UNIVERSITY OF
BRITISH COLUMBIA

U-TREK Card Program

Discussion Paper #5

URBAN SYSTEMS®
November 1999

CONTENTS

SUMMARY

The July 1997 Official Community Plan includes a commitment on the part of UBC to reduce SOV travel to and from UBC by 20% over five years. The U-TREK card program described in this document is the cornerstone of UBC's efforts to achieve this target.

The U-Trek card would essentially be a multi-modal "transportation pass," providing unlimited use of regional transit services, as well as access to a range of other transportation services and products, as summarized below.

U-TREK Program Components

Program Component	Availability		Comparable Monthly Value
	Students	Staff and Faculty	
Unlimited transit use	✓	✓	$46–$103
Campus shuttles	✓	✓	$10
Secure bicycle parking	✓	✓	$10
Bike products, services	✓	✓	$10
Showers, lockers	✓	✓	$10
Ridematching	✓	✓	-
Vanpool and carpool parking	✓	✓	$5–$8
Guaranteed ride home		✓	$30
Airport shuttle	✓	✓	$5
Merchant discounts	✓	✓	$25
Total value			**$151–$211**

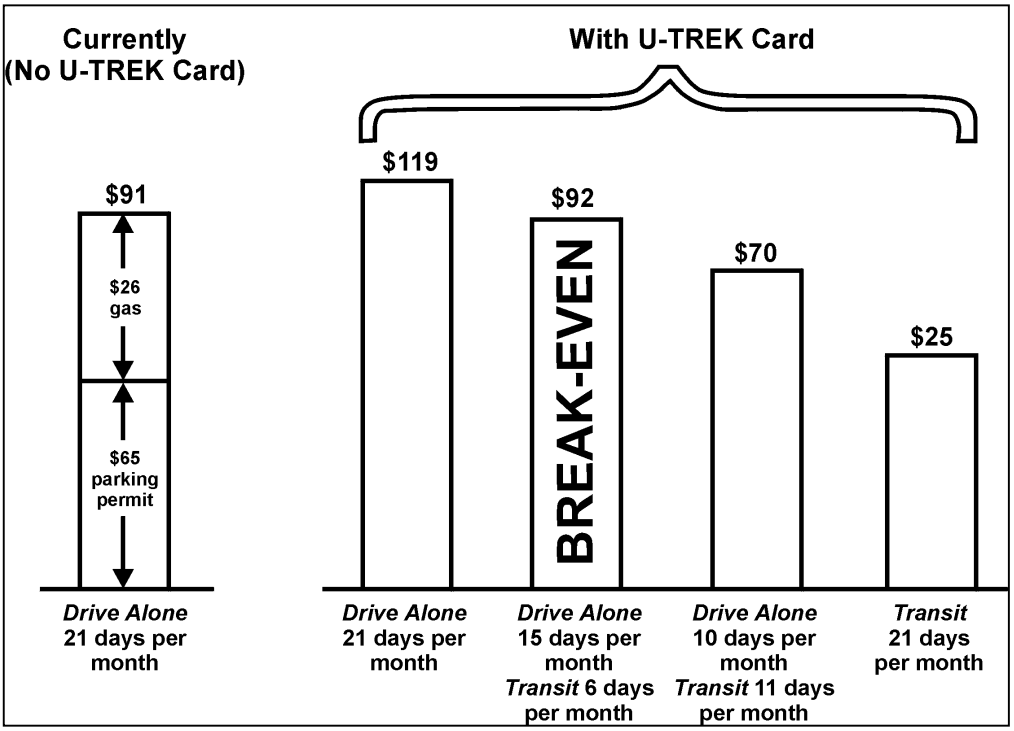
Costs for Commuters

Although final costs have not yet been determined, it is estimated that students would be required to purchase a U-TREK card for approximately $100 per term (equivalent to $25 per month). Staff and faculty would have the option of purchasing a card for a maximum of $45 per month. In either case, the value of the U-TREK card would far exceed the costs to

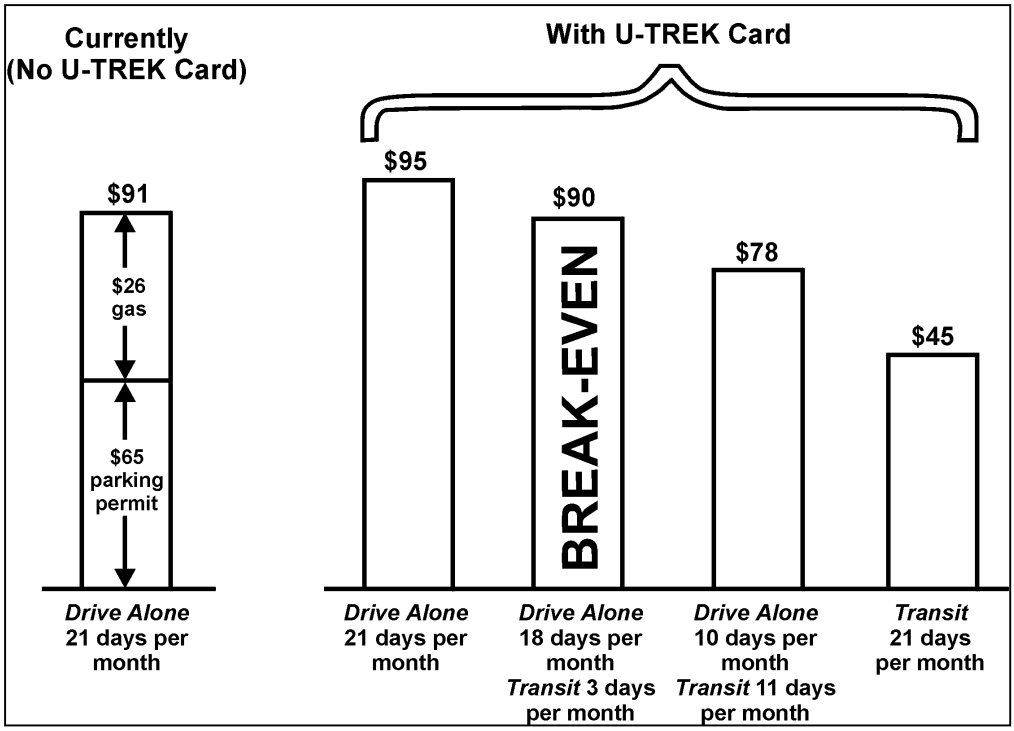
cardholders. Because TransLink has required that the program be mandatory for students (subject to approval in a student referendum), the cost of the student U-TREK card would be lower than for the voluntary staff/faculty U-TREK card. For full-time students, the value of discounts at area merchants alone would match the cost of the card.

Monthly transportation costs with the U-TREK card program would decrease or remain the same for most persons travelling to and from UBC. As illustrated below, costs would increase only for staff and faculty who purchase a parking permit and drive alone to UBC a total of 19 or more days per month, and for students who drive alone to UBC 16 or more days per month. Drive-alone commuters would only need to reduce their automobile usage by 14% to 28% to avoid increasing their transportation costs. This reduction is consistent with UBC's overall target of reducing single-occupant vehicle trips by 20%.

Monthly Transportation Costs
Students



Monthly Transportation Costs
Staff and Faculty



Commuters could further reduce their costs by using transit more, by carpooling and by cycling. Monthly transportation costs can be as low as $25 for students and $45 for staff and faculty. This is substantially less than the $91 per month cost for drive-alone commuters, or the $46 to $103 per month cost for transit users.

Financial Plan

The U-TREK card program would be managed by the TREK Program Centre as a stand-alone operation. Financial projections indicate that the U-TREK card program would be financially viable, given the following assumptions:

- UBC's annual contribution would be comprised of revenue from U-TREK card sales and parking pass sales.

