

Transportation demand management at Canada's post-secondary institutions

Overview

Many Canadian colleges and universities have implemented transportation demand management (TDM) programs at their campuses in recent years. TDM programs can help post-secondary institutions offset the costs of transportation infrastructure, provide more transportation options to students, faculty and staff, reduce GHG emissions, improve local air quality and assist local transit companies to meet ridership goals.

This issue paper examines some of the many TDM programs at Canadian post-secondary institutions, the barriers to and benefits of implementation, and what campus planners need to know when implementing a TDM program.

Resources

Carpool.ca's *Campus Carpooling: A Pollution Solution, Leadership Training Manual*, available on request from www.carpool.ca.

TravelSmart Australia's Resource Kit, www.travelsmart.gov.au/universities/understanding.html

Victoria Transport Policy Institute, *Campus Transport Management*, www.vtpi.org/tdm/tdm5.htm

Context

Universities and colleges are more than places of learning. With more than one million students now enrolled in some form of post-secondary institution (Statistics Canada 2008)—and thousands more people working as employees—Canada's universities and colleges represent an opportunity to offer transportation solutions to a diverse audience.

Campus-based TDM offers an effective solution to local traffic and parking issues. In addition, because universities and colleges are part of most large- and medium-sized communities in Canada, the benefits of campus-based TDM programs can go well beyond the school setting and into the broader community.

In general, campus-based TDM programs improve transportation options and reduce vehicle trips. They can include:

- Transit improvements and fare discounts – e.g. universal student transit passes (U-Pass) or employee discounted transit passes (E-Pass).
- Ridesharing/carpooling.
- Shuttle services.
- Parking pricing and parking management.
- Commute trip reduction initiatives that include alternative work schedules, telework and emergency ride home programs.
- Traffic calming and car free planning.
- Marketing and promotional campaigns.
- Pedestrian and bicycle amenities and improvements – e.g. secure bicycle parking facilities, bicycle lanes, bikesharing programs, etc.
- Programs that address cycling and pedestrian security.
- Recreational activity and special event transport management.

Barriers

Post-secondary institutions face many of the same barriers to sustainable transportation as other organizations, but some are unique to universities and colleges. Some of these barriers include:

- A lack of coordination among several partners – e.g. campus planners and administrators, local government and transit agencies, user groups and neighbourhood associations.
- Resistance to programs from employees or students, particularly if TDM measures use parking price increases or a portion of student fees to pay for programs.
- A lack of funding.

- Inadequate public transit, due to lack of service or capacity.
- Parking issues:
 - o Artificially low parking fees can increase the demand for parking spaces.
 - o An excess of inexpensive or subsidized parking provides little incentive to change from single-occupant driving. In *RideShare Review*, for instance, Carpool.ca reports that parking convenience and availability motivates drivers more than cost
 - o Since many post-secondary institutions rely on parking fees as a source of revenue, decision makers may feel that by increasing parking fees, people will pay for parking elsewhere.
- The perception that there are no immediate problems. Universities and colleges may see little reason to implement TDM unless there are pressing issues.
- A lack of inter-campus transportation options for universities or colleges with multiple campuses.
- Other members of the community using university parking spaces that are meant for employees or students.
- A lack of active transportation amenities such as bicycle parking, showers and lockers. For example, a lack of secure bicycle parking (and therefore a fear that bicycles will be stolen) can dissuade people from cycling. Statistics Canada reported that more than 44,000 bicycles were stolen in Canada in 2007 (12,000 in Toronto alone). However, police and cycling advocates agree that the number of thefts is closer to 100,000, as many bicycles are not reported stolen (Imprint 2008).

