

Envisioning A Car-Free UBC Campus

Plan 580:
Transportation Planning Brief

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CONTEXT: CAMPUS VISION 2020

Campus Vision 2050

The University of British Columbia (UBC) is undertaking Campus Vision 2050 to update two key land use policy documents for the Vancouver campus. This comprehensive, 2.5-year planning process will result in a new 30-year Land Use Plan and 10-year Vancouver Campus Plan (University of British Columbia [UBC], n.d.b.).

It has been over 10 years since UBC last updated its Vancouver land use plans. In that time, the campus and its population have grown significantly: the student population has increased by 20%, there are 25% more faculty and staff, and there are nearly double the number of neighbourhood residents. The institutional space has also grown by over 25% (UBC, n.d.a). The Metro Vancouver region has likewise experienced significant growth over the past decade, as it faces increasing mobility, affordability, and connectivity pressures. Within a national and global context, we are facing a climate change crisis, an ongoing pandemic, and calls for reconciliation with Indigenous peoples on unceded territories, including the xʷməθkʷəy̓əm (Musqueam), whose land UBC occupies. To address some of these challenges, the region has prioritized extending the Millennium Line SkyTrain to the UBC campus.

Campus Vision 2050 attempts to respond to these many challenging and exciting pressures in alignment with Metro Vancouver's *Metro 2050* plan and TransLink's *Transport 2050* plan (UBC Campus + Community Planning [UBC C+CP], n.d.b).

There are eight emerging themes guiding this planning process (UBC C+CP, 2019):

1. **Academic Mission:** New and renewed academic spaces are needed to address infrastructure needs and to ensure continued support of academic excellence. This theme is guided by UBC's Strategic Plan.
2. **xʷməθkʷəy̓əm & Campus Indigenous Communities:** UBC and xʷməθkʷəy̓əm have a longstanding relationship and are co-creating the engagement process for Campus Vision 2050. This work is guided by UBC's Indigenous Strategic Plan.
3. **Climate Action:** UBC's Climate Action Plan 2030 (CAP30) outlines many of the university's concrete actions to address the climate crisis, with which Campus Vision 2050 will be aligned.
4. **Affordable Housing:** Access to affordable housing is a top priority for UBC. Campus Vision 2050 will focus on neighbourhood housing and student housing, in alignment with UBC's Housing Action Plan.
5. **Wellbeing:** UBC strives to create a collection of vibrant neighbourhoods and a mixed-use campus that achieves a high degree of livability and sustainability. In alignment with the UBC Wellbeing Strategic Framework, Campus Vision 2050 will focus on equity, walkability, and physical activity.
6. **Ecological Sustainability:** Campus Vision 2050 will seek to increase the ecological viability and social wellbeing of the campus and its community, and support ecosystem services.
7. **Connectivity & Mobility:** As a key focus, Campus Vision 2050 will support a commitment to explore a financial contribution towards the regional share of the cost of the SkyTrain extension to accelerate its completion. It will also support a safe and efficient transportation network that prioritizes walking, cycling and transit.
8. **Innovation & Partnerships:** UBC is a leader in creating academic facilities that achieve high sustainable performance while creating innovative research and learning environments, through partnerships.

Aims and Definitions

The aims of this brief are to propose a car-free UBC campus that is congruent with the university's Campus Vision 2050. With a range of goals from climate action to equity and connectivity, UBC's vision of 2050 can be better realized through creating a campus environment that is focused on active transport.

In this proposal, "car-free" does not mean vehicles will be completely precluded from entering campus. The overarching goal of our envisioned car-free campus is to instead significantly reduce the number of vehicles on campus. For the majority, personal vehicle use would be prohibited; however, exceptions would be made for emergency and utility vehicles (garbage trucks, delivery vehicles) and special permits would be provided for individuals who are car-dependent.

Promoting Equity

In the vision of creating a car-free campus, it is important to ensure that equity is at the forefront of any policy change. Equity can mean different things to different people, but for the purposes of promoting equity in active transportation for our project, equity is focused on creating access to opportunities and should be present in geographic, procedural, and social realms.

Problem Statement

Beginning in 2012, UBC Campus and Community Planning established a 'pedestrian priority zone' in UBC's core academic area. This zone, denoted in map (Figure A1), extends down Main Mall from Flag Pole Plaza through Thunderbird Boulevard. It also includes Memorial Road, Agricultural Road, and University Boulevard between East Mall and Education Road. This area is accessible only to pedestrians and cyclists (with vehicle access restricted to only emergency vehicles).