- With the exception of the annual parking contribution and the ongoing cost of the campus security shuttle, the U-TREK card program would be entirely self-funding.

- The parking contribution is assumed to continue based on current commitments of $350,000 per year.

- UBC's annual contribution would continue to fund the operations of the TREK office.

- Revenues for the U-TREK card program are estimated based on a mandatory student fee of $25 per month ($100 per semester or $200 per year) for all full-time and part-time students. Any increases in transit fares would result in an equivalent percentage increase in the per semester fee.

- Revenues are estimated based on the assumption that faculty and staff may purchase a U-TREK card at a cost of $45 per month. It should be noted that over 70% of staff and faculty indicated they would be interested in purchasing a U-TREK card.

- Payments to TransLink would be based on an agreed payment formula, which considers current and additional ridership and revenues. Ridership data will be collected by TransLink and the Trek Program Centre.

Transit Services

The success of the U-TREK card program will require the involvement of partner agencies, particularly TransLink, the regional transportation authority. In addition to providing regional ridesharing services and cycling programs, TransLink provides transit services to UBC. Transit is a key element of the U-TREK card program.

Currently, 18% of trips to and from UBC are made by transit. Ridership data indicate that at present, there is a significant unmet demand for transit service to UBC. As TransLink improves transit services to UBC prior to implementation of the U-TREK card, it is expected that the "base level" transit mode share would increase to 20%.

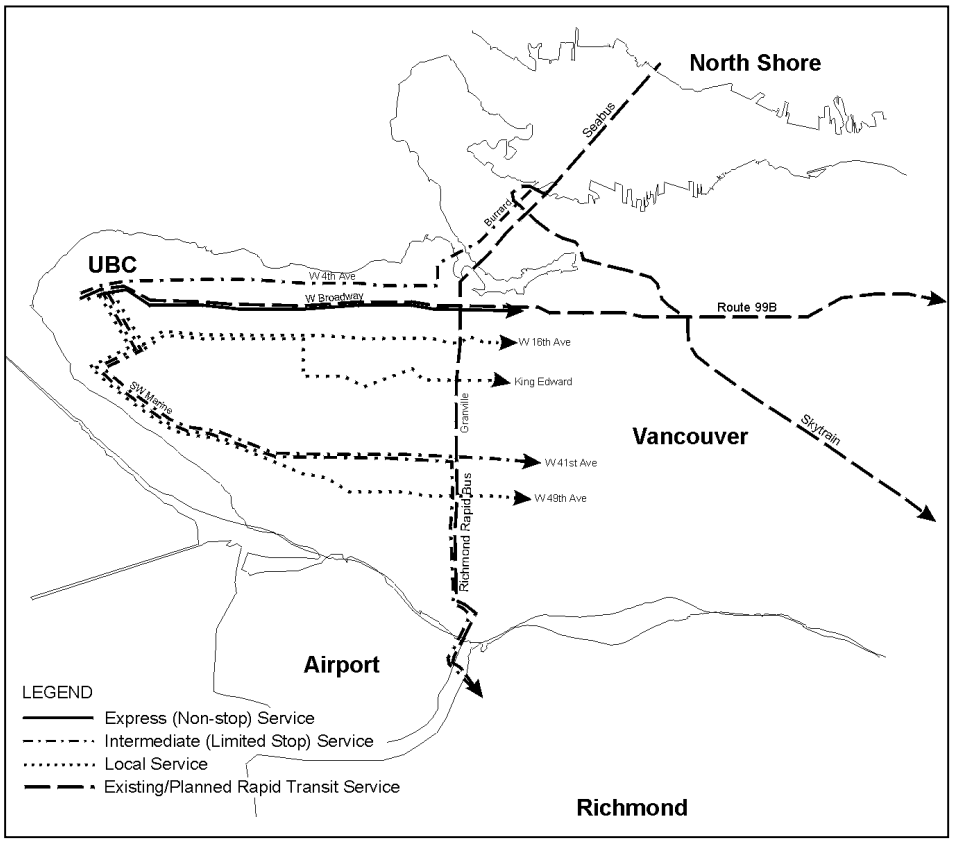
The Strategic Transportation Plan target is to increase the transit mode share to 22%. With implementation of the U-TREK card program, it is expected that the transit share would be increased further to 25%. This is equivalent to a 42% increase in daily transit ridership as compared with the base level.

During peak and midday periods, buses to and from UBC are full or almost full. This means that in order to accommodate increased U-TREK ridership, weekday transit service levels would need to be increased approximately 42% during peak periods, and approximately 34% during the midday.

Work is currently underway to develop a detailed transit service plan for UBC. It is anticipated that the service plan will show that the number of buses serving UBC would need to be increased from 1,100 per weekday at present (550 buses per day to UBC, and 550 from UBC) to as many as 1,500 per weekday. The majority of additional buses would be required during peak periods, as well as during the midday.

Options that are being considered for improving transit service to UBC are illustrated below. These include limited-stop and express services on 41st Avenue, on Broadway, between downtown and UBC, and between Richmond and UBC. New and additional local service is being considered on 16th Avenue, King Edward Avenue and 49th Avenue. The outcome of the transit service plan will be documented in a separate discussion paper.

Potential Transit Service Improvements



Experience Elsewhere

Currently, transit pass programs similar to U-TREK are provided at post-secondary institutions in 22 U.S. communities, and six Canadian communities, including the University of Victoria and Camosun College in Victoria. In addition to these mandatory programs, voluntary pass programs are offered at more than 50 post-secondary institutions and employers throughout North America.

In all cases, transit pass programs at other post-secondary institutions have been quite successful. At the University of Washington in Seattle, for example, the U-Pass program increased transit ridership at the university by 60% during the first six years. This is a greater increase than forecast for UBC, and indicates that UBC's transit ridership targets under the U-TREK card program are realistic and achievable.

With most programs, there was considerable unused capacity on transit services, which meant that increased transit ridership could be accommodated without significant improvements to transit service, and hence, with no or little additional cost. Because of this, student transit passes at these institutions could be offered at a low cost – in some cases, as low as $4.75 per month.

At UBC, the situation is different. Because buses are essentially full during peak periods and for much of the midday, a significant increase in transit ridership will require a corresponding significant increase in transit services, with associated increases in costs. Consequently, it is not possible to offer U-TREK cards at prices as low as at other post-secondary institutions.

Implementation

Current plans are to implement the U-TREK card program in 2001. Based on discussions with TransLink staff regarding the feasibility of providing the required level of transit service to accommodate additional transit ridership, options for implementation are being considered:

- **Two phases, with students first.** Initially, U-TREK cards would be implemented for the 25,500 full-time undergraduate and graduate students, plus 8,000 part-time students. One year later, U-TREK cards would be available for voluntary purchase by the 8,500 full-time and part-time staff and faculty.

- **All at once.** U-TREK cards would be available for all students, staff and faculty in the first year.

In support of the U-TREK program, changes would be made in the way parking on campus is priced and allocated. It is intended that these changes would be implemented only after travel alternatives are made available through the U-TREK program.

1. INTRODUCTION

This document presents a plan for implementing a U-TREK card program, the key feature of which is a multi-modal "transportation pass" for students, staff, faculty and others at UBC. The goal of the U-TREK card program is to reduce single-occupant vehicle (SOV) travel to and from UBC, in accordance with commitments in UBC's Official Community Plan.

