



THOMPSON RIVERS  
UNIVERSITY

# Thompson Rivers University

## Transportation Demand Management Strategy

Final Report

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**LIST OF ABBREVIATIONS**

TDM	Transportation Demand Management
TRU	Thompson Rivers University
GHG	Greenhouse Gas Emissions
CMP	Campus Master Plan

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## EXECUTIVE SUMMARY

Thompson Rivers University (TRU) in Kamloops, BC is home to over 7,400 students and 1,100 staff. In the future, the University plans to accommodate up to 16,000 students. TRU's Kamloops campus has significant socio-economic and environmental impacts on the City. One area in particular where it has a substantial impact is in how students and staff travel to and from campus. TRU is one of the largest trip generators in the community. As such, the manner and time of day in which students and staff commute to campus have wide-scale effects on the City's road network, overall traffic congestion, and greenhouse gas emissions.

A key component of the TRU Campus Master Plan (2003) was the recommendation that a Transportation Demand Management strategy be developed to address key transportation issues in a more sustainable manner. Transportation demand management (TDM) is the development and implementation of a combination of programs, policies, and investments to redistribute travel demand to different, more sustainable modes of travel as well as different times of day to encourage a more sustainable use of limited transportation resources. TDM strategies use a balance of incentives and disincentives to increase the relative attractiveness of non-auto modes while simultaneously decreasing the attractiveness of the single-occupant vehicle.

Several factors influence transportation demand at TRU. The major issues are that alternative modes of travel are not as attractive as driving and parking on campus. Driving is cheap and convenient while taking alternative modes like transit and walking require more time, can be more costly, and are less convenient. Existing conditions, however, point to several opportunities for improvement. Currently, 56% of campus users live within one transit route of campus; additionally, approximately one quarter of students live within walking distance and more than one third live within reasonable biking distance of campus.

The campus' central geographic location also has several advantages. TRU's central location is near market housing, close to Kamloops' dominant shopping area as well as its City Centre, and within two kilometres of the Trans-Canada Highway. TRU's location allows for creative transit solutions. Key transit routes from all corners of the City can be routed to pass through or near the institution – making transit a more attractive option for residents. The University's location also allows for the development of additional nearby high density commercial and low-cost residential units. Locating student oriented retail and housing close to the university should decrease average trip distance and make active transport modes more attractive overall.

TRU's Transportation Demand Management plan strives **to increase the number of people utilizing the TRU campus while at the same time decreasing the number of passenger vehicles being used to travel to and from the campus.** The Plan supports the implementation of the Campus Management Plan (2003), as well as various City of Kamloops plans, enables the continued expansion of TRU, and helps the institution meet its sustainability commitments.

The options presented as part of this strategy aim to:

- Optimize the use of resources to facilitate access to the campus;
- Support sustainability by making transportation options other than single occupancy vehicles more attractive;
- Educate students and staff on the benefits of pursuing a TDM strategy and promoting sustainable modes of transportation.

To realize these goals, TRU will attempt to **increase the mode share of alternative modes of transportation to 65% (from 25%)** of trips to/from campus between 7 AM and 7 PM, Monday to Friday by 2020. To realize this target the following issues are recognized and addressed:

1. There must be a balance of improvements to alternative transportation and disincentives to driving on campus;
2. There must be a commitment made to transportation demand management by TRU students, staff and administration;
3. Staff and students must be encouraged to live closer to campus;
4. Transit service must improve;
5. Walking must be made easier;
6. Driving must be made less attractive; and
7. TRU must implement policies and programs to support TDM.

Several parking management options, sustainable transportation ameliorations and demand redistribution strategies have been developed to manage transportation demand to and from the campus. At a broad level, options fall into three main categories:

- Improving alternative transportation options;
- Making driving a single occupancy vehicle less attractive.

Options include, but are not limited to the following:

- Carpool:
  - Continue to expand the carpool program;
  - Distribute carpool parking stalls throughout campus; and
  - Redistributing demand.

- Transit:
  - Work with BC Transit and the City of Kamloops to increase frequency;
  - Support City of Kamloops and BC Transit in providing real-time information on transit service;
  - Review potential of greater transit infiltration of the campus;
  - Develop a park and ride program.
- Active Transportation:
  - Improve bicycle and pedestrian facilities in the area;
  - Provide better bicycle security;
  - Add a bicycle tune-up station.
- Programs and Policies:
  - Encourage more people to live within the commuter shed;
  - Facilitate tele-work for staff.
- Parking Management:
  - Increase cost of parking;
  - Move parking to the periphery of the core area of campus and limit the parking footprint;
  - Re-allocate parking based on need;
  - Extend hours of pay parking.
- Demand Redistribution:
  - Distribute class times more evenly.

Moving forward, TRU will need to develop an action plan and funding strategy for implementing the options suggested in this report. In addition, TRU will need to work with community partners, such as the City of Kamloops, to implement its strategy.

## **1.0 INTRODUCTION**

Thompson Rivers University (TRU) is a growing institution dedicated to being innovative in providing a more sustainable learning environment. Its Kamloops campus is the cornerstone of the institution and is home to over 7,400 students and approximately 1,100 staff. TRU's Kamloops campus has a significant impact on Kamloops in terms of its social fabric, economic contributions and environmental impacts. One area in particular where it has a substantial impact is in how students and staff travel to and from the campus. The Kamloops campus is one of the largest generators of transportation demand in the community. This traffic generation has impacts on fuel use, traffic congestion, and greenhouse gas (GHG) emissions. It also places unique demands on the transportation infrastructure in the community including the road and transit networks (TRU is one of the single largest contributors to transit demand and provides a significant proportion of the transit revenue). At the campus scale, the development of roads, parking lots, and walkways, and how these are provided has a significant impact on the physical development of the campus.

In 2010, TRU initiated the development of a Transportation Demand Management (TDM) strategy for its Kamloops campus. This strategy examines options to reduce the transportation impacts associated with TRU and to facilitate future expansion of the Kamloops' campus by addressing transportation demand.

### **1.1 What is Transportation Demand Management**

Transportation demand management (TDM) is the development and implementation of a combination of programs, policies and investments to redistribute travel demand to different, more sustainable modes of travel as well as to different times of day to make better use of transportation facilities (i.e. roads, transit, parking, sidewalks, and bicycle lanes). The end goal is to encourage a more sustainable use of transportation resources by changing travel behaviour with programs often including a balance of incentives and disincentives to meet the objective of changing travel behaviour. Large employers and communities throughout North America have embraced TDM as a means of providing a comprehensive and coordinated set of programs to address a range of transportation issues such as traffic congestion, transportation infrastructure needs, and greenhouse gas emissions. At a broader level, TDM impacts key components of economic, social, and environmental sustainability.

## 1.2 Why Develop this Strategy

There are several reasons to develop this strategy. These include:

***Supporting the implementation of the Campus Master Plan*** – TRU developed its Campus Master Plan in 2003. This provides guidance for the evolution of the campus in terms of its physical and educational development. Undertaking a transportation demand management strategy with the intention of reducing parking needs was a recommendation of the Campus Master Plan.

***Helping TRU meet its commitments to be a more sustainable institution*** – TRU's 2007 – 2012 Strategic Plan includes an objective that it will be a university of choice for Environmental Sustainability, and part of this is ensuring that the environmental footprint of day-to-day operations is reduced as much as possible. This is also reflected in the Campus Master Plan and the Campus Sustainability Action Plan.

***Enabling continued expansion of TRU*** – by addressing transportation demand, TRU will be able to preserve land that may have been used for parking in order to expand their campus. It will be able to densify the core area of the campus by removing parking while at the same time preserving land at the periphery for other more valuable land uses. The TDM strategy is intended to better utilize the existing transportation infrastructure – roads, transit and parking lots – and to facilitate growth and investment in the campus that is not reliant solely on the expansion of this transportation infrastructure.

***Support the University Village concept*** – there is a desire to transform TRU and the surrounding area into a university village to promote a variety of uses on, and in the vicinity of, the campus in order to form a more complete community. Land use components of the university village could include shops, restaurants, offices, student space, and residences. The development benefits of pursuing a university village would not only enhance and add vibrancy to campus life, but would also generate revenue to support university purposes. Campus transportation demand management strategies that support commuter trip reduction, parking management, and modal shifts to cycling and walking will support the mixed use and dense university village envisioned by TRU.

***Helping TRU respond to demand for transportation alternatives that are more sustainable*** – surveys of staff and students indicate there is a desire among much of the campus population to see an increase in the sustainability of transportation to and from campus.

***Providing guidance on how to reduce the campus' GHG emissions*** – TRU is committed to reducing its GHG emissions. Transportation to and from the school is a significant contributor to GHG emissions and as such, this report provides strategies for TRU to implement to reduce its emissions.

***Supporting the implementation of various City-led plans*** – this TDM Strategy supports plans developed by the City of Kamloops including the Sustainable Kamloops Plan; the Bicycle, Pedestrian and Trails Master Plans; and the Kamloops Transit Future plan. This will enable TRU to be recognized as a leader in the implementation of these plans.

***Responding to TRU's impact on community resources*** – TRU offers significant benefits to the community that cannot be understated. However, it is important to recognize that continued growth at TRU will, in part, precipitate the need for significant new transportation infrastructure such as the 6<sup>th</sup> Avenue extension through Peterson Creek Park, phase 2 of the Hillside Drive Extension and other costly transportation infrastructure investments. By investing in TDM programs, TRU will be potentially contributing to either deferring the need for these projects, or eliminating them altogether.

Taken together, there is a strong rationale for developing and implementing the TDM strategy.

### 1.3 Strategy Development Process

The TRU TDM Strategy development involved the following process:

- Review and summary of background conditions including current transportation, land use, and program considerations;
- Best practices review of transportation demand management programs and initiatives at other post-secondary institutions across North America;
- Stakeholder consultation to gather the input of staff and students to determine the key transportation issues and to determine what programs should be included in a TDM strategy for TRU. Stakeholder consultation included:
  - Workshop with a TDM Advisory Committee which was comprised of representatives TRU faculty, administration and the TRU Student Union (TRUSU) as well as a representative from the City of Kamloops to identify key transportation issues;
  - Staff and student surveys to understand current transportation issues and the degree to which travel behaviour can change; and
  - Open House at the Old Main building in March 2011 to present information collected to-date and to gather input on what options were likely to succeed.
- Option development and evaluation.

## 1.4 Strategy Outline

This report includes the following sections:

**Section 1 – Introduction** – this section introduces the purpose of the TDM strategy and the process that was used to develop the strategy;

**Section 2 – Summary of Background Conditions and Issues** – this section summarizes the background conditions that support the need for a TDM strategy as well as helping to inform what options should be pursued as part of the implementation of the strategy;

**Section 3 – Goals, Targets, and Guiding Principles** – this section highlights the goals and targets for the TDM strategy and provides guiding principles for the implementation of options;

**Section 4 – Potential Options** – this section summarizes and evaluates a number of potential options to be employed as part of the TDM strategy;

**Section 5 – Option Evaluation** – this section summarizes the option evaluation exercise; and

**Section 6 – Next Steps** – this section provides a brief synopsis of what TRU will need to do to develop an implementation plan.

## 2.0 PLANNING CONTEXT

Both TRU and the City of Kamloops have undertaken many plans and studies that support the development of a Transportation Demand Management Plan for TRU. Understanding the intent of these plans and how TDM complements their implementation will be important to developing a successful strategy.

### 2.1 TRU Planning

TRU has undertaken a number of planning exercises to refine the physical characteristics of the campus. The Campus Master Plan provides the backbone for this planning and has been augmented by the Campus Sustainability Action Plan and the TRU Strategic Plan. All these plans support the TRU TDM Strategy development.

#### 2.1.1 TRU Campus Master Plan

The TRU Campus Master Plan (CMP) was developed in 2003 and forms the basis of planning and development on the campus. It is a visionary document that provides a plan for growth to 16,000 students (approximately double the current population). The vision of the Campus Master Plan describes a place that is unique, inviting, vibrant, and accessible. A key recommendation of the CMP was the development of a Transportation Demand Management Strategy. The following guiding principles that were developed for the Campus Master Plan relate to transportation demand management:

*Integration* – this guiding principle promotes the integration of buildings on the campus to create a sense of cohesion as well as integrating the campus into the broader community. Following this guiding principle will enable a more efficient and accessible transportation network that may make the campus more appealing for alternative transportation.

*Community Leadership* – this guiding principle recognizes that TRU can be a leader in the community. Developing and implementing a TDM strategy will help TRU take a leadership role in reducing greenhouse gas emissions in the community, and promoting the use of alternative transportation.

*Identity and Accessibility* – this guiding principle recognizes the importance of developing a unique and easily accessible campus. A key component is the development of a core area of the campus as well as ensuring that pathways facilitate movement between buildings. This will help ensure that campus users are able to navigate the campus efficiently.

