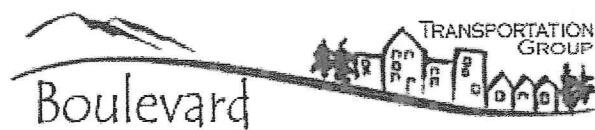




**University  
of Victoria**



***Report for Services:***

***University of Victoria***

***Transportation Demand  
Management Study***

***September 24, 2003***

***File: 240***



We wish to acknowledge the incredible commitment from the members of the UVic TDM Stakeholder and Steering Committees, without whom, this study would not have benefited from their respective areas of expertise, diverse perspectives, and their collective thoughtful guidance.

Thank you also to the many Focus Group participants who volunteered their precious time to the research portion of this study.

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Cinecenta  
UVic Bookstore  
Finnerty Express  
Phoenix Theatre  
SUB – Munchie Bar  
District of Saanich & the Cedar Hill Golf Club  
BC Hydro  
Centre of the Universe, Astrophysical Observatory



University  
of Victoria





*UVIC TRANSPORTATION DEMAND MANAGEMENT STUDY*  
*EXECUTIVE SUMMARY*

## **EXECUTIVE SUMMARY**

With the creation of the Campus Plan (July 2003), the University of Victoria has mapped a long-term strategy to accommodate future campus growth. The University recognizes that, unless properly managed, increased transportation will have a negative impact on the campus and the surrounding community thereby endangering the realization of the Campus Plan itself. To address this challenge, the University commissioned a Transportation Demand Management study aimed at developing a list of options which would assist the University in achieving its goal of both reducing motor vehicle traffic to the campus and increasing public transit ridership, cycling and walking.

### **The Process**

The study was sponsored by Facilities Management and managed by the Sustainability Coordinator. The transportation planning and engineering consulting firm, Boulevard Transportation Group, was commissioned to develop the list of options for a Transportation Demand Management (TDM) strategy, in consultation with two guiding committees: the UVic TDM Steering Committee and the UVic TDM Stakeholder Advisory Committee. This report will be presented to the University for review and consideration. After receiving the report, the University has committed to developing a TDM implementation plan within six months of approval.

The benefits of adopting and implementing the TDM options contained in this report include:

- The creation of plentiful, convenient and affordable short term parking opportunities. (converting some long-term permit parking spaces into hourly parking spaces.)
- Establishing a parking cost structure that is comparable to other universities.
- Dedicated funding sources to meet future parking needs and required transportation investments.
- More land for educational uses.
- Preserved greenspace.
- Strong relationships with neighbouring communities.

### **Report Format**

This study is divided into two sections. Section I contains all the background information gathered through research, data collection and focus group interviews. From this information, the various challenges and opportunities associated with each mode were explored. Section II identifies an extensive list of options, according to mode, that would be appropriate for the University of Victoria TDM Strategy.



## Why TDM?

Over the last 10 years, the University has experienced an annual average growth rate of 2%. If the University continues to grow at this rate, the campus will grow by approximately 40% over the next 15 years. With growth comes increased pressures on internal (campus) and neighbouring road networks, as well as parking demand. Traditionally, transportation planning has been supply-oriented; as demand increases, so too should the capacity of the road network or parking facilities. However, recognition of the increasing economic, social, and environmental costs of reacting to demand by increasing supply has created a paradigm shift in the methods used to address transportation issues. Instead of reacting to traffic and parking problems by expanding infrastructure, innovators now seek to manage demand by better utilizing existing roads and increasing the mode share of transit, cycling and walking. The common term for this movement is Transportation Demand Management or TDM.

While still relatively new, TDM has become a widely recognized transportation planning strategy in the last ten years in North America. Legislation in many urban areas in the United States, which makes the implementation of TDM strategies mandatory for large employers, has quickly pushed this new field from the pioneering phase to an established practice. Results from these jurisdictions have helped to determine the impacts various strategies have on travel habits.

Although Canadian cities do not have the same mandatory TDM requirements as their U.S. counterparts, TDM is nevertheless being increasingly recognized as an integral component of transportation planning, especially in metropolitan areas in British Columbia. Tight budgets, concern for the environment and an understanding of the negative impact vehicle congestion plays in undermining the quality of life and urban planning objectives, have made TDM an attractive option for both policy makers and the general public.

The University of Victoria has clearly expressed a commitment to encouraging commuters to use alternative modes of transportation. For example, UVic, in partnership with BC Transit, pioneered the UPass program that a number of other universities have sought to replicate. These efforts have been rewarded by stemming the general trend to increasingly commute by car. Over the last ten years there has been a slight decrease in the percentage of drivers travelling to campus, despite a substantial 2.5% overall, average growth rate. Pedestrians and transit users have increased significantly, although vehicle passengers and cyclists have surprisingly declined.

Commitment aside, TDM is recognized for its potential to be a "least cost planning" tool. That is, money can be saved by investing in methods that encourage the use of alternative modes rather than paying for expensive infrastructure upgrades to accommodate unchecked growth in automobile traffic.

For example, accommodating increased parking will eventually require the construction of a parkade, an investment of millions of dollars. The University will either have to subsidize automobile drivers or dramatically raise the cost of parking to pay for this facility. A more sustainable option for the University, and drivers, is to invest in transportation alternatives which encourage commuters not to drive their single occupant vehicle to campus. Efforts to shift travel habits are rewarded with lower parking demand in the immediate, and delaying (perhaps indefinitely) the need to construct a costly parkade. By weighing the costs and benefits of implementing specific TDM measures against the costs of providing the infrastructure requirements caused by growth in traffic and parking demand the University will be able to invest in the most cost-effective measures.

## SECTION I – BACKGROUND INFORMATION

The existing and future conditions of each mode were reviewed.

### Automobile

Currently, traffic congestion near the University occurs at a couple of significant intersections around the McKenzie/Shelbourne area. When future traffic conditions are modelled under current trends, several more intersections along the Shelbourne and McKenzie corridors are expected to experience failing conditions. The congestion on these corridors will be difficult to mitigate as the University bound commuters compete with the downtown bound commuters, resulting in almost equal competition for each signal phase. However, if the increase in automobile travel to the University continues to decline (as the trend from the 1992, '96 and 2000 traffic studies suggest) and the efforts to shift traffic generated from increased growth to the alternative modes are successful then the University can feel confident that any future congestion on these routes will be as a result from traffic generated by other sources, not from its campus population.

There is currently adequate parking supply on campus (with some 600 spaces available at any given time down to 200 stalls during peak travel times) but this will change as the University population increases. As demand rises the University will have severe parking shortages unless prices rise to market levels. The true costs of parking needs to be accurately accounted for in calculating the cost of increasing supply.

### Transit

There is tremendous potential to increase transit ridership to UVic, as transit is already the most popular alternative to solo driving. Consequently, measures that discourage drive-alone commuting will result in increased transit use. Transit would be better utilized if the service provided was more comprehensive. Complaints that transit did not serve their needs were common responses from focus

group participants. This is partly due to the large increase in transit use since the introduction of the UPass and partly due to recent budget caps imposed on BC Transit in general.

### **Cycling**

Victoria is known as Canada's "cycling capital," and has one of the highest levels of cycling of any city in the country. Surprisingly, the percentage of cycling trips to the University has declined by an estimated 35% in the last 10 years to average an approximate mode share of 5.5%. Barriers to cycling include perceived unsafe travel routes, fear of bicycle theft, and lack of convenient after-trip facilities. Despite the barriers, there appears to be a keen interest in cycling by staff, faculty and students which represent a tremendous potential to significantly increase the number of cyclists commuting to campus.

### **Carshare**

Although carpooling is traditionally a challenging program to gain participation in, both staff and students at UVic have indicated a strong interest. Barriers identified include: meeting the strict qualifications to become a registered carpool at UVic and lack of financial incentives. Another form of carshare which shows great promise is the car-coop model, just beginning to take hold on campus. One of the barriers to this program, however, is the minimum age requirement of 21 years old, which automatically excludes most 1st, 2nd, and in some cases, 3rd year students.

### **Walking**

The walking environment was identified by the students as one of the University's greatest assets and draws. However the dominant barrier to walking, as a commuting mode, is the lack of proximate and affordable housing in the Gordon Head, Henderson, Shelbourne and Cadboro Bay neighbourhoods.

## **SECTION II – LIST OF OPTIONS**

### **Study Recommendations**

This study recommends both improvements that can be made to:

- Increase the efficiency of the road network and parking facilities; and
- Encourage greater transit use, cycling, walking and carsharing.

The recommendations are presented as a List of Options from which the University can draw on as conditions warrant. Many options require that the University form partnerships with municipalities, service providers, unions and neighbours to advance mutual interests.



Four key recommendations will form the backbone of UVic's TDM strategy. These will create the largest change in travel behaviour and give the University greater freedom to introduce further measures to influence a significant modal shift. Additional recommendations included in the report are listed below by specific mode.

**1. Move to a market-based parking fee structure.**

Consultation with staff, faculty and students suggests that, in general, the campus community supports the Campus Plan and is willing to pay for the true cost of parking fees on the condition that any increased revenues be "re-invested" into improving choices for alternative modes.

**2. Increase transit service.**

Not surprisingly, there is a strong correlation between transit service and increased use, a fact confirmed by BC Transit on their University routes. There is a general consensus that providing more and better transit service, both at UVic and elsewhere in the region where students, staff and faculty live, is critical to increasing transit's modal share. Service must be increased to reduce over-crowding and eliminate pass-ups at peak times on busy routes. Both the University and BC Transit want to increase use and service and will need to negotiate a partnership to improve service that meets their mutual objectives.

**3. Increase cycling facilities and cycling education.**

The key reason why more people don't cycle to UVic is a lack of safe, direct bicycle routes to campus. Although implementation of bicycle routes is the responsibility of Saanich, Victoria, Oak Bay and other municipalities, UVic can work with these municipalities to identify and implement needed routes. As some focus group participants suggested, UVic may also consider coordinating and assisting with the implementation of bicycle routes leading to campus, as a means of accelerating implementation of these routes.

**4. Combine synergies of parking and transportation demand management goals.**

No TDM strategy will have any significant effect without ongoing advocacy, high profile promotion and sustainable transportation planning integrated into the fabric of the University's operations. The creation of a dedicated TDM Coordinator position, in combination with the integration of TDM principles into existing parking management practices, will ensure that the University integrates sustainable transportation principles into its broader campus planning objectives.