Canadian university TDM programs

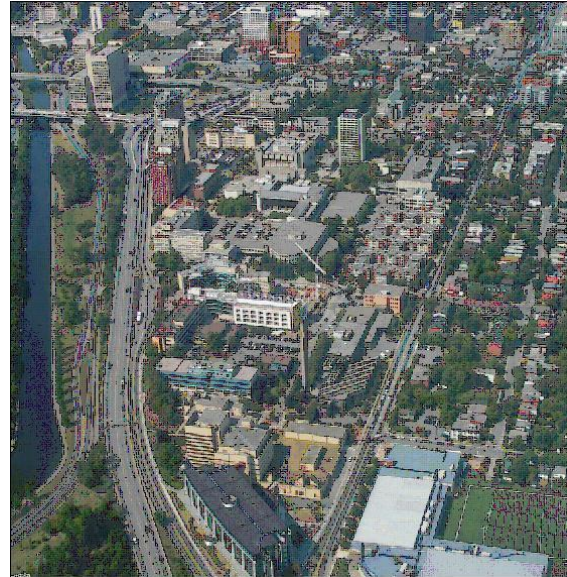
A number of Canadian post-secondary institutions have implemented some form of TDM at their campuses.

One of the most common initiatives is the universal student transit pass, or “U-Pass.” U-Pass programs are mandatory and all students contribute a portion of their student fees to pay for the program. This enables all students to take transit at a reduced rate throughout the school year. More than one dozen Canadian post-secondary institutions have such programs.

For more details about a selection of U-Pass programs at three Canadian universities, see the UTSP issue paper, *Universal Transit Passes in Canada*.

University of Ottawa (UOttawa)

The University of Ottawa’s main campus is located in downtown Ottawa and has a total population of about 42,600 (35,600 students). As one of the major stations on the city’s rapid bus Transitway, UOttawa is well served by transit (about 50% of the university’s student population reports taking transit on a regular basis), with about 2,700 bus trips made to and from the university on weekdays.



Aerial view of the UOttawa campus. Photo courtesy of the University of Ottawa.

The university began developing its TDM program (*Hop to it!*) in 1999 in response to two main factors. First, the supply of parking at UOttawa was shrinking; second, the university needed to prepare for an influx of students from the “double cohort” year.¹

Hop to it! falls under the university’s Protection Services department, which has a mandate to enhance security, develop alternative modes of transportation, ensure respect for the rights of the university community and protect the assets of the university and its community.

Hop to it! provides a range of TDM services including:

- E-Passes for employees. Since beginning the program in 2000, take up by employees has more than doubled, from fewer than 200 employees taking advantage of the program to about 600 in 2008.
- A student discount pass offered by OC Transpo, the local transit authority. Students have voted in favour of a U-Pass program, but negotiations between the

¹ The Province of Ontario eliminated Grade 13 as of 2003. This meant that the last Grade 13 class and the first Grade 12 class under the new rules graduated—and applied to post-secondary institutions—in the same year.

university, the city of Ottawa and OC Transpo on the final price are still ongoing.

- A free shuttle service between the main campus and three satellite campuses, and between UOttawa and Carleton University. The university paid for the shuttle buses and Protection Services manages the service.
- Preferential parking spaces and an emergency ride home program for carpoolers. The program costs just \$115 a year to maintain, primarily for parking signage.
- A ridesharing program in partnership with RideShark, a local ridesharing company. RideShark develops UOttawa's carpooling website at a cost of about \$5,000, and the university spends \$400 per month to maintain the site. UOttawa was able to reduce the website's development costs by providing RideShark with in-kind translation services.
- A car share program, in cooperation with Vrtucar, a local car sharing company. One Vrtucar vehicle is located on campus, conveniently parked by the main transit station.
- Bicycle amenities and programs, such as bicycle racks, repair workshops, theft prevention programs, a bike share program and cycling courses. The bike share program offers eight bicycles for lending at four locations. In 2000, when the theft prevention program was first implemented, 75 bicycles were stolen on campus; by 2008, thefts had been cut by more than half.



A bicycle repair workshop at UOttawa. Photo courtesy of the University of Ottawa.

Beginning in 2002-2003, UOttawa also began raising its parking fees, which had been frozen since 1994. Today, parking permits range in price from \$1,021 per year for an exterior parking space to \$1,515 for an interior garage space.

Costs and savings

A seven-year contract between Protection Services and the university was recently renegotiated at a cost of \$1.7 million. Many of the university's TDM initiatives cost little or no money, so the majority of this money goes towards salaries and office costs.

