

SUBJECT UBC VANCOUVER TRANSPORTATION PLAN IMPLEMENTATION UPDATE:
 EMERGING TRENDS AND OPPORTUNITIES

MEETING DATE FEBRUARY 6, 2020

Forwarded on the Recommendation of the President

**APPROVED FOR
 SUBMISSION**



Santa J. Ono, President and Vice-Chancellor

FOR INFORMATION

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EXECUTIVE SUMMARY

This report briefs the Board of Governors on work underway by the Administration to leverage and respond proactively to new and emerging trends in mobility as it continues to implement the *2014 UBC Transportation Plan* for the Vancouver campus. As new transportation technologies and services become available, UBC continues to play a leadership role regionally in enabling these developments while mitigating potential adverse effects and supporting the development of a vibrant and sustainable campus community. It also summarizes progress being made in promoting active transportation and transit.

The *2014 UBC Transportation Plan*, supported through integrated land use planning, continues to provide clear policy direction to guide institutional investments and programs that advance the University’s broader sustainability, livability and wellbeing goals. Along with coordinated efforts to increase the amount and range of housing options on campus through UBC’s Land Use Plan and Housing Action Plan, the Transportation Plan is achieving meaningful reductions in greenhouse gas emissions associated with commuting and improving the health and wellbeing of the UBC community by encouraging active transportation options such as walking and cycling. The next iteration of the Transportation Plan will be created as part of the process to update UBC’s Land Use Plan, beginning later in 2020.

Securing investment commitments for a SkyTrain extension to UBC remains an urgent priority and is critical to achieving the University’s long-term goals of improved connectivity, affordability and sustainability. However, the need to proactively manage transportation demand persists, and will be particularly vital over the coming decade as congestion, pick-up and drop-off activity, vehicle access challenges, and parking needs are likely to escalate until a SkyTrain connection is completed. The administration is therefore intensifying its efforts to improve bus service to and through campus and encourage the use of other sustainable transportation modes over the coming years.

A range of new and emerging technologies and transportation options are expected to dramatically change the way people choose to move to, from and around campus over the coming decades. Changes already underway or anticipated include the market expansion of motor-assisted “micromobility” devices for both shared and personal use (e.g. e-bikes, electric skateboards, e-scooters and other conveyances); “ride-hailing” or transportation network services (e.g. Uber and Lyft); “microtransit” services that use small transit vehicles operating on flexible routes

and/or on-demand; and ultimately, autonomous vehicles for both personal and shared use. Integrated trip-planning and payment platforms (often referred to as Mobility-as-a-Service or “MaaS” platforms) are also emerging, making it easier for people to live multi-modal lives and avoid the cost and obligations of owning a personal vehicle. These changes, along with the continued transition towards electric and autonomous vehicles, will have implications on parking and curbside space usage and infrastructure requirements.

UBC is responding to these trends in a number of ways, as described in this report, including:

- **Actions to enable motorized micromobility options** while avoiding and/or mitigating potential personal safety and public realm impacts;
- **Actions to enable ride-hailing services** on campus while managing curbside and congestion impacts and supporting institutional planning needs and sustainable transportation objectives;
- **Actions to support the transition towards mobility-as-a-service and encourage ride-sharing/carpooling** by participating in related pilot programs from TransLink, providing related information and resources to the campus community, and adopting various policies and procedures that make it easier to carpool.
- **Actions to support the transition to electric vehicles and prepare for autonomous vehicles** by continuing to invest in electric vehicle charging infrastructure across campus including fast chargers (led by UBC Parking), evolving parking management practices, and supporting research collaborations and pilots exploring autonomous vehicles and related technologies.

UBC is uniquely positioned to support this work by collaborating with faculty, researchers and students through Campus as a Living Lab projects. Through these efforts, UBC is playing a proactive role in advancing the Province’s CleanBC program objectives, including provision of Electric Vehicle (EV) infrastructure, active transportation investments and programs that shift people away from single-occupancy vehicles. These efforts, coordinated with land use planning initiatives have helped UBC to rank first in Canada by Times Higher Education Impact Rankings for leadership in advancing the UN Sustainable Development Goal for Sustainable Cities and Communities.

Results of the transportation monitoring program for 2019 will be included in the annual “UBC Land Use Plan, Transportation and Engagement Annual Monitoring Report” scheduled for submission to the Board of Governors in April 2020.

Attachments

1. Attachment A: 2014 Transportation Plan
2. Attachment B: 2018 Transportation Status Report
3. Attachment C: Application Guide for Transportation Network Services at UBC

STRATEGIC CORE AREAS SUPPORTED

- People and Places**

 Research Excellence

 Transformative Learning

 Local / Global Engagement
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DESCRIPTION & RATIONALE 1. Existing Policy, Targets & Progress

UBC’s Board of Governors has established clear policy direction to reduce single occupancy vehicle trips and decrease traffic congestion to, from and within the Vancouver campus through a comprehensive and integrated transportation demand management strategy. This strategy is articulated in the 2014 Transportation Plan (Attachment A). The plan encourages more sustainable transportation choices like walking, cycling, transit and carpooling, establishing targets related to sustainable travel, single occupant vehicle trips, and daily private automobile traffic (see Figure 1).

UBC’s 2018 Transportation Status Report (Attachment B) documents results of the university’s annual monitoring program and illustrates the considerable gains that have been made towards UBC’s sustainable transportation goals over the past two decades. In 2018, 53% of trips made to/from campus were by transit, and the number of private vehicles on campus was down 10% from 1997, despite considerable institutional growth over that period (Figure 1). These results were included in the Land Use Plan, Transportation and Engagement Annual Monitoring Report to the Board of Governors in April 2019. Data from fall 2019 will be available for the next iteration of this report, scheduled for submission in April 2020.

FIGURE 1: 2014 Transportation Plan Targets & 2018 Status

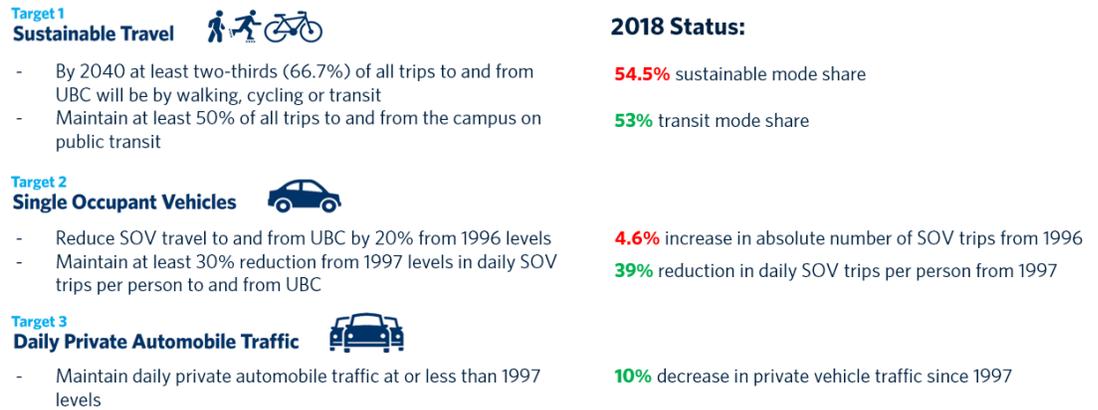
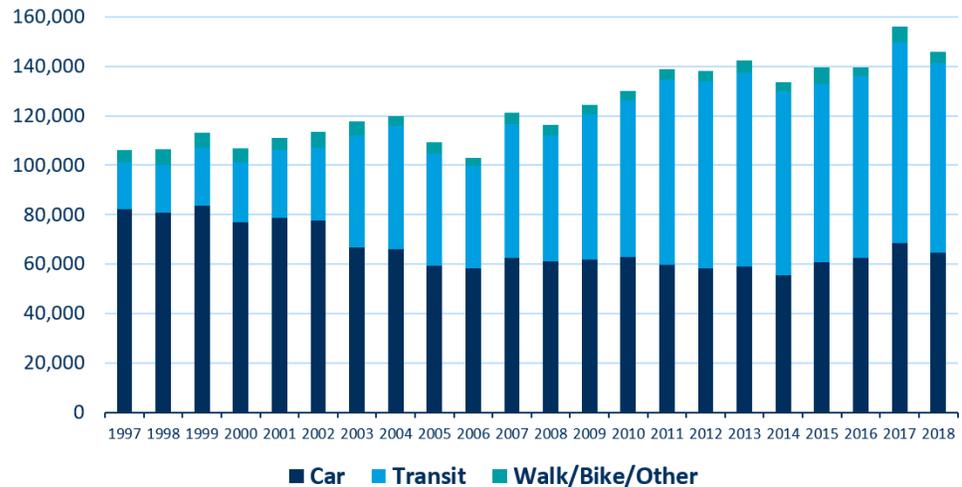


FIGURE 2: Weekday Person Trips to and From UBC (1997-2018):



The University is continuing to bolster its transportation demand management efforts through an integrated and comprehensive approach that includes a range of strategies described later in this report: from managing parking supply and pricing, improving bicycling and pedestrian infrastructure, supporting carpool/vanpool programs, enabling a range of transportation options like car sharing, bike sharing, and ride-hailing, and optimizing land uses to increase housing options and amenities on campus for students, faculty and staff to make it easier for people to choose walking or cycling to meet their daily needs. In 2018, over 40,000 tonnes of CO₂ equivalent of emissions were associated with commuting to and from the UBC Vancouver campus, representing approximately 38% of total emissions (see [2018 Carbon](#)

[Neutral Action Report](#)). Transportation demand management efforts are therefore key to advancing UBC's broader climate action goals.

Through the board-endorsed Rapid Transit Strategy, UBC is actively working with regional and senior government partners to secure an investment in a SkyTrain extension to campus. By participating in TransLink's Regional Transportation Advisory Committee and the Regional Agency Advisory Group for the development of TransLink's next long range plan "Transport 2050", UBC also continues to advocate and facilitate other improvements to the regional transportation system that will benefit the campus community, including improved regional cycling connections to/from UBC, additional RapidBus lines and continued investment in transit services across the region.

1.1 Spotlight on Transit

Over half of all trips to and from UBC are currently made by transit. With over 1,000 buses a day flowing through campus servicing 15 separate bus routes, transit plays a central role in connecting UBC with the surrounding region. While transit use to and from UBC grew considerably in the early 2000s, the number of transit trips has stayed relatively flat over the past decade despite continued campus growth and development leading to a slight decrease in transit mode share (see Figure 2). This is likely due in large part to capacity constraints of the transit system, as service investments have not kept pace with demand. Bus service improvements envisioned in the 2014 Mayors' Council Vision and funded through TransLink's 2016 and 2018 10-year Investment Plans are now coming online, including:

- a new Rapid Bus (R4) along 41st Avenue between Joyce-Collingwood and UBC and associated transit priority improvements along the corridor, including bus priority lanes and new traffic signals on Wesbrook Mall;
- bus speed and reliability improvements across the network, including on corridors affecting UBC-serving routes;
- additional bus service hours aimed at reducing overcrowding, pass-ups and wait-times, including a considerable allocation to UBC-serving routes.

These are welcome improvements that will provide high utilization of the new UBC Bus Exchange. While additional bus service may alleviate some of the discomfort associated with commuting to UBC by transit, analysis by TransLink confirms that only a SkyTrain extension to campus has sufficient capacity to meet UBC's transportation needs well into the future and enable the University to meet its sustainable mode share targets. The University is actively working with regional, provincial and federal government partners to urgently secure such an investment, consistent with the Board-endorsed Rapid Transit Strategy. However, since opening day of this service may be a decade or more away, continued and intensified efforts will be required over the intervening years to encourage transit use. Related efforts planned, recently completed or underway include:

- completion of the new permanent UBC Bus Exchange in September 2019, which provides ample passenger circulation and bus bay capacity, separate arrivals and departures areas that are protected with a continuous canopy system, and one-of-a-kind layover facility integrated with the new Exchange Residence building, improving the passenger experience and operational efficiency;

- participating in the bus integration planning associated with the Broadway Subway Project that will open in 2025 and terminate at Arbutus Street, and accelerating planning and decision-making regarding its further extension to UBC;
- supporting adjustments to on-campus shuttle routes in January 2020 that consolidated routes 68 and 70 into a single shortened route, enabling increased frequency from every 30 minutes to every 20 minutes and an earlier start of service on weekends (8:00am instead of 9:00am or 10:00am) without requiring an increase in service hours allocated;
- supporting an autonomous shuttle pilot along East Mall through partnership with UBC's Transportation Futures group (see section 5) and BCAA that could lead to a future local transit service on this corridor;
- continuing to advocate for service increases and transit priority measures on UBC-serving routes and corridors; and
- exploring the feasibility of a discounted transit pass program for faculty and staff, applying lessons learned from the U-Pass BC program.

1.2 Spotlight on Active Transportation

The UBC Transportation Plan encourages active transportation as part of an integrated approach that increases and encourages healthy, active living while facilitating clean, safe, comfortable alternatives for faculty, staff, students and visitors to move around campus. UBC continues to promote and incentivize cycling to and from campus through a variety of means, including supporting community-based active transportation programs and events like Bike to Work Weeks, Safe and Sustainable Transportation Month, and Walk n' Roll to School programs and Celebration Week. While mode share for cycling has been historically low (approximately 2% of total trips to and from campus or about 2,800 daily trips), the potential exists to increase this through continued development of cycling infrastructure and end-of-trip facilities, as well as encouraging the use of e-bikes. As part of its continued efforts to encourage more cycling, UBC has delivered the following infrastructure:

- **space for over 9000 bikes** on bike racks in the public realm;
- **13 secure bike parking facilities or "bike cages"** across campus with space for over 850 bikes;
- over **200 secure bike lockers** across campus;
- **end-of-trip facilities** in all new academic buildings on campus;
- transforming central campus into a **pedestrian priority zone** by restricting vehicle access and introducing shared pathways and green space consistent with the Public Realm Plan;
- introducing a **network of neighbourhood 'green streets'** in Wesbrook Place designed for pedestrian, cyclist and non-motorized vehicles only;
- allocating space for **dedicated bike lanes** on key campus cycling corridors, including painted bike lanes (East Mall, West 16th Ave, and Thunderbird Blvd), and fully separated bike lanes (Wesbrook Mall); and
- identifying **shared-use lanes and local street bikeways** on other campus roads to increase visibility of cyclists (including West Mall, Agronomy Road, NW Marine Drive).

E-bikes are a particularly attractive commute option for the UBC community given the distances and hills involved in reaching campus. In 2019, UBC partnered with six local e-bike vendors to enable staff and faculty to test out e-bikes as a commuting option for free for 24 hours. The intent of the “Try an E-Bike” program was to build awareness of the benefits of cycling with an e-bike for commuting and to reduce barriers to adoption through a purchasing guide and discounts from retailers. A total of 381 staff signed up, of which 43 completed a rental and 17 actually ended up purchasing an e-bike. The program ran from July to October 2019. Staff are currently planning a second iteration of the program in spring 2020, incorporating improvements suggested by participants. As e-bikes tend to be more expensive than regular commuter bikes, efforts to improve the security of bicycle parking options are critical to their more widespread adoption. Staff are continuing to enhance security of bike storage options on campus through:

- actively **promoting bike registration** through Project 529 in partnership with the RCMP and the University Neighbourhoods Association;
- incorporating **secure bike parking and end-of-trip facilities** into all new academic buildings;
- **converting all bike cages to key card access** (initiated and funded by UBC Parking), replacing numbered key pad entry systems, and adding CCTV monitoring by Campus Security; and
- exploring new **secure bike racks**, including piloting new “smart” bike racks with integrated locking mechanisms and other security features.

There a number of new cycling infrastructure projects that are being planned and are currently under construction. The redesign and reconstruction of Wesbrook Mall will include cycling lanes (portions that will be dedicated and separated from vehicular traffic) as well as future planned improvements along East and West Mall to provide safer and faster alternative routes off of Main Mall primarily for class to class trips. The large volumes and patterns of pedestrian movements along Main Mall create potential conflicts between cyclists moving north-south. To avoid these potential conflicts, efforts are being made to shift cyclists to East and West Mall through directional wayfinding signage, and exploring future designs for improved bike facilities along East and West Mall as the primary cycling corridors. Improvements may include traffic calming and lane reconfigurations, pavement markings and signage to indicate cycling priority, as well as increasing accessible, secure bike parking along these corridors.

2. New and Emerging Trends in Mobility

A range of new and emerging technologies and transportation options will dramatically change the way people choose to move to, from and around campus over the coming decades. These changes are occurring in the context of a shifting transportation planning paradigm that focuses increasingly on maximizing safety for vulnerable road users, prioritizing space for active and sustainable modes, and correcting for market distortions that conceal the true cost of driving (e.g. through congestion pricing and new parking management strategies).

While considerable uncertainty remains surrounding these trends, at UBC they are expected to increase pressure and the potential for conflict within the limited public realm and curbside spaces on campus, and reduce demand for conventional commuter vehicle parking. Adapting effectively to these trends will require the continuous evolution of both operational practices and infrastructure provision on campus.

As new mobility options evolve, UBC remains committed to the headline targets articulated in the UBC Transportation Plan and will develop programs and actions that advance these Board-endorsed policy directions. The planned update to UBC's Land Use Plan for the Vancouver Campus over the coming years presents an opportunity to review and renew these transportation policies and related actions, building on the University's strong history of integrated land use and transportation planning.

The following sections provide an overview of key areas where changes are already underway or anticipated, including actions being taken by the administration to respond and/or prepare.

2.1 Motorized Micromobility

Evidence can already be seen on campus of the market expansion of motorized "micromobility" devices for both shared and personal use. These include electric-assist bicycles or "e-bikes", electric skateboards, e-scooters and other light-weight battery-powered conveyances. To date, their use on campus has been limited to personal devices, though a number of shared micromobility providers have expressed interest in operating shared electric fleets on campus. Elsewhere across North-America the adoption of these devices, particularly in shared fleets has resulted in challenges or outstanding questions related to public realm management, personal safety and sustainability/durability of the associated equipment. There is evidence, however that in the right context, e-scooters in particular can replace automobile trips, with significant number of users reporting that their trip by e-scooter would have otherwise been made in a personal vehicle or by ride-hailing or taxi. Local jurisdictions have had to adapt their regulatory approaches and policies on the fly and no consistent "best-practice" approach has emerged to date. In the United States, of the 84 million trips taken on shared bikes and e-scooters in 2018, nearly half were on shared e-scooters, the newest vehicle type in the shared micromobility marketplace.

E-scooters, in particular, pose unique challenges and opportunities as a new vehicle type, with emerging regulatory standards. In BC, the Province has proposed amendments to the Motor Vehicle Act that will open the door for regulations on these emerging modes of transportation. Currently any device that does not fall under the act's definition of a motor vehicle, bicycle or pedestrian is not allowed to operate on roadways or sidewalks.

Actions underway at UBC related to motorized micromobility:

- Recurring education campaigns and campus community outreach activities to promote safe and courteous use of bikes and motorized devices on campus;
- Installation of slow-zone signage and stencils in pedestrian areas to remind all users to share the space safely;

- New wayfinding maps and on-campus signage specifically targeting people on bikes and other micromobility devices, designed to discourage routing through pedestrian priority areas;
- Administration of a campus-wide hub-based bike share program that uses pedal bikes to meet the shared micromobility needs of the campus community and reduce the need for people to use their own devices to get around campus quickly. This service is operated under a License Agreement with Cyclehop Canada at no cost to the University. From September-December 2019 over 34,000 trips were made using these bikes, covering over 36,000 kilometres. Based on regular audits conducted by C+CP, over 90% of bikes are now being left in designated hubs, contributing to an orderly public realm and preserving bike rack space for cycling commuters. UBC retains the option (at its sole discretion) to expand this program to allow other device types. At this time, however, e-scooters are not recommended for inclusion in the program given outstanding concerns regarding public realm impacts, personal safety risks, and sustainability implications of devices with low durability/longevity. Shared electric-assist bikes will only be permitted if their speeds can be effectively limited within pedestrian areas and are likely to only be warranted as part of a broader regional system that has yet to emerge; and
- Encouraging staff use of personal e-bikes for commuting to campus through free rental programs and information sharing (“Try an E-Bike Program” described above)
- Amendments to the UBC Traffic and Parking Rules approved in September 2019 to:
 - expand the definition of ‘vehicle’ to include a broader range of conveyances, ensuring that the use and parking of any transportation device on campus can be effectively managed;
 - establish a default speed limit within pedestrian areas on campus of 15km/hr; and
 - update various clauses to reflect changes in the technology UBC Parking Services uses to authorize and invigilate parking.

2.2 Ride-hailing or “Transportation Network Services”

The much anticipated introduction of app-based ride-hailing services in the region presents potential benefits to the campus community through improved availability of passenger-directed travel options (presently limited to taxis and limos). At the same time, evidence from other jurisdictions where ride-hailing has been around for some time suggests that their presence will place additional pressure on limited curbside space and may also undermine efforts to advance sustainable transportation policies if not appropriately regulated. While increasing transportation choice, ride-hailing services have been documented in other jurisdictions to increase traffic and congestion, especially in urban centers and during peak periods. Analysis of Uber and Lyft trip data for six major US metropolitan areas demonstrated that ride-hailing trips were responsible for 1.0-2.9 percent of regional vehicle kilometers travelled (VKT) and as much as 13.4 percent of all VKT in urban core of San Francisco (Fehr & Peers, August 2019). UBC has therefore established an approach, aligned with other municipalities such as Vancouver, to appropriately license and regulate ride-hailing operators with the aim of maximizing benefits and minimizing impacts (see Attachment C – Application Guide for Transportation Network Services for more details).

In cities where ride-hailing services have been widely available for some time, a significant reduction in commercial and institutional parking demand has been observed, particularly for entertainment and hospitality-related parking. This phenomenon aligns with existing UBC policies related to decreasing the supply of parking on campus as redevelopment continues.

Ride-hailing or “Transportation Network Services” are regulated provincially and companies are licensed through the Passenger Transportation Board (PTB). Municipal authorities retain the right to establish business license requirements and regulate activities through their street and traffic bylaws. With the necessary provincial legislation and procedures now in place, and relevant applications received by the PTB in September 2019, ride-hailing services are expected to be granted permission to operate in Metro Vancouver imminently.

Related actions underway at UBC related to ride-hailing:

- Development of an enabling policy framework requiring a “Transportation Network Service Permit” under UBC’s Traffic and Parking Rules and associated terms and conditions including:
 - operational requirements related to the companies’ use of campus streets and curbside spaces;
 - licensing and per-trip fees to recover costs associated with the allocation of curbside space, manage congestion, and fund related sustainable transportation programs and infrastructure improvements at UBC; and
 - secured data-sharing and reporting requirements to ensure the University has the information it needs for monitoring, enforcement, and related transportation planning and research activities.
- Participation in the development of a regional Inter-municipal Business License for Transportation Network Services in the interest of streamlining/aligning business licensing requirements across Metro Vancouver;
- Various infrastructure improvements and signage updates to allocate more space for pick-up and drop-off activity;
- Continued investment in monitoring and enforcement technologies to enable dynamic curbside management (cameras, sensors, etc.); and
- Amendments to the UBC Traffic and Parking Rules approved in September 2019 to reflect virtual/online permitting.

2.3 Mobility-as-a-Service, Ride-sharing/Carpooling Apps and Microtransit

A paradigm shift is underway, with an increasing number of people moving away from owning/using their own personal vehicle, and instead conceiving of mobility as a “service”, and selecting the best service provider or travel mode for a particular trip. Integrated trip-planning and payment platforms (often referred to as Mobility-as-a-Service or “MaaS” platforms) are emerging, making it easier for people to live such multi-modal lives and avoid the cost and obligations of owning a personal vehicle.

These services are also introducing the ability to more easily bundle transportation costs (e.g. via subscription packages that include transit trips, ride-hail kms, bike share access, etc.). The proliferation of personal and shared mobility services and a broadening array of transit service models is catalyzing this shift.

New service applications are also emerging for connecting prospective carpool drivers and passengers both in-advance and on-demand. In some cases these services also facilitate cost-sharing among carpool members.

TransLink has begun piloting “microtransit” services that use small transit vehicles operating on flexible routes for on-demand service via app-based trip-booking. While microtransit services are unlikely to be suitable for UBC’s context, commuters traveling to UBC from more remote locations may benefit from such services by gaining more efficient access to the core transit network.

Actions underway at UBC related to mobility-as-a-service and ride-sharing/carpooling:

- Departmental participation in TransLink’s Shared Mobility pilot – along with other select Vancouver-based employers – to test the use of Compass Cards by a small number of staff for work-related trips with any of the four partnered transportation providers: TransLink (transit), Modo (two-way carshare), Evo (one-way carshare), and Mobi by Shaw Go (bike share);
- Supporting TransLink’s partnership with Modo to deliver a Vanpool pilot for UBC employees, where Modo vehicles are provided around the region reserved for vanpool use during commute hours and then available on-campus during the day for individual or institutional use (48 employees are currently participating, using 10 vehicles);
- Providing tips and resources online for setting up carpools, including information on various ride-sharing and carpool matching services/apps that can help potential carpool drivers and passengers connect;
- Allowing parking permits to be shared across multiple vehicles to enable carpool members to take turns driving; and
- Administering the Emergency Ride Home program that covers 90% of the cost of a taxi or ride-hail trip home in the event of illness or a family emergency.
- Various amendments to the UBC Traffic and Parking Rules approved in September 2019 that will make it easier for UBC Parking to adapt to new and emerging technologies.

2.4 Electric and Autonomous Vehicles

Adoption of electric vehicles in B.C. continues to exceed expectations, with EVs making up 9% of light-duty vehicles sold in the province last year, up from 4% in 2018. This is the highest per capita rate in North America, ahead of Quebec at 7% and California at 8% and is already approaching the 2025 target of 10% set out in the Province’s CleanBC strategy. With more electric vehicle models being introduced every year, improved battery range, government incentive programs and increasing availability of charging infrastructure, this

growth can be expected to continue over the coming decades, though projections vary widely and depend heavily on related policy assumptions. This has implications on parking and curbside space requirements for vehicle charging stations and associated infrastructure. To enable the widespread adoption of EVs, a comprehensive system of charging infrastructure is needed, including access “at home”, “at work or school”, and “on the go” (in public parking lots, at major destinations, and along highway corridors for longer distance trips).

Research indicates the ability to charge at home is the primary driver and indicator of electric vehicle adoption, and that this is where most charging occurs (80% according to the BC Utilities Commission). In 2018, UBC’s Residential Environmental Assessment Program (REAP 3.1) was updated to include strengthened requirements for EV charging infrastructure in residential construction, setting the stage for more widespread EV adoption in residential neighbourhoods. The focus of these requirements is on ensuring EV-readiness through the installation of necessary electrical infrastructure/systems to enable future installation of Level 2 EV charging stations. For non-rental developments, REAP requires one Level 2 EV-ready outlet per residential unit.

Workplace and publicly available chargers have comparatively lower demand, but still play an important complementary role in reducing range anxiety, improving convenience of EV utilization and in some cases reducing direct operating costs. Climate Action Plan 2020 specifically proposed a strategy to promote electric vehicles using distributed charging stations. Over the past decade, UBC Parking has installed EV chargers and associated electrical infrastructure in all of their parkades and select surface or underground lots. UBC now has 74 EV chargers available for public use within its parkades and lots, including 4 DC fast chargers in the new University Boulevard lot under MacInnes Field. These fast chargers are particularly valuable for service and delivery vehicles that don't have four hours to wait for a full charge. Currently, access to most of these chargers and any electricity used is included with the cost of a parking permit. UBC Parking is piloting a similar approach to the City of Vancouver by including an incremental charge for use of EV charging stalls within the new University Boulevard lot. If successful this approach may be adopted more broadly to make better use of the infrastructure and recover associated electricity costs, balancing objectives of encouraging broader market transformation toward EVs.

UBC has also demonstrated leadership in the adoption of electric vehicles within its own fleet, spurred on by policies of the Climate Action Plan 2020, which commits to increasing the efficiency of UBC’s fleet through procurement of right sized, high efficiency, and alternate fuel (such as electric and compressed natural gas) vehicles and motorized equipment wherever possible. UBC Building Operations now has 20 EV charging stations to power its fleet of EV cars and trucks.

Autonomous vehicles are also on the horizon, though predictions vary widely as to when they will become broadly available and for what use. In the near to medium-term, their use is likely to be limited to controlled corridors and/or specific use cases (e.g. long-haul trucking, deliveries, public transit, etc.). Over the longer term, they have the potential to blur the lines of ride-hailing, car-sharing and public transit services.

Actions underway at UBC related to electric and autonomous vehicles:

- Continued investment by UBC Parking in electric vehicle charging infrastructure across campus to facilitate the transition towards zero emission vehicles. 74 EV chargers are now available for public use within UBC Parking managed lots and parkades, roughly the same number as are available across all of the City of Vancouver's city-owned lots;
- Evolving parking management practices to make the most efficient use of charging infrastructure (e.g. time limits, incremental parking charges, etc.);
- Developing policy guidelines for provision of parking and EV charging infrastructure in new academic projects (e.g. student housing); and
- Supporting research collaborations and pilots exploring autonomous vehicles and related technologies and applications (see section 5).

3. Academic collaborations and research partnerships

Campus and Community Planning's transportation team has been actively collaborating with faculty researchers and students through SEEDS projects and other partnerships to support various transportation planning initiatives. These engagements include a wide range of collaborations that continue to inform policy, infrastructure and program development. Select collaborations are highlighted below that showcase the types of partnerships being advanced, consistent with the University's broader Campus as a Living Lab philosophy. These represent just a small subset of the collaborations planned or underway to inform

SCARP Studio Exploring Integration of SkyTrain on Campus - In 2018-2019 a collaboration with the Faculty of Applied Science and the School of Community and Regional Planning examined the potential impacts and integration challenges associated with theoretical elevated SkyTrain alignments on campus, leading to a number of insights that are being incorporated into work underway with TransLink to evaluate alignment and station location alternatives as part of the Arbutus to UBC SkyTrain project.

TransLink "Future of Mobility" Micromobility Symposium – In April 2019, UBC co-hosted a public symposium at Robson Square exploring how emerging micromobility options (as described in section 2) can support a livable region. The symposium was part of TransLink's Future of Mobility Speaker Series and showcased UBC's leadership in piloting the region's first free-floating or "dockless" bike share program, and related research underway by UBC's REACT (REsearch on Active Transportation) Lab. The event also featured presentations and product demonstrations by industry representatives and a panel discussion.

Leveraging UBC as a Testbed for Clean, Connected and Safe Transportation – C+CP and UBC Parking have ongoing relationships with the Faculty of Applied Sciences and the Clean Energy Research Centre (CERC) supporting various initiatives, including the Transportation Futures research program, the AURORA Connected Vehicle Testbed project, and other projects that bring practical research and learning opportunities to the department. The AURORA project is a particularly promising asset for the University as it involves leveraging the Internet of Things (IoT) to monitor patterns of movement, through

a network of connected cameras, vehicles, traffic signals and roadside monitors, and optimize traffic signals and transportation capacity. This could, in time, automate a portion of the transportation monitoring program the UBC carries out each year. This would result in cost savings as well as more accurate and comprehensive data. Other collaborative testbed initiatives are also under development related to: hydrogen fuel production from a planned solar array on the rooftop of Thunderbird Parkade, bi-directional/conductive electric vehicle recharging, and the translation of an expanding array of transportation data and digital communications protocols into smart city planning and technology deployment strategies.

East Mall Autonomous Shuttle Pilot – C+CP and UBC Parking are collaborating with Transportation Futures and BCAA to pilot an autonomous shuttle service on campus. The shuttle will be run, monitored, and evaluated by BCAA and Transportation Futures, with UBC staff support in the planning and permitting process as well as installation of associated infrastructure. Initially the shuttle is anticipated to operate up and down East Mall between University Boulevard and West 16th Ave, providing a new connection between south campus and the academic core. The pilot will not only test this new technology and how it interfaces with the campus environment and other road users, but may also inform the planning of future on-campus shuttle routes. The project is made possible by the new campus 5G network installed in 2019 through UBC’s partnership with Rogers Communications, providing the necessary ultra-low latency.