## Complete List of Options

The full list of recommendations presented in this report are as follows:

### 1 PARKING

- 1.1 Combine Synergies of Parking and TDM Goals
- 1.2 Increase Parking Fees
- 1.3 Reform Parking Policy – Integrate TDM Objectives
- 1.4 Streamline Parking Data Collection and Enforcement Strategies
- 1.5 Prioritise Convenient Parking Spaces
- 1.6 Control Use of Complimentary Parking Passes
- 1.7 Negotiate with Saanich to Implement a Parking Spillover “Hotline”
- 1.8 Improve Parking and Transportation Information
- 1.9 Peak Period Transportation and Parking Management
- 1.10 Introduce “High Tech” Payment System
- 1.11 Introduce Fees for Night Parking

### 2 TRANSIT

- 2.1 Increase Service
- 2.2 UPass for Staff and Faculty
- 2.3 Improve Passenger Amenities
- 2.4 Improve Information
- 2.5 Special Event Buses
- 2.6 Integrate Transit Route Information with Housing Services

### 3 BICYCLE

- 3.1 Install Covered Parking
- 3.2 Provide Secure Parking
- 3.3 Increase After-trip Facilities – Showers and Lockers
- 3.4 Laundry and Dry Cleaning Service
- 3.5 Bike Routes to Campus
- 3.6 Re-Introduce the “Public Bike” System,  
Support a Student-Run “Bike Kitchen”

### 4 RIDESHARING

- 4.1 Ridematching Service
- 4.2 Preferential Parking

*UVIC TRANSPORTATION DEMAND MANAGEMENT STUDY  
EXECUTIVE SUMMARY*

- 4.3 Reduced Parking Prices for Carpools and Vanpools
- 4.4 Reduce Barriers to Qualification

5 PEDESTRIAN

- 5.1 Safer Crossings on Ring Road
- 5.2 Traffic Calming on Ring Road
- 5.3 Pedestrian Routes to Campus

6 PROMOTION AND EDUCATION OF TDM

7 SUPPORTING OPTIONS

- 7.1 Guaranteed Ride Home Service
- 7.2 Maximize Fleet Vehicle Utilization
- 7.3 Establish /Support a Car- Cooperative
- 7.4 Integrate Merchants Discounts into Green Commuting
- 7.5 Stagger Class Start Times
- 7.6 Reconfigure Ring Road and Parking Accesses
- 7.7 Trip Reduction Strategies
- 7.8 Increase Housing Opportunities In Surrounding Neighbourhoods



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Appendix A – Minutes from the Stakeholder and Steering Committee Meetings

Appendix B – Focus Group Discussion Guide and Results of Focus Group Sessions

Appendix C – TDM Experiences in Other Post Secondary Institutions

Appendix D – Results from the Open House

*UVIC TRANSPORTATION DEMAND MANAGEMENT STUDY  
SECTION ONE – BACKGROUND INFORMATION*

## 1.0 INTRODUCTION

In 1993, the UVic Transportation Task Force was formed and headed by Mr. David Anderson. The group was charged with the task of reviewing the campus transportation infrastructure and to make recommendations for improvement. Rather than bringing forward standard recommendations that support automobiles leading to enormous investment in building more lanes on the roads, widening intersections and building more parking, the Task Force directed the University towards supporting the other modes; in effect, a sustainable transportation plan. The committee's recommendations were implemented and great successes were achieved. For example, the University pioneered the first Universal Bus Pass for its students and built cycling infrastructure on campus. As the mode split began to show improvement, the Transportation Task Forces' experiment was deemed an unqualified success.

In July of 2003, the Campus Plan was published which maps a long-term strategy to accommodate future campus growth. The university recognizes that, unless properly managed, increased transportation will have a negative impact on the campus and the surrounding community, and endanger the realization of the Campus Plan itself. To address this challenge the University commissioned Boulevard Transportation Group to develop a list of options for a Transportation Demand Management (TDM) strategy aimed at assisting the University in achieving its goal to reduce motor vehicle traffic to the campus and to encourage increased use of public transit, cycling and walking.

The values and assumptions of this report have been based on the goals and principles expressed in the 2003 Campus Plan. Each of the "Three Main Goals" of the plan can be interpreted to influence transportation planning on campus, with references to "pedestrian friendly links", "sustainable development" and promotion of alternative modes of transportation.

The Campus Plan is made up of "Nine Foundation Principles", of which five could also be interpreted to influence transportation planning on campus:

Principle 5 – The University will manage development carefully, respecting "smart growth" principles and practices as they may be adapted to the university context.

Principle 6 – The University commits to incorporate sustainable practices in the planning, construction and operation of buildings and facilities.

Principle 7 – The University will continue to plan and design in a way that enhances social interaction at a human scale.



2003 Campus Plan

The objective of this study is to develop a list of options which will assist UVic in achieving its goal to reduce motor vehicle traffic to the campus and to encourage increased use of public transit, cycling and walking.

*UVIC TRANSPORTATION DEMAND MANAGEMENT STUDY*  
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Principle 8 – The University is committed to open and universal access to its facilities while reducing dependence on single-occupant vehicles.

Principle 9 – The University recognizes the need to minimize surface parking and pursue alternatives.

In support of those principles, this report recommends moving to a market-based pricing strategy and investing the increased revenues into facilities and programs which serve to increase mode choice so that the advantage gap between single-occupant vehicle travel and alternative modes is either narrowed, or in the best case scenario, reversed.



## 2.0 REPORT FORMAT

The report is designed to operate as a 'living document' which can help guide the University's planning process to best accommodate future growth.

This report is divided into two sections. The first section reviews the existing conditions of each mode of transportation and discusses the projected impacts on those modes based on anticipated travel trends, traffic modelling software and campus growth projections. This section also explores the various opportunities and barriers to travel mode change. All of this information is used as background information to inform the various options developed in the next section. Section Two details a list of options suitable for the University's TDM Strategy.

As the University implements specific elements of the Campus Plan, demands on transportation infrastructure and management will inevitably change and so will the TDM options that garner the greatest effect. To efficiently implement the strategies identified in this report staff will require the resources to regularly monitor conditions on campus, assess the list of options identified in this report, and implement the appropriate strategies that best meet the University's needs.

*UVIC TRANSPORTATION DEMAND MANAGEMENT STUDY*  
*SECTION ONE – BACKGROUND INFORMATION*

### 3.0 STUDY METHODOLOGY

This study was carried out in consultation with two guiding committees:

The UVic TDM Steering Committee, made up of representatives from the University, neighbouring municipalities, the Capital Regional District and BC Transit, held eight meetings throughout the duration of the year long study.

Steering Committee Members	
Gerald Robson	Executive Director, Facilities Management, UVic
Lynn Bartle	Sustainability Coordinator, Facilities Management, UVic
Mike Skene	Boulevard Transportation Group
Larry Roberts	Manager, Transportation Planning, Regional Planning Services, CRD
Chris Foord	Marketing and Communications Manager, BC Transit
Colin Doyle	Manager of Transportation and Infrastructure Planning, District of Saanich
Bill Johnston	Operations Support Manager, Campus Security Services
Stuart Pitt	Director of Engineering Services, District of Oak Bay
Martin Segger	Director, Community Relations, UVic

Meeting Dates	Minutes available in <b>Appendix A</b>
March 12, 2002	<ul style="list-style-type: none"> <li>➤ Review and approval of the Terms of Reference for the Steering Committee and the Stakeholder Committee</li> <li>➤ Review and evaluate Requests for Proposals for the TDM Consultant</li> </ul>
May 1, 2002	<ul style="list-style-type: none"> <li>➤ Review and evaluate proposals for TDM Consultants</li> </ul>
May 28, 2002	<ul style="list-style-type: none"> <li>➤ Introduction of TDM Consultant</li> <li>➤ Prepare for the upcoming Stakeholders Meeting</li> </ul>
Aug. 1, 2002	<ul style="list-style-type: none"> <li>➤ Project status to date</li> <li>➤ Report on Stakeholders meeting</li> </ul>
Sept. 24, 2002	<ul style="list-style-type: none"> <li>➤ Review working paper</li> <li>➤ Discuss focus group sessions</li> </ul>
Dec. 18, 2002	<ul style="list-style-type: none"> <li>➤ Review Focus Group Report</li> <li>➤ Discuss TDM Options</li> </ul>
May 8, 2003	<ul style="list-style-type: none"> <li>➤ Review TDM Options presented in the final TDM draft report</li> <li>➤ Report on Stakeholders Meeting</li> </ul>
June 18, 2003	<ul style="list-style-type: none"> <li>➤ Present Final Draft Report</li> </ul>



*UVIC TRANSPORTATION DEMAND MANAGEMENT STUDY*  
*SECTION ONE - BACKGROUND INFORMATION*

The UVic Stakeholder Advisory Committee on TDM, made up of campus and surrounding community representatives, as well as various agencies such as ICBC and neighbourhood association members, met a total of seven times over the duration of the year long study.

Stakeholder Committee	
Judy Brownoff	District of Saanich - Councillor
Sharon Warren	Member, CUPE Local 951
Kevin Burns	Member, PEA
Ian Graeme	President, Camosun Community Association
Stephen Tyler	Executive Member, Gordon Head Residents' Association
Lyse Burgess	Executive Member, Gordon Head Residents' Association
Les Waye	Executive Member, Gordon Head Residents' Association
John Story	Regional Manager Marketing, Communication and Loss Prevention, Vancouver Island - ICBC
David Clode	Executive Director, Student and Ancillary Services
Dr. James Dopp	Member, UVic Faculty Association
Bob Trotter	Member, Quadra/ Cedar Hill Community Association
Peter Meekison	Member, Cadboro Bay Residents' Association
Doug Bright	President, Mt. Tolmie Community Association
Mary Sanseverino	UVic Bicycle Users Committee
Arnold Stewart	Member, North Henderson Residents' Association
Jordan Smith	Director, Student Affairs, Graduate Student Society
Russell Irvine	District of Oak Bay, Councillor
Rae St. Arnault	Sustainable Campus Initiative Coordinator, Polis Project
Troy Sebastian/Eric Haensel	Director of Academics, UVic Students Society
Fiona Chambers	Member, CUPE Local 4163
John Luton	President, Greater Victoria Cycling Coalition
Ted Sheldon	Co-Chair, Roundtable on the Environment Greenhouse Gas Emissions Sub Committee
Lynn Bartle	Secretary to Advisory Committee, Sustainability Coordinator, Facilities Management, UVic
Mike Skene - Consultant	Advisory Committee Chair, Boulevard Transportation Group
Susan Hallatt - Consultant	Boulevard Transportation Group

*UVIC TRANSPORTATION DEMAND MANAGEMENT STUDY*  
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Meeting Dates	Minutes available in <b>Appendix A</b>
June 26, 2002	➤ Introductions ➤ Discuss project and role of Stakeholders
Oct. 2, 2002	➤ Review working paper ➤ Discuss Focus Group sessions
Jan. 28, 2003	➤ Review Focus Group Report ➤ Discuss TDM Options
May 1, 2003	➤ Review TDM Options
May 15, 2003	➤ Review TDM Options presented in the final TDM draft report
July 3, 2003	➤ Present Final Report ➤ Thank you Reception

Extensive Focus Group interviews were conducted with persons who would use or who would be affected by new and modified transportation services and facilities.

A total of five focus group sessions were held on November 5 and 6, 2002. Two sessions involved students, one session involved staff, one session involved faculty, and one session involved residents from nearby neighbourhoods.

During each focus group session, several transportation-related topics were discussed, including the following:

- Carpooling
- Cycling
- Walking
- Transit
- Parking
- General transportation issues

It was important that focus group participants represented as random a sample as possible. For this reason, participants were selected from lists of randomly generated names of students, staff and faculty members. Each participant was contacted by telephone and invited to attend the session. Approximately 15 participants were invited to each focus group session with the expectation that some would not show up. To attract people and to ensure adequate attendance, food was provided, and each participant received one or more small gifts as appreciation for attending the session.

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Each focus group session was moderated by the same facilitator to ensure continuity and consistency. The role of the facilitator was to direct the discussion to specific topics, and to probe respondents to clarify their responses and obtain additional information. The facilitator did not contribute to the discussion in a significant way. Participants were encouraged to respond in an open and honest manner, and were also given the opportunity to talk with the facilitator after the session if they felt uncomfortable about voicing their opinion in front of others.

The focus group sessions were held in several locations on campus (see below). Each session was approximately 75 to 90 minutes long. A complete summary of the results of the Focus Groups, along with the discussion guide used by the moderator, and the verbatim transcripts (all participants' names have been kept confidential) are published in **Appendix B**.

Staff Focus Group Session:

Tuesday, November 5th, 2002 Noon to 1:30 pm, University Club, 10 participants

Faculty Focus Group Session:

Tuesday, November 5th, 2002, 3:30-5:00 pm, University Club, Room A, 8 Participants

Students Focus Group Session – Evening:

Tuesday, November 5th, 2002, 6:30-8:00 pm, Cadboro Commons, 15 Participants

Students Focus Group Session – Afternoon

Wednesday, November 6th, 2002, 12:00- 1:30pm, Michelle Pujol Room, 12 Participants

Community Focus Group Session

Wednesday, November 6th, 2002, 6:30-8:00 pm, University Club, 11 Participants

The information gathered from the focus groups was used to develop the most appropriate TDM options for UVic. A preliminary list of options was presented for comment, critique and contribution to both committees in December 2002. A comprehensive list of options was then submitted to both committees for review before taking the report to the public for broad consultation by way of an Open House. An Open House was held on September 17, 2003. Feedback from the community was then reviewed and considered; the final report was presented to the President of the University by the end of September 2003.

