

FINAL REPORT

Climate Justice in Transportation Planning at UBC

Produced by Audrey Choong



University Climate
Change Coalition



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The work was created on the
unceded lands of the
sk̓wx̓wú7mesh (Squamish),
x̓w̓məθk̓w̓əy̓əm (Musqueam),
and sel̓ílwitulh (Tsleil-
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While conducted under the mentorship of UBC Sustainability Hub and UBC Campus + Community Planning staff, the opinions in this final report, as well as any errors, are those of the author and do not necessarily reflect the views of the University of British Columbia.

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