be adequately addressed by the annual count program.

The information presented in this report is based primarily on data collected through the annual transportation monitoring program from 1997 to present. Because the program was initiated in Fall 1997, the data results from that year have served as the benchmark against which progress has been measured. The results of any additional data collection programs throughout this period have typically been published at the conclusion of each program.

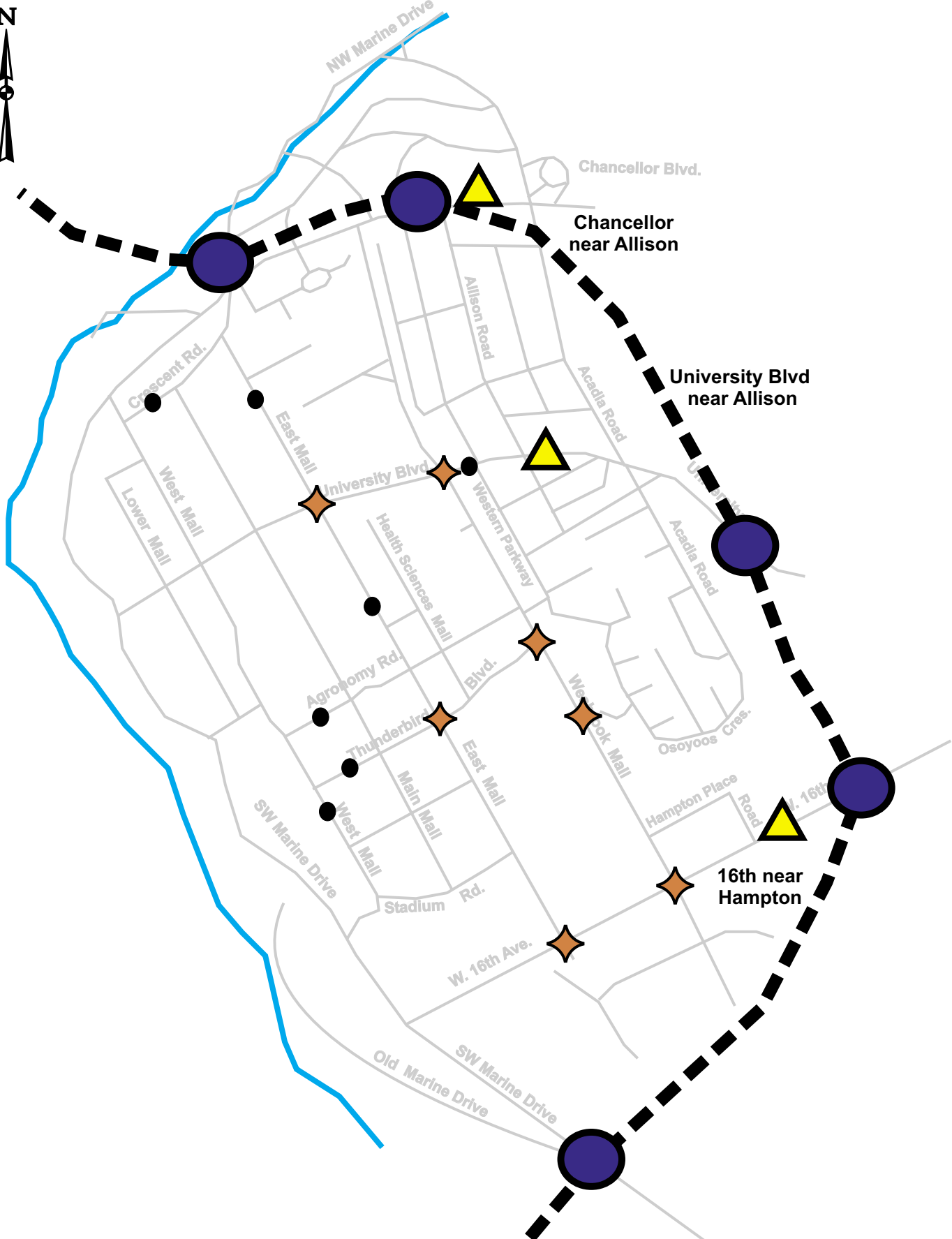
## 2.1 Count Program Methodology





The following section of this document describes the various types of counts that have been conducted annually at UBC's Point Grey Campus. The number of and types of counts have changed slightly over the years as new locations and/or types of data have been required. For example, screenline data are more commonly being collected in the Spring as well as the Fall – where available, this Spring count data are included.

**Table 2.1** provides a summary of the typical fall count program and **Figure 2.1** illustrates all count locations.

**Table 2.1 – Summary of Typical Fall Data Collection Program**

Type of Count	Location(s)	Duration	Timing
Automatic Screenline Counts	<ul style="list-style-type: none"> <li>• SW Marine Drive</li> <li>• University Boulevard</li> <li>• Chancellor Boulevard</li> <li>• 16<sup>th</sup> Avenue</li> <li>• NW Marine Drive</li> </ul>	24-hrs for 7 days per location	Annually (typ. in Oct/Nov)
Vehicle Occupancy and Classification Counts	Same as above	8-hrs for 1 day per location	Annually (typ. in Oct/Nov)
Bicycle and Pedestrian Counts	Same as above	8-hrs for 1 day per location	Annually (typ. in Oct/Nov)
Heavy Truck Counts	Same as above	8 hrs to 15 hrs for 1 day per location	Annually (typ. in Oct/Nov)
Transit Ridership Counts	<ul style="list-style-type: none"> <li>• SW Marine Dr near Tamath</li> <li>• W. 16<sup>th</sup> Ave near Hampton</li> <li>• University Blvd near Allison</li> <li>• 4<sup>th</sup> Avenue at Blanca</li> <li>• Chancellor near Allison</li> </ul>	6:00 AM – Midnight (4:30 AM on Univ. Blvd.)	Annually (typ. in Oct/Nov)
On-Campus Speed and Volume Studies	<p>On alternating years:</p> <ul style="list-style-type: none"> <li>• University Blvd e/o Wesbrook</li> <li>• University Blvd w/o Wesbrook</li> <li>• East Mall s/o Crescent Road</li> <li>• West Mall s/o Thunderbird</li> <li>• Thunderbird Blvd e/o West Mall</li> <li>• Agronomy e/o West Mall</li> <li>• Crescent Road e/o West Mall</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• East Mall n/o 16<sup>th</sup> Avenue</li> <li>• West Mall s/o Crescent Road</li> <li>• West Mall s/o University Blvd</li> <li>• Wesbrook Mall n/o Hampton Rd</li> <li>• Wesbrook Mall s/o University</li> <li>• Wesbrook Mall s/o SUB Blvd</li> <li>• Osoyoos Crescent w/o Revelstoke</li> </ul>	48-hrs per location	Bi-Annually (typically in Oct/Nov)
Manual On-Campus Intersection Counts	<p>On Alternating Years:</p> <ul style="list-style-type: none"> <li>• University Blvd/Wesbrook Mall</li> <li>• Thunderbird/Wesbrook Mall</li> <li>• University Blvd/East Mall</li> <li>• Thunderbird/East Mall</li> <li>• W. 16<sup>th</sup> Ave/East Mall</li> <li>• Wesbrook Mall/Fairview Crescent</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Chancellor/Wesbrook Mall</li> <li>• Sub Blvd/Wesbrook Mall</li> <li>• W. 16<sup>th</sup> Ave/Wesbrook Mall</li> <li>• Agronomy Rd/SW Marine Drive</li> <li>• W. 16<sup>th</sup> Ave/SW Marine Drive</li> </ul>	48-hrs per location	Bi-Annually (typically in Oct/Nov)
University Gate Counts	<ul style="list-style-type: none"> <li>• West Mall/Marine Dr North(Gate 4)</li> <li>• West Mall/Marine Dr South (Gate 8)</li> <li>• East Mall/Marine Dr (Gate 3)</li> <li>• University Blvd/Marine Dr (Gate 6)</li> <li>• Westbrook Mall/ SUB Blvd (Gate 2)</li> <li>• Agronomy Rd/marine Dr (Gate 7)</li> </ul>	8-hrs for 1 day per location	Bi-Annually (typically in Oct/Nov)
Bi-Annual Campus Wide Transportation Survey	Campus wide survey of staff, faculty, and students to monitor travel behaviour and attitude information.		Bi- Annually (typically in February)
Parking Utilization Data	All commuter parking stalls managed by UBC Parking Services		Throughout the year



-  Screenline Count Locations
-  Transit Load Count Locations
-  On-Campus Speed/Volume Counts
-  On-Campus intersection counts

**Figure 2.1**  
**Data Collection Locations**

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### 2.1.1 Screenline Counts

In November 1997, screenline traffic counts were conducted in six locations along the Vancouver City and University Endowment Land (UEL) boundary. These counts collected travel data for all SOV, transit, HOV, bicycle, and pedestrian trips made across this boundary. However, the data collected along this screenline included vehicles travelling to the Endowment Lands and adjacent areas and did not represent the number of trips being made to and from UBC alone. The 1997 data were extrapolated to estimate the number of trips made to and from UBC, but in subsequent years the count locations were adjusted to capture only UBC commuters.

In 1998, counts were conducted at locations the boundary between UBC and the UEL, as illustrated in **Figure 2.1**. These counts accurately capture only those trips being made to and from UBC. It should be noted however, that although the screenlines have been adjusted to capture only traffic that is related to UBC, the volumes recorded invariably include a small number of non-UBC trips to destinations such as Wreck Beach. As well, counts of vehicles crossing the UBC screenline include “through traffic” — vehicles travelling from the UEL and Point Grey to other regional destinations via UBC, and vice versa. the annual counts are conducted in October and November, it is estimated that very few trips to this destination are still occurring, and therefore have little effect on the overall volumes recorded.

### 2.1.2 On-Campus Counts

Also in 1998, six on-campus count locations were added to collect traffic volume data along major internal roads on campus. Vehicle occupancy, detailed vehicle classification, bicycle, and pedestrian counts were conducted each year as part of the program in these same locations. Manual intersection counts were also conducted starting that year to monitor the performance of on-campus intersections.

Since 1998, the number of on-campus count locations (for both manual intersection counts and speed/volume studies) has changed and increased to approximately 25 locations. To better manage this aspect of the program, starting in Fall 2001 a bi-annual count schedule was introduced for on-campus locations. This schedule allows for about half of the locations to be counted in alternating years, and is outlined in the following table. Additional counts are continually conducted on-campus, as-needed, throughout the year.

### 2.1.3 Spring Bicycle Counts

Beginning in 1999, spring bicycle counts were added to the program. The spring counts were added to identify whether the warmer temperatures and improved weather

conditions, which can generally be expected in the spring, affect bicycle travel patterns. As they coincide with the end of the school year, these counts also provide a basis to compare whether the bicycle mode share changes at all throughout the school year.

#### **2.1.4 Transit Ridership Counts**

In past years, transit ridership counts have been conducted annually by BC Transit, and subsequently the Coast Mountain Bus Company (CMBC). In Fall 2001 however, due to constraint issues, the Coast Mountain Bus Company was not able to conduct their annual transit load counts. As these data are important to TREK's annual monitoring program, independent transit ridership counts were organized and conducted to provide the data that were required.

Typically CMBC conducted their counts over 14 and 16-hour periods, but increased in 1998 to 18-hour count periods to reflect the changing spread of transit service. Transit ridership counts are now conducted from 6:00 a.m. until midnight, with additional counting on University Boulevard to record the last run of the Night Bus at approximately 4:30 a.m.

#### **2.1.5 Bi-Annual Campus-Wide Transportation Survey**

An integral part of the transportation monitoring program at UBC is the bi-annual transportation survey conducted campus-wide via the web, email and hard-copy. This transportation survey began in 1998 and has evolved into a comprehensive questionnaire to gather information regarding the attitudes and behaviours of UBC commuters.

In past years the survey has provided valuable information about attitudes towards parking, the proposed U-TREK Card, cycling behaviours and transit. For 2004, the survey was tailored to gather feedback on a variety of existing and proposed programs and issues relating to transportation at UBC, in particular the potential for faculty/staff U-Pass programs or student summer U-Pass programs. A summary of the 2004 campus-wide transportation survey is included in Appendix A. The results of the survey are anticipated to be available later in 2004.

#### **2.1.6 Parking at UBC**

Parking data have typically not been included in the annual transportation monitoring program at UBC and have instead been examined through a number of separate reviews. This year, because of the significant effect which the student U-pass has had on parking, data regarding the commuter parking supply and demand on campus are included in this report.

## 2.1.7 Data Collection Summary Table

A detailed data summary of all counts has been maintained since 1997. This table includes the results for each year of the monitoring program, in both person trips and traffic volumes, and has been organised by time period and route. The data summary table for Fall 1997 through Fall 2003 is included in the **Appendix**.

## 2.2 Assumptions

Due to the magnitude of UBC and the number of commuters travelling to and from the campus each day, a number of assumptions are required as the data are tabulated and summarised. This section of the report describes some of the basic assumptions made in compiling this information, in order to make the results more easily understood by the average reader.

### 2.2.1 Mode Split

*Mode split*, or *modal share*, refers to the relative proportions of each travel mode used in a particular time period. It is a way of representing the percentage of total travellers using each type of travel mode — for UBC mode splits are generally shown for SOV, HOV, transit, bicycle, pedestrian, trucks and sometimes motorcycle. Modal shares for UBC are monitored from year to year as they provide an important indication of how people are getting to UBC, and whether the trend changes over time.

In their regional travel surveys, the GVRD reports their mode shares in the following categories: automobile driver, automobile passenger, transit passenger, walking and bicycle trips and other trips (including taxi, school buses and other buses). These categories are also used by the City of Vancouver to report their mode share data. While the GVRD would make a logical ‘standard’ for way of reporting mode shares, UBC maintains their slightly different mode share categories as they are more easily understood by the average reader. The UBC categories also explicitly report the number of single occupant vehicles and carpools — both of which are of key indicators related to UBC’s MoU commitments.

*Mode shares are a way of expressing the proportion of travellers using each mode of travel*

It should be noted that while the categories are slightly different, reasonable comparisons can still be made between the GVRD regional data, the City of Vancouver and UBC mode shares. Throughout this report, data and trends reported from the most recent Greater Vancouver Trip Diary Survey have been included as a basis for comparison between UBC and the rest of the region.

## 2.2.2 Duration of Counts and Time Periods Reported

Due to the magnitude of the effort and cost required to collect data at the University, it is not reasonable to collect all types of data for the same duration. **Table 2.2** lists the type of count program conducted and the typical duration for each.