The examples above illustrate the value of strong collaboration that serves to advance innovative demand-driven research and operational needs at UBC and help inform regional transportation policy.

4. Conclusions and Next Steps

The 2014 UBC Transportation Plan continues to provide clear policy direction to guide institutional investments and programs that advance the University’s sustainability, climate action and wellbeing goals. With the University’s recent declaration of a climate emergency and continued progress on its Rapid Transit Strategy, the need and opportunity to accelerate achievement of the targets articulated in the 2014 Transportation Plan has never been clearer. Building on the University’s strong history of integrated land use and transportation planning, this theme will be explored through the process of updating UBC’s Land Use Plan beginning later this year.

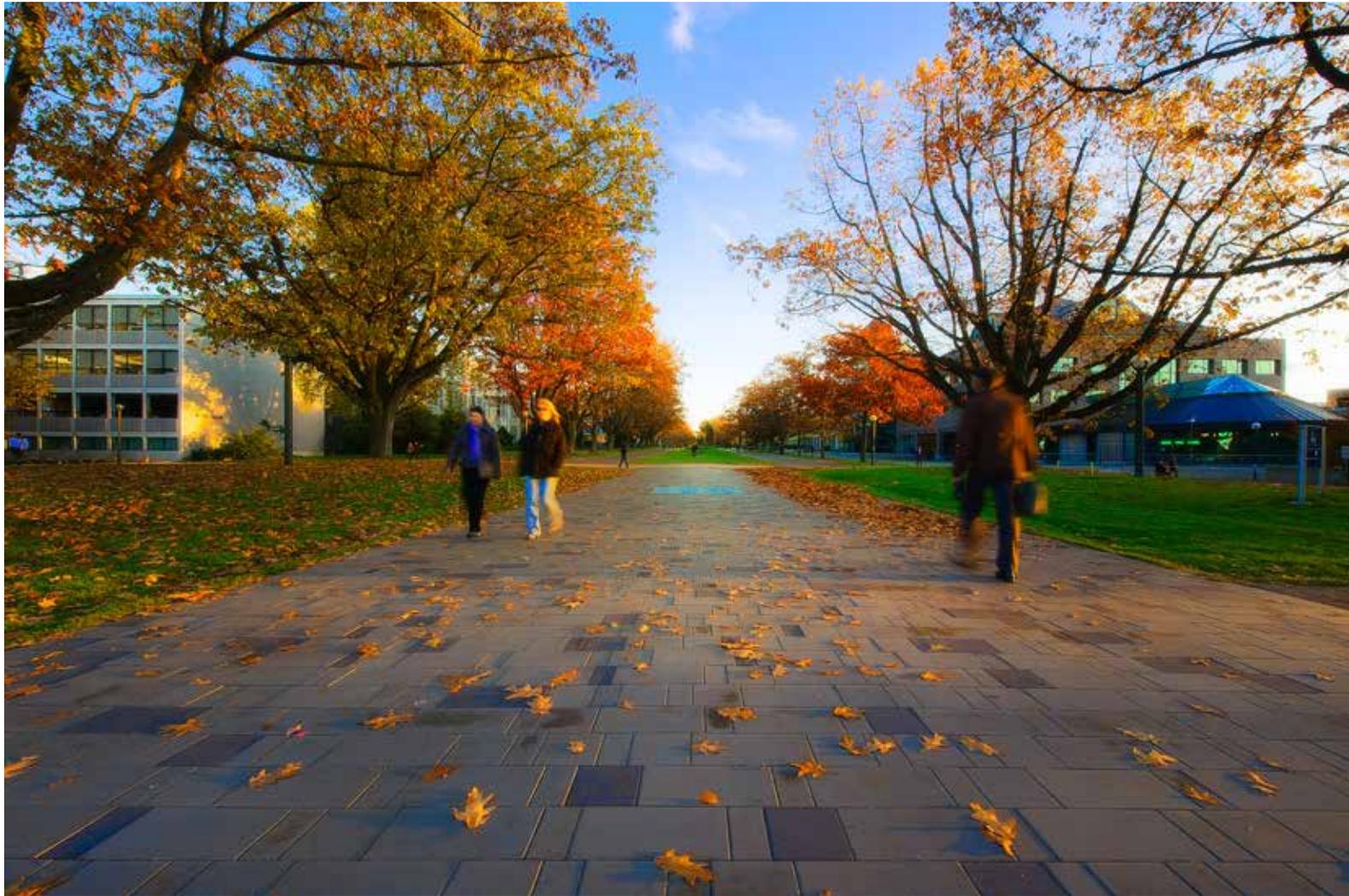
Securing investment commitments for a SkyTrain extension to UBC remains an urgent priority and is critical to achieving the University’s long-term goals of improved connectivity, prosperity, affordability and sustainability. However, the need to proactively manage transportation demand persists, and will be particularly vital over the coming decade as congestion, pick-up and drop-off activity, vehicle access challenges, and parking needs are likely to escalate until a SkyTrain connection is completed. The administration is therefore intensifying its efforts to encourage the use of sustainable transportation modes over the coming years and will continue to seek opportunities to leverage new and emerging technologies and services to advance the University’s goals. This is reflected in existing budget projections for 2020-2021.

Results of transportation monitoring program for 2019 will be documented in the “2019 Transportation Status Report” and included in the annual “UBC Land Use Plan, Transportation and Engagement Annual Monitoring Report” scheduled for submission to the Board of Governors in April 2020.

The University of British Columbia

UBC Transportation Plan

VANCOUVER CAMPUS



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

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TRANSPORTATION PLAN

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1 SETTING THE STAGE

1.1 OVERVIEW

The Vision in UBC's Strategic Plan – *Place and Promise: The UBC Plan* – states:

As one of the world's leading universities, the University of British Columbia creates an exceptional learning environment that fosters global citizenship, advances a civil and sustainable society, and supports outstanding research to serve the people of British Columbia, Canada and the world.

One of the ways UBC supports this vision is through campus planning. Planning guides decision-making to support UBC's academic mission. It also strengthens the university's local and international cultural, economic and research contributions. And it ensures the campus is considerate of its stunning natural setting and its many neighbours.

Transportation is a key part of campus planning. An effective, accessible and flexible transportation system is incredibly important. It can save you money, improve your health, and give you more time to study, research, exercise and enjoy the beauty of UBC's campus.

UBC is dedicated to promoting sustainable transportation options for the university community. Over the past decade, UBC has been successful in improving the transportation system for trips to and from campus. This *Transportation Plan* builds on that success. It is a long-term strategic plan for UBC's Vancouver Point Grey campus that updates and replaces UBC's 2005 *Strategic Transportation Plan*.

This *Transportation Plan* brings a new focus to on-campus transportation and consolidates existing transportation policies and actions that reside in UBC's *Land Use Plan*, *Vancouver Campus Plan*, and *Strategic Transportation Plan*. The *Transportation Plan* also identifies gaps in these existing plans related to transportation around campus and provides new policies and actions to achieve aspirational long-term targets. The *Plan* may be updated from time to time as new issues and challenges emerge.

Section One – Setting the Stage – describes the plan's scope, UBC's planning context, the university's role in transportation, the *Transportation Plan's* consultation and development process, transportation trends, and UBC's long-term transportation targets. Section Two – Policies and Actions – describes the detailed transportation initiatives UBC is taking in the areas of walking, cycling, transit, driving, accessibility, and circulation, service and other transportation measures.



1.2 PLAN SCOPE AND IMPLEMENTATION

This *Transportation Plan* is for UBC's Vancouver Point Grey campus. The *Plan* provides long-term strategic guidance and may be updated from time to time, in consultation with the campus and neighbouring community, to respond to changing conditions.

The actions identified in the *Transportation Plan* will be implemented by UBC Campus and Community Planning in collaboration with other UBC departments. Many of the actions are being implemented on an ongoing basis already. Other actions will require more detailed study and community consultation. UBC will prioritize implementation to reflect available resources, practical constraints, and data collected from transportation monitoring. Information about projects, data collection and other initiatives related to the *Transportation Plan* will be posted on planning.ubc.ca.

1.3 UBC'S ROLE

There are a number of ways that UBC can influence the transportation system and travel behaviour. Some areas that are under the university's direct control include:

- Guiding land development through planning, housing and urban design policies;
- Regulating campus streets and parking;
- Building and maintaining campus roads, sidewalks and public spaces; and,
- Educating and empowering the campus community to make sustainable transportation choices.

Other transportation issues extend beyond UBC's boundaries and fall under regional or provincial control, such as highways and transit. For example, the BC Ministry of Transportation and Infrastructure has authority for roads such as West 16th Avenue, and TransLink has authority for public transit to, from and around campus. On these issues, UBC can improve transportation options and influence travel behaviour by being a partner, stakeholder and advocate for the campus community.

This *Transportation Plan* contains policies and actions to address transportation issues under both direct and regional control.



UBC Vancouver Campus [Map 1-1, Page 41](#)

1.4

PLANNING CONTEXT

UBC has a number of existing campus planning documents that contain transportation planning principles and policies. These include the *UBC Land Use Plan*, *Vancouver Campus Plan*, *Neighbourhood Plans*, and the *2005 Strategic Transportation Plan*. These plans have resulted in a successful 'made-at-UBC' transportation solution that focuses on walking, cycling and public transit as the preferred options for travel to, from and around the UBC Vancouver campus. All of UBC's plans - including this *Transportation Plan* - support the university's strategic direction in *Place and Promise: The UBC Plan*.

Land Use Plan

UBC's *Land Use Plan* establishes land uses and provides policies for the development of UBC's Vancouver Point Grey campus lands, such as supporting the development of a public transit-oriented campus community rather than one that is focused on cars. It also supports creating a pedestrian- and bicycle-friendly environment to minimize pollution and provide sustainable transportation options.

Vancouver Campus Plan

UBC's 2010 *Vancouver Campus Plan* guides where and how future academic activities, student housing and associated campus services will be accommodated over the following 20 years. The *Vancouver Campus Plan* prioritizes creating a sustainable campus that is well-connected and accessible for pedestrians, cyclists and non-motorized modes of transportation. The *Plan* also guides UBC's capital investment in facilities for teaching and research, student housing, and campus infrastructure and services.

Neighbourhood Plans

Each of UBC's non-institutional neighbourhoods has a Neighbourhood Plan describing site-specific land uses, development controls, design guidelines, and servicing and transportation strategies consistent with UBC's *Land Use Plan*. These plans ensure each neighbourhood has the amenities and services required to achieve a compact, transit-oriented, pedestrian-friendly community. These plans contain specific requirements for each neighbourhood and are much more detailed than the policies and actions in this *Transportation Plan*.

Strategic Transportation Plan

UBC's *Strategic Transportation Plan* is a comprehensive and integrated transportation management strategy. The Plan was first adopted in 1999 and renewed in 2005. The *Strategic Transportation Plan* includes a wide range of transportation initiatives intended to reduce automobile traffic, increase transit ridership and manage travel demand. To date, UBC has pursued these initiatives with considerable success, and has become a leading example of transportation demand management in the region.

Each of UBC's existing plans undertook a comprehensive public consultation process. This *Transportation Plan* does not alter the transportation policies and actions in these plans, except by removing those that are now obsolete. Instead, it updates and brings these policies and actions together in one document, consolidating them for future transportation initiatives. The *Transportation Plan* also addresses gaps in the existing plans and policies, especially related to on-campus travel.

UBC also works with regional partners on transportation issues. The *Transportation Plan* reflects UBC's place in the region by also drawing on transportation and land use plans from UBC's regional partners, including the City of Vancouver, TransLink, Metro Vancouver and the University Endowment Lands.

1.5 CONSULTATION AND PLAN DEVELOPMENT

The policies and actions contained in this *Transportation Plan* are based on existing directions, best practices from around the world, regional expertise, and public input received during a comprehensive consultation with the university community.

The public consultation process was essential to ensuring UBC's *Transportation Plan* meets the campus community's needs. Public consultation occurred between January 2013 and April 2014. It included broad notification, advertising and outreach to campus and neighbouring stakeholders over three phases:

- April 2013, Phase I: In this phase, the public was offered both online and in-person opportunities to identify issues and opportunities as they relate to on-campus transportation. Input was collected through an interactive mind map activity, an online questionnaire and feedback forms. The feedback from this phase helped identify opportunities to better address how people get around campus and informed the policy directions presented in Phase II.
- November 2013, Phase II: In this phase, the public was invited to learn more about the process of developing the *Plan*, and comment through both in-person and online feedback opportunities on proposed policy directions to improve on-campus transportation.
- March/April 2014, Phase III: In this final phase, a draft of the *Transportation Plan* was presented to the campus and neighbouring community for input. Both in-person and online feedback opportunities were offered.



A *Transportation Plan Advisory Committee* also provided invaluable stakeholder input to shape the *Transportation Plan*. The Committee reviewed and provided comments on community engagement and consultation, policy gaps in current plans, and proposed policy directions and actions. The Committee met ten times throughout the planning process and included representatives from the following UBC departments and campus stakeholders:

- Alma Mater Society
- Graduate Student Society
- University Neighbourhoods Association
- UBC Student Housing and Hospitality Services
- UBC Building Operations
- UBC Parking and Access Control Services
- UBC Payment and Procurement Services
- UBC Access and Diversity
- UBC Campus Mail
- UBC School of Community and Regional Planning
- UBC Properties Trust
- UBC Campus and Community Planning
- Vancouver Fire and Rescue Services

1.6

TRANSPORTATION TRENDS

Campus Land Use

Land use and transportation are intimately connected. How UBC develops its campus determines where people live, work, shop, play and learn. UBC's *Land Use Plan* and *Vancouver Campus Plan* ensure transportation and land use policies are coordinated with the goal of creating a model sustainable community.

UBC's land use policies support building a complete academic and residential community on campus. This is reflected in how the campus lands have developed, including the growth of on-campus student and residential housing and investments to transform the academic core. These trends will continue with commitments in UBC's *Land Use Plan* and *Vancouver Campus Plan* to improve the campus walking and cycling networks, support a diverse range of housing types, increase student housing, build K-12 schools and community centres on campus, improve recreational opportunities, and locate new residential development near shops and services. All of these land use choices will influence sustainable transportation choices.

A Growing Campus

UBC’s daytime campus population – students, staff and faculty – has grown by 51% from 1997-2012, and the UBC neighbourhoods have grown to include nearly 9,000 residents as of 2013.

This growth is projected to continue. By 2021, UBC estimates the Vancouver campus will be home to approximately 22,500 residents – including 10,000 students in on-campus residences. Student enrolment is also expected to continue to grow, reaching more than 60,000 full time equivalents by 2041 and bringing corresponding growth in faculty and staff support along with new facilities for teaching, research and campus life. Additional residential housing in the university neighbourhoods is also planned; at full community build out in 2041, the total university neighbourhood population is projected to be approximately 24,000 people.

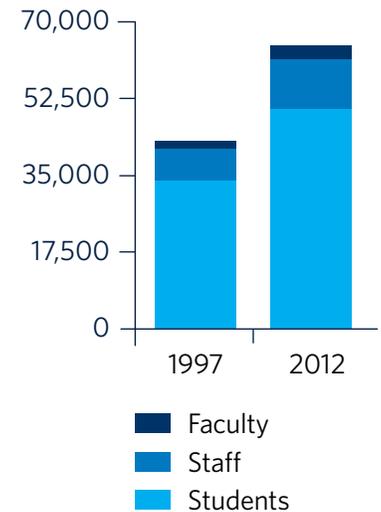
Table 1. UBC 2021/2041 Growth Projections

Projections	2021	2041
Residents in UBC student accommodations	10,000	16,000
Residents in UBC neighbourhoods	12,500	24,000
Student enrolment	47,294	60,294

Source: UBC Campus and Community Planning

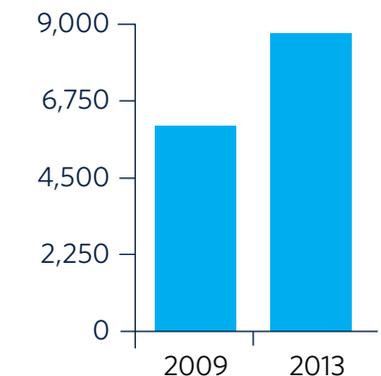
More people living and working at UBC means adding more trips to the transportation network, but campus road space will not change significantly. In addition, the university’s neighbours in the University Endowment Lands are expected to grow over the coming years with development such as the Musqueam First Nation’s Block F proposal. For UBC’s transportation network to accommodate this growth, trips to, from and around the campus need to be shifted to walking, cycling and transit, which can be encouraged by UBC’s land use and other policies in this *Plan*.

Chart 1. UBC Daytime Population Growth (Students, Staff and Faculty), 1997-2012



Source: UBC Planning and Institutional Research

Chart 2. UBC Residential Population (Campus Neighbourhoods), 2009-2013



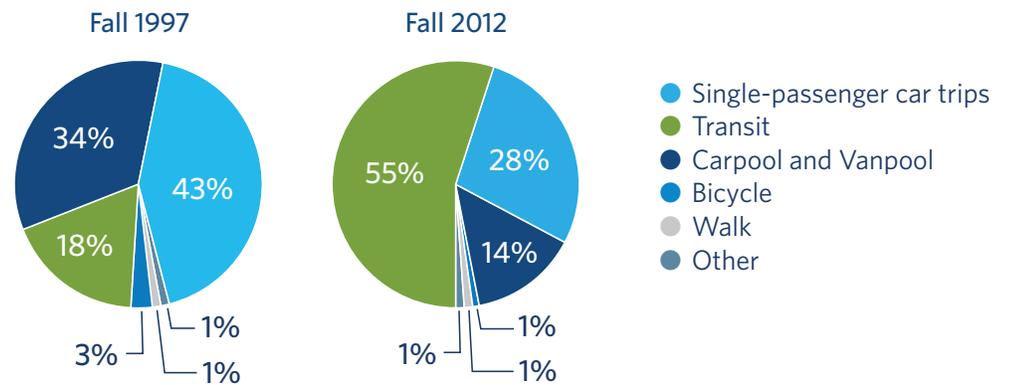
Source: UBC Campus and Community Planning estimates. NB These figures do not include student residents.

Transportation To and From Campus

UBC has been tracking travel patterns to and from campus since 1997. These patterns are monitored through a variety of different data collection methods and described in annual Transportation Status Reports.

Since 1997 there has been a significant change in how people travel to and from UBC. The chart below shows how mode share – the relative proportion of trips by transportation mode during a particular time period – has shifted over that time period from vehicles to public transit.

Chart 3. Travel Mode Shares to and from UBC, 1997 and 2012



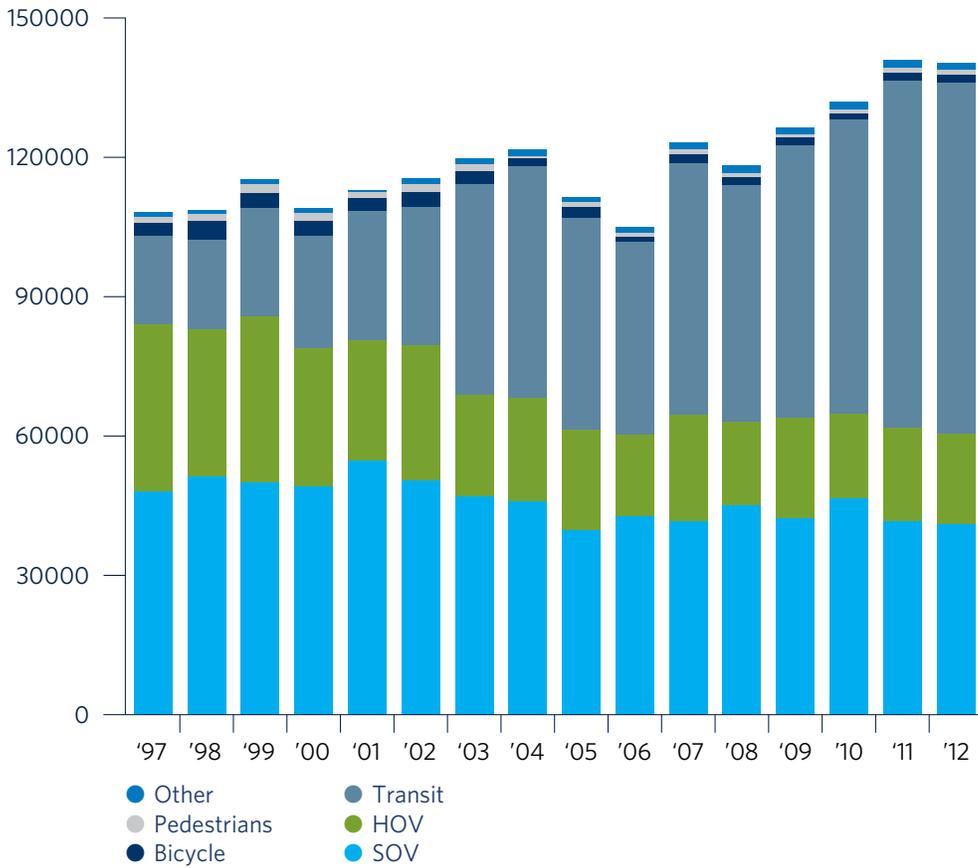
Source: UBC Fall 2012 Transportation Status Report

This mode share shift is also reflected in the change in daily person trips – a measure of all people arriving to and from UBC by each mode – and in daily trips per person – a measure that, unlike daily person trips, removes the impact of population growth from the calculation by looking at trips per capita.



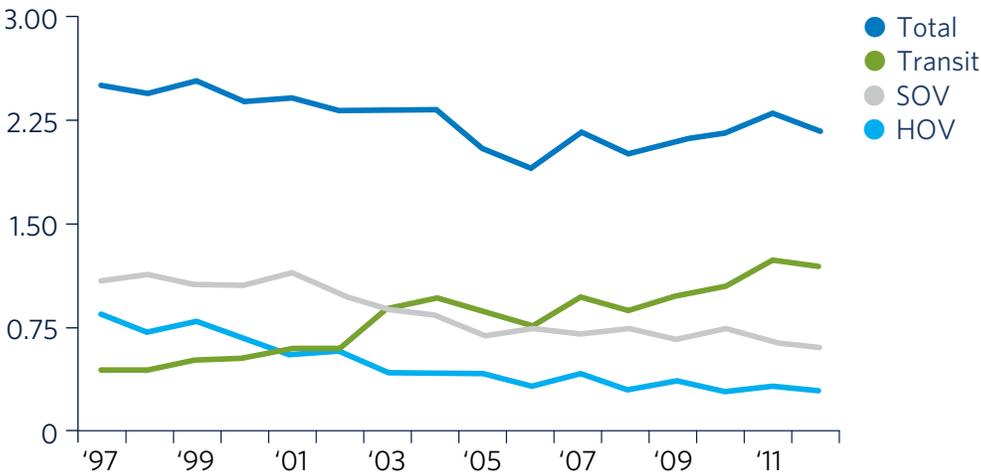
Transportation to and from UBC
Map 1-2, Page 42

Chart 4. Daily Person Trips to and from UBC, by mode, 1997-2012



Source: UBC Fall 2012 Transportation Status Report

Chart 5. Daily Trips per Person to and from UBC, by mode, 1997-2012

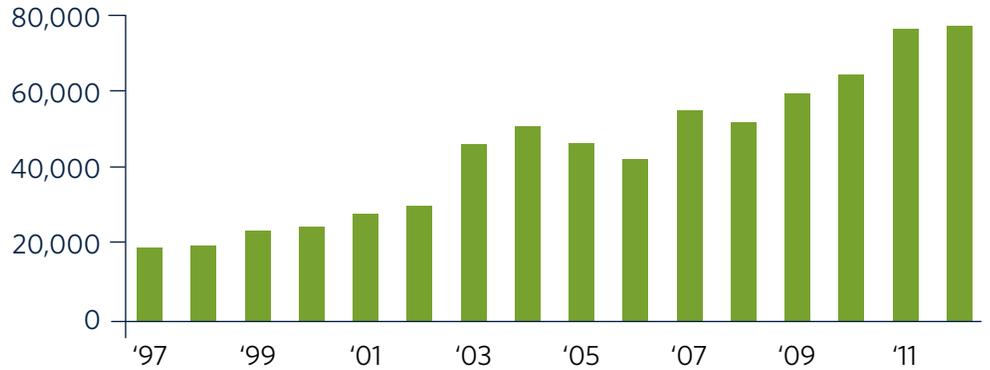


Source: UBC Fall 2012 Transportation Status Report



The increase in transit mode share from 18% to 55% over this time is due to a number of factors: population growth; the 2003 introduction of the student U-Pass, which offers unlimited bus, SkyTrain and SeaBus services to all students; more transit service to and from campus; and UBC programs and policies to encourage sustainable transportation. As the chart below shows, the change is substantial: daily transit person trips to and from UBC have increased by 298% from 1997-2012.

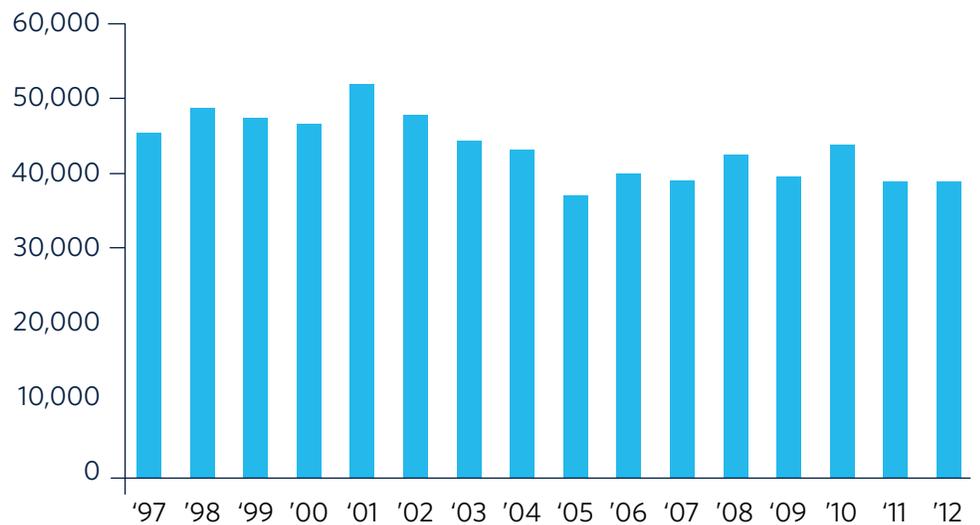
Chart 6. Transit, Daily Person Trips to and from UBC, 1997-2012



Source: UBC Fall 2012 Transportation Status Report

The success in increasing transit mode share has contributed to a decrease in single occupancy vehicle travel to UBC. From 1997-2012, the number of daily SOV person trips has decreased 15%, even though UBC's daytime population has grown 51% over the same time. Similarly, over the same period the number of SOV trips per person has decreased 44%. These reductions contribute to meeting UBC's *Land Use Plan* target of reducing single occupant vehicle travel to and from the campus by 20% from 1996 levels.

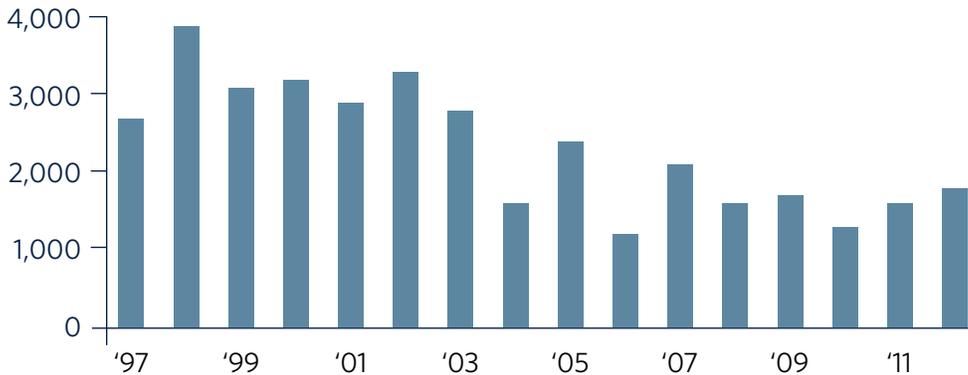
Chart 7. SOV, Daily Person Trips to and from UBC, 1997-2012



Source: UBC Fall 2012 Transportation Status Report

Cycling has also been declining as a method of transportation for trips to and from UBC but remains strong on campus. As the chart below shows, cycling person trips have declined by 33% from 1997-2012. This is likely a result of the shift to transit, increased housing costs close to campus, and the topography cyclists face as they travel west from the City of Vancouver.

Chart 8. Cycling, Daily Person Trips to and from UBC, 1997-2012



Source: UBC Fall 2012 Transportation Status Report

Transportation Around Campus

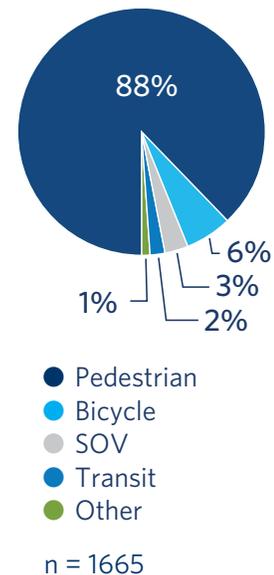
On-campus travel is not tracked with the same level of detail as travel to and from UBC. To improve this, the *Transportation Plan* commits to implementing comprehensive on-campus travel monitoring, described in more detail below. In the meantime, surveys of the campus community provide a good snapshot of travel patterns around the campus. The most recent comprehensive, representative survey took place in 2013.

Not surprisingly, as the chart below shows, walking is by far the most popular way for people to move around the campus. UBC's Neighbourhood Plans ensure walkability is a key design principle in the campus residential communities. The university has also made significant investments in walkability in the academic core through the *Public Realm Plan*, which has transformed UBC's campus. The importance of walking for on-campus travel is expected to continue thanks to these efforts, as well as the projected increase in the on-campus student and residential population. After walking, cycling accounts for the next largest portion of on-campus travel, followed by driving and public transit.



Transportation Around UBC Map 1-3, Page 43

Chart 9. Primary Mode of Travel on UBC Campus (Survey Results), 2013.



1.7 TARGETS

This *Transportation Plan* includes targets to ensure accountability, shape decision making and inspire the community to act in ways to achieve UBC's campus vision. The *Plan* retains key targets from the *2005 Strategic Transportation Plan* related to the volume of daily automobile traffic and the reduction of single occupant vehicle trips, and also adds aspirational targets to increase sustainable travel to and from UBC. These targets support UBC's overall *Land Use Plan* target for reducing single occupant vehicle travel to and from the campus by 20% from 1996 levels. UBC will work to meet these targets through the policies and actions identified in the Section 2.

Target 1 Sustainable Travel



by 2040 at least two-thirds of all trips to and from UBC will be made by walking, cycling or transit.

maintain at least 50% of all trips to and from the campus on public transit.

These ambitious new targets reflect UBC's sustainability goals and the university's historic success in shifting trips to sustainable travel modes such as transit.

These mode share targets are based on a measure of all trips to and from the campus. The goal of increasing sustainable travel mirrors the City of Vancouver's *Transportation 2040 Plan* and is consistent with direction in TransLink's *Regional Transportation Strategy*.

It will be challenging for UBC to reach the two-thirds target by 2040. To do so requires shifting almost one-quarter of daily single and high occupancy vehicle trips to walking, cycling or transit (based on 2012 numbers). UBC believes the actions in this *Transportation Plan* can achieve this ambitious goal.

Target 2

Single Occupant Vehicles



reduce SOV travel to and from UBC
by 20% from 1996 levels

maintain at least 30% reduction
from 1997 levels in daily
SOV trips per person to and from UBC

These targets come from UBC's *Land Use Plan* and *2005 Strategic Transportation Plan*, respectively.

Since 1996, daily SOV travel in terms of person trips to and from UBC has decreased 15%, even though UBC's daytime population has grown 51% over the same time. There is still more work to be done to reach a 20% reduction, but UBC believes the actions in this *Transportation Plan* will help reach this ambitious target.