TDM measures have enabled UOttawa to avoid building new parking spaces and the university now has an excess of parking stalls. In 2002-2003, the university had 2,353 parking spaces at two campuses; by 2007-2008, despite major expansions of the university's building assets, it had 3,760 spaces at four sites.

Danny Albert, UOttawa's TDM coordinator, estimates that each of its parking stalls costs, over its lifetime, approximately \$43,000. By avoiding the cost of building new parking spaces, he estimates that the university has saved about \$1 million.

McMaster University

McMaster University in Hamilton, Ontario, serves a population of 19,113 undergraduate students and 7,500 employees.

In July 2002, McMaster created *ACT (All-modes Commuting & Transportation)*, which has a mandate to reduce the demand for parking at the university and surrounding neighbourhoods by increasing awareness of alternative transportation options and enhancing services and infrastructure.

Like UOttawa, McMaster is also well served by transit, including a GO Transit light rail station serving the corridor between McMaster and York University in Toronto. About 36% of students report taking transit as their main mode of transportation (12% for employees), while about 35% of students walk or cycle as their regular commuting method.

ACT includes:

- A U-pass program for students. The pass costs \$142.20 for an eight-month period.
- A carpooling program that includes a ridematching website service for students, faculty and staff, preferential parking and an emergency ride home program. Several McMaster carpoolers also donate their time as "consultants" to those who are interested in learning more about carpooling. In addition, carpoolers were originally offered parking vouchers at a discounted rate as an incentive. Kate Whalen, *ACT*'s office coordinator says that when the *ACT* office discovered how much value the carpooling community placed on the vouchers, it decided to give each carpooler an additional 12 vouchers at no cost.



Chris Marriott of the Department of Medicine cycles Waterdown to McMaster in rain, snow or sun, and visits three hospital sites by bike. Photo courtesy of McMaster University.

including 12 secure bicycle lockers, bicycle racks around campus that can hold more than 1,600 bikes, showers and change rooms available for active commuters, and CARGO carts (free large capacity bike trailers for transporting groceries or other large loads). The university also has a student-run cycling cooperative, MACycle Co-op. MACycle, sponsored by the university, the students' union, the city of Hamilton and others, offers bicycle repairs and workshops. Cycling has been so popular at the university that in 2008, *ACT* was in the process of ordering more bicycle lockers and racks to keep up with demand.

- Information products such as walking and cycling maps for the campus and locations around the city. *ACT* also offers a trip planning service for those visiting the campus for the first time, or returning after several years. *ACT* provides details on trips to and from the university and receives an average of five requests for such information each day.

Future programs and services that *ACT* hopes to offer include:

- A secure bicycle storage compound that would be monitored by security campus and be accessible through a smart card.
- A joint transit terminal and a discounted transit pass for employees.
- Car sharing.
- Grass parking for all bicycling parking areas to reduce the amount of paving and increase greenspace.

University of British Columbia (UBC) – Vancouver campus

Launched in 1997, UBC's *TREK* program is one of Canada's oldest campus-based TDM initiatives. The UBC Vancouver campus serves a total population of about 55,000 (44,000 students, 11,000 faculty and staff).

Unlike other campus-based TDM programs, which are typically driven by parking issues, *TREK* came about due to its geographical location.

UBC's Vancouver campus operates like a city so, like every other municipality within the Metro Vancouver² region, it must have a growth management plan that is consistent with the overall regional vision.

"UBC's Vancouver campus is technically not located in a city; it's part of an electoral area," explains Carole Jolly, *TREK*'s coordinator.

The UBC plan, originally developed in the 1990s, contains objectives on land use and transportation and specific commitments about supporting TDM initiatives. As part of its plan, UBC's goal is to reduce single occupant vehicle (SOV) traffic by 30% per person, a goal that was met and exceeded in 2008. New targets will be set in 2010.

Ms. Jolly says that its U-Pass initiative has had the greatest impact. "In its first year of implementation, 2003, we saw a 53% increase in transit ridership."