1.1 Transportation Targets

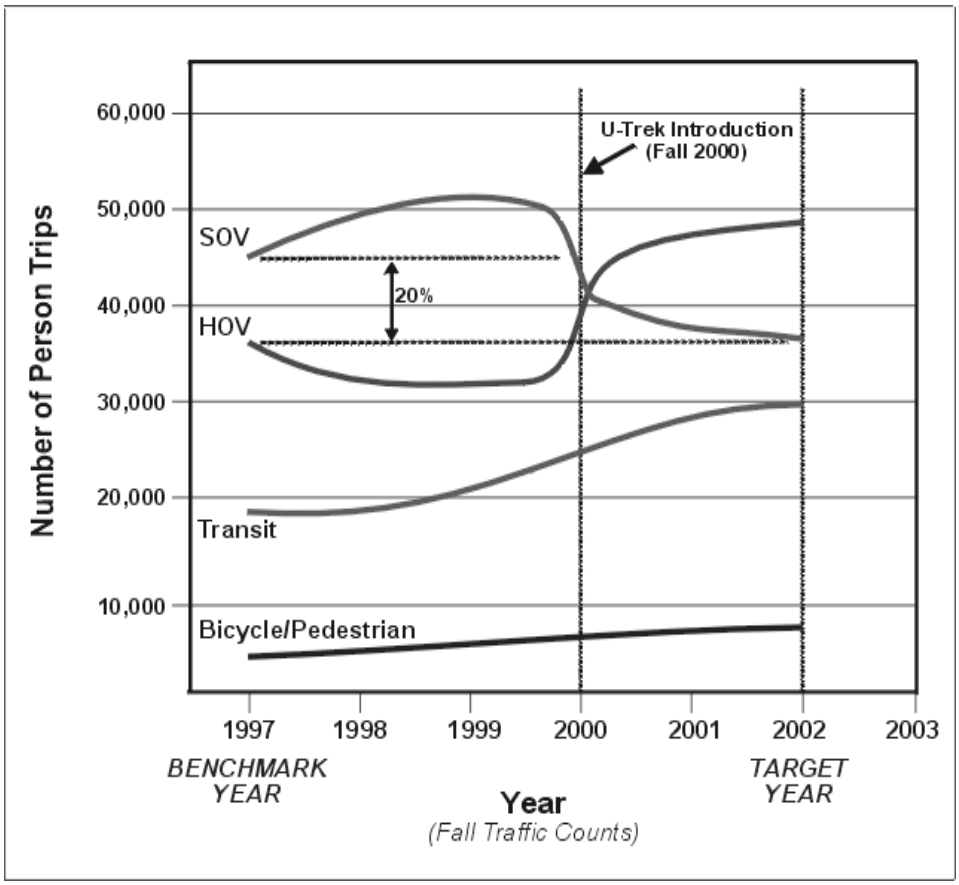
The July 1997 Official Community Plan includes a commitment on the part of UBC to reduce SOV travel to and from UBC by 20% over five years. This target is reiterated in UBC's draft Strategic Transportation Plan (STP). As **Table 1** indicates, the STP target means that SOV use must be reduced to 42,800 daily trips by 2002. It is anticipated that with introduction of the U-TREK card program, SOV use can be reduced further to only 36,800 daily trips. This reflects a reduction of 31% as compared with 2002 trend levels, and a 20% reduction as compared with 1997 levels.

Table 1
UBC Transportation Targets

Mode	Daily Trips to/from UBC (autumn weekday person trips, both directions across UBC screenline)					
	1997	2002				
	Person Trips	Current Trends	STP Target	Change STP Target vs. Trend	U-TREK Results	Change U-TREK vs. Trend
Single-occupant vehicles	46,000	53,500	42,800	-20%	36,800	-31%
Carpools, vanpools and motorcycles	36,300	42,100	46,400	+10%	48,200	+15%
Transit	19,000	22,100	26,500	+20%	30,000	+36%
Bicycle	2,700	3,100	4,900	+58%	5,400	+74%
Pedestrian	1,400	1,600	1,800	+13%	2,000	+25%
Totals	**105,400**	**122,400**	**122,400**		**122,400**	

By 2002, the total number of person trips to and from UBC will increase as a result of new institutional and residential development, particularly in the South Campus area. In order to achieve the anticipated U-TREK results, use of non-SOV modes must increase considerably, as indicated in **Table 1** and **Figure 1**.

Figure 1
Travel Changes with U-Trek Card Program



The greatest increase will be transit ridership, which must increase by 20% from trend levels in order to achieve the STP target, and by 36% in order to achieve anticipated U-TREK results. The implications for transit service and future improvements are discussed in **Section 3**.

2. THE U-TREK CONCEPT

To meet target reductions in SOV trips, UBC is pursuing a wide range of transportation initiatives. One of the most important is the introduction of a multi-modal "transportation pass," which is referred to at this time as a U-TREK card. Target markets and the various components of the U-TREK program are described in this section.

The U-TREK concept is based on the successful U-Pass program used at a number of post-secondary institutions in the U.S. and Canada, most notably the University of Washington in Seattle, and beginning this year, the University of Victoria and Camosun College in Victoria. The experience at these and other institutions is described in this section.

2.1 Target Markets

At UBC, the primary market for the U-TREK card program would be students, staff and faculty. Although the program could eventually be expanded to include others who travel to and from UBC, for the purposes of this document, the focus is on this primary market.

It is assumed that for the 25,500 full-time students and 8,000 part-time students at UBC, purchase of a U-TREK card would be compulsory through student fees. Experience at other post-secondary institutions indicates that compulsory purchase is essential to the success of the program, and offers several benefits:

- **Increased transit use.** Compulsory purchase of transit passes means that for students, transit is essentially free. Not only does this encourage increased transit use among existing transit users, it also encourages students who currently travel by automobile to switch to transit.

- **Reduced automobile ownership**. In comparison to "free" transit service, some students would consider the costs of owning, operating and parking an automobile to be excessive, and would give up their cars.

- **Flexibility for carpoolers, cyclists and pedestrians.** For persons who commute by carpool, bicycle or walking, access to transit at no cost provides flexibility in the event

that their regular travel mode is not available. Carpoolers who wish to travel at an earlier or later time than their carpool can use transit. With bike racks on buses, cyclists can opt to use transit in poor weather or in the event of a mechanical problem.

- **Increased acceptance.** The U-TREK card would be worth more to an individual student if he or she knows that every other student also has a U-TREK card. This means, for example, that transit would be a realistic travel choice for any group of students travelling together. The value students place on the U-TREK card would increase acceptance of a compulsory pass. Results of referenda at universities in the U.S. indicate that over time, acceptance of compulsory pass programs increases.

For staff and faculty, purchase of a U-TREK card will be voluntary. It is anticipated that by 2002, approximately 2,500 of the 8,500 full-time and part-time staff and faculty on campus would purchase U-TREK cards.

Pricing of U-TREK cards is discussed in **Section 4**. The intent is to price U-TREK cards so as to offer a significant savings as compared with the cost of a monthly transit pass, and to offer an even greater savings as compared with the cost of driving alone and parking on campus.

2.2 Program Components

The attraction of the U-TREK card program is that it would be much more than just a transit pass. As summarized in **Table 2** and described below, the U-TREK card would also provide access to and support for other modes of travel.

Table 2
U-TREK Program Components

Program Component	Availability		Comparable Monthly Value
	Students	Staff and Faculty	
Unlimited transit use	✓	✓	$46–$103
Campus shuttles	✓	✓	$10
Secure bicycle parking	✓	✓	$10
Bike products, services	✓	✓	$10
Showers, lockers	✓	✓	$10
Ridematching	✓	✓	-
Vanpool and carpool parking	✓	✓	$5–$8
Guaranteed ride home		✓	$30
Airport shuttle	✓	✓	$5
Merchant discounts	✓	✓	$25
Total value			**$151–$211**

As **Table 2** indicates, the value of the services available with the U-TREK card would far exceed the cost of the card, which is estimated to be $25/month for students, and $45/month for staff and faculty. For students, the value of merchants discounts alone would exceed the cost of the U-TREK card.