The target of reducing daily SOV trips per person by 30% provides an additional measure of UBC's success in getting people out of cars. Unlike total trips, per person trips take into account the effects of student and population growth. From 1997-2012, SOV trips per person have decreased 44% due to increases in transit usage and more people living and working on campus. By continuing to reduce SOV trips, UBC will be able to remove parking lots and repurpose land for academic facilities, housing and green space.

Target 3

Daily Private Automobile Traffic

This target is also maintained from the *2005 Strategic Transportation Plan*. Private automobile traffic refers to all single and high occupancy vehicles, but excludes buses and commercial vehicles.

UBC is developing its campus as a pedestrian-friendly, transit-oriented community. Efforts such as the successful coordination of land use and transportation investments, significant investments in the public realm and pedestrian priority zones, and transportation demand management programs help reduce automobile traffic on campus roads. Reduced traffic makes it safer to walk or cycle and means less noise and emissions, resulting in a higher quality of life for people on campus.

maintain daily
private automobile traffic
at or less than 1997 levels.



2 POLICIES AND ACTIONS

This section provides a detailed description of UBC's *Transportation Plan* policies and actions for each transportation mode.

Transportation Plan policies reflect high-level principles to guide UBC's transportation decisions. Actions are specific initiatives that UBC will take to implement the policies, to address identified policy gaps, and to meet the *Transportation Plan* targets described above. Throughout each section below it is clear where policies and actions are consolidated from existing transportation initiatives in UBC's *Land Use Plan*, *Vancouver Campus Plan* and the *2005 Strategic Transportation Plan*. Where new actions are included, they are identified as coming from this *Transportation Plan*.

This *Transportation Plan*'s development included identifying gaps in UBC's existing transportation policies and actions. This work was supported through public consultation and input from the *Transportation Plan* Advisory Committee. The gaps identified through these processes are described in detail in each section below.

2.1 WALKING

Background

Walking is the beginning and end of almost all trips. It has important health benefits and is the cheapest and most space-efficient way to travel. It also provides opportunities for community interaction, animates public spaces, and delivers sustainability benefits. For all these reasons, UBC favours walking, along with cycling and transit, in travel to, from and around campus.



POLICY BASIS

Walking Network

UBC is a walking campus. The walking network – UBC’s streets, sidewalks and paths that are intended for pedestrians – is well-developed throughout most of the campus. The university has a vehicle-restricted core and parking lots located outside the campus core. The *Vancouver Campus Plan* established pedestrian priority zones across the campus. Walking is also made safer and more enjoyable through *Land Use Plan* and *Vancouver Campus Plan* commitments to upgrade intersections and crosswalks across the campus, and to improve greenways and pathways.

UBC’s planned land use and development will continue to improve the walking network by creating a built environment that minimizes walking distances between key destinations. For example, the *Vancouver Campus Plan* includes ‘mixed-use hubs’ in the academic core. The first of these hubs – Ponderosa Commons – provides student housing, teaching and learning space, and recreational and retail opportunities. Future hubs will offer the same opportunities, enlivening the campus and improving the pedestrian experience. These principles have also been applied in UBC’s neighbourhood development, which encourages walking by providing a diversity of land uses, amenities and services.

Public Realm Plan

UBC’s walking network is a significant part of the university’s public realm. UBC’s public realm has been undergoing transformative change through the 2009 *Public Realm Plan*. The *Public Realm Plan* implements key directions from the *Vancouver Campus Plan* to create a network of outdoor public spaces that animate the campus, instill pride in the campus community, and enhance UBC’s informal educational places, among other goals. These public realm investments include the north-south corridor created by the Main Mall Greenway, where vehicles are restricted and bicycle travel speed is reduced. UBC will continue to implement the *Public Realm Plan* and encourage creative uses of greenways and streets.

Policy Gaps

Despite UBC’s walking successes, there is room for improvement. Some areas of the campus require lighting and sidewalk and pedestrian facility improvements, which UBC will continue to implement as described in the *Vancouver Campus Plan*. Other gaps identified in the development of this *Transportation Plan* are the:

- Lack of a formal commitment to support and promote campus walkability through educational programming targeted at university neighbourhoods; and,
- Need to improve east/west pedestrian connections to link key campus destinations.



POLICIES AND ACTIONS

W1. Walking Network

W1.1 Favour pedestrians (along with cyclists and transit) in travel to, from and around campus.

W1.1.1 *Disallow through travel in the pedestrian core by UBC vehicles. Redesign Main Mall to deter motor vehicle use. Install passable barriers in key locations on perimeter of pedestrian core to limit access to authorized vehicles only.*
Source: 2005 Strategic Transportation Plan

W1.1.2 *Promote alternative non-automobile travel modes (walking and cycling) both generally and through the development of greenways.*
Source: Land Use Plan

W1.1.3 *Design each neighbourhood to contain a fine-grained pedestrian and cycle route network with mid-block connections.*
Source: Land Use Plan

W1.1.4 *Ensure the width and design of greenways gives priority to pedestrians and cyclists and, in some cases, accommodates service and private vehicles without conflict.*
Source: Land Use Plan

W1.1.5 *Integrate the pedestrian and cyclist network with the greenway system.*
Source: Land Use Plan

W1.1.6 *Limit vehicular access in the pedestrian priority zone to emergency and security vehicles and those with disabled access privileges. Reengineer existing roads in this area over time to emphasize the area's pedestrian nature.*
Source: Vancouver Campus Plan

W1.1.7 *Implement specific road, pathway and intersection improvements identified in the Vancouver Campus Plan to make walking, cycling and transit more convenient.*
Source: Vancouver Campus Plan

W1.2 Make the campus even safer for walking.

W1.2.1 *Upgrade intersections and key marked crosswalks on campus including, as appropriate: improved illumination, raised crosswalks, median islands, flashing lights, audible and tactile indicators.*

Source: 2005 Strategic Transportation Plan

W1.2.2 *Apply traffic calming principles, both in the residential and academic areas, to ensure the safety and attractiveness of the public realm for pedestrians and cyclists.*

Source: Vancouver Campus Plan

W1.2.3 *Implement improved lighting that is energy efficient and dark sky friendly to improve personal safety.*

Source: Land Use Plan

W1.2.4 *Create a map of high traffic night routes and include this information on UBC's wayfinding websites.*

Source: New - Transportation Plan

W1.2.5 *Implement the UBC Point Grey Campus Safety Working Group's recommendations to improve mobility and visibility on campus.*

Source: New - Transportation Plan



W1.3 Make the campus even easier to navigate by foot.

- W1.3.1** *Maintain the continuity of routes for the east / west pedestrian pathways to strengthen pedestrian access through campus.*
Source: Vancouver Campus Plan
-
- W1.3.2** *Complete the southward greenway across West 16th Avenue and then along South Campus Road to the border with Pacific Spirit Park to provide a safe and pleasant pedestrian and cyclist link between South Campus and the Main Campus.*
Source: Vancouver Campus Plan
-
- W1.3.3** *In partnership with the University Neighbourhoods Association, support and develop programming for the campus community that encourages walking on campus (including elementary and secondary school trips).*
Source: New - Transportation Plan
-
- W1.3.4** *Identify and map the shortest and most frequently travelled routes to link key destinations on campus.*
Source: New - Transportation Plan
-
- W1.3.5** *Identify opportunities to implement improvements to east / west connections as part of the Public Realm Plan and as new developments and land use changes occur.*
Source: New - Transportation Plan
-
- W1.3.6** *Continue to develop and implement a comprehensive on-line and on-campus wayfinding system.*
Source: New - Transportation Plan
-

W2. Public Realm

W2.1 Continue improving the campus public realm.

- W2.1.1** *Implement the Public Realm Plan to support a pedestrian-friendly campus that is animated, invigorated and lively.*
Source: Vancouver Campus Plan
-
- W2.1.2** *Provide a larger supply of student housing and more mixed land uses throughout the campus to support a pedestrian-friendly campus and significantly reduce the number of vehicle trips.*
Source: Vancouver Campus Plan
-
- W2.1.3** *Expand the network of weather-protected walking routes criss-crossing campus.*
Source: Vancouver Campus Plan
-

2.2 CYCLING

Background

For many people, cycling is a fast, fun, affordable and healthy way to travel. There is mounting evidence that cycling provides benefits for the economy, the environment and individual and community health. In recognition of these benefits, UBC favours cycling, along with walking and transit, in travel to, from and around campus.

POLICY BASIS

Cycling Network

UBC's relatively large campus and gentle topography makes cycling an ideal transportation mode. Cycling routes are most useful when they form a network of direct and convenient connections to important campus destinations like housing, shops, sports facilities, libraries, and residential neighbourhoods. A good cycling network is also well lit at night, clearly identified through appropriate signage and lane markings, maintained over time, and linked to neighbouring cycling networks.

UBC's planning documents commit to making the campus safer and more comfortable for cyclists by enhancing the cycling network. This includes specific commitments in the *Vancouver Campus Plan* to improve pathways and intersections for cycling, as well as the *2005 Strategic Transportation Plan* commitment to include bicycle lanes on all major roads on campus. University Boulevard, for example, was converted to a two-lane cross section with bicycle lanes in both directions, and Main Mall has been converted to a bicycle- and pedestrian-only area, where motor vehicle traffic is restricted.

Cycling Facilities

Facilities that make it easy and safe to cycle encourage more people to get on a bicycle. These facilities include secure places for short- or long-term bicycle storage, such as bicycle racks at a building entrance, bicycle cages in a parkade or a bicycle locker at a residence hall. They also include end-of-trip facilities such as lockers and showers. The *Vancouver Campus Plan* commits to enhancing all of these cycling facilities at UBC to encourage cycling to, from and around the campus.

Cycling Access

Enhancing cycling access also helps encourage cycling at UBC. TransLink buses accommodate bicycles so cyclists can travel longer distances by combining cycling and transit. This can help overcome barriers to cycling, like UBC's topography or Vancouver's rain. The *Vancouver Campus Plan* also commits to improving cycling access by exploring the development of a public bicycle sharing system on campus. Bicycle sharing provides the convenience and



benefits of cycling without the need to own a bicycle or ride to and from UBC. Development of a UBC bicycle sharing system would include consultation with the university community and the University Neighbourhoods Association.

Policy Gaps

There is still room for improvement to increase cycling to, from and around UBC. Most importantly, a comprehensive campus cycling network needs to be completed. While many of UBC's campus cycling routes are appropriate for people already comfortable riding in traffic, a complete network would make cycling at UBC a safe, convenient, comfortable and fun experience for people of all ages and abilities. UBC will continue to implement policies and actions from existing planning documents to improve the cycling network. Other gaps identified in the development of this *Transportation Plan* are the:

- Need to more effectively manage cyclist and pedestrian behaviour and interactions, in particular within the pedestrian priority zone;
- Need for a formalized cycling network map showing a complete cycling network;
- Importance of establishing that vehicles such as electric-assisted bicycles, scooters or skateboards are allowed in pedestrian priority zones, and informing the university community that they are subject to the same behaviour expectations as cyclists; and,
- Importance of establishing that electric vehicles with license plates are considered motorized vehicles and are subject to the same enforcement protocol as all other motorized vehicles on campus (i.e. ticketing and fines).

POLICIES AND ACTIONS

C1. Cycling Network

C1.1 Favour cyclists (along with pedestrians and transit) in travel to, from and around campus.

C1.1.1 *Promote alternative non-automobile travel modes (walking and cycling) both generally and through the development of greenways.*

Source: Land Use Plan

C1.1.2 *Design each neighbourhood to contain a fine-grained pedestrian and cycle route network with mid-block connections.*

Source: Land Use Plan

C1.1.3 *Ensure the width and design of greenways gives priority to pedestrians and cyclists and, in some cases, accommodates service and private vehicles without conflict.*

Source: Land Use Plan

C1.1.4 *Integrate the pedestrian and cyclist network with the greenway system.*

Source: Land Use Plan

C1.1.5 *Implement specific road, pathway and intersection improvements identified in the Vancouver Campus Plan to make walking, cycling and transit more convenient.*

Source: Land Use Plan

C1.2 Create a complete, safe cycling network to accommodate cyclists of all ages and skill levels.

C1.2.1 *Ensure bicycle lanes on all major roads on campus.*

Source: 2005 Strategic Transportation Plan

C1.2.2 *Ensure shared wide travel lanes on Marine Drive between West Mall and West 16th Avenue.*

Source: 2005 Strategic Transportation Plan

C1.2.3 *Work with the University Endowment Lands, the City of Vancouver, and the Ministry of Transportation and Infrastructure to ensure route planning for bicycles and pedestrians is supportive and consistent with other routes being planned outside the Land Use Plan area.*

Source: Land Use Plan



C1.2.4 *Plan school sites to be accessible from an extension of the greenway to enhance pedestrian and cyclist access.*
Source: Land Use Plan

C1.2.5 *Complete the South Campus Greenway to provide people with a pedestrian and cycling connection between Pacific Spirit Park and Southwest Marine Drive, ensuring a clear distinction between public and private functions in the area.*
Source: Vancouver Campus Plan

C1.2.6 *Identify and fill gaps in the cycling network as land use changes and future development occur.*
Source: New - Transportation Plan

C1.3 Ensure everyone shares the cycling network safely.

C1.3.1 *Develop a comprehensive signage and education plan to promote safe cycling on campus, including installing “slow cycling” signage in key areas such as pedestrian priority zones.*
Source: New - Transportation Plan

C1.3.2 *Establish that electric vehicles with license plates are considered motorized vehicles and are subject to the same enforcement protocol as all other motorized vehicles on campus (i.e. ticketing and fines).*
Source: New - Transportation Plan

C1.3.3 *Establish that electric vehicles (such as electric-assisted bicycles, scooters or skateboards) are allowed in pedestrian priority zones and are subject to the same behaviour expectations as cyclists in the pedestrian priority zones.*
Source: New - Transportation Plan

C1.3.4 *Increase driver awareness of cyclists through signage, road markings and promotional campaigns.*
Source: New - Transportation Plan

C1.3.5 *Provide opportunities for the UBC community to engage in cycling skills training and road safety programs provided internally and by external partners.*
Source: New - Transportation Plan

C2. Cycling Facilities

C2.1 Provide excellent bicycle parking and end-of-trip facilities across campus.

-
- C2.1.1 *Cover a minimum of 25% of UBC's bicycle racks.*
Source: 2005 Strategic Transportation Plan
-
- C2.2.2 *Create an end-of-trip facilities plan for secure bicycle parking and amenities.*
Source: Land Use Plan
-
- C2.2.3 *Improve campus cycling facilities through increased secure storage and better route mapping and wayfinding.*
Source: Vancouver Campus Plan
-
- C2.2.4 *Increase end-of-trip facilities for cyclists through the requirement for all new academic buildings and mixed use hubs to provide lockers, showers and covered secure bicycle storage in scale with the facility's floorspace.*
Source: Vancouver Campus Plan
-
- C2.2.5 *Prioritize investments in improved route mapping, pavement markings, more bicycle racks and secure parking either under cover or in parkades.*
Source: Vancouver Campus Plan
-



C3. Cycling Access

C3.1 Make it easier to cycle to, from and around campus.

-
- C3.1.1 *Explore the development of a public bicycle sharing system on campus.*
Source: Vancouver Campus Plan
-
- C3.2.2 *Develop a map to show the cycling network to, from and around campus.*
Source: New - Transportation Plan
-



2.3

TRANSIT

Background

Public transit is essential to the region's economic, environmental and social development. It greatly extends the network and distance for a person to walk or cycle. It also provides a sustainable and cost-effective transportation option for a large number of people, especially students. And it reduces congestion for both people and goods movement by providing an alternative to driving. UBC will continue to favour transit, along with walking and cycling, in travel to, from and around campus.

POLICY BASIS

Transit Network

Transit is UBC's biggest transportation success story and biggest challenge. Major increases in transit ridership to and from UBC have reduced vehicles on campus and emissions associated with travel. However, the demand for transit services to UBC exceeds capacity and passengers are routinely passed up or face long lineups to board.

The transit network servicing UBC features a range of services: community shuttles which circulate around the campus and connect key destinations; local bus routes with service into surrounding Vancouver neighbourhoods; and express bus services like the 99 B-Line which offer more direct connections to regional destinations and rapid transit stations.

Public transit decisions are under the control of TransLink, Metro Vancouver's regional transportation authority. Through the *Land Use Plan* and *Vancouver Campus Plan*, UBC has committed to working with TransLink to improve UBC's transit network. These efforts include developing streets and facilities to accommodate transit, protecting corridors for future routes and stations, and making transit-supportive land-use decisions such as locating high-use campus facilities in close proximity to transit.

UBC is also committed to advancing improvements to the local and regional transit network. This includes optimizing on-campus shuttle routes, as was done with an improved community shuttle route introduced in 2013 to better utilize transit resources and service rapidly changing areas of the campus. This work also includes advocating for expanded transit service to the campus, with the goal of implementing rapid transit to UBC.

Transit Facilities and Impacts

High quality facilities improve the transit experience and encourage people to take transit. Both the *2005 Strategic Transportation Plan* and the *Vancouver Campus Plan* commit UBC to improving transit facilities. Examples of this range from the small – installing new bus shelters on University Boulevard – to the very large – creating a space for a permanent diesel bus terminal on campus.

Policy Gaps

The most significant gap in transit to, from and around UBC is due to demand overwhelming transit network capacity. UBC will continue to work with TransLink on solutions to this gap. Demand will be alleviated in part through plans to increase the on-campus student and residential population. However, to meet existing demand and support UBC's long-term goals, more transit service and new investment is needed. Other gaps identified during development of this *Transportation Plan* are the:

- Lack of a UBC policy to determine the location of community shuttle stops across the campus; and,
- Lack of a UBC policy on the provision of bus shelters across the campus.

POLICIES AND ACTIONS

T1. Transit Network

T1.1 Favour transit (along with cyclists and pedestrians) in travel to, from and around campus.

T1.1.1 *Continue to support the student U-pass program.*
Source: 2005 Strategic Transportation Plan

T1.1.2 *Support the regional emphasis on the development of a transit-oriented and automobile-restrained transportation system.*
Source: 2005 Strategic Transportation Plan

T1.1.3 *Locate higher density development in proximity to transit service.*
Source: 2005 Strategic Transportation Plan

T1.1.4 *Plan transit systems in conjunction with land use to provide access throughout both the campus and residential areas.*
Source: Land Use Plan



UBC-Broadway Line

Bus service in the UBC-Broadway Corridor cannot meet current transportation demands and will only become more strained with population and employment along the corridor projected to nearly double over the next 30 years. A rail-based rapid transit line all the way to UBC is needed to meet the Broadway corridor's transit demands. Importantly, rapid transit would connect UBC, one of the province's key innovation and employment hubs, to the rest of the region.

More information on the UBC-Broadway Line project is available at planning.ubc.ca.

T1.2 Advance ongoing improvements to local and regional transit.

- T1.2.1** *Support TransLink initiatives to increase the accessibility of the campus by transit from elsewhere in the Lower Mainland.*
Source: Land Use Plan
-
- T1.2.2** *Work to ensure UBC will be the destination of better more effective transit service.*
Source: Land Use Plan
-
- T1.2.3** *Focus most transit service on the transit terminal, with other routes to ensure convenient access to the campus.*
Source: Land Use Plan
-
- T1.2.4** *Develop, in conjunction with TransLink, on-campus shuttle bus routes that provide convenient coverage to all parts of the campus, and adjust routes from time-to-time.*
Source: Land Use Plan
-
- T1.2.5** *Continue to schedule classes and activities, within UBC's institutional constraints, to reduce the peak demands on transit.*
Source: Land Use Plan
-
- T1.2.6** *Locate facilities with high use such as the SUB and mixed use hubs in close proximity to transit shuttle routes.*
Source: Vancouver Campus Plan
-
- T1.2.7** *Work with TransLink on increasing and revising the routes of community shuttle services to better fit with the evolving campus structure and transit demand.*
Source: Vancouver Campus Plan
-
- T1.2.8** *Work with TransLink to locate community shuttle stops and bus shelters to optimize service and encourage use.*
Source: New - Transportation Plan
-

T1.3 Support the development of rapid transit to UBC.

T1.3.1 *Design a below-grade transit station to be compatible with future rapid transit.*
Source: 2005 Strategic Transportation Plan

T1.3.2 *Plan for the provision of new transit facilities such as high capacity transit to UBC.*
Source: Land Use Plan

T1.3.3 *Support, with Metro Vancouver, the extension of higher capacity transit service to the campus and plan for the redevelopment of UBC's transit terminal to accommodate this service.*
Source: Land Use Plan

T1.3.4 *Work with regional partners and senior levels of government to expand rapid transit service all the way to UBC, including examining innovative funding mechanisms.*
Source: New - Transportation Plan



T2. Transit Facilities and Impacts

T2.1 Improve transit facilities and reduce transit-related impacts.

T2.1.1 *Encourage TransLink to use quiet, clean fuel vehicles for community shuttles, and quieter diesel and alternative fuel buses.*
Source: 2005 Strategic Transportation Plan

T2.1.2 *Attempt to reduce the impact of bus noise on campus and in neighbourhoods adjacent regional bus routes.*
Source: 2005 Strategic Transportation Plan

T2.1.3 *Work with the campus community, TransLink and the provincial government to create permanent trolley and diesel bus facilities, and the future rapid transit station close to the University Boulevard Neighbourhood.*
Source: Vancouver Campus Plan

T2.1.4 *Provide safe, accessible, weather protected, convenient and attractive transit facilities.*
Source: Vancouver Campus Plan

2.4 DRIVING

Background

Driving plays an important role in moving people and goods. But it also requires significant space, contributes to congestion, and has the largest environmental impact trip of the transportation modes detailed here. Reducing driving provides important benefits by creating more space for transit as well as cars and trucks that need to be on the road, such as vehicles moving goods, making deliveries or responding to emergencies. Although driving will continue to play a role at UBC, the university is committed to restraining automobile use in favour of walking, cycling and transit.

POLICY BASIS

Road Network

UBC's planning policies seek to reduce single occupant vehicles commuting to and from the university and restrain driving on campus. This policy direction is implemented through measures in the *Land Use Plan* and *Vancouver Campus Plan*. These include the *Land Use Plan* target for reducing single occupant vehicle travel to and from the campus by 20% from 1996 levels, which UBC has accomplished on an annual per person basis and continues to work to achieve in terms of total SOV trips. These measures also include support for telecommuting and incentives for carpooling. In addition, UBC implements traffic calming measures such as road, pathway and intersection improvements to reduce travel speeds and accident volumes. The result is reduced traffic on campus and improved safety and comfort for walking, cycling and transit, in addition to contributing to a sense of place at UBC.

UBC's land use planning also contributes to restraining driving on campus. As the on-campus community continues to grow, the need to travel off campus for services and amenities will decrease. To this point UBC has been successful in accommodating a growing population without increasing private vehicle volume. Other directions in the *Land Use Plan* and *Vancouver Campus Plan* that impact driving include reengineering roads to be shared streets with paving and other features to offer visual cues for pedestrian priority, designating pedestrian priority zones, and transportation demand management programs like those described above.

Of course, driving can be a necessity. UBC community members with disabilities or mobility impairments must be assured of equal access to all the university offers. UBC's large campus requires delivery of goods from the outside world and efficient service routes. And emergency responders need access to all areas of UBC in case people on campus need help. These issues are addressed in more detail in the 'Accessibility' and 'Circulation, Access and Other' sections below.



Parking

Parking availability and pricing is one of the biggest influences on driving mode share. UBC has a relatively constrained parking supply that will decrease in coming years as surface parking lots continue to be converted to new academic and housing facilities, as described in the *Vancouver Campus Plan*. Campus parking prices will continue to be used to influence parking demand. This will make alternative modes of transportation such as transit more cost-effective and attractive, helping to reduce driving to and from UBC.

Car Sharing and Electric Vehicles

Car sharing programs provide convenient, cost-effective vehicle access and free up road and parking space for other users. Recent partnerships with car share providers have improved transportation options for students, staff, faculty and residents. This is a relatively new area for UBC, as the policy gap below makes clear, but one where there are opportunities for continued success, such as working with the University Neighbourhoods Association to ensure an integrated campus-wide car sharing network. Similarly, expanding electric vehicle charging stations through UBC's parking facilities and neighbourhood development provides an alternative to traditional single occupancy vehicles on campus.

Policy Gaps

The development of this *Transportation Plan* identified the following policy gaps around driving on campus:

- Unclear communication of UBC's land use and transportation visions for the campus;
- Need to discourage off-campus, on-street parking in neighbourhoods adjacent to the university in order to meet UBC's transportation and sustainability goals;
- Lack of enforcement of restricted vehicle access in UBC's pedestrian priority zones; and,
- Limited policies and programs in relation to car-sharing on campus.

POLICIES AND ACTIONS

D1. Road Network

D1.1 Restrain automobile use on campus, especially single occupancy vehicles.

D1.1.1 Encourage single occupancy vehicle commuters to shift to carpooling and vanpooling.

Source: 2005 Strategic Transportation Plan

D1.1.2 Adopt policies that favour higher occupancy vehicles (carpool/vanpool).

Source: Land Use Plan

- D1.1.3 *Advance opportunities for telecommuting where possible.*
Source: Land Use Plan
-
- D1.1.4 *Maintain measures to encourage carpooling (e.g. transferable parking passes).*
Source: Vancouver Campus Plan
-
- D1.1.5 *Reduce the need to travel off campus by providing a broader range of services for daily convenience, social and recreational needs.*
Source: Vancouver Campus Plan
-
- D1.1.6 *Ensure destinations for vehicles travelling to UBC are located at the perimeter of the campus, in structured parkades or below grade parking facilities, with the exception of vehicles with disabled access privileges.*
Source: Vancouver Campus Plan
-
- D1.1.7 *Collaborate with UBC Properties Trust, developers, realtors and other stakeholders to communicate UBC's land use and transportation visions.*
Source: New - Transportation Plan
-

D1.2 Ensure everyone shares the road network safely.

- D1.2.1 *Apply traffic calming principles, both in the residential areas and in the academic areas, to ensure the safety and attractiveness of the public realm for pedestrians and cyclists.*
Source: Land Use Plan
-
- D1.2.2 *Implement road and intersection improvements to improve safety for pedestrians and cyclists and create a better sense of place for the campus.*
Source: Vancouver Campus Plan
-
- D1.2.3 *Over time, reengineer portions of the roads bordering or running through the pedestrian priority zone to be 'shared streets' so the paving and other design features give visual clues for pedestrian priority.*
Source: Vancouver Campus Plan
-
- D1.2.4 *Discourage commuter vehicle use of 'shared streets'.*
Source: Vancouver Campus Plan
-
- D1.2.5 *Work with provincial authorities to implement traffic management initiatives with the purpose of reducing speeds and accidents and improving wayfinding.*
Source: Vancouver Campus Plan
-
- D1.2.6 *Undertake a visioning and design process for Wesbrook Mall.*
Source: New - Transportation Plan
-

D1.3 Enforce restricted vehicle access in pedestrian priority zones.

D1.3.1 *Develop and implement a permitting and citation process for vehicles in pedestrian priority zones.*

Source: New - Transportation Plan

D2. Parking

D2.1 Use parking costs and measures to support reduced single occupancy vehicle usage.

D2.1.2 *Index minimum daily parking prices to transit fares (twice the one zone adult cash fare).*

Source: 2005 Strategic Transportation Plan

D2.1.3 *Provide any additional parking in neighbourhood housing areas at an additional cost to residents.*

Source: 2005 Strategic Transportation Plan

D2.1.4 *In neighbourhood housing areas, accommodate parking primarily underground.*

Source: Land Use Plan

D2.1.5 *Continue to reduce the amount of commuter parking.*

Source: Land Use Plan

D2.1.6 *Discontinue the use of surface parking lots over time by converting them to future academic building sites or other interim uses, such as recreational areas. The loss of approximately 500 surface stalls can be accommodated by existing parkades.*

Source: Vancouver Campus Plan

D2.1.7 *Should it be needed, accommodate additional on campus parking in new parking structures at two locations:*

- *An academic building at the corner of Main Mall and Agronomy Road; and,*
- *In the south campus research precinct.*

Additional parking will only be constructed once surface lots are used as infill sites for future academic facilities.

Source: Vancouver Campus Plan

D2.1.8 *Discourage off campus, on-street parking in adjacent university neighbourhoods by collaborating with partner organizations and sharing information online and through social media channels.*

Source: New - Transportation Plan

*D2.1.9 Collaborate with the University Neighbourhoods Association to harmonize campus parking regulations and reduce incentives to drive.
Source: New - Transportation Plan*

D2.2 Reduce traffic and parking impacts from special events.

*D2.2.1 Share information about parking options, parking regulations and alternative modes of travel to and from campus for special events, in addition to event-related traffic management.
Source: New - Transportation Plan*

D3. Car Sharing and Electric Vehicles

D3.1 Support car sharing and electric vehicles as alternatives to conventional single occupancy vehicles.

*D3.1.1 Expand car sharing parking locations across campus to meet demand.
Source: New - Transportation Plan*

*D3.1.2 Expand electric vehicle charging stations in academic and residential areas.
Source: New - Transportation Plan*



2.5 ACCESSIBILITY

Background

Accessibility ensures people can participate equally regardless of their physical, sensory or cognitive abilities. Transportation accessibility is about creating a barrier-free transportation system. At UBC, the challenges faced by people with disabilities include: long distances between buildings on a large campus; a complicated network of informal and formal pedestrians routes; a major slope rising from West Mall to Main Mall; limited parking and vehicle access in the campus core; access barriers to some main entrances, particularly in older buildings. UBC addresses these challenges and improves transportation accessibility by building the campus to the standards of universal design.

POLICY BASIS

Universal Design

UBC's goal is to create a barrier-free environment. This means going beyond basic regulatory compliance and encouraging the application of universal design principles in the planning and designing of all new facilities on campus. UBC's *Land Use Plan* and *Vancouver Campus Plan* reflect this commitment by ensuring the university creates a network of buildings and outdoor spaces that allow equal access to all people.

Recent upgrades through the *Public Realm Plan* have significantly improved accessibility on campus, as has the completion of phase one of UBC's first mixed-use hub, Ponderosa Commons. These initiatives help to address the issues described above: access barriers to older buildings; complicated pedestrian routes; and the steep slope rising from West Mall to Main Mall. Continued investments in the public realm and future mixed-use hubs will continue to improve campus accessibility.

Accessible Parking

Designated accessible parking allows persons with disabilities easier access to buildings and community services. The introduction of pedestrian priority zones and removal of surface parking lots to support a walking campus have resulted in decreased parking on campus. To ensure all buildings are easily accessed by persons with disabilities, the *Vancouver Campus Plan* requires new buildings have access to accessible parking. As the policy gap below makes clear, more work is necessary to make sure UBC is meeting the accessible parking needs of campus visitors with disabilities.

Policy Gaps

The *Transportation Plan* development process identified the following policy gap around campus accessibility:

- Need for improving the availability of accessible parking across the campus, and to provide better information about accessible parking for major events (e.g. graduation).

POLICIES AND ACTIONS

A1. Universal Design

A1.1 Integrate universal design principles at all stages of the planning and development process.

-
- A1.1.1 *Create a physically accessible campus, with a substantially improved pedestrian experience and integrated universal design.*
Source: Land Use Plan
-
- A1.1.2 *Locate new buildings to provide direct access for people with disabilities to the pedestrian and cycling network.*
Source: Vancouver Campus Plan
-
- A1.1.3 *Create a linked network of facilities and pathways that welcome equal participation by people with disabilities.*
Source: Vancouver Campus Plan
-
- A1.1.4 *Limit vehicular access in the pedestrian priority zone to emergency and security vehicles and those with disabled access privileges.*
Source: Vancouver Campus Plan
-
- A1.1.5 *Clearly label pedestrian and vehicular routes to define the spatial structure of the campus and clarify movement and direction for those with visual impairments and learning disabilities.*
Source: Vancouver Campus Plan
-
- A1.1.6 *Require new projects to provide weather protection at major and minor building entries.*
Source: Vancouver Campus Plan
-
- A1.1.7 *Require all new and renovation projects on east/west pedestrian routes between West and Main Mall to provide generous flat areas with rain protection for persons with disabilities making their way up the steep slopes.*
Source: Vancouver Campus Plan
-

A2. Accessible Parking

A2.1 Ensure barrier-free accessible parking on campus.