*Sustainable Campus Environment* – this guiding principle recognizes that TRU wishes to create a sustainable campus community environment. In particular, this guiding principle supports alternative modes of transportation including cycling and use of public transit. It also seeks to ensure that parking and vehicle movement will be limited as much as possible to the periphery of the campus.

*Safety* – this guiding principle recognizes the need to create a safe environment for students, staff, and visitors. Developing the infrastructure to enable the safe movement of people throughout campus will be important.

The CMP recommends a consolidated density approach to development. This approach concentrates the development of academic and administrative buildings and other key activities into the core area of the campus with parking and non-academic buildings pushed out to the periphery. In addition, this approach leaves land available for future development for non-institutional uses, thus providing a source of revenue for TRU while at the same time better integrating the campus with general community uses. A zoning bylaw amendment enables TRU to densify its campus by enabling buildings to be up to 12 storeys high and expanding the range of permitted uses including office commercial, multi-family residential, and hotel space.

The CMP made a number of recommendations regarding transportation. **Table 2.2** summarizes these recommendations and the progress that has been made.

**Table 2.2: Progress on Key Transportation Recommendations in the Campus Master Plan**

<b>TDM Measure</b>	<b>Action</b>
<b>Ridesharing</b>	
Carpools	Addition of carpool stalls Rideshare website on TRUSU website
Vanpools	No action taken
<b>Inter-modal Trips</b>	
Park and Ride	No action taken
Bike and Ride	BC Transit has bike racks on every bus TRU has some bike stalls and is expanding
<b>Parking Supply</b>	
Reduced Parking Supply	20% reduction in parking on a proportional basis.
Increased Parking Costs	Increased day rates from \$1 to \$3. Parking operates on a cost recovery basis

**Table 2.2: Progress on Key Transportation Recommendations in the Campus Master Plan (cont'd...)**

<b>TDM Measure</b>	<b>Action</b>
Differential Parking Rates	Pool parking discounts offered
Preferential parking for high occupancy vehicles	Carpool stalls provided in prime location
<b>Promotion of Cycling</b>	
Bicycle facilities at destinations	Started enhancing end-of-trip facilities including showers in new buildings and providing bicycle lockers
Bicycle racks on bus	BC Transit has provided bicycle racks on all buses
<b>TRU Programs</b>	
TDM Administrator	Have hired a Director of Environmental Sustainability
Bus Passes	UPASS provided to all students Some staff are participating in the Pro Pass system
Guaranteed Ride Home	No action taken
Telecommuting	No action taken
<b>Campus Planning</b>	
More on-campus housing	Ongoing – TRU Residence and Conference Centre construct. A 300 – 500 unit residence is planned to be constructed in the future.
Increased campus life activities	Starting on the University Village concept

In addition, the Campus Master Plan indicates that TRU should construct parkades to address parking demands and enable the reduction of surface parking. Four parkades are considered in the Campus Master Plan.

**Table 2.3** summarizes some of the key variables that would influence a TDM strategy based on current and projected conditions.

**Table 2.3: Planning Conditions**

Criteria	Current	Future
# of students	7412 FTE	10,000 FTE (with planned growth to 16,000 FTE)
# of Staff	1100 FTE	
# of parking stalls	2481 total stalls 1663 student stalls (4.5 students/stall) 110 stalls for McGill On-campus Housing	3333 (3 students per stall)
# of on-campus housing units	880	1 unit per 10 students

### 2.1.2 TRU Strategic Plan

The TRU 2007-2012 Strategic Plan recognizes Environmental Sustainability as one of seven distinct strategic goals in working towards establishing TRU as the University of Choice for students. The plan proposes that TRU develop and expand research activities in sustainable technologies and environmental and socially responsible economic development while additionally developing policies and best practices that support environmental stewardship and sustainability within university operations. Furthermore the plan states the University will foster environmental literacy amongst the TRU community to increase environmental awareness while also encouraging the development of partnerships with organizations in support of environmental stewardship. In line with these goals, TRU seeks to be recognized for its leadership and stewardship in responding to environmental challenges.

### 2.1.3 Campus Sustainability Action Plan

The 2010-2012 Campus Sustainability Action Plan identifies transportation impacts as the largest single category pertaining to TRU's ecological footprint, with commuting being the largest contributor. The plan further recognizes that in order to decrease the amount of greenhouse gas emissions from the commuting sector, the university needs to facilitate alternative modes of transportation in collaboration with partners in the public sector.

### 2.1.4 University Village

Recently there has been a desire to transform TRU and the surrounding area into a university village to promote a variety of uses on-campus and in the vicinity of the campus, as per the McGill Corridor/Southgate Project Concept Plan, that would form a more complete community for the people that live there as well as for the general population of TRU and Kamloops. This concept could result in a reduction of trips made by students living in residence as they will have less need to leave campus. In addition, there could be more market housing provided in close proximity to the campus.

## 2.2 Kamloops Planning

The City of Kamloops has undertaken several community and transportation-specific plans over the last few years that are relevant to the TRU TDM Strategy. This has been led by the development of the Sustainable Kamloops Plan, which is a landmark document that provides guidance for how the community can become more sustainable. What TRU does to implement a TDM strategy can greatly impact the outcomes of these plans. Relevant City of Kamloops plans are described in this section.

### 2.2.1 Sustainable Kamloops Plan

In 2010, the City of Kamloops adopted the Sustainable Kamloops Plan which provides guidance for how the community should incorporate sustainability principles into the planning, development and operation of the community. The Plan contained specific guidance on issues of land use, greenhouse gas emissions and transportation. Policies and targets relevant to the TRU TDM Strategy included:

- Increasing to 30% the proportion of trips utilizing alternate modes than single occupancy vehicles;
- Increasing transit ridership by 50%;
- Increasing spending on active transportation facilities and programs;
- Working with major employers to encourage transportation demand management; and
- Reducing greenhouse gas emissions from transportation to 2.4 tonnes CO<sub>2</sub>E/capita.

### 2.2.2 City of Kamloops Transportation Plans

The 2001 McGill Corridor and Southgate Project Concept Plans identify TRU as an important consideration in developing transportation and land use plans for this area of the City. It discusses the necessity of meeting TRUs infrastructure needs, the integration of undeveloped campus lands into the Concept Plan and for design standards to facilitate pedestrian and gateway corridors. It also proposes the development of the transit exchange at TRU, which was constructed in 2003. In a broader perspective, the plan also takes into consideration the high traffic volumes that occur in this area in part due to the university and states the additional need for pedestrian and public transit planning in this area.

In late 2011, BC Transit presented to City Council a draft of the Kamloops Transit Future Plan. This draft plan had a number of recommendations and implementation strategies that impact transit service for TRU. These include:

- Short-term improvements including service level improvements (increased frequencies) on the Gleneagles route and the North Shore TRU Express, along with the investigation of potential relocation options for the TRU transit exchange; and

- Medium-term improvements including the establishment of direct connection between TRU and a new Valleyview transit exchange and enhanced service in the Southwest Sector.

### **2.2.3 Active Transportation Plans**

The City completed its Bicycle Master Plan in 2010 and is currently undertaking its Pedestrian and Trails Master Plans. Each of these plans has indicated that there should be investments in infrastructure leading to TRU. The Bicycle Master Plan indicates connections through Kenna Cartwright Park to TRU which would connect TRU to the Mount Dufferin area as well as a multi-use pathway along McGill Road. In addition, there is a recommendation to construct an overpass of Summit Drive to connect the City's West End with TRU in order to improve safety and mobility for cyclists and pedestrians. The City has commenced pre-design of this linkage. These plans will help to significantly improve infrastructure for alternative modes in the vicinity of TRU and thus could be vital to promoting walking and cycling.

### 3.0 BACKGROUND CONDITIONS AND ISSUES

This section of the report provides a summary of current conditions and issues at TRU as they relate to the functioning of the campus, particularly in terms of transportation infrastructure and services. These background conditions and issues form the backbone for generating options and ultimately developing a TDM action plan.

#### 3.1 Current Conditions

##### 3.1.1 Campus Population

Understanding the campus population in terms of how many people use TRU, and where they live within Kamloops is vital to developing a TDM strategy that responds to the needs of the TRU community.

The campus population consists of the following:

- 7,412 students: 4,744 full-time (64%), 2,688 part-time (36%); and
- 1,107 staff.

(Source: Matthew Kennedy, Institutional Planning and Analysis, TRU)

In the past two decades TRU has evolved from being a community college to achieving full university status, and, as part of the Campus Master Plan, has a goal of enrolling 16,000 students in the future. TRU has been successful in attracting a large number of international students and it is likely that this contingent will continue to form a significant component of the campus population.

An analysis was undertaken to determine where students and staff of TRU live in relation to TRU as this has a significant impact on the travel choices that can be made by the campus population. As can be seen in **Figure 3.1** and in **Table 3.1**, a large number of students and staff live in the Southwest Sector of Kamloops, while the City Centre and the Northwest Sector are also each home to a significant portion of TRU's campus population.

Figure 3.1: Population Distribution by Neighbourhood

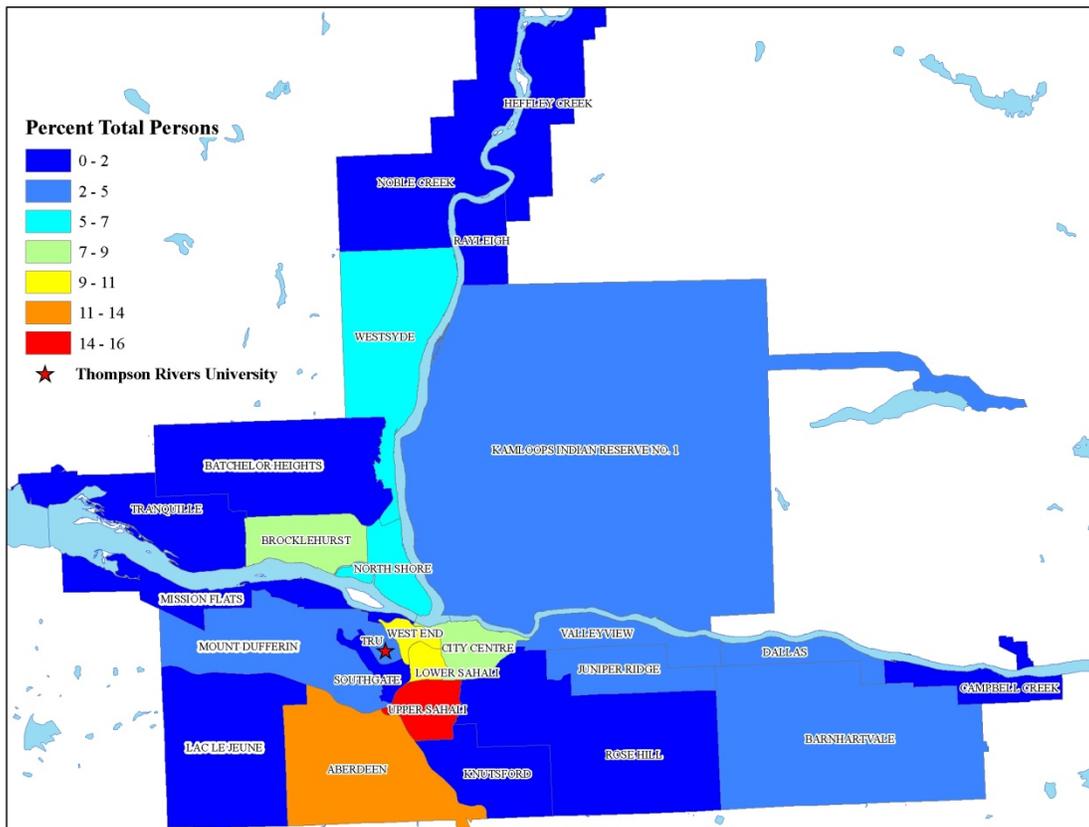


Table 3.1: Population Distribution by Neighbourhood and Sector

Neighbourhood	% of Population	% of Faculty	% of Students
<b>Southwest Sector</b>			
Upper Sahali	15%	16%	14%
Aberdeen	12%	16%	11%
Lower Sahali	9%	6%	9%
Mount Dufferin	2%	3%	2%
TRU	4%	0%	5%
Southgate	2%	1%	2%
	<b>43%</b>	<b>42%</b>	<b>44%</b>
<b>City Centre</b>			
Downtown	8%	12%	7%
West End	9%	7%	10%
	<b>17%</b>	<b>19%</b>	<b>17%</b>
<b>Northwest Sector</b>			
North Shore	6%	4%	7%
Brocklehurst	8%	6%	9%
Westsyde	6%	7%	6%
Batchelor Heights	2%	2%	2%
	<b>23%</b>	<b>19%</b>	<b>24%</b>
<b>Southeast Sector</b>			
Valleyview	3%	3%	3%
Juniper Ridge	3%	4%	3%
Barnhartvale	3%	4%	3%
Dallas	2%	2%	2%
	<b>11%</b>	<b>13%</b>	<b>10%</b>
<b>Northeast Sector</b>			
Tk'emlúps Indian Band	3%	3%	3%
Rayleigh	1%	1%	1%
	<b>4%</b>	<b>5%</b>	<b>4%</b>

### 3.2 Campus Physical Characteristics

TRU's Kamloops campus is located in the City's Southwest Sector in a generally urbanized area. The campus of TRU consists of approximately 89 ha. Approximately half of this land has been developed (buildings, parking lots, green space) with the remaining land, primarily located at the periphery of the campus, being undeveloped. The House of Learning is the most prominent building to be constructed on the campus in the last two years and includes the new library among other uses. The fact that it was constructed within the developed area of TRU contributes to the densification of land use on campus.