Components included in the U-TREK card program include:

- **Unlimited transit access**, at all times and in all transit zones,

- **Daytime and nighttime campus shuttles**, using minivans or minibuses. Shuttles would operate from 6:30 a.m. to 5:30 p.m. during the daytime, and from 5:30 p.m. to 1:00 a.m. at night. Options for providing shuttle service on campus include minibuses and minivans, operating on fixed and/or flexible routes, with fixed schedules and/or demand-responsive service. The existing nighttime security shuttle operated by Parking & Security would be incorporated into the campus shuttle service.

For the purposes of estimating the costs of the campus shuttle, it is assumed that service would be provided by minibuses with a seated capacity of approximately 25 persons. Two minibuses would be used during the daytime during the September-to-April academic year, and one minibus would be used during the summer daytime, and during evenings throughout the year.

- **Additional bicycle parking**. For regular commuters, secure bicycle parking would be provided with 600 additional bicycle lockers located throughout the campus, to supplement the existing 70 lockers at the War Memorial Gym. In addition, 300 more bicycle racks would be installed throughout campus.

- **Bicycle products and services** at the AMS Bike Kitchen. These would include discounts on bike repair, maintenance and riding classes, products and other services for cyclists.

- **Showers and clothing lockers.** Initially, cyclists and runners would have access to showers and clothing lockers at the War Memorial Gym. Later, additional shower and locker facilities would be provided elsewhere on campus.

- **Ridematching services** would be available for persons wishing to find carpool partners, and for persons wishing to join a vanpool. Rideshare Coordinators would actively recruit names for the ridematching database, in order to achieve a sufficiently large database that ridematches could be achieved for most persons.

- **Vanpool parking.** Registered vanpools in which all persons were U-TREK cardholders would park for free on campus. Carpools would receive a reduction in parking charges. In addition, priority parking locations would be available for carpools and vanpools, close to major destinations on campus.

- **A guaranteed ride home** in the event of an emergency. This program component would only be available for staff and faculty who voluntarily purchase a U-TREK card. In the event of illness or a family emergency, a U-TREK cardholder would be provided with a ride home (or to a child's school or hospital) by taxi, vanpool or rental car, depending on the time and length of trip.

Guaranteed ride home programs are operated throughout the U.S. and Canada. Experience has shown that – similar to insurance – guaranteed ride home programs are highly-valued but not frequently used. Based on use of other programs, the average annual cost for the U-TREK guaranteed ride home program is estimated to be approximately $2.50 per person. Potential abuse would be minimized by limiting the program to staff and faculty, by requiring that participants pay 10% of the cost of a guaranteed ride home, and by limiting the number of guaranteed rides home to a maximum of eight per participant per year.

- **Airport shuttle.** A direct shuttle between UBC and the airport would operate from mid-August to Labour Day, at Christmas, and at the end of the school year. U-TREK cardholders would be able to use the shuttle at no cost.

- **Merchant discounts.** The value of the U-TREK card would be increased by enabling cardholders to obtain discounts at merchants on campus and in nearby areas of Vancouver. Examples might include discounts on meals at restaurants, on film developing, books, software and other products, and on haircuts, taxi fares and other services. In order to ensure that discounts are attractive and useful to U-TREK cardholders, a minimum 15% discount is desirable.

2.3 Experience Elsewhere

As summarized in **Table 3,** transit pass programs are currently provided at post-secondary institutions in 26 Canadian and American communities. Some programs simply allow students to use their student cards as transit passes, providing unlimited use of transit. More comprehensive programs are similar to the proposed U-TREK card program. These programs are available to staff and faculty, and include access to a range of transportation services and products.

It is important to recognize a key difference between the proposed U-TREK card program and transit pass programs at other post-secondary institutions. In most cases, there was considerable unused capacity on transit services at other post-secondary institutions, which meant that increased transit ridership could be accommodated without significant improvements to transit service, and hence, with no or little additional cost. Because of this, student transit passes at these institutions could be offered at a low cost.

At UBC, the situation is different. As discussed in **Section 3,** buses are essentially full during peak periods and for much of the midday. Any significant increases in transit ridership will require corresponding significant increases in transit services, with associated increases in costs. Consequently, it is not possible to offer U-TREK cards at prices as low as at other post-secondary institutions.

Table 3
Transit Pass Programs at Post-Secondary Institutions

Canada	United States	
Victoria, BC	Amherst, MA	Fort Collins, CO
Guelph, ON	Athens, GA	Madison, WI
Kingston, ON	Austin, TX	Milwaukee, WI
London, ON	Blacksburg, VA	Missoula, MT
Peterborough, ON	Boone, NC	Pittsburgh, PA
Kitchener, ON*	Boulder, CO	San Diego, CA
	Champaign, IL	San Jose, CA
	Columbus, OH	San Luis Obispo, CA
	Davis, CA	Santa Barbara, CA
	Denver, CO	Santa Cruz, CA
	Eau Claire, WI	Seattle, WA
*Proposed program		

Key features of representative programs include:

- **Victoria, BC**. Student transit pass programs were implemented in fall 1999 at the University of Victoria and Camosun College. In both cases, purchase of a pass is compulsory. At the University of Victoria, passes cost students $44 per term ($11 per month). BC Transit revenues are $48 per pass per term, with the $4 difference being funded by the University.

  Initial results indicate that the student passes are quite successful. As anticipated, ridership has increased significantly, yet transit services have not been negatively impacted. BC Transit is monitoring pass use to determine participation rates and effects on transit services.

- **Kingston, ON**. Full-time students at Queens University and at St. Lawrence College are able to use their student cards as transit

passes, for unlimited access to transit. The cost to students is $38 for the September-to-April academic year, which is equivalent to $4.75 per month.

- **Guelph, ON**. Full-time undergraduate students at the University of Guelph can use their student cards as transit passes, for unlimited access to transit. The cost to students is $23.41 per semester, which is equivalent to $5.85 per month. Guelph Transit has indicated that it intends to raise the cost to students in order to increase revenue recovery per student passengers to the same level as for non-student transit passengers.

- **Peterborough, ON.** Students at Trent University may voluntarily purchase a student bus pass. The cost is $160 for a pass which is valid from Labour Day to may 24, which is equivalent to approximately $18.40 per month.

- **London, ON**. A university bus pass was implemented at the University of Western Ontario in fall, 1998. The cost is $75 for the September-to-April academic year, which is equivalent to $9.38 per month. The result has been a 50% increase in ridership, which has required some increases in transit service to the university, particularly on weekends.

- **Kitchener, ON**. Kitchener Transit has proposed a program which would allow students at the University of Waterloo and Sir Wilfred Laurier University to use student cards for unlimited transit access. The proposal is for a cost of $30 to $50 per term, equivalent to $7.50 to $12.50 per month during the academic school year.

- **Seattle, WA**. The University of Washington implemented a U-Pass program in 1991. Purchase of passes is voluntary, and participation rates are 74% for students and 68% for faculty and staff. The U-Pass provides unlimited use of transit services, plus free carpool parking, subsidized vanpool fares, secure bicycle parking, a nighttime campus shuttle, a guaranteed ride home program (for faculty and staff), and discounts at more than 50 area merchants. The cost for students is equivalent to Cdn $13.30 per month, and the cost for staff and faculty is equivalent to Cdn $18.30 per month.

  In the first six years of the program, transit use at the University of Washington increased 60%. The percentage of persons driving alone

to campus decreased from 33% to 26% – a 21% reduction in the SOV mode split.