Since the pedestrian priority zone was established, UBC has continued to grow. The Campus 2050 Plan has identified 'Academic Infill Sites' and potential housing locations in the South Campus (South of West 16th Avenue, between Marine Drive and Pacific Spirit Regional Park). This area currently includes Wesbrook Village, TRIUMF, and the UBC Farm. Additionally, it is adjacent to key UBC recreation facilities. Despite this cluster of current and future activities, the area's current greenways and bicycle infrastructure are fractured. Routes involve crossing or using major arterial roads (W16 Ave and Marine Drive) while the area itself is bisected by Wesbrook Mall. The vision for the area's future privileges automobile access with a parkade denoted on Wesbrook Mall near TRIUMF. This is misaligned with UBC's vision for an environmentally sustainable future and would only induce automobile demand. It is now time to extend the Pedestrian Priority Zone.

BASELINE CONDITIONS

Demographics

Roughly 28,000 people live on UBC's campus. 13,000 people live in the University's student residence buildings, while another 15,000 live in the campus neighbourhoods. Beyond campus, the Greater Vancouver region is home to approximately 2.5 million people and is expected to increase by another million by 2050. There are around 80,000 people on the UBC campus each day, 52,000 of those being commuters.

Physical Boundaries

The boundaries of our car-free zone will encompass the entire 402 hectares of land the University of British Columbia occupies (Figure A2).

Administrative Boundaries

UBC resides in Electoral Area A, which comprises the West Point Grey campus, the University Endowment Lands, and other small electoral areas not included on the Point Grey Peninsula. The Board of Governors, as established under the University Act, are responsible for the majority of decision-making that occurs at UBC - in particular they have responsibility over all campus planning and development. Some services provided to the residential

population are provided by the University Neighbourhoods Association. The Musqueam First Nation, on whose traditional unceded territory the University is situated, were transferred ownership of some of the lands in the UEL, such as the University Golf Course, in 2008 under the Musqueam Reconciliation, Settlement and Benefits Agreement Act.

Governance

The UBC Board of Governors is responsible for managing UBC campus lands, a power transferred to them by the Province of British Columbia through the University Act, which gives the Board authority to make decisions about campus lands, roads, and buildings (Board of Governors, n.d.). The Municipalities Enabling and Validating Act states that the Board is responsible for ensuring that all agreements, rules, and development undertaken on the campus are consistent with provincially-approved UBC land use plans (Municipalities Enabling and Validating Act, 2001; UBC C+CP, n.d.a.). UBC Policy UP12: Land Use, Permitting and Sustainability establishes the process for developing land use plans, policies, and rules. It is the policy that guides the work of Campus and Community Planning, the body responsible for planning and regulating UBC's Vancouver Campus (UBC C+CP, n.d.a.). The Board of Governors makes final decisions about campus growth and change.

Policy Context

This section outlines key UBC policy documents that will inform Campus Vision 2050, namely the Strategic Plan, the previous Vancouver Campus Plan, the Indigenous Strategic Plan, the Housing Action Plan, the Climate Action Plan, the 20-Year Sustainability Strategy, and the Campus Transportation Plan. It also discusses some secondary plans that will be important for Campus Vision 2050, namely the Rapid Transit Strategy, the Public Realm Plan, and the Wellbeing Strategic Framework.

UBC Strategic Plan (2018)

UBC's 2018-2028 Strategic Plan guides UBC's decisions and actions into the future, serving as a framework for resource allocation across the University. Three themes shape the plan: inclusion, collaboration, and innovation. The plan notes that inclusion is a commitment to access, success and representation of historically underserved, marginalized or excluded populations, including people with disabilities. The Strategic Plan seeks to build a diverse culture that integrates and infuses these themes into all of UBC's activities (UBC, 2018). The University aims to partner with Indigenous communities to address the legacy of colonialism and to co-develop knowledge.

Pertaining to a car-free campus, the plan notes that the University aims to lead globally and locally in sustainability and wellbeing across the University's campuses and communities. The University will advance these goals by treating the campus as a living laboratory to address social and environmental issues, such as by advocating for better transit to its campus, in conjunction with a focus on housing support. It seeks to make campus locations more accessible to people with mobility challenges (UBC, 2018).

Vancouver Campus Plan (2010)

The Vancouver Campus Plan, created in 2010 and most recently updated in 2020, supports the University's Strategic Plan by shaping the physical setting in which the University's activities take place. This is one of the plans that will be updated as part of Campus Vision 2050 (UBC, 2010). The Campus Plan is guided by three strategies of relevance to a car-free campus: Strategy 1: Create a sustainable campus; Strategy 3: Nurture a more vibrant and interesting campus for UBC's community of scholars; and Strategy 5: Ensure a well-connected and accessible campus.