While the campus is located centrally within the City, the campus itself is distinct and not well integrated with its surroundings from an urban design perspective (i.e. buildings and key activities are set further back from the public roads). No community roads pass through the campus though there are five access/egress points to the city road network.

The physical characteristics of TRU and its location in the central area of the City, present many opportunities for innovative land use planning, such as the university village concept, to guide growth and development.

### 3.3 Key Campus Activities

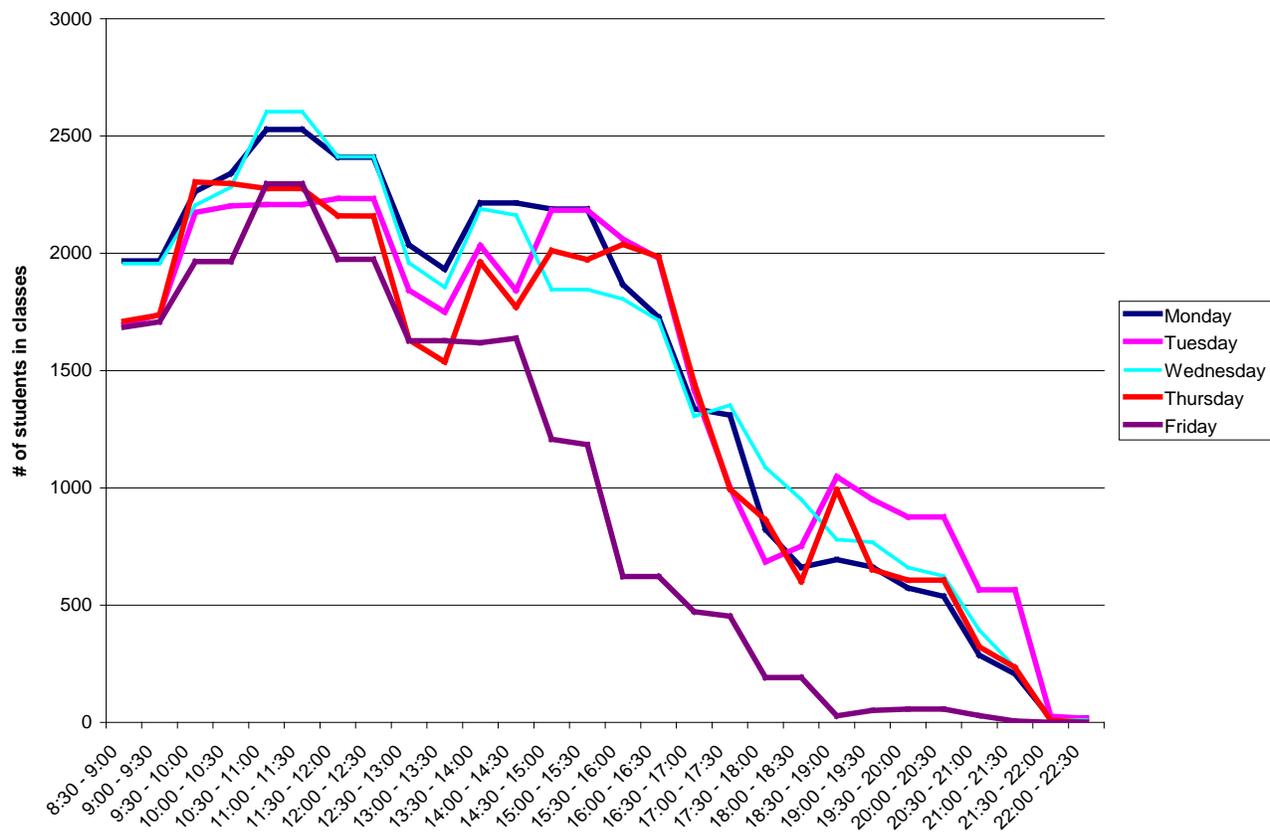
In developing a TDM strategy, it is important to understand what activities take place on campus and when they take place. Given that universities such as TRU have evolved to be much more than academic institutions, it is important to consider all the activities that can take place on campus.

#### 3.3.1 Academic Activities

Like most universities, TRU's peak time for operating is September to April with a slowdown in activity during the summer months. Further, while there are a number of continuing education classes and other community activities taking place at night, much of the academic activity occurs during the day. There are no classes on the weekends at TRU.

Student registration records from 2011 were accessed to determine the number of students enrolled in classes at certain times of the day during the week. As is illustrated in **Figure 3.2**, class enrolment generally peaks between 10 am and 12 pm and generally decreases through the day on each of the days. The largest peaks in enrolment are on Mondays and Wednesdays, when over 2,500 students are enrolled in classes.

Figure 3.2: Class Time Registrations



### 3.3.2 Campus Activities

A key component of the Campus Master Plan was to ensure that the campus integrated well with the surrounding community. While its primary focus was on the development of the academic institution, TRU has evolved to encourage a number of additional uses. Some of these additional uses include:

*TRU Residences and Conference Centre* – the TRU Residence has been utilized extensively as a hotel for people visiting Kamloops as well as providing group bookings for conferences and sports events in Kamloops. A recent example was the use of the residence for the Western Canada Summer Games. This was important from a transportation demand management perspective as it enabled many participants in the Games to walk to their events.

*Meeting Space* – the Grand Hall, the Clocktower Theatre, the Independent Centre and many classrooms provide meeting and gathering space for a wide range of functions – both academic and non-academic. These include conferences, meetings, presentations, trade shows, receptions, and a host of other events.

*Support of the Tournament Capital Centre* – TRU often provides overflow parking for events at the TCC. This availability of the nearby parking offered at TRU enabled the City to reduce the number of parking stalls it needed to construct for the facility. This is particularly beneficial as peak times for TRU and the TCC rarely conflict and thus this maximizes the use of parking infrastructure.

These various uses of TRU's facilities ensure that TRU maximizes the use of its facilities, and enables it to integrate into the community further. This will be further enhanced with the development and implementation of the University Village concept.

While it is important to consider the transportation impacts of these activities, it is also challenging as they are often variable in terms of their size and timing. Further, given that these other activities often occur at non-peak periods for the transportation network and often involve people from out-of-town, it is challenging to develop a series of transportation demand management programs that can effectively respond to the needs of these users. As such, this strategy focuses on peak periods for TRU usage, namely when students are in classes from September to April.

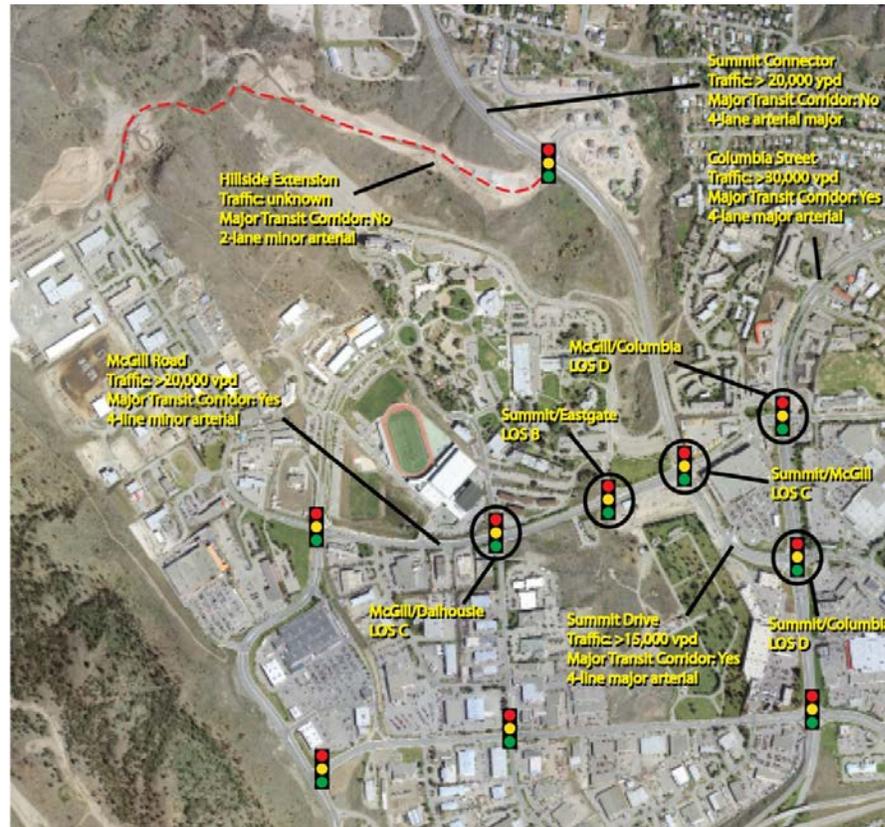
### **3.4 Existing Transportation Services and Facilities**

This section provides a summary of existing transportation services and facilities at TRU.

#### **3.4.1 Road Network**

The road network in the vicinity of TRU is one of the most congested components of the City's overall transportation network at peak times. This is due to the confluence of a number of collector and arterial roadways, significant commercial land use, high amounts of employment in office and industrial complexes, along with the impact of TRU itself. This has led to significant amounts of congestion along corridors and at intersections. Some of this congestion has been alleviated with the opening of the first phase of the Hillside Extension which diverts traffic from Columbia Street to Summit Drive. Key areas of concern are the intersection of Summit/Columbia and the intersection of Summit/McGill where there are significant delays experienced during peak hours. Reducing traffic volumes or reallocating volumes away from peak hours would greatly reduce pressure on the existing transportation infrastructure in the area. **Figure 3.3** summarizes the road network in the vicinity of TRU.

Figure 3.3: Road Network Summary



### 3.4.2 Transit

TRU is one of the key focus points for the Kamloops transit network. Some of the key characteristics of transit system as it relates to TRU include:

- Five bus routes service the TRU campus directly while another route providing service to the Summit/McGill intersection;
- Service begins during the work week at 6:30 am and the service ends at approximately 10:00 or 11:00 pm, depending on the route;
- Transit frequency varies throughout the day depending on the route. The Aberdeen, Gleneagles and North Shore routes generally have 15 minute frequency between 7 am and 9 am as well as from 3:30 pm and 6:00 pm with 30 minute service during the day. In the evening, service is reduced to one hour frequency. The Pacific Way and Pineview routes have 30 minute frequency during the day and one hour frequency in the evening. The peak hours of service do not necessarily correlate well with the peak hours of class times which is generally between 10 am and 12 pm. In general, service that is less frequent than 15 minutes during the day is unattractive to most customers. **Table 3.2** summarizes transit service to TRU.

**Table 3.2: Transit Routes and Frequencies**

Route	Area Served	Peak Period Frequency	Daytime Frequency	Nighttime Frequency
4 - Pacific Way	Upper Aberdeen, Lower Sahali	30 minutes (all day)	30 minutes	65 minutes 7 pm onwards
5 - Pineview	Pineview Valley and Mount Dufferin	30 minutes (all day)	30 minutes	65 minutes 6:30 pm onwards
7 – Aberdeen	Lower Aberdeen	15 minute (7:15 – 9:00 am, 3:40 – 5:40)	30 minutes	65 minutes 6:15 pm onwards
8 – Battle (travels to Summit/McGill)	Downtown, West End	1 hour	1 hour	No nighttime service beyond 6:40 pm
9 – Gleneagles	Upper Sahali	15 minutes throughout day	15 minutes	65 minutes
10 – North Shore Express	North Shore	15 - 20 minutes (7:20 am – 9:10 am, 3:15 pm – 5:15 pm)	30 minutes	No nighttime service beyond 5:45 pm

- Students have access to the UPASS program which provides a significant discount on transit fares and offers other incentives for participants such as a free pass to the Tournament Capital Centre. Users of this program provide approximately 22% of the transit system’s total fare revenue and account for 23% of average ridership in Kamloops. According to a passenger survey undertaken in spring 2008, approximately 2900 trips per day were made by UPASS holders;
- Staff are eligible to participate in BC Transit’s ProPass transit program which offers an annual transit pass for approximately \$44 per month; however the monthly cost for transit is 75% more than the cost for a monthly parking pass, which reduces the appeal of this incentive. The City of Kamloops has recently announced changes to the ProPass system to increase the appeal of participating in this program. Incentives



include reducing the minimum commitment for participation to 6 months; offering a 20% discount for a Tournament Capital Centre pass; and providing a guaranteed ride home once per year. The City also aims to promote the program better to increase the number of users;

- There are eight transit stops distributed throughout the campus and these are located near the periphery of the core campus area which limits the accessibility and convenience of transit. In comparison, a similar sized area in the downtown core is served by 20 transit stops. It is important to note that all major campus functions are located within 400 metres of a transit stop, which is a service standard commonly used by transit planners;
- According to surveys of staff and students, approximately 40% of students use transit as a mode of travel while 30% or less of staff members use transit on a regular basis;
- A key issue for many staff and students surveyed is the frequency and reliability of the transit service. This presents a barrier to increasing ridership; and
- Approximately 56% of staff and 57% of students live within one transit route of the university and do not need to transfer buses in order to travel to campus.