3. TRANSIT SERVICE

In order to meet the target reduction in SOV trips, transit ridership and transit services to UBC must be increased substantially. To this end, a transit service plan is currently being prepared for UBC, with the assistance of TransLink staff. This service plan will identify the amount of additional service required above the "base level" of service that TransLink would provide, and will provide an estimate of the costs of additional service. The results of the service plan will be used as the basis for an agreement between UBC and TransLink regarding implementation of the U-TREK card program.

Although the transit service plan has not yet been completed, this section provides an overview of current transit use and options for additional service which are being considered.

3.1 Current Transit Use

In the 1997 benchmark year, there were 19,000 person trips on transit to and from UBC on a typical autumn weekday during the school year (September through April). During summer months, transit ridership remains surprisingly high at 14,000 daily trips, which is more than 70% of ridership during the school year.

Key observations regarding current transit use include:

- The highest ridership occurs on Routes 10, 41 and 99B, which together account for approximately 70% of daily transit ridership.
- On average, only 14.3% of persons who board routes serving UBC are travelling to or from UBC.
- The highest transit ridership occurs during the PM peak period from 3 to 6 PM, when there are an average of 1,800 trips per hour during the school year. During the summer, PM peak period ridership is 1,350 trips per hour.
- Transit ridership does not decline much during the midday period — 1,300 trips per hour during the school year and 825 trips per hour during the summer.

- The highest hourly ridership occurs during the AM peak hour, prior to the first class in the morning at 8:30 a.m. During the AM peak hour, school year ridership is 2,400 trips. In comparison, ridership during the PM peak hour is 1,850 trips.

During the school year, transit ridership on most routes reaches (and sometimes exceeds) seated capacity during peak hours, in the peak direction. Key observations regarding vehicle loads include:

- The highest average vehicle loads in fall 1997 were on Route 41, during the AM peak period, midday and particularly during the PM peak period. Average vehicle loads exceeded seated capacities during all three of these time periods.

- Average vehicle loads also exceeded seated capacity on Routes 4, 10, 25 and 99B. It should be noted that since 1997, service frequencies on Route 99B have been improved significantly during peak and off-peak periods, reducing overcrowding at some times.

- There is considerable excess capacity in the off-peak direction on all routes during peak periods. In comparison, average vehicle loads during the midday are similar in each direction, and there is less excess capacity.

- Average vehicle loads decrease considerably from 8:00 p.m. onwards.

3.2 Target Markets

In order to provide a basis for developing a transit service plan for UBC, data from UBC's January 1998 travel survey were analyzed with respect to potential markets for transit service. The travel survey reflects the travel characteristics of 33,000 students, staff and faculty at UBC. The key conclusions of this analysis include:

- The major market for transit is Vancouver. Sixty-four percent of students and 71% of faculty and staff live in the City of Vancouver. Approximately 40% of persons who live in Vancouver and drive alone to UBC indicated they would consider transit for most trips to UBC, and a further 50% indicated they would consider transit for some trips.

- Another important market for transit is Richmond. Thirteen percent of students and 10% of staff and faculty live in Richmond. In comparison, however, only 4% of students who take transit to UBC

live in Richmond, and only 2% of staff and faculty. Although this indicates significant potential to increase transit use among Richmond residents, a smaller proportion of persons living in Richmond indicated they would consider transit. Only 12% of drive-alone commuters in Richmond indicated they would consider transit for most trips, as compared with an average of 34% for all drive-alone commuters.

- The North Shore is a secondary ,market for transit. Seven percent of students and 6% of staff and faculty live on the North Shore. Although the population is smaller than in Vancouver and Richmond, direct connections to downtown Vancouver provide an opportunity to increase transit ridership among North Shore residents.

- UBC commuters living in the north-east sector and south of the Fraser River are not an important market for transit. Only 10% of students, staff and faculty live in these areas. Travel distances are long, and consequently it is not cost-effective to serve these areas with direct transit services to UBC.

3.3 Future Transit Use

As indicated in **Section 1.1**, it is anticipated that weekday transit ridership would increase by 42% from trend levels with the introduction of a U-TREK card.

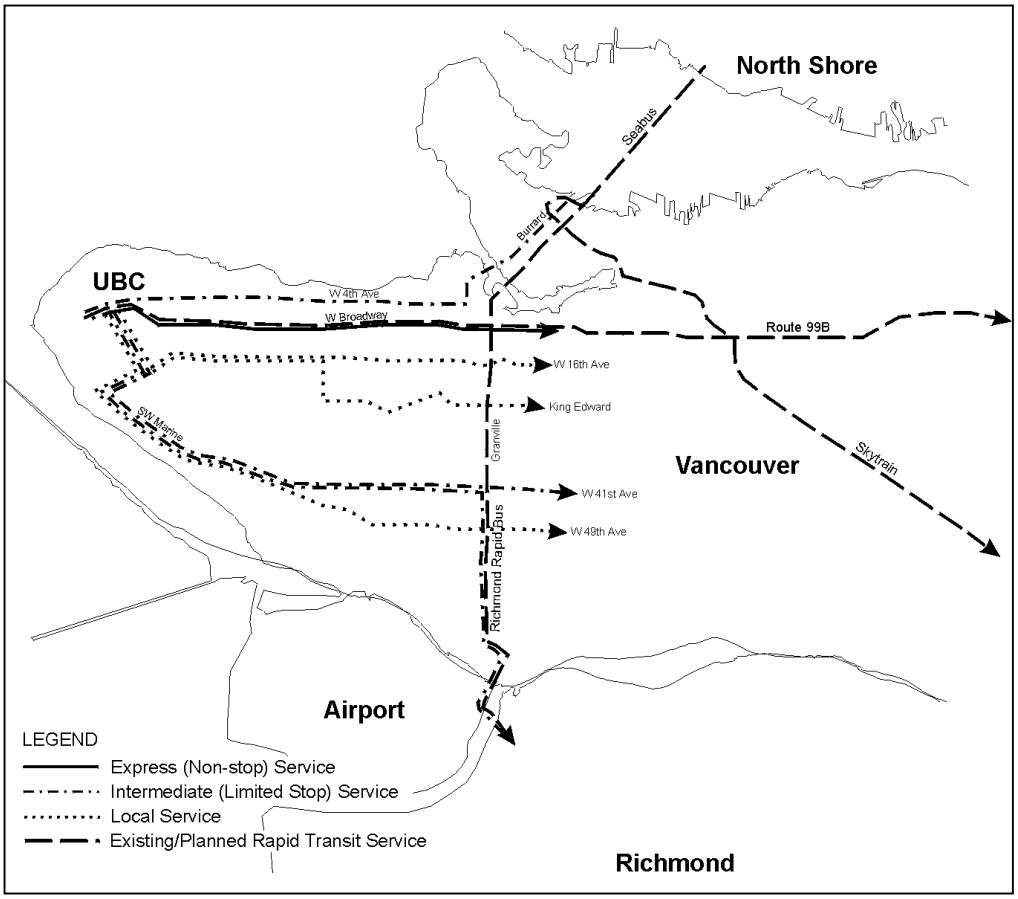
In the 1997 benchmark year, approximately 1,050 buses travelled to and from UBC each weekday during the academic year (525 buses to UBC, and 525 buses from UBC). In order to accommodate increased ridership as a result of the U-TREK card program, it is estimated that this number of buses would have to be increased to 1,500 buses per weekday – an increase of 43%.

Not all of this increase would be the result of the U-TREK card program, however. Some of the increase would be the result of annual regional service improvements, including improvements in service to UBC. TransLink is currently considering three options for expanding transit services in the region. The middle-range option is similar to the "midpoint scenario" developed by BC Transit prior to the creation of TransLink. This “midpoint scenario” indicates that by 2002/03, levels of transit service in the region would increase approximately 23% from 1997 levels. At UBC, this might equate to an increase to approximately 1,300 bus trips per weekday. This reflects a "shortfall" of approximately 200 buses per

weekday, indicating that additional improvements to services to UBC would be required, above and beyond those improvements which would be implemented under the "midpoint scenario."