A2.1.1 *Provide accessible parking spaces to BC Building Code standards on-site or within 100 metres of all new buildings.*

Source: Vancouver Campus Plan

A2.1.2 *Review existing parking stalls to ensure barrier-free access to neighbouring buildings and payment machines.*

Source: New - Transportation Plan

A2.1.3 *Evaluate the current accessible parking supply against expected future demand.*

Source: New - Transportation Plan

A2.1.4 *Improve information sharing about parking on campus, particularly for major events (e.g. graduation).*

Source: New - Transportation Plan

2.6

CIRCULATION, ACCESS AND OTHER ISSUES

Background

This section includes a number of policies and actions that cut across transportation modes. A functional transportation system needs to circulate people through the transportation network efficiently and effectively. The transportation system also needs to provide appropriate access routes and loading areas for deliveries, services and emergency vehicles. As part of this, the impacts from heavier vehicles like delivery and construction trucks need to be mitigated to ensure livability and transportation safety. Finally, monitoring is an essential element of any planning process and provides the data needed to identify challenges, measure success, and adjust plans as necessary.

POLICY BASIS

Circulation Management

As the number of faculty, staff, students and residents who live, work and play at UBC grows, so too will the demands on UBC's transportation system. The policies and actions presented earlier in this Plan set a framework for ensuring the campus transportation system functions well and supports UBC's vision of being a model sustainable community. This section of the *Transportation Plan* builds on these initiatives to improve circulation by ensuring better coordination and management for other traffic on campus, such as deliveries, tour and athletics buses, and special event traffic. Communicating with visitors to UBC about where and when to travel will help reduce unnecessary use of the road network and respond to the policy gaps identified below.

Service and Emergency Access

Recent changes to UBC's academic core have had a profound impact on campus access. The heart of campus is now a pedestrian priority zone. Bollards have been installed at entry points to the campus walking network and a number of parking lots have been eliminated across campus. These changes reflect the *Vancouver Campus Plan* direction and have strengthened the sense of place on campus.

At the same time, UBC's own operations staff and partner agencies like the RCMP and Vancouver Fire Department require appropriate access routes to all buildings on campus in order to keep UBC functioning and safe. The *Vancouver Campus Plan* provides detailed service and emergency routes for UBC's campus. To ensure these routes are effective and continue to be maintained, UBC will audit service access and ensure ongoing communication with emergency responders about access routes. The university will also promote on-campus mail services to reduce demand for outbound courier deliveries, thus reducing traffic to and from the campus.



Other Issues - Heavy Trucks

Heavy trucks such as construction vehicles travel to and from UBC on a daily basis, largely due to the construction of new academic facilities. Heavy truck traffic to UBC has often exceeded the daily targets included in the *2005 Strategic Transportation Plan*. This is because UBC has little control over the timing and availability of capital funding for new academic facilities, which depends on major investment in higher education by the provincial and federal governments. As a result, this *Transportation Plan* continues work with UBC's neighbours to minimize the impacts of trucks to, from and around campus, while replacing the 2005 truck targets with revised actions that focus UBC's efforts on further reducing waste material from campus projects. This approach ensures UBC continues to build needed teaching and research facilities and retains its place as one of the world's leading universities.

Other Issues - Transportation Monitoring

Monitoring transportation patterns and behaviour is essential to identifying trends, assessing investment impacts, and measuring progress towards achieving the *Transportation Plan* targets. UBC has monitored annual travel patterns to and from the campus since 1997 through a variety of different data collection methods. The majority of the data are collected during the fall which provides a consistent basis for year-by-year comparisons of the travel patterns, mode shares and traffic volumes. UBC is committed to continuing to monitor this data as shown in the table below. This monitoring allows for an iterative process, where plans, policies and actions can be modified as necessary in the face of changing conditions or new information.

Table 2. UBC's Annual Transportation Data Collection

Data Collection Activity	Locations	Description
Screenline traffic counts	Screenline	Automatic counters on road for 7 days, 24 hours / day
Campus traffic counts	Roads throughout campus	Automatic counters (tubes) on road for a minimum of 48 hours
Intersection counts	Intersections throughout campus	Manual observation for 8 hours (3 in AM, 2 in midday, 3 in PM) for one day
Vehicle classification and occupancy	Screenline	Manual observation for 8 hours (3 in AM, 2 in midday, 3 in PM) for one day
Transit Ridership	Screenline	Manual observation from 6:00 AM to 4:30 PM for one day
Bicycles and Pedestrians	Screenline	Manual observation for 8 hours (3 in AM, 2 in midday, 3 in PM) for one day
Heavy construction trucks	All construction projects	Weekly reports from contractors for entire year, verified with periodic audits / counts
Heavy non-construction trucks	Screenline	Manual observation for 12 hours for one or more days

Policy Gaps

Along with the issues described in the section above, the *Transportation Plan* development process identified the following policy gaps around circulation, access and other issues:

- Circulation:
 - » Lack of formalized routes or designated parking for tour buses on campus.
- Access:
 - » Confusing service vehicles access and parking given changes to the public realm and implementation of the pedestrian priority zone.
 - » Lack of up-to-date access information for emergency responders coming to campus.
- Other:
 - » Inability to meet aspirational truck targets contained in the 2005 *Strategic Transportation Plan*.
 - » Limited data about on-campus transportation patterns and behaviours.

POLICIES AND ACTIONS

CAO1. Circulation Management

CAO1.1 Clearly communicate preferred transportation routes and parking options to minimize on campus congestion.

CAO1.1.1 *Reduce trips to, from and around campus and optimize delivery times through:*

- *Better promotion of existing campus mail services;*
- *Increased use of the “UBCBuySmart” online purchasing system; and,*
- *Other appropriate channels.*

Source: New - Transportation Plan

CAO1.1.2 *Create a delivery access map with details for the entire campus and include this information on UBC’s wayfinding websites.*

Source: New - Transportation Plan

CAO1.1.3 *Identify, map and publicize preferred bus routes and parking locations to reduce impacts on outdoor spaces, and reduce traffic congestion on campus roads.*

Source: New - Transportation Plan

CAO1.1.4 *Coordinate with UBC Athletics to disseminate information to athletics bus operators.*

Source: New - Transportation Plan

CAO2. Service and Emergency Access

CAO2.1 Ensure all buildings on campus have appropriate service access.

CAO2.1.1 *Ensure service vehicles use the service routes identified in the Vancouver Campus Plan (Map 2-8) in order to improve efficiency and reduce emissions. Use of service routes inside the pedestrian priority zone will require authorization from UBC.*

Source: Vancouver Campus Plan

CAO2.1.2 *Limit vehicular access in the pedestrian priority zone to emergency and security vehicles with disabled access privileges. Reengineer existing roads in this area over time to emphasize the area’s pedestrian nature.*

Source: Vancouver Campus Plan

CAO2.1.3 *Conduct an audit of service access, led by UBC Parking.*

Source: New - Transportation Plan

CAO2.2 Ensure emergency access routes exist and are well communicated.

CAO2.2.1 *Allow emergency vehicles to access all roads and buildings on campus.*

Source: Vancouver Campus Plan

CAO2.2.2 *Install passable barriers in key locations around the pedestrian core to provide access for emergency, security and other authorized vehicles but limit access by other vehicles.*

Source: Vancouver Campus Plan

CAO2.2.3 *Provide up-to-date information to emergency responders on any changes to building access and transportation networks on campus.*

Source: New - Transportation Plan

CAO3. Other - Heavy Trucks

CAO3.1 Minimize the impacts of truck travel to, from and around campus.

CAO3.1.1 *Encourage trucks travelling to and from UBC to only use designated truck routes (provincial highways and City of Vancouver truck routes).*

Source: 2005 Strategic Transportation Plan

CAO3.1.2 *Address truck travel in cooperation with the City of Vancouver.*

Source: Land Use Plan

CAO3.1.3 *Ensure appropriate on-campus road connections exist for heavy trucks.*

Source: New - Transportation Plan

CAO3.1.4 *Explore opportunities to reduce waste material in order to minimize heavy truck traffic to and from campus.*

Source: New - Transportation Plan

CAO4. Other – Transportation Monitoring

CAO4. Monitor travel to, from and around campus.

CAO4.1.1 *Conduct an annual survey of bicycle rack usage to identify locations for additional bicycle racks.*

Source: 2005 Strategic Transportation Plan

CAO4.1.2 *Monitor construction truck traffic on an ongoing basis, based on reports from contractors, verified with periodic counts and audits. Estimate daily non-construction truck traffic from one or more annual counts of weekday non-construction trucks.*

Source: 2005 Strategic Transportation Plan

CAO4.1.3 *Develop an on-campus transportation monitoring program to complement existing annual monitoring and reporting efforts. Monitoring will include:*

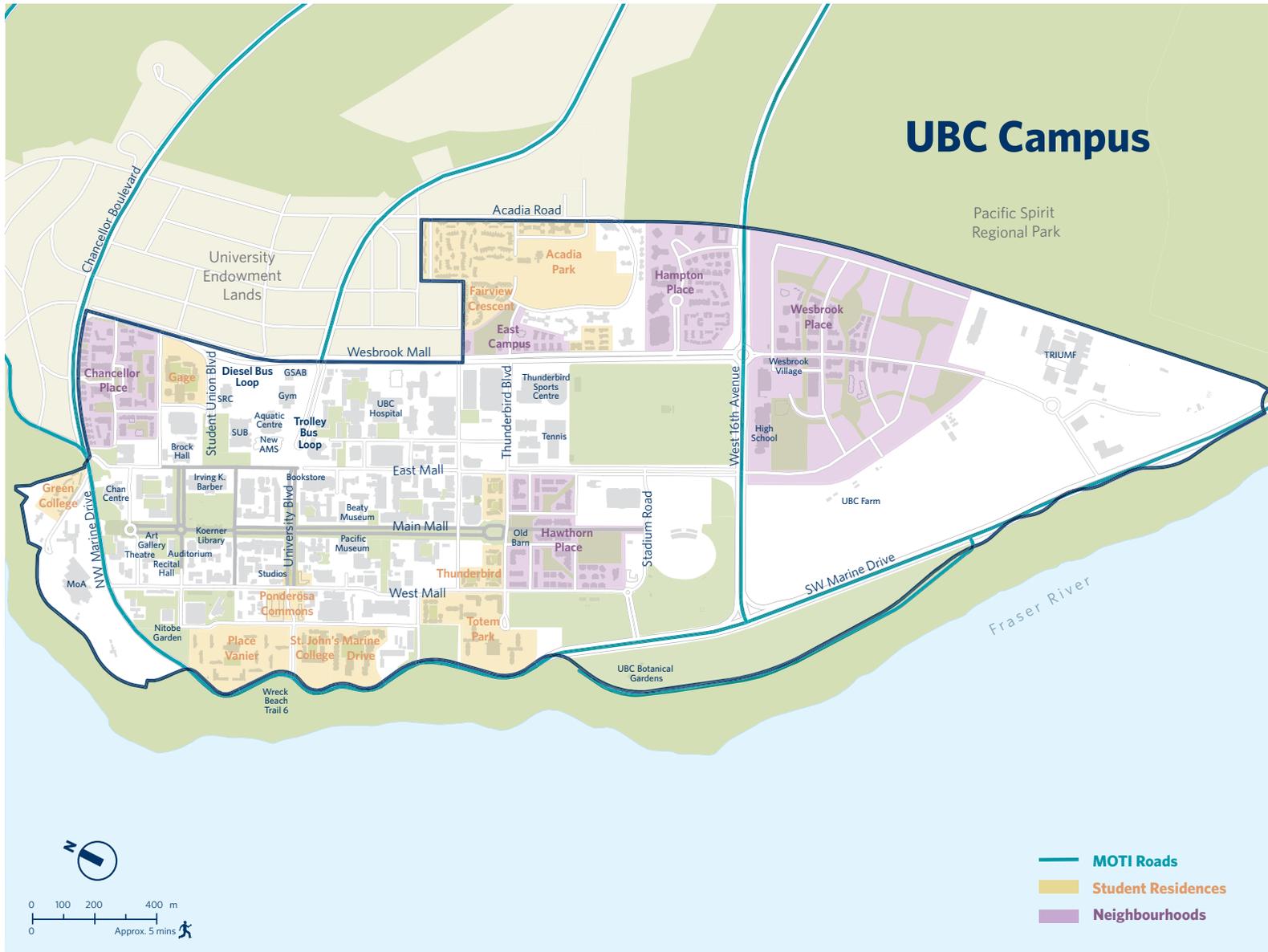
- *Mode share at key locations across campus;*
- *Speed, volume and mode share at key intersections and along major roads for all modes of transportation;*
- *Heavy truck origin and destination data; and,*
- *Transit, cycling and vehicle trip generation in neighbourhoods compared to standard ITE averages.*

Source: New - Transportation Plan

MAP

1-1

UBC Vancouver Campus



MAP

1-2

Getting To and From UBC

- Arterial Roads
- Collector Roads
- Bicycle Routes
- Secured Shared Bicycle Storage**
 - Existing
 - Future
- Regional Transit Routes**
 - Existing
- Parkades**
 - Existing
 - Future
- Surface Parking**
 - Existing
 - Future Infill Sites

- UBC Vancouver Campus
- Institutional Building Footprints
- Neighbourhood Housing/Special Plan Areas



MAP

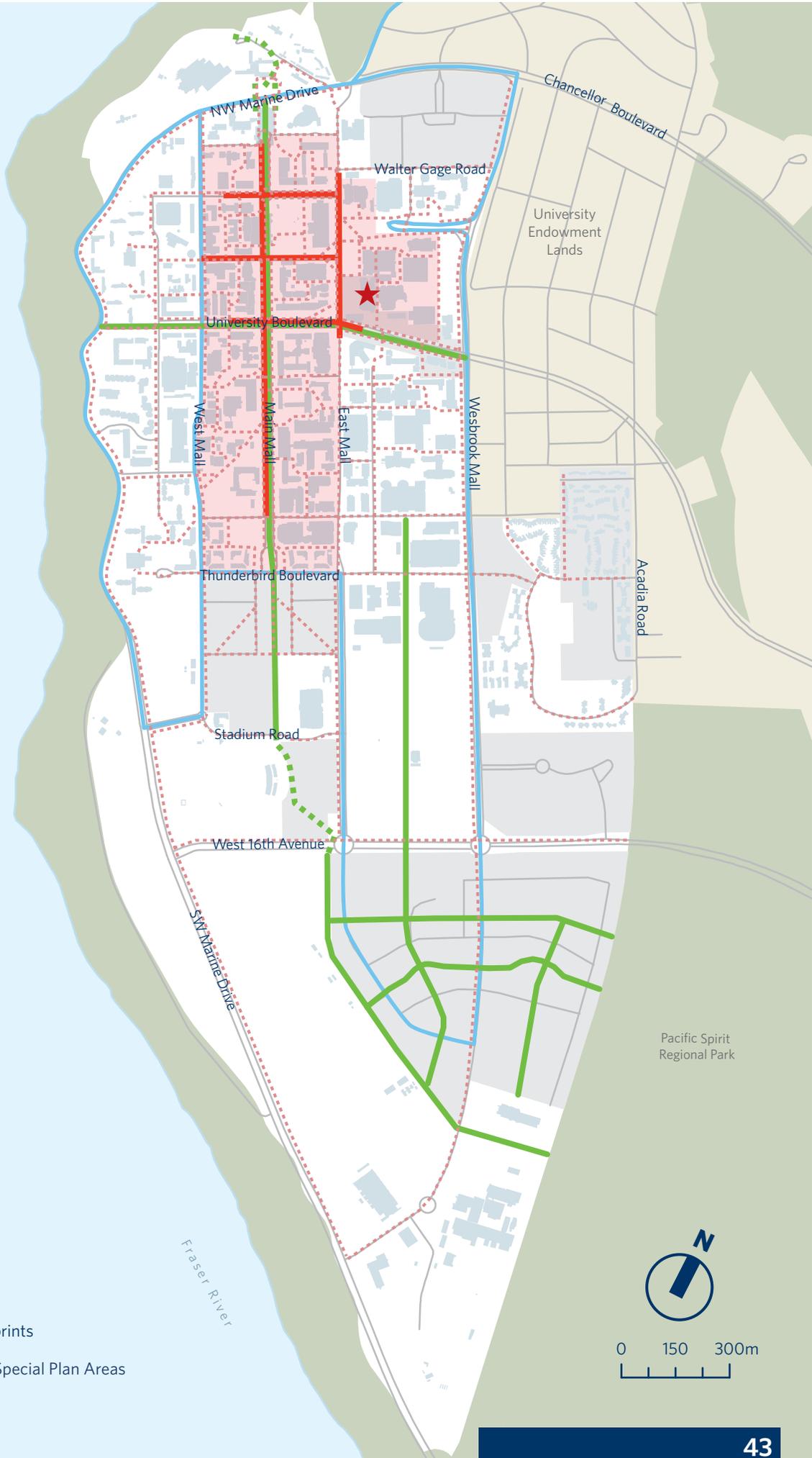
1-3

Getting Around

UBC

-  Pedestrian Priority Zone
-  Pedestrian Paths
-  Restricted Vehicle Access
- Greenway**
 -  Existing
 -  Future
-  Community Shuttle Route
-  AMS Bike Kitchen + Co-op

-  UBC Vancouver Campus
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UBC Vancouver Transportation Status Report Fall 2018

March 2019

campus + community planning
transportation planning



THE UNIVERSITY OF BRITISH COLUMBIA

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1. Introduction

Consistent with its sustainability goals, UBC is striving to reduce automobile trips to and from the UBC Vancouver Campus by encouraging the use of other modes of transportation, including transit, carpooling, cycling and walking. To date, UBC has implemented several initiatives in support of non-automobile modes of transportation, including a student U-Pass program, bicycle infrastructure parking facilities, carshare parking and is exploring carpooling programs and incentives. In addition TransLink has made ongoing efforts to improve transit service and increase transit capacity to UBC.

Since 1997, UBC has collected data each fall to monitor travel patterns to and from the Vancouver Campus. A year-to-year comparison of this information provides a measure of UBC's progress in achieving its three transportation targets.

This fall 2018 Transportation Status Report presents the most recent data that UBC has collected. This report provides a picture of overall travel trends, and details of travel patterns for each mode of transportation to and from UBC as well as an overview of transportation at UBC.

1.1. Context

Transportation planning at UBC is undertaken within the direction and context provided by several plans and policies, including:

- **UBC Strategic Plan: Shaping UBC's Next Century** sets out UBC's collective vision and purpose, as well as goals and strategies for the years ahead. The Plan builds on the university's previous strategic plan, Place and Promise, and focuses on three themes that are believed to be critical to society today: Inclusion, Collaboration and Innovation. Shaping UBC's Next Century will guide decisions, actions and interactions into the future, and will create a framework for resource allocation across the University.
- **The UBC Land Use Plan.** In June 2010, the Minister of Community and Rural Development enacted legislation that realigned the responsibility for this plan, previously known as the Official Community Plan. The OCP is no longer a regional district bylaw. The University is responsible for the Land Use Plan with direct oversight by the Minister. The Land Use Plan retains a number of transportation demand management objectives aimed at increasing walking, cycling and transit in preference to trips by single-occupant vehicles. The Land Use Plan establishes goals toward building complete communities thereby helping to reduce demands placed on transportation infrastructure.
- **The Vancouver Campus Plan.** In 2010, UBC adopted a new Vancouver Campus Plan, which covers the academic lands of UBC's Vancouver Campus. This plan guides the institutional capital investment in facilities for teaching and research, student housing and campus infrastructure and services.
- **Neighbourhood Plans.** For each of the non-institutional neighbourhoods on campus, there is a neighbourhood plan describing site-specific land uses, development controls, design guidelines, and servicing and transportation strategies consistent with UBC's Land Use Plan. Each

neighbourhood is designed to support the University’s academic core, while providing the amenities and services required to achieve a compact, transit-oriented, pedestrian friendly community.

- **The UBC Transportation Plan.** UBC has committed to implement a comprehensive and integrated transportation management strategy. The Transportation Plan is the result of that commitment, and was approved by UBC’s Board of Governors in November 1999 and renewed in 2014. The Plan includes targets to ensure accountability, shape decision making and inspire the community to act in ways to achieve UBC’s campus vision. The targets identified in The Plan include:
 - **TARGET 1:** By 2040 at least two-thirds of all trips to and from UBC will be made by walking, cycling or transit and maintain at least 50% of all trips to and from the campus on public transit.
 - **TARGET 2:** Reduce single occupant vehicle trips to and from UBC by 20% from 1997 levels and reduce single occupancy vehicle trips per person to and from UBC by 30% from 1997 levels.
 - **TARGET 3:** Maintain daily private automobile traffic at or less than 1997 levels.

1.2. Transportation Monitoring Program

Travel patterns to and from UBC are monitored on an on-going basis through a variety of different data collection methods. Data is collected each fall at the end of October to early November to enable consistent year to year comparisons of travel patterns, mode shares, and traffic volumes. Additional data collection activities may be undertaken at other times of the year to obtain information regarding specific modes of travel, seasonal variations and localized traffic volumes. The annual monitoring results are used to assess progress towards meeting the 2005 Strategic Transportation Plan (STP) goals and also help guide future implementation priorities.

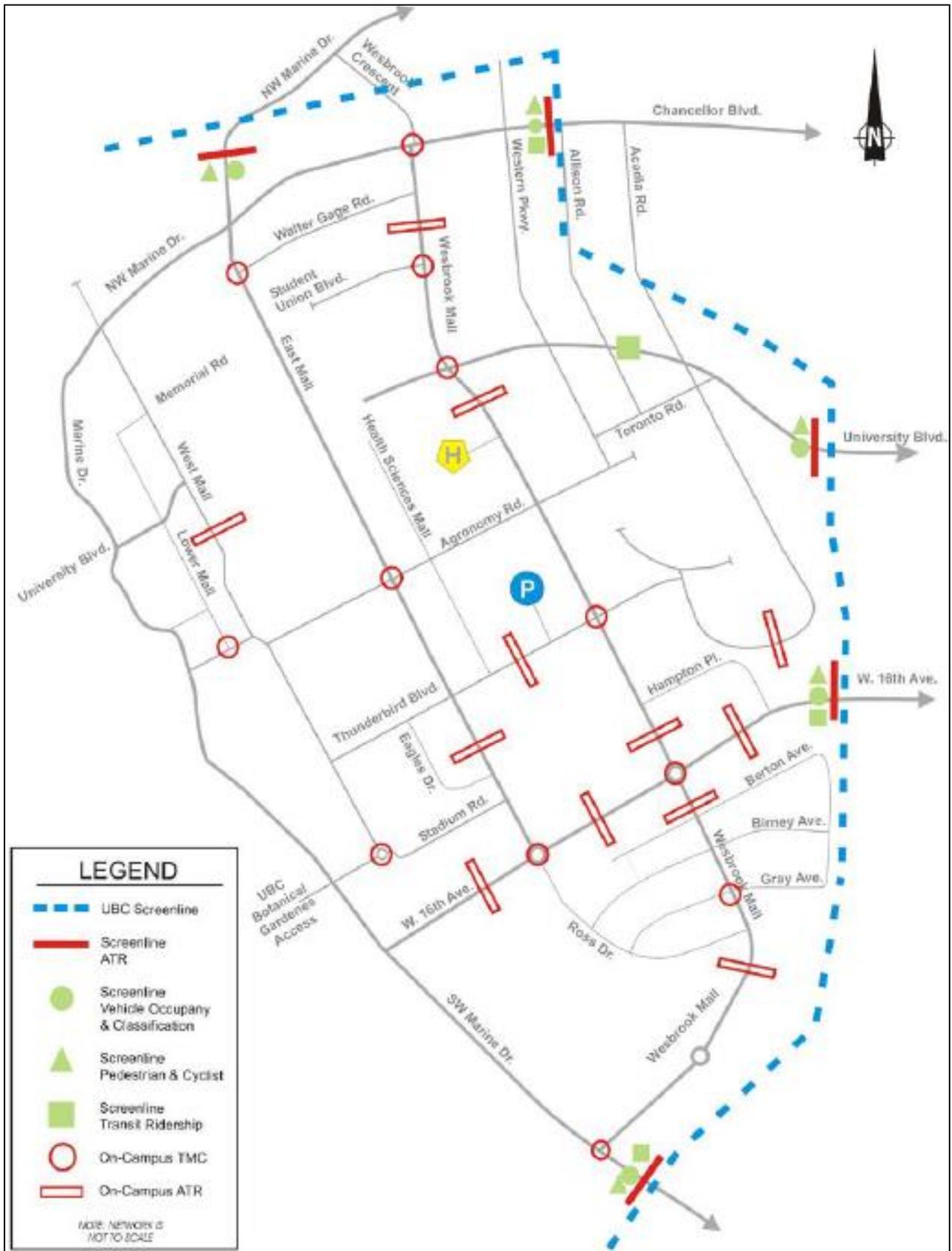
Data collection activities for this year are summarized in **Table 1.1**, and data collection locations are illustrated in **Figure 1.1**.

Table 1.1: Summary of 2018 Transportation Data Collection

Data Collection Activity	Locations	Description
Intersection Counts	At intersections throughout campus.	Manual observation for 8 hours (3hrs in AM, 2hrs in Midday, 3hrs in PM) for one day.
Campus Traffic / Speed Counts	Roads throughout campus.	Automatic tube counters on roads for 7 days (24 hours / day).
Screenline Traffic Counts	Screenlines	Automatic tube counters on roads for 7 days (24 hours / day).
Transit Ridership	Screenlines	Manual observation from 6:00AM to 4:30AM for one day.
Vehicle Occupancy & Classification	Screenlines	Manual observation for 8 hours (3hrs in AM, 2hrs in Midday, 3hrs in PM) for one day.

Data Collection Activity	Locations	Description
Bicycle and Pedestrian Counts	Screenlines	Manual observation for 15 hours over one day.
Heavy Trucks	Screenlines	Manual observation for 13 hours (6:00AM to 7:00PM) for one day each quarter.
Licence Plate Surveys	South Campus / Wesbrook Village	Licence plate surveys are conducted to understand travel patterns. Every other year.

Figure 1.1: Data Collection Locations



1.3. Changes at UBC Affecting Travel Patterns

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

- **Population.** The daytime population at UBC has increased 70% since 1997. This includes increased student enrolment and associated increases in faculty and staff. For the purposes of monitoring trends in travel to and from UBC, the daytime population comprised of students, staff and faculty is used to calculate person trips. **Table 1.2** summarizes population figures for fall 1997 and fall 2018.

It is important to also note that the estimate of campus population is challenging. It is dependent on the means by which the data is collected and grouped and is impacted by the increasing trend in online courses and expanding residential campus community. However, efforts are made to allow for consistent cross comparison in the status reports.

Table 1.2: Daytime Population at UBC, 2018 vs. 1997

Group	Fall 1997	Fall 2018	Increase (count / percentage)	
Students	33,200	54,850	+21,650	+65.2%
Staff	7,250	12,300	+5,050	+69.7%
Faculty	1,850	4,600	+2,770	+151.4%
Totals	42,300	71,750	+29,480	+69.7%

Source: UBC Planning and Institutional Research Department

- **Compass Card (U-Pass).** One of the most significant changes affecting travel patterns at UBC has been the student U-Pass, which was introduced in September 2003. The U-Pass is a universal transportation pass that is mandatory for students at a cost to students of \$35 per month. The U-Pass offers students unlimited access to TransLink Bus, SkyTrain and SeaBus services (all zones), and discounted West Coast Express fares. The Compass Card came into effect for the 2016 data collection period, which replaced the U-Pass card, but the U-Pass program continues.
- **Increased transit service.** In conjunction with introduction of the student U-Pass, TransLink has substantially increased the level of transit service provided to UBC and continues to make service improvements annually. The majority of the increase has been on the Route 99 B-Line. Other improvements since 1997 include new Route 33 on 16th Avenue, and several express routes, including Route 43 on 41st Avenue, Route 44 from downtown, Route 84 from the VCC-Clark SkyTrain station, and Route 480 from Richmond Centre. Recent TransLink ridership data suggests routes to UBC carry the highest passenger volumes in the region.
- **Class start times were changed in September 2001.** In an effort to spread the transit demand in the morning peak period, UBC adjusted morning class start times. Previously, the first classes in the morning all began at 8:30 a.m. This was changed so that some students begin classes at 8:00

a.m., some at 8:30 a.m., and others at 9:00 a.m. Subsequent analysis showed that the desired spreading of morning peak demands was achieved, and that as a result, 12% more transit trips per day were accommodated on the same number of buses. Although there are limitations with further efforts to spread class start times, scheduling services will continue to make efforts to spread the class start times out.

- **Parking supply and costs.** UBC has eliminated approximately 3,500 commuter parking stalls on campus since 1997 — a reduction in the commuter parking supply of over 25%. At the same time, the price of parking on campus has increased (UBC does not provide any free parking spaces on campus for commuters). Daily parking rates have increased from \$2.00 in 1997 to \$16.00 in 2018, and prices for parking permits and short term parking have also increased. As a result of the growth in Electric Vehicle (EV) ownership in the Lower Mainland, UBC has been adding EV charging stations in the parkades across campus. Currently UBC Parking offers access to 62 EV chargers, which is the highest in the region per capita and will continue to add more.
- **Bicycle facilities.** Since 1997, new bicycle lanes have been implemented on several roadways on campus and to / from campus. Most notable was the conversion of University Boulevard west of Blanca, from two lanes in each direction to one travel lane and one bicycle lane in each direction. Bicycle lanes were also added on SW Marine Drive, Wesbrook Mall, East Mall, Thunderbird Boulevard and 16th Avenue. Similarly, the City of Vancouver has made significant progress on bike facilities that connect to the five key routes to and from UBC. All unrestricted roads on campus function as shared roadways that accommodate cyclists as well as motor vehicles. Bicycle racks are provided at every building on campus in addition to secure bike lockers, bike cages and numerous end of trip facilities.
- **Alternative modes of travel.** UBC has encouraged the use of non-single occupancy vehicle (SOV) modes of travel through a range of programs, including a comprehensive transportation demand management strategy that includes transit discount programs, carpooling, car sharing, cycling, on campus shuttles, an emergency ride home program, and other sustainable transportation initiatives.
- **Campus development and land use.** UBC has developed and is continuing to develop additional housing for students, staff, and faculty on-campus as a means of reducing the proportion of persons who travel to UBC from off-campus. At the same time, an increased number and range of commercial services and amenities are now available on campus and in the University Endowment Lands adjacent to campus to reduce the need to travel off campus.

1.4. Understanding the Data

The following terms and measures are used throughout this report to describe various characteristics of travel patterns and trends at UBC:

- A **screenline** is an imaginary line across which trips are recorded. At UBC, the screenline around the campus illustrated by the dotted blue line in **Figure 1.1**. As shown, there are approximately five different entry and exit options.
- **Mode share** (also called “mode split”) refers to the relative proportions of trips by various travel modes during a particular time period. Mode shares are generally reported for single occupant vehicles (SOVs), carpool and vanpools (also called high occupancy vehicles or HOV’s), transit, bicycle, pedestrians and other modes such as motorcycles and trucks.
- The data presented in the Transportation Status Report include **traffic volumes** and **person trips**. Traffic volumes are simply the number of vehicles passing a point, whereas person trips are the number of people passing a point by all modes of transportation. A person trip is a one-way trip made by one person. For example, in one hour there might be 500 vehicles travelling along a section of road (traffic volumes generally reflect vehicles travelling in both directions). These 500 vehicles might include 450 automobiles with a total of 600 persons in them, 30 buses with a total of 1,000 persons in them, and 20 light and heavy trucks with 25 persons in them. The total number of person trips associated with these 500 vehicles is 1,625 person trips.