The original workplan, as developed in response to the Request for Proposals was, for the most part, adhered to, with the exception of the scheduling of the Open House. The original date was set for May

*UVIC TRANSPORTATION DEMAND MANAGEMENT STUDY*  
*SECTION ONE – BACKGROUND INFORMATION*

of 2003 which would not coincide with the school year. The date was subsequently rescheduled for when the students return in the Fall of the following school year.

## SECTION I – BACKGROUND INFORMATION

### 4.0 EXISTING CONDITIONS

#### 4.1 Population Distribution

The University of Victoria is a regional traffic generator, drawing commuters from all municipalities in the Capital Regional District (CRD). For the purposes of this report, the University population, made up of 22,132 people, is divided into two major categories: students (18,036 undergraduate and graduate) and employees (4,090 faculty and staff.) The total Full Time Equivalent (FTE) population is estimated to be approximately 17,000 people.<sup>1</sup>

##### 4.1.1 Students

Postal codes for the students of UVic were obtained from Admissions and matched with the postal code regions for Victoria's urban area. Figure 1(A) illustrates the locations.

It is likely that not all of the postal codes recorded indicate where they live, but simply a mailing address as approximately 50% were outside of this area. However, based on the data for the Victoria region, the majority of the students live in the Gordon Head area followed by Cadboro Bay and Hillside/Shelbourne, McKenzie areas.

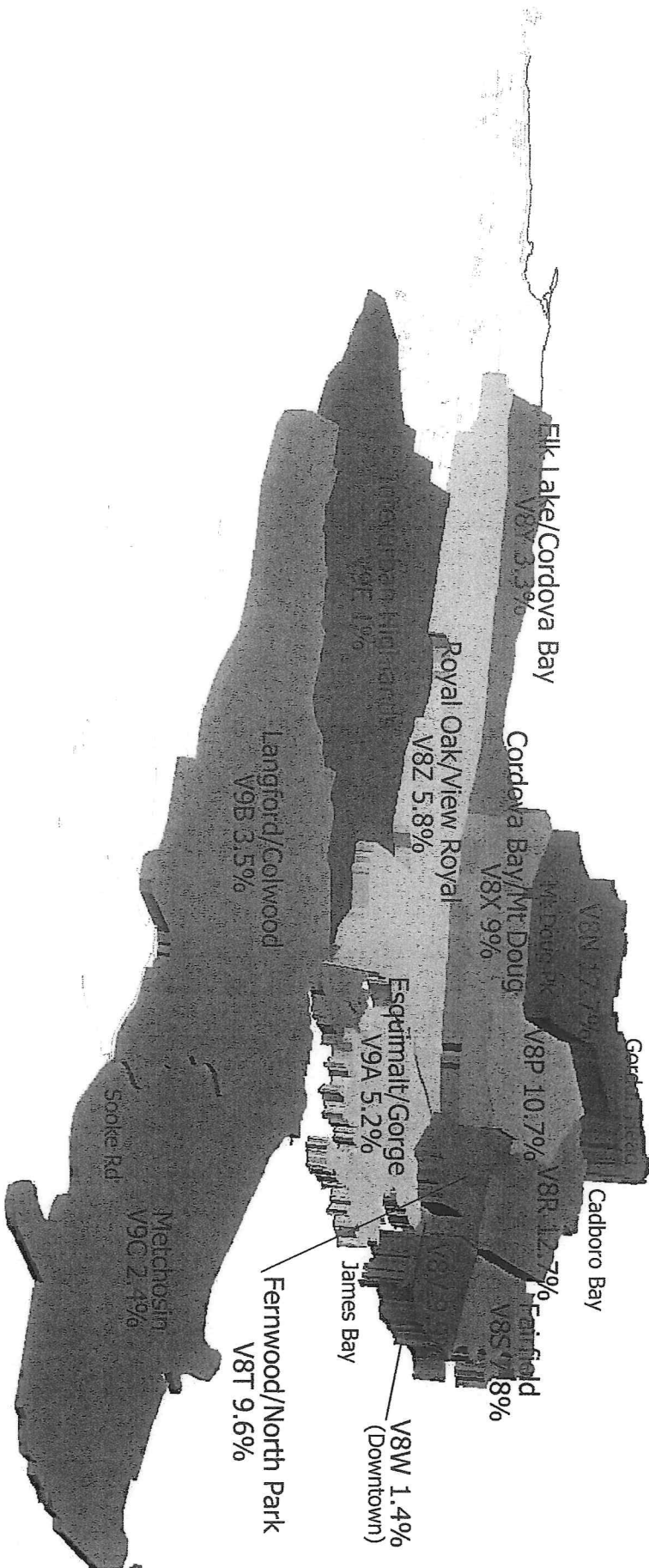
**Table 1: Relative Percentages of Student Populations**


1	V8N	Gordon Head	17.7%
2	V8R	Cadboro Bay	12.7%
3	V8P	Hillside/Shelbourne, UVic, McKenzie, Swan Lake	10.7%
4	V8V	James Bay	9.9%
5	V8T	Fernwood and North Park	9.6%
6	V8X	Mount Doug, Cordova Bay	9.0%
7	V8Z	Royal Oak, Wilkinson and View Royal	5.8%
8	V9A	Tillicum and Gorge, Esquimalt	5.2%
9	V9B	Langford/Colwood	3.5%
10	V8Y	Elk Lake, Cordova Bay	3.3%
11	V8S	Fairfield and Cook Street Village	2.4%
12	V9C	Metchosin	2.4%

The University hired Bunt and Associates to conduct traffic surveys every four years ('92, '96, '00),

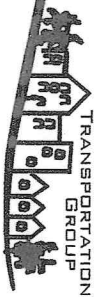
<sup>1</sup> Information gathered from Uvic's Website: [www.uvic.ca/about](http://www.uvic.ca/about)







**Boulevard**



**TRANSPORTATION GROUP**

**TITLE:** **FIGURE 1a**  
**Student Population Distribution**  
**Uvic TDM Study**

DESIGNED:	PCB	DRAWN:	PCB
DATE:	17 Oct 2002	DRAWING NO:	240
		SCALE:	NIS
		REV:	





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13	V8W	Downtown Victoria	1.4%
14	V9E	Interurban and Highlands	1.0%

#### 4.1.2 Staff and Faculty

Postal codes for UVic employees were obtained from the Human Resources Department and plotted on a map of the region. **Figure 1 (B)** illustrates that the majority of UVic employees live in two areas: north of the campus, in the Gordon Head area and to the southwest, in the Fairfield/Rockland/Fernwood area.

#### 4.2 Traffic Surveys

Despite an increase in campus population, vehicle traffic volumes decreased during peak times by 10%. The average occupancy of vehicles arriving on campus remains fairly static at 1.28 people per vehicle. With respect to mode splits, the percentage of both cyclists and automobile passengers has decreased, while the percentage of pedestrians and transit users has increased significantly.<sup>2</sup>

**Table 2: Modal Split Summary**

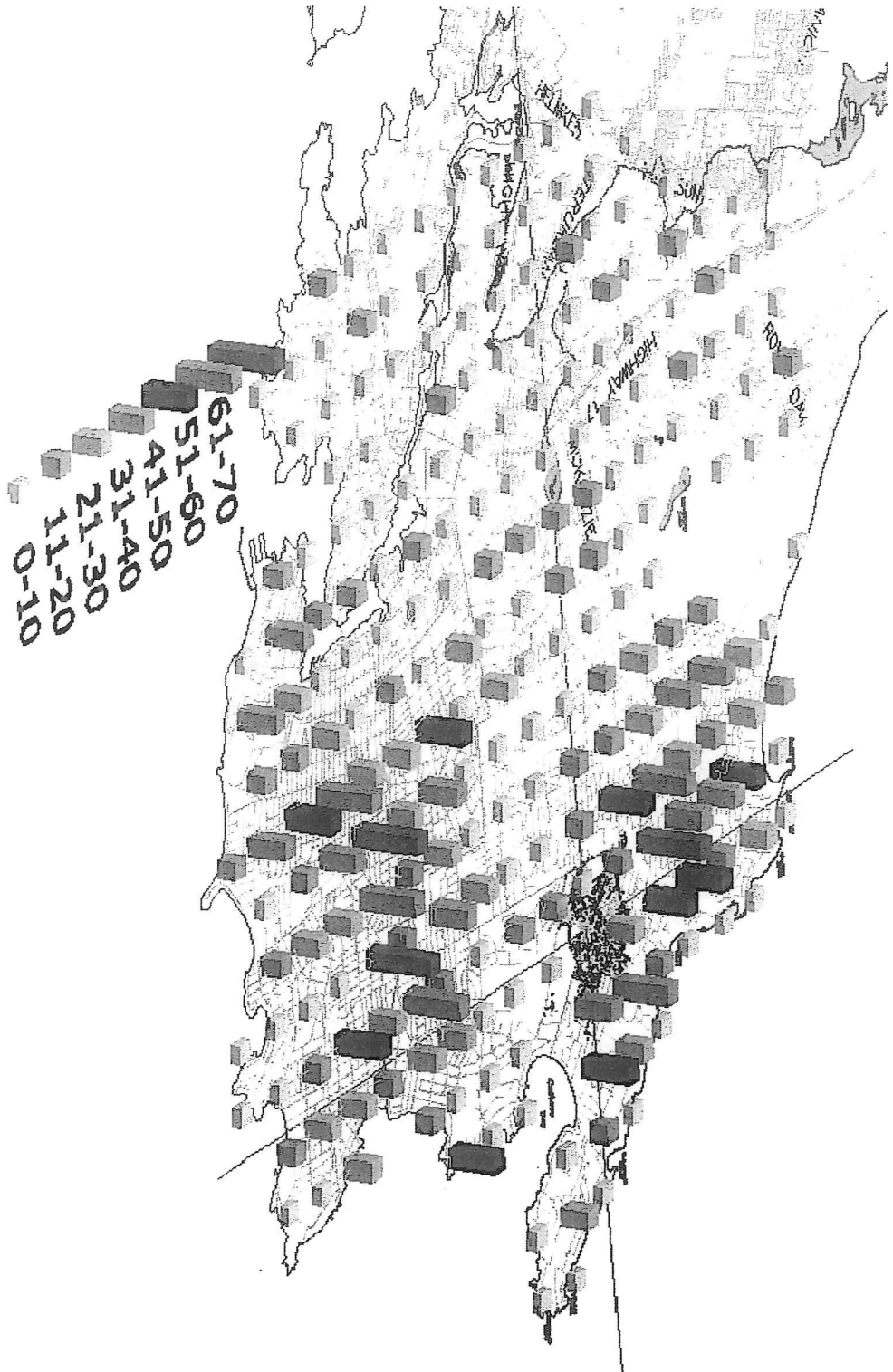
Travel Mode	1992 Survey	1996 Survey	2000 Survey
Auto Drivers	58.1%	57.6%	54.4%
Auto Passengers	14.7%	15.7%	11.0%
Transit Passengers	11.0%	11.1%	17.8%
Cyclists	8.5%	6.9%	5.5%
Pedestrians	7.7%	8.7%	11.3%


The traffic survey methodology for the 1996 and 2000 studies were completed by the same consulting firm with the same survey methodology applied in each study to ensure consistency between the years. The basic design of the travel mode survey was to position a number of traffic count stations around the periphery of the campus so as to establish a “cordon” across which all trips entering and exiting the University could be systematically recorded. Three different forms of traffic count survey were used:

- 24 hour automated driveway counts
- Manual driveway counts during peak period
- Arriving and departing passenger counts on BC Transit

<sup>2</sup> University of Victoria – 2000 Campus Traffic Survey – Bunt and Associates





<p>  </p>			
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DATE:	26 JULY 2002	DRAWING NO.:	240
SCALE:	NTS	REV.:	

**Figure 1b**  
**Staff/Faculty Population Distribution**  
**UVIC TDM Study**



### 4.3 Traffic Simulation

The existing traffic conditions in and around the University were assessed in an effort to determine where and which intersections are currently experiencing congestion. To do this, the traffic was analysed with a software program called Synchro and SimTraffic, and the results were measured in Levels of Service.