### **3.4.3 Active Transportation**

Active transportation in the Kamloops context generally consists of walking and cycling. Some of the key characteristics of active transportation for TRU include:

#### *Walking*

- While there are generally good pedestrian facilities in terms of sidewalks and pathways on-campus, anecdotally, lighting on some areas of campus could improve. In the area surrounding campus, there are gaps in sidewalk coverage, in particular on Summit Drive and McGill Road. In addition, Summit Drive, north of McGill Road, represents a major barrier to a key pedestrian desire line, namely students walking to TRU from Upper College Heights;
- Approximately 20% of students and 23% of staff live within walking distance of campus (generally a 15 minute walk distance);
- There are not very many programs promoting walking to campus; and
- The Summit Drive Overpass project may help encourage more walking to campus by providing a more direct and safer connection.

#### *Cycling*

- Cycling is not a widely used mode choice for students and staff due to the following:
  - Topography;
  - Lack of cycling facilities leading to campus;

- Weather conditions during most of the year; and
- Lack of end-of-trip facilities such as showers and bicycle lockers.
- The number of staff and students that cycle to campus regularly is negligible;
- There appears to be a desire for more cycling facilities based on the surveys of students and staff;
- Approximately 36% of commuters to TRU live within a reasonable cycling distance of campus (generally within 5 km of campus depending on topography);
- There are several bicycle racks dispersed throughout the campus and there is one bicycle cage located at the east end of the campus;
- Construction of the Summit Drive Overpass would be of great benefit for people travelling to and from the City Centre and the West End; and
- Transit buses in Kamloops are capable of carrying bicycles (2 per bus) which can be a solution to the topography issues experienced in Kamloops.

#### 3.4.4 *Carpool*

TRU established a carpool program to meet the demand from students and staff for such a program. Some of the key characteristics of carpooling at TRU include:

- TRU has a carpool program that offers a 50% discount on parking passes for participants and provides access to 'prime' parking stalls located in a parking lot near the Old Main building. In order to participate in this program, there must be at least two participants per vehicle per pass. There are currently no restrictions on people living in the same house participating in the program (i.e. couples are allowed to participate);
- 
- There are currently 37 carpool spots (including 30 for students and seven for staff). There are approximately 20 students on the waitlist to participate in the carpool program while the staff carpool allocation is currently undersubscribed;
  - The TRU Student Union (TRUSU) operates an online rideshare program that, based on anecdotal information, is currently not well utilized; and
  - Surveys of students and staff indicated that, while there was interest in carpooling, the program has not been well promoted and many students and staff were not aware of the program. In addition, having parking stalls distributed throughout campus may make the program more attractive.

### 3.4.5 Parking

How parking is provided is a major issue for the development of a TDM plan. In general, plentiful and cheap parking places few deterrents on driving to campus. Key characteristics of parking at TRU include:

- TRU currently has 2,481 parking stalls, all in surface parking lots;
- Staff have 520 dedicated parking stalls. In addition to the ability to park in these stalls, they can park in any of the parking lots on campus;
- There are also 110 parking stalls allocated for the McGill On-campus Housing complex which is not included in this total and is not controlled by TRU;
- Parking lots utilize approximately 17% of the developed land area at TRU;
- A disproportionate share of parking stalls (approximately 25%) are allocated exclusively to faculty and staff, though this is to be expected as staff are often times expected to be on-campus 5 days per week whereas students have a more irregular schedule;
- A number of staff members have reserved parking stalls as do students living at the McGill On-Campus residence;
- Anecdotally, it has been noted that there are times when people attending facilities at TRU will park in some of the parking lots at the businesses that surround TRU either to avoid paying parking fees or due to a lack of parking at TRU;
- TRU has fewer parking stalls per student than other comparable universities. In comparison to other universities, daily parking rates at TRU are the lowest for the universities used for comparison while parking for the academic year is also low compared to some of the other universities used for comparison, particularly for staff parking. This information is summarized in **Table 3.3**.



**Table 3.3: Total Parking Stalls Per Student at Select Universities**

School	Students	Parking Stalls	Students / Stall*	Day Rate	Staff Pass (Sept. 1 – April 30)	Student Pass (Sept. 1 – April 30)
TRU	7,412	2,481	3.0	\$3	\$200	\$300
Regina	10,014	3,168	3.2	\$8 - \$10	\$280 (additional fees for electrical stalls)	\$280 (additional fees for electrical stalls)
Lakehead	8,287	4,120	2.0	\$5	\$220	\$164
UNBC	2,699	1,603	1.7	\$3 (24 hour enforcement)	\$358	\$358
Trent	6,672	2,140	3.1	\$6	\$338	\$338
Lethbridge	8,403	3,557	2.4	Rates not available	\$232 - \$308	\$232 - \$308
Victoria	14,005	4,114	3.4	\$7	\$544	\$544

\*This calculation summarizes the total number of parking stalls, regardless of allocation, divided by the number of students on-campus.

- Daily parking costs at TRU are inexpensive a \$3 per day. Semester parking passes for students are \$150, while staff parking passes are \$25 per month. In downtown Kamloops, parking costs are \$5 - \$8 per day and a monthly pass is \$65 - \$75 depending on the lot that is used; and
- Based on a parking lot survey undertaken in January 2011, the busiest time for parking are Monday and Wednesday mornings between 10 am and 12 pm. Rarely did parking capacity fall below 10% (i.e. most times, more than 10% of parking stalls were unoccupied).

### 3.5 Factors Influencing Transportation Demand

There are several factors that influence transportation demand at TRU. These include:

- Parking costs
- Transit frequency, reliability and cost
- Proximity of student/staff to campus
- Class times

This section summarizes how each of these factors influence transportation patterns to and from TRU.

#### 3.5.1 *Parking Cost*

Parking costs influence how people travel to campus. Cheaper parking costs make driving more attractive and according to the Victoria Transport Policy Institute, there is a strong linkage between parking cost and parking demand. Current conditions at TRU include:

- Parking at TRU is significantly cheaper than transit costs for staff (approximately 75% higher). While parking costs significantly more than a UPASS, the daily and weekly rates for parking are likely not a significant deterrent to driving at this point;
- Driving to campus is quicker, more convenient, and cheaper for staff (parking cost vs. transit costs) than taking transit or other modes; and
- Staff currently pay significantly less than students for parking.

#### 3.5.2 *Transit Issues*

There are a number of issues with transit that form barriers to people using the service. These issues include:

- Poor reliability and frequency of transit is often seen as a significant deterrent to taking transit;
- Some routes that service the Southwest Sector involve one-way circuitous routing which means that one leg of the trip, either to or from campus, is significantly longer than the other. This is particularly an issue on the Aberdeen and Gleneagles routes; and
- Transit facilities on-campus are not ideally located and transit service does not penetrate campus, thus reducing accessibility and convenience of transit.

### 3.5.3 Proximity of Student/Staff Homes to Campus

How close people live to the TRU campus will greatly influence the transportation options that are available. Some important issues to note include:

- TRU currently has on-campus housing space for approximately 880 students. **Table 3.4** summarizes residence space at selected universities.

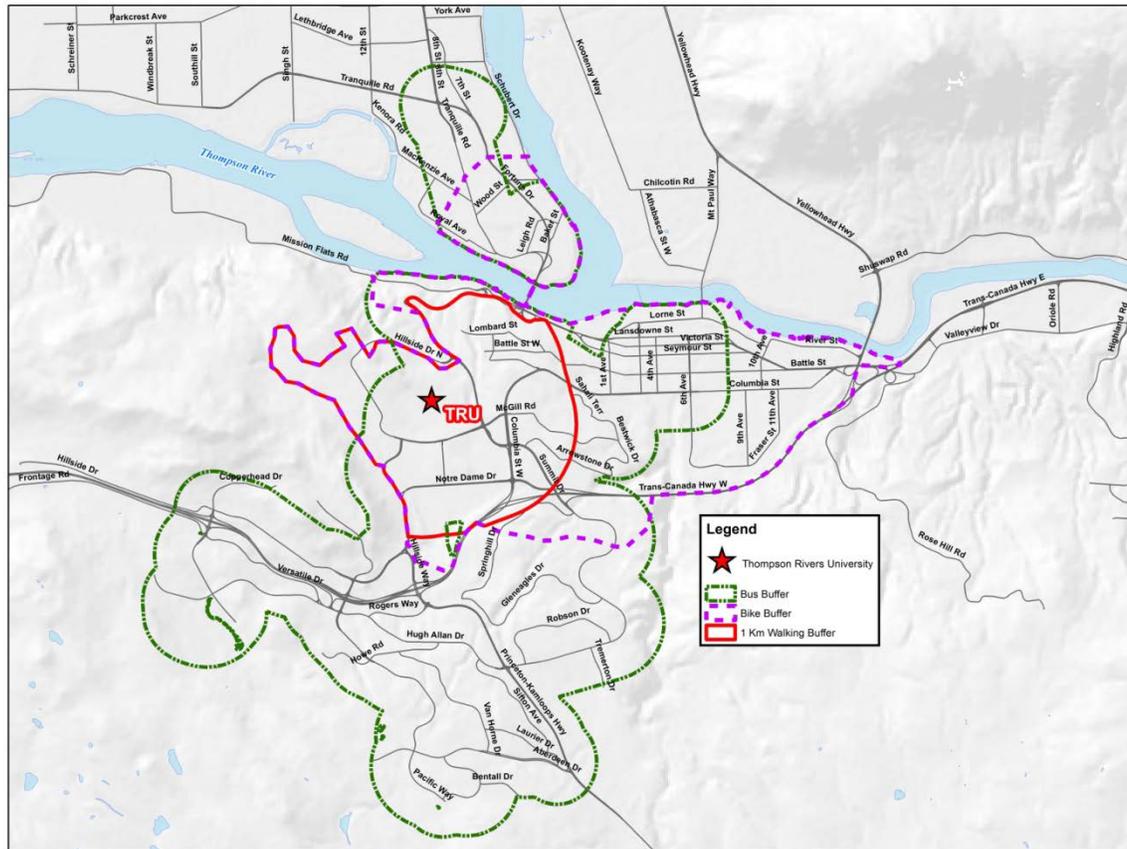
**Table 3.4: Residence Spaces Per Student at Selected Universities**

School	Students	Residence Spaces	Students/Residence Space
TRU	7,412	880	8.4
Regina	10,014	1,200	8.3
Lakehead	8,287	1,180	7.0
UNBC	2,699	522	5.2
Trent	6,672	1,250	5.3
Lethbridge	8,403	686	12.2
Victoria	14,005	2,300	6.1

As can be seen, TRU has fewer residence spaces per students than most of the universities in this selective comparison. Even the TRU planning target of 1 residence space for every 10 students would result in TRU providing fewer residence spaces than the other universities in this comparison:

- A large number of staff and students live relatively close to campus in the neighbourhoods of Sahali, Aberdeen, West End, and Downtown;
- Approximately 56% of all the campus population live within one transit route of campus;
- Approximately one quarter of students live within walking distance, and more than one third within biking distance of campus; and
- Densification of residential neighbourhoods in the vicinity of TRU could lead to more people living within close proximity of the campus. **Figure 3.4** illustrates the potential commuter options for people living within proximity of the campus.