Strategy 1 seeks to treat campus as a place to pilot innovative sustainability solutions, aligning public realm design, such as active transportation systems, with nature. It also aims to build more sustainable infrastructure through a pedestrian- and cyclist-friendly compact campus. Strategy 3 looks toward making campus more walkable, improving cycling support, and increasing lighting on campus. It seeks to encourage pedestrian traffic with a view toward connecting to future transit infrastructure. Strategy 5 seeks to create a pedestrian- and cyclist-friendly campus with priority zones, additional end-of-trip facilities, and a clearly defined service vehicle network. It aims to

refine transit routes in partnership with TransLink and increase universal accessibility by improving pedestrian routes (UBC, 2010).

Many of the Campus Plan's policies would support a car-free campus. These policies deliver improvements in sustainable land use through building design to improve walkability. They aim to create a barrier-free environment based on principles of universal design. Over time, the aim is to create shared streets along the campus perimeter and throughout the campus to balance walking, cycling, and other forms of active transportation. The policies also outline that the University will work with partners to create permanent bus facilities and a future rapid transit station close to the University Boulevard Neighbourhood (UBC, 2010).

Indigenous Strategic Plan (2020)

UBC's 2020 Indigenous Strategic Plan guides the University towards its goal of becoming a leading voice in the implementation of Indigenous peoples' human rights, as articulated in the United Nations Declaration on the Rights of Indigenous Peoples and other international human rights law. The University aims to foster a more inclusive and respectful environment, and this plan serves as a reminder of UBC's role in supporting the Indigenization of the University (UBC, 2020). UBC's network of relationships with Indigenous peoples includes the Musqueam and the Okanagan Nation Alliance, Indigenous peoples in the lower mainland/Fraser Valley and Okanagan Valley, trans-boundary nations in the United States, and nations in other parts of the province and Canada (UBC, 2020).

Goals from the Indigenous Strategic Plan of relevance to a car-free campus include positioning UBC as the most accessible large research university globally for Indigenous students, faculty and staff; and enriching the UBC campus landscape with a stronger Indigenous presence. Some relevant actions from these goals are to increase needs-based access to child-care services and affordable housing options for Indigenous faculty and staff; dedicate spaces for Indigenous campus-community members to celebrate their culture; and make visible generational connections of Indigenous peoples to culturally significant places across UBC campuses (UBC, 2020).

Housing Action Plan (2012)

UBC's Housing Action Plan was adopted in 2012 to support the University's overall strategy for academic excellence and sustainability leadership by providing guidelines for responsible land base management. One of the guiding principles of the plan is to create the basis for a sustainable, year-round university community to support shops, services, and transit. The plan brings up the affordability challenge that students, faculty and staff are facing and highlights the impact of transportation cost on housing affordability. It is also suggested that walkability, availability, and quality of public transit of a neighborhood affect how much its residents spend on transportation. The provision of affordable transportation alternatives, such as walking, cycling and transit will allow residents to reduce their transportation cost.

The car-free campus vision is aligned with this guiding principle of the Housing Action Plan to promote housing affordability through better transportation planning for the campus. To reduce driving on campus, the vision aims to support and promote other modes of transportation such as walking, cycling and transit in various ways such as installing protected bike lanes and setting up pedestrian priority zones. With better facility design that supports people of all abilities and modes, the university can improve affordability for everyone who lives, works or studies on campus.

UBC Climate Action Plan 2030 (2021) & 20-Year Sustainability Strategy (2014)

Outlined in UBC's Climate Action Plan 2030 (CAP30), the University aims to lower greenhouse gas emissions by 45% by 2030, and completely by 2050. The University notes the global climate emergency as a severe, and complex issue to which a climate-justice embedded response is a necessary strategic priority for the institution. Key drivers for CAP30 included the immediate environmental impacts of global warming, such as heatwaves and droughts, as well as UBC's own personal commitment to continue being an institution that is a leader on climate action. UBC's 20-Year Sustainability Strategy also emphasized the need to reduce GHG emissions, noting that it is an ethical necessity as unsustainable practices result in devastating human and ecological consequences.

The CAP30 report indicated that one of the main sources of GHG emissions on campus was commuting, which makes up nearly a third of the institution's total emissions. The report outlined the need for better commuting infrastructure, and a lessened reliance on single-occupancy vehicles as a means of transport to campus. The 20-Year Sustainability report also highlighted the importance of alternative modes of transport, such as transit, walking, and cycling. The vision of a car-free campus can aid the objectives of both the CAP30 report and 20-Year Sustainability plan. By transitioning students, faculty, and staff away from single-occupancy vehicles and towards more sustainable means of transportation, a significant reduction in GHG emissions can occur promoting a more climate conscious and just campus.