#### 4.3.1 Software Description

Traffic volume and intersection data were collected and entered into a software package which is able to "model" traffic conditions. To ensure maximum accuracy, the model, which is a combination of two programs, builds on the tried and proven methodologies described in the Highway Capacity Manual (HCM) as well as integrates well established driver behaviours and characteristics to simulate actual conditions by randomly "seeding" or positioning vehicles travelling throughout the region. (This software model is made up of the macro model Synchro and the micro simulation model SimTraffic.) The model is run five times (five different random seedings of vehicle types, behaviours and arrivals) to obtain statistical significance of the results.

#### 4.3.2 Levels of Service

Ultimately, the results describe the operational characteristics of a roadway (ie: amount of delay per vehicle). When delays are determined to be long, the intersection is given a failing grade, if delays are short, it is given a passing grade. This is referred to as Level of Service or LOS. LOS ranges from LOS A (representing "unconstrained" operation) to LOS E/F (LOS E being "at capacity" and LOS F being "at failure").

The hierarchy of criteria for grading an intersection, not only includes delay times, but also takes into account whether it is signalized or not. For example, if a vehicle is delayed for 19 seconds at an unsignalized intersection, it is considered to have an average operation, and would therefore be graded as an LOS C. However, at a signalized intersection, a 19 second delay would be considered a good operation, and therefore it would be given an LOS B. The two tables below indicate the ranges of delay for LOS for signalized and unsignalized intersections.

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**Table 3: LOS Criteria for Unsignalized Intersections**

LOS	Average Control Delay (seconds/vehicle)
A	Less than 10
B	11 to 15
C	16 to 25
D	26 to 35
E	36 to 50
F	More than 51

**Table 4: LOS Criteria for Signalized Intersections**

LOS	Average Control Delay (seconds/vehicle)
A	Less than 10
B	10 to 20
C	21 to 35
D	36 to 55
E	56 to 80
F	More than 81

LOS D is generally regarded as the lowest acceptable LOS before capacity is reached; therefore the threshold for congestion in this study will be 40 seconds of delay per vehicle.

#### **4.3.3 Existing Traffic Conditions**

A Synchro model of the existing traffic conditions around the University of Victoria was carried out with the use of traffic counts taken within the last two years combined with existing traffic signal timing records. The existing roadway laning and intersection geometries were also gathered to complete the model.

An am peak hour (8am to 9am) Synchro model was run to identify the existing areas of congestion during the morning commute to and from the university.

The model was extended around the University to the following boundaries:

- McKenzie Avenue to the north,
- Sinclair Road to the northeast,
- Cadboro Bay Road to the southeast,
- Lansdowne Road to the south, and
- Shelbourne Road to the west.

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Using the 40 seconds of delay as the indication of congestion the following locations are congested:

- McKenzie Avenue at Shelbourne Street,
- Shelbourne Street at Cedar Hill X Road,
- Richmond Avenue at Poplar Avenue, and
- Poplar Avenue and Pear Avenue at Shelbourne Street.

#### 4.4 Policies Structure

University's Traffic and Parking Regulations (*See Figure 2* - full policy available on-line at [web.uvic.ca/unvic-policies/pol-6000/6800TPR.html](http://web.uvic.ca/unvic-policies/pol-6000/6800TPR.html)). This policy requires that parking be a revenue neutral line item in the budget meaning that expenses are only those costs directly attributable to providing security and parking services.

By policy, the University restricts parking services to be "revenue neutral" thereby influencing the setting of parking rates.

Revenues from permits, meters and fines pay for maintenance, repairs and operations of the Parking program. Despite this policy directive however, some parking revenues do go towards other modes of transportation. For example, \$10,000 per year is assigned to the Bicycle User's Group on campus to improve cycling facilities, and \$170,000 per year is used to subsidize the UPass program. The remainder of the parking revenues accrues in the Reserve Account to fund capital parking projects and major repairs. This account has a limit of approximately 15% of the total cost of a new parking facility<sup>3</sup>.

<sup>3</sup> 3/5ths of total expenditures planned for the next 5 years with a 20 year amortization payment schedule (*See Figure 5 Section 4.3.5 in this document referencing the University's document: Parking Services Budgetary Procedures Policy, Section E2.3.4*)



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**Figure 2 - Parking Services Budgetary Procedures Policy**

Extracted from Parking Services Budgetary Procedures Policy (<http://web.uvic.ca/uvic-policies/pol-6000/6800TPR.html>)

**E 1.0 General**

E 1.1 The budget for Parking Services is established according to the general guidelines applied to the University's ancillary enterprises.

E 1.2 The revenue budget for Parking Services is established so as to cover the costs of providing the services. The parking rates are reviewed annually and may be adjusted in order to meet this revenue objective.

**E 2.0 Procedures**

The annual expenditures budget for Parking Services is in accordance with the following guidelines.

**E 2.1 Operating Costs**

E 2.1.1 All directly identifiable costs are to be included.

E 2.1.2 Indirect costs such as accounting, purchasing, etc., are not to be included.

**E 2.2 Major Repairs, Replacements, and Minor New Additions**

E 2.2.1 All costs related directly to parking facilities are to be included.

E 2.2.2 These costs are to be fully recovered over a maximum 5-year budget period with annual funding being levelled through the establishment of a provision amount for repairs, replacement, and minor additions in the annual operating budget.

E 2.2.3 The annual amount to be budgeted is to be treated as a line item in the operating budget, with the amount so budgeted being transferred to repay a debt or, if no debt exists, to a reserve account at year end.

E 2.2.4 Actual expenditures for major repairs, replacements, and minor additions are to be made against the reserve account. The amount in the reserve account in any year should not normally exceed 3/THz of the total expenditures anticipated over the next 5-year period.

**E 2.3 Capital Costs**

E 2.3.1 All costs directly related to the provision of major new facilities are to be included, with the exception of land cost, which is specifically excluded.

E 2.3.2 Major projects are to be amortized over a 20-year repayment period. The actual annual repayment amount is to be shown as a line item in the operating budget.

E 2.3.3 To level the repayment impact of a major loan, a provision for new facilities may be established in the operating budget. As loans are actually undertaken, a new line item representing the actual annual repayment is to be included in the budget, and any annual provision amount will be reduced accordingly.

E 2.3.4 Any positive amount in the provision account at year end is to be transferred to a reserve account for new facilities. The amount in the reserve account in any one year should not normally exceed 3/THz of the total increased repayment anticipated over the next 5-year period.



## **4.5 Auto Drivers**

### **4.5.1 Parking Permits**

There are 3 main types of parking permits on campus: General, Reserve and Parkade. Parkade permits, sold at a premium price, allow parking under the University Centre. Reserve permit holders are allowed to park everywhere on campus except under the University Centre and are sold only to University faculty and staff. General permit holders must park in designated spots outside Ring Road. These permits are available to all staff, faculty and students.

Specific parking spaces in all Reserved and many General lots are available to disabled General permit holders that either display the Wheelchair logo in their automobile or whose student card identifies them as disabled when they purchased their permit. There are a number of Carpool Only designated stalls, the number of which varies depending upon the demand.

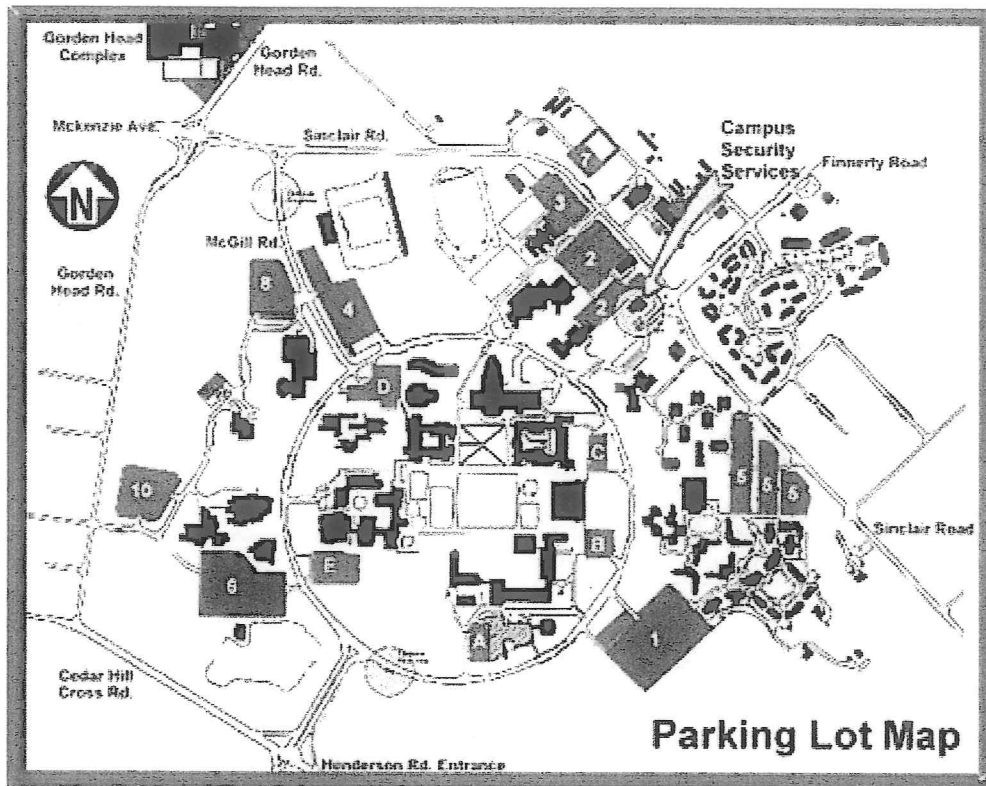
### **4.5.2 Supply and Demand**

Compared to other University campuses in Canada, parking at UVic is relatively plentiful and inexpensive. There are currently 4,561 parking spaces managed by the campus. There are two distinct types of parking lots on the main campus: those inside the Ring Road (5 lots) are primarily Reserve parking lots, restricted to staff or faculty who have purchased monthly or annual passes. Those outside Ring Road are for General permit holders. Most lots have additional short-term metered parking and disabled parking spaces.



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Figure 3 - UVic Parking Lots





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**Table 5: Number of Parking Spaces by Type**

Lot	Location	General or Hourly	Reserve	Meter	Disabled	Car Pool	Total
A	Engineering	0	39	4	2	0	45
B	Elliot	0	69	5	2	0	76
C	Clearihue	0	61	5	3	0	69
D	Sedgewick	0	153	14	5	0	172
E	MacLaurin	0	134	18	4	2	158
Parkade	UVic Centre	0	27	41	0	5	73
HSD	Human/Social Development	0	0	13	2	0	15
1	Henderson	674	71	0	0	4	749
2	McKinnon	262	91	37	37	5	432
3	Tennis Courts	240	0	0	0	0	240
4	Stadium	449	28	0	3	4	484
5-U	Cadboro Commons	234	16	3	3	0	256
5-M	Commons	173	0	1	1	0	175
5-L	Commons	130	4	0	0	0	134
6	Fine Arts	374	50	8	5	0	437
7	McKenzie Ave	83	0	0	0	0	83
7A	"R" Hut	9	4	0	0	0	13
7B	Saunders Annex	6	4	0	1	0	11
8	Begbie	269	12	7	1	0	289
9	Faculty Club	35	13	14	2	0	64
10	Gordon Head	312	0	0	0	0	312
11	Saunders (Rear)	69	0	0	0	0	69
12	Saunders (Front)	0	18	0	0	0	18
14	Finnerty	0	0	16	4	0	20
Sub-Total		3319	794	186	75	20	4394
ISC	Ian Stewart Complex	162	12	8	2	0	184
15	Child Care	18	2	3	1	0	24
Totals		3499	808	197	78	20	4602

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The supply of parking spaces has remained relatively consistent over the past ten years. Lot 10 was built off Gordon Head Road adding 312 spaces and Lot 1 was expanded by 45 spaces. These additions were countered with the removal of spaces inside Ring Road due to development. The total number of spaces currently available is almost identical to what existed in 1990<sup>4</sup>.