Figure 3.4: Commuter Shed

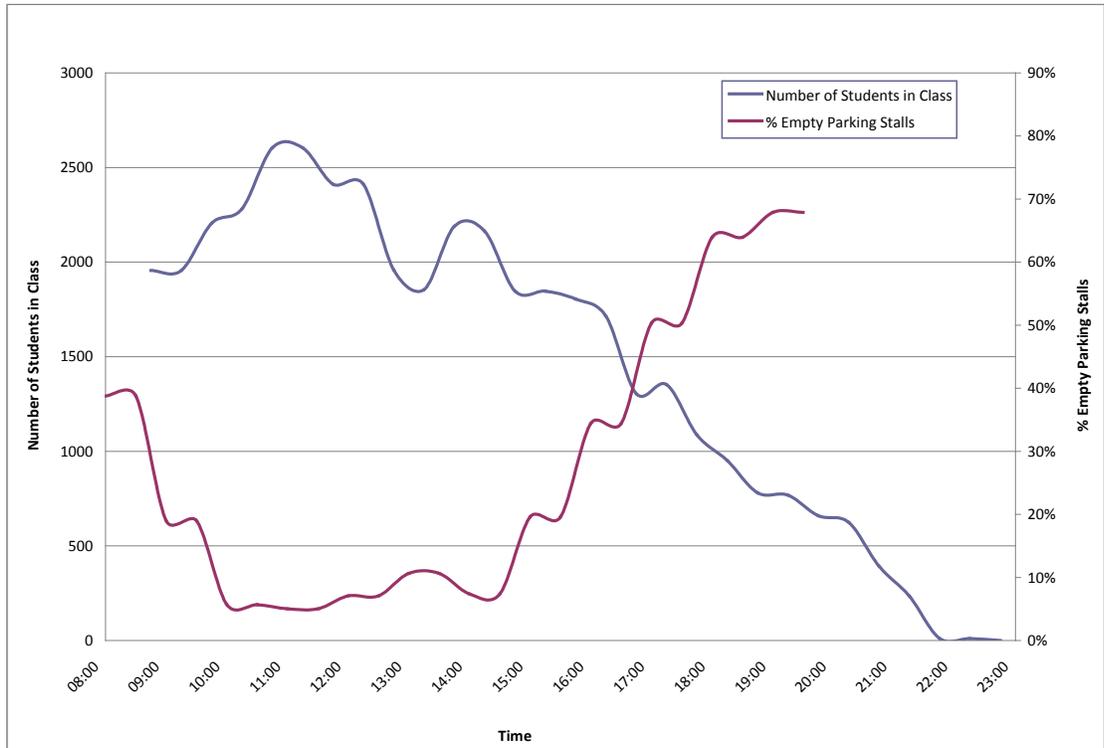


### 3.5.4 Class Times

The number of students in class at any one time will greatly influence transportation demand at various points during the day and week. Some key characteristics of student class times include:

- Class times are not evenly distributed throughout the week;
- The highest frequency of scheduled class time is on Mondays and Wednesdays between 10:00 am and 12:00 pm;
- Heavier class times correlate with parking congestion as parking stall vacancy rates often dip below 10% during the peak hours of class; and
- More evenly distributing class times could moderate transportation demand. **Figure 3.5** summarizes parking demand for TRU in relation to the number of students registered for a class on a peak day.

Figure 3.5: Students in Class and Parking Stall Availability



## 4.0 GOALS, TARGETS AND GUIDING PRINCIPLES

This section of the report summarizes the goals, targets and guiding principles moving forward with the implementation of the transportation demand management strategy. These goals, targets and guiding principles were developed in consultation with the TDM Advisory Committee, and surveys and open houses targeted at the staff and students. In addition, the TRU Strategic Plan, the Campus Master Plan, and the Campus Sustainability Action Plan informed these goals, targets, and guiding principles.

### 4.1 Goals

The primary goal of the TDM strategy is summarized as follows:

*TRU will increase the number of people utilizing the TRU campus while at the same time decreasing the number of passenger vehicles being used to travel to and from the campus.*

Supporting goals include:

- *Optimizing the use of resources to facilitate access to the campus;*
- *Supporting sustainability by making transportation options other than single occupancy vehicles more attractive; and*
- *Educating students and staff on the benefits of pursuing a transportation demand management strategy and promoting more sustainable modes of transportation.*

### 4.2 Targets

TRU would like to be ambitious in terms of reducing transportation demand. TRU will attempt to achieve the following target:

*Increase the mode share of alternative modes of transportation (use of transit, cycling, walking, carpooling) to 65% of trips to/from campus between 7 am and 7 pm, Monday to Friday during the Fall and Winter semesters by 2020.*

*The University of Victoria has established an alternative transportation target of 70% by 2014.*

Currently this rate is approximately 25%. For context, the City's Sustainable Kamloops Plan has established a target of 30% of all trips being made by alternative modes by 2020. Thus, achieving a 65% mode shift to alternative transportation would greatly assist the City in achieving this goal while putting TRU in a leadership position on a key community sustainability issue. In addition, achieving this goal would position TRU as one of the leaders in BC, and perhaps, nationally, in terms of reducing its transportation impacts. It is in line with goals for environmental sustainability established in the Strategic Plan, and the Campus Sustainability Action Plan.

#### 4.2.1 How to Achieve Targets

While achieving a 65% target for alternative modes of travel is ambitious, it could be achieved over the long-term if the actions of this strategy are implemented and the use of alternatives are maximized. The rationale for this target is summarized in **Table 4.1**. To provide context total one-way trips were estimated using the following assumptions:

##### Students

- Total number of students – 10,000
- Total days on-campus per week – 4
- Average trips per day (one-way) – 1.25
- Total person trips per day (one-way) 10,000

##### Staff

- Total number of staff – 1,500
- Total days on-campus per week – 4
- Average trips per day (one-way) – 1
- Total person trips (one-way) – 1200

**Table 4.1: Target Rationalization**

Activity	Assumptions	Portion of Trips	Total Trips (based on 10,000 Student Trips and 1200 Staff trips)
Realization of the McGill Corridor/Southgate Project Concept Plan	The first two Landmark Heights buildings will be constructed by 2012 and will include 77 units, including 11 bedrooms. Eventually, a larger residential tower is planned which would include more than 200 units along with other residential development along McGill Road. If 112 students/staff live there, they will be within walking distance of the campus	1%	112
On-campus Housing	The Campus Master Plan has a target of 10% of students living on-campus	10% (of student trips only)	1,000
Transit	Assume that various improvements to transit combined with parking increases dramatically increase ridership	40%	4,480

**Table 4.1: Target Rationalization (cont'd...)**

Activity	Assumptions	Portion of Trips	Total Trips (based on 10,000 Student Trips and 1200 Staff trips)
Walking	Improvements including the implementation of the City's Pedestrian Master Plan along with construction of the Summit Overpass will make walking more efficient and safer.	13% (not including trips generated from the McGill Corridor/ Southgate Project Concept Plan)	1,456
Carpooling	Assume 75 student parking stalls and 15 staff parking stalls dedicated to carpool. Assumes that the carpool program is better promoted, and better enforced. Also assumed 2 people per vehicle	1 – 2 %	112
Cycling	Assumes that the City bicycle and trails networks are further developed in the TRU area including the Summit Overpass. Also assumes better end-of-trip facilities on-campus	1 – 2% (will vary seasonally)	112
Telecommuting	Assume that 5% of staff trips are made by telecommuting		60
Single Occupancy Vehicles		30% of trips	3920

While the targets established in **Section 4.2** are ambitious, they could be achieved due to a mixture of the following:

- There is institutional support for TDM as expressed through the Campus Master Plan, the Strategic Plan, and the Campus Sustainability Action Plan;
- TRU's location is generally well suited for alternative transportation and there are a substantial number of residential units in the neighbourhoods that surround TRU;
- The campus is positioned to be well serviced by transit – approximately 55% of TRU's population already live within one bus route of campus; and
- Students and staff are likely a more receptive audience to TDM strategies than the general public.

### 4.3 Guiding Principles

The following are guiding principles for the implementation of the Transportation Demand Management Strategy and are based on input from the Advisory Committee as well as information gathered from surveys of staff and students:

***The TDM strategy will support TRU's Strategic Plan, Campus Master Plan and the Campus Sustainability Action Plan*** – the 2007 – 2012 Strategic Plan is an important guiding document for how TRU will operate and market itself in the future. One of the key tenets of the Strategic Plan is that TRU will be a university of choice for environmental sustainability. The 2003 Campus Master Plan is a key guiding document for the development of the TRU campus. The TDM plan and its implementation measures will support the intent of the plan which envisions the TRU campus as having up to 16,000 students enrolled. The Campus Sustainability Action Plan (CSAP) has many goals for reducing the campus' ecological footprint. Completing a TDM plan is one goal of the CSAP. However, the TDM plan will support other initiatives of the CSAP such as maintaining green space, and becoming a carbon neutral campus.

***The implementation of the TDM strategy will be proactive and take a long-term view*** – while there are immediate concerns that the TDM plan needs to address and find solutions for, it is critical that the TDM plan have a long-term view which recognizes key trends in transportation demand management.

***TRU will work with the City of Kamloops and other stakeholders to implement initiatives that have a common interest*** – a number of initiatives that will be implemented as part of the TDM strategy will either directly or indirectly relate to a number of initiatives that the City is undertaking. At a broad level, the TDM strategy supports the Sustainable Kamloops Plan and KAMPLAN – the Official Community Plan. Further, it directly supports the implementation of the Pedestrian, Trails, and Bicycle Master Plans as well as the Transit Business Plan.

***TRU will balance disincentives with incentives*** – the TDM plan will include a mix of disincentives (i.e. increase in parking costs) as well as incentives (i.e. enhanced ProPasses). It is important that these disincentives are well balanced with incentives to ensure that sufficient options are provided to students and staff to avoid the disincentives where possible.

***A flexible range of transportation options will be provided*** – TRU will seek to promote a number of alternative transportation mode choices. This will enable people to align their transportation needs to the transportation options available.

***Educating the campus population on TDM measures will be a component of the implementation of the strategy*** - this strategy, and its implementation, will educate the campus population on the various facets of the benefits and costs of the various means of moving to and through the campus. Critical to this will be promoting the benefits of alternative transportation on an individualized basis

***TRU will be a leader in the community*** – TRU will be an example for the City, other institutions and large employers in Kamloops, and to the community in general for addressing transportation in a more sustainable and attractive manner. It will also be a leader in implementing the City's Sustainable Kamloops Plan.

## 5.0 POTENTIAL OPTIONS

Several options have been developed to manage transportation demand to and from the campus. These have been developed based on the goals, targets and guiding principles established in **Section 4.0** as well as the best practices review and survey of students and staff. At a broad level, these options fall into two main categories of options to reduce transportation demand. The first category of options is aimed at reducing the need to drive by improving alternative transportation options. The second category of options is aimed at making driving a single occupancy vehicle less attractive. The various options that fall within these two categories must work in tandem in order to achieve the target established in **Section 4.2**. Currently, alternative transportation cannot compete in terms of convenience, nor, in the case of transit, in terms of cost. Driving a car to campus is convenient, cheap, and more efficient than using an alternative mode of travel. A third category of options aims to better balance and distribute transportation demand temporally to make better use of transportation facilities and thus does not necessarily result in reductions in the number of trips to/from TRU.

This section of the report reviews the potential options that TRU can pursue to implement the TDM strategy.

### 5.1 Options to Increase the Attractiveness of Alternative Transportation

There are a number of potential options that can increase the attractiveness of alternative transportation, and therefore increase its use relative to single occupancy vehicle travel. Options generally relate to improvements in services and infrastructure for transit, active transportation, and carpooling. In addition, there are a number of supportive policies and programs that could make alternative transportation possible.

#### 5.1.1 *Transit*

As indicated in **Section 4.1**, transit will need to take the bulk of the alternative transportation demand in the future. Already, approximately 56% of the campus population lives within one transit route of campus. In order for transit to take the bulk of alternative transportation demand in the future, the transit system will need to evolve to become a more attractive service. Transit options are focused mainly on improving transit service to and from campus, by ensuring transit is more reliable and more frequent. TRU will need to work with the City of Kamloops and BC Transit to explore and develop these opportunities. TRU may want to consider leveraging some of its funding for environmental initiatives to help expedite the implementation of these options. Options include:

***Work with BC Transit and the City of Kamloops to increase frequency of bus routes serving TRU*** – Increased frequency of transit service will improve the accessibility and convenience of the system. If routes serving the campus were increased to 15 minute frequency during the day and 30 minute frequency at night, it would make the service more attractive by increasing the convenience of the service. It is important to note that service level improvements are recommended in the Kamloops Transit Futures Plan, including significant improvements to the Gleneagles and North Shore TRU Express routes.

***Support BC Transit and the City of Kamloops in providing real-time information on transit service*** - Real time information on the predicted arrival and departure of buses, similar to what is offered by the Nextbus system implemented in some American cities, would help improve the perception of transit reliability and would greatly improve the convenience of the system. Integrating satellite technology and advanced computer modeling, buses equipped with global positioning systems (GPS) can be tracked on their routes, in which the information becomes accessible to anyone with access to a computer, cell phone or land line. The system can be integrated with smart-phones, PC's, cell phones, and landlines by calling or searching bus stop ID numbers. This technology will increase the attractiveness and reliability of using the bus as exact timing information will minimize uncertainty and allow users to optimize their time. Given the proliferation of cell phone and smart phone technology amongst students, this system could be widely used and may mitigate the need, in the short-term, for increases in route frequencies as users can better plan their trips and avoid long waits at transit stops. This technology has been used in places such as Thunder Bay, Toronto, Laval, Guelph, and Saint John.

***Review potential of greater transit infiltration of the campus and review moving some transit stops*** - TRU's transit exchange could be potentially moved closer to the core, adding more stops centrally within the campus. This would provide better accessibility to all areas on campus, making transit a more convenient option for people. This is particularly relevant if transit users must carry large back packs or books. It is important to note that the Kamloops Transit Future Plan recommends working with TRU during the campus plan update to improve transit accessibility on campus.