Campus Transportation Plan (2014)

The Transportation Plan consolidates UBC's transportation policies and the University's long-range transportation targets. UBC can affect these through guiding campus land use policies, modifying campus street design and parking, building new active (walk, bike, and roll) infrastructure, and implementing new programs to encourage use of more sustainable modes of transportation. Notably, UBC cannot control all roads on campus. The provincial Ministry of Transportation and TransLink take authority over major arterials including Marine Drive and West 16th Avenue. Several policies and actions initiated in the 2014 Transportation Plan could be enhanced by a car free campus plan. These include enhancements to the walking and cycling networks, further restraints on automobile usage on campus, and continuing UBC's commitment to universal design (which aims to create a barrier-free environment so that people of all abilities enjoy equal access to campus facilities).

Looking at specific objectives, a car free campus would favour cyclists and pedestrians as the primary mode of travel to, from, and around campus – a core goal of the 2014 Transportation Plan. This would include further integration of the pedestrian and cyclist network with UBC's system of greenways (W1.1.5 & C1.1.4), implementation of specific road, pathway, and intersection improvements as identified in the Campus Plan (W1.1.7 & C1.1.5), growing UBC pedestrian core (established in W1.1.1). A car free campus would also entail improvements to UBC's cycling facilities, broadly meeting goals of creating end-of-trip secure bicycle parking and amenities (C2.2.2), and increasing connectivity of bike routes in the South Campus (C1.2.5).

Realizing a car free vision would also impact drivers. The 2014 Transportation Plan recognized the importance of vehicles in moving goods, making deliveries, and responding to emergencies. These needs would have to be provided for, even as automobile use is further restrained to prioritize walking and cycling. Reflecting this need for some vehicle access, a car free campus could explore 'shared streets' (outlined in D1.2.3). These would discourage commuter vehicle usage while still allowing freight deliveries and emergency vehicles (D1.2.4) perhaps by implementing a permitting and citation process for vehicles accessing pedestrian priority zones (D1.3.1).

Rapid Transit Strategy

In April 2018, an advocacy strategy was approved by UBC Board of Governors to accelerate investment in the Millennium Line completion to UBC's Point Grey campus. Besides connecting UBC to the region and increasing housing affordability, creating a sustainable future is also one of the benefits identified in the Rapid Transit Strategy. The seamless connection between UBC and the rest of the region will encourage people to move without a car, to consider more sustainable modes of transportation such as public transit, biking and walking. Rapid transit to UBC will facilitate the efforts to achieve UBC's target to have at least two third of trips to and from campus be made by walking, cycling or transit by 2040. Specifically, the regional transit ridership is estimated to increase by more than 54,000 new transit trips a day once the operation of extended Broadway Subway to UBC begins. 2,000 peak hour auto trips are expected to be removed from the road network.

Rapid Transit connecting UBC with the rest of the region is a key component of the institution's larger strategy. It is implemented in tandem with several initiatives and programs on campus. For example, the on-campus bike share program was initiated to provide convenient access to transit and better ways to get around on campus. The university's partnership with carshare providers and investment in cycling infrastructure also aimed to increase transportation options and reduce single passenger vehicles.

Public Realm Plan (2009)

The 2009 Public Realm Plan shaped the current academic core of the UBC Vancouver campus. It introduced much of today's Pedestrian Priority Zone, creating large, pedestrianized areas that emphasized both connectivity and placemaking. These goals remain relevant to creating a car free campus, and a car free campus plan should consider the urban design typologies introduced in this plan. These typologies include organizing spines, large commons, outdoor informal social and learning spaces, pedestrian pathways, and entryways. Organizing spines are exemplified by Main Mall and University Boulevard, these connect to large commons as seen at Library Gardens and SUB North Plaza. Outdoor informal spaces are similar to smaller commons but are seen in every major precinct of campus. Pedestrian pathways link all these different types of spaces. Finally, entryways express the campus's identity and are located at its thresholds.

Wellbeing Strategic Framework (2019)

UBC's Wellbeing Strategic Framework, adopted in 2019, is guided by themes and core areas in the UBC Strategic Plan, to ensure that wellbeing is embedded at all levels of the university. Wellbeing represents a broader engagement in health promotion and social sustainability efforts. Priority areas of relevance to a car-free campus include Built & Natural Environments and Physical Environments. These priority areas note a commitment to developing landscapes that promote active living, enhance social connections, and are accessible to all. They aim to ensure access to nature, seeking to be a model of complete and sustainable community through diverse housing options and active transportation. Actions taken by the University in these priority areas include advocating for the SkyTrain extension to the UBC Vancouver campus and supporting a campus-wide bike share pilot program.