*Throughout this report, unless otherwise stated all reported trips are in **person trips**.*

- The population at UBC — students, staff, faculty and residents — has increased every year from 1997. This means that when comparing absolute numbers of person trips and traffic volumes, and changes from one year to another reflect the effects of two different factors — changes in travel patterns and increases in population growth. To distinguish changes in travel patterns from changes due to population increase, a different measure is used — **trips per person**. This provides a consistent basis for monitoring travel trends regardless of how much or how little population growth occurs. Trips per person are calculated as the number of person trips divided by the number of persons at UBC during the weekday daytime. The number of persons is calculated as the student enrolment plus the number of staff and faculty (full and part time), as reported by UBC’s Planning and Institutional Research department. Numbers of on-campus residents are not included in the population count, in many cases it could be a double count as a result of many staff, faculty and students living on campus.
- Substantial effort and cost are required to collect travel data at UBC. Consequently, it is neither reasonable nor necessary to collect all data in all locations at all hours of the day and night. Instead, some data are collected during selected **time periods** only (**Table 1.1** indicates the time periods for each type of data collection activity). Traffic data on all routes leading to and from UBC are collected over a period of one week between the end of October and early November using automatic counters placed on the roadway. On the other hand, vehicle occupancy and classification counts are done manually, and as a result are relatively expensive. These counts are undertaken for a total of 8 hours from the morning peak through the afternoon peak periods. Daily totals can be estimated by combining occupancy and classification data with the average daily traffic data.

- **Rolling average.** Much of the data presented in this report is from a single day to a week and observed travel patterns fluctuate from year to year and are heavily influenced by weather. Consequently the results for any particular year should not be considered in isolation. A more meaningful picture of travel patterns is obtained by considering trends over time. To better illustrate trends and minimize the apparent variability from year to year, charts illustrating trips by mode for each year since 1997 include a trend line based on a three-year rolling average. Rolling averages are calculated as the average of a particular year plus the years before and after. This means that for 2006, for example, the rolling average is calculated as the average number of trips in 2005, 2006 and 2007.

1.5. More Information

The following resources provide additional information regarding travel patterns and trends at UBC, as well as transportation services and facilities. All this information can be found at UBC's Campus and Community Planning website:

- This Fall 2018 Transportation Status Report, along with previous Transportation Status Reports.
- 2017 Transportation Survey
- The 2005 Strategic Transportation Plan.
- A review of the first 18 months of the student U-Pass program and the results of the Community Transportation Pass (ComPASS) demonstration project.
- Information on other transportation facilities and services on campus.
- Information regarding campus plans and neighbourhood plans.

2. Summary of Transportation at UBC

The following sections present a general summary of transportation to and from UBC including person trips, trips per person, mode share, and vehicle occupancy. Details for each different mode of transportation are presented in **Section 3**.

2.1. Person Trips

The average weekday person trips to and from UBC in fall 2018 was 145,700. A summary and comparison of daily person trips by mode for 1997 and 2018 are provided in **Table 2.1** and **Figure 2.1**.

Table 2.1: Weekday Person Trips to / from UBC Vancouver, 1997 vs. 2018

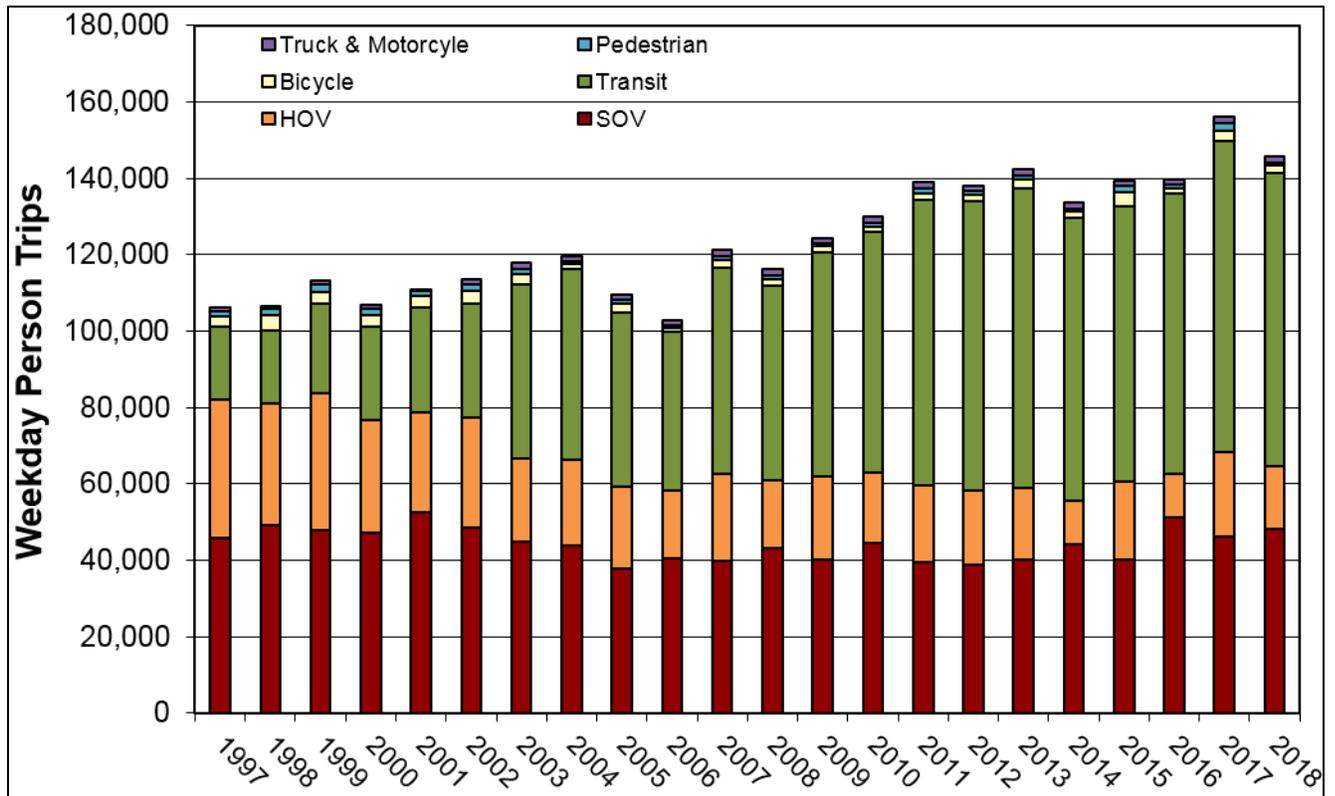
Travel Mode Classification	Person Trips			
	Fall 1997	Fall 2018	Change (count / percentage)	
Single Occupant Vehicle (SOV)	46,000	48,100	+2,100	+4.6%
Carpool / Vanpool (HOV)	36,100	16,700	-19,400	-53.7%
Transit	19,000	76,600	+57,600	+303.2%
Bicycle	2,700	2,100	-600	-22.2%
Pedestrian	1,400	700	-700	-50.0%
Truck & Motorcycle	900	1,500	+600	+66.7%
Totals	106,100	145,700	+39,600	+37.3%

Key observations regarding modes of travel to and from UBC include:

- The proportion of SOV trips is up nearly 5% from 1997 levels.
- The proportion of HOV trips has decreased by almost 54% from 1997.
- Trips by transit have increased by four times since 1997.
- Bicycle and pedestrian trips do not represent a significant portion of the trips to and from campus. Bicycle and pedestrian trips dropped considerably after 2003 when the u-pass was introduced.

There is a lot of variability in trips by mode year over year, highlighting the importance of referencing a three year rolling average. This rolling average is shown for all modes of travel in **Section 3**.

Figure 2.1: Weekday Person Trips to / from UBC, 1997 – 2018



As shown in **Figure 2.1**, the number of person trips leveled off between 2011 and 2018 with the exception of 2017 where a spike in person trips were observed.

In order to compare travel patterns from year to year on a consistent basis, it is important to negate the effects of population / enrolment growth. To compare the trips per person by mode the average weekday person trips by each mode is divided by the average weekday campus population. The average weekday campus population values include all full and part time students, staff and faculty.

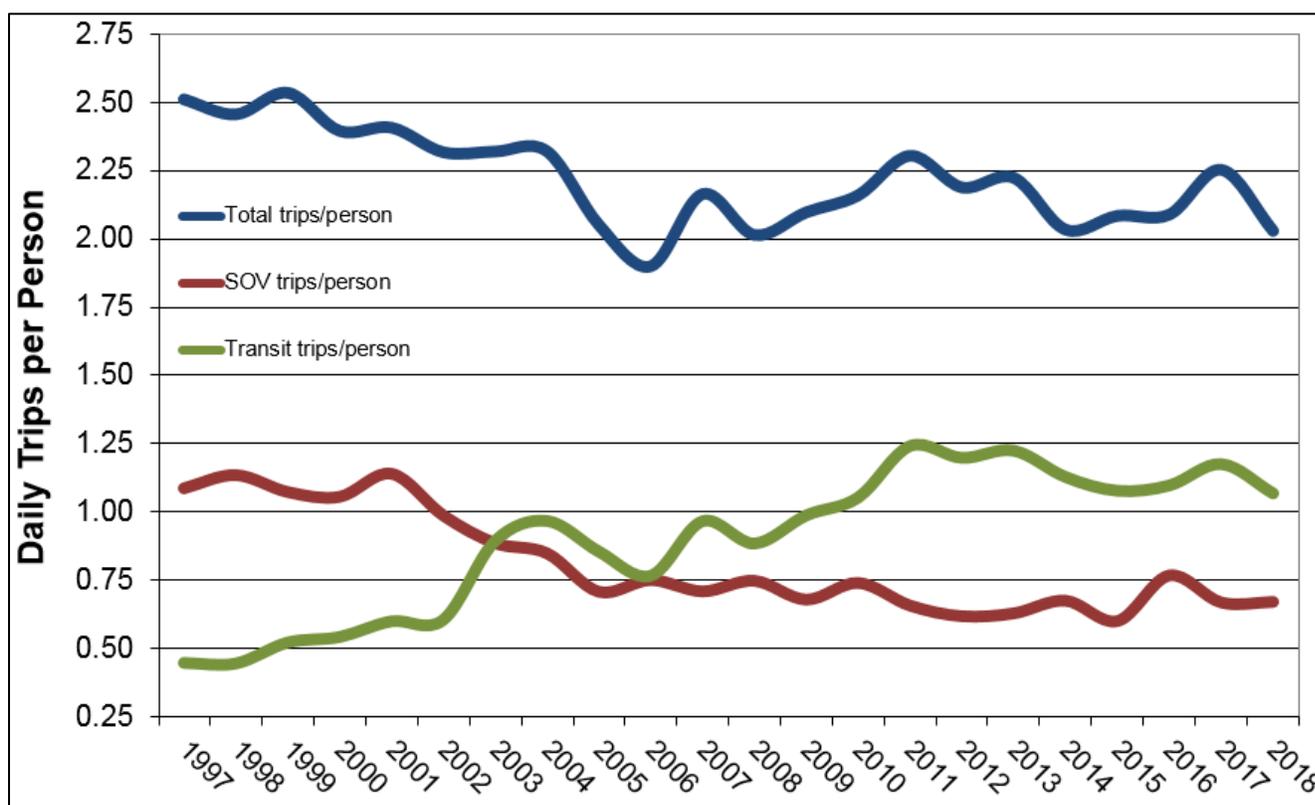
The campus population and trips per person to and from UBC from fall 1997 to fall 2018 are presented in **Table 2.2** and **Figure 2.2**, respectively.

Table 2.2: Weekday Trips Per Person to / from UBC, 1997 – 2018

Travel Mode Classification	Trips Per Person		
	Fall 1997	Fall 2018	Change (count / percentage)
Single Occupant Vehicle (SOV)	1.09	0.67	-0.42 / -38.4%
Carpool / Vanpool	0.86	0.23	-0.62 / -72.7%
Transit	0.45	1.07	+0.62 / +137.7%
Bicycle	0.06	0.03	-0.03 / -54.1%
Pedestrian	0.03	0.01	-0.02 / -70.5%
Truck & Motorcycle	0.02	0.02	-0.00 / -1.7%
Totals	2.51	2.03	-0.48 / -19%
CAMPUS POPULATION*	42,300	71,750	+29,450 / +69.6%

*Population reported from fall attendance values.

Figure 2.2: Weekday Trips Per Person to / From UBC, 1997 – 2018



The average number of trips per person in 2018 was 2.03 trips per day, which is almost a 20% decrease from 1997 and a decrease from the 2.25 trips per person in 2017. Since 1997 the number of trips made by transit has generally increased while the number of trips by single occupant vehicles has generally decreased.

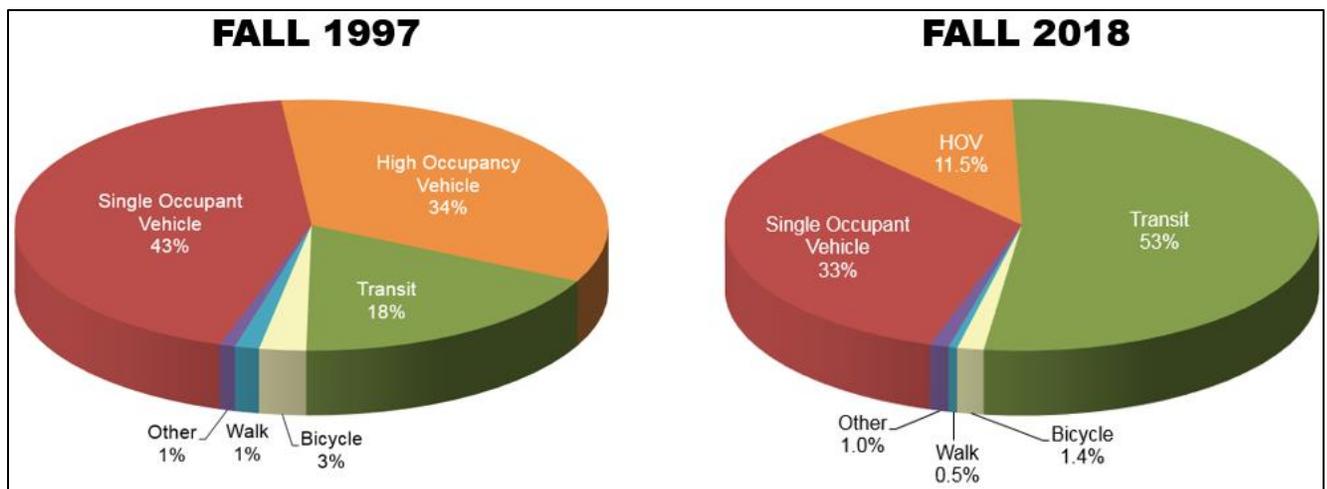
Possible reasons for the decrease in trips per person to and from campus overall since 1997 include:

- More people are living, working and studying on campus.
- More services are available on campus, reducing the need for people to travel off campus for errands and essential services.
- Distance education, telecommuting and internet access has reduced the need for some students, staff and faculty to travel to campus each day and in fact the university supports telecommuting, within reason and with approval, as a way to reach its transportation targets.

2.2. Mode Share Summary

The mode share comparison for 1997 and 2018 are shown in **Figure 2.3**. The significant change since 1997 has been the increase in the transit mode share, with trips by transit accounting for over half of all trips to and from UBC, and the decrease in high and single occupancy vehicle mode share.

Figure 2.3: Average Weekday Trips by Mode to / From UBC, 1997 vs. 2018



TARGET 1: By 2040 at least two-thirds of all trips to and from UBC will be made by walking, cycling or transit and maintain at least 50% of all trips to and from the campus on public transit.

- In 2018 54.5% of all trips were made by transit, walking and cycling.
- ✓ In 2018 53% of all trips to and from the campus were made by transit.

The distribution of weekday person trips throughout the day compared to 1997 is shown in **Figure 2.5**. In general the wave profile matches the standard work and study hours with rounded peaks around 10am and 5pm.

The peak hour summary of trips by mode is summarized in **Table 2.3**. Significant observations in the data include:

- The number of trips to campus during the morning peak and from campus during the afternoon peak increased 5% and 46% in 2018 compared to 1997, respectively. For comparison, campus population has increased 70% over the same period.
- The peak travel periods have spread out resulting in more trips throughout the day. However, a sharper peak is still visible representing morning and afternoon commuter hours. This puts significant strain on the public transit system and creates overcrowding and poor service / experience to riders, which could result in people switching travel modes, likely to less sustainable travel modes.

Figure 2.5: Distribution of Average Weekday Person Trips to / from UBC, 1997 vs. 2018

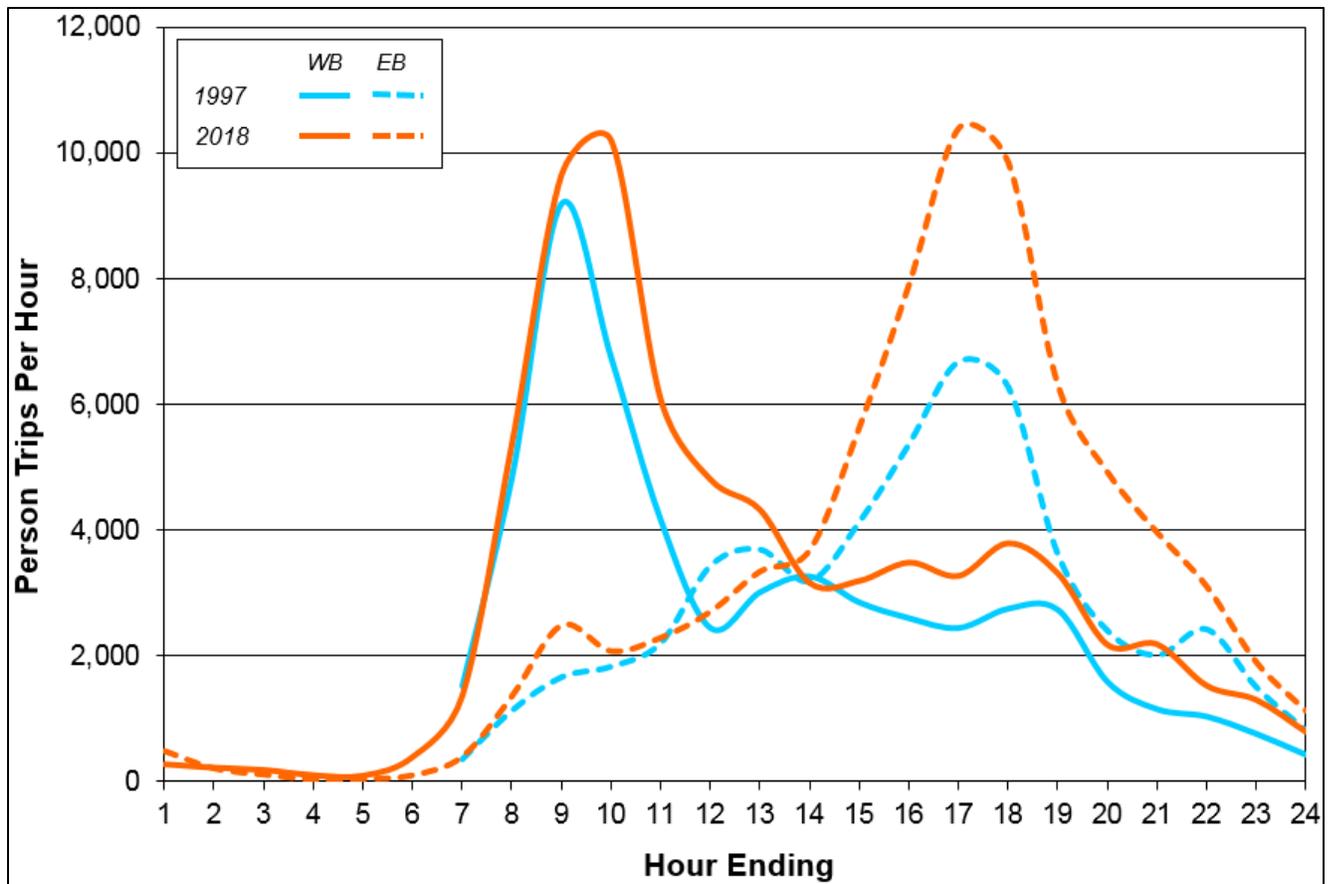


Table 2.3: Average Peak Hour Person Trips by Mode to/from UBC, 2018

Travel Mode Classification	AM Peak Hour		PM Peak Hour	
	Westbound	Eastbound	Westbound	Eastbound
Single Occupant Vehicle (SOV)	2,894	1,258	1,543	2,391
High Occupancy Vehicle	545	365	417	1,083
Transit	5,809	763	1,708	6,001
Bicycle	307	26	46	310
Pedestrian	51	26	59	50
Truck & Motorcycle	62	52	15	25
Totals	9,668	2,490	3,788	9,860

2.3. Traffic Patterns and Vehicle Occupancy

Automobile traffic (single occupant and high occupant vehicles only) to and from UBC has decreased substantially from 62,400 automobiles per weekday in fall 1997 to 56,100 automobiles per weekday in fall 2018 despite a 70% increase in daytime population, as shown in **Table 2.4**. The second target in UBC’s transportation plan is to reduce single occupant vehicle trips to and from UBC by 20% from 1997 levels. In 2018 this target was not met as SOV trips increased by 4.6% over 1997 levels.

Table 2.4: Average Weekday SOV and HOV Traffic Volume to/from UBC, 1997 vs. 2018

Travel Mode Classification	Fall 1997	Fall 2018	Change (count / percentage)	
Single Occupant Vehicle (SOV)	46,000	48,100	+2,100	+4.6%
High Occupant Vehicle (HOV)	16,400	8,000	-8,400	-51.2%
Totals	62,400	56,100	-6,300	-10.1%

The average weekday traffic volumes to / from UBC in a 24-hour period for both fall 1997 and fall 2018 are shown in **Figure 2.6**. As shown, the traffic volumes have reduced through most of the day, not just at peak periods. The exception is the morning eastbound movement where an increase in traffic was observed, likely a result of the growth in the on campus residential population that travel into Vancouver for work, school or other.

Figure 2.6: Distribution of Average Weekday Traffic Volumes to / from UBC, 1997 vs. 2018

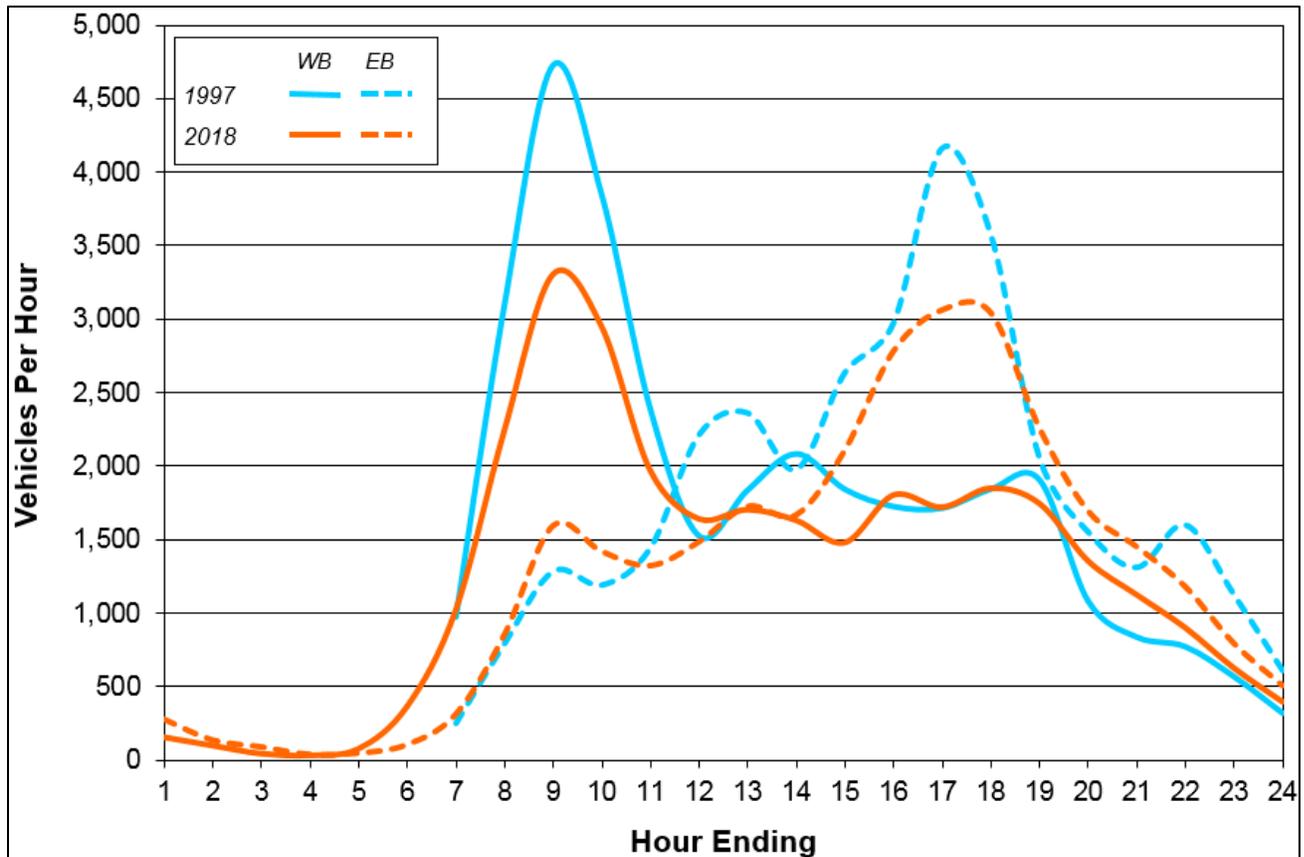


Table 2.5 summarizes the daily traffic volumes at each screenline location. It is important to note that these figures include trucks, buses and motorcycles, in addition to SOV's and HOV's so the numbers in the tables below won't match those presented in **Table 2.4**.

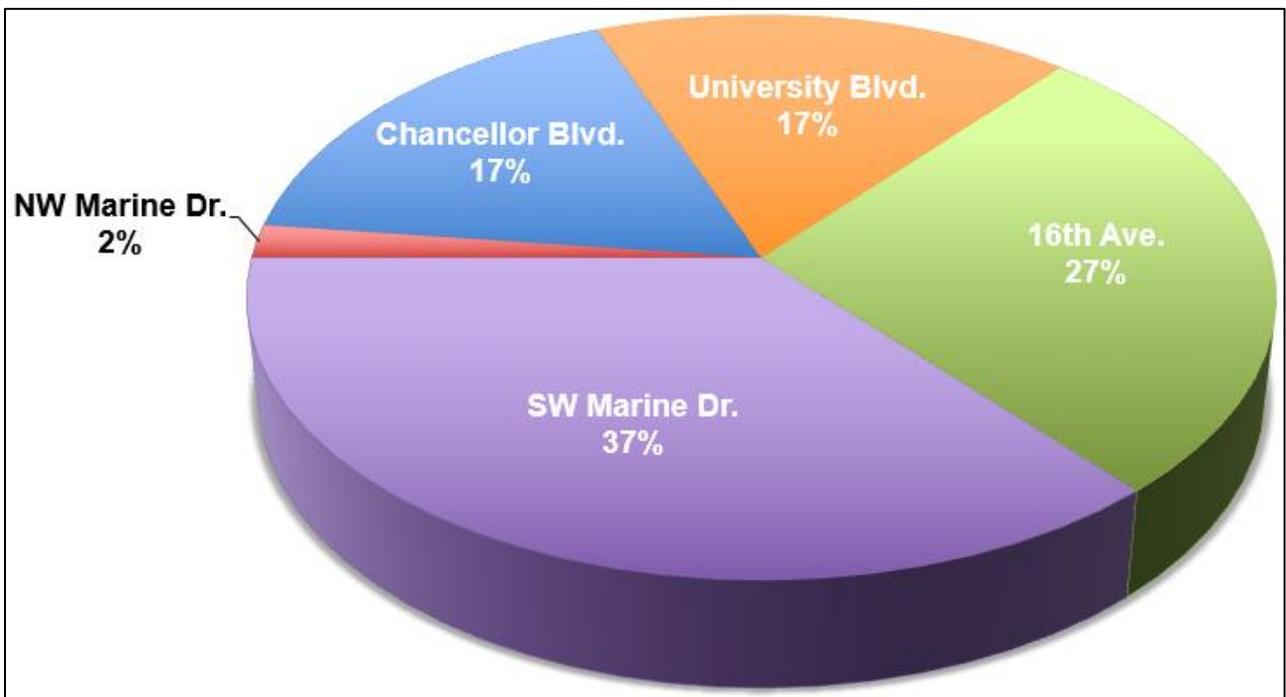
Overall, traffic volumes were 7% lower in fall 2018 than in 1997 with a general decrease observed at all screenline locations with the exception of 16th Avenue where there has been an increase of 28%. The increase on 16th Avenue is mostly attributed to the population growth in Wesbrook Village and congestion on alternative routes.

Table 2.5: Summary of Average Weekday Traffic Volumes at Screenlines, 1997 vs. 2018

Screenline	Average Daily Traffic Volume		
	Fall 1997	Fall 2018	Change (count / percentage)
NW Marine Drive	2,040	1,160	-880 / -43%
Chancellor Boulevard	11,660	10,305	-1,355 / -12%
University Boulevard	14,610	10,330	-4,280 / -29%
16th Avenue	12,880	16,450	+3,580 / +28%
SW Marine Drive	23,410	21,910	-1,500 / -6%
Totals	64,600	60,160	-4,440 / -7%

The distribution of all traffic volumes to / from UBC by screenline is shown in **Figure 2.7**. As shown, the majority of UBC traffic uses SW Marine Drive followed by 16th Avenue and University Boulevard.

Figure 2.7: Distribution of Average Weekday Traffic to / from UBC by Screenline, 2018



Vehicle occupancy is a measure of the average number of people travelling per vehicle during a certain period of time. As shown in **Table 2.6**, the average vehicle occupancy of all vehicles in 2018 was 1.14 persons per vehicle, down from 1.32 persons per vehicle in 1997 and 1.21 persons per vehicle in 2017. The average occupancy for high occupancy vehicles decreased from 2.20 in 1997 to 2.07 in 2018. In 2018, 95% of recorded HOV trips were two person trips with three and four person trips at 4% and 1%, respectively. This is lower than 2017 when 13% of all HOV trips had three or more people in the vehicle.

Table 2.6: Average Daily Vehicle Occupancy to / from UBC

Travel Mode Classification	Fall 1997	Fall 2016	Fall 2017	Fall 2018
Vehicles (SOV's + HOV's)	1.32	1.11	1.21	1.21
HOV's (Carpools / Vanpools)	2.20	2.18	2.12	2.07

Table 2.7 provides a summary of average automobile occupancies from 7:00 a.m. to 6:00 p.m. Overall there is very little variation in the vehicle occupancies, but they appear to be higher for afternoon and off peak period trips from campus.

Table 2.7: Hourly Vehicle Occupancies to / from UBC, 2018

Hour Beginning	Westbound	Eastbound	Both Directions
7:00 a.m.	1.06	1.07	1.06
8:00 a.m.	1.09	1.13	1.10
9:00 a.m.	1.11	1.13	1.12
11:00 a.m.	1.09	1.16	1.12
12:00 p.m.	1.12	1.17	1.14
3:00 p.m.	1.15	1.23	1.20
4:00 p.m.	1.17	1.23	1.21
5:00 p.m.	1.12	1.19	1.17
8-Hour Average	1.11	1.18	1.14

3. Transportation To and From UBC

This section of the Transportation Status Report describes travel patterns and trends for trips to and from the UBC Vancouver campus for each mode of travel. Information regarding transportation conditions on campus is presented in **Section 4**.

3.1. Transit

Transit ridership at UBC has quadrupled since 1997, which equates to 76,600 weekday transit trips and 53% of all trips to and from UBC each day, which exceeds the target set in the Transportation Plan, which is to maintain at least 50% of all trips to and from the campus on public transit.