Among its many TDM offerings, *TREK* includes:

- An E-Pass. About 10% of UBC's 11,000 employees use the E-Pass.
- A campus bicycling co-operative that allows members to borrow from a 50-bike fleet and receive a 10% discount on bicycle parts. The Vancouver campus also features bicycle amenities, such as bike lockers, racks and showers, and *TREK* works with Cycling Metro Vancouver to offer route planning information.
- Car sharing, in partnership with ZipCar, a local car sharing company. Two ZipCars are available on campus. In addition, a shared vehicle program is set to launch in either 2008 or 2009. Unlike typical car sharing programs, university employees who drive to and from campus would be able to add their car to a list of available vehicles for lending.
- A CanCart program, which lends out free personal utility carts for use by pedestrians and cyclists.

Photo of the CanCart courtesy of the University of British Columbia.



Partnerships

Ms. Jolly says that *TREK* benefits from strong relationships with student and community groups, local governments, and the provincial ministry of transportation.

² Formerly known as the Greater Vancouver Regional District, Metro Vancouver contains 21 municipalities.

Perhaps its most important relationship is with TransLink, Metro Vancouver's transit authority. "We work closely with TransLink and have ongoing meetings with them," says Ms. Jolly. "They are aware of our issues and try to allocate resources accordingly." For example, in 2003, TransLink implemented two community shuttle routes to serve the Vancouver campus and the surrounding residential area, routes that could not be properly served by regional bus lines.

Financing

TREK's programs are financed, in part, through parking revenues (\$6 million since TREK began in 1997), its subsidized U-Pass program (students pay the majority and the university makes up the shortfall of \$1.2 million each year), and a general municipal services levy, a tax that each university department pays.

McGill University

McGill University has a population of 33,522 students and 9,459 faculty and staff members. Its TDM measures fall under the university's *Rethink McGill* environmental campaign, which includes many activities from recycling to energy use to alternative transportation.

As part of *Rethink McGill*, the university's TDM initiatives include a bicycle loan program and U-Pool, a ridematching service, as well as on-line information about cycling, transit, idling and car sharing.

Launched in 2003, the bicycle loan program is offered at McGill's MacDonald campus, located on the westernmost tip of the island. Anyone with a valid McGill ID can borrow one of ten bikes for up to three hours. More than 1,000 bicycles are loaned out each year.

TDM challenges

McGill has had difficulty, however, implementing a fuller range of TDM measures. As mentioned above, one of the barriers to TDM is the perception that there are no pressing transportation problems. McGill University serves as a classic example.

Its largest campus is located in the heart of downtown Montreal, and most students and faculty take transit, cycle or walk to and from campus. "We already have a large population that doesn't drive alone, so TDM is not a huge priority," says Kathleen Ng, McGill's Environmental Officer.

Perception is not the only challenge. A promising 2004 partnership between McGill and Agence Métropolitaine de Transport (AMT), Montreal's transit authority, to deliver TDM measures to the university and the wider community has been put on hold, due in part to the fact that AMT is at capacity in terms of its fleet and cannot increase its transit services.

A lack of adequate transit has been particularly difficult for students at the MacDonald campus. "It can take up to an hour and a half to get there by transit," says Ms. Ng.

A shuttle bus service has alleviated some of the problems. Shuttles run every 45 minutes between the downtown and MacDonald campuses, from 7 a.m. to 6:15 p.m. during the regular school year, with additional times added during exam periods. Students obtain a special sticker to affix to their student ID card, which enables them to ride the shuttle buses for free.

Even when sustainable modes of transportation are available, problems can arise. Cycling to and from McGill, for example, is one of the most popular ways to get around. Bike racks are available at every major building and along main roadways, but Ms. Ng reports that the university has no space to add more.

McGill is also running short of car parking spaces. Several university buildings that line Sherbrooke Street (a major public thoroughfare) have on-street parking; people not affiliated with McGill are using these spaces, forcing university personnel and students to park elsewhere.

In response, Ms. Ng says that McGill's parking office is trying to screen for those who really need parking. Those who live within five kilometres of the campus, for example, cannot apply for a parking pass (with some exceptions).