Existing Infrastructure

UBC's existing transportation infrastructure will guide the development of a car free campus. Creative urban design and policy solutions will be necessary to bridge the gaps in current infrastructure and adapt automobile-centric infrastructure to serve all members of the UBC community.

Key elements of UBC's transportation infrastructure are provincially owned and must comply with provincial standards. These include several arterial roads: Marine Drive, Chancellor Drive, University Boulevard, and West 16th Avenue. Together, these roads envelop the academic core, with West 16th providing a challenge to active modes by fragmenting South Campus from the academic core. UBC also has a limited number of protected bike paths into and out of campus. A car free campus plan should ensure that UBC's car free zone is adequately connected to these three trails, which lie along Chancellor Boulevard and West 16th Avenue. A further bike trail runs through Pacific Spirit Regional Park (Powerline/Imperial Trail). Other bike routes leading to and from UBC campus do not offer the same level of protection and rider comfort (NW Marine Drive, SW Marine Drive, and University Boulevard).

Regional transportation infrastructure falls under the jurisdiction of TransLink. The UBC exchange is the key transportation node on the UBC campus and is the terminus of 11 different bus routes. These buses rely on University Boulevard, West 16th Avenue, and SW Marine Drive to connect to Vancouver and the rest of the region. In designing a car-free campus, it is important to consider that these routes cannot be impeded. There are likely local routes that must also be maintained as many members of the UBC community rely on local shuttle buses. Furthermore, as a car-free campus would likely increase transit ridership, it would likely necessitate further upgrades to UBC's transit infrastructure.

Bicycle facilities will also be an important consideration for a car-free campus strategy. Currently, UBC's secure bicycle storage is relatively limited, located mostly near large buildings and residences. While less secure bike racks are more prevalent, a car-free campus will necessitate further secure parking. This would enable users to store bikes at UBC, picking up their bikes after arriving by transit so that they can easily access the whole campus. While bicycle facilities must increase, there is also a consideration of UBC's current surface parking and parkades. Many of these are located along the edges of UBC's current pedestrian priority zone. Given the expansion of the pedestrianized area, many of these will become available for new programming.

Stakeholder Interests

The creation of a car-free campus requires the consideration of stakeholder interests. In the pre-planning phase of Campus Vision 2050, UBC Campus and Community Planning organized preliminary engagement activities to identify aspirations, issues, and opportunities for the future of the campus from different stakeholder groups. The findings from these events can inform the development of a car-free campus vision. Nine major themes of interest were identified in this engagement process:

- Musqueam and Indigeneity;
- Climate Action;
- Affordable Housing;
- Inclusive, Accessible, and Safe Spaces;
- Ecology and Sustainability;
- Connectivity and Mobility;
- Walkable and Well-Serviced Community;
- A Livable and Special Place; and
- University of the Future.

The vision of a car-free campus addresses common interests in creating inclusive, accessible, and safe spaces for community members of all ages and abilities. Promoting active transportation on campus also increases walkability and livability of the community. A car-free campus that promotes a modal shift in transportation from automobiles to other modes will contribute to sustainability and the efforts toward Climate Action targets.

OPPORTUNITY: A CAR-FREE CAMPUS

Opportunity Statement: Extended Pedestrian Priority Zone

An extended pedestrian priority zone (Figure A3) would allow greater connection to the bicycle paths on Chancellor Boulevard and West 16th Avenue, would create a more sustainable South Campus, and would provide further opportunities for placemaking.

Opportunity 1: Connecting to bicycle paths on Chancellor Boulevard and West 16th Avenue.

- Chancellor Boulevard and West 16th Avenue are the main protected bike paths connecting UBC campus to the City of Vancouver and the region. These routes are currently poorly connected to the pedestrian priority zone.

Opportunity 2: Creating a more sustainable South Campus by increasing the amount of car-free area south of Agronomy Road.

- Establishing South Campus's communities (Wesbrook Place) as sustainable communities with safe routes to walk, bike, and roll for people of all ages and abilities.
- Enhancing the connection of UBC and Vancouver with a new route linking the academic core to Powerline and Imperial trails.

Opportunity 3: Placemaking with equity and inclusion in mind.

- Creating safe routes for people of all ages and abilities to walk, bike, and roll on the UBC campus.
- Providing spaces for impromptu social connections throughout UBC campus.
- Designing spaces with universal seating and accessibility options

Opportunity 4: Promoting walking and biking as first- / last-mile solutions

- Providing secure bicycle parking at major campus buildings and the UBC Exchange transit station.
- Conversion of streets to be car free and connecting them to the current pedestrian priority zone.
- Connecting all UBC academic buildings to the car free / pedestrian priority zone.