The transit service plan currently being developed will provide more accurate estimates of future service levels with and without the U-TREK card program, so as to more accurately determine the additional services required as a result of U-TREK. Options for additional transit services to UBC which are being considered in developing the transit service plan are described below and are illustrated in **Figure 2.**

Figure 2
Potential Transit Service Improvements



- **41st Avenue**. At present, passenger loads on Route 41 far exceed seated capacity during peak periods, and even exceed seated capacity during the midday and early evening. Transit users report that westbound Route 41 buses frequently pass up passengers waiting at bus stops west of West Boulevard. Clearly there is a significant latent transit demand in the 41st Avenue corridor. Service improvements

during peak and midday periods would result in increased ridership from this latent demand.

Options for additional transit service in the 41st Avenue corridor include a new limited stop express service along 41st Avenue (similar to the Route 99B service on Broadway), and additional local service on Route 49 along 49th Avenue. As well, options are being considered to extend Route 41 and/or Route 49 service to UBC during the midday, rather than terminating buses at Crown and Dunbar as at present.

- **Richmond**. Currently, 150 persons travel between Richmond and UBC on the direct Route 480 service. Other persons travel via other transit routes, which require at least one transfer and involves longer travel times than on Route 480.

  The 1998 travel survey indicates that 14% of trips to UBC are from Richmond – 8,000 person trips in each direction – yet only 6.5% of transit trips are from Richmond. Excluding Vancouver, more students, staff and faculty live in Richmond than in any other municipality. Additional direct service between Richmond and UBC would increase ridership, and consequently options are being considered to expand the Route 480 express service to an all-day service operating between Richmond Centre and UBC.

- **Downtown**. Route 44 currently provides limited express service to UBC in the morning, and from UBC in the afternoon. To improve service for UBC commuters who live on the North Shore, in the West End and in Kitsilano, options are being considered to expand the Route 44 to an all-day limited-stop service operating between Waterfront Station and UBC, via Burrard Street and 4th Avenue.

- **Broadway/Lougheed corridor**. UBC ridership in this corridor has increased significantly since the Route 99B limited-stop express service was introduced in 1996. With further service improvements and introduction of SkyTrain, it can be expected that UBC ridership will increase further.

- **King Edward and 16**th **Avenues.** Options are also being considered to improve service on the existing Route 25, which operates on King Edward Avenue and which has the fourth-highest ridership of any route serving UBC. Options are also being considered for a new transit route on 16th Avenue.

4. FINANCIAL PLAN

This section presents a financial plan which achieves all of the financial objectives established for the U-TREK program:

- U-TREK cards will be available to all students, staff and faculty.
- Student U-TREK participants will not subsidize staff and faculty U-TREK participants, and vice-versa.
- U-TREK participants will not subsidize parking operations at UBC.
- The U-TREK program will consider revenue implications for TransLink.

The financial plan is comprised of two components — income which UBC obtains from the sale of U-TREK cards and from other sources, and expenses for various components of the U-TREK card program. It is intended that income equals expenses, so that the U-TREK card program remains sustainable and can be provided to participants at the lowest possible cost.

The most significant expense will be an annual payment to TransLink. At this time, the amount of the annual payment has not been determined. As described in the following section, results from the transit service plan currently being developed will provide a basis for determining the annual payment to TransLink.

4.1 Payment to TransLink

Under the proposed U-TREK card program, UBC would provide an annual payment to TransLink, comprised of the following four components:

- Current base revenue for transit ridership to/from UBC.
- Base revenue generated by planned incremental transit service improvements prior to the introduction of the U-TREK card program.
- A share of operating and debt service costs of additional, accelerated transit services needed to meet U-TREK transit ridership levels, less a share of secondary revenue generated by these additional services.

- A share of infrastructure costs for expanded transit facilities required for accelerated transit services.

Transit Service Improvements

Incremental service improvements describe the future levels of service which will be provided to UBC by TransLink during the next year or two, up to and including the time when the U-TREK card program is implemented. For example, if implementation of the U-TREK card program is planned for September 2001, then incremental service improvements include all those improvements which TransLink would implement prior to and on September 4, 2001 (which is the Tuesday immediately following Labour Day, the day when autumn service changes are typically implemented).

In order to accommodate the ridership levels anticipated as a result of U-TREK implementation, additional transit service will likely be required above and beyond that provided by incremental service improvements. UBC has agreed to pay a portion of the costs of these additional transit services, until such time as incremental service improvements would have reached the same level of transit service. In effect, UBC would be paying to accelerate the implementation of additional transit service, rather than waiting for service to be improved incrementally over a period of years. The proportion of the costs of accelerated transit service which UBC would pay has not yet been agreed upon with TransLink.

Revenues

There are two types of revenue generated by transit services, as described below.

- **Base revenue** is the annual revenue generated by persons in the target markets for the U-TREK program – full-time students, part-time students, staff and faculty at UBC. The calculation of base revenue will be used in estimating how much UBC pays TransLink for "lost" farebox revenue (revenue that TransLink currently collects, but would instead be collected by UBC through the sale of U-TREK cards).

- **Secondary revenue** represents revenue from transit trips made by persons not initially included in U-TREK target markets.

TransLink would continue to collect secondary revenue through the farebox and through ticket and pass sales. Persons who would generate secondary revenue include, for example, visitors to UBC, employees at non-UBC agencies on campus, and UEL residents. At a later date, once U-TREK has been implemented for target markets, it may be desirable to expand the U-TREK program to include some of these persons. The calculation of secondary revenue will be used in estimating revenue generated by accelerated transit service above and beyond incremental service improvements.

Current base revenue is estimated to be approximately $4,200,000 per year, as summarized in **Table 4**.

Table 4
UBC Transit Revenue
(autumn 1998 transit ridership across UBC/UEL screenline)

	Period	Days	Daily Ridership	Annual Revenue
Base Revenue	Sept.-April	Weekday	17,700	$3,797,000
		Weekend/Hol.	180	24,000
	May-Aug.	Weekday	3,000	383,000
		Weekend/Hol.	30	1,000
				$4,205,000
Secondary Revenue	Sept.-April	Weekday	1,700	$365,000
		Weekend/Hol.	4,820	664,000
	May-Aug.	Weekday	11,000	1,402,000
		Weekend/Hol.	3,970	210,000
				$2,641,000
Totals		Weekday	19,400	$4,162,000
		Weekend/Hol.	4,500	688,000
		Weekday	14,000	1,785,000
		Weekend/Hol.	4,500	211,000
				$6,846,000

Calculations in **Table 4** are based on current average fares. If regional transit fares are changed, this would change the calculated base revenue and secondary revenue.

Currently, the average fare per transit trip to and from UBC is $1.50 on weekdays (when the zonal fare system is in effect), and $1.39 on

weekends and holidays. The $1.50 weekday fare represents a combination of cash, ticket, monthly pass, FasTrax pass and employee pass fares, and reflects fares by zone — 89% of transit trips to UBC are within Zone 1 (Vancouver), 6% are from Zone 2, and 5% are from Zone 3.

Costs

Costs have not yet been determined for accelerated transit services to UBC needed to accommodate anticipated U-TREK ridership. The transit service plan currently being prepared will identify potential transit services and will provide a basis for estimating accelerated transit service costs.

Calculations of service costs will incorporate the following information and assumptions:

- Marginal operating costs for transit service are currently estimated by TransLink to be $63.86 per hour for off-peak services, and $107.52 per hour for peak period services. Once a transit service plan has been developed, Coast Mountain BusLink (the transit operator) will be asked to provide more accurate cost estimates for accelerated transit services.