The number of Full-Time Equivalent (FTE) students and employees at UVic has increased by over 25% since 1990, creating fewer available parking spaces<sup>5</sup>. The ratio of parking spaces per person fell from 0.32 in 1990 to 0.25 in 2000, a 22% reduction over the decade<sup>6</sup>.

Because of this trend, campus-wide parking usage is perceived to be nearing capacity. Although most lots inside Ring Road are often filled during peak periods, other lots outside Ring Road receive lower use and have some spaces available during peak periods. Campus parking lots are busiest at the start of the academic year in September, when students are adjusting schedules and accessing campus services. Lot utilization surveys show approximately 200 vacant spaces (4.5%) during this time at peak day-time usage (10:30 a.m. – 12:00 p.m.). Minimum vacancy levels for the rest of the fall and winter sessions average 600 parking stalls (13.5%) at peak time.<sup>7</sup>

Currently, the utilization rate of the parking stalls is well below nationally accepted standards. That is, more permits can be sold for each stall on campus and still remain within generally acceptable thresholds. For example, Campus Security staff estimates that approximately 1.6 permits are issued per general parking stall and 1.5 permits are sold per reserved stall. This is far below the International Parking Institute's recommended ratio for similar institutions, which suggests that up to 2.4 passes per stall can be sold to reach optimum utilization (the point where parkers experience stall availability as very difficult). Unlike other campuses, the University does not have a waiting list for permits; they sell as many permits as demand dictates. This suggests there is existing capacity to accommodate growth, just in the ratio of permits sold per stall.

Although parking spaces are almost always available, motorists often have the impression that parking is scarce. Some parking lots are more easily visible and accessible than others. The most convenient

Parking spaces have remained static, however with population growth, the spaces per person ratio has decreased by 22%

The number of empty stalls during peak times on campus range from 200 to 600, but because they are spread out throughout campus, there is a perception that parking is scarce.

<sup>4</sup> From daily parking lot surveys conducted by Campus Traffic and Security Services.

<sup>5</sup> FTE student population numbers for 1990/91 (11,234) and 2000/01 (13,921) from Table 2: Average Annual Growth Rate, p.2 University of Victoria Draft Campus Plan. FTE student population numbers for 1990/91 (11,234) and 2000/01 (13,921) from Table 2: Average Annual Growth Rate, p.2 University of Victoria Draft Campus Plan.

<sup>6</sup> The Graeme & Murray report assumes 9016 FTE undergrads, 1204 FTE grad students and 2874 faculty. The parking ratio has been recalculated to reflect the updated student population numbers listed in the Draft Campus Plan

<sup>7</sup> From interviews with Campus Security Services.



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spaces tend to fill quickly. Campus parking problems are primarily related to the use of these spaces rather than inadequate overall parking supply<sup>8</sup>.

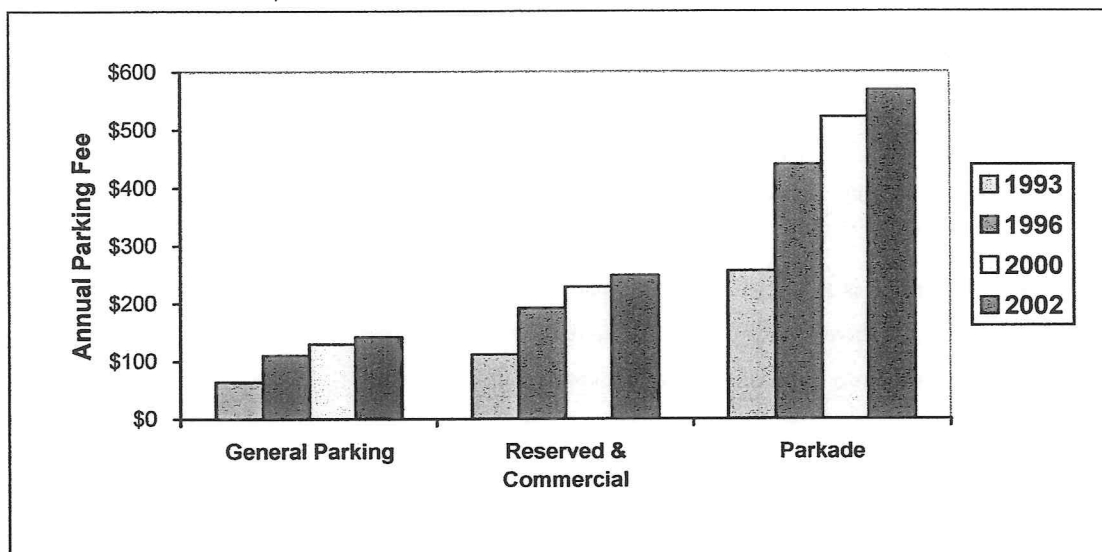
#### 4.5.3 Parking Prices

Following the recommendations in the 1993 UVic Transportation Task Force Report, the University has raised parking fees an average of 6.5% compounded annually (90% total) in the last 10 years over the rate of inflation. As shown in Figure 4, General Parking fees have increased by:

- '93 - '96: ↑ 72%
- '96 - '00: ↑ 18%
- '00 - '02: ↑ 9.5%

Parking fees have increased substantially in the last decade, but remain the lowest by comparison to other universities in the region – including Camosun College.

Figure 4 - Changes in UVic Parking Prices 1993-2002



<sup>8</sup> Information gathered from an interview with Campus Security staff, November 2002

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**Table 6: University of Victoria Parking Fees (2002-03 Academic Yr)**

Category	Sept 1 - Aug 31	Jan 1 - Aug 31	May 1 - Aug 31	Term	Monthly	Weekly	Daily	Hourly
Parkade	\$568.00	\$380.50	\$187.50	n/a	n/a	n/a	n/a	\$1.00
Reserve & Commercial	\$248.50	\$166.50	\$82.00	n/a	\$50.00	n/a	\$10.00	\$1.00
General Parking	\$142.00	\$95.00	\$47.00	\$90.00	\$30.00	\$15.00	\$5.00	\$1.00
Motorcycle & Scooter	\$43.00	\$29.00	\$14.00	n/a	n/a	n/a	n/a	n/a
Carpool	Regular General or Reserved	Regular General or Reserved	Regular General or Reserved	n/a	n/a	n/a	n/a	n/a
Reserve Disabled	General Rate \$142.00	General Rate \$95.00	General Rate \$47.00	n/a	\$30.00	\$15.00	\$5.00	n/a

Despite these increases, parking is still relatively inexpensive at UVic, especially long-term passes. As indicated in Table 7, UVic has lower parking fees than comparable colleges and universities. It has the cheapest parking of any medium to large size University campus in Canada.

**Table 7: Parking Fees at Other Universities**

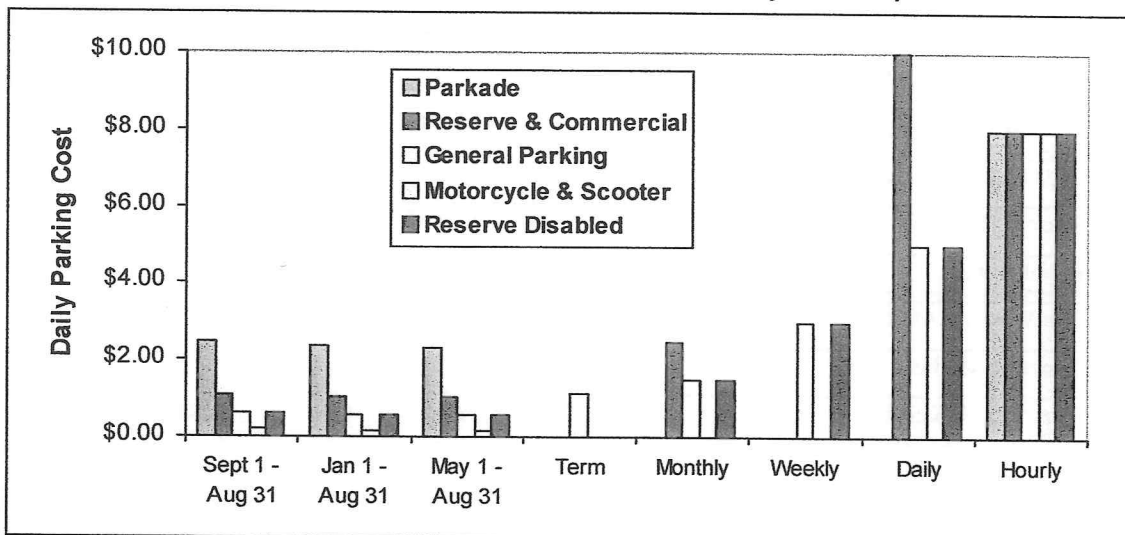
	UVic	U of A	Univ. of Northern BC	U of C	UBC	Langara College	Simon Fraser
Annual	\$142	N/A	\$385.20	\$436.56 - \$513.60 (4 yr wait list)	\$336 Carpool; \$400-\$600 for two semesters; \$1,000 for Reserved	\$160 for two semesters	N/A
Monthly	\$30	\$44-\$75	N/A	N/A	N/A	N/A	N/A
Semester	N/A	N/A	\$128.40	\$267.50	N/A	\$80	\$95-\$175
Daily	\$5	N/A	N/A	\$2-\$6.50	\$3.25-\$12.50	\$1.50	N/A

It is cheaper to buy an annual pass and use it only once a week than to pay for a daily pass. Yet once a pass is purchased, vehicle owners have little financial incentive to use other travel modes.

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Hourly (day or hour) parking rates are relatively high, and long-term (annual, semi-annual or term) rates are relatively low, as illustrated in Table 7. A student who buys a one year pass for \$142 is paying approximately \$1.00 per day if they attend full-time during the fall and winter sessions, and an employee who commutes to campus 230 days a year pays only \$0.62 per day, compared with \$5 for a daily parking pass.

**Figure 5 - Parking Costs per Day By Different Payment Options**



These special permits are intended for use by a specific recipient, but they are also subject to abuse because there is no mechanism to enforce this restriction. Checks by Campus Security indicate that these passes are often loaned to others.

#### 4.4.5 Auto Driver Mode Split

	1992 Survey	1996 Survey	2000 Survey
Auto Drivers	58.1%	57.6%	54.4%

#### 4.6 Transit

Since the implementation of the Universal Bus Pass (UPass) system in August of 1999, transit use has increased significantly. The UPass system gives all UVic undergraduate and graduate students unlimited access on all Greater Victoria BC Transit routes anytime, anywhere during a semester at a cost of \$44.00 per semester or \$11.00 per month (a regular transit pass is \$37 per mo.). The University subsidizes the pass with \$170,000 annually, from parking revenues. The semesterly fee is mandatory and is fixed for a minimum of two years. Any increases would require a new referendum by the student body. Co-op students may opt into this program. The only students exempt from the program

Since the introduction of the UPass, transit ridership has increased by 65%.



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are those registered solely in distance education programs, persons with a BC Bus Pass or those with mobility disabilities which prevent them from using BC Transit or handyDART services.

Bus route information indicates that the following routes service the related area and travel to or from the University.