**Table 2.2 – Type and Duration of Annual Traffic Counts**

Type of Count Program	Typical Duration
Screenline Counts	24 hours per day for 7 days per location
Vehicle Occupancy/Classification Counts	8 hours per day, 1 day per location
On-Campus Intersection Movement Counts	8 hours per day, 1 day per location
On-Campus Speed and Volume	48 hours per location
Transit Ridership Counts	18 - 22 hours per day, 1 day per location

It should be noted that volume data on all routes leading to and from UBC (screenline counts) are collected over a period of one week. These data are easy to collect and provide a reasonable amount of data to summarise the total vehicle volumes travelling to and from UBC on a daily basis. The occupancy counts however, are done manually so they are limited to an 8-hour period that captures the peak AM, midday and PM periods. These data are what provides the mode share, and are assumed to be representative for all days. Occupancy data for early morning and late night periods are estimated, if required.

Limiting the hours for which data are collected is a reasonable method when you consider the fact that the peak hours are typically of most importance. Historically for UBC, the peak hours have been 8:00 to 9:00 AM and 4:00 to 5:00 PM. Other time periods reported include the AM peak period (7:00 to 10:00 AM), midday (11:30 AM to 1:30 PM) and the PM peak period (3:00 to 6:00 PM). It has been found that most indicators of changing trends are noticed in the peak periods; however, the 24-hour period is also examined and presented.

## 2.2.3 Person Trips vs. Vehicle Trips

The screenline counts provide the average number of vehicles travelling to and from the University on a daily basis. This information is valuable in that it monitors the number of vehicle trips being made and reflects any changes to which routes people are using. However, the vehicle volumes alone do not provide enough information to draw any conclusions regarding the mode choices made by UBC commuters. And it is this information that is critical to the UBC TREK Program Centre.

In order to monitor how people are getting to UBC, i.e. by bus, automobile, bike etc., count data are reported in terms of the number of *person trips*. A person trip is a one-way trip, either

*A person trip is a one-way trip, to or from the University, made by a single person.*



to or from the University, made by a single person. For example, an automobile with three people in it represents one vehicle trip, but it also represents three one-way person trips. It has been found that this measure of travel most accurately reflects the number of commuters travelling to and from UBC and also which mode they are using.

In this report, unless otherwise stated, all data are presented in terms of the number of person trips, typically by mode.

## 2.2.4 Yearly Fluctuations of Data

Traffic volumes can be expected to fluctuate from day to day by as much as 10%, and can also be expected to fluctuate on a seasonal basis. The effects of seasonal fluctuations are avoided in the annual count program by conducting counts at the same time of the year from year to year. Although daily fluctuations are reduced by conducting some counts over a one-week period, daily fluctuations cannot be avoided entirely, particularly for labour-intensive counts which are only conducted on a single day. Although this approach is sufficient to reliably estimate changes in travel patterns over time, the inherent variability in the data limits its usefulness for detailed analysis of localized traffic conditions. What is needed for more detailed analysis is traffic data collected over lengthier periods of time.

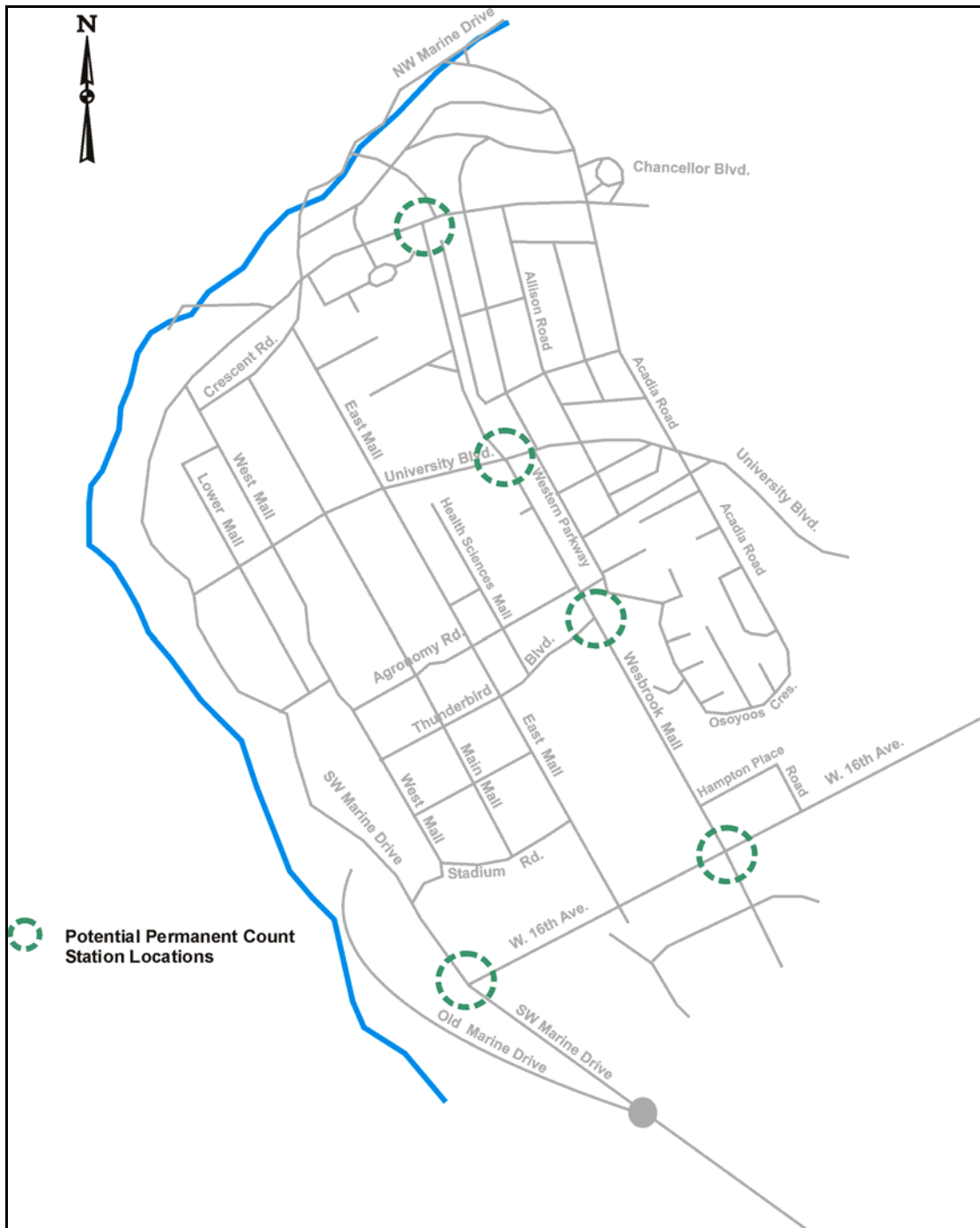
The most cost-effective way to collect traffic data over long periods of time is to use a permanent automatic counter. UBC may wish to consider installing one or more permanent count stations in key locations on campus. A permanent count station is a traffic data recorder connected to a detector loop placed permanently within the pavement of each lane on a roadway. Permanent count stations can be incorporated into actuated traffic signals at little additional cost. Permanent count stations are used by several municipalities and are used throughout BC on provincial highways.

Data collected from one or more permanent count stations at UBC could be used to calibrate and expand traffic data collected through the annual data collection program to represent a full year's worth of data. To accomplish this, the following locations have been identified as potential locations for permanent count stations, because they are located on or close to the cordon around UBC:

- Signalized intersections along Wesbrook Mall (16th Avenue, Thunderbird Boulevard and University Boulevard)
- 16<sup>th</sup> Avenue and SW Marine Drive
- Chancellor Boulevard at Wesbrook Mall

These locations are illustrated in **Figure 2.2**.

Figure 2.2 – Proposed Locations for Permanent Count Stations at UBC



## 3.0 CHANGES AT UBC AFFECTING TRAVEL

There have been a number of changes at UBC that have affected attitudes towards travel among students, staff, faculty and others at UBC, and as a result, affected travel patterns. This section of the report identifies key changes which have occurred at UBC since 1997.

### 3.1 UBC Population and Growth

One of the most obvious changes at the University since 1997 is the ever-changing population made up of students, campus residents, employees, faculty and staff members. The UBC Planning and Institutional Research department (PAIR) provides statistics regarding the size of UBC's daytime population based on full- and part-time enrolment figures, faculty and staff. Between 1997 and 2003, there has been a 20% increase overall of the UBC population.

**Table 3.1 – Annual Daytime Population Growth at UBC**

	1997	1998	1999	2000	2001	2002	2003
Total Population at UBC (headcount)	42,300	43,430	44,750	44,700	46,100	49,000	50,800
Overall Growth	20%						

Source: UBC Planning and Institutional Research Department

In order to reflect this growth in year-to-year travel data, *trip rates* are used when comparing the number of trips between two or more years. A trip rate is the number of person trips or vehicle trips expressed per capita (i.e. per person at UBC). This method of comparison brings the total number of trips down to a common basis that is used throughout this report to compare data among years, independent of growth effects.

*A trip rate is the number of person or vehicle trips expressed per capita of the UBC population*

### 3.2 U-Pass

One of the most significant changes affecting travel patterns at UBC is the introduction of the student U-Pass in September 2003. The U-Pass is a universal transportation pass that is mandatory for students at a cost of \$20 per month (on-campus residents receive a \$5 discount). The U-Pass offers students unlimited access to TransLink Bus, SkyTrain and SeaBus services (all zones), discounted West Coast Express fares, discounts at participating merchants, and access to a variety of other transportation programs provided by UBC's TREK Program Centre.

In conjunction with introduction of the student U-Pass, TransLink substantially increased the level of transit service provided to UBC. UBC and TransLink are now considering extending the U-Pass program to summer students, staff and faculty, as well as a similar program for residents on campus who would not otherwise receive a U-Pass.

### **3.3 Community Plans**

UBC has adopted a number of community plans which will affect travel patterns at UBC. These include the following.

#### **3.3.1 Memorandum of Understanding and Official Community Plan**

In 1997, UBC and the GVRD established a Memorandum of Understanding (MoU), which described how UBC would develop a complete community on the Point Grey campus. In July 1997, the Official Community Plan (OCP) for UBC was adopted by the GVRD. The MoU was updated in December 2000.

A major component of the MoU relates to improving the transportation choices available for all members of the UBC community, and maintaining a transit-oriented, automobile-restrained transportation system. As part of its commitment to this goal, UBC agreed to pursue the following:

- UBC would pursue a reduction in SOV travel of 20% below the daily number of SOV trips recorded in Fall 1997.
- UBC would pursue an increase in transit ridership of 20%.
- UBC would be the lead agency in pursuing development and implementation of a U-Pass program. This would be undertaken in collaboration with other agencies such as the City of Vancouver, the GVRD, TransLink and UBC neighbours.
- UBC would also manage truck traffic to and from campus, to minimize the off-campus impacts of truck traffic.
- UBC would also develop and implement a comprehensive transportation management strategy — the UBC Strategic Transportation Plan, which was adopted by UBC in 1999.

UBC has pursued and continues to pursue these objectives. To this end, UBC has undertaken additional initiatives, including creating the UBC TREK Program Centre, reducing the number of commuter parking stalls on campus, adjusting class schedules to reduce peak travel demands, improving the bicycle network, advancing opportunities for

telecommuting, and incorporating traffic calming principles in both residential and academic areas on campus.

### **3.3.2 The UBC Strategic Transportation Plan**

The STP recommends a comprehensive and integrated TDM strategy in support of the Trek 2000 Vision and the transportation-related commitments agreed to in the UBC Official Community Plan.

The Strategic Transportation Plan is a living document that contains a policy framework in support of TREK 2000 and MoU objectives. Included in the Plan are policies regarding regular reviews, ongoing policy references, and STP updates as needed to best serve the transportation needs of the UBC community.

### **3.3.3 Comprehensive Community Plan (CCP)**

The CCP provides overall parameters for the development of the eight local areas identified in the OCP. The CCP establishes the principles for detailed neighbourhood planning in the eight areas, which are:

- North Campus
- Theological Precinct
- Gage South
- University Boulevard
- Thunderbird
- East Campus
- Mid Campus
- South Campus

The principles outlined in the CCP pertain to housing types, open space, urban form, and circulation (transportation).

### **3.3.4 TREK 2000**

TREK 2000 is UBC's strategic vision for the next millennium. Prepared through a widespread community consultation, TREK 2000 establishes the University's objectives in the next millennium. UBC's mission is to be Canada's best university, provide students with an outstanding and distinctive education, and conduct leading research to serve the people of British Columbia, Canada, and the world.

The TREK 2000 objectives focus around five pillars of a sustainable, complete community — people, learning, research, community and internationalization. Most relevant to transportation is the “community” pillar, which is exemplified in UBC's

initiative to create a complete community on campus, which will be a model of sustainable development and sustainable transportation.

### 3.4 The UBC TREK Program Centre

Primary responsibility for development and implementation of UBC's transportation-related MoU commitments rests with the Director of Transportation Planning at UBC and the UBC TREK Program Centre. This section outlines some of the changes that have occurred at UBC since the UBC TREK Program Centre began in 1997.

*The TREK Program Centre's mission is to improve transportation choices by promoting sustainable transportation at UBC*

- **Class start-time changes in September 2001.** In an effort to spread the transit demand in the AM peak period, UBC adjusted morning class start times from the existing campus-wide 8:30 AM start time. This change saw a portion of students begin classes at 8:00 AM, a portion of students remain at 8:30 AM and the remaining students begin classes at 9:00 AM. The desired effect was that by spreading out the start times for students, the demand on transit was also be spread out more, with the result that 12% more daily transit ridership was accommodated on the same number of buses.
- **Parking supply and costs.** UBC has eliminated over 3,000 commuter parking stalls on campus since 1997 — a reduction in the commuter parking supply of more than 25%. At the same time, the price of parking on campus has increased. Daily parking rates in surface lots doubled from \$2.00 in 1997 to \$4.00 in 2003, and prices for parking permits and other parking on campus have also increased. As well, UBC has worked with the GVRD and the Ministry of Transportation to restrict parking on roadways adjacent UBC, particularly 16<sup>th</sup> Avenue and SW Marine Drive.
- **More transit service.** Since 1997, the level of transit service to UBC has increased substantially. The majority of the increase has been on the Route 99 B-Line, with additional improvements to the Route 43 express along 41<sup>st</sup> Avenue, increased service on the Route 44 express from downtown, and all day service on Route 480 from Richmond Centre.
- **Improvements to bicycle facilities and services at and adjacent to UBC.** New bicycle lanes were implemented on several roadways leading to the University. Most notable is the conversion of University Boulevard west of Blanca, from two lanes in each direction to one travel lane and one bicycle lane in each direction. Bicycle lanes were also been added on 16<sup>th</sup> Avenue.