- Annual debt service costs for new buses are currently $31,700 for a standard 40-foot low-floor bus, and $49,000 for an articulated low-floor bus (these annual costs are based on current purchase costs of $395,000 and $610,000 respectively).

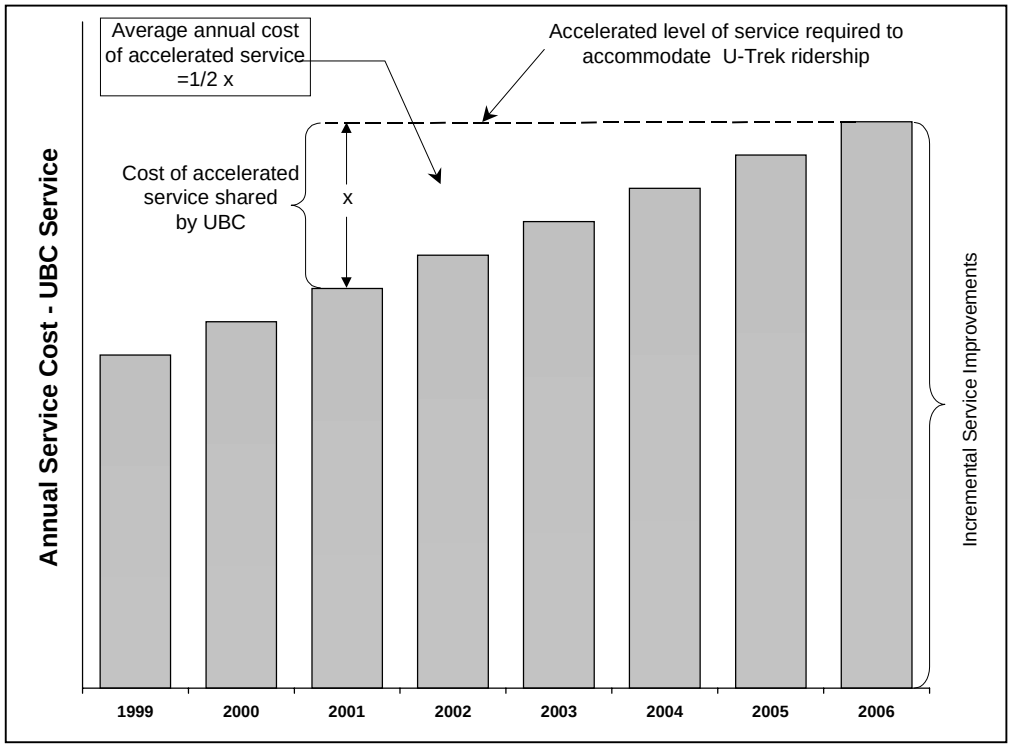
- Accelerated transit service would be provided for a total of 150 days per year, which are the number of weekdays during the academic year (September to April) on which classes are scheduled.

- Accelerated transit services would be provided during the AM and PM peak periods (from approximately 7:00 to 9:30 a.m. and 3:30 to 7:00 p.m.). Additional service would be provided during the midday on some routes. Because there would be sufficient excess transit capacity during evenings, weekends and statutory holidays, additional transit service would not be required at these times.

During the first year of the U-TREK card program, the costs of accelerated transit services would likely be significant — as much as $2 million to $4 million. During subsequent years, however, the costs of

accelerated services would decline, as illustrated in **Figure 3.** Eventually, the level of service provided by incremental service expansions would reach the accelerated level of transit service needed to accommodate U-TREK ridership. This means that the average annual cost of accelerated transit service during the entire period would be approximately half the cost during the first year.

Figure 3
Increased Transit Service at UBC



4.2 Other Program Costs

Estimates of the costs of other U-TREK program components are summarized in **Table 7**. It should be noted that cost estimates will be refined as further work is undertaken to implement the U-TREK card program. As discussed in Section 4.1, the amount of the annual payment to TransLink will be confirmed after a transit service plan is prepared and UBC's share of accelerated transit costs is agreed upon with TransLink — the amount included in **Table 7** is only a preliminary estimate.

Table 7
U-Trek Program Costs

Program Component	Estimated Annual Cost
Payment to TransLink	$5,800,000
Shuttles (costs in addition to current costs):	
• Daytime campus shuttle	$180,000
• Night shuttle	70,000
• Airport shuttle	10,000
Ridesharing:	
• Ridematching	$25,000
• Vanpool fare subsidy	30,000
Bicycles:	
• Secure parking	$75,000
• Shower & locker access	20,000
• Products & services	5,000
Guaranteed ride home	$15,000
Merchant discounts	$0
U-TREK program:	
• Communications, marketing & publicity	$105,000
• Production & distribution of U-TREK cards	270,000
• Program centre	290,000
• Data collection & monitoring	35,000
Total	**$6,930,000**

4.3 U-TREK Card Pricing

Several options for pricing U-TREK cards were considered in determining the price of cards for students, staff and faculty. As noted earlier, prices of cards cannot be finalized until the amount of UBC's annual payment to TransLink is determined.

At this time, it is estimated that student U-TREK cards would cost $25 per month, equivalent to $100 per semester. Staff and faculty U-TREK cards would cost $45 per month. These prices reflect the following assumptions:

- **Compulsory student cards**. It is assumed that full-time and part-time students would be required to purchase U-TREK cards. This would minimize the cost per student, and would require approval

through a student referendum in order to implement. Purchase of staff and faculty cards would be optional.

- **Integration with parking.** Options for integrating the U-TREK card program with parking programs were considered, including the requirement that persons wishing to purchase a parking permit must also purchase a U-TREK card. Integration with parking programs would offer several benefits:

  – Reduce the cost of the U-TREK card for staff and faculty from $45 per month to approximately $30 per month.
  – Encourage automobile commuters to use transit some of the time.
  – Provide automobile commuters with access to other U-TREK programs, encouraging use of non-SOV modes.

  In support of the U-TREK card program, changes would be made to parking pricing and the allocation of parking on campus. It is intended that these changes only be implemented once travel options are made available through the U-TREK card program.

- **Funding from parking.** Options were considered to increase the parking subsidy to the U-TREK program from the current $350,000 annual subsidy to $1 million or more. Initially, the parking subsidy would remain at current levels.

Monthly transportation costs with the U-TREK card program would decrease or remain the same for most persons travelling to and from UBC, as illustrated in **Figures 4 and 5**. Monthly transportation costs illustrated in these figures include only out-of-pocket costs (U-TREK card, transit fares, parking and gas). The $91 monthly cost for drive-alone commuters is calculated based on the proposed $65 cost for a monthly parking permit, plus $1.25 per day for gas (based on an average commute distance of 10 km each direction to and from UBC). Costs for travel with the U-TREK card program reflect the lowest-price combination of U-TREK card costs, transit ticket fares, daily parking charges, monthly permit costs, and gasoline costs.