Challenges and Considerations

A car free campus must consider several potential challenges. These include accounting for service vehicles and emergency access, accommodations for freight deliveries, ensuring accessibility and designing for people of all ages and abilities, and considering how emerging mobility such as electric scooters and e-bikes should be integrated into the car-free zone. Important considerations to future-proof the car free zone include:

- Accounting for service vehicles and emergency access through:
 - Passable barriers and removable bollards
 - Avoiding implementation that would overly complicate routes used by emergency vehicles
- Recognizing that UBC has necessary, regular deliveries to both academic and non-academic facilities
 - Designing so that movement of heavy-duty vehicles is safe and minimally disruptive
- Designing for people of all ages and abilities
 - Accommodating the UBC Accessibility Shuttle
 - Retaining accessible parking in close proximity to all buildings
 - Ensuring transit infrastructure allows ease of embarkation and disembarkation for all users
- Preparing for new mobility
 - Accompanying physical plans with policy that addresses emerging mobility, including electric scooters and e-bikes

Assessment Criteria

In alignment with emerging themes from Campus Vision 2050, our assessment criteria focus on Equity & Social Wellbeing and Connectivity & Mobility. The criteria are listed in order of importance within each category.

Equity & Social Wellbeing:

1. Number of kilometers of proposed active transportation routes accessible to All Ages & Abilities users; and
2. Number of proposed rest areas (shaded benches, tables with seatings, etc.) per km².

Connectivity & Mobility:

1. Number of residential and institutional buildings within a 500m distance from the proposed pedestrian priority zone;
2. Number of residential and institutional buildings within a 500m radius of a proposed active transportation route;
3. Number of proposed points of intersection between active transportation routes and the transit network;
4. Number of kilometers of active transportation routes proposed; and
5. Number of proposed secure bicycle parking spaces in residential and institutional buildings.