The increase in transit ridership is the result of the student U-Pass program, continued improvements in transit service, a reduced supply of commuter parking, and higher parking costs on campus. **Table 3.1** provides a summary of the increase in transit trips and the transit mode share from fall 1997 to fall 2018, highlighting the change from 2002 to 2003 when the student U-Pass was introduced.

Table 3.1: Summary of Average Weekday Transit Trips to / from UBC, 1997 – 2018

Transit Trips	Before U-Pass		After U-Pass		Change 1997-2018 (count / percentage)	
	Fall 1997	Fall 2002	Fall 2003	Fall 2018		
Person Trips	19,000	29,700	45,400	76,600	+57,600	+303%
Trips Per Person	0.45	0.61	0.89	1.07	+0.62	+137%
Transit Mode Share	18%	26%	39%	53%	+34%	+194%

Figure 3.1 illustrates transit ridership from year to year and includes the three year rolling average that balances out the variation year over year. A sharp peak was observed in 2003 when the u-pass was introduced, which was followed by a steady increase and a levelling off in 2013.

Table 3.2 provides a summary of transit trips by corridor, **Table 3.3** provides a summary of transit trips by route and by time period, and **Table 3.4** provides a summary of peak hour trips by route.

Table 3.2: Average Weekday Transit Trips to / from UBC by Corridor, 2018

Corridor	AM Peak	Midday	PM Peak	Evening	Night	Totals	
	6am to 9am	9am to 3pm	3pm to 6pm	6pm to Midnight	Midnight to 4:30am		
Chancellor Blvd.	1,900	4,982	3,529	1,346	0	11,757	15%
University Blvd.	4,099	11,596	9,027	8,625	646	33,993	44%
16th Avenue	1,688	4,342	2,672	2,382	0	11,064	14%
SW Marine Drive	2,707	6,848	6,178	4,047	47	19,827	26%
Totals	10,374	27,768	21,406	16,400	693	76,641	100%
	15%	40%	26%	17%	2%		

Figure 3.1: Average Weekday Transit Trips to / from UBC, 1997 – 2018

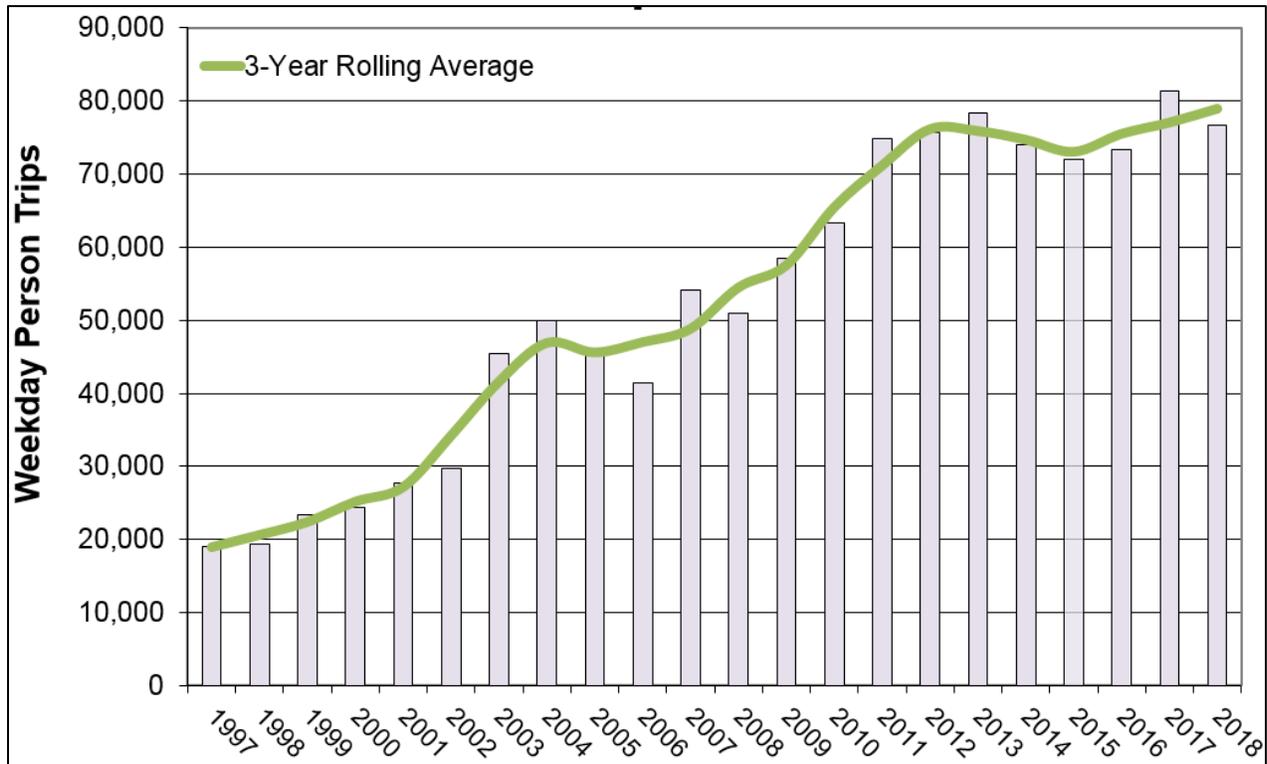


Table 3.3: Average Weekday Transit Trips to / from UBC by Route, 2018

Route	AM	Midday	PM Peak	Evening	Night	Totals		
	6am to 9am	9am to 3pm	3pm to 6pm	6pm to Midnight	Midnight to 4:30am			
4	4th Avenue	96	1124	942	1275	21	3,458	4.5%
9	Broadway	284	480	583	47	0	1,394	1.8%
14/N17	Broadway	668	2071	1188	1555	345	5,827	7.6%
25	King Edward	1095	2824	1593	1550	0	7,062	9.2%
33	16th Avenue	573	1513	1074	832	0	3,992	5.2%
41	41st Avenue	592	1572	1157	1387	47	4,755	6.2%
43	41st Ave Express	1006	1998	1490	1094	0	5,588	7.3%
44	4th Ave. Express	692	1819	1491	481	0	4,483	5.8%
49	49th Avenue	459	2101	2393	1020	0	5,973	7.8%
84	4th Ave. Express	1004	3014	2038	865	0	6,921	9.0%
99	Broadway B-Line	3046	7921	6112	5743	280	23,102	30.1%
258	North Shore	164	110	197	0	0	471	0.6%
480	Richmond Express	650	1177	1138	546	0	3,511	4.6%

Route		AM	Midday	PM Peak	Evening	Night	Totals	
		6am to 9am	9am to 3pm	3pm to 6pm	6pm to Midnight	Midnight to 4:30am		
NIS	Not In Service	45	44	10	5	0	104	0.1%
Totals		10,374	27,768	21,406	16,400	693	76,641	100%
		14.7%	40.3%	26.3%	16.6%	2.1%		

Table 3.4: Average Peak Hour Weekday Transit Trips to / from UBC by Route, 2018

Route		AM Peak Hour Westbound 8:30am – 9:30am		PM Peak Hour Eastbound 4:15pm – 5:15pm	
4	4th Avenue	79	1.2%	335	4.8%
9	Broadway	386	5.7%	218	3.1%
14/N17	Broadway	367	5.4%	371	5.3%
25	King Edward	659	9.7%	527	7.5%
33	16th Avenue	327	4.8%	327	4.7%
41	41st Avenue	413	6.1%	342	4.9%
43	41st Ave.(limited stops)	336	5.0%	452	6.5%
44	4th Ave.(limited stops)	772	11.4%	433	6.2%
49	49th Avenue	553	8.2%	958	13.7%
84	4th Ave.(limited stops)	650	9.6%	710	10.2%
99	Broadway B-Line	1774	26.1%	1784	25.5%
258	North Shore Express	86	1.3%	75	1.1%
480	Richmond Express	377	5.6%	449	6.4%
NIS	Not In Service	5	0.1%	5	0.1%
Totals		6,874	100%	6,896	100%

Significant observations about transit trips to and from UBC include:

- The number of transit trips has increased in recent years following a period of reduced transit trips from 2014 to 2016.
- Bus routes via University Boulevard account for 45% of all transit trips to and from UBC. Bus routes via 16th Avenue and Chancellor Boulevard account for 14% and 15%, respectively. When combined, ridership in the “UBC Line”¹ corridor amounts to 75% of all transit trips to and from UBC. Bus routes via SW Marine Drive (the majority of which use 41st Avenue in the City of Vancouver) account for the remaining 26% of all transit trips.
- The 99 B-Line accounts for 30% of all transit trips, which is unchanged from 2017 values.
- The other express bus services (Routes 43, 44, 84, 258 and 480) account for 27% of all transit trips to and from UBC. Adding the Route 99 B-Line increases this to 58% of all transit trips,

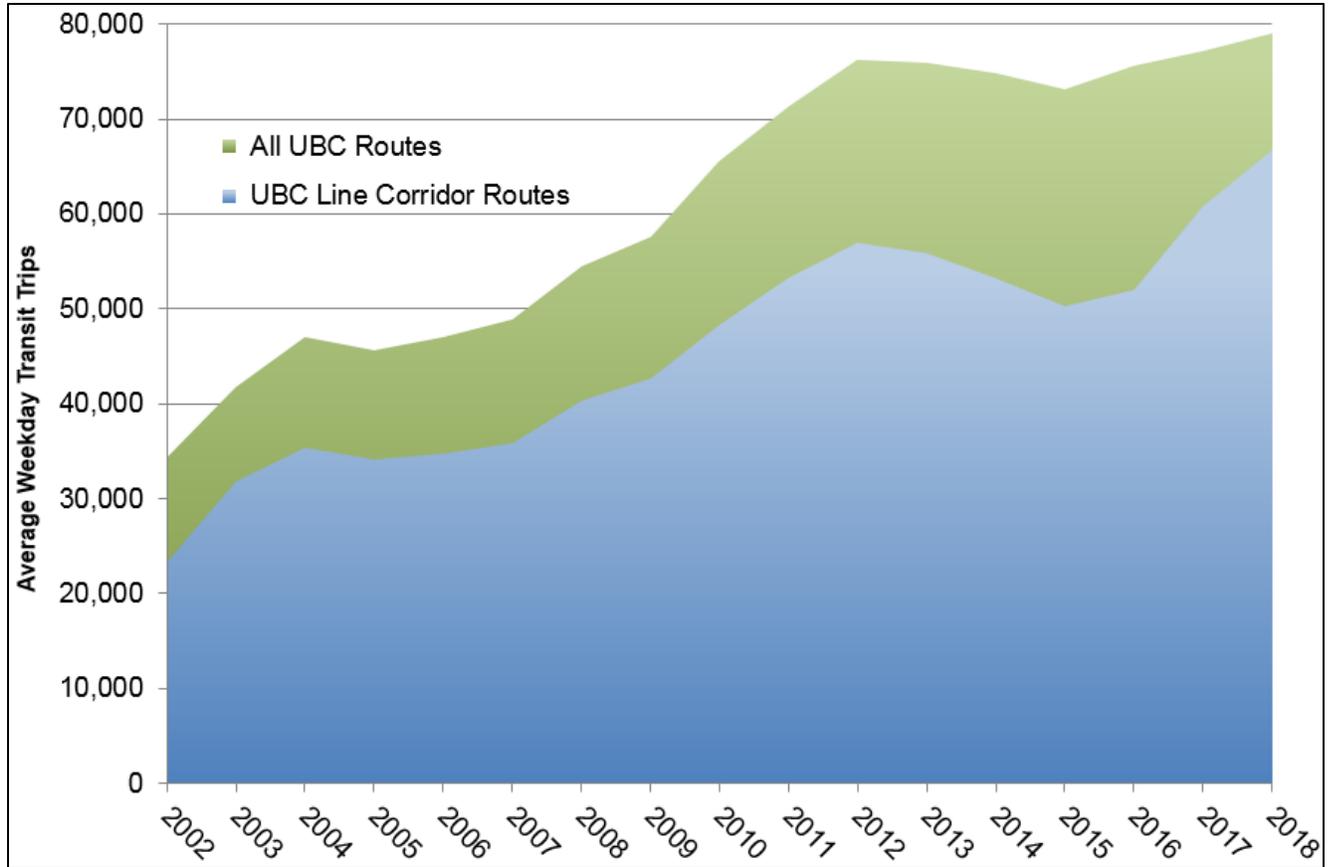
¹ UBC Line refers to the future rapid transit line to UBC that is expected to be used by people currently taking transit to / from UBC via Chancellor Boulevard, University Boulevard and 16th Avenue.

indicating popularity for faster transit service options to / from UBC.

- Trolley bus Routes 4, 9 and 14/17 account for 14% of all transit trips, which is unchanged from 2017.

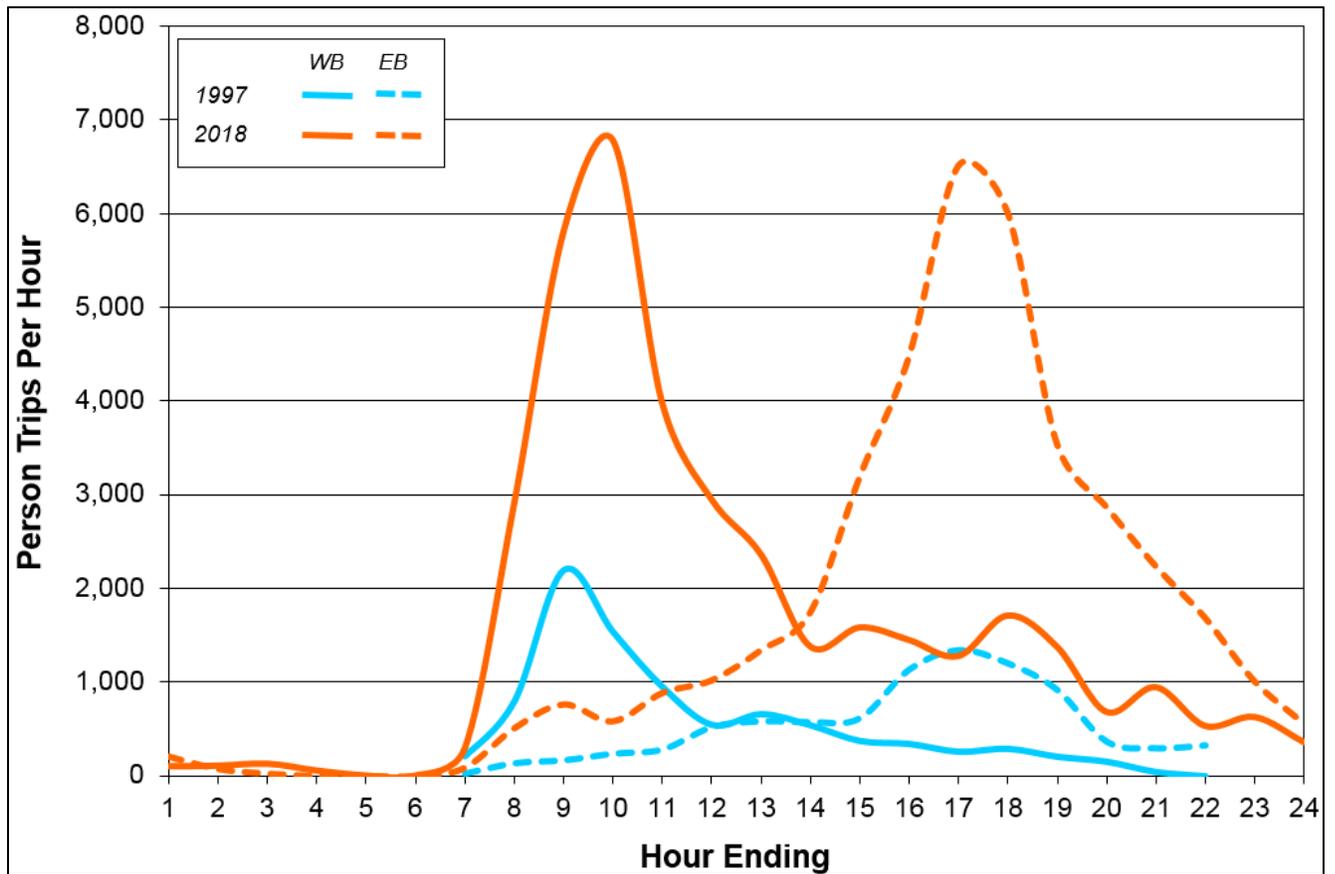
Figure 3.2 compares the three year rolling average of ridership on bus routes in the UBC Line corridor with total ridership on all routes.

Figure 3.2: Average Weekday Transit Trips to / from UBC by Route, 2018



The daily distribution of transit trips to and from UBC in 2018 is shown in **Figure 3.3** including a comparison with fall 1997 transit trips. Not only does this illustrate the significant increase in transit ridership since 1997, but it also illustrates there are significant peak periods of transit demand. The sharp peak in the AM peak period reduced in 2018 compared to 2017, which will be monitored over the coming years. A wider spread of peak arrival and departure periods at UBC would allow TransLink to better accommodate the demand. A majority of the transit routes to UBC are at capacity during the peak periods with overcrowding consistently observed, which results in unsatisfied customers and people choosing alternative modes instead as evidenced by the 2017 transportation survey discussed below.

Figure 3.3: Distribution of Average Weekday Transit Trips to / from UBC, 1997 vs. 2018



In 2017, UBC carried out a transportation survey of the campus community to gather more detailed information about travel to / from and around campus. Their top three responses to a question about what would increase the likelihood of travelling to campus by public transit more often were shorter travel times, less overcrowding of buses, and increased frequency of service. Of people that currently do take transit to travel to / from UBC the average travel time from respondents was 50.5 minutes, one way. Given this information it suggests strong support for rapid transit and a high likelihood that vehicle trips would be replaced by rapid transit trips if there was a rapid transit connection to UBC. In the meantime, TransLink is rolling out a number of B-Line improvements to meet the demand for express transit connections to UBC. The first to arrive for UBC commuters is the 41 B-Line, which is

planned for September 2019.

3.2. Motor Vehicles

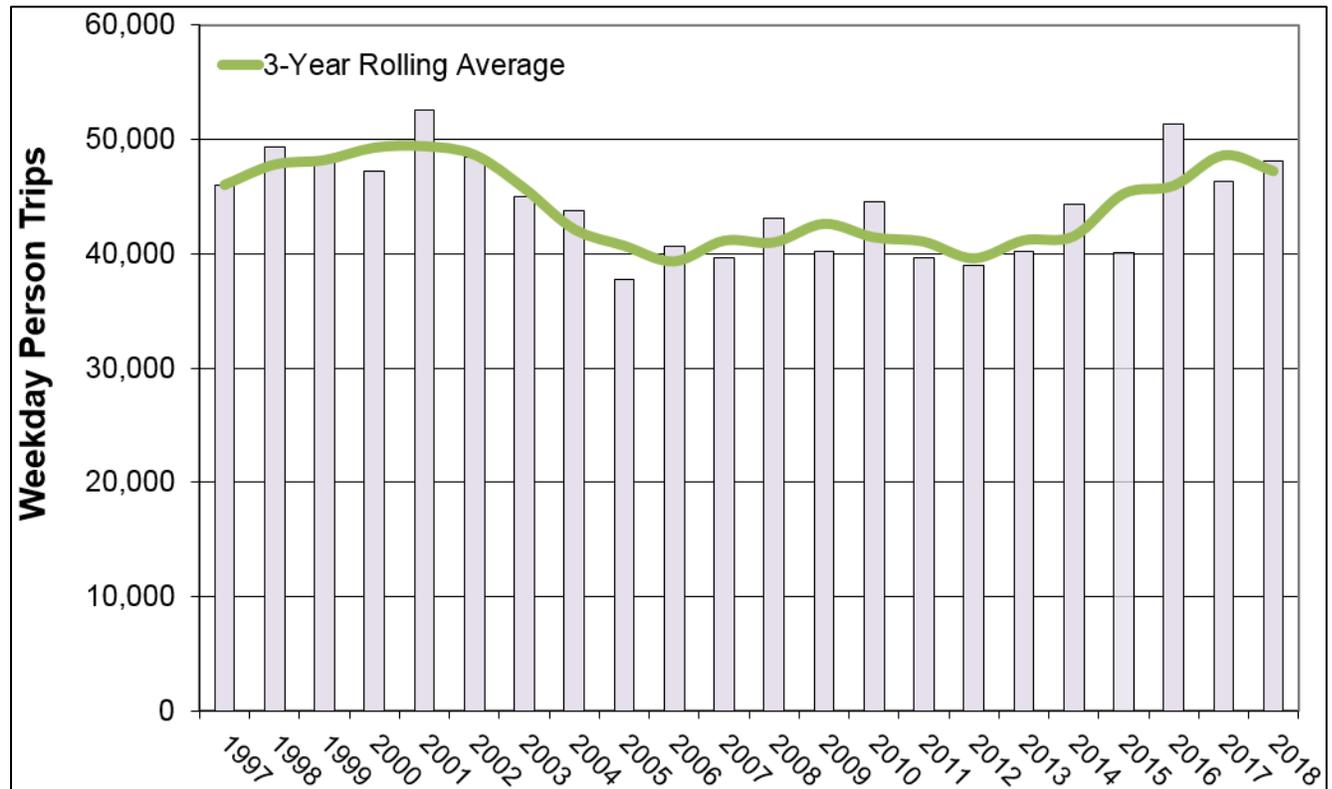
UBC is determined to reduce the amount of vehicle traffic travelling to and from UBC each day as represented in two of the three targets identified in the Transportation Plan.

Table 3.5 provides a comparison of SOV travel in fall 1997 and fall 2018, and **Figure 3.4** provides a summary of year-by-year changes and the three year rolling averages.

Table 3.5: Summary of SOV Trips to / from UBC, 1997 vs. 2018

Average Weekday SOV Trips	Fall 1997	Fall 2018	Change 1997-2018 (count / percentage)	
Person Trips	46,000	48,100	+2,100	+4.6%
Trips Per Person	1.09	0.67	-0.42	-38.6%
SOV Mode Share	43%	33%	-10	-23%

Figure 3.4: Average Weekday SOV Trips to / from UBC, 1997 - 2018

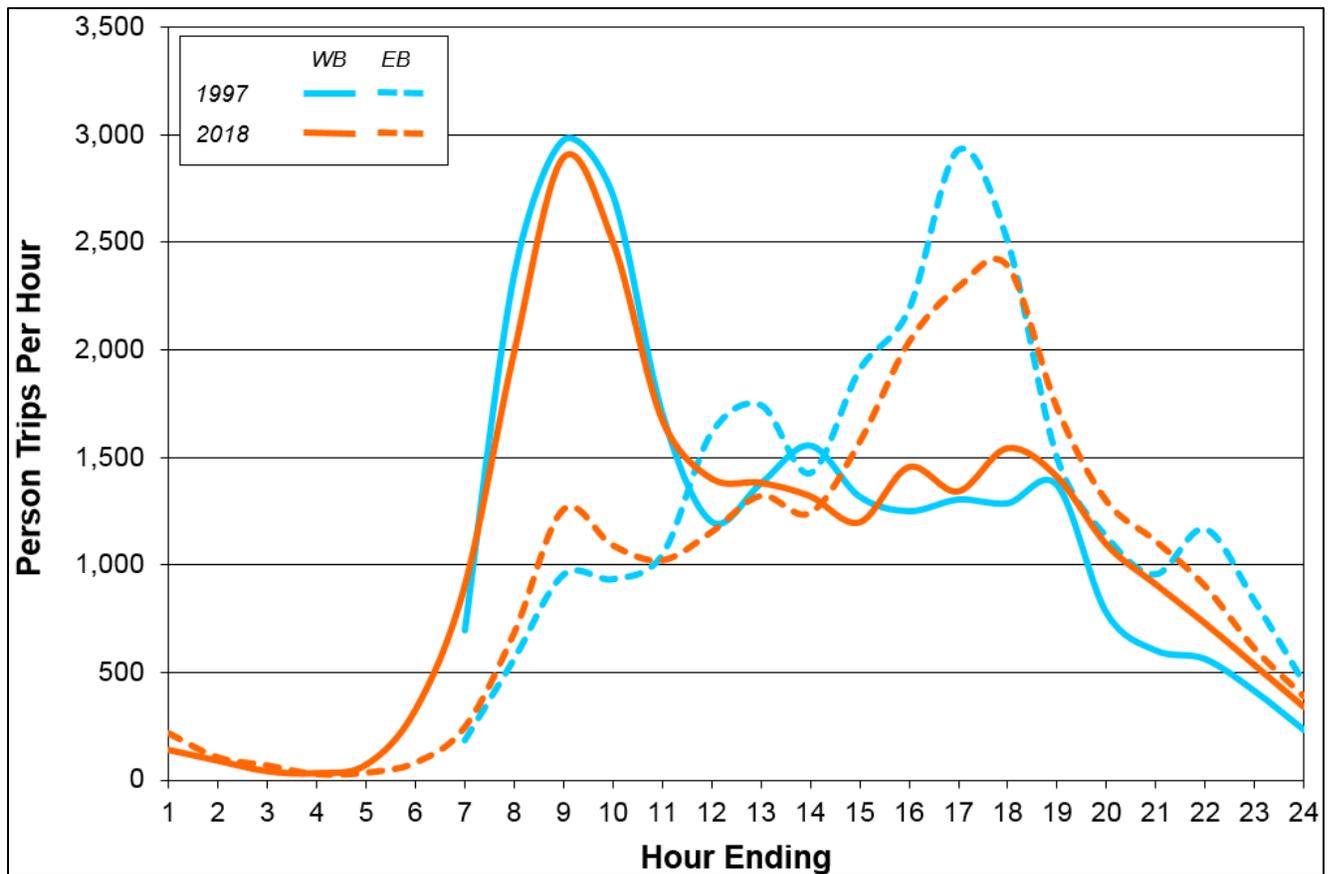


As suspected, the spike in 2016 was another anomaly similar to the drop in 2015, these types of spikes are anticipated with single day data collection efforts. The 2018 values are back on trend with the past seven years that shows a gradual increase year over year, although it does result in SOV

vehicle trips higher than 1997 values.

Figure 3.5 illustrates the arrival and departure patterns of SOV trips to and from UBC throughout the day, including a comparison with fall 1997 SOV trips. SOV trips observed in 2018 follow the same peak travel pattern in 1997, but in general more trips westbound starting at 4pm through later into the evening. This increase in late afternoon and evening trips as well as the increase in off-peak direction trips are anticipated to continue as the campus residential population increases.

Figure 3.5: Distribution of Average Weekday SOV Trips to / from UBC, 1997 vs. 2018



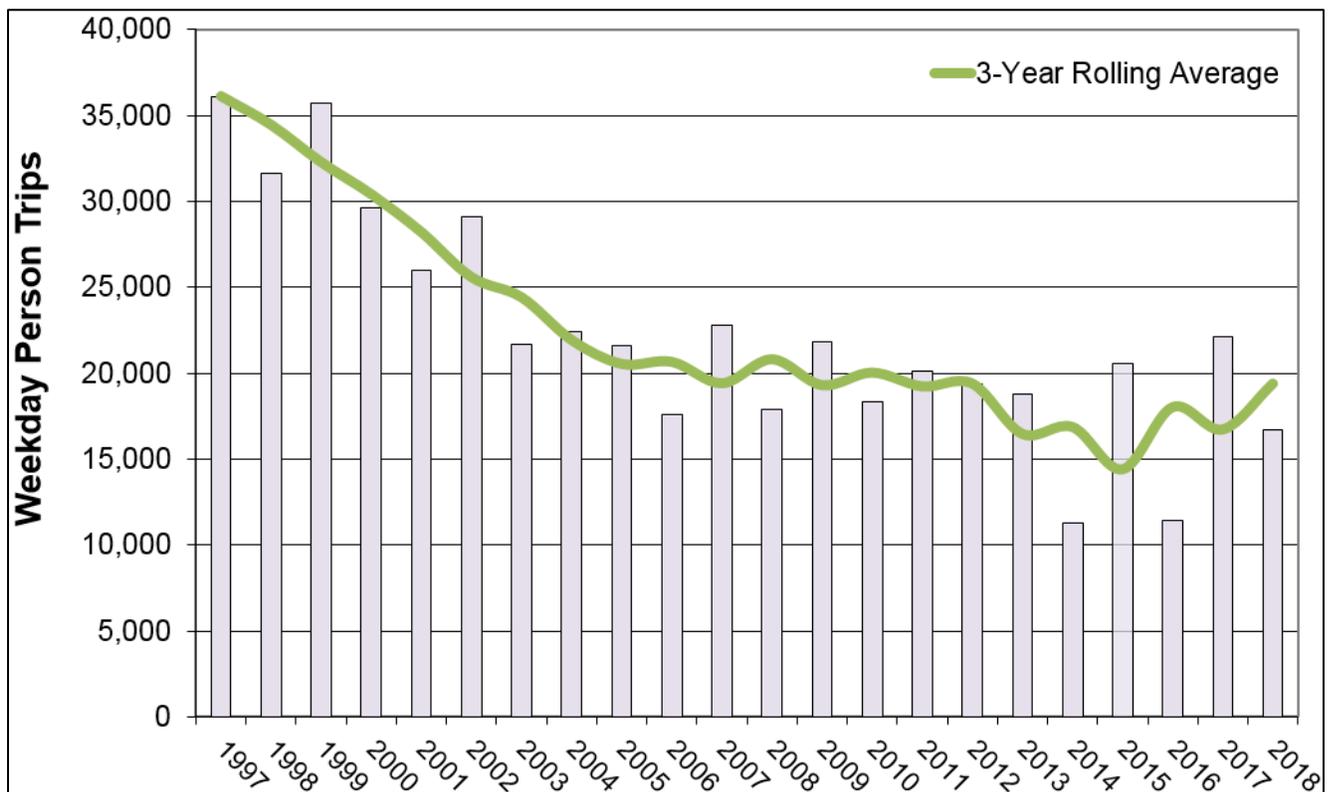
From the 2017 Transportation Survey the campus community was asked why they chose to drive alone. Their top three responses were to pick-up children from daycare and schools, public transit is not an option because they live too far away, and they do not like to take public transit in general. Of the respondents that identified they travelled alone, 75% of them said they would take transit if there was a rapid transit connection to UBC.

Carpooling, or High Occupancy Vehicle travel (HOV), has decreased substantially since 1997. A summary of the trend in HOV travel in fall 1997 and fall 2018 is provided in **Table 3.6**, and a summary of year-by-year changes and the three year rolling average is provided in **Figure 3.6**.