Figure 4
Monthly Transportation Costs — Students

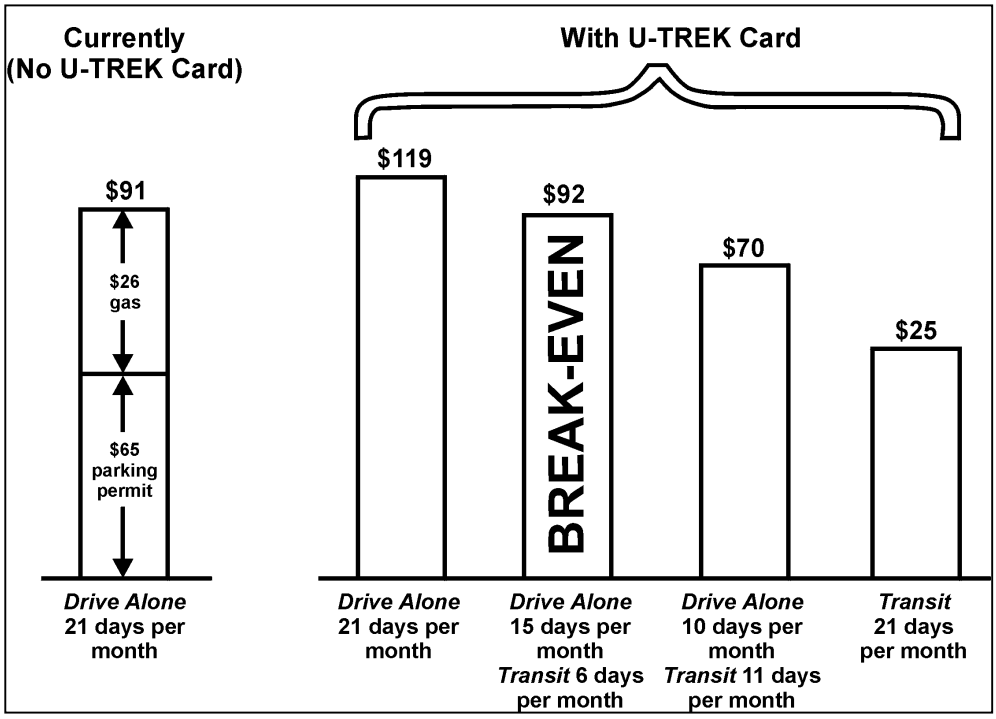
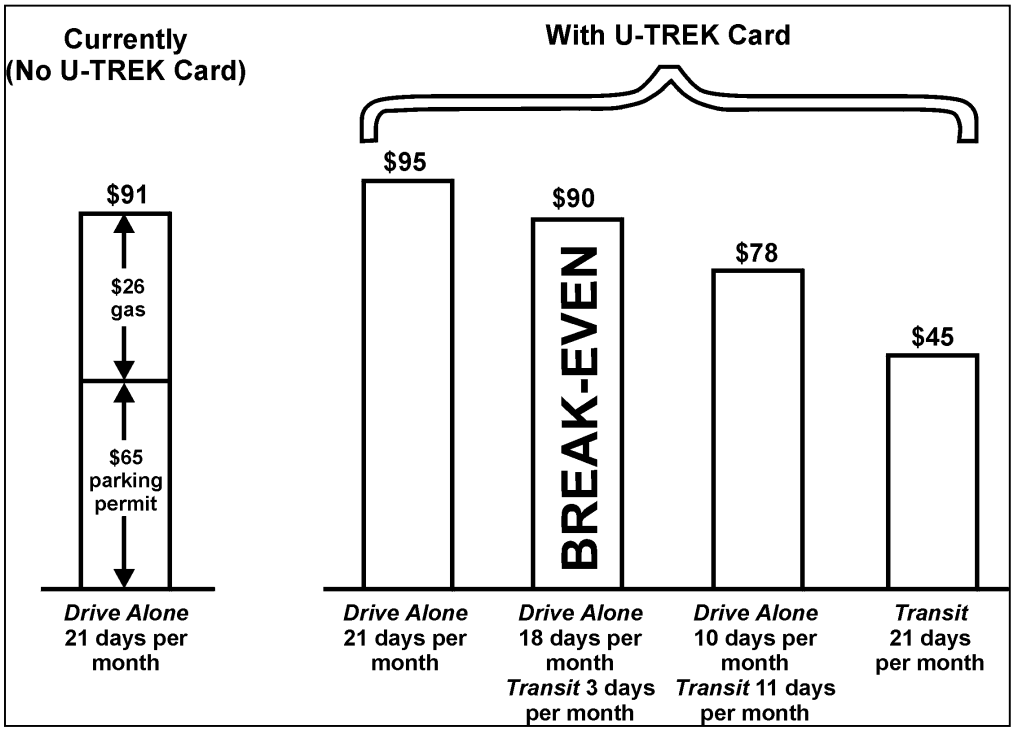


Figure 5
Monthly Transportation Costs — Staff and Faculty



As illustrated in **Figure 4 and 5,** costs would increase only for staff and faculty who purchase a parking permit and drive alone to UBC a total of 19 or more days per month, and for students who drive alone 16 or more days per month. Drive-alone commuters need only reduce their automobile usage by 14% to 28% to avoid increasing their transportation costs. This reduction is consistent with UBC's overall target of reducing single-occupant vehicle trips by 20%.

Commuters could further reduce their costs by using transit more, by carpooling and by cycling. Monthly transportation costs could be as low as $25 for students and $45 for staff and faculty. This is substantially less than the $91 per month cost for drive-alone commuters, or the $46 to $103 per month cost for transit users.

5. IMPLEMENTATION

At this time, plans are to implement the U-TREK card program in 2001. This section provides a brief overview of implementation issues to be addressed during the months prior to implementation.

5.1 Phasing and Timing

Current plans are to implement the U-TREK card program in 2001. Based on discussions with TransLink staff regarding the feasibility of providing the required level of transit service to accommodate additional transit ridership, the following options for implementation are being considered:

- **Two phases – students first, then faculty and staff.** Initially, the U-TREK card program would be implemented for full-time and part-time undergraduate and graduate students only. Prior to this time, a student referendum will be required in order to make purchase of a U-TREK card compulsory for all students. In the recent referendum at the University of Victoria, 68% of students supported compulsory passes. It is anticipated that with a comprehensive communications program, similar results could be achieved in a referendum at UBC.

  Once the student U-TREK card has been successfully implemented, the program would be expanded to include an optional card for staff and faculty.

- **All at once.** The alternative to a two-phase implementation approach is to implement the U-TREK card program for students, staff and faculty at the same time.

5.2 Next Steps

Key activities to be undertaken during the months prior to implementation of Phase 1 of the U-TREK card program include:

- **Transit service plan.** The transit service plan currently being prepared will provide information regarding additional services required to meet anticipated U-TREK ridership levels, and the costs of

these additional services. This information will be used in establishing a financial agreement.

- **Financial agreement.** UBC and TransLink must establish a financial agreement for the U-TREK card program, which specifies how much UBC will pay TransLink on an annual basis for base revenue and for any other program costs. The agreement must also specify how the annual payment is to be adjusted if regional transit fares are modified or increased.

- **Transit service implementation plan.** Once an agreement has been established, TransLink staff will need to plan implementation of additional services in detail. As part of this, TransLink will need to order additional buses, and may need to collect additional ridership data on routes serving UBC.

- **Student referendum**. In order to implement compulsory purchase of U-TREK cards for full-time students, a student referendum must be held during the 1999/2000 academic year.

- **U-TREK program components.** UBC staff must plan and implement other U-TREK program components, including the campus shuttle, additional bicycle parking, shower access and merchant discounts.

- **Administration** procedure and practices must be established to operate the U-TREK program. These include collection of revenues from card sales, procedures for issuing and replacing cards, and procedures for providing other program components such as guaranteed rides home and secure bicycle parking.

- **U-TREK card equipment.** TransLink is currently planning to implement electronic fareboxes on all buses, and consequently U-TREK cards must be consistent with this technology. As well, it will be desirable to ensure that U-TREK cards are consistent with existing and planned new technologies at UBC, particularly technology used for parking facilities.

- **Communications and marketing.** A communications program will be required for the student referendum, to explain the costs and benefits of the U-TREK card program. If approved, then a marketing program will be required to promote the U-TREK program when it is implemented, to describe various components of the

program, and to build support for implementation of a staff/faculty card if implementation is undertaken in two phases.