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APPENDIX A

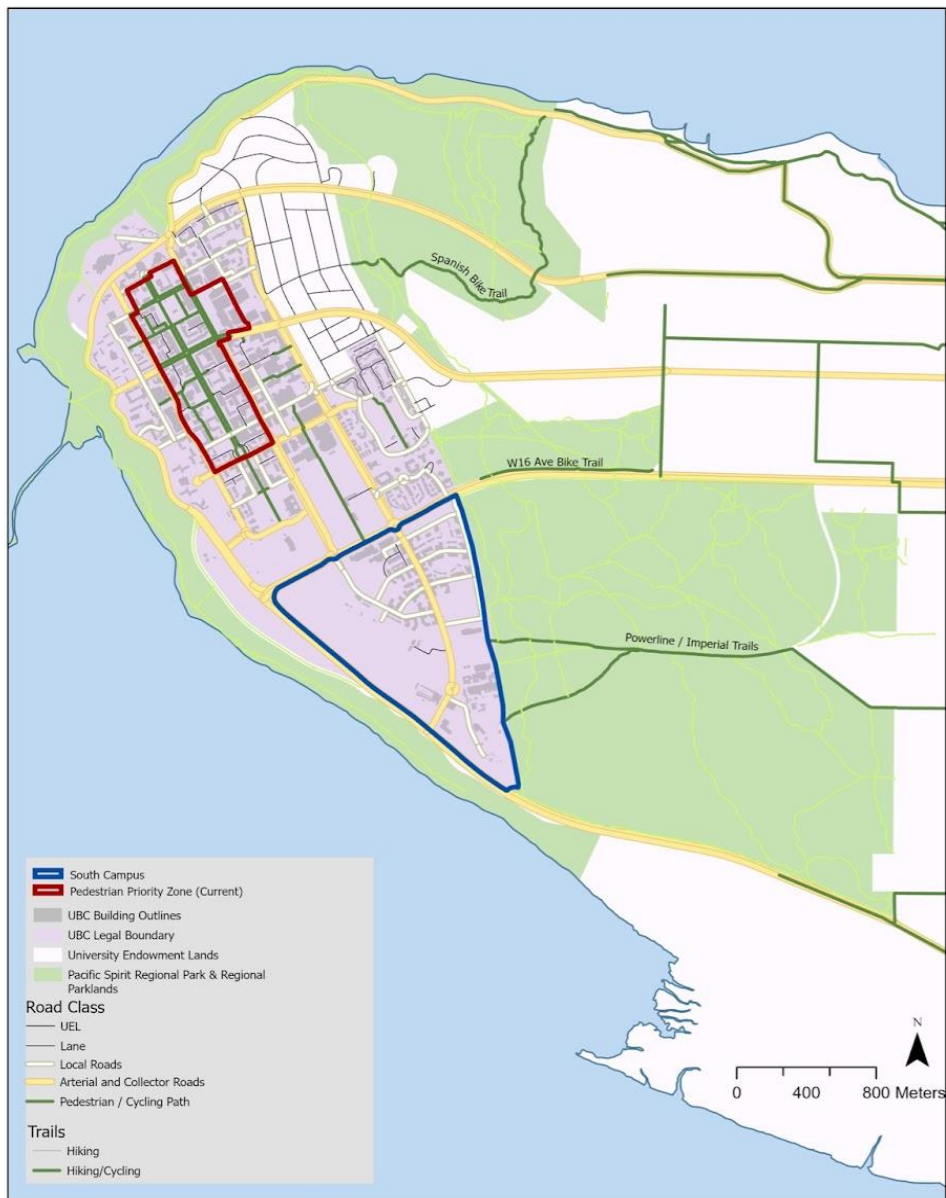


Figure A1. University of British Columbia: Current Pedestrian Priority Zone, South Campus, and Active Transportation Routes

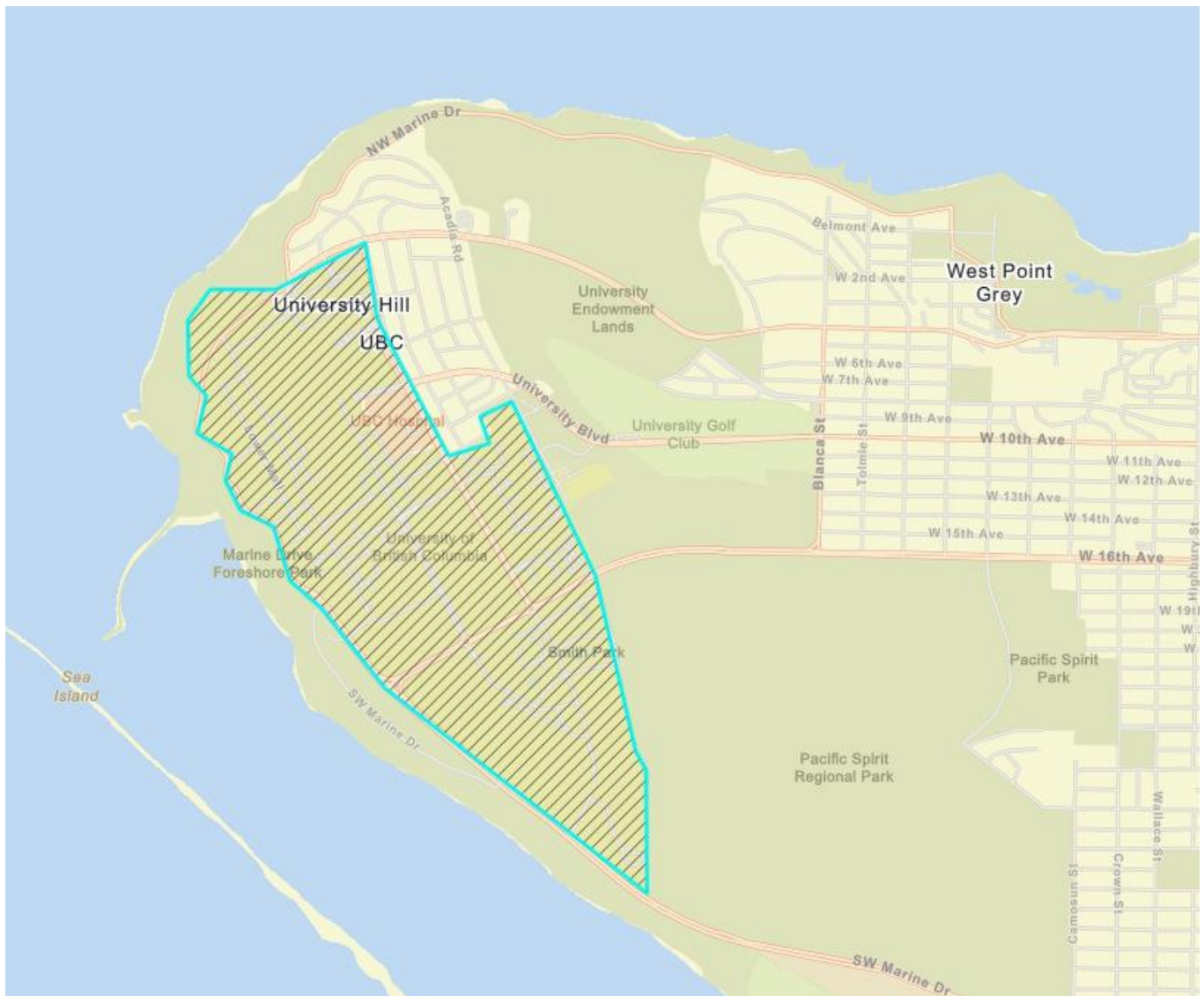


Figure A2. Maximum extent for Car-free zone occupying the UBC campus outlined by the thatched lines.