On campus, changes include the addition of over 200 new bicycle racks bringing the on-campus total to over 500 racks, bicycle lockers at the War Memorial Gym, and new services such as the AMS Bike Co-op and the Bike Kitchen to encourage and support the UBC cycling community.

- **UBC Carpooling Program.** In an effort to promote carpooling to UBC and thereby reduce the number of single occupancy vehicles (SOV) coming to campus, the UBC TREK Program Centre implemented a comprehensive carpooling program in 2001. The program includes access to a web-based ride matching service to help commuters organise carpools, in addition to access to preferred carpool parking and a rewards program that includes transit vouchers, gift certificates and vehicle maintenance vouchers. Over 500 persons are currently registered in the ridematch database.
- **UBC Emergency Ride Home (ERH) Program.** When asked why they don't use non-automobile modes to get to or from UBC, many people respond that being without a ride home in the event of an emergency is a major consideration. The UBC Emergency Ride Home Program is run through the UBC TREK Program Centre and offers commuters who regularly use a non-automobile mode of travel (at least 3 times per week) a 90% reimbursement for costs associated with getting home by taxicab in the event of an emergency.

### 3.5 Campus Development

UBC has developed and is continuing to develop additional housing on-campus, as a means of reducing the proportion of persons who travel to UBC from off-campus. This housing includes student housing, housing for staff and faculty, and market housing. At the same time, an increased number and range of commercial services are now available on campus and in the University Endowment Lands adjacent campus.

## 4.0 TRAVEL TO AND FROM UBC

This section presents the number of trips made to and from the University's Point Grey campus each day. Details regarding mode share, occupancies and on-campus travel from Fall 1997 through Fall 2003 are also included.

### 4.1 How Many Trips Are Made Each Day?

#### 4.1.1 Person Trips

On average, there were 117,800 person trips to and from UBC on a typical weekday in Fall 2003. This amounts to approximately 2% of the almost six million trips made each day in the entire GVRD.

**Table 4.1** summarizes the total number of person trips each year since 1997. The total number of person trips increased 11% since 1997.

**Table 4.1 – Total Person Trips at UBC by Year (24-hour period)**

	Fall 1997	1998	1999	2000	2001	2002	Fall 2003
Total Daily Number of Person Trips	106,100	106,500	113,200	107,000	110,900	113,500	117,800
Overall Growth	11%						

Source: UBC Annual Data Collection Program 1997 - 2003

It is important to recognize that the total number of person trips recorded on a daily basis does not take into account the effects of population and enrollment growth at UBC. For example, if all things are considered equal, a larger population and a larger enrollment would equate to more trips. For this reason, it is important to examine travel patterns from year to year on a consistent basis where the effects of population and enrollment growth have been removed. **Table 4.2** provides such a summary, indicating daily trip rates (trips per person) for a typical weekday at UBC.

**Table 4.2 – Trip Rates To/From UBC (24-hr person trips per capita)**

	1997	1998	1999	2000	2001	2002	2003
Trip Rate	2.51	2.45	2.53	2.39	2.41	2.31	2.32
Change	-7.6%						

Source: UBC Annual Data Collection Program 1997 - 2003

As **Table 4.2** indicates, the number of trips per person has actually decreased by approximately 8% since 1997, even

*The overall trip rate – the number of trips per capita – has decreased by 8% since 1997*

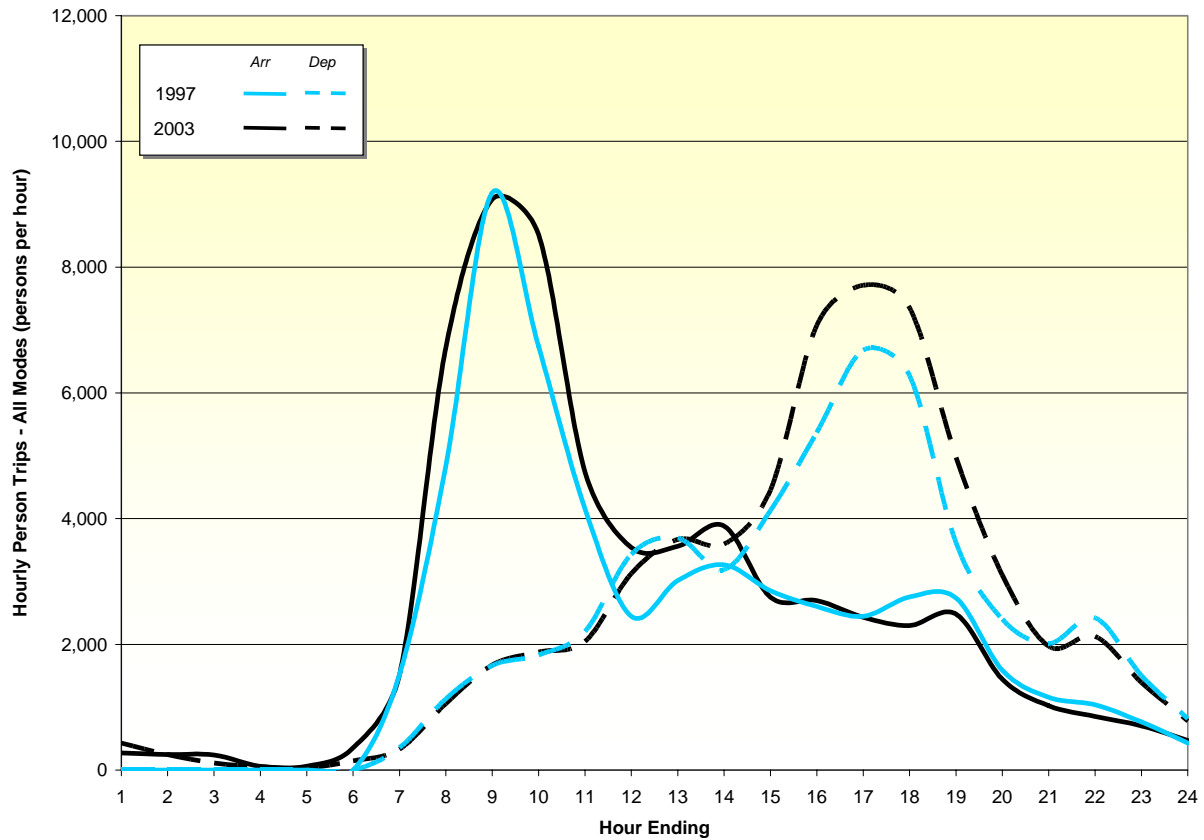


though both the population and enrollment at UBC and the total number of trips have increased.

#### 4.1.2 Travel Times

**Figure 4.1** shows the average daily arrival and departure profile for all person trips made to UBC, by all modes. The overall pattern of this profile has not changed significantly, in that the peak hours are still observed during generally the same time period. What has changed, however, is the arrival and departure patterns within each of the peaks. Since class start times were adjusted in fall 2001, the morning and afternoon peak periods have spread — they have begun sooner and last longer. As a result of this spreading of the peak periods, increases in peak hour person trips and traffic have been minimized — in fact, the number of trips in the morning peak hour has not increased at all since 1997.

**Figure 4.1 – Arrival and Departure Profile (All Modes)**



**Table 4.3** summarizes the observed AM and PM peak hour person trips, for both directions in Fall 1997 and Fall 2003.

**Table 4.3 – Peak Hour Trips By Direction (person trips)**

Mode	AM Peak Hour				PM Peak Hour			
	Fall 1997		Fall 2003		Fall 1997		Fall 2003	
	EB	WB	EB	WB	EB	WB	EB	WB
Single Occupant Vehicles (SOV)	950	2,980	1,010	3,110	2,930	1,310	2,755	1,340
Carpools and Vanpools	480	3,650	400	1,235	2,050	790	1,095	535
Transit	160	2,190	380	4,360	1,340	260	3,515	680
Bicycles	15	275	30	235	255	15	210	55
Pedestrians	25	55	35	75	70	60	75	60
Heavy Trucks	5	25	35	40	30	10	25	20
Motorcycles, other	5	15	20	55	15	5	50	25
<b>Total</b>	<b>1,640</b>	<b>9,190</b>	<b>1,910</b>	<b>9,110</b>	<b>6,690</b>	<b>2,450</b>	<b>7,725</b>	<b>2,715</b>

Source: UBC Annual Data Collection Program 1997 - 2003

**Table 4.3** indicates that in the AM peak hour, eastbound trips have increased slightly, while westbound trips to campus have remained relatively the same. In the PM peak hour, these results suggest that both arrivals and departures have increased slightly since 1997. What is most important to note from these results is the dramatic increase in the number of person trips by transit during both the AM and PM peak periods. Results such as these indicate that a significant number of commuters are using transit in comparison to Fall 1997, results that are most likely due implementation of the U-Pass this year.

### 4.1.3 Traffic Volumes

In Fall 2003, the weekday traffic volume to and from UBC was 59,800 vehicles. This is approximately 4,800 fewer vehicles than in 1997 — a reduction of 7.5%. The amount of traffic travelling to and from UBC *per capita* has decreased by approximately 20% since 1997.

**Table 4.4** provides a summary of daily traffic volumes by route from 1997 through to 2003. The three most-used roadways for traffic travelling to and from UBC are SW Marine Drive, 16<sup>th</sup> Avenue and University Boulevard, each of which carries more than 20% of daily traffic to and from UBC.

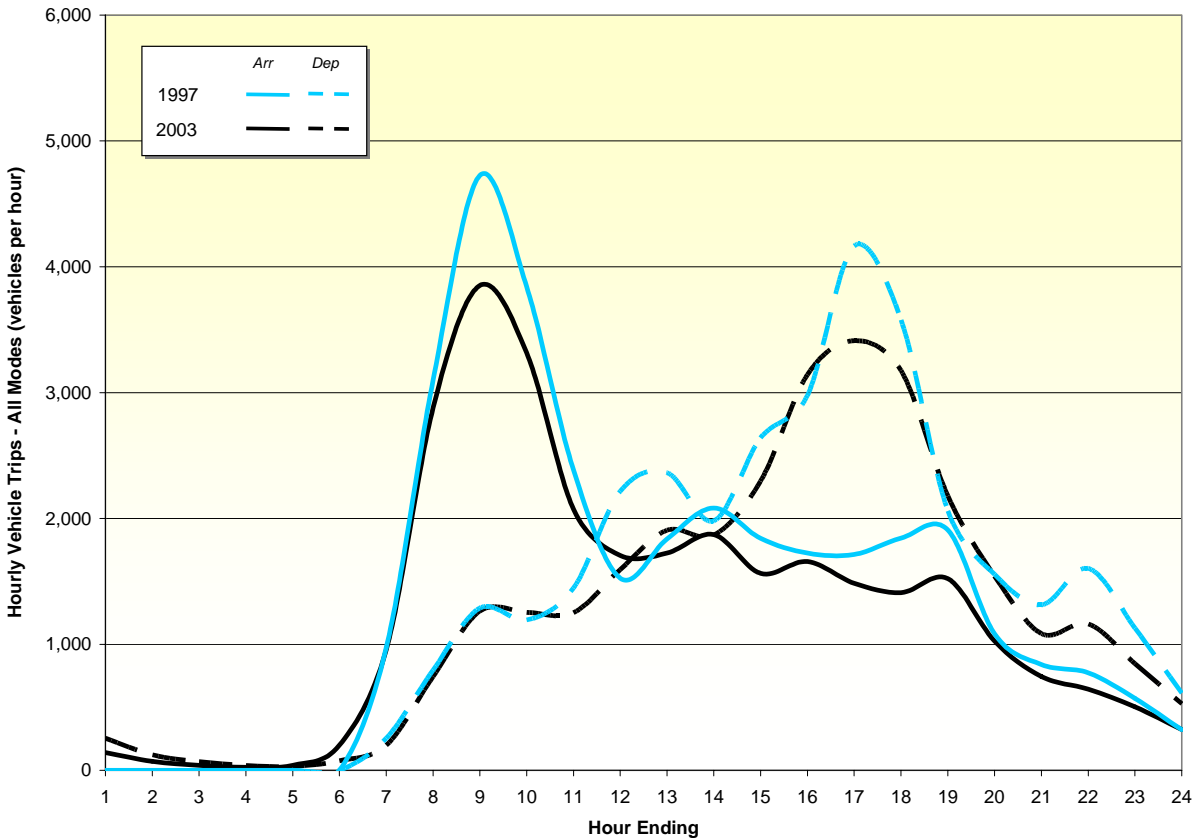
**Table 4.4 – 24-Hour Screenline Volumes (Fall 1997 – Fall 2003)**

	Fall 1997	Fall 1998	Fall 1999	Fall 2000	Fall 2001	Fall 2002	Fall 2003	% Of Total
NW Marine Dr.	2,040	2,190	1,970	1,620	1,670	1,610	2,020	3%
Chancellor Blvd.	11,660	11,340	11,760	10,650	11,170	11,450	10,670	18%
University Blvd.	14,610	13,370	12,490	12,620	14,360	13,400	11,770	20%
16th Ave.	12,880	13,390	13,010	12,740	13,390	13,530	12,750	21%
41st Ave.	23,410	24,110	23,550	23,270	24,350	10,100	9,000	
SW Marine Dr.						15,140	13,600	
<b>Totals</b>	<b>64,600</b>	<b>64,400</b>	<b>62,780</b>	<b>60,900</b>	<b>64,940</b>	<b>65,230</b>	<b>59,810</b>	<b>100%</b>

Source: UBC Annual Data Collection Program, 1997 - 2003

**Figure 4.2** illustrates the arrival and departure patterns of all vehicles travelling to and from UBC in a 24-hour period for both 1997 and 2003. This figure clearly shows the reduction in traffic volumes during both peak periods, as well as at other times of the day.

**Figure 4.2 – Vehicle Arrival and Departure Profile (All Modes)**



## 4.2 How Do People Get To UBC?

In studying travel patterns for UBC, it is important not only to examine the number of trips that are being made and how this changed over time, but also how people are commuting to the University. Many people view this aspect of commuting to be the more important target for transportation planners at the University. While the total number of trips will always correspond somewhat to the size of the University and the need to come and go will likely not change that significantly, influencing how people choose to travel is likely a more achievable effort.

**Table 4.5** summarizes the daily number of person trips made by each mode, to and from UBC from Fall 1997 through Fall 2003.