**Table 8: Bus Routes to UVic**

Route #	Route Name	Special Conditions	Hrs of Operation
Route 29	Gordon Head	AM only	only one bus for 8:30am arrival
Route 4	Mt Tolmie via Hillside		6:30am to 12:30am
Route 11	Beacon Hill via Fort		6:20am to 12 midnight
Route 14	Vic General via Yates		5:50am to 11:40pm
Route 26	Dockyard via McKenzie		6:20am to 12:30am
Route 39	Royal Roads	Limited	AM/Noon/Afternoon, no evening
Route 51	Can West via McKenzie	Limited	AM/Afternoon, no evening
Route 7	Gonzales via Foul Bay	Limited	AM/Afternoon, no evening
Route 76	Ferry via McKenzie		Friday afternoon and Sunday afternoon

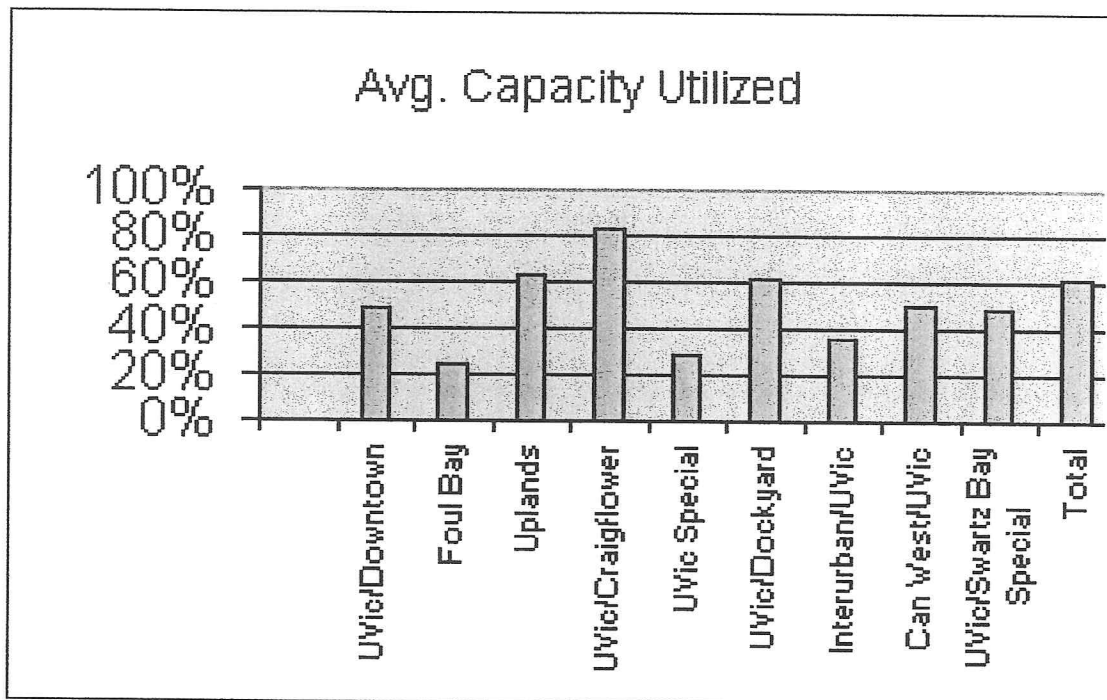
**Table 9: Summary of Transit Data (Fall 2001 – Typical Weekday)**

Bus Route	Regularly Scheduled Trips (Per weekday - two way)	Route Ridership (Avg. per weekday - two way)	Avg. Ridership per trip <sup>9</sup>	Avg. Capacity Utilized <sup>10</sup>
4	133	5,005	37.63	48.87%
7	35	645	18.43	23.93%
11	115	5,550	48.26	62.68%
14	160	10,288	64.30	83.51%
17	2	44	22.00	28.57%
26	120	5,694	47.45	61.62%
39	34	942	27.71	35.98%
51	13	503	38.69	50.25%
76	2	75	37.50	48.70%
Total	614	28,746	46.82	60.80%

<sup>9</sup> Data received from BC Transit

<sup>10</sup> Calculation based upon 77 seat capacity. Note – Data was collected before the introduction of Double Decker buses. The utilisation rates do not reflect Peak Hours.

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Transit ridership peak hours are from 8:00 AM to 10:00 AM during inbound trips, and 3:00 PM to 6:00 PM during outbound trips.

During peak ridership hours, buses are filled to full or near full capacity (60 to 100%). Ridership averages will dip below 40% of capacity during off peak hours.

During the peak hours, there is an average of 16 busses arriving at the University drop off points and an average of 12 busses during the peak outbound hour. Transit service travel contours are shown in **Figure 6**.

#### 4.6.3 Transit Mode Split

	1992 Survey	1996 Survey	2000 Survey
Transit Passengers	11.0%	11.1%	17.8%

### 4.7 Auto Passengers

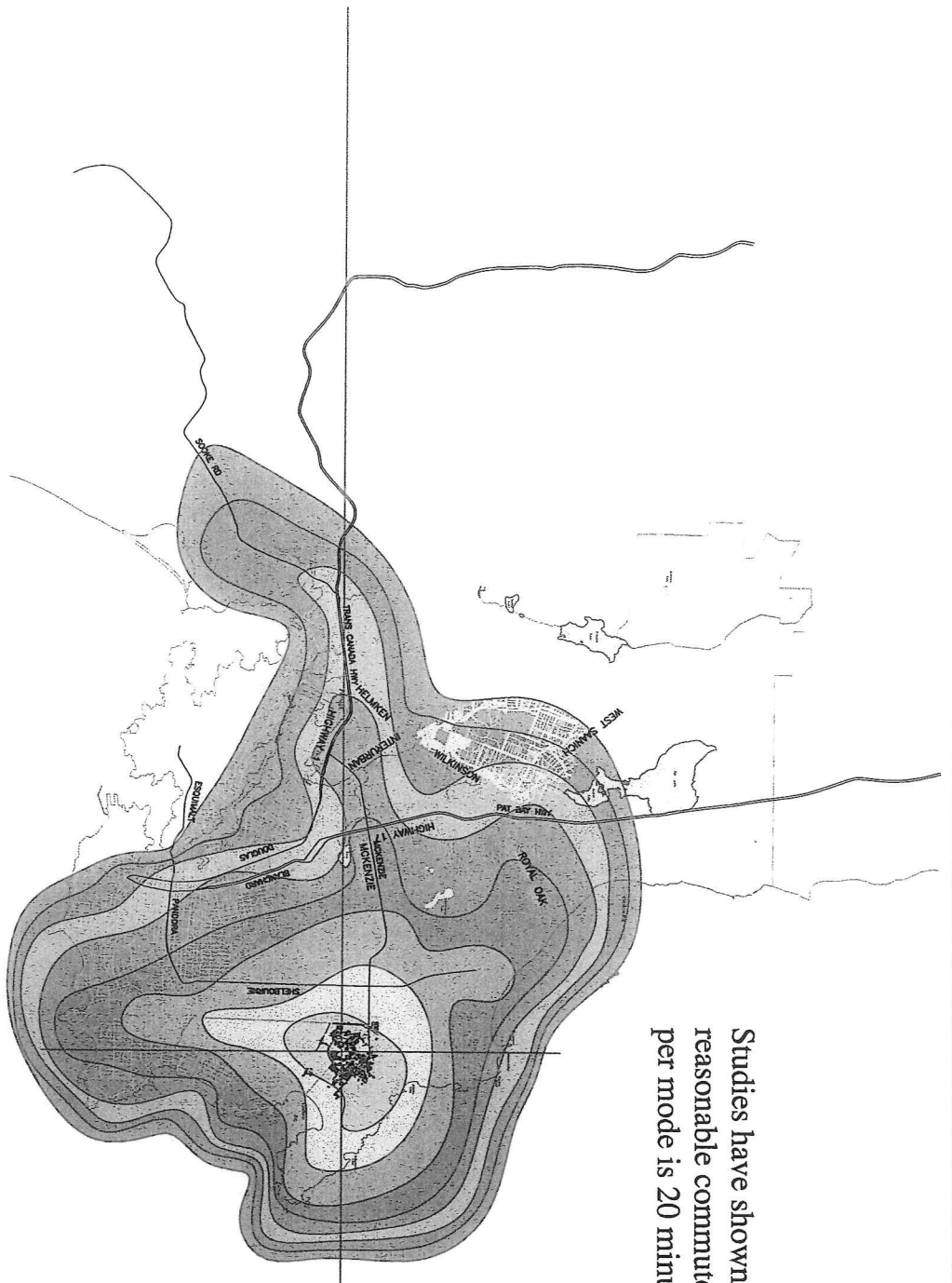
#### 4.7.1 Car Share

Car sharing describes a program where a car or fleet of vehicles is shared cooperatively amongst a group of people. Typically a person would join a car share co-op and book the car when needed; they





Studies have shown that a reasonable commute time per mode is 20 minutes.



## LEGEND

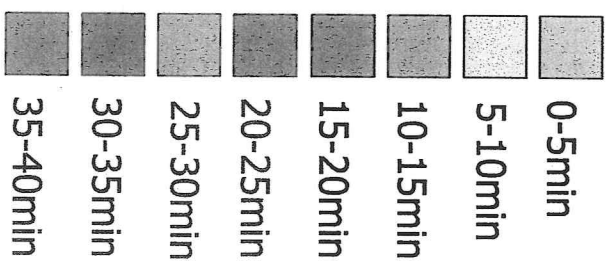
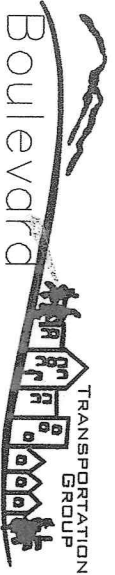


Fig 6 - BUS CONTOURS  
TIME CONTOURS  
UVIC TDM



THE UNIVERSITY OF CHICAGO  
LIBRARY  
1000  
CHICAGO, ILL.  
60637

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pay only for the time they use the car. The Victoria CarShare Cooperative<sup>11</sup> is a registered not-for-profit co-op that was established in Victoria in 1996. Membership is currently made up of 50 people sharing 4 vehicles stationed in Fairfield, James Bay, and Fernwood.

This year, a grass roots initiative has sprouted on campus to register as a "university pod" which would make up the co-op's 5th vehicle. Once twenty members join the co-op, for a one time refundable fee of \$400, the co-op will then enter into a purchase agreement to buy a new Honda Hybrid car that will be stationed permanently in a reserved stall on campus.

The University has its first cooperatively owned vehicle, however, students under the age of 21 cannot be members due to insurance restrictions.

Ongoing fees associated with this program involve a charge of \$0.35 per km. fee plus \$ 2.00 per hour that the car is being used. Special rates are available for longer trips or weekend rates. On the months that members use the cars, there is a \$20.00 administration fee, for non-use months, there is an overhead fee of \$1.00 per share. Membership in the university pod is extended to all community members. However, there is a membership restriction that drivers must be over 21 years of age and not have had a serious driving offence in the last five years. This criteria is employed by the co-operative in order to keep insurance premiums low, however, the restriction may impede full utilization by 1st and 2nd year students.

#### **4.7.2 Carpool**

UVic has accommodated carpooling for several years. Carpool Only parking stalls are available to registered carpools consisting of three or more persons who would normally bring their vehicles to campus. Carpoolers are assigned to an exclusive parking stall but they must pay full price for that stall. Each registrant must show proof of vehicle ownership (or insurance in their name) and illustrate that the carpool members are sufficiently proximate to one another, so as to reduce fraud. Violators of Carpool spaces are ticketed and immediately towed from campus.

During its peak, in 1997, there was a demand for 47 stalls. Two years ago, after some concern about abuse of this program, a review was completed and the loopholes were filled. The demand dropped to less than 6 carpools today.

The criteria to qualify for a carpool are quite stringent. Each member of a carpool must be able to prove that they have use of a car that they would normally be bringing on campus if they didn't carpool. Although the parking fee was originally marketed at ½ the normal price, this benefit has been

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<sup>11</sup> Victoria Carshare Coop contact information: 995-0265 or online: [vuv.com/-carshare/](http://vuv.com/-carshare/)

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removed and the carpoolers pay full price, however the stalls remain reserved and preferred. New stalls are designated as demand is presented.

#### **4.7.3 Auto Passenger Mode Split**

	1992 Survey	1996 Survey	2000 Survey
Auto Passengers	14.7%	15.7%	11.0%

Registered carpoolers dropped from 47 to 6 when increased restrictions were introduced.

#### **4.8 Cycling**

Cycling is a viable transportation option for a greater percentage of students and employees at the University of Victoria than perhaps any other campus in Canada. The climate and road conditions are good for cycling virtually year round in Victoria and local governments have been making a concerted effort over the last 10 years to improve cycling conditions and promote cycling as means of transportation.