***Provide more secure and comfortable transit stops on campus*** - Better designed transit shelters would potentially increase the attractiveness of transit on campus. More secure (i.e. more lighting) as well as more comfortable (i.e. heated/wind protection/seating) transit shelters could be installed. This would make waiting for transit while on campus more palatable.

***Develop an employee transit pass system*** – TRU could build on the City's Pro-Pass and develop an employee transit pass system similar to the student U-Pass which combines a low transit cost with incentives. Potential incentives for taking transit (i.e. Tournament Capital Centre pass, guaranteed ride home) will increase the attractiveness of the pass, encouraging staff to use transit. Further, TRU should explore how to better market the Pro-Pass program to its employees. Providing information on the Pro-Pass program through employee pay-stubs or through the employee email list would also increase the awareness of the program. In addition, TRU could explore the potential of subsidizing transit passes for its employees. This would make transit more cost competitive with the cost of parking, which will be critical to influencing employees to use transit. The University of Victoria has also developed a transit pass program for employees which entails selling a discounted transit pass to employees, which is significantly less than the Pro-Pass offered by the general Victoria Regional Transit system. In the first year of offering these transit passes, approximately 350 people purchased these passes, though it is important to note this program was offered after substantial increases in parking rates.

***Ensure two way transit routing through the Southwest Sector*** - Certain transit routes in the Southwest Sector of Kamloops are not two way to TRU, resulting in longer trip lengths for one portion of the trip (either to or from campus). Many students and staff live within this area (over 40% for each population group), and thus many experience short trips one way and a longer trip the other way, which greatly reduces the convenience of transit. For example, a person living at Springhill Drive/Gleneagles Drive would have a 20 minute bus ride in the morning and a 10 minute bus ride in the evening using the Gleneagles route. In another example, if someone needed to catch the bus at Aberdeen/Greystone, it would take 9 minutes to get to TRU and 19 minutes to get back from school. Implementing more two-way bus routing throughout the Southwest Sector will increase the attractiveness of transit in this key area for TRU.

***Add direct connection from Valleyview to TRU*** – A direct connection from Valleyview to TRU would make transit more attractive for people living in East Kamloops. Approximately 11% of the campus population lives in this area. Currently, it would take someone 22 minutes to travel from Valleyview Square to TRU. This could be reduced significantly if there was a direct bus from the Valleyview Square area to TRU. It is important to note that the Kamloops Transit Future Plan recommends service improvements between Valleyview and TRU.

***Ensure good coordination for North Shore routes with the TRU-North Shore express –***

Currently two buses connect directly with the North Shore – TRU express at the North Shore exchange – the Westsyde # 3 and the Tranquille # 1. Generally, there is good coordination between the North Shore routes and the TRU Express. However, there are periods of the day where the difference between bus arrival and departure can exceed 10 minutes. Conversely, there are periods of the day when the arrival times for these routes is very tight which could lead to users missing transfers if there are any delays. Anecdotally, it has been mentioned in surveys that this is a key deterrent from using transit for TRU students and employees. In order to attract more users who require transfers on the North Shore, it will be important to maintain a high level of reliability. This will be improved as BC Transit and the City look to make service level improvements on the North Shore.

***Develop a park-and-ride program –*** A park-and-ride service could be attractive from both Valleyview and the North Shore and could utilize surplus parking in the surrounding areas of key transit nodes (i.e. Northhills Mall, Valleyview Shopping Centre). Participants would park their vehicles at a distant location lot and connect with a transit bus travelling to TRU. This would be particularly beneficial to people who want to avoid bus transfers or come from areas with less transit coverage (i.e. Dallas, Barnhartvale, Campbell Creek).

**5.1.2 Carpool**

Carpool strategies at various universities were reviewed and a consistent measure seen was to provide separate, preferential parking for people participating in a carpool program. The University of Victoria, University of British Columbia, University of Guelph, and Queens University employ carpooling programs and incentives to encourage more efficient travel among the students and staff. A brief description of these programs is below:

**University of Victoria (UVIC)** is supportive of carpooling as carpool participants receive the benefit of the best parking stalls on campus at all times. In order to be eligible for carpool parking three or more vehicles owners who live at different addresses must be registered and apply for the carpool permit together (<http://www.uvss.uvic.ca/advocacy/sustainability/transportation-alternatives/#carpooling>). UVIC also offers ride share, which is a more flexible alternative to carpooling. Three individuals per vehicle are still required, however with ride share participants can change the people in the vehicle and the participants do not need separate vehicles and are not required to live at separate addresses. Ride share vehicles receive preferential parking between 7:00 am and 10:00 am, after which the spaces open up to the general public.

**The University of British Columbia (UBC)** is also active in promoting carpooling, as any vehicle with two or more people qualifies to register for carpool spaces. Every parking lot has reserved carpool spaces, and UBC's carpooling has increased from 10 to 40 spaces in the past year (<http://web.ubc.ca/okanagan/operations/parking/parkingspots.html>). UBC allows individuals to register multiple vehicles on one parking pass, meaning carpoolers can take turns driving while only paying for one parking pass. The reserved parking spots are in parkades around the campus, with some locations reserved for carpoolers until 9:30 am. UBC promotes an online match site called Ride Share, where individuals can sign up online and match up with other users for carpooling in reference to days and times they will be driving or needing a ride (<https://ubc.ride-share.com/en/my/index.php>).

**Queens University** classifies carpooling as two or more people (<http://www.queensu.ca/pps/parking/carpool.html>). Individuals using carpool must apply together to receive a permit which can be registered to all of the participants' vehicles. A major incentive for carpooling is the 25% reduced parking pass rate. A potentially greater incentive is the reserved parking the vehicle receives if it has three or more occupants. Similar to applying for a regular parking permit, place of residence becomes important with participants living farthest from the university receiving priority for carpool permits.

**University of Guelph** has also established a carpooling program. The University of Guelph requires at least three individuals in a carpool share, and members must commit to a carpool for a minimum of a semester. Members are specific to the one parking pass, and cannot be included in more than one carpool share. The parking pass is not discounted, but instead each student splits the price of the one pass, so the more people in one vehicle the more cost efficient the parking pass is. The vehicles receive priority parking choices in two different lots. The University of Guelph recognizes that individuals may have to travel without their carpool on occasion, and therefore offers each carpool member three free parking days (<http://www.parking.uoguelph.ca/Forms/carpooling.pdf>).

Options to improve the carpool program at TRU focus on expanding the capacity of the current carpool program, improving incentives, and changing where carpoolers can park. Methods to improve carpooling to and from TRU include the following:

***Continue to expand the carpool program*** - This would focus on expanding the enrolment in the current carpool program by continuing to offer discounted parking passes for participants in the short-term and continuing to promote the carpool program. New stalls should be added as demand warrants. Carpool parking passes should increase in price at the same rate as regular parking passes in the short-term while in the long-term the discount should be phased out for carpools that only include two participants but should remain for carpools that include 3 or more people. A target audience for the expansion of the carpool program should be people that live together (i.e. couples, roommates) as they are likely to utilize the program and not abuse it.

***Distribute carpool parking stalls throughout campus*** – This would involve reviewing the potential to redistribute the carpool stalls from one single lot location at the campus core to various lot locations around campus to make carpooling more convenient for people whose activities are generally concentrated in buildings at the periphery of the core area. For example, while students or staff whose activities predominantly take place at the Trades and Technology building can take advantage of a discounted parking pass by participating in the carpool program, they really do not get great locational benefits as the carpool lot is over 300 metres away from the building. Having visible carpool spots located in closer proximity to key buildings on campus could make the program more attractive.

***Encourage more people per vehicle to participate in the carpool program*** – While the current policy of having two participants in the vehicle would remain, providing more incentives for increasing the number of participants per vehicle would encourage higher vehicle occupancy and would reduce parking demand. This would be accomplished by phasing out the discount for carpools that only include 2 people, but leaving the discount in place for carpools that include 3 or more people.

***Promote and enhance rideshare program*** - The current rideshare online match program operated by the TRU Student Union (TRUSU) is not well known or used at TRU. Expanding this web-based program will facilitate carpool usage by providing fast and easy information for those looking to share rides in certain areas of the city.

***Develop vanpool program*** – A vanpool program could potentially consist of a TRU owned van being provided to employees that choose to carpool together with 5 or more occupants. Given that there are many people that live within close proximity of one another, such a program could be attractive.

### **5.1.3 Active Transportation**

Active transportation options seek to encourage walking and cycling to and from campus by improving the end-of-trip facilities on campus while encouraging the City of Kamloops to improve the bicycle and pedestrian infrastructure that serves TRU. As mentioned, approximately one-third of students live within an acceptable distance for cycling while one-quarter of students live within walking distance. Options to improve active transportation at TRU include the following:

*The Summit Drive Overpass would provide a connection generally from the Upper College Heights area to the TRU campus. Depending on the ultimate location, it could reduce the distance traveled by several hundred meters and improve pedestrian safety, and reduce pedestrian/vehicle conflicts which contribute to traffic congestion in the area.*

**Improve bicycle and pedestrian facilities in the area** – there are notable gaps in bicycle and pedestrian facilities in the area. Completing sidewalk coverage, adding the Summit Drive Overpass, and generally improving linkages into the campus for cyclists and pedestrians will create a safer and more attractive environment for active transportation. TRU will need to work with the City of Kamloops to ensure these facilities are advanced. TRU could potentially expedite some of these improvements by covering a portion of the funding required for construction.

**Provide better bicycle security** – Bicycle racks around campus are not well situated and are either not convenient or not secure. Better facilities, such as bicycle lockers, more widely disbursed throughout the campus, will improve bicycle security. The **University of Victoria (UVIC)** has introduced many measures to promote bicycle use and improve cycling on and around campus. UVIC has 92 bike lockers available for rent for \$32 per semester (<http://web.uvic.ca/uvbikes/pages/bikelockers.html>). Bicycle safety and theft prevention literature is provided at UVIC's information kiosk at the University Centre and through Campus Security Services as well as through campus publications (<http://web.uvic.ca/vpfin/financialplanning/campusplanning/Section1TDM.pdf>).

**Provide shower facilities throughout campus** – Currently the only shower areas are in the gymnasium and the House of Learning. Increased and better access to shower facilities within buildings at TRU would make cycling more feasible.

**Review potential for student lockers throughout campus** – Small student lockers are available within the student union building and Old Main. Having lockers available in more buildings would enable more convenient storage for students and thus provide some end-of-trip facilities for students.

**Add a bicycle tune-up station** - Bicycle tune up stations are a popular and common way of encouraging biking as a form of active transportation on university campuses. While UBC and other universities have student run bike repair shops on campus, other universities are experimenting with a 'do it yourself' tune up center. An example of a station consists of several simple tools to aid bike tune-ups, such as wrenches and screw drivers, and even consists of a hand-operated air pump. TRU could add a station on campus to help with these types of repairs. UBC's Bike Co-op controls a "Bike Kitchen" for anyone on campus. It is a full service, student operated non-profit bike shop on campus where users can fix their bike with tools, buy a refurbished bike or donate their old bike, learn to fix their bike, or pay for bike repairs. The Bike Kitchen also offers Saturday courses teaching how to do bike tune ups.



#### 5.1.4 Programs and Policies

Programs and policies do not relate directly to the transportation infrastructure itself, but rather are meant to reduce transportation demand by changing programs and policies. Programs and policies to encourage alternative mode usage include:

**Facilitate telework for staff** – A change in policies and implementing appropriate technology, such as virtual private networks (VPNs) could potentially enable some TRU staff to work from home 1-2 days per week. This will help to decrease number of staff traveling to the university. In surveys of staff, this was recognized as a desirable option.

**Offer a guaranteed ride home program** - Guaranteed ride home is a safety option, and will encourage alternative mode usage for individuals who would like to use alternative modes but would prefer to have their car in case of a personal emergency. It involves the reimbursement of taxi fare by the university for individuals that take alternative modes but must leave the university in an emergency. Emergencies include sickness, family illness, or other unexpected occurrences, however do not include cancelled class, missing the bus, etc. This is a program already used by some universities, including UBC, which offers a 90% reimbursement for commuters who take vanpool, carpool, bike, walk, or transit and require a ride home in the event of an emergency.

**Establish a fleet car program for staff** - Fleet car programs involve a university owned vehicle that individuals can take advantage of for personal or business use from the university. This potential option is attractive for those who are able take alternative modes to school, but may need to do errands or jobs off of school campus during work time hours. This approach is used at the UVIC, which operates a car-share program for four vehicles, which is available for all members of the campus community excluding first and second year students. The UVIC car-share program requires a membership fee of \$400, and ongoing fee of \$0.35 per km and \$2.00 an hour when using the car.