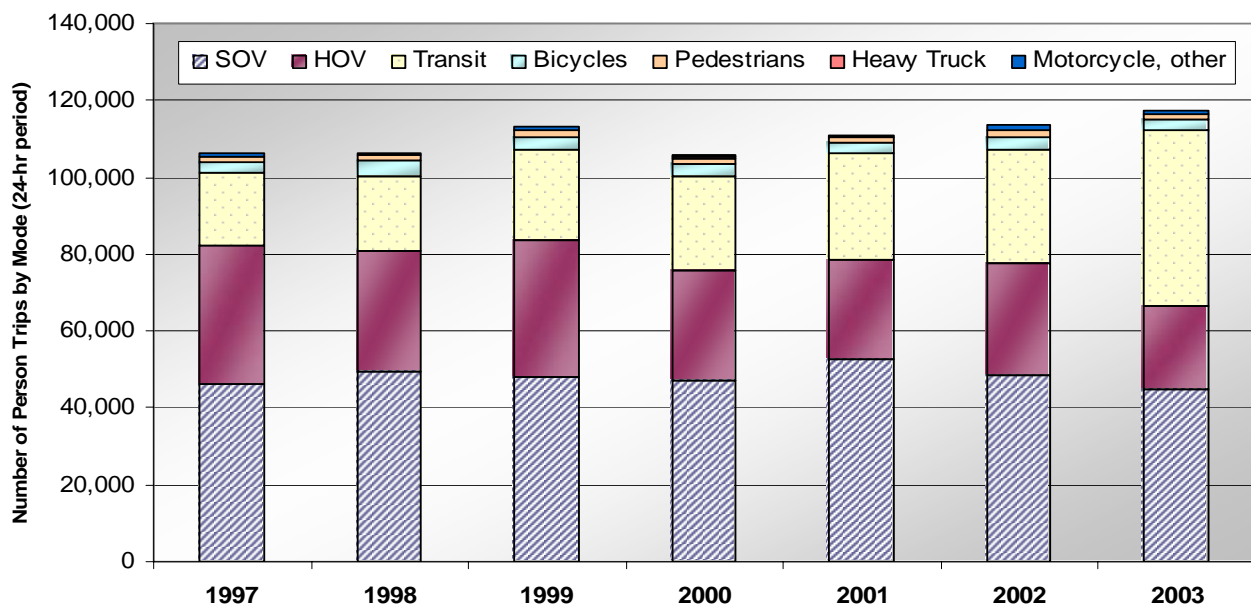
**Table 4.5 – Person Trips at UBC (24-hr period, Fall 1997 – Fall 2003)**

Mode	1997	1998	1999	2000	2001	2002	2003
Single Occupant Vehicles (SOV)	46,000	49,300	48,000	47,200	52,600	48,400	45,000
Carpools and Vanpools (HOV)	36,100	31,600	35,700	28,600	26,000	29,100	21,700
Transit	19,000	19,400	23,400	24,300	27,700	29,700	45,400
Bicycles	2,700	3,900	3,100	3,200	2,900	3,300	2,800
Pedestrians	1,400	1,600	2,000	1,600	1,200	1,600	1,500
Heavy Trucks	300	85	250	250	150	400	300
Motorcycles, other	600	530	700	600	550	1000	1,100
<b>Total</b>	<b>106,100</b>	<b>106,500</b>	<b>113,200</b>	<b>105,800</b>	<b>110,900</b>	<b>113,500</b>	<b>117,800</b>

Source: UBC Annual Data Collection Program 1997 - 2003

**Figure 4.3** illustrates how travel patterns in Fall 2003 compare with previous years. The trend indicated by the different colours in the bars from year to year clearly shows a significant increase in transit use and a decrease in HOV (carpools and vanpools) trips.

**Figure 4.3 – Person Trips by Mode (24-hour period, Fall 1997 - Fall 2003)**



Key changes from 1997 to 2003 include:

- Transit.** Transit ridership has increased steadily since 1997, with a significant increase from Fall 2002 to Fall 2003 as a result of the student U-Pass. Average weekday transit trips are now more than 45,000, accounting for approximately 39% of all travel to and from the University each day.

- **SOV.** The absolute number of SOV person trips to/from UBC on a daily basis has decreased to less than the number in Fall 1997. The decrease is approximately 1,100 person trips, which corresponds to a decrease in the SOV trip rate of 18.5%.
- **HOV.** The number of person trips made by carpools and vanpools has continued to decline since 1997. In Fall 1997, HOV trips accounted for 34% of all person trips, whereas by Fall 2003 the HOV mode share dropped to only 18% of all person trips – an overall decrease of almost 40%. A 25% decrease from Fall 2002 to Fall 2003 suggests that many carpools have shifted to transit since implementation of the student U-Pass.
- **Trucks.** Daily numbers of heavy trucks have fluctuated from year to year, but have remained at or below UBC’s target of an average 300 trucks per day in each year except Fall 2002. In fall 2003, a total of 311 heavy trucks were recorded travelling to and from UBC, which represents a small increase from the 298 heavy trucks recorded in 1997. This is a significant comparison given the increase in construction activity on campus in 2003 as compared with 1997 — the reason the increase from 1997 to 2003 has been so small is UBC’s Truck Management Program, which is described in detail in Section 5.6.

A more detailed review of the trends noted for each individual mode of transportation is provided in the following sections.

### 4.3 How Does UBC Compare to the Rest of the Region?

The most recent *Greater Vancouver Trip Diary Survey* and *Usage and Attitude Survey* were conducted in 1999. These surveys collected detailed information regarding the travel patterns and attitudes of residents in the Greater Vancouver Region. Comparing UBC travel data to data obtained from the GVRD surveys provides an indication of how UBC is progressing towards its transportation goals in relation to the rest of the region.

**Table 4.6** shows how the daily UBC mode share compares to that of the rest of the Greater Vancouver Region. Compared to the region as a whole, more people at UBC use transit (almost twice as many), yet fewer people at UBC make use of carpools or vanpools for commuting.

**Table 4.6 – GVRD Mode Shares Vs. UBC Fall 2003 Mode Shares, All Trips (person trips, 24 hours)**

Mode	GVRD (Fall 1999)		UBC Screenline (Fall 2003)	
	Trips	Mode Share	Trips	Mode Share
Single occupant vehicles	2,329,000	42.5%	45,000	38.2%
Carpools and vanpools	1,735,000	31.7%	21,700	18.4%
Transit	565,000	10.3%	45,400	38.5%
Bicycles	91,000	1.7%	2,800	2.4%
Pedestrians	694,000	12.7%	1,500	1.3%
Other	62,000	1.1%	1,400	1.2%
<b>Totals</b>	<b>5,476,000</b>	<b>100%</b>	<b>117,800</b>	<b>100%</b>

Source: Greater Vancouver Trip Diary Survey, GVRD/TransLink, 1999

**Table 4.7** provides a comparison of work and post-secondary school trips in the region with trips to and from UBC, which are predominantly work and school trips. The proportion of SOV trips is significantly higher for regional work and school trips than for all regional trips and for UBC trips, and carpooling is proportionately lower.

**Table 4.7 – GVRD and UBC Mode Shares, Work/School Trips (person trips, 24 hours)**

Mode	GVRD (Fall 1999)		UBC Screenline (Fall 2003)
	Work/School Trips	Other Trips	All Trips (predominantly work/school trips)
Single occupant vehicles	57.9%	31.6%	38.2%
Carpools and vanpools	14.9%	43.4%	18.4%
Transit	17.3%	6.1%	38.5%
Bicycles	9.1%	17.5%	2.4%
Pedestrians			1.3%
Other	0.8%	1.4%	1.2%
<b>Totals</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source: Greater Vancouver Trip Diary Survey, GVRD/TransLink, 1999

## 4.4 Vehicle Occupancy

Vehicle occupancy is a measurement that reflects the average number of people travelling per vehicle during a certain period of time. It is calculated by dividing the total number of people travelling to or from the University by the total number of vehicles observed within the same time period.

The average 24-hour vehicle occupancy for Fall 2003 is 1.12 persons per vehicle (excluding transit buses and heavy trucks). As **Table 4.8** indicates, vehicle occupancies have decreased steadily since 1997, as carpoolers have switched to transit.

**Table 4.8 – Average 24-Hr Vehicle Occupancy by Year**

	Fall	Fall	Fall	Fall	Fall	Fall	Fall
24-Hr Average Vehicle	1.30	1.26	1.35	1.27	1.22	1.20	1.12

Source: UBC Annual Data Collection Program 1997 - 2003

**Table 4.9** compares vehicle occupancies for trips in the AM and PM peak periods at UBC, in Vancouver and throughout the region. At UBC, the average AM and PM peak period vehicle occupancies is each 1.16 and 1.18 persons per vehicle, respectively.

**Table 4.9 – UBC Occupancy Compared with the Region**

	UBC	Vancouver/UEL	GVRD
AM Peak Period Occupancy	1.16	1.28	1.30
PM Peak Period Occupancy	1.18	1.30	1.31

Source: UBC Annual Data Collection Program 2003 and TransLink Strategic Planning Department



## 5.0 TRENDS BY MODE

This section of the report summarizes key trends that are identified in travel patterns for each mode.

### 5.1 SOV Travel

Trends in single-occupant vehicle travel are an important measure of how UBC is managing to influence the commuting behaviour of its staff, students and faculty. UBC is pursuing an overall reduction of 20% of average daily SOV trips per person from 1997 levels. To date, UBC has achieved a reduction of 18.5%.

**Table 5.1** provides a summary of total numbers of daily SOV trips to and from UBC each year. The number of SOV trips in Fall 2003 is lower than in 1997 or any other year.

**Table 5.1 – Total SOV Trips (24-hour period, Fall 1997 – Fall 2003)**

	1997	1998	1999	2000	2001	2002	2003
Total Number of Person Trips by SOV	46,000	49,300	47,800	47,200	52,570	48,400	45,000
Overall Change	-2.2%						

Source: UBC Annual Data Collection Program, 1997 - 2003

**Table 5.2** provides a summary of SOV trips per person, which discounts the effects of growth and provides a consistent basis for comparing data from one year to another.

**Table 5.2 – SOV Trip Rates (24-hr period, Fall 1997 – Fall 2003)**

	1997	1998	1999	2000	2001	2002	2003
Total Number of SOV Person Trips per Capita	1.09	1.14	1.07	1.06	1.14	0.99	0.89
Overall Change	-18.5%						

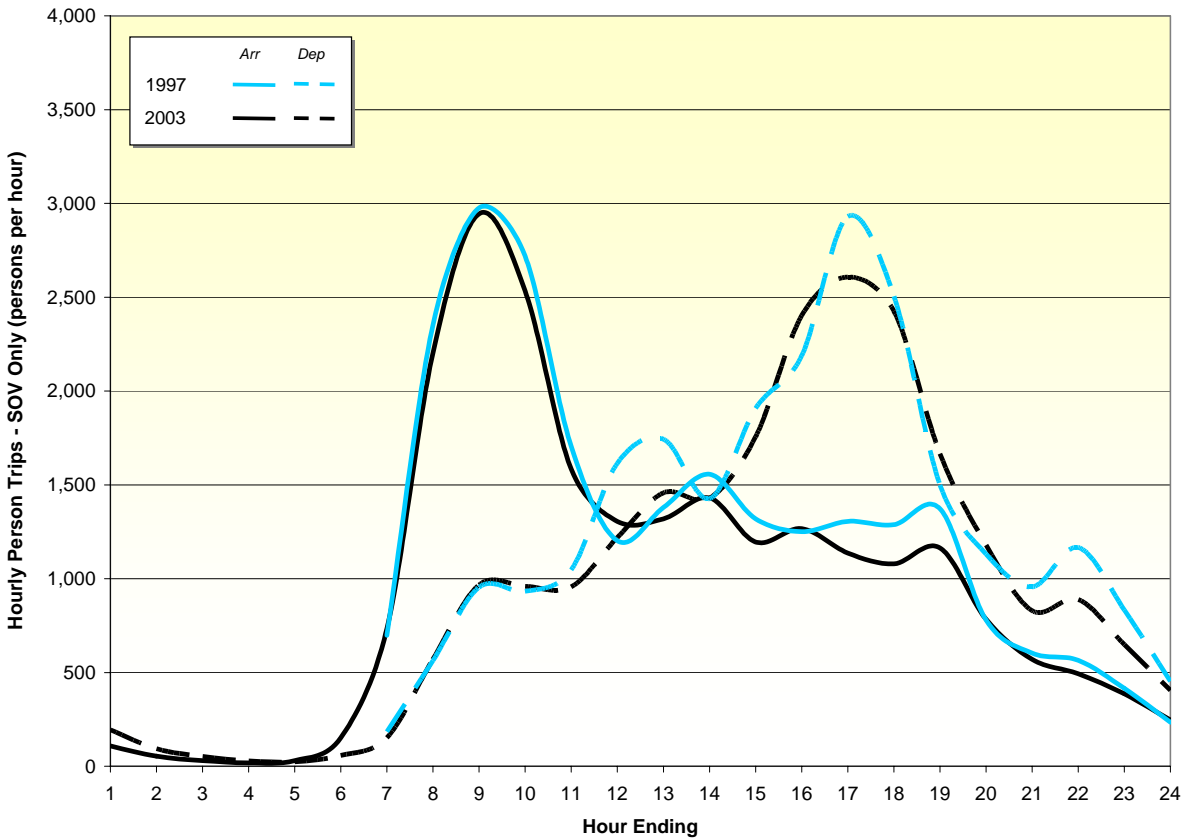
Source: UBC Annual Data Collection Program, 1997 - 2003

**Table 5.2** indicates that the number of SOV trips per person has decreased each year since 1997. The SOV trip rate for Fall 2003 is 18.5% lower than in 1997. This result indicates that UBC is now close to meeting another of its MoU targets — that of reducing single-occupant vehicle travel to and from the University by 20%.

*24 hour SOV trip rates to/from UBC have decreased by 18.5% since 1997*

**Figure 5.1** illustrates the hourly arrival and departure profile for SOV trips, in Fall 1997 and Fall 2003.

**Figure 5.1 – SOV Arrival and Departure Profile (Fall 1997 and Fall 2003)**



**Figure 5.1** indicates that although the number of AM peak period SOV trips have not changed significantly since 1997, SOV trips have decreased during the PM peak period. In addition to this, the Fall 2003 PM peak period shows some spreading in comparison to 1997.

Key observations regarding SOV travel include:

- The number of daily SOV trips per person has decreased by 18.5% since 1997, indicating that UBC is close to achieving the target of reducing SOV travel by 20%.
- The total number of SOV trips has decreased by 1,000 trips per day from 1997 levels, a reduction of 2.2%. During this same time period, the daytime population of the University has increased 20%.