UVic has already instituted many measures that have improved cycling conditions and promoted bicycle use on campus:

- Working with the Municipality of Oak Bay, the University added bicycle lanes to University Drive, the most highly trafficked cycling route to the school;
- Campus Security Services has installed hundreds of Class 2 (see inset on next page) bicycle racks at convenient locations around campus, including many under cover;
- Twenty-four (24) Class 1 bicycle lockers have been installed on campus and are available for rent by regular bike commuters for the semester;
- Information on cycling routes, bicycle safety and theft prevention is provided at the SUB, the UVic information kiosk at University Centre and through Campus Security Services as well as campus publications like The Ring;
- Cycling education courses are offered at the University in partnership with the Bike to Work Society;
- Employees of Facilities Management have bicycles supplied to them for work around campus;
- Compressed air is provided at a central location to pump up tires; and
- Storage lockers and showers for commuter cyclists are available at McKinnon gym, and there are other less known facilities at Sanders Annex and the Elliot Building.

Other agencies also contribute to facilitating bicycle trips to UVic. BC Transit provides bicycle racks on all their buses. The Municipalities of Saanich and Oak Bay are developing bicycle route networks

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that feature the University as a key destination and are working to design safe routes to accommodate students and staff commuting by bike. See **Figure 7** for the bicycle travel time contour map.

**Types of Bicycle Parking Facilities**

Class I refers to long term parking facilities, ie: all day parking. Usually made available to commuters. A Class I facility generally refers to an enclosed box with a locking door, typically called a bicycle locker, where a single bicyclist has access to a bicycle storage compartment.

Class II refers to short term parking, usually made available to patrons, customers, or those running errands. A Class II facility generally refers to a stationary bicycle rack designed to secure the frame and both wheels of the bicycle, where the bicyclist supplies the locking mechanism. The parking unit is usually located in a high profile and convenient location.

Roads to and from campus vary in their accessibility to bicycle commuters because of grade, width and amount of traffic. Although there are some hills, cycling to the University is easiest from the south and north:

- Foul Bay Road and Finnerty Road are relatively wide with moderate traffic volumes and have had sections retrofitted with dedicated bicycle lanes.
- Cadboro Bay Road and Cedar Hill Cross Road are also wide streets with moderate traffic volumes that make good cycling routes, despite moderately steep hills.
- Cyclists from the Gordon Head neighbourhood can use a variety of residential and collector roads to access the University.

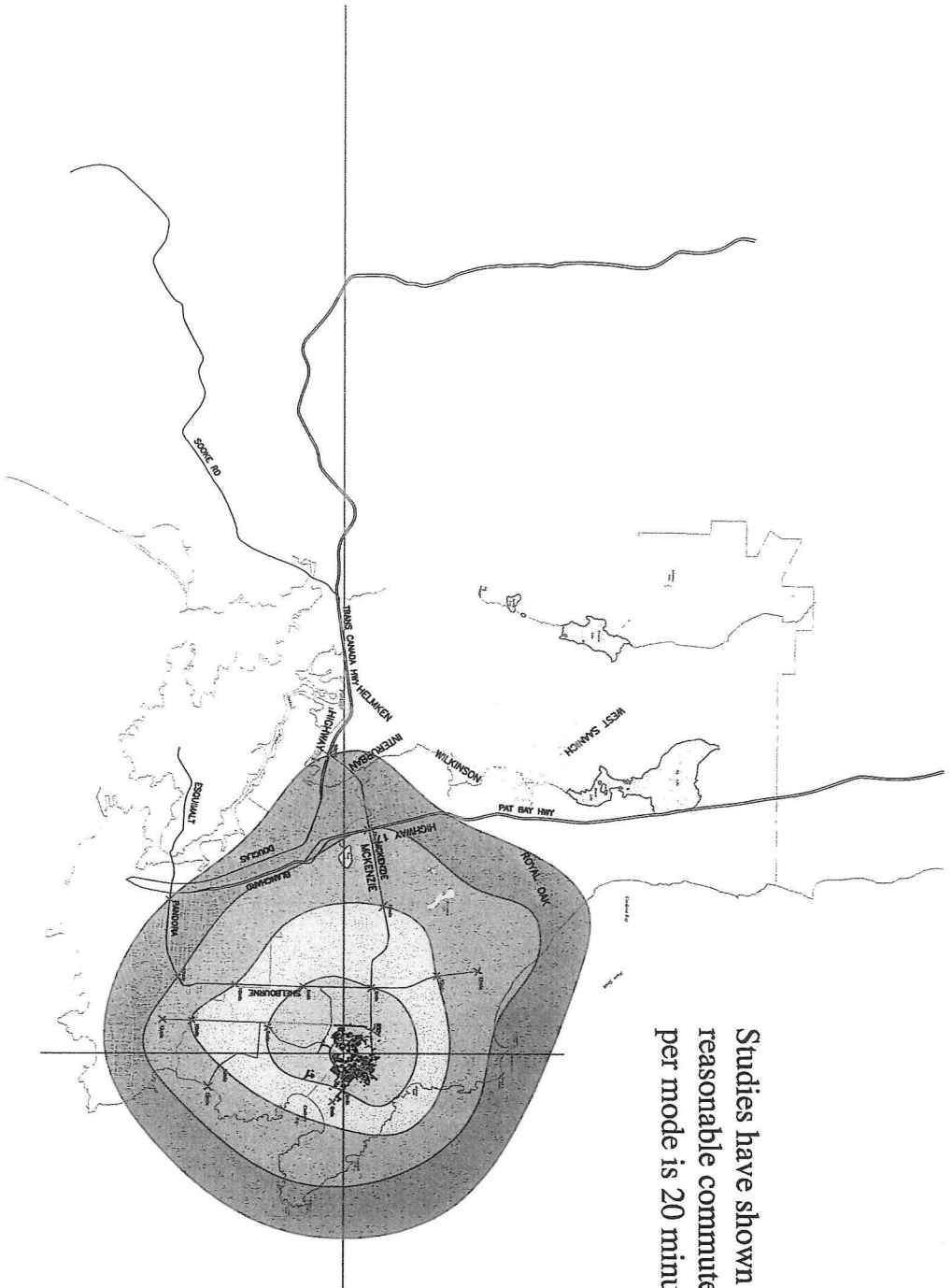
The east/west routes are less desirable to cyclists:

- Only the most fit can ride up the steep grade on Sinclair Road from Cadboro Bay Village to the University.
- Most commuters will walk the steepest section or detour via Arbutus Road.
- Cyclists coming from the west must contend with the hill on Cedar Hill Cross Road or fast, heavy traffic on McKenzie Avenue.





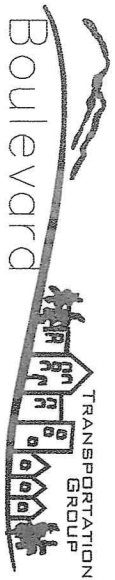
Studies have shown that a reasonable commute time per mode is 20 minutes.



## LEGEND

- 
- 0-5min
- 5-10min
- 10-15min
- 15-20min

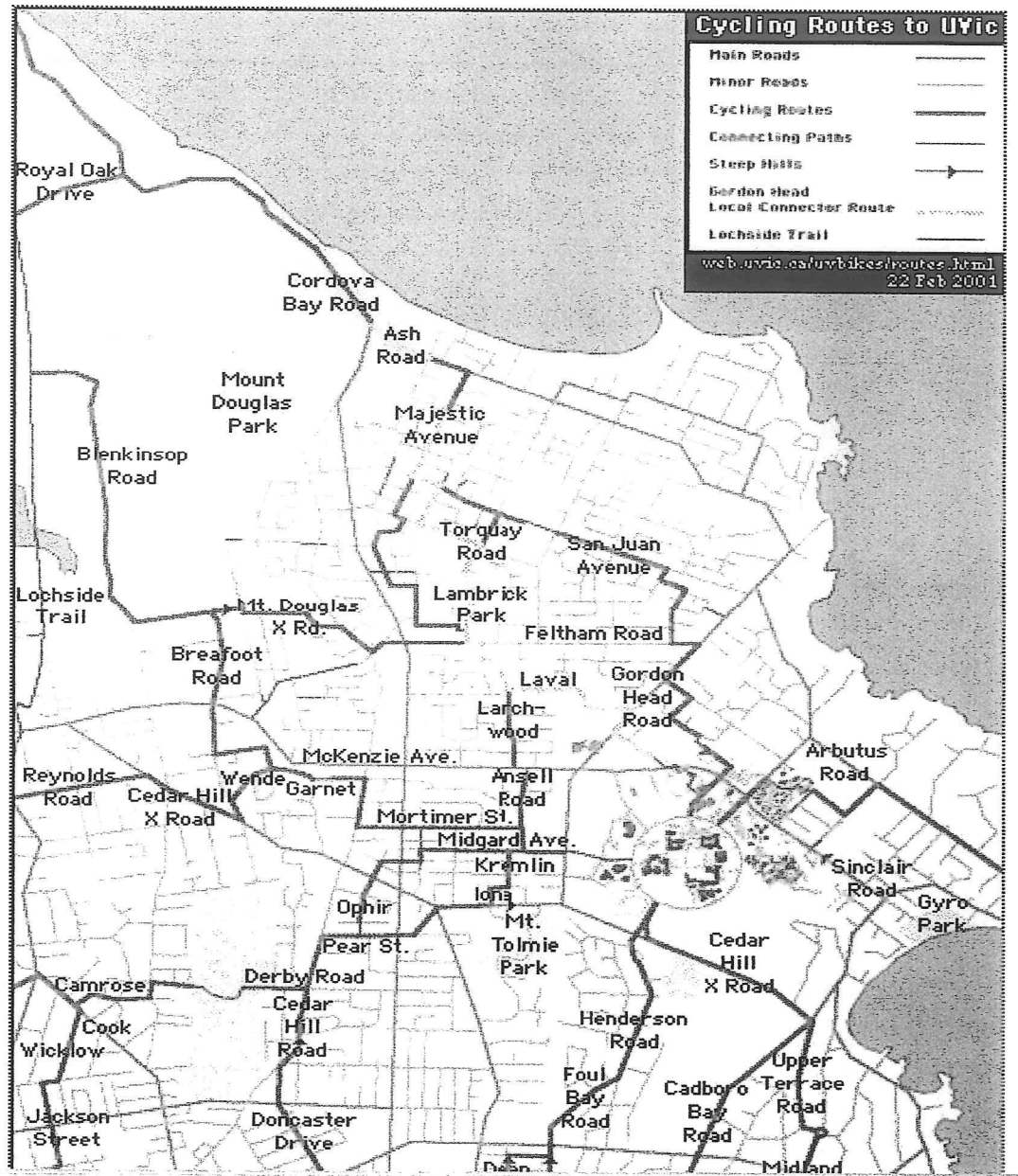
Fig 7 -- BIKE CONTOURS  
TIME CONTOURS  
UVC TDM



[illegible]

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Figure 8 – Existing Recommended Cycling Routes Servicing UVic





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#### 4.8.1 Cycling Mode Split

	1992 Survey	1996 Survey	2000 Survey
Cyclists	8.5%	6.9%	5.5%

Traffic surveys reveal a surprising steady decline in cycling trips to the campus.

According to Bunt and Associates' traffic studies (conducted in 1992, 1996 and 2000) cycling as a percentage of total trips to the University declined 35% between 1992 and 2000 (from 8.5% to 5.5%). The percentage of trips by bicycle to the University is almost identical to the percentage region wide. Numbers declined somewhat following the implementation of the UPass program but they are still low given the fact that both students and University staff are assumed to cycle more than the general population.

The UVic Bicycle Users Committee (BUC) theorizes that the reduction in cycling's share of the modal split may be due, in part, to two reasons: 1) that the 2000 survey was performed shortly after the UPass program was implemented and some cyclists may have chosen to try transit as an alternative; and, 2) the weather during the count was poor causing fewer cyclists. As stated in Section 4.2.1, the methodology of the traffic survey has been consistent over the three consecutive studies. The weather conditions for the 1992 survey and the 1996 survey were reported as "good." However, some seasonal influences may have been at play as the '92 survey was conducted in late October, while the '96 survey was conducted in late February. The 2000 survey was conducted mid-March, and the weather was reported to have "varied significantly" between the two days of the study. The following excerpt from the Bunt and Associates report describes how the variation was addressed:

"On Tuesday, the sky was overcast and it rained while on Wednesday it was sunny and partly cloudy. Consequently, bicycle volumes were analyzed to determine if weather significantly affects use of this mode of transport. The results [reveal] there was 14% less bicycle traffic on the day that it rained than on the day it was dry. However, there was only a 1% increase in vehicle traffic between those two days. Everything else being equal, it would appear that those who didn't ride their bikes on the day it rained used a vehicle to reach the University instead. "

In other words, the consultant felt confident that they were able to adjust the results to account for the impacts of the weather variation.