University of Victoria (UVic)

UVic's *Travel Choices* TDM program serves a total population of 23,500 (19,000 students, 4,500 employees). It offers many of the same TDM services as the other



universities included in this issue paper, including U-Pass and E-Pass programs, car sharing and carpooling initiatives, and cycling programs and amenities.

An employee picks up his E-Pass. Photo courtesy of the University of Victoria.

The program has an annual budget of \$325,000, provided by the university. The university contributes an

additional \$170,000 a year to the U-Pass program.

Although the goals of *Travel Choices* have remained the same since its inception in 2003—shifting from SOV driving to sustainable modes, improving campus traffic

circulation and shifting travel time away from peak hours—it regularly establishes new targets, based on how its programs and services are working.

“As part of our Sustainability Action Plan, we want to reduce single occupant vehicles to 30% of the campus modal share by 2014,” says Sarah Webb, UVic’s sustainability coordinator. UVic also has a mandate under the Province of BC to be carbon neutral by 2010, so there is a financial incentive to reduce emissions. Otherwise, says Ms. Webb, the university would have to purchase offsets through the province starting at \$25 per tonne and ultimately up to \$100 per tonne in a few years’ time.

To fulfill part of that mandate, Ms. Webb expects to begin quantifying the emissions generated by university-related business travel by 2012.

UVic already has a head start in reducing business travel emissions with its videoconferencing services, offered through the university’s Media Services department. Each of the university’s three videoconferencing rooms is equipped with cameras, microphones and monitors. Videoconferencing has become so popular that the university is running out of space and hopes to expand the services in future.

Cycling and car sharing programs

With more than 2,900 bike parking spaces—including 68 bicycle lockers for rent—UVic is a bicycle-friendly campus. Cyclists can also take advantage of covered bicycle shelters, clothing storage lockers, shower and change room facilities, pressurized air hoses and a towel service.

UVic’s bicycle user’s committee is also working to expand the number of bike lockers available on campus.

In September 2008, UVic constructed four electric bike charging stations. Although there are currently only about a dozen electric bikes on campus, Ms. Webb believes that having the infrastructure will encourage more people to use the technology.

In addition to its partnership with ZipCar, a local car sharing company, the university offers an employee car sharing program. Using departmental fleet vehicles, employees who already use sustainable and active modes of transportation can access a vehicle for personal or business use during the day. In September 2008, UVic also initiated a student car sharing program. Students who do not own a vehicle are eligible for a free membership in the Victoria Car Share Co-Op. As a member, students have access to 15 car share vehicles in greater Victoria, including three on campus.

The proof is in the modal shift

Travel Choices has produced some impressive results:

- Ms. Webb estimates that, in 2007, about 65% of people traveling to and from campus used sustainable modes of transportation.
- The U-Pass utilization rate is about 80%, with students using the pass four or more days per week.
- About 600 employees use the E-Pass program.

In addition, in the fall of 2008, UVic completed its 2008 traffic audit, which shows that *Travel Choices* has had an enormous impact on modal shift to and from the university.

<i>Transportation Mode</i>	<i>2004</i>	<i>2006</i>	<i>2008</i>
SOV	47%	44.1%	37.5%
Carpooling (2 or more people)	figures not available	11.9%	12.7%
Transit	26%	27.4%	31%
Cycling	figures not available	5.3%	7.1%
Walking	9%	11.2%	11.2%
Skateboarding	figures not available	0.1%	0.3%

“When we compare these numbers to our 1996 traffic count, we have seen a 20% modal shift away from SOV driving, even while our campus population has continued to grow,” says Ms. Webb.

Benefits

Benefits of campus-based TDM programs accrue primarily to the university, but there are also side benefits to the surrounding community.

Transit use

Universities and colleges house thousands of people—students, faculty and staff—making their campuses hubs for public transit. As such, students are a major transit market and Canadian transit systems have responded by supporting their travel needs.

For example, since implementing the *TREK* program at UBC in 1997, transit use has skyrocketed. Adjusting for population growth, transit use has increased by 115%, while single occupant driving has decreased by 35%.