## 5.2 HOV Travel

High occupancy vehicles include both carpools (two or more people in one vehicle) and vanpools travelling to the University. In Fall 1997, approximately 36,200 person trips were made each day by either carpool or vanpool. At that time, a target of increasing the number of HOV trips by 10,000 person trips per day was identified.

This turned out to be an overly optimistic target. By Fall 2003, the number of HOV trips decreased to 21,700 trips per day — a reduction of 40% from 1997 levels. When the effects of growth are discounted, HOV trips per person have decreased more than 50%. **Table 5.3** shows how HOV travel has steadily decreased since 1997.

**Table 5.3 – HOV Person Trips (24-hour period, Fall 1997 - Fall 2003)**

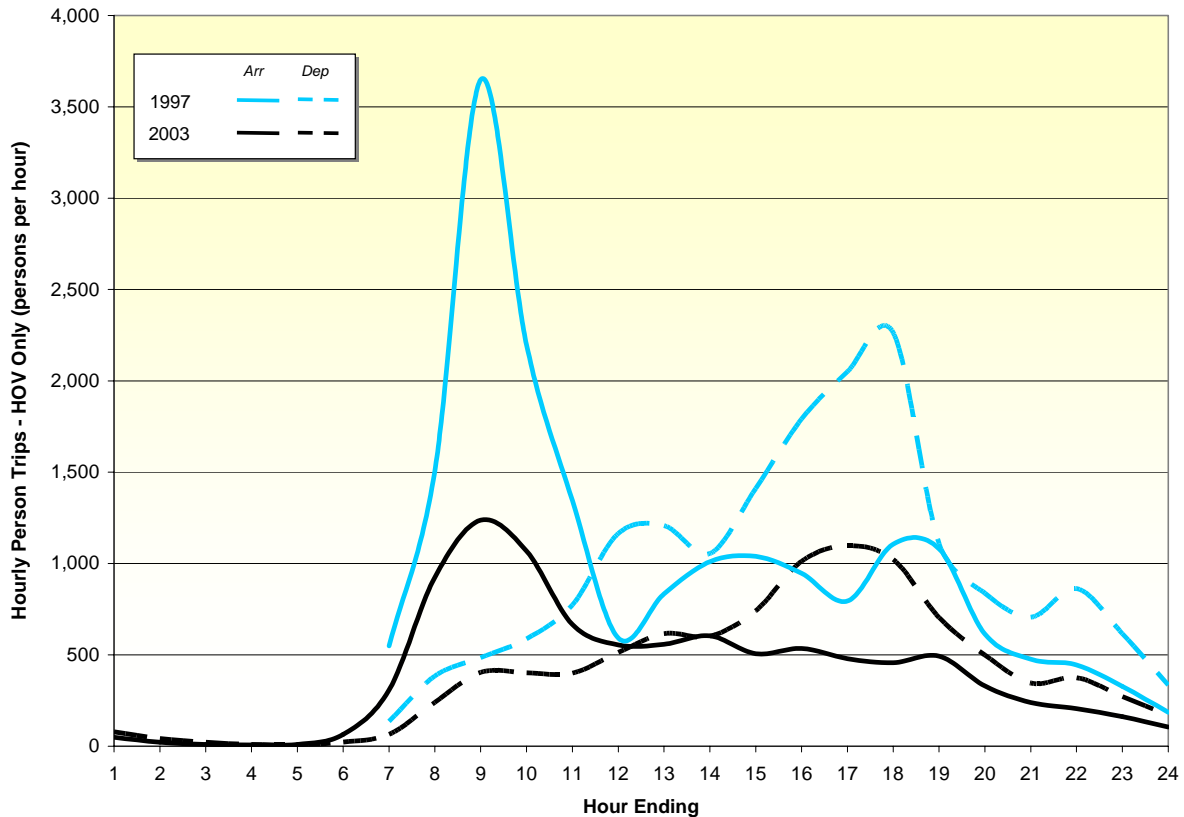
	1997	1998	1999	2000	2001	2002	2003	% of Total
2 person	28,000	24,700	27,600	23,500	21,500	25,050	17,500	80%
3 person	5,700	4,500	4,800	4,300	2,500	2,350	2,200	10%
4+ person	2,500	2,400	3,300	1,800	2,000	1,650	2,050	9%
Total	36,200	31,600	35,700	29,600	26,000	29,050	21,750	100%
Total HOV Mode Split	34%	30%	32%	28%	23%	26%	17%	
Overall Change	-40%							

Source: UBC Annual Data Collection Program, 1997 - 2003

This reduction in HOV travel has occurred because carpools have switched to transit. Focus group sessions conducted with UBC students, faculty and staff revealed that transit is a much more attractive mode of travel for many carpools and vanpools, and as the frequency of transit services and route options have been improved, more and more commuters have switched to transit, particularly since the introduction of the student U-pass in September 2003.

**Figure 5.2** compares the arrival and departure profile of total HOV person trips made to and from the University, for Fall 1997 and Fall 2003. What is most apparent in this comparison is the dramatic decrease in overall numbers of HOV person trips, during all times of the day.

**Figure 5.2 – HOV Arrival and Departure Profile (Fall 1997 and Fall 2003)**



Key observations regarding HOV travel include:

- The number of daily HOV trips per person has decreased by over 50% since 1997.
- The total number of daily HOV person trips observed is 40% less in Fall 2003 than in 1997.
- Corresponding increases in transit ridership since 1997 and direct feedback from carpoolers at UBC indicate that many former carpool and vanpool commuters have switched to transit, particularly since implementation of the student U-Pass in September 2003.

### 5.3 Transit

The most significant change in the past year has been the substantial increase in transit trips to and from UBC, as a result of the introduction of the student U-Pass. From Fall

2002 to Fall 2003, the total number of transit trips increased by 15,700 to a total of 45,400 daily person trips — an increase of 53% in one year. Transit now accounts for 39% of all person trips to and from UBC — more than any other mode of travel.

**Table 5.4** indicates how trips by transit have increased each year. Since 1997, the total number of daily transit trips has increased 139%.

**Table 5.4 – Person Trips by Transit (24-hr period, Fall 1997 to Fall 2003)**

	1997	1998	1999	2000	2001	2002	2003
Total Number of Transit Person Trips	19,000	19,370	23,700	24,320	27,700	29,700	45,400
Overall Change	139%						

Source: UBC Annual Data Collection Program, 1997 – 2003

When the total number of person trips made by transit is expressed independent of growth effects, the increase is equally dramatic, as summarized in **Table 5.5**. Transit trips per capita have doubled since 1997.

**Table 5.5 – Person Trips by Transit per Capita (24-hr period, Fall 1997 – Fall 2003)**

	1997	1998	1999	2000	2001	2002	2003
Total Number of Transit Person Trips per Capita	0.45	0.45	0.53	0.54	0.60	0.61	0.89
Overall Change	99%						

Source: UBC Annual Data Collection Program, 1997 - 2003

**Figure 5.3** indicates the sources of new transit ridership since 1997.

Figure 5.3 – Sources of New Transit Ridership Since 1997

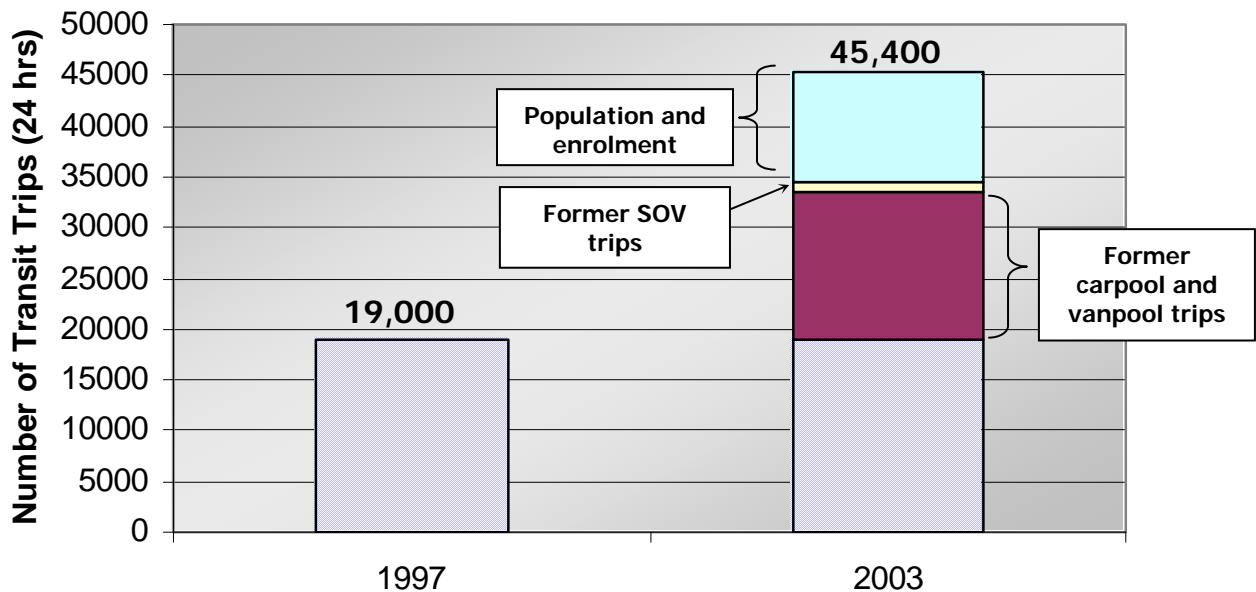
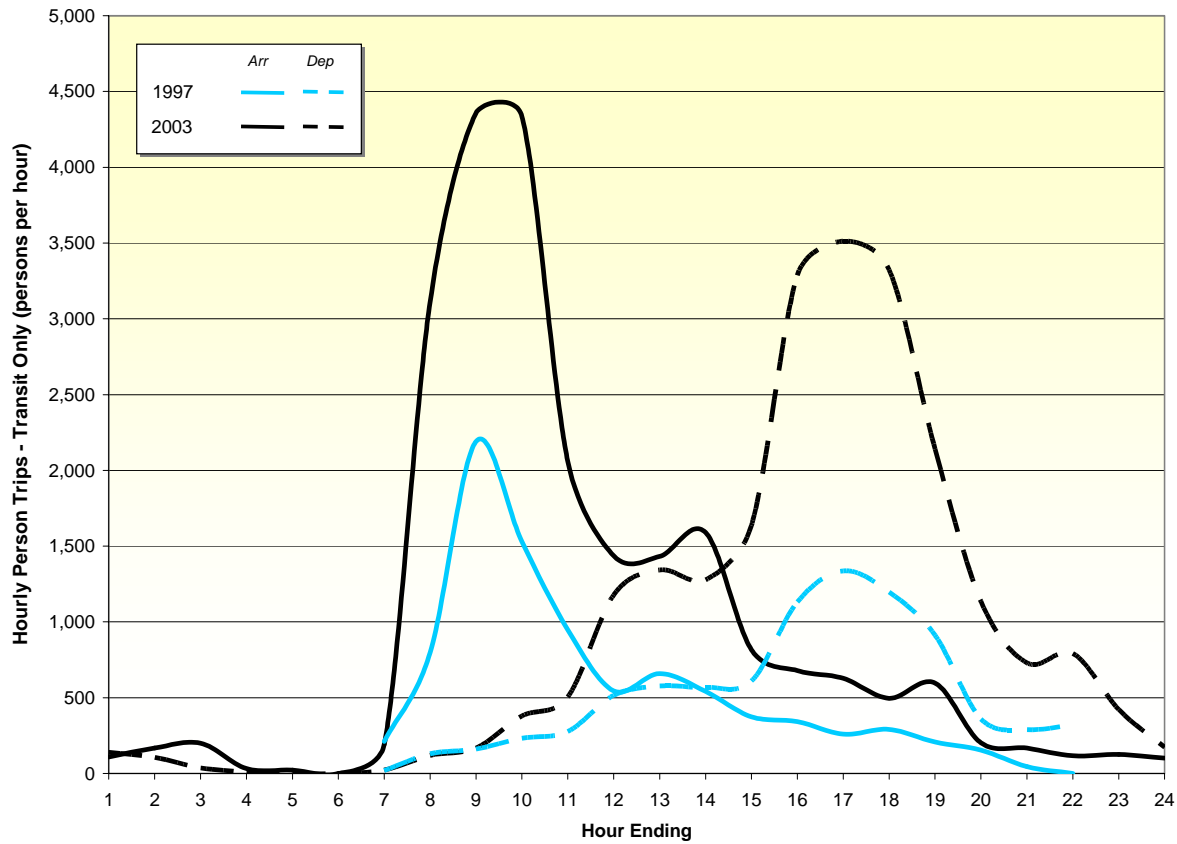


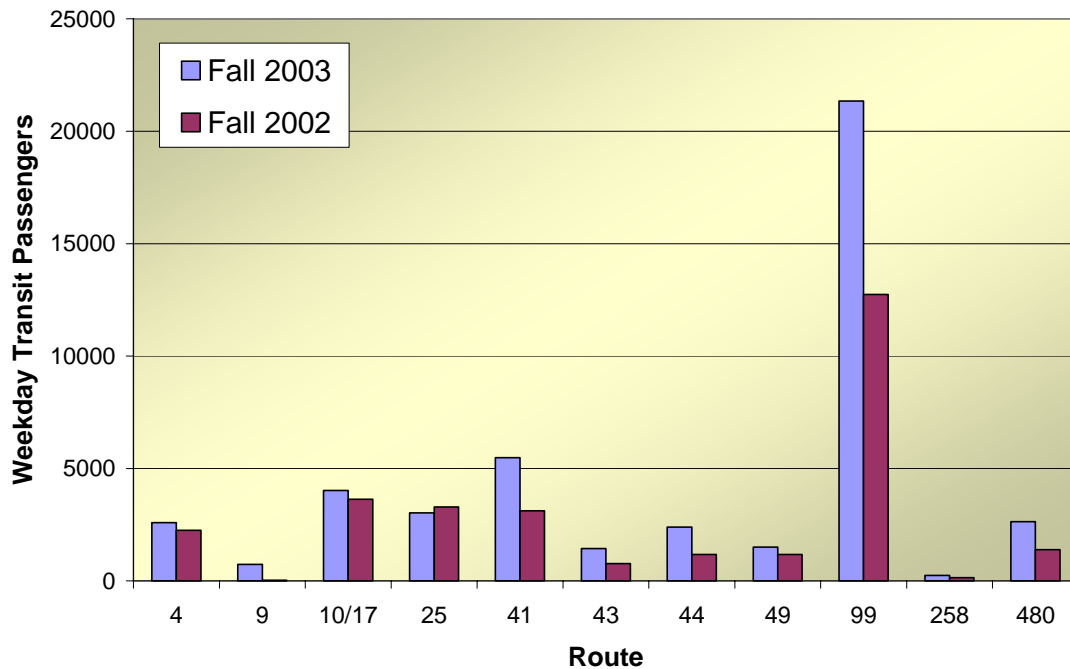
Figure 5.4 illustrates the hourly arrival and departure profile of weekday transit person trips at UBC. An interesting trend in transit ridership for Fall 2003 is the significant increase in off-peak transit trips — trips made during the midday and evening. In comparison to Fall 2002, midday and evening ridership has increased by 55%, a rate that is substantially higher than the 39% growth in peak period transit ridership.