TRU could also incorporate a carshare system to augment the vehicle fleet and make vehicles available to all staff and students. One option to consider is ZipCar, which is a membership-based car sharing company whereby members of the car share pay a one-time application fee, an annual fee, and a per use fee. Zipcar offers a specific program for universities, promoting it as a sustainable alternative transportation solution and its contribution in reducing demand for on-campus parking. It is accessible to all staff and students. Having such a system in place may help students and staff forgo owning a vehicle, particularly if they can rely on alternative modes for the bulk of their travel.

**Expand daycare program** – Expanding the daycare program on campus would increase the ability for transit use for parents at the university as it would decrease stops needed to be made before or after being at the university to drop off and pick up children, thus making transit a more convenient option.

***Encourage more people to live within the commuter shed*** – TRU should examine ways of encouraging more students and staff to live within the commuter shed. Options include building more residence spaces, in keeping with the recommendations of the Campus Master Plan, as well as providing incentives for people who live within the commuter shed (i.e. discounted transit passes). It is important to note that TRU has made some impact in this regard already by developing the TRU residence. In addition, the continued realization of the McGill Corridor/Southgate Project Concept Plan, which includes space for residential components, will potentially enable more students to live within the TRU commuter shed. This focus on university housing was also identified by the TDM strategy of the University of Waterloo, which saw adequate student housing off-campus as an important factor in reducing transportation demand. In order to address the increasing enrolment of students living further away from the university, the University of Waterloo TDM plan states that 1100 more housing units will be constructed on-campus.

## **5.2 Options to Reduce the Attractiveness of Using Single Occupancy Vehicles**

Currently, driving a single occupancy vehicle to campus is relatively simple. Driving is both more convenient and cost competitive with transit when considering the price of parking versus the price of transit. While there is very little that TRU can do to make the road network less attractive for driving, TRU can reduce the attractiveness of using a single occupancy vehicle less attractive by implementing parking management programs. While TRU already implements full cost recovery for its parking services, there is a need to use price and parking supply constraints as a key motivator to encourage students and staff to consider alternatives. In the absence of strong parking management, it will be very difficult to achieve the targets established in **Section 4.2**. Linking increases in parking revenue to improvements in alternative modes of travel will make this more palatable.

### **5.2.1 Parking Management**

Parking management options involve reducing the desirability of parking at TRU in order to encourage alternative modes of travel. In this regard, increasing the cost of parking and making parking less convenient and less plentiful are used as motivators to encourage the campus population to consider alternative modes of travel. Several parking management strategies are proposed including:

**Increase cost of parking** – Increasing parking prices is a major initiative in reducing demand for parking at many Canadian universities. In the last ten years UVIC has raised parking prices by 90%, an average of 6.5% compounded annually (<http://web.uvic.ca/vpfin/financialplanning/campusplanning/Section1TDM.pdf> p 19). Similarly, the University of Guelph is currently in the process of raising their parking fees 10-15% per year from 2008-2013. UBC, UVIC, Queens University, and University of Brock have all identified increasing (or differentiating parking lot rates) as strategies for reducing the parking demand in their TDM plans. According to the Victoria Transport Policy Institute, increasing the price of parking by 10% reduces the number of vehicles traveling by 1 – 3% ([http://www.vtpi.org/t dm/tdm28.htm#\\_Toc128220486](http://www.vtpi.org/t dm/tdm28.htm#_Toc128220486)).

Daily and semester parking rates at TRU are currently very low and affordable for the average student. Rates are even lower for staff parking. These parking rates are lower than prevailing rates in the broader community and generally lower than rates at many other comparable universities as indicated in **Table 3.3**. A significant increase to parking rates which are much greater than adult transit costs for all staff and students will encourage people to consider other modes of travel and will make transit and other alternative modes more economically competitive. Currently, parking rates are very cheap at TRU and thus do not discourage people from driving to campus. The comparatively cheap cost of parking is combined with the convenience and time-savings of driving makes alternative transportation a less competitive option. This ratio could be accomplished by mixing a gradual increase in parking costs with providing staff a discounted transit pass.

***Move parking to the periphery of the core area of campus and limit the parking footprint –***

Moving parking to periphery areas of campus makes driving more inconvenient, particularly if there is a way found to improve transit service on-campus. Through the implementation of the Campus Master Plan, a significant amount of parking has already been moved to the periphery with this being replaced by green space. Continuing to move parking to the periphery will make driving less convenient and alternative modes more attractive. Further, parking lots are unattractive, and moving parking lots would enable a dense core area with more room for green space.



At the same time, reducing the amount of surface parking and replacing this with parkade structures would help limit the parking footprint. Another potential opportunity is to move parking for the TRU Residence and Conference Centre to the back of Lot N and freeing up existing parking stalls allocated to the residence centre for short-term, metered parking.

Similar strategies have been employed by some universities to relocate parking in an effort to reduce the convenience of parking in key university areas. For example, UVIC has removed parking spaces from the inner core of the campus, replacing them with additional stalls in the outer ring (<http://web.uvic.ca/vpfin/financialplanning/campusplanning/Section1TDM.pdf> p 20). The University of Waterloo's TDM report states that parking relocation will help to reduce demand by making parking less convenient in comparison to other options, and as such, the University of Waterloo is considering moving all parking to an outer ring (<http://www.adm.uwaterloo.ca/infowast/Transportation/720FinalFolder/720Final.html> Parking).

**Re-allocate parking based on need and eliminate dedicated parking stalls** – while TRU staff comprise 13% of the campus population, approximately 33% of parking stalls are dedicated to staff members. This can lead to an excess parking supply for staff while students struggle to find parking. Certain staff members as well as some students also have guaranteed spots on campus that do not always need them. They are given a dedicated parking stall based on their position rather than based on a specific need (i.e. disability). A potential 'free for all' system may work better by reducing guarantees of parking and therefore increasing motivation to consider alternative modes. Further, eliminating dedicated parking stalls except for people with disabilities and carpooling vehicles will eliminate parking entitlement. A further option would be to allocate parking stalls on a zone system. An allocated parking system could mean that only students and staff living more than one bus route from the campus, for example, would be eligible to purchase a monthly parking pass. This will potentially prompt individuals living within the alternative mode commuter shed to make use of modes other than single occupant vehicles by not enabling the purchase of monthly parking passes.

**Develop better handicapped parking spots** – developing a larger supply of handicapped parking stalls in more convenient locations will be important for improving accessibility on campus.

**Allocate parking stalls based on zone system** – TRU should consider allocating parking stalls on a zone system whereby people must prove they live outside of the transit shed in order to purchase a parking pass for longer than 1 week. Thus, people living in neighbourhoods such as Valleyview, Dallas, Barnhartvale, Westsyde and Brocklehurst would receive first priority for a parking pass.

Reallocating parking passes based on need has been used at Queens University. As parking at Queens University has reached capacity, a limited number of parking passes are available to students. As such, parking passes are not distributed on a first come first serve basis, but rather are distributed on a needs basis. The University has divided the city into three zones, and students living in the two far zones receive priority for purchasing parking passes as they have a greater need to drive. People living closest to campus will only get a parking pass if there are passes available (<http://www.queensu.ca/pps/parking/regulations.pdf> p.80). Participants in the carpool program also receive priority in their zone (<http://www.queensu.ca/pps/parking/carpool.html>).

**Enable flexible parking passes** – Staff and student parking passes are currently available to be purchased daily, weekly and on a semester basis, and in the case of staff, on an annual basis. Incorporating a flexible parking system, such as the possibility of buying a booklet of discounted tickets that can be used to the individuals discretion, will encourage alternative mode usage by providing a flexible option to users who want to use alternative modes but may have to drive occasionally. This parking pass would need to be cheaper than simply paying the daily rate but more expensive than purchasing a weekly or monthly pass (if used every day).

Examples of flexible parking arrangements are seen at UBC and the University of Guelph. UBC provides the UBC Flexsaver Pass to university commuters as an option of not having to buy a semester parking pass, and is a parking pass for the student who only needs to drive part-time. With this Flex Pass the user can receive access to a choice of one or two parking lots, depending on what package is purchased, and have many options on price and usage rates. The Flex Pass is available in unlimited monthly or semester parking packages, and it also gives the user an option of purchasing only 10 or 20 day passes that can be utilized whenever needed. Similarly, the University of Guelph provides students with an option of purchasing a booklet of ten parking passes for a discounted rate. The University of Guelph believes this will promote alternative transportation, as it is a security option for students who do have to drive from time to time but want to use alternative modes most of the time.

**Increase parking enforcement** - Increasing the enforcement of parking in all lots will ensure consistent revenue generation and will remove potential 'free' parking seen by students in some parking lots. In addition, expanding the hours of enforcement would also be beneficial to encouraging people to take alternative modes.

**Differentiate lot pricing** - Making lots closer to the core area of campus more expensive to park in will decrease attractiveness of these lots. By allocating cheaper lots around the less convenient outer ring of campus students will potentially make alternative modes more attractive.

Differentiated lot pricing is used at Queens University to lessen stress on more convenient parking lots. In 2000, prices per month in lots were \$103.50 in the parkade, \$36.23 in the Main Campus lot, and \$24.73 in the West Campus lot where a shuttle bus is needed to access the campus.

**Extend pay parking into the night** – several universities extend parking enforcement into the nighttime hours. This increases revenue for parking while at the same time encouraging people to take alternative modes of travel.

Laurentian University, Brock University, and UBC have enforced pay parking in effect 24 hours a day, seven days a week ([http://www.brocku.ca/webfm\\_send/564](http://www.brocku.ca/webfm_send/564)). Similarly, UVIC has paid parking 24 hours a day, 6 days a week (Sundays free). University of Regina enforces their parking rules Monday to Friday 8 am to 10 pm (<http://www.uregina.ca/ancillaries/parking/general/faq.shtml#1>). Other universities such as Queens has pay parking in effect 7 am to 5 pm weekdays only, and similarly to TRU University of Guelph enforces 8 am to 5 pm Monday to Friday ([http://www.parking.uoguelph.ca/Forms/UofG\\_PrkgBro2010.pdf](http://www.parking.uoguelph.ca/Forms/UofG_PrkgBro2010.pdf) page 6)

### 5.3 Redistributing Demand

Redistributing the time when people are on campus to take advantage of the availability of facilities could redistribute transportation demand more evenly and allow TRU to make better use of its transportation infrastructure and buildings.

#### 5.3.1 Demand Redistribution

**Distribute class times more evenly**– Parking is currently very near capacity at some times of the day, while close to empty at others. Currently, there are peak times on Mondays and Wednesdays when classroom, and, subsequently, parking utilization rates are simultaneously very high. More evenly distributing class times throughout the day (i.e. more late afternoon and evening classes) and days of the week (i.e. more Friday classes) would keep parking demand low and consistent.

## 6.0 OPTION EVALUATION

### 6.1 Evaluation Framework

An evaluation framework has been established that enables the comparison of options and the ability to prioritize investments. The criteria used to assess options include:

**Cost to TRU or Community Partners** – this is based on the costs TRU and/or various community partners need to invest to implement and maintain the proposed strategy. Higher cost strategies will generally consist of major capital and/or operating expenses, while lower cost options will either have minimal costs or, in some cases, result in revenue to TRU or its partners.

**Level of Impact** – this is a summary of the level of impact a strategy is likely to have in decreasing transportation demand levels. Some strategies are likely to have a dramatic impact on transportation demand at the university while others will have a much subtler impact.

**Complexity** – this is a summary of how challenging it might be to implement a particular option. A highly complex strategy will require significant labour or time, or have many different processes involved in order to implement, while less complex options may require only a simple shift in policy.

**Degree of Autonomy** – this is a summary of the degree to which the strategy implemented will rely on external partners. Options that TRU can implement on its own indicate a high degree of autonomy while options that TRU will require the assistance or leadership of key partners to implement will have low autonomy.

**Level of Potential Support (TRU, TRUSU, City of Kamloops, BC Transit)** – this is a summary of the level of cooperation or agreement from the University and important stakeholders in the potential implementation this strategy.