TransLink also expanded its “night owl” service (buses run later into the night), which benefits the university and the broader community.

Ms. Whalen of McMaster University has seen an increase in GO Transit use. Data collected by GO Transit in 2002 indicated that about 300 weekday trips were made to and from the university from Monday to Thursday and almost

600 trips on Friday. By January 2006, Monday to Thursday trips had increased to 2,000 and to about 2,700 trips on Friday.

GHG emission reductions

Eight out of every 10 UOttawa commuters use some form of sustainable transportation to get to and from campus. Mr. Albert estimates that the 8,500 people who still drive to the campus release approximately 12,000 tonnes of carbon dioxide each year; the 17,000 people who use sustainable modes release only 8,000 tonnes.

Ms. Jolly reports that, as a result of UBC's *TREK* program, GHG emissions have been cut by about 16,000 tonnes per year.

Parking requirements

At UBC, parking requirements have been cut by 25% since 1997, which has in turn reduced congestion around campus.

Financial

Ms. Jolly estimates that students save about \$800 each year on transportation costs as a result of UBC's U-Pass program.

Mr. Albert estimates that, by reducing its parking needs, UOttawa has saved about \$1 million in avoided costs.

Reduced incidents of drinking and driving

Although there is no hard data available, anecdotally, Ms. Jolly believes that UBC's U-Pass, its guaranteed ride home program and the fact that TransLink expanded its "night owl" service has helped to reduce the incidence of student drinking and driving.

Stakeholders

The lead stakeholder in any successful campus TDM program is the university itself, typically using a dedicated TDM coordinator who works in partnership with other university departments and outside stakeholders. Such stakeholders can include:

- Transit authorities;
- Municipal governments;
- Student and faculty unions, and student groups;
- Local organizations, such as bicycle and car co-ops, environmental and community groups;
- Provincial ministries of transport.

Considerations when implementing a campus TDM program

The campus TDM coordinators interviewed for this issue paper were asked to reflect on their experiences and give

advice to other campus planners on implementing TDM at universities and colleges.

Identify the issues

Ms. Ng of McGill advises that, in order to identify problems, campus TDM planning should begin with a study of the surrounding community, its commuting habits and what public transit is available.

"Some people start with solutions and don't look to see if there are actual problems," she says. "Focus instead on where things can be improved instead of spending resources on things that people won't use."

At UVic, traffic audits are conducted every two years to determine transportation mode; this information then informs how the university shapes its TDM measures. For example, audits look at which bus routes are most utilized by U-Pass and E-pass holders, which campuses have the highest numbers of pedestrians and cyclists, how many vehicles travel through the campus, and the impact of construction vehicles on transportation modes during capital projects.

Ms. Webb made an interesting discovery in terms of how sustainable transportation is viewed by different university employees. "Younger employees have no problem paying parking fees or trying different sustainable transportation modes," she says. "One of our biggest challenges, therefore, is to get those who have been on campus for many years—and who think that driving and parking are a right—to change their habits."

Obtain high-level support

Ms. Jolly says that UBC's *TREK* program is supported at the highest levels of university decision makers. This is, of course, due primarily to the fact that the university is required to have a growth management plan consistent with the vision of Metro Vancouver.

Similarly, UOttawa's TDM program is financially supported by the university and is an entrenched branch of the Protection Services department.

Pilot programs

Many of UOttawa's TDM programs began as pilot projects, which enabled the university to adjust the program as it was being developed and ease people into the changes.

On a similar note, Ms. Jolly cautions that pilot programs must be closely monitored and their results measured to see what impacts the programs have had and to adjust aspects of the programs if necessary.

Provide options

Ms. Whalen says that she provides McMaster students, staff and faculty with as many options as possible, making

the sustainable modes the most attractive in terms of ease, convenience and cost.

“Some people don’t have the option to ride a bike or take transit, so in those cases there need to be options such as carpool incentives and shuttle buses,” she says. “Or a bike share would be well-suited for those who don’t own bicycles.”