**Figure 5.4 – Transit Arrival and Departure Profile (Fall 1997 and Fall 2003)**



**Figure 5.5** provides a comparison of transit ridership by route. Ridership on the Route 99 B-Line (which includes the non-stop “UBC Special”) has increased 135% since 2002, and now amounts to half the daily transit ridership to and from UBC. Other routes experiencing significant ridership increases include the Routes 41 and 43 along 41<sup>st</sup> Avenue (78% increase), Route 44 to downtown Vancouver (104% increase), and Route 480 route to Richmond (90% increase).

**Figure 5.5 – Fall 2002 vs. Fall 2003 Ridership to/from UBC by Route**



Although TransLink anticipated an increase in transit ridership as a result of the student U-Pass, and substantially increased transit service levels in September 2003, the amount of the ridership increase was greater than expected, particularly on some routes. TransLink responded by adding even more service throughout Fall 2003 and in January 2004 on selected routes and at selected times, to address complaints regarding overcrowding and pass-ups.

Key observations regarding transit ridership at UBC include:

- The total number of daily transit trips to and from UBC increased by 15,700 trips — an increase of 53% — from Fall 2002 to Fall 2003. Transit ridership in Fall 2003 amounts to 45,400 daily trips.
- The mode share for transit is 39%. More trips are made to and from UBC by transit than by any other mode of transportation.
- Daily transit trips per person doubled from Fall 1997 to Fall 2003.
- Midday and evening ridership has increased more than peak period ridership since implementation of the student U-Pass.



## 5.4 Bicycles

Although the total number of person trips made by bicycle on a daily basis has varied each year since 1997, the number of bicycle trips observed in fall 2003 is only 3.7% more than in Fall 1997, as **Table 5.6** indicates. This actually represents a 13.6% reduction in bicycle trips per person, as indicated in **Table 5.7**.

**Table 5.6 – Person Trips by Bicycle (24-hr period, Fall 1997 to Fall 2003)**

	1997	1998	1999	2000	2001	2002	2003
Total Number of Person Trips by Bicycle	2,700	3,850	3,090	3,200	2,900	3,300	2,800
Overall Change	3.7%						

Source: UBC Annual Data Collection Program, 1997 – 2003

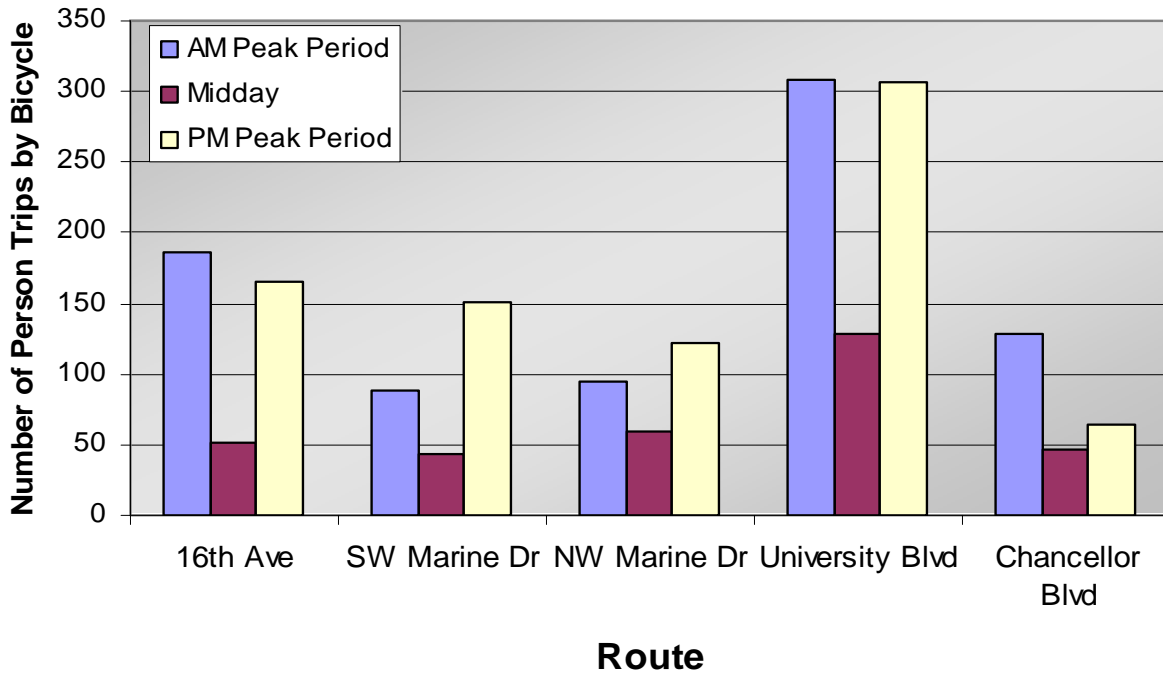
**Table 5.7 – Bicycle Travel Trip Rates (24-hr period, Fall 1997 to Fall 2003)**

	1997	1998	1999	2000	2001	2002	2003
Total Number of Person Trips by Bicycle	0.064	0.089	0.069	0.072	0.063	0.067	0.055
Overall Change	-13.6%						

Bicycle travel is affected by external factors such as weather and the availability of attractive bicycle routes. Consequently, it is expected that observed numbers of cyclists travelling to and from UBC would vary from year to year. However, experience at other post-secondary institutions where U-Pass programs have been implemented also suggests that the student U-pass program at UBC has resulted in some former cyclists shifting to transit. At the University of Victoria, for example, introduction of a U-Pass program resulted in a 37% reduction in bicycle trips to and from campus. In comparison, the reduction at UBC is considerably less than at U-Vic — only a 15% reduction from Fall 2002 to Fall 2003.

Figure 5.6 illustrates which routes commuting cyclists use to travel to and from UBC. University Boulevard is the most popular route for cyclists, accounting for approximately 40% of all bicycle trips during the AM and PM peak periods combined. 16<sup>th</sup> Avenue is becoming an increasingly popular route as well. These results indicate that the implementation of bicycle lanes on University Boulevard and 16<sup>th</sup> Avenue has had a positive effect on bicycle travel.

**Figure 5.6 – Bicycle Trips to and From UBC by Route (Fall 2003)**



Key observations regarding bicycle travel at UBC include:

- The total number of bicycle trips made to and from UBC in Fall 2003 was 2,800 daily trips. This number of trips is similar to the number of trips observed in Fall 1997.
- On a per capita basis, bicycle trips per person have decreased by 14%.
- University Boulevard remains the most popular bicycle route to UBC, carrying approximately 40% of all AM and PM peak period bicycle trips.

## 5.5 Pedestrians

Distance is a limiting factor for pedestrian trips to UBC — a typical walking trip from Point Grey would be 30 minutes, and would be even longer from other parts of Vancouver. Consequently, the number of persons walking to UBC is small, and is limited primarily to trips to and from the UEL. No significant increases in walking trips to and from UBC are expected.

**Table 5.8** provides a summary of walking trips to and from UBC since 1997.

**Table 5.8 – Pedestrian Person Trips (24-hr period, Fall 1997 to Fall 2003)**

	1997	1998	1999	2000	2001	2002	2003
Total Number of Pedestrian Person Trips	1,400	1,590	1,970	1,570	1,190	1,560	1,500
Overall Change	7.1%						

Source: UBC Annual Data Collection Program, 1997 - 2003

The total number of pedestrian trips to and from UBC has remained relatively constant over the last six years. On a per capita basis, this reflects a decrease in walking trips per person of 9%.

Key observations regarding pedestrian travel include:

- Since Fall 1997, the total number of pedestrian trips to and from UBC has remained relatively constant at approximately 1,500 daily trips.
- On a per capita basis, pedestrian trips per person have decreased 9% since 1997.

## 5.6 Heavy Trucks

As a means of mitigating the impacts of heavy truck traffic on neighbouring communities, UBC has implemented a Truck Management Program. The intent of this program is to minimize truck trips and more evenly distribute truck traffic from day to day and among various truck routes leading to UBC. Means of achieving this include on-site storage of excavated materials, re-use of excavated materials, use of pup trailers, scheduling of construction activities to “even out” truck traffic, tarping of loads, wheel washes and other measures. Details regarding UBC’s Truck Management Program are included in Appendix B.

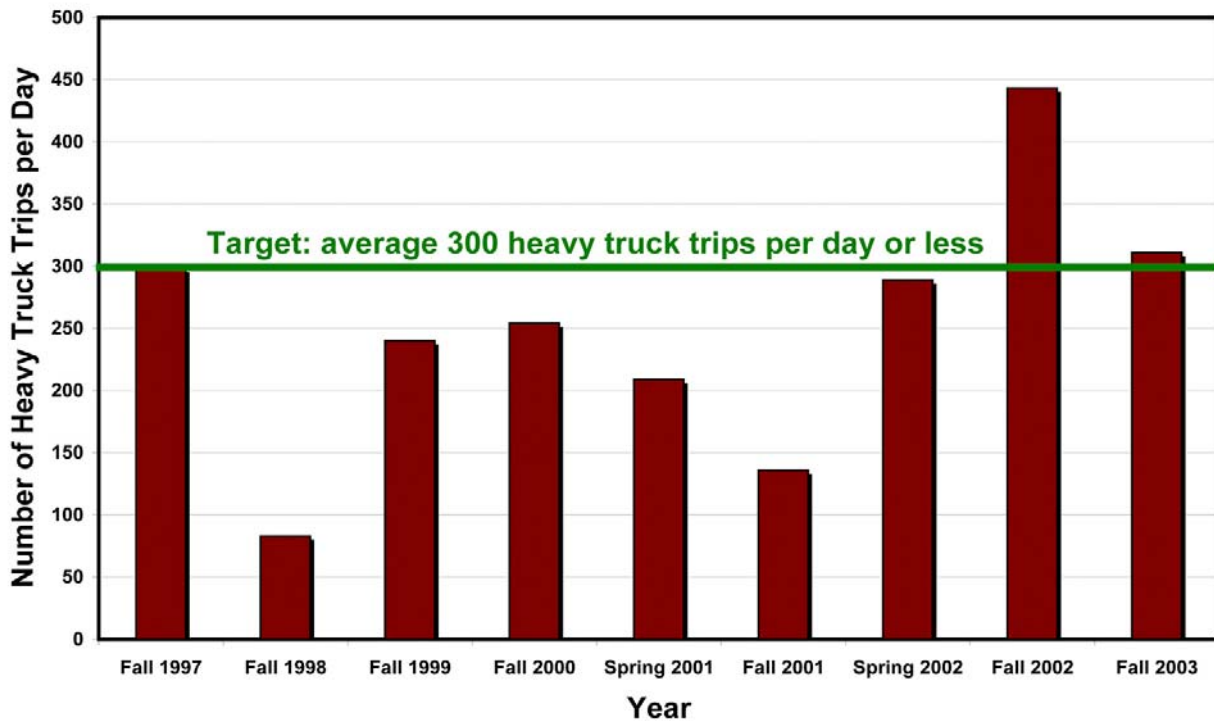
Since the adoption of the Strategic Transportation Plan, UBC has pursued a target of an average of 300 truck trips per day or less to and from UBC. As **Table 5.9** and **Figure 5.7** indicate, with the exception of Fall 2002, UBC has achieved this target each year. The number of truck trips exceeded the target in Fall 2002 due to a high level of construction activity on campus, particularly excavation of the new Life Sciences building.

**Table 5.9 – Heavy Truck Trips (24-hr period, Fall 1997 to Fall 2003)**

	Fall 1997	Fall 1998	Fall 1999	Fall 2000	Spring 2001	Fall 2001	Spring 2002	Fall 2002	Fall 2003
Total Number of Heavy Truck Trips	298	83	240	254	209	136	289	443	311
Overall Change	4.4%								

Source: UBC Annual Data Collection Program, 1997 – 2003

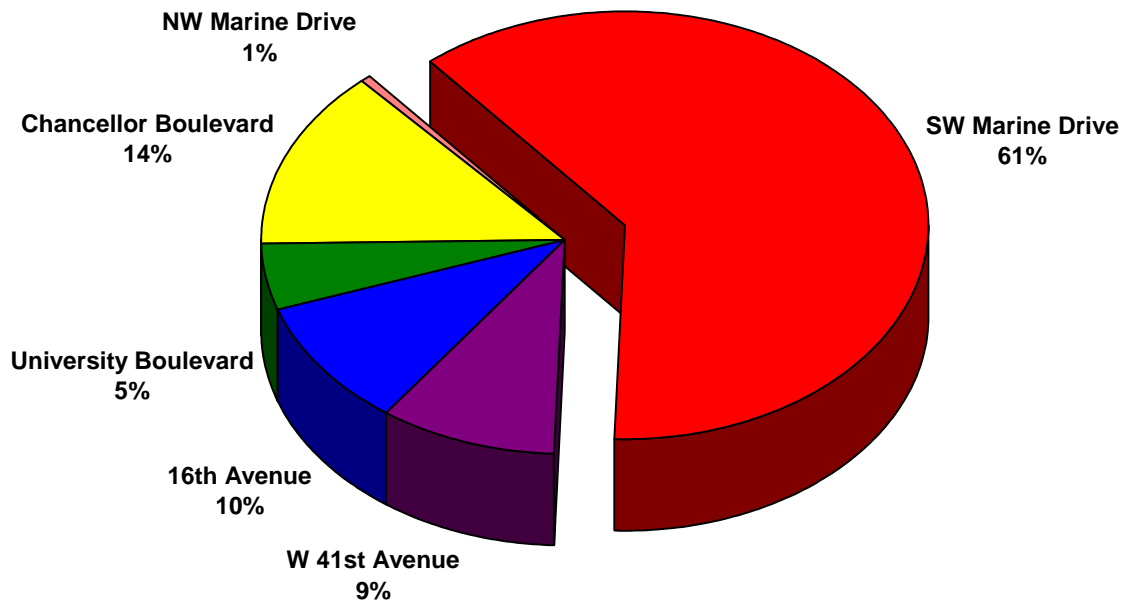
**Figure 5.7 – Daily Heavy Truck Traffic to/from UBC (24-hrs, 1997–2003)**



Approximately two-thirds of heavy trucks (205 trucks) observed in Fall 2003 were construction-related trucks, as compared with one-third of heavy trucks (106 trucks) which were related to the on-going operation of the University.