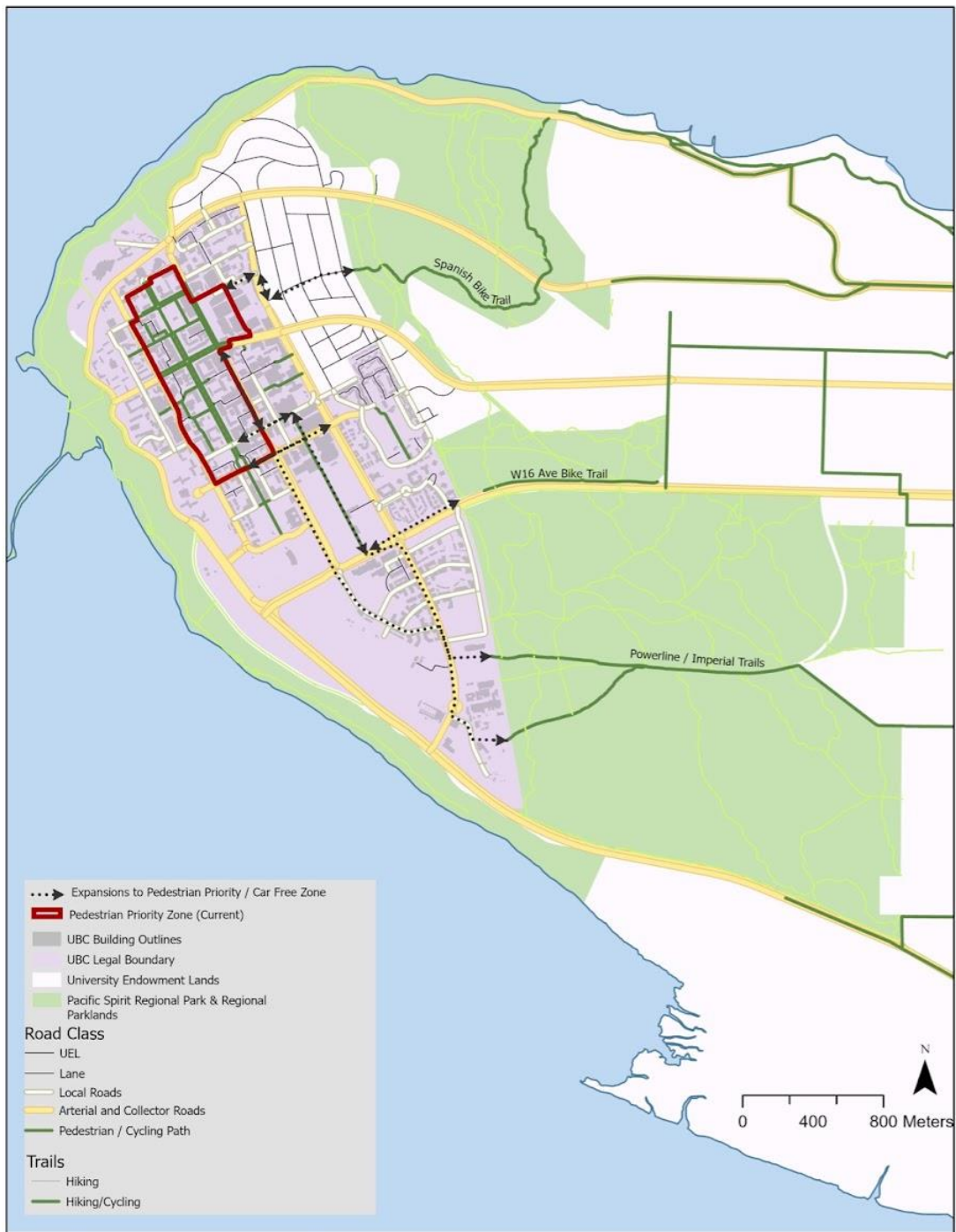


Figure A3. Current Pedestrian Priority Zone with Potential Expansions Annotated