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Although the modal split results for cyclists are not conclusive, it is clear that the percentage of commuters travelling to UVic by bicycle has decreased over the past 10 years. Given the popularity of cycling as a form of transportation in Victoria and the University's accessibility, there is room to greatly increase the number of cycling trips to UVic. UVic's 1993 Transportation Task Force recommended a goal of doubling the 1992 cycling modal split of 8.5%. To meet that objective now would mean tripling the current modal split, if Bunt's estimates for the year 2000 are accurate and still representative.

#### **4.9 Pedestrian Facilities**

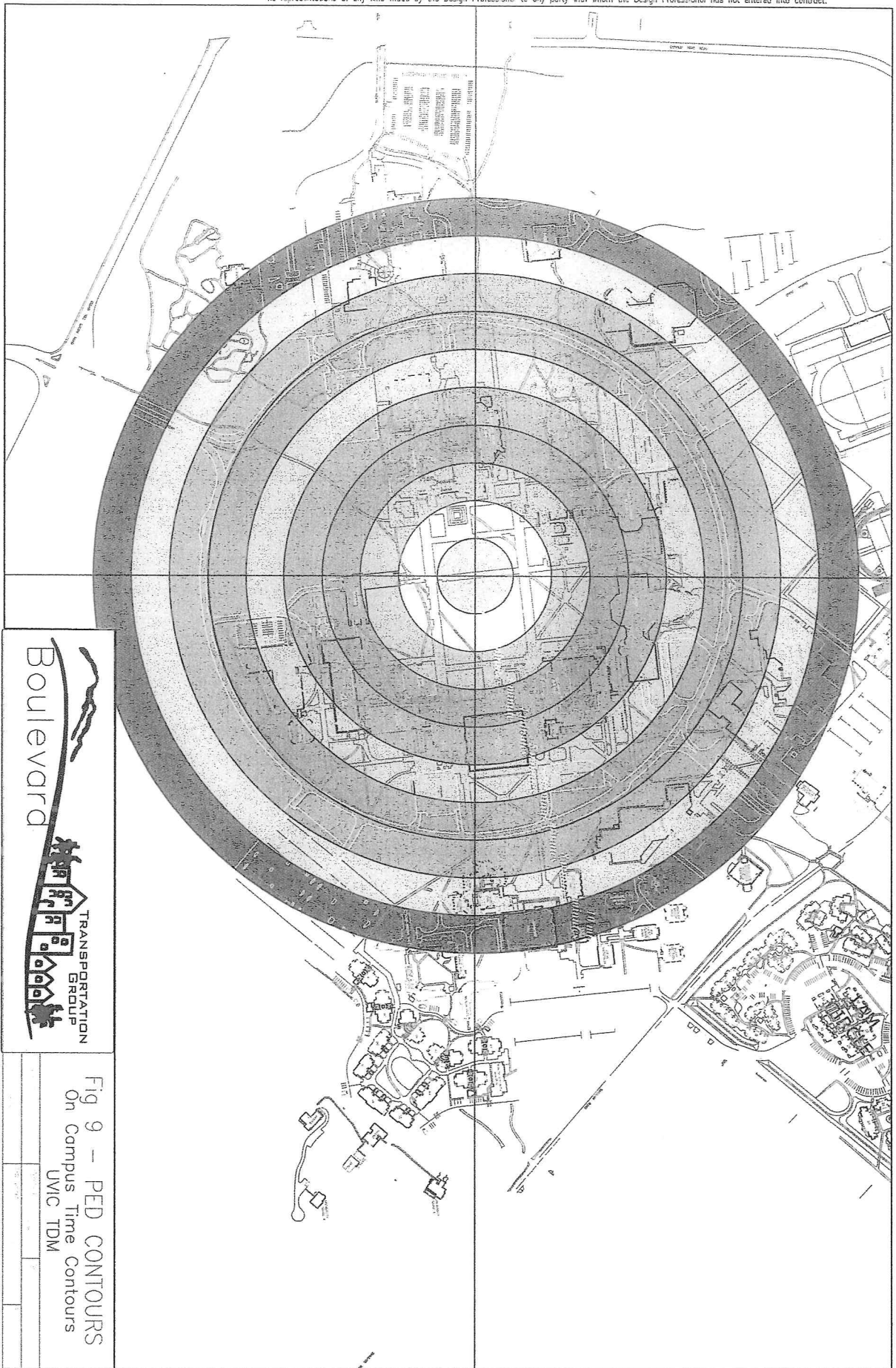
The campus itself is well served by a network of pedestrian paths, all of which are also utilized by cyclists. This shared use can present opportunities for conflict. As there is no comprehensive wayfinding system which marks and directs the routes, they may not be fully utilized. There are well marked and ample crossings serving the Ring Road, but pedestrians were observed to cross throughout the Ring Road, not just at designated crossings. During peak vehicle travel times, the crossing opportunities are reduced due to the lack of gaps in the stream of traffic. During peak pedestrian travel times (class change) the vast number of pedestrians crossing at both designated crossings and j-walk locations, create a wall of people – as they race to join the stream of other pedestrians in a convoy in an effort to take advantage of the stop in traffic.

The neighbourhoods surrounding the University campus is well within a walkable distance. **Figure 9** shows the pedestrian travel time contour.

##### **4.9.1 Pedestrian Modal Split**

	1992 Survey	1996 Survey	2000 Survey
Pedestrians	7.7%	8.7%	11.3%







## 5.0 FORECAST OF TREND CONDITIONS

### 5.1 Traffic

As discussed in Section 4.3.2, the following intersections are currently congested:

- McKenzie Avenue at Shelbourne Street,
- Shelbourne Street at Cedar Hill X Road,
- Richmond Avenue at Poplar Avenue, and
- Poplar Avenue and Pear Avenue at Shelbourne Street.

Modelling of future traffic conditions does not reveal any substantial impacts on surrounding intersections.

Using the Synchro model, traffic volumes were forecasted into the future to identify the locations of future traffic congestion. The future conditions were modelled for the year 2012, a ten year horizon at 1.5% growth rate. This growth rate is considered a good approximation of the overall regional growth rate. The distribution of the student residences and the existing travel patterns are assumed to remain as they are currently. These conditions are important when discussing possible changes in travel patterns.

The following areas are expected to continue to be congested in the future:

- McKenzie Avenue at Shelbourne Street;
- Shelbourne Street at Cedar Hill X Road;
- Richmond Avenue at Poplar Avenue;
- Poplar Avenue and Pear Avenue at Shelbourne Street;

The following new areas are expected to be congested in the future:

- Poplar Avenue and Palo Alto Street at Cedar Hill X Road; and,
- Lansdowne Road at Shelbourne Street.

The corridors of McKenzie Ave. and Shelbourne St. are the most direct routes available to the University given the distribution of housing locations for students, staff and faculty. As the population grows and congestion increases on the streets that cross or access the main arterials of McKenzie Ave. and Shelbourne St. there is an expansion in the length of the congestion along these two routes. As congestion increases on one route there tends to be a shift in traffic volumes to the next best alternative route, spreading traffic volumes to surrounding areas that may not be appropriate (i.e. residential roadways).

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These two main corridors are also heavily used for commuters accessing the downtown core, creating heavy two-way traffic flow patterns. Comprehensive analysis on these roadways as regional linkages and treating them as connecting corridors is recommended. Concentration of transit priority on these corridors and the provision of alternative routes on less congested roadways may prove beneficial.

Due to the current congestion along these two routes and the increasing congestion in the future, an emphasis should be placed on creating strategies to reduce the amount of delay in accessing the University along these routes.

## **5.2 Parking**

The UVic Campus Plan (July 2003) outlines nine Foundation Principles to guide the University's growth and many of these principles will have a profound impact on parking supply and demand.

Principle Two makes a commitment to "smart growth" planning which suggest the University should "move away from suburban development patterns to an era where cost-effective and compact development accommodates growth while preserving valued natural areas ... habitats..."

Principle Eight makes a direct commitment to reducing dependence on single-occupant vehicles and Principal Nine identifies surface parking as being "highly land-consumptive" and makes a commitment to minimizing surface parking by pursuing alternatives.

The planning document identifies a number of policy directions which emphasizes structured parking over surface parking, and suggests that a parking plan be development which serves to manage the existing supply efficiently.

The University of Victoria has a current population<sup>12</sup> of about 17,000 Full Time Equivalents (FTEs), consisting of approximately 14,000 students and 3,000 faculty and staff, making it the Capital Region's third largest employer and a major travel destination. With a projected growth rate averaging 2%<sup>13</sup> per year, the number of person-trips to campus will increase and planned building projects will displace 540 spaces inside Ring Road and another 120 spaces outside Ring Road, reducing the existing parking supply by approximately 12%.

As the implementation of the campus plan continues to unfold, over 600 parking stalls on campus will be removed from the overall parking inventory.

<sup>12</sup> <http://www.uvic.ca/about/factsfigures/index.html>

<sup>13</sup> Extracted from *A vision for the Future: A Strategic Plan for the University of Victoria* (<http://web.uvic.ca/strategicplan/>)

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The objective of the UVic TDM plan is to work towards assisting the University in achieving its goal to reduce motor vehicle traffic to the campus and to encourage increased use of public transit, cycling and walking. If the per capita campus vehicle trips were reduced to a rate that offsets campus population growth, conceivably, the need for additional parking supply will be at the very least minimized and possibly avoided altogether.

UVic would have to provide over 1,500 new parking spaces in 10 years to maintain the existing ratio of parking spaces to the commuters currently demanding them.

**Table 10: Changes in Parking Supply and Campus Population**

	Current	10 Years		25 Years	
		Number	Change	Number	Change
Parking spaces	4,602	4,400	-4%	4,100	-11%
Population (student and staff FTEs)	17,000	20,700	22%	27,900	+64%
Parking spaces per FTE	0.268	0.194	-28%	0.144	-53%
New spaces needed to maintain current ratio	0	1,532	+26%	3,454	86%

This table shows planned changes in campus population and parking supply in 10 and 25 years if no new spaces or facilities were built. The elimination of parking spaces inside Ring Road, through new building development, will also increase the number of spaces needed to maintain the current ratio.

Naturally declining vehicle traffic to campus, combined with allowing the number of permits sold per stall to increase, in addition to improving mode choice, sets the path for not only capping the creation of new stalls on campus but not replacing the 600 stalls slated to be lost to development.

### 5.3 Travel Trends

A number of factors affect travel patterns and the demand for vehicle trips and parking. It is widely acknowledged by transportation planning professionals that studies confirm that during much of the last century, per capita employment, vehicle ownership and vehicle travel rates increased. In the last decade many of these growth factors have levelled off. Per capita vehicle trips tend to decline on many urban corridors where improved travel options (particularly transit service improvements) and mobility management incentives have been implemented. The UVic campus is an example of these trends as indicated by the traffic surveys conducted by Bunt and Associates in 1992, 1996 and 2000 (See Table 11).

Between 1992 and 2000 automobile trips to campus declined by 3.7 percentage points, while transit trips increased by 7.8 points, from 11.0% to 17.8% of total trips. This can be attributed in large part to the introduction of the UPass program in the year 2000.



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Table 11: Travel to UVic Modal Split

Travel Mode	1992	1996	2000
Auto Drivers	58.1%	57.6%	54.4%
Auto Passengers	14.7%	15.7%	11.0%
Transit Passengers	11.0%	11.1%	17.8%
Cyclists	8.5%	6.9%	5.5%
Pedestrians	7.7%	8.7%	11.3%
Totals	100.0%	100.0%	100.0%