**Figure 5.8** illustrates the distribution of heavy truck trips among truck routes leading into UBC in Fall 2003. SW Marine Drive carries the highest proportion of heavy truck traffic to and from UBC. Approximately 61% of all heavy truck trips per day use this route. In comparison, the second most-used route is Chancellor Boulevard, with 14% of the daily heavy truck volume.

Figure 5.8 – Heavy Truck Traffic to/from UBC by Route (24-hrs, Fall 2003)



In October of 2003, a truck count was undertaken on SW Marine Drive at Dunbar Street. The purpose of this count was to determine the proportion of heavy trucks using SW Marine Drive which originate at UBC. This count showed that approximately 52% of the heavy trucks along SW Marine Drive were travelling to and from destinations within the City of Vancouver, and that the remaining 48% were travelling to or from destinations related to UBC and UEL. A similar count undertaken in January 2000 found that 74% of the heavy trucks using SW Marine Drive were travelling to and from destinations within the City of Vancouver, and that the remaining 26% were travelling to or from destinations related to UBC and UEL.

Key observations regarding heavy truck travel at UBC for Fall 2003 include:

- Fall 2003 data indicate that heavy truck trips are at the target level of 300 trucks per day, despite increased levels of construction activity on campus. This result suggests that the Truck Management Program is having the desired effect of minimizing heavy truck traffic.
- In Fall 2003, SW Marine Drive carried approximately 61% of heavy truck trips to and from UBC. The majority of heavy trucks travelling along SW Marine Drive are travelling to and from locations within the City of Vancouver.

## 6.0 TRAVEL PATTERNS AT UBC

On-campus travel data have been collected as part of the annual data collection program as a means of monitoring how campus roads and intersections are functioning, particularly as travel patterns on campus change as a result of institutional and residential development. This section of the report provides a summary of on-campus traffic volumes and vehicle speeds, parking supply and demand, intersection performance and other significant travel patterns.

### 6.1 On-Campus Traffic

**Figure 6.1** illustrates on-campus traffic volumes collected in Fall 2002 and 2003, in addition to volumes observed on major roadways leading to and from the Point Grey campus. Counts of on-campus traffic volumes are scheduled on a bi-annual basis, and therefore only half the locations were counted in Fall 2003. In **Figure 6.1**, Fall 2003 volumes are shown as solid lines and Fall 2002 volumes are shown as dashed lines.

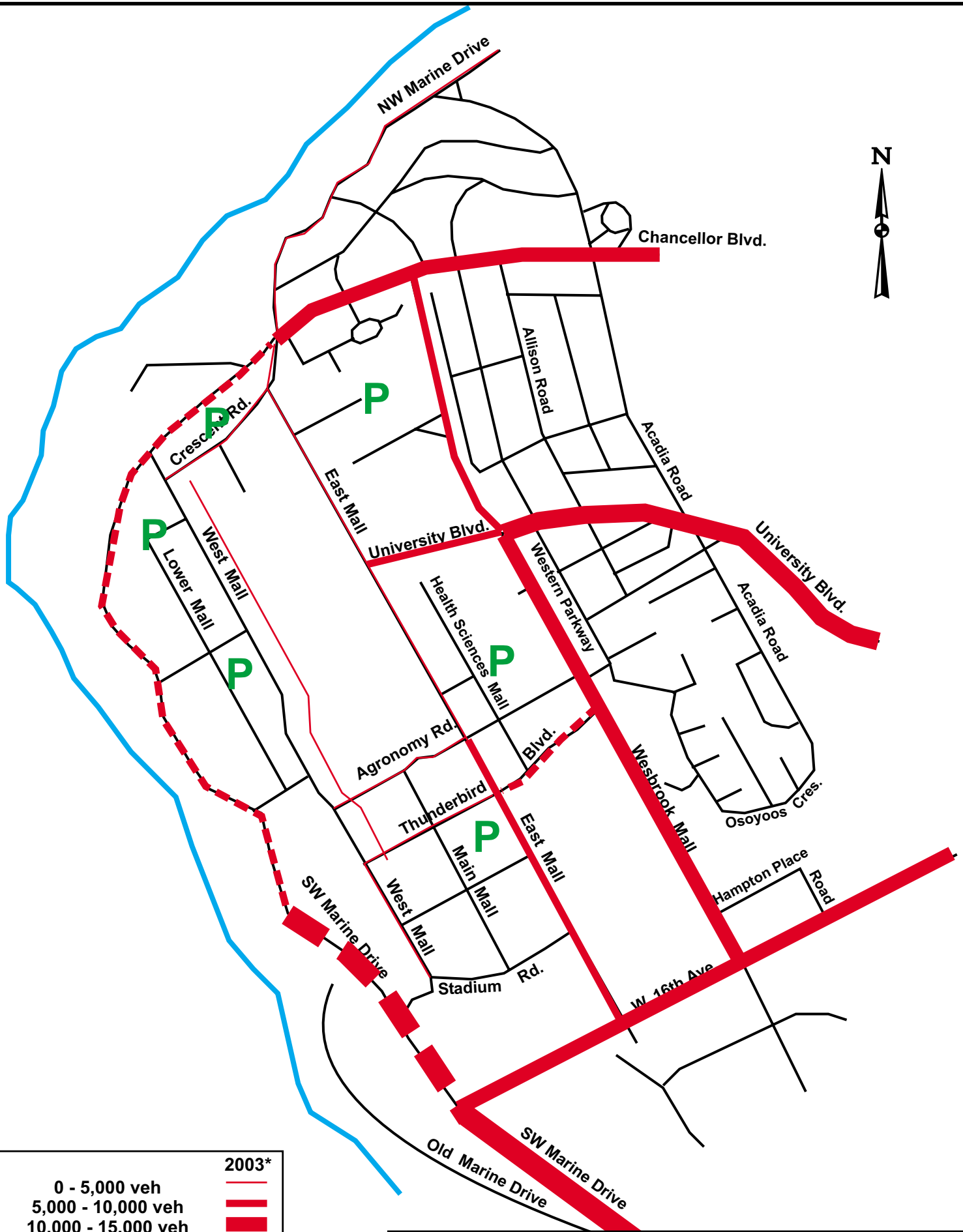
In general, on-campus traffic volumes have not changed significantly over the last several years. The highest traffic volumes are on roadways leading to and from the campus, with moderately high volumes leading to and ending at major parking facilities on campus. As well, roads that generally have a high level of pedestrian activity have lower traffic volumes, such as East Mall north of Agronomy Road, and Agronomy Road east of Main Mall.

### 6.2 Parking

Introduction of the student U-Pass in September 2003 had a significant effect on parking demand at UBC. **Table 6.1** provides a summary of parking utilization rates for surface parking lots (B lots) and parkades, in Fall 2002 and Fall 2003. It should be noted that it is generally not possible nor desirable to achieve 100% utilization of parking facilities. Some empty parking stalls are required to accommodate daily and hourly fluctuations in parking demand, to minimize search times for an available parking stall, and to avoid spill-over parking impacts. Consequently, UBC's Parking and Access Control Services has established a target of 85% average utilization.

**Table 6.1 – Average Parking Facility Utilization (Fall 2002 and Fall 2003)**


	Average Utilization		
	Target	Fall 2002	Fall 2003
Surface lots (B lots)	85%	90%	71%
Parkades	85%	87%	78%



0 - 5,000 veh	2003*
5,000 - 10,000 veh	
10,000 - 15,000 veh	
15,000 + veh	

\* Dashed lines denote fall 2002 data.

**Figure 6.1**  
**On-Campus Traffic Volumes**  
AM Peak Hour Volumes - Fall 2002 & Fall 2003  
Transportation Status Report - January 2004



The results in **Table 6.1** indicate that introduction of the student U-Pass has reduced parking demand by more than 10%. Other measures which indicate similar effects on parking include:

- The average daily parking demand in the surface B-Lots in Fall 2003 was 1,500 vehicles. This represents a reduction of 12% from the average 1,700 daily parking demand in fall 2002 of 1,700 vehicles.
- In Fall 2002, a total of 12,270 staff, faculty and student parking permits were sold. This represents a reduction of over 1,000 permits sold — a reduction of 8% — from the 13,315 permits sold the previous year in Fall 2002.

Introduction of the student U-Pass has also had an effect on parking off-campus in the Point Grey neighbourhood. Some students drive and park in Point Grey, and use their U-Passes to ride transit the rest of the way to UBC, thereby avoiding paying for parking at UBC.

On a typical weekday, observations indicate that a total of approximately 100 vehicles are parked on streets in Point Grey by students and others travelling to UBC. Locations where this is particularly noticeable include the 4500 blocks of West 9th and West 11<sup>th</sup> Avenues, as well as Blanca Street at 10th Avenue. The 4500 blocks of West 9th and West 11th Avenues are attractive to students and others travelling to UBC because they are close to the 99 B-Line stop on 10th Avenue at Sasamat Street, and because there are no residential uses on the south side of 9th Avenue and for a portion of the north side of 11th Avenue within these blocks. Similarly, Blanca Street is attractive because all three trolley bus routes serve bus stops at the Blanca Street/10th Avenue intersection, and because there are no residential uses on the west side of Blanca Street.

UBC has no jurisdiction nor control of parking on streets in West Point Grey. The City of Vancouver's Parking Administration Branch is responsible for managing parking on City streets. The Parking Administration Branch is aware of the issue of UBC students and others parking on neighbourhood streets in Point Grey, and is considering ways in which resident parking only zones can be implemented on streets where parking is an issue. A resident parking only zone prohibits anyone from parking in the designated zone, except residents of that block. Resident parking only zones are used elsewhere in the City on residential streets adjacent commercial uses, for example.



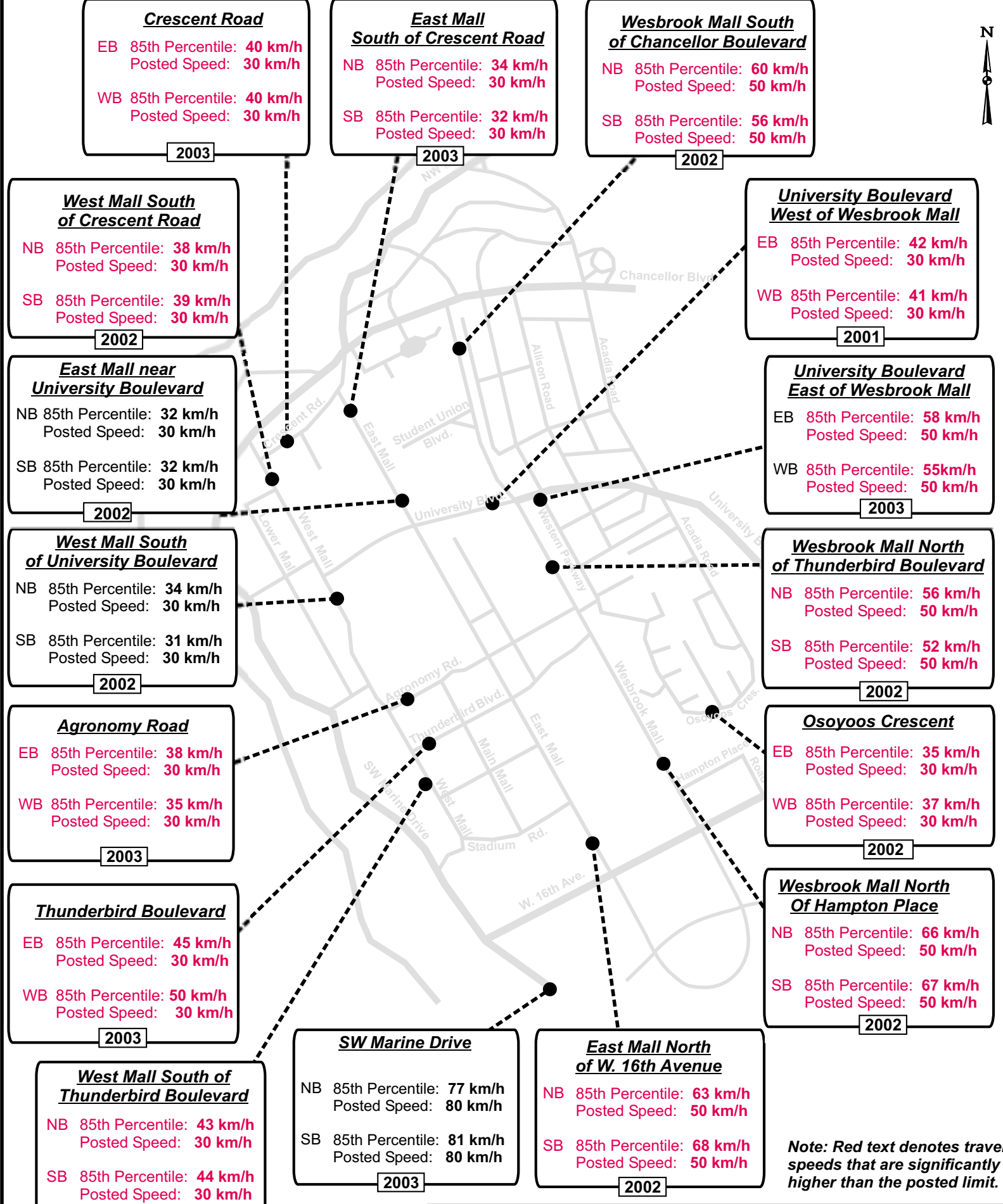
## 6.3 Vehicle Speeds

Many areas of the UBC campus have high levels of pedestrian and bicycle activity. In these areas — as well as elsewhere on campus — it is important that motor vehicle speeds are moderated and that speeding is discouraged. Speed limits on campus roads are generally 30 km/h, with high speed limits on perimeter roads only. UBC has implemented traffic calming measures on a number of roads to discourage speeding and to increase safety for pedestrians, cyclists, motorists and other road users.

**Figure 6.2** and **Figure 6.3** indicate observed 85<sup>th</sup> percentile speeds for seven locations on campus in Fall 2003, for the AM and PM peak periods respectively. As these figures indicate, most roadways on campus have 85<sup>th</sup> percentile speeds that range between 30 km/h and 45 km/h. 85<sup>th</sup> percentile speed is a measure that indicates the speed at or below which 85% of all vehicles are travelling, and above which 15% of all vehicles are travelling. It is a recognized standard used throughout North America to measure traffic speeds.