Table 3.6: Summary of HOV Trips to / from UBC, 1997 vs. 2018

Average Weekday HOV Trips	Fall 1997	Fall 2018	Change 1997-2018 (count / percentage)	
Person Trips	36,100	16,700	-19,400	-38.8%
Trips Per Person	0.85	0.32	-0.53	-53.7%
HOV Mode Share	34%	11.5%	-22.5	-66%

Figure 3.6: Average Weekday HOV Trips to / from UBC, 1997 – 2018

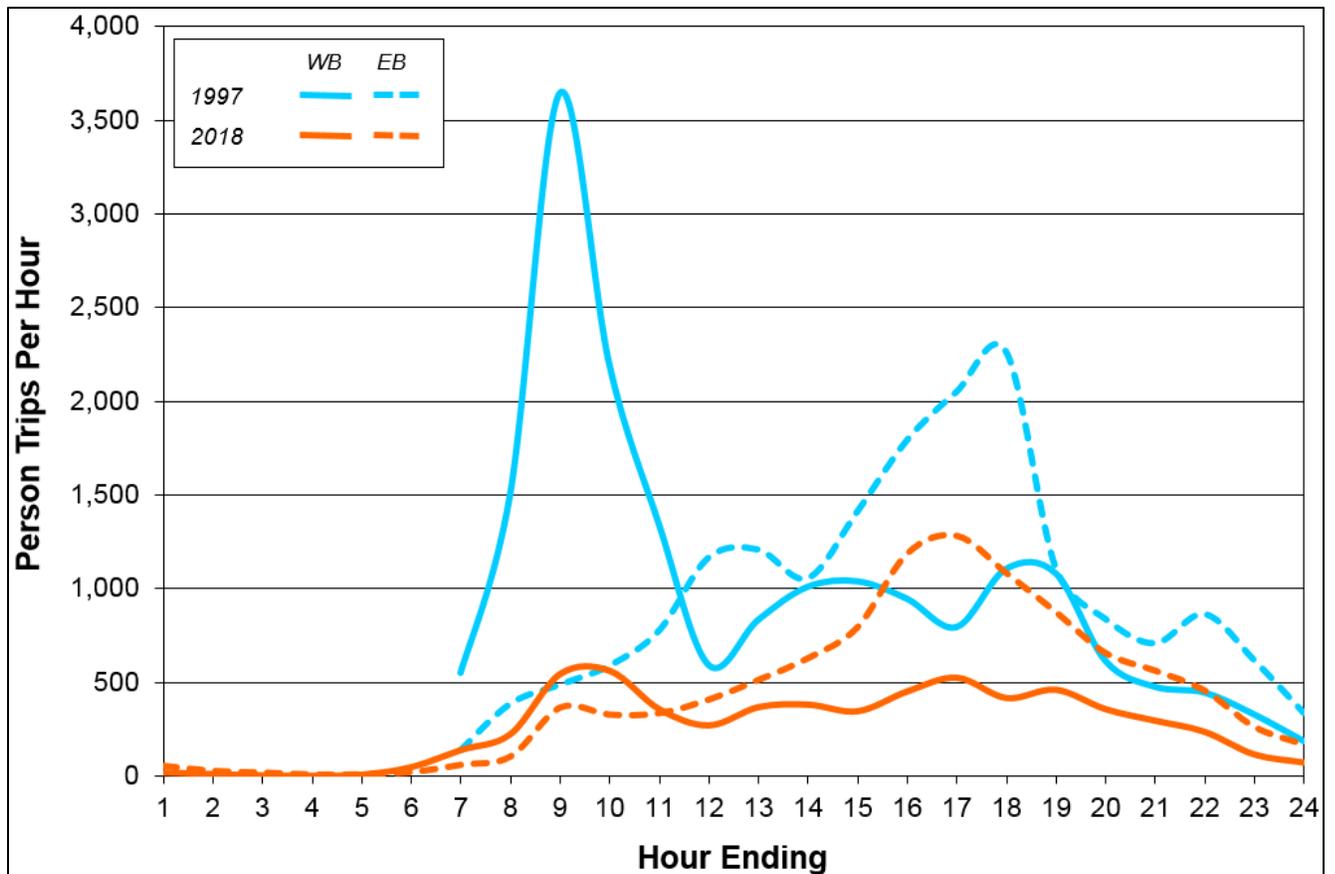


As shown in **Figure 3.6**, HOV trips have decreased significantly since 1997 and over the last five years have exhibited a lot of fluctuation. There are significant barriers to HOV in general, but UBC is working on increasing this mode share with pilot programs and incentives offered through UBC Parking in addition to better understanding the barriers to vanpooling.

Figure 3.7 illustrates the arrival and departure patterns of HOV trips to and from UBC throughout the day, including a comparison with fall 1997 HOV trips. One observation is the higher amount of HOV trips departing campus during the afternoon peak period. This could be because it may be easier to coordinate rides while at work as opposed to early in the morning or people are less rushed to return home compared to having to arrive to work on time.

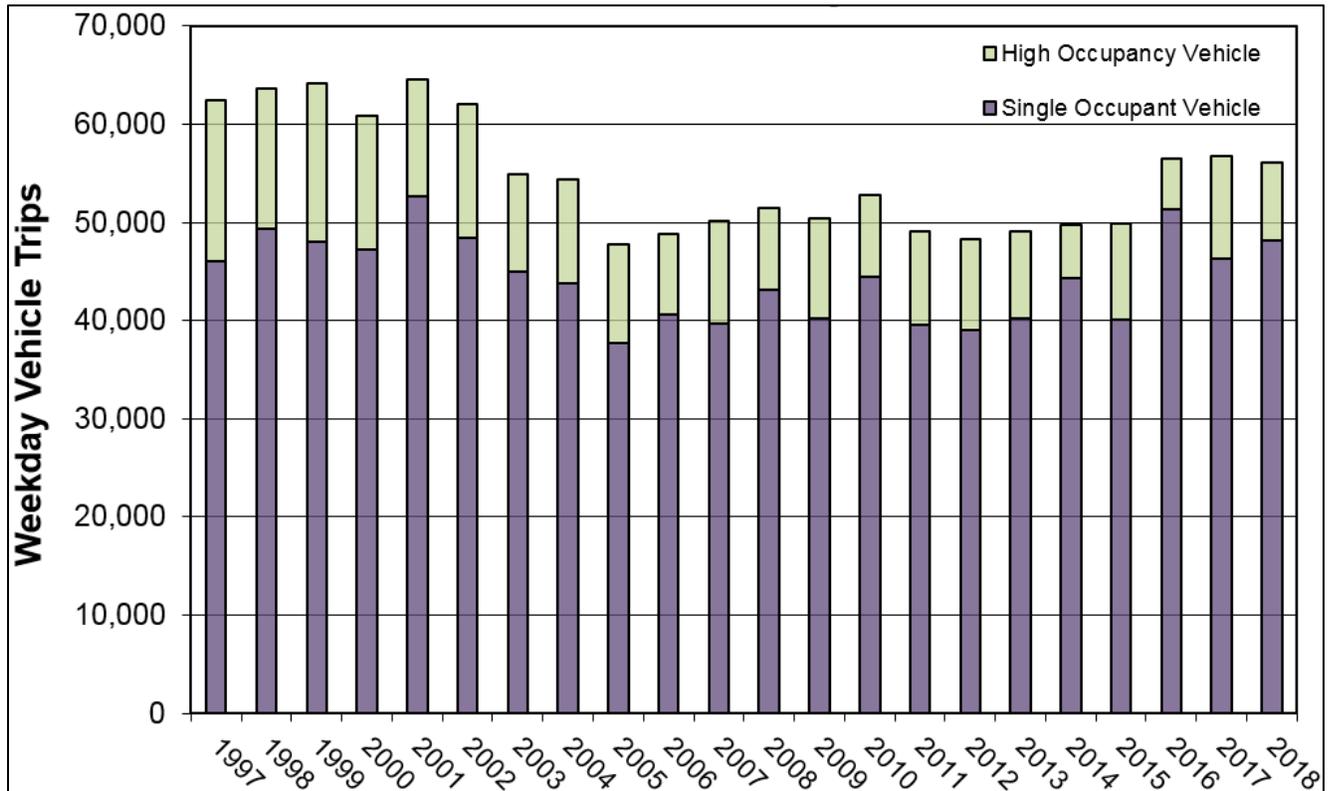
The 2017 Transportation Survey asked the campus community why they drive alone and what would make them choose to travel by more sustainable options such as carpooling. The primary response was the need to carry out other errands such as picking children up from daycare / school. This identifies that flexibility is a requirement when exploring carpooling programs. Respondents also identified that more carpool incentives would increase the likelihood of them carpooling over travelling alone.

Figure 3.7: Distribution of Average Weekday HOV Trips to / from UBC, 1997 vs. 2018



In fall 2018, daily motor vehicle traffic was 56,100 vehicles per day, which is 6,300 less than the 1997 level. **Figure 3.8** provides a summary of the trend in daily motor vehicle traffic volumes from 1997 to 2018. The number of automobiles travelling to campus daily has levelled off over the past three years, but with variations in the split between SOV and HOV trips.

Figure 3.8: Average Weekday Motor Vehicle Trips to / from UBC, 1997 – 2018



TARGET 2: Reduce single occupant vehicle trips to and from UBC by 20% from 1997 levels and reduce single occupancy vehicle trips per person to and from UBC by 30% from 1997 levels.

- In 2018 there were 48,100 SOV vehicle trips, which is a 4.6% increase from 1997 values.
- ✓ In 2018 there were 0.67 SOV trips per person, which is a 38.6% reduction from 1997 values.

TARGET 3: Maintain daily private automobile traffic at or less than 1997 levels. Private automobiles include single occupant vehicles and carpools / vanpools, but do not include buses, motorcycles and trucks.

- ✓ In 2018 there were 56,100 private vehicles per day, which is a 10.1% reduction from 1997 values.

In 2018 UBC did not achieve the target of a 20% reduction in SOV trips to / from UBC from 1997. The greatest opportunity for future years is to convert the SOV trips to public transit or HOV trips. UBC is piloting an HOV program for staff and TransLink is rolling out a new B-Line to campus in 2019.

As a result of the significant uptake of car sharing in Vancouver, there is interest in tracking the number of car share trips to and from campus. Car share vehicles were counted at screenline locations over an eight hour period, which is presented below in **Table 3.6b**. UBC provides around 160 dedicated parking stalls to multiple car share providers in addition to overflow parking on the roof level of parkades.

Table 3.6b: Summary Car Share Trips to and from UBC

Car-Share Vehicle Trips	Fall 2015	Fall 2016	Fall 2017	Fall 2018
1-Person Trips	299	388	408	503
2-Person Trips	45	41	73	41
3+ Person Trips	5	7	39	9
Totals	349	436	520	553

As shown, there has been a significant increase in car share trips to / from UBC with an increase over 50% in just three years. Results from the 2018 Transportation Survey of the campus community identified Car2Go and Evo as the top two car share providers that respondents had memberships to. Respondents also identified the top three reasons they use car share vehicles are to run errands / shopping, when the weather is poor, and for commuting to school / work.

More research is required to determine the overall benefits of car share at UBC. For example, what mode share is being replaced by car share and how many times do the vehicles that are driven to campus move each day.

3.3. Bicycles and Pedestrians

Table 3.7 and **Figure 3.9** provide summaries of the trend in bicycle trips from fall 1997 to fall 2018. There was a significant decrease in trips by bike after the U-Pass program was introduced in 2003. However, with the exception of 2014 and 2016 there has been a general increase in the number of bicycle trips since 2010, which is likely correlated with continued improvements to bike infrastructure at UBC and in the City of Vancouver as well as the general popularity of biking in the region including the uptake of e-bikes that increases the distance cyclists are willing to travel to commute. It is important to note that bicycle trips are recorded over a single day, so variations in data year over year are highly anticipated, particularly as weather tends to have a direct correlation with bike trips.

Table 3.7: Summary of Average Weekday Bicycle Trips to / from UBC, 1997 vs. 2018

Average Weekday Bicycle Trips	Before U-Pass		After U-Pass		Change 1997-2018 (count / percentage)	
	Fall 1997	Fall 2002	Fall 2004	Fall 2018		
Person Trips	2,700	3,300	1,600	2,100	-600	-22.2%
Trips Per Person	0.06	0.07	0.03	0.03	-0.03	-54.1%
Bicycle Mode Share	2.5%	2.9%	1.3%	1.4%	-1.1	-43.4%

Figure 3.9: Average Weekday Bicycle Trips to / from UBC, 1997 – 2018

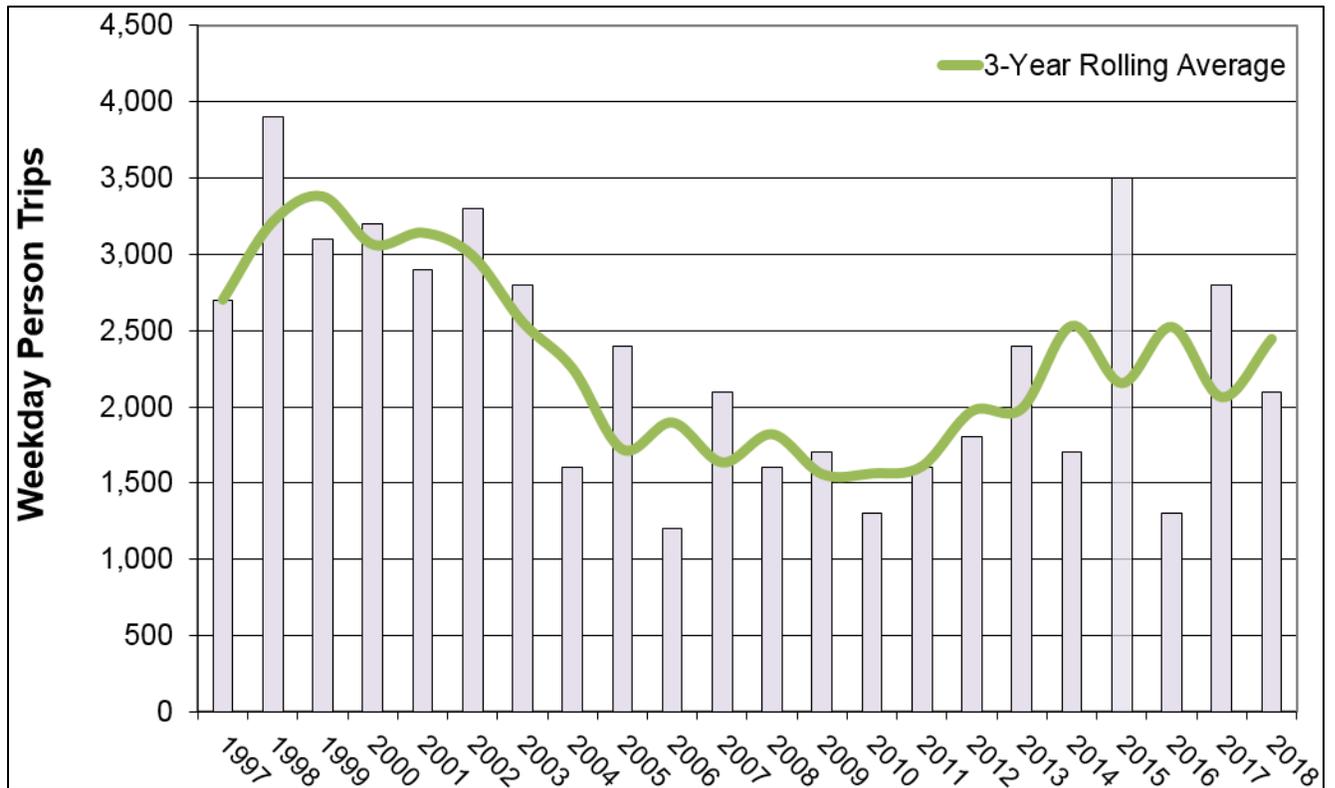
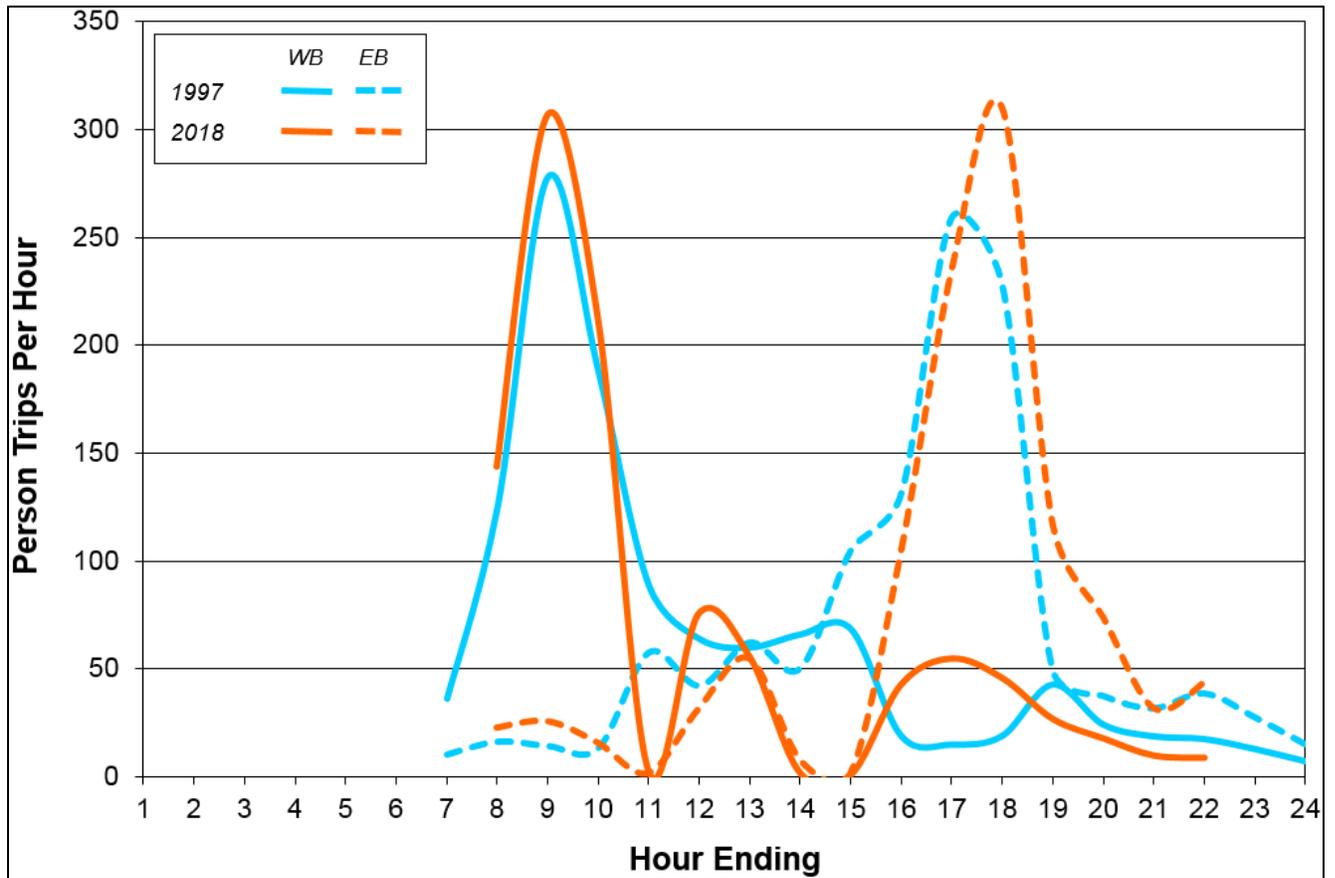


Figure 3.10 illustrates the arrival and departure patterns of bicycle trips to and from UBC throughout the day, for 2018 and 1997 bicycle trips.

As can be seen, bicycle trips match peak morning (westbound) and evening (eastbound) travel patterns, and consistent with 2017 the peak volumes in the morning and evening are higher than 1997 values. What is different and impacting the overall trip counts are the number of bicycle trips throughout the day. The trips that occurred during the day in 1997 may have been trips into Vancouver for errands or lunch. These trips may still occur, but on campus instead as a result of the growth in services, commercial, and retail establishments on campus.

In 2018 UBC launched a bike share pilot program on the campus. This program does not have an impact on commuter trips however, as the program services on campus trips only. It is likely that the number of bike trips between Vancouver and the UBC campus will increase with a united bike share program in the future, though it is unlikely to have a significant impact on the mode share for the campus.

Figure 3.10: Distribution of Average Weekday Bicycle Trips to / from UBC, 1997 vs. 2018



All buses operating on transit routes serving UBC are equipped with bicycle racks, each of which has space for two bicycles. Below is a summary of the usage of racks over the past four years:

- In 2018, total of 130 bicycles were on buses at a 2.8% usage rate.
- In 2017, total of 192 bicycles were on buses at a 4.2% usage rate.
- In 2016, total of 180 bicycles were on buses at a 4.1% usage rate.
- In 2015, total of 245 bicycles were on buses at a 5.9% usage rate.

There was a reduction in the count of bikes on buses during the count day. However, it is generally more common to observe bikes on buses throughout the rainy / winter months.

Another observation from that data is that more cyclists bring their bikes on buses westbound to campus and the most popular transit routes for cyclists to travel with their bicycles is the 99 B-Line as well as route 25 that connects the campus to Brentwood Station.

Table 3.8 provides a summary of the trend in pedestrian trips from fall 1997 to fall 2018, and **Figure 3.11** illustrates year-by-year changes. Similar to bicycle trips, pedestrian trips decreased significantly after the U-Pass was introduced and pedestrian trips have fluctuated over the past few years. In general pedestrian trips have followed an upward trend since 2004 as shown by the three year rolling average, up until 2018. In 2018 there was a significant drop in the number of pedestrians counted. This is most likely attributed to weather, but this will be closely monitored in 2019.

Over the long term, UBC doesn't anticipate to see a significant increase in pedestrian trips or pedestrian mode share to and from campus as a result of the location of the campus and the distance to where a majority of the campus population is living. However, UBC will continue to make improvements to infrastructure and will work with the Ministry on making improvements to bike and pedestrian connections to the campus.

Table 3.8: Summary of Average Weekday Pedestrian Trips to / from UBC, 1997 vs. 2018

Average Weekday Pedestrian Trips	Before U-Pass		After U-Pass		Change 1997-2018 (count / percentage)	
	Fall 1997	Fall 2002	Fall 2004	Fall 2018		
Person Trips	1,400	1,600	600	700	-700	-50%
Trips Per Person	0.03	0.03	0.01	0.01	-0.02	-70.5%-
Pedestrian Mode Share	1.3%	1.4%	0.5%	0.5%	-0.8%	-63.6%

Figure 3.11: Average Weekday Pedestrian Trips to / from UBC, 1997 - 2018

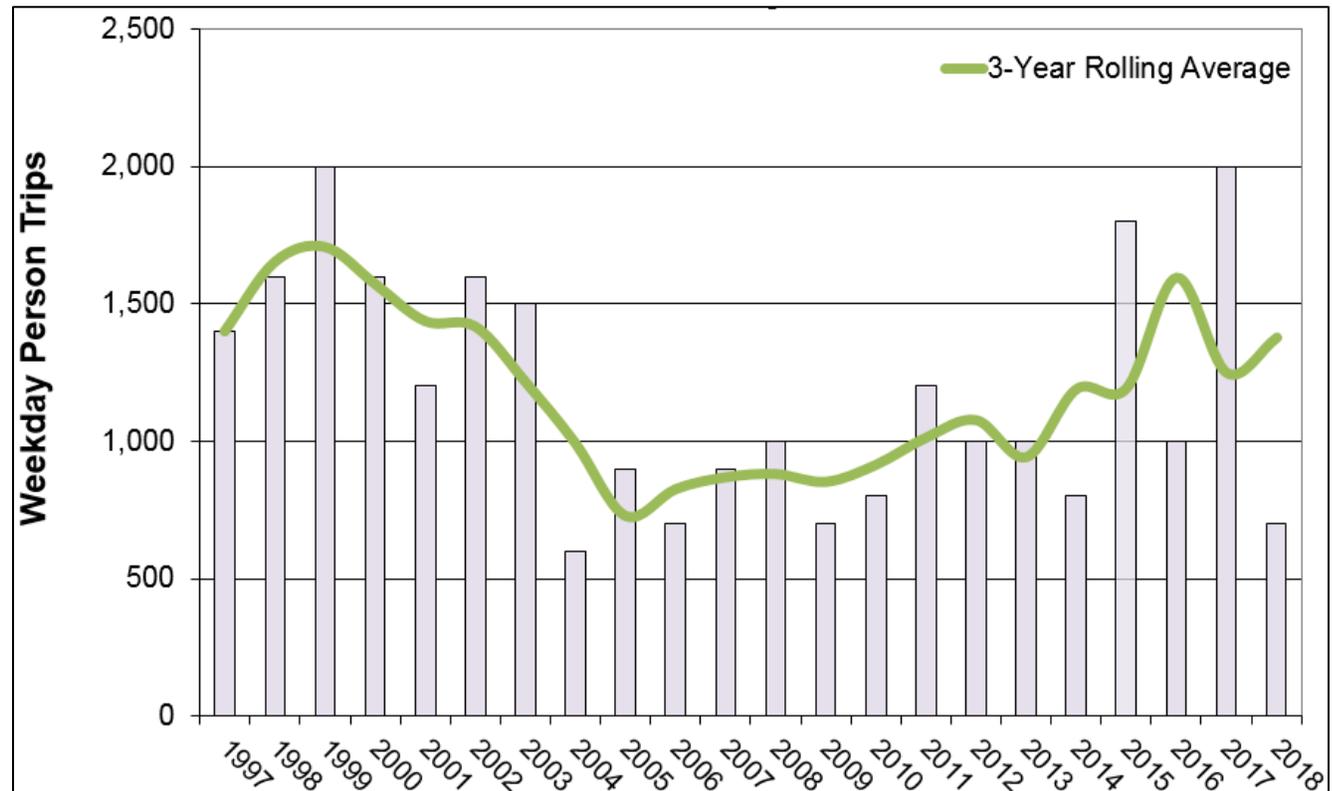
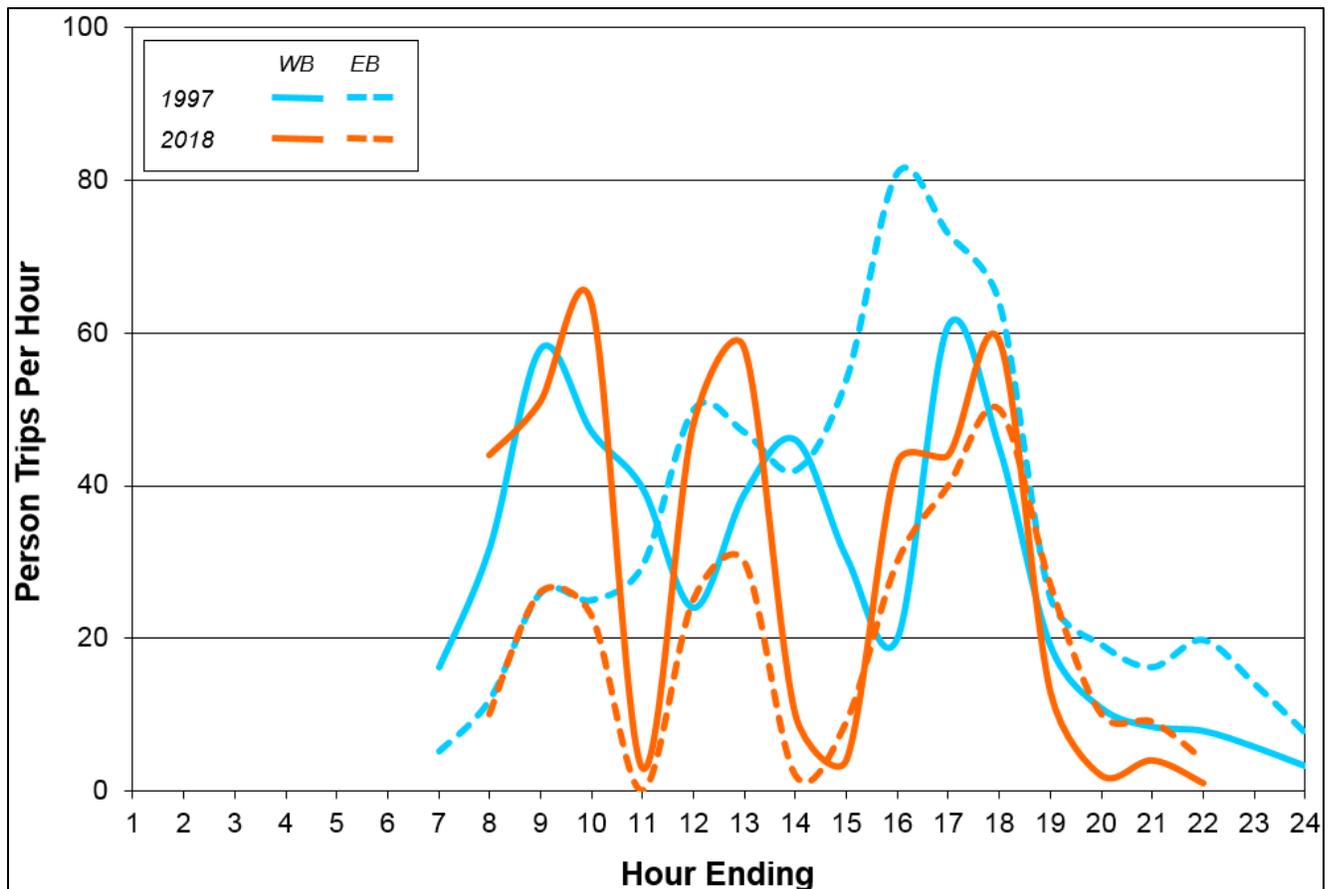


Figure 3.12 illustrates the arrival and departure patterns of pedestrian trips to and from UBC throughout the day, including a comparison with fall 1997 pedestrian trips. The arrival and departure pattern to campus in 2018 shows three peaks throughout the day. Overall, there are more people walking to campus throughout the day compared to walking from campus and there are very few trips outside of the three peak periods, which start at 9am, 12noon, and 5pm.

Figure 3.12: Distribution of Average Weekday Pedestrian Trips to / from UBC, 1997 vs. 2018



3.4. Heavy Trucks

Construction activity at UBC and the day-to-day function of the university generate truck traffic. The City of Vancouver, through which all trucks must travel to reach UBC, manages heavy truck traffic through a number of bylaws and regulations, which apply to all trucks with a gross vehicle weight (GVW) of more than 11,800 kg. For the purposes of monitoring travel patterns to and from UBC, heavy trucks are defined as vehicles with three or more axles. This simpler definition makes it easier to monitor heavy truck traffic, as it is only necessary to count the number of axles on a truck to determine whether it is a “heavy truck”. In addition, the purpose of the monitoring is more related to noise than vehicle weights.

Counts of heavy truck traffic were undertaken on a quarterly basis during 2018; in March, June, September and December, which are summarized in **Table 3.9**. **Figure 3.13** illustrates numbers of

trucks observed in each of the four quarterly counts.

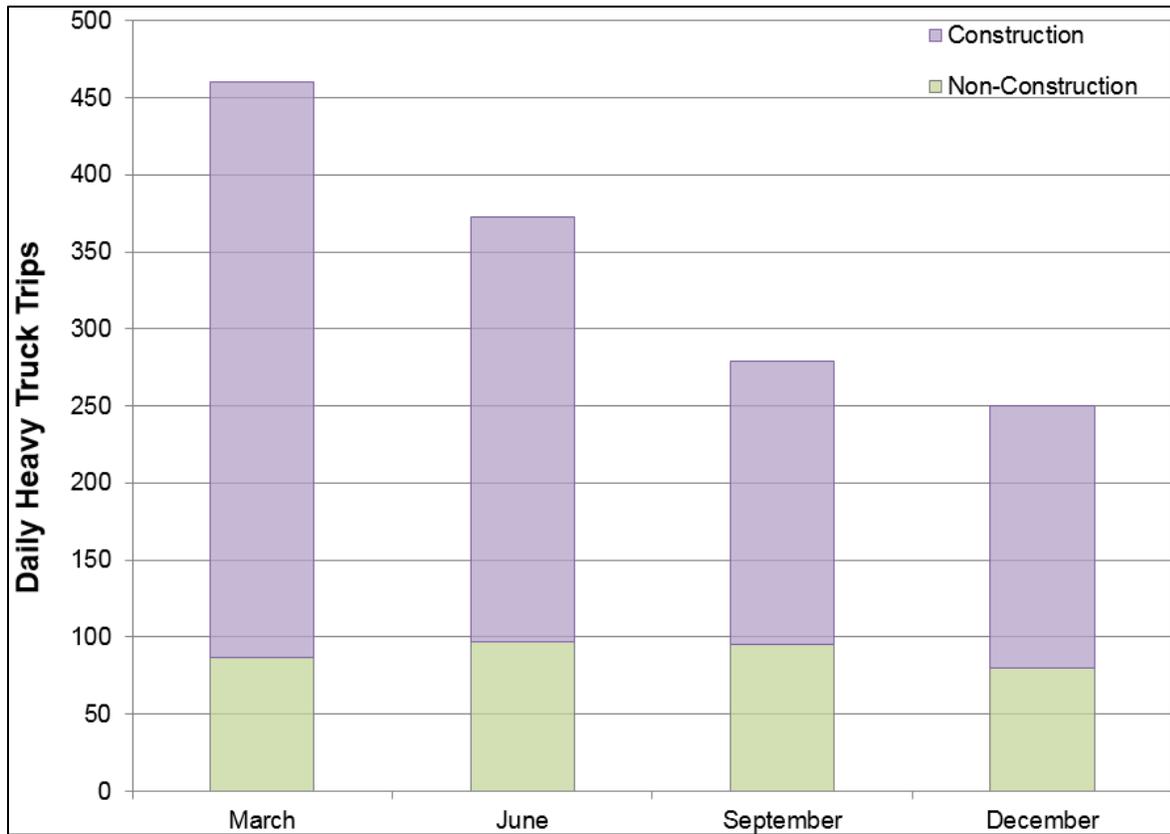
Table 3.9: Average Weekday Heavy Truck Trips to / from UBC, 2018

Route	Type of Truck		Totals
	Construction	Non-Construction	
Chancellor Boulevard	22.8	9.8	32.5 (9.5%)
University Boulevard	30.0	16.8	46.8 (13.7%)
16th Avenue	17.0	12.0	29 (8.5%)
SW Marine Drive and 41st Avenue	181.0	51.3	232.3 (68.2%)
Totals	250.8 (73.6%)	89.8 (26.4%)	340.5

As shown in the table, an average of 340 heavy truck trips per day were counted to / from UBC. Of the 340 trips, 251 (73.6%) of them were construction related trips. This is a significant decrease from 2017 and previous year counts.