Pay attention to design

Mr. Albert says that regular campus “walkabouts” can often solve many TDM-related issues. For example, regular inspections can identify problems such as a lack of or inadequate sidewalks or ramps or other infrastructure that may block pedestrian or cycling access.

Ms. Webb says that exterior lighting at bus shelters, pathways and bicycle lock up areas should always be considered for safety reasons. Many universities and colleges already work with local police to conduct CPTED (crime prevention through environmental design) audits. CPTED audits can often pinpoint many safety and security issues for pedestrians and cyclists.

In addition, Ms. Webb recommends that campus planners work with the university’s building and engineering staff during renovations and capital projects to include end-of-trip amenities.

“If you are adding a washroom to an existing building, for example, consider adding a shower and change room, lockers, and a water bottle filling station,” she says.

Active transportation infrastructure design should also be considered. “We have bicycle lockers that are awful to look at,” says Ms. Webb. “So we need to pay more attention to the detail and make them more aesthetically pleasing.”

Listen to people’s needs and opinions

In some cases, students will identify problems before the university does. For example, an audible pedestrian signal was installed at a busy intersection of the UOttawa campus after a visually impaired student brought it to the attention of the TDM office.

Ms. Whalen notes that many program failures can be avoided by canvassing several different groups for a second opinion.

“I have seen many instances where plans have been implemented only to find out later that there are major problems in terms of security or accessibility,” she says. “Take the time to ask other groups for their opinion on potential changes to see if they can foresee any problems.”

Make information easily available

The Internet is, by far, the number one choice of most campus planners for making TDM information available. Providing information on-line is the most cost-effective way for universities to market and promote their TDM

programs. In addition, it is one of the most common forms of communication used by students. More than 90% of all full-time students under the age of 25 report accessing the Internet from school (Statistics Canada, 2006).

Displays at student and community events, articles in local or student newspapers, and brochures and pamphlets are also excellent ways to make TDM information available.

UOttawa, for example, provides a CD of all its campus services, including its TDM program, to all first-year students.

Ms. Webb also recommends that universities make information available on how to get to the university by transit, bicycle or on foot, not just by car.

Establish financing mechanisms

Financing for campus-based TDM programs often comes from the university itself, from parking revenues and from student fees (in the case of U-Pass programs).

However, as Mr. Albert points out, many services can be offered for very little money. UOttawa’s preferential parking and emergency ride home program for carpoolers, for example, costs only \$115 per year to maintain.

As a part of its Sustainability Action Plan, UVic wants to create a revolving fund for its TDM programs and services. The university would provide the seed money, along with student and corporate contributions, and the money saved from lower fuel or land costs—money that the university would otherwise have to pay—would then be returned to the fund and reused for future programs.

University TDM Resources

Some TDM resources are created specifically for post-secondary institutions. Among them, Carpool.ca offers two resources aimed specifically at colleges and universities:

1. *How to Implement a Campus Rideshare Program*, is a quick four-page guide on creating a ridesharing system, with tips about promotion, signage, parking management supply strategies and incentives.
<https://www.carpool.ca/pdf/ImplementPool.pdf>.
2. *Campus Carpooling: A Pollution Solution, Leadership Training Manual* provides information on how to set up various TDM initiatives. The manual is available on request from Carpool.ca.

TravelSmart Australia also provides an on-line university resource kit. The kit includes strategies to reduce the number of car trips and increase active and sustainable transportation modes.

www.travelsmart.gov.au/universities/index.html.

Conclusion

Universities and colleges represent an enormous opportunity to provide TDM programs and services to a large number of people. With more than one million students enrolled in university or college, post-secondary institutions have a “captive” audience that may be more receptive to environmentally related messages than the general population.

As this issue paper has shown, campus-based TDM programs need not be expensive or complicated to obtain financial, social and environmental benefits. Marketing alternative modes of transportation may also be easier at universities and colleges since a younger population may be more willing to change its transportation habits.

Campus-based TDM programs also have the power to affect future transportation habits. University and college students tend to have lower rates of car ownership than older adults. By providing a range of transportation options, campus-based TDM programs benefit students from both a financial and mobility perspective, and can help make active and sustainable transportation a life-long habit.

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