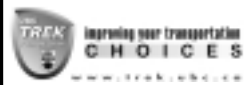
Observed 85<sup>th</sup> percentile travel speeds that are significantly higher than the posted speed limit are indicated on **Figure 6.2** and **Figure 6.3** with red text. Speeds observed in Fall 2003 indicate that this is the case on many campus roads. Locations where UBC may wish to consider implementing traffic calming measures or other measures as appropriate to discourage speeding include:

- West Mall south of Thunderbird Boulevard. In combination with the construction that is happening in this area, there may be the opportunity to integrate traffic calming improvements along this stretch. Currently there are curb extensions on the east side of this portion of West Mall.
- Agronomy Boulevard, Thunderbird Boulevard and Crescent Boulevard between West Mall and East Mall. These campus roads have consistently shown relatively high 85th percentile speeds.
- Wesbrook Mall south of University Boulevard
- East Mall south of Thunderbird Boulevard

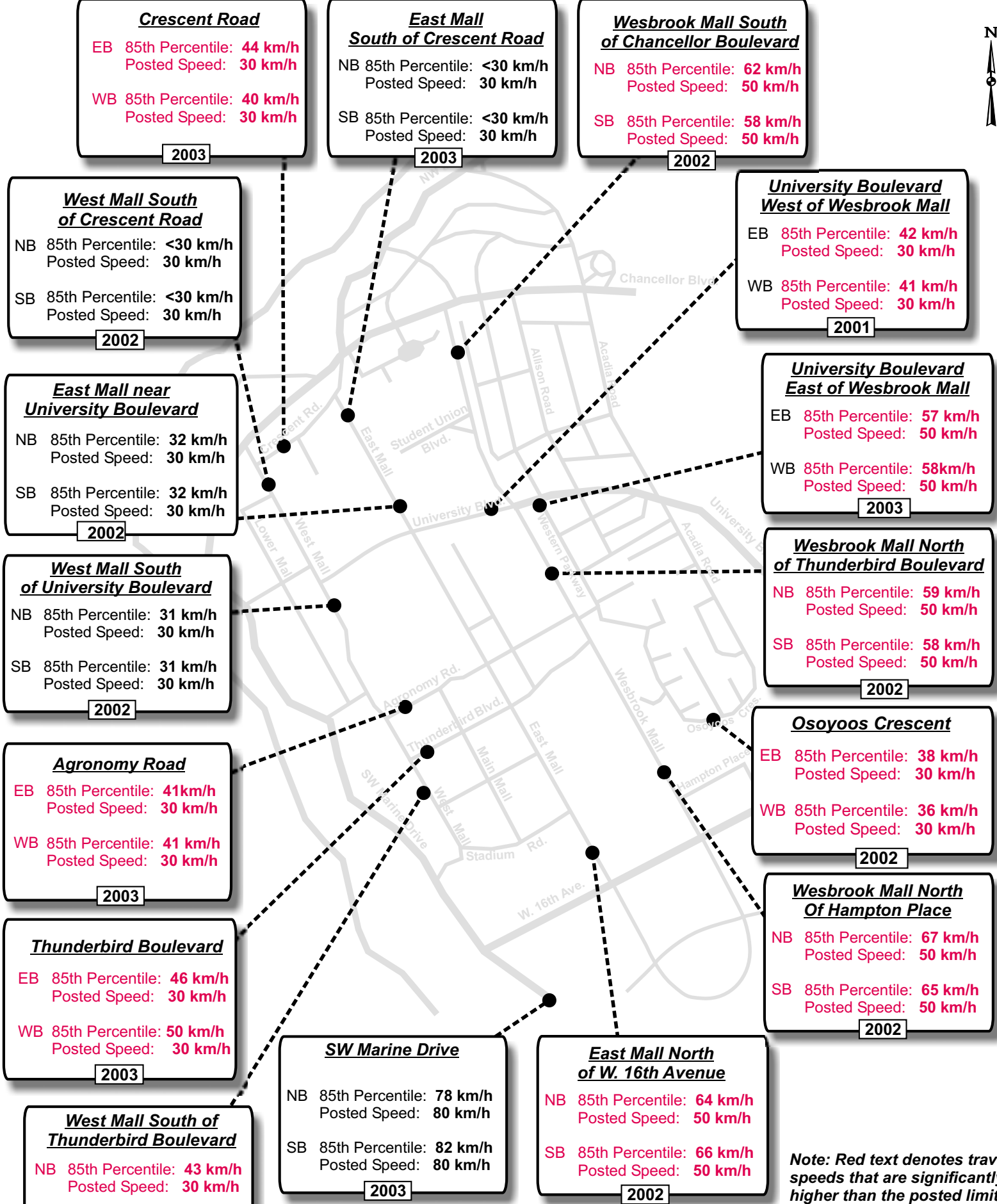


*Note: Red text denotes travel speeds that are significantly higher than the posted limit.*

**Figure 6.2**  
**On-Campus Traffic Speeds**  
 AM Peak Hour



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Note: Red text denotes travel speeds that are significantly higher than the posted limit.



**Figure 6.3**  
**On-Campus Traffic Speeds**  
PM Peak Hour  
Transportation Status Report - March 2004

# Appendix A

## 2004 Campus-Wide Transportation Survey Objectives

## 2004 Campus-Wide Transportation Survey Objectives

1. Basic longitudinal transportation data:
  - a. Personal data - Postal code, faculty, etc.
  - b. Trip diary
2. Confirmation of average monthly transportation costs for students at UBC
  - a. This will help build financial business case for U-Pass @ UBC
  - b. Need to know how much students average cost has gone down due to U-Pass
  - c. In 1996, it was \$120 per month.
3. Determine perceived transportation benefits/costs of U-Pass
  - a. Mode splits pre and post U-Pass
    - How many students:
      - Have changed their mode (ie. car to bus)?
      - Combine use of U-Pass with another mode?
      - Do not use their U-Pass?
      - Have sold their car?
      - Have parked their car for the winter?
      - No longer purchase a parking permit?
  - b. User satisfaction to establish a benchmark
    - To what extent do students use U-Pass beyond their UBC commute?
    - To what extent is current service adequate to student needs to/from UBC?
    - To what extent is current service adequate to student needs on trips to destinations other than UBC (ie. other routes, Late Night service)?
4. Determine Support for Summer U-Pass
  - a. How many winter session students that attend summer courses would be interested in taking advantage of a summer U-Pass?
  - b. How many summer session students (ONLY) would be interested in summer U-Pass?
5. Determine Support for staff/faculty U-Pass program based on pilot introduction
  - a. Support for Price range at 100% (ie. Mandatory), 75%, 50% (i.e. opt in) participation
  - b. Support for opt-in vs. mandatory, or, under what conditions would they 'live-with' a mandatory U-Pass if it was the only option

- c. Need for a parking component of U-Pass and in what capacity
  - d. Interest in combining with Aquatic Centre fitness pass, and at what price
  - e. Determine if there are any factors internal to UBC that could be leveraged to increase support for Staff/Faculty U-Pass (similar to changes to class start times for students)
6. Determine Support for ComPass among non-student, non-staff/faculty residents of UBC
- a. How many Other Residents would be interested in a ComPass?
  - b. Price point analysis

# Appendix B

## Truck Management Fact Sheet



## UBC's Unique Truck Management Plan

University Town, External Affairs  
6328 Memorial Road  
Vancouver, BC V6T 1Z2  
Phone: 604-822-6400 Fax: 604-822-8102  
E-mail: info.universitytown@ubc.ca

### *UBC Works to Minimize Impacts to Neighbours*

Academic growth and development of a University Town at UBC mean that construction activity on campus will continue for many years. As part of its commitment to minimize the impacts of development on adjacent neighbourhoods, UBC has implemented an innovative Truck Management Plan — one that is unique in the Lower Mainland.

The UBC Properties Trust project management team now includes a transportation consultant with expertise in construction traffic management. The consultant is responsible for day-to-day management of trucks traveling to and from UBC, through the Truck Management Plan. Regular monitoring of truck traffic will enable the project management team to ensure that impacts of truck traffic are minimized off-campus as well as on-campus.

### *The Truck Management Plan*

The key features of UBC's Truck Management Plan include:

- Compliance with all City of Vancouver truck bylaws (including tarp requirements and noise requirements), Ministry of Transportation regulations, and the traffic management requirements in UBC's Strategic Transportation Plan.
- Truck traffic dispersed over all designated truck routes on the west side of Vancouver.
- Scheduled truck arrivals and departures to more evenly distribute truck traffic throughout the day.
- A full-time inspector who monitors truck traffic arriving at UBC.
- Fines issued to truck operators who fail to comply with requirements.

- Incentives for contractors to reuse materials, and thereby reduce truck traffic.
- Regular public notices and communication regarding upcoming road closures, truck routing changes and other important activities.
- Daily monitoring and weekly reporting regarding truck activity, compliance with requirements, forecasts of future truck activity, impending changes and other truck management issues.

### *The Plan is Working*

The Truck Management Plan is already making a difference. Examples of some of the results UBC has achieved include:

- Reusing excavated material for landscaping at the Chancellor's Gate and Promontory projects has reduced truck traffic by 500 truck trips.
- Use of pups and transfers for excavation and delivery of aggregate materials has reduced truck volumes up to 44% per week.
- Fines have been levied against truck operators who failed to comply with requirements. Compliance has improved significantly in response, and as a result the number and amount of fines issued have decreased steadily.



*Truck Traffic Management Site Check*



## Details

The specific components of the Truck Management Plan are described below.

### Truck Routes and Staging Locations

- Included new Supplementary General Conditions for Traffic Management in the standard contract documents with general contractors. These conditions include requirements for alternating the routes for trucks traveling to and from UBC and become a component of the terms and conditions of the contract.
- Identified four City of Vancouver truck routes among which truck traffic will be dispersed:
  - 4<sup>th</sup> Avenue.
  - 10<sup>th</sup> Avenue.
  - 41<sup>st</sup> Avenue.
  - SW Marine Drive.
- Established on-campus truck routes for all campus projects.
- Established staging locations for all campus projects.

### Quality Assurance

- Weekly site audits for each site on campus to review standard traffic control practices, signage requirements, public safety, and truck practices.
- Included new Supplementary General Conditions for Traffic Management in the standard contract documents with general contractors. These conditions include requirements for the submission of an integrated Truck Management Plan which incorporates the specifications contained in the Truck Management Plan and becomes a component of the terms and conditions of the contract. The plans provide the following details:
  - Estimated average daily number of truck trips for each stage of construction.
  - Proposed haul routes to be utilized for each type of truck during each stage of construction.
  - Standardized “Daily Haul Log.”
  - Standardized “Daily Traffic Control Logs.”
  - Procedures utilized by the contractor to ensure the dissemination of information to local stakeholders as per the strategy specifications.
  - Procedures utilized by the contractor to ensure compliance with all City of Vancouver By-laws, Ministry of Transportation regulations, and industry standards.

### By-law and Regulations Compliance

- Included new Supplementary General Conditions for Traffic Management in the standard contract documents with general contractors. These conditions outline the requirements for trucking regulations and adherence to by-laws adopted from the City of Vancouver and becomes a component of the terms and conditions of the contract.
- Placement of a Quality Assurance Inspector for continual on-site surveillance to ensure compliance with all regulations, specifications, adopted by-laws including established general hours of operation, tarping regulations, noise by-laws, and truck routes.
- Implemented a penalty system for non-compliance with the Truck Management Plan and contract terms and conditions. Fines for a first offence range up to \$1000, and double with each subsequent offence.
- Implemented and maintaining a regular survey program for all trucks entering and leaving UBC Campus to ensure compliance with regulations.

### Truck Trip Volume Reductions

- Stockpiled excavated material for backfill requirements to reduce trucking to and from campus.
- Using pups and transfers for excavation and delivery of aggregate materials to reduce numbers of trucks.

### Hours of Work

- Adopted the recommendations of the University Neighbourhood Association to restrict hours for noise-related construction activities to 7:30 a.m. to 8:00 p.m. Monday to Friday, and 9:00 a.m. to 5:00 p.m. Saturday. Construction in the Theology Precinct ends one hour sooner at 7:00 p.m. Monday to Friday, and at 4:00 p.m. Saturday. There is no noise-related construction work on campus on Sundays and statutory holidays.
- Included new Supplementary General Conditions for Traffic Management in the standard contract documents with general contractors. These conditions outline the general allowable hours of operation and become a component of the terms and conditions of the contract.

## Communications

- Established a Truck Management Public Information Line at 604-925-4142, which is answered Monday through Friday between 7:00 a.m. and 4:30 p.m. Staff respond the next day to messages left at other times.
- Providing weekly updates and a projected three-week construction schedule every Friday after 3:00 p.m. at [www.gtmconsulting.com/ubc](http://www.gtmconsulting.com/ubc).
- Attending community meetings off-campus as well as on-campus to address public concerns regarding truck traffic.

## UBC Residential Areas

- Reduced truck trips through UBC residential areas.
- Established on-campus truck routes for Mid-Campus projects and staging locations for all projects.

## Glossary

**Strategic Transportation Plan** — A document created by UBC's TREK Program Centre, recommending policies in fulfillment of transportation-related commitments under the Greater Vancouver Regional District's *Official Community Plan* and in support of the UBC Trek 2000 *Vision and Principles for Physical Planning at UBC*.

**Supplementary General Conditions for Traffic Management** — Specifications contained in the tender and contract documents which supplement the *Canadian Construction Document Committee II-1994* and outline for the contractor the various procedures and regulations, which must be followed in relation to truck traffic management throughout the duration of the contract.

**UBC Properties Trust** — is a market oriented private company wholly owned by the University of British Columbia established by the Board of Governors on June 2, 1988 with a mission to acquire, develop and manage real estate assets for the benefit of the University.

## References

### UNIVERSITY OF BC:

University Town:

[www.universitytown.ubc.ca](http://www.universitytown.ubc.ca)

Properties Trust Weekly Project Update:

[www.gtmconsulting.com/ubc](http://www.gtmconsulting.com/ubc)

Campus and Community Planning:

[www.planning.ubc.ca](http://www.planning.ubc.ca)

TREK Program Centre:

[www.trek.ubc.ca](http://www.trek.ubc.ca)

### GREATER VANCOUVER REGIONAL DISTRICT:

GVRD Livable Region Strategic Plan:

[www.gvrd.bc.ca/growth/lrsp.htm](http://www.gvrd.bc.ca/growth/lrsp.htm)

### CITY OF VANCOUVER:

City of Vancouver Bylaws:

[www.city.vancouver.bc.ca/bylaws](http://www.city.vancouver.bc.ca/bylaws)

# Appendix C

## Data Summary, Fall 1997 to Fall 2003