Of the four routes to / from UBC, SW Marine Drive carries 68% of construction related trips. The remaining three routes experience similar truck traffic with University Boulevard experiencing slightly more with 13.7% of all trips. Throughout the year there were more trucks counted in March, but the lower counts in June, September and December reduced the average daily truck traffic for the year.

Figure 3.13: Heavy Truck Trips to / from UBC, 2018



4. Traffic Conditions At UBC

This section of the *Transportation Status Report* summarizes transportation conditions on campus, particularly traffic volumes and speeds at key locations throughout the campus.

4.1. Traffic Speeds

Traffic speeds were recorded over one week on campus using pneumatic tubes. The locations are identified in **Figure 1.1**.

The 85th percentile speed is typically used for the purposes of representing travel speeds and represents the speed below which 85% of the traffic travels. The average 85th percentile speed data from 2013 to 2018 is summarized in **Tables 4.1 and 4.2** for eastbound / northbound traffic and westbound / southbound traffic, respectively. Data highlighted in red represents locations where collected speed data is above the posted speed limit.

Table 4.1: Average 85th Percentile Traffic Speeds (km/h) Eastbound / Northbound, 2012 – 2018

Location	Speed Limit (km/h)	Eastbound / Northbound					
		Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017	Fall 2018
Wesbrook Mall s/o Gage	50	-	-	-	55.3	55.2	54
Wesbrook Mall s/o University	50	47.1	49.3	51.2	48.8	49.1	49.5
Thunderbird w/o Wesbrook	30	47.1	47.1	47.0	46.6	46.6	52.7
West Mall s/o University Blvd	30	-	-	-	-	29.6	29.2
West Mall n/o Thunderbird	30	-	38.9	36.0	30.4	-	-
East Mall s/o Thunderbird	50	66.0	50.7	52.6	50.6	50.8	51.2
Wesbrook Mall n/of 16 th Ave	50	49.0	54.4	49.8	50.9	51.8	52
Wesbrook Mall s/o 16th Ave.	50	37.5	32.8	37.2	32.6	33.2	33.4
Stadium Rd at Main Mall	30	-	-	-	48.8	49.6	-
16th Ave w/o East Mall	60	78.3	72.1	69.5	60.9	71.0	68.3
16th Ave w/o Wesbrook Mall	50	68.6	67.0	56.3	56.6	57.5	66.3
16th Ave e/o Wesbrook Mall	50	74.8	72.9	72.1	69.2	66.6	66.4
Chancellor e/o Western Pkwy	50	56.3	57.1	55.7	58.7	55.3	58
University e/o Toronto Rd	50	77.5	59.6	58.1	57.9	59.0	59.6

Table 4.2: Average 85th Percentile Traffic Speeds (km/h) Westbound / Southbound, 2010 – 2017

Location	Speed Limit (km/h)	Westbound / Southbound					
		Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017	Fall 2018
Wesbrook Mall s/o Gage	50	-	-	-	50	50.6	50.2
Wesbrook Mall s/o University	50	44.2	49.6	53.8	48.1	48.5	48.9
Thunderbird w/o Wesbrook	30	44.2	40.4	42.4	43.3	39.9	53.8
West Mall s/o University Blvd	30	-	-	-	-	31.4	31.9
West Mall n/o Thunderbird	30	-	39.1	35.6	32.6	-	-
East Mall s/o Thunderbird	50	56.6	50.5	55.9	53.2	53.3	53.7
Wesbrook Mall n/of 16 th Ave	50	55.5	50.1	55.5	53.3	53.1	52.9
Wesbrook Mall s/o 16th Ave.	50	38.4	31.6	36.5	31.8	32.6	31.9
Stadium Rd at Main Mall	30	-	-	-	47.7	48.2	-
16th Ave w/o East Mall	60	72.6	69.4	75.8	68.5	71.0	71.2
16th Ave w/o Wesbrook Mall	50	60.1	58.2	61.7	59.7	59.5	58.4
16th Ave e/o Wesbrook Mall	50	73.9	65.0	63.2	60.1	61.2	60.1
Chancellor e/o Western Pkwy	50	71.2	60.7	59.2	60.1	59.6	61.1
University e/o Toronto Rd	50	58.7	56.9	58.1	57.1	60.0	61.9

Key observations regarding traffic speeds on campus include:

- Traffic speeds on BC Ministry of Transportation and Infrastructure roadways to and from campus exceed the posted speed limit of 50 km/h. This includes 16th Avenue, University Boulevard, and Chancellor Boulevard. Speed limits on 16th Avenue were changed in 2017 to extend the 50 km/h speed limit into Pacific Spirit Park from the City of Vancouver.
- According to the UBC Road and Traffic Rules, internal road speed limits are 30km/h (not including Wesbrook Mall). Roads on campus with average speeds in excess of 30 km/h include East Mall, and Thunderbird Blvd. Reasons for less speeding on the internal roadways include heavy pedestrian traffic and traffic calming measures. To address speeding on East Mall traffic calming measures are being explored.

These locations of excessive speeds will be shared with the BC Ministry of Transportation and Infrastructure to flag this issue as well as with the RCMP to inform their speed enforcement program.

4.2. Traffic Volumes

Peak hour traffic volumes collected over one day at key intersections on campus are illustrated in **Figures 4.1** and **4.2**. The turning volumes are not intended to represent average daily traffic volumes or conditions, but are intended to provide a general overview of traffic patterns to / from and on campus during the AM and PM peak hours.

Figure 4.1: Morning Peak Hour Traffic Volumes at UBC, 2018

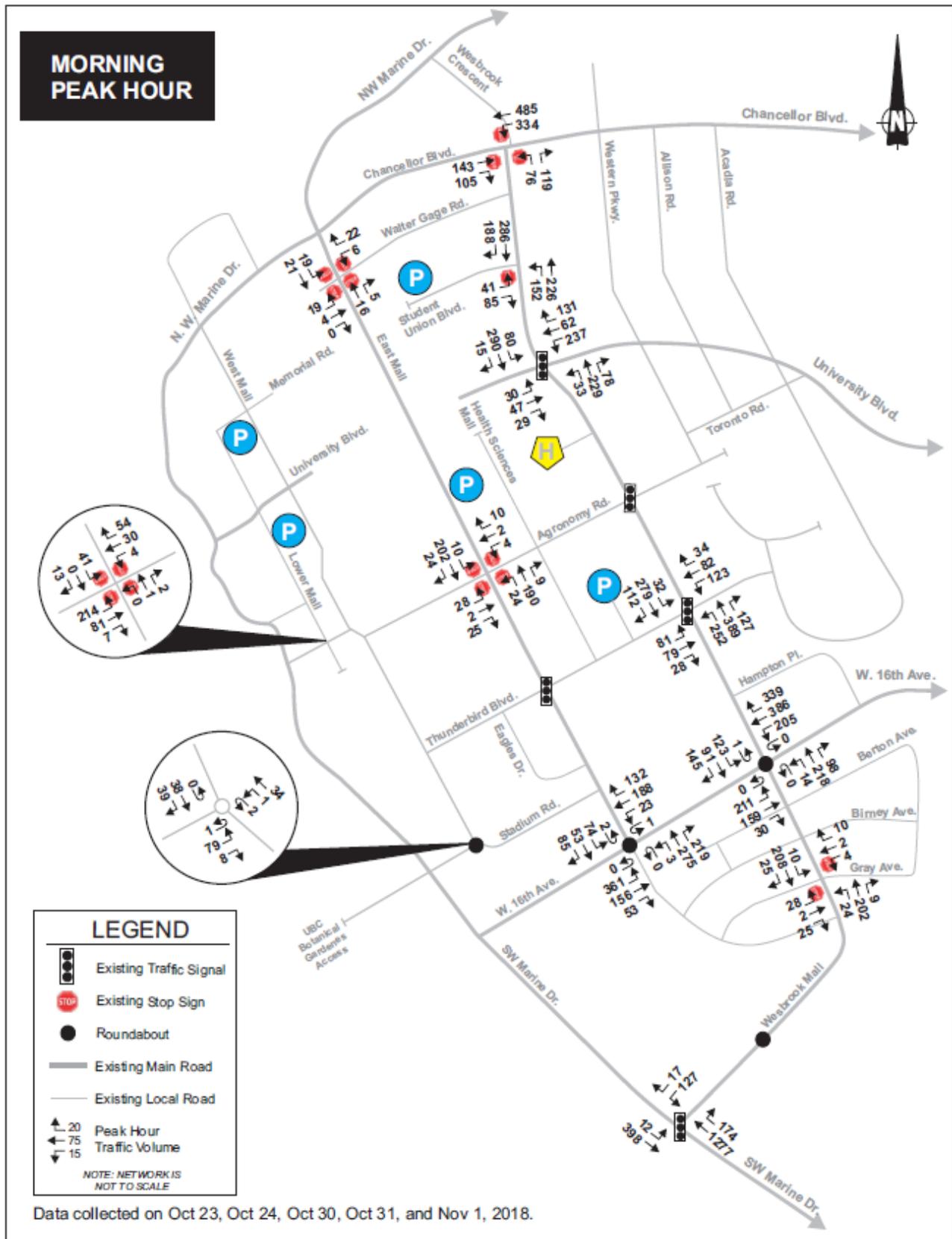
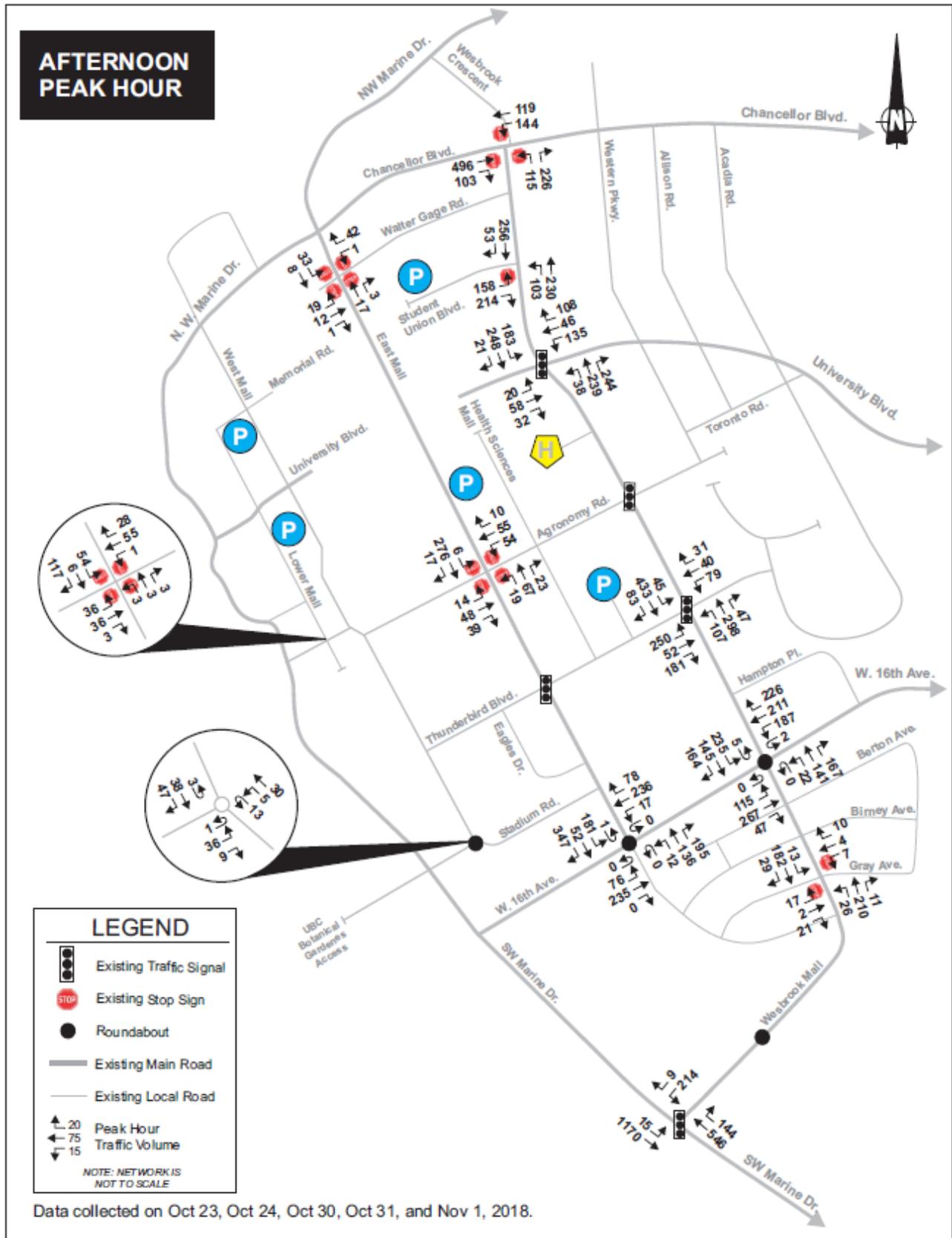


Figure 4.2: Afternoon / Evening Peak Hour Traffic Volumes at UBC, 2018



4.3. Travel Patterns

A licence plate survey was conducted to determine origins and destinations of traffic on Wesbrook Mall between 16th Avenue and SW Marine Drive. Data was collected over a 12 hour period from 7am to 7pm over one day to see where vehicles are going within this corridor.

The results of the licence plate survey are summarized in **Table 4.3** and in **Figure 4.3**.

Table 4.3: Summary of Travel Patterns on Wesbrook Mall in Wesbrook Place, 2018 vs (2016)

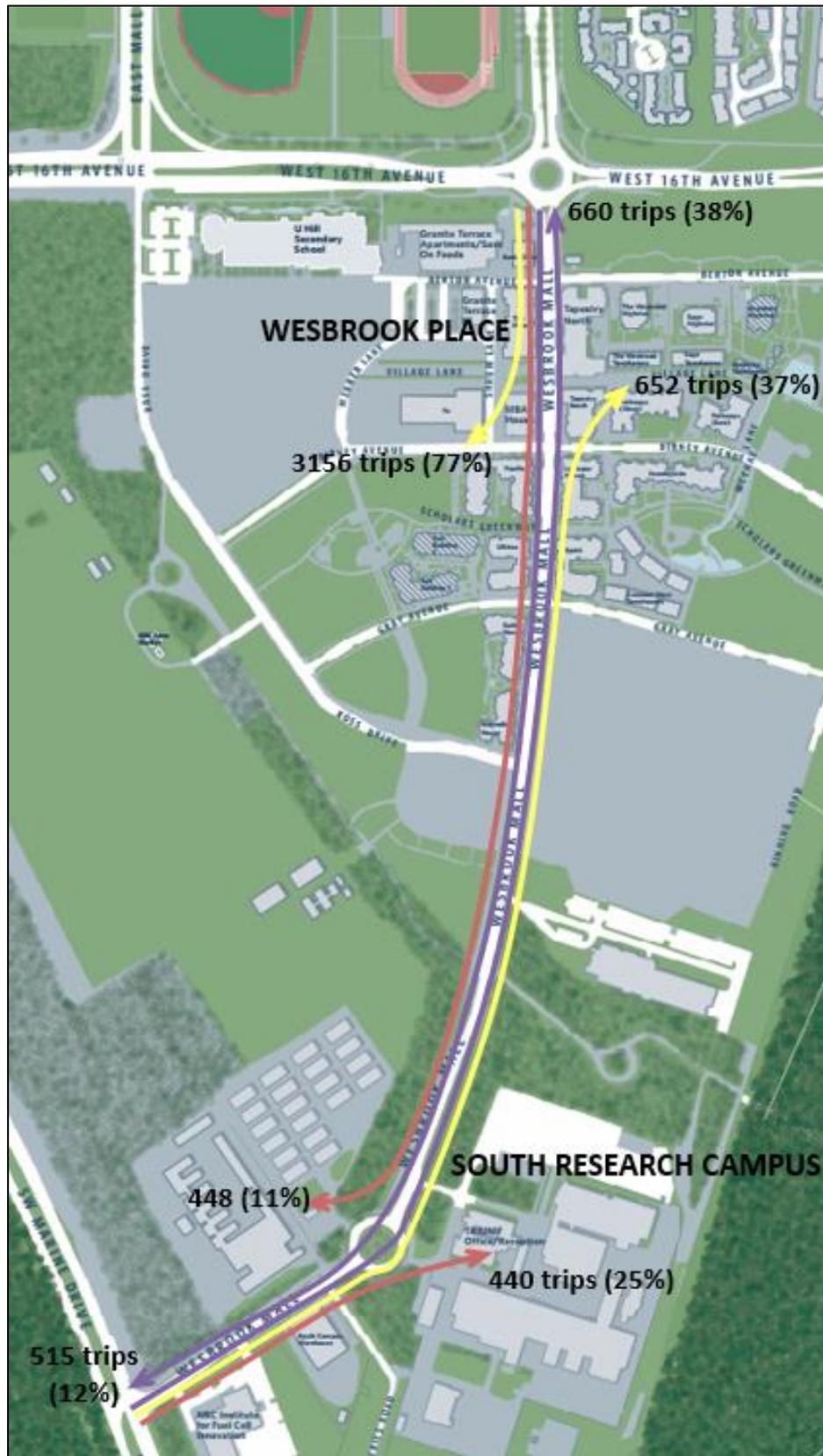
Destination of Trip	Northbound		Southbound	
	Trips 2018 (2016)	% Distribution 2018 (2016)	Trips 2018 (2016)	% Distribution 2018 (2016)
Through	660 (705)	38% (40%)	515 (266)	12% (15%)
Wesbrook Place	652 (530)	37% (30%)	3156 (2943)	77% (77%)
South Research Campus	440 (542)	25% (30%)	448 (287)	11% (8%)

**Counts do not include buses.*

Key observations regarding travel patterns on Wesbrook Mall in South Campus are as follows:

- There are a greater number of through trips northbound (660) compared to southbound (512). In total 38% of all vehicles turning onto Wesbrook Mall from SW Marine Drive travel through Wesbrook Place to 16th Avenue.
- Over three quarters of all trips southbound are destined to areas within Wesbrook Place. The number of trips into the Village is up 7% compared to 2016 counts.
- Trips into South Research Campus from 16th Avenue has increased by 56%, but has decreased northbound from SW Marine Drive by 19%

Figure 4.3: Travel Patterns on Wesbrook Mall between 16th Avenue and SW Marine Drive





Application Guide for Transportation Network Services (“Ride-hailing”) - UBC Vancouver

Current as of December 20, 2019

Overview

Transportation Network Service (TNS) companies (also known as ride-hailing services) wishing to include UBC’s Vancouver Campus within their service area are required to enter into an Operating License Agreement for Transportation Network Services (the “License Agreement”) with the University. This application guide outlines the associated application process and provides an overview of the terms and conditions of the License Agreement.

Context

Transportation Network Services are regulated provincially through the Passenger Transportation Board (PTB). Provincial legislation and subsequent terms and conditions established by the PTB lay out province-wide requirements with respect to licensing process/fees, driver qualifications, permitted vehicles, general operating practices, software application features, and data sharing. Securing a “*Special Authorization: Transportation Network Service Authorization*” from the PTB is a pre-requisite for applying to operate at UBC. For more information, visit <https://www.ptboard.bc.ca/TNS.htm>.

Under the applicable Provincial legislation, municipal authorities continue to retain the right to establish business license requirements and regulate activities through their street and traffic bylaws. As the landowner and municipal authority having jurisdiction over UBC’s Vancouver campus, Campus and Community Planning has established such requirements and articulated them within the terms and conditions of a License Agreement. UBC’s Board of Governors has also adopted [Traffic and Parking Rules](#) to regulate vehicle and pedestrian traffic and parking on campus, with the administration, management and enforcement of these rules delegated to the Director of Parking and Access Services. Entering into the License Agreement is required to obtain a permit from UBC to operate Transportation Network Services at UBC’s Vancouver Campus but such License Agreement will not constitute an exemption from the Traffic and Parking Rules.

UBC is dedicated to promoting sustainable transportation options for the university community and has established policies and targets, as articulated in the Board-adopted [UBC Transportation Plan](#), related to: reducing the volume of daily automobile traffic on campus; reducing the number of single occupancy vehicle trips to and from campus; and increasing the proportion of trips made by sustainable modes to and from campus.

Policy Objectives

The following objectives informed the development of the regulatory approach noted in this guide and associated requirements:

1. **Enable and support** TNS operations as a welcome additional transportation option for the campus community;
2. **Recover all costs** incurred by UBC associated with administering TNS operations on campus and ensuring compliance with related policies, rules, and/or contract terms and conditions as applicable;
3. **Manage and mitigate potential impacts** to the UBC community, including effects on traffic congestion, availability of curbside space, UBC operational needs, transportation-related GHG emissions, etc.;
4. **Advance sustainable transportation goals** by supporting programs and infrastructure investments that encourage sustainable transportation choices, while balancing affordability considerations; and
5. **Ensure adequate data is made available** to UBC about TNS usage and operations to enable planning and analysis, active traffic management and enforcement/monitoring activities.



Application Process

Companies interested in operating Transportation Network Services on campus that have secured a license from the Passenger Transportation Board with a “Special Authorization: Transportation Network Service Authorization” are eligible to apply to UBC to obtain a permit to operate Transportation Network Services on the UBC Vancouver campus and to enter into a License Agreement. Interested applicants should submit the following:

- a) a copy/proof of their operating license with special authorization from the Passenger Transportation Board;
- b) a description of their approach to (i) ensuring UBC’s Traffic and Parking Rules are followed by drivers and (ii) informing customers and drivers about prohibited areas, pick-up/drop-off or other areas identified by UBC;
- c) a description of their approach to advancing sustainable transportation goals and increasing the proportion of shared trips and clean energy vehicles in their program over time; and
- d) confirmation that they intend to enter into a License Agreement with UBC and any comments related to the terms and conditions set out in the summary below.

Upon receipt of a complete application, UBC will provide a template License Agreement to the applicant outlining the specific terms and conditions proposed to achieve the policy objectives stated above. UBC Campus and Community Planning will then work with the applicant to finalize the License Agreement.

Summary of Key Terms and Conditions of the License Agreement

The following summary is provided as a courtesy to prospective applicants and is subject to change. Applicants should refer to the terms and conditions of the template License Agreement provided in response to their application for the complete and most up-to-date requirements of such agreement. The License Agreement will contain terms and conditions related to:

- **Operations and Use of Campus**, including:
 - quality of service provided (safety, reliability, responsiveness, etc.);
 - adherence to all applicable laws and regulations, including UBC’s Traffic and Parking Rules; and
 - pick-up/drop-off activity (e.g. ability to geofence areas, snap trip requests to designated locations, etc.).
- **Fees and Cost-Recovery**, including:
 - an annual *Licensing and Administration Fee* (\$5,000/year) to recover administrative/overhead costs;
 - a *Congestion and Curbside Management Fee* (\$0.30/trip that starts or ends on campus) to recover costs associated with the allocation of curbside space, manage congestion, and fund related sustainable transportation programs and infrastructure improvements at UBC. This fee applies only to trips made from 7am to 7pm on weekdays, and only within the academic core of campus (North of 16th Avenue, West of Wesbrook Mall); and
 - other fees as agreed between the Licensee and UBC.
- **Data Sharing & Reporting**, including:
 - summary data reports with information on the number of trips starting/ending on campus, etc;
 - historical trip data in .csv format (including trip start/end time and location); and
 - license for usage of this data by UBC for institutional planning and operational purposes;
- **Various other terms and conditions** related to user experience, protection of privacy, advertising, insurance, etc.

Applications or inquiries can be submitted directly to UBC’s Transportation Planner via mail or e-mail at:

Attn: Adam Hyslop, Transportation Planner
Campus & Community Planning
2210 West Mall, Vancouver, BC, Canada V6T 1Z4
adam.hyslop@ubc.ca



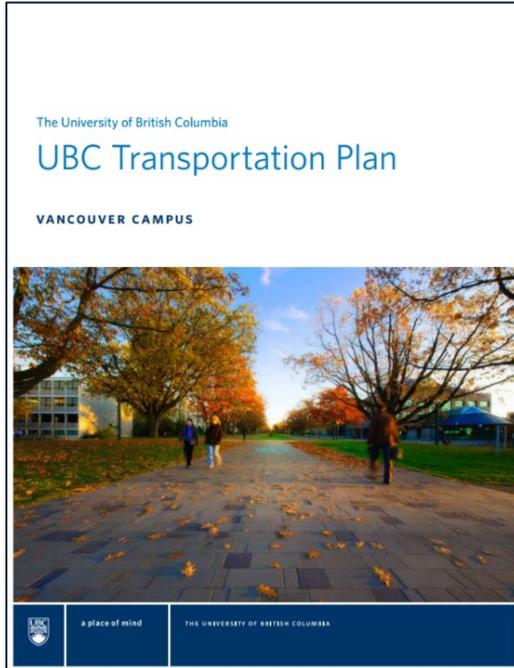
UBC Vancouver Transportation Plan Implementation Update: *Emerging Trends and Opportunities*

February 6, 2020

Michael White, AVP Campus & Community Planning



UBC's Transportation Plan



Target 1

Sustainable Travel



- By 2040 at least two-thirds (**66.7%**) of all trips to and from UBC will be by walking, cycling or transit
- Maintain at least **50%** of all trips to and from the campus on public transit

Target 2

Single Occupant Vehicles



- Reduce SOV travel to and from UBC by **20%** from 1996 levels
- Maintain at least **30%** reduction from 1997 levels in daily SOV trips per person to and from UBC

Target 3

Daily Private Automobile Traffic



- Maintain daily private automobile traffic at or less than 1997 levels

2018 Status:

54.5% sustainable mode share

53% transit mode share

4.6% absolute increase

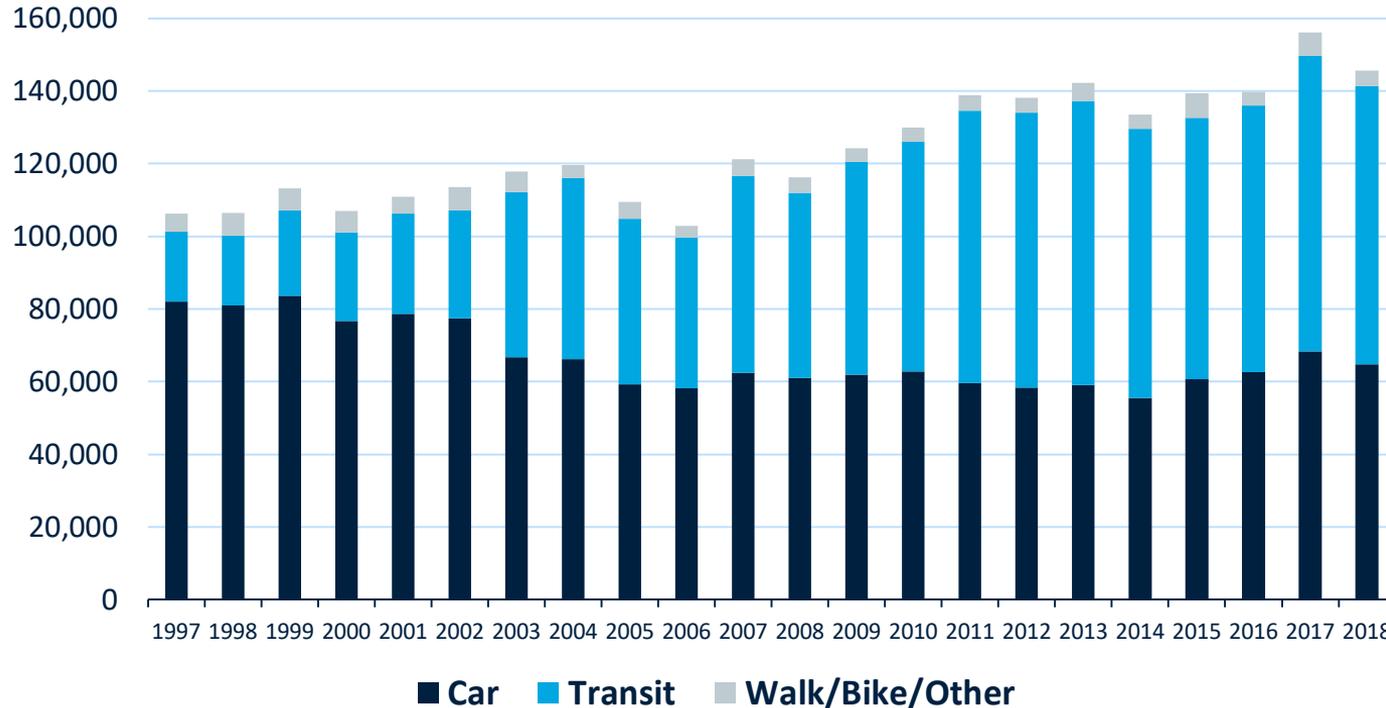
39% reduction per person

10% decrease

Travel to and from UBC



Weekday Person Trips to and from UBC, 1997 to 2018



**53% Transit
Mode Share**

Spotlight on Transit



- 15 bus routes (1,000+ buses/day) with ~80,000 daily transit trips to/from campus
- completion of new UBC Bus Exchange in Sept 2019
- new Rapid Bus (R4) along 41st Avenue launched Jan 2020
- improvements to on-campus shuttle routes in January 2020 (staff continue to work with TransLink on improved services)
- Broadway Subway Project under construction, extending Millennium Line to Arbutus by 2025
- UBC actively working with City of Vancouver and Musqueam, Squamish and Tsleil-Waututh to get commitments to complete the line to UBC by 2030 (reported out separately to Board)



Spotlight on Active Transportation



- space for 9,000+ bikes on racks, 850+ in 13 bike cages, & 200+ in individual lockers
- end-of-trip facilities in all new academic buildings
- ~50 hectare pedestrian priority zone with restricted vehicle access
- expanded network of neighbourhood 'green streets'
- dedicated bike lanes on key campus cycling corridors, including UBC's first fully separated bike lanes along Wesbrook Mall
- continued roll-out/renewal of slow zone and cyclist wayfinding signage
- campus-wide bike share program (~170 bikes, 34,000+ trips taken Sept-Dec 2019)



New & Emerging Technologies/Trends



Planning for Change



- 1. Enabling motorized micromobility options**
- 2. Enabling ride-hailing services on campus**
- 3. Supporting the transition towards mobility-as-a-service and encouraging ride-sharing/carpooling**
- 4. Supporting the transition to electric vehicles and preparing for autonomous vehicles**

Conclusions & Next Steps



The **2014 UBC Transportation Plan** continues to provide clear policy direction → next iteration will be created as part of the process to update UBC's Land Use Plan, later in 2020.

A **SkyTrain extension to UBC** remains an urgent priority and is critical to achieving the University's long-term goals. In the interim, traffic congestion, pick-up and drop-off activity, vehicle access and parking challenges are likely to escalate over the coming decade.

The administration is therefore intensifying its **Transportation Demand Management** efforts and will continue to seek opportunities to leverage new and emerging technologies and services.