### 6.2 Option Evaluation

**Table 6.1** on the following page summarizes the option evaluation.

Table 6.1: Option Evaluation Summary

Initiative	Description/rationale	Cost to TRU or Community Partners	Level of Impact	Complexity	Degree of Autonomy	Priority	Lead
<b>Options to Increase the Attractiveness of Alternative Transportation</b>							
<b>Transit</b>							
Work with BC Transit and City of Kamloops to increase frequency	<ul style="list-style-type: none"> <li>Increase the frequency of transit service to 15 minutes from 8 am – 7 pm and ½ hour from 6 pm to 10 pm to improve the accessibility and convenience of the system</li> <li>Noted as a key issue for students in surveys</li> </ul>	High	Medium-High	High	Low	High	BC Transit and City of Kamloops
Support City of Kamloops and BC Transit in providing real-time information on transit service	<ul style="list-style-type: none"> <li>Real time information will increase the attractiveness of transit and reduce reliability issues as users will be able to optimize their time better rather than waiting for transit</li> </ul>	High	Medium - High	Medium	Low	High	BC Transit and City of Kamloops
Review potential of greater transit infiltration of the campus and review moving some transit stops	<ul style="list-style-type: none"> <li>Put transit stops closer to the core area and potentially move the transit exchange into the core area</li> <li>This would increase the convenience of transit, particularly if transit stops are located closer to main buildings than parking stalls</li> </ul>	Low-Medium	Low	Medium	Medium	Low	BC Transit and City of Kamloops
Provide more secure and comfortable transit stops on campus	<ul style="list-style-type: none"> <li>Providing better designed transit shelters that are more secure (i.e. more lighting) as well as more comfortable (i.e. heated, seating, wind protection) could increase the attractiveness of transit on-campus also provide transit information with route maps and schedules</li> </ul>	Medium	Low	Medium	High	Low	TRU
Develop an employee transit pass system	<ul style="list-style-type: none"> <li>Build on the City's ProPass program and develop a customized employee pass system for TRU that results in cheaper costs and potentially increased incentives for taking transit (i.e. free pass to the Tournament Capital Centre)</li> </ul>	Medium	High	Medium	Medium	High	TRU
Ensure two way routing through the Southwest Sector	<ul style="list-style-type: none"> <li>Certain routes in the Southwest Sector, where many students live, are not two-way which entails longer trip lengths for one portion of the trip</li> <li>Trip lengths can be double for one leg of a trip due to circuitous routing</li> </ul>	High	Medium	High	Low	High	BC Transit and City of Kamloops
Add direct connection from Valleyview to TRU	<ul style="list-style-type: none"> <li>Add a direct connection from Valleyview to TRU</li> </ul>	Medium	Low	Medium	Low	Medium	BC Transit and City of Kamloops
Ensure good coordination for North Shore routes with the TRU-North Shore express	<ul style="list-style-type: none"> <li>Anecdotally, some bus connections are not made effectively which reduces the reliability and convenience of transit</li> <li>Ensuring efficient transfers between buses will make the system more attractive</li> </ul>	Low	Low	Low	Low	Low	BC Transit and City of Kamloops

Table 6.1: Option Evaluation Summary (cont'd...)

Initiative	Description/rationale	Cost to TRU or Community Partners	Level of Impact	Complexity	Degree of Autonomy	Priority	Lead
Develop park and ride program	<ul style="list-style-type: none"> <li>Developing a park and ride service from the North Shore (serve Brocklehurst and Westsyde) and one to serve Valleyview (Dallas and Barnhartvale) could enable people to park their cars and take transit</li> </ul>	High	Medium	High	Medium	Medium	TRU, BC Transit, City of Kamloops and potentially private property owners
<b>Carpool</b>							
Continue to expand the carpool program	<ul style="list-style-type: none"> <li>Expand the enrolment in the carpool program to address student waitlist</li> <li>Provide more promotion of the carpool program</li> </ul>	Low	Medium	Medium	Complete	Medium	TRU
Distribute carpool parking stalls throughout campus	<ul style="list-style-type: none"> <li>Redistribute carpool parking stalls throughout campus so they are located closer to where participants are likely to use them.</li> <li>Currently, carpool stalls are located up to 300 m away from buildings located at the periphery</li> </ul>	Low – medium – may require more resources for enforcement	Medium	Medium	Complete	Low-Medium	TRU
Encourage more people per vehicle to participate in the carpool program	<ul style="list-style-type: none"> <li>Make carpool passes available only to those that have 3 or more members in the carpool</li> <li>This would enable TRU to get more leverage out of this program</li> </ul>	Low	Low-Medium	Medium	Complete	Low-Medium	TRU
Promote and enhance rideshare program	<ul style="list-style-type: none"> <li>Develop a web-based rideshare program based on the Carpool.ca structure and/or further accentuate the TRUSU rideshare website</li> </ul>	Low	Medium	Low	Complete	Medium	TRU/TRUSU
Develop vanpool program	<ul style="list-style-type: none"> <li>Provide TRU owned vans to workers that choose to carpool together in numbers of 5 or more</li> </ul>	High	Low	High	Complete, unless a partner is involved	Low	TRU
<b>Active Transportation</b>							
Improve bicycle and pedestrian facilities in the area	<ul style="list-style-type: none"> <li>Encourage the City to improve pedestrian and cyclist facilities in the vicinity of TRU to make cycling safer and more efficient</li> <li>Particular emphasis should be placed on expediting the construction of the Summit Drive Overpass</li> </ul>	High	High	Medium	Low	High	City
<b>Transit</b>							
Provide better bicycle security	<ul style="list-style-type: none"> <li>Bicycle lock-up areas are either poorly dispersed and/or not very secure. Better located facilities could help promote cycling as an option and improve safety by being more visible.</li> </ul>	Low	Low	Low	Complete	Medium	TRU

Table 6.1: Option Evaluation Summary (cont'd...)

Initiative	Description/rationale	Cost to TRU or Community Partners	Level of Impact	Complexity	Degree of Autonomy	Priority	Lead
Provide shower facilities throughout campus	<ul style="list-style-type: none"> <li>Currently, the only shower area is at the gymnasium. Providing better access to shower facilities at more buildings would make cycling more attractive</li> </ul>	Medium	Low	Medium	Complete	Low	TRU
Review potential for student lockers throughout campus	<ul style="list-style-type: none"> <li>Add lockers in more of the buildings to enable students and staff to store belongings while on-campus</li> </ul>	Medium	Low	Low	Complete	Low	TRU
Add a bicycle tune-up station	<ul style="list-style-type: none"> <li>A tune-up station would enable users to fix bikes on campus by providing tools and a rack to use</li> </ul>	Low	Low	Low	Complete	Low	TRU
<b>Programs and Policies</b>							
Facilitate tele-work for staff	<ul style="list-style-type: none"> <li>Changing policies and implementing technology could enable people to work from home 1 – 2 days per week</li> <li>Several TRU staff indicated that they would like to participate in such a program</li> </ul>	High (if technology upgrades are required)	Medium	High	Complete	Medium	TRU
Offer a guaranteed ride home program	<ul style="list-style-type: none"> <li>Develop a program where staff who take alternative modes of travel can get an emergency ride if they must stay late or attend to an emergency during the day</li> </ul>	Medium	Medium	Low	Complete	Medium	TRU
Establish a fleet car program for staff	<ul style="list-style-type: none"> <li>Develop a fleet car program that staff can take advantage of. Consider working with the private sector offer this service – it would enable staff who take alternate modes to campus to use the car for errands/off-campus meetings during the day</li> </ul>	High	Low	High	Complete	Low	TRU
Expand daycare program	<ul style="list-style-type: none"> <li>Expanding the number of daycare spots would potentially increase the attractiveness of transit for some workers</li> </ul>	High	Low-Medium	Medium	Medium	Low	TRU
Encourage more people to live within the commuter shed	<ul style="list-style-type: none"> <li>Providing incentives for people who choose to live within the transit commuter shed will encourage more people to live in these areas and to take transit</li> </ul>	Medium	Medium	Medium	High	Medium	TRU
<b>Options to Reduce the Attractiveness of Using Single Occupancy Vehicles</b>							
<b>Parking Management</b>							
Increase cost of parking	<ul style="list-style-type: none"> <li>Parking costs are currently very low, particularly for staff. Increasing parking rates will make transit and other sustainable modes more economically competitive</li> <li>Day rates and monthly parking rates will be increased to 150% of the adult transit fares in Kamloops</li> </ul>	Revenue generator	High	Relatively simple	Complete	High	TRU

Table 6.1: Option Evaluation Summary (cont'd...)

Initiative	Description/rationale	Cost to TRU or Community Partners	Level of Impact	Complexity	Degree of Autonomy	Priority	Lead
Move parking to the periphery of the core area of campus and limit the parking footprint	<ul style="list-style-type: none"> <li>Some large parking lots are still located in the core area of campus</li> <li>Moving parking will allow for a denser core area</li> <li>Parking is currently a significant consumer of land resources</li> <li>Has begun to be addressed through the implementation of the Campus Master Plan</li> </ul>	Potentially high if this leads to the construction of a parkade	High – particularly for future transportation demand	Low	Complete	High	TRU
Re-allocate parking based on need and eliminate dedicated parking stalls	<ul style="list-style-type: none"> <li>Allocation of staff:student parking is high</li> <li>Some staff have guaranteed spots that don't need them</li> <li>Potentially a 'free for all' system may work better by reducing guarantees</li> </ul>	Low	Medium – will impact staff more than students	Low	Complete	Medium	TRU
Develop better handicapped parking spots	<ul style="list-style-type: none"> <li>There is a need for more and better located handicapped parking stalls</li> </ul>	Low	Low	Low	Complete	High	TRU
Allocate parking stalls based on zone system	<ul style="list-style-type: none"> <li>Parking passes would only be sold to those that live within certain zones of the City (i.e. further than 1 bus route)</li> </ul>	Low	Medium	Medium	Complete	Medium	TRU
Enable flexible parking passes	<ul style="list-style-type: none"> <li>Incorporate flexible parking system.</li> <li>Consider the use of 'bundle passes' or flex savers whereby a person can buy 10 passes at a reduced rate compared to the daily rate</li> </ul>	Low	Medium	Low	Complete	High	TRU
Increase parking enforcement	<ul style="list-style-type: none"> <li>Provide better enforcement of parking to ensure consistent revenue generation and remove potential 'free' parking areas such as Lot N</li> </ul>	Low /potential revenue generator	Low	Low	Complete	High	TRU
Differentiate lot pricing	<ul style="list-style-type: none"> <li>Make lots closer to the core area of campus more expensive to park in</li> <li>This will make the most convenient parking stalls less attractive to park in</li> </ul>	Revenue generator	Medium	Low	Complete	High	TRU
Extend pay parking later into the night	<ul style="list-style-type: none"> <li>Extend the pay parking to 8 pm from 5 pm</li> </ul>	Revenue generator	Medium	Low	Complete	Medium	TRU
<b>Demand Redistribution</b>							
Distribute class times more evenly	<ul style="list-style-type: none"> <li>Make better use of facilities by reducing the class peak times (i.e. Monday and Wednesday 10 am – 12 pm) as much as possible</li> </ul>	Medium	High	High	Complete	Medium term	TRU

## 7.0 NEXT STEPS

Moving forward, TRU will need to undertake a broad review of the options developed and evaluated in **Section 5.0** to develop an action plan. There are a number of key issues that need to be recognized and inform the targets established in **Section 4.2**. At a broad level, the TDM Strategy must be consistent with the goals and principles of the Campus Master Plan. The TDM Strategy must also support TRU's desire to become a more sustainable campus by encouraging the campus population to use alternative modes of travel wherever possible. To achieve these broad objectives, the following issues must be recognized and addressed in the action plan:

1. ***There must be a balance of improvements to alternative transportation and disincentives to driving to campus*** – this strategy will only be successful if TRU effectively balances meaningful improvements to alternative transportation services and infrastructure with programs and policies that reduce the attractiveness of using a single occupancy vehicle to travel to and from campus. Making improvements to alternative transportation will have reduced effect if the cost of using a single occupancy vehicle does not increase. Conversely, increasing costs to drive to and park on campus without improvements to alternative modes of transportation could result in discontent with how TRU is handling transportation issues.
2. ***There must be a commitment made to transportation demand management*** – first and foremost, TRU students, staff, and administration must buy into the strategy and make a commitment to dedicating the resources, such as a sufficient budget and staff time.
3. ***Staff and Students must be encouraged to live closer to campus*** – currently, approximately 55% of staff and students live within one bus route of campus. This will need to increase in order to make alternative modes of travel more feasible. Increases in student housing on-campus and continued development of multi-family residential buildings in the vicinity of TRU will support this.
4. ***Transit service must improve*** – transit is the mode share that will need to take TRU most of the way to reaching its goals and targets for alternative transportation mode splits. Transit service must become more reliable, more frequent and more convenient to reach these goals. In addition, it must become cost competitive with the cost of parking.
5. ***Walking must be made easier*** – walking is likely to be the second most popular alternative travel option. Better facilities for walking to and through campus that are more efficient and safer are critical to achieving success. A key example is the Summit Drive Overpass which could reduce walking trip times substantially from the Upper College Heights neighbourhood.

6. ***Driving must be made less attractive*** – driving to campus is relatively cheap and offers a high level of convenience, particularly for those that live further away from the campus. While there are few things that TRU can do to make the road network less attractive, TRU is in a position to leverage parking pricing and supply to encourage people to use alternative modes of travel.
7. ***TRU must implement policies and programs to support TDM*** – a number of policies and programs should be implemented to support TDM initiatives such as better distributing class times, enabling telework and providing fleet vehicles for errands and appointments during the day.

In terms of moving forward, TRU will have to undertake a broad review of the options suggested in this report and develop an action plan and funding strategy for implementing the TDM Strategy. It is expected that this action plan and funding strategy will be developed over the course of 2012. Further, TRU must work with key community stakeholders, particularly the City of Kamloops, to begin the implementation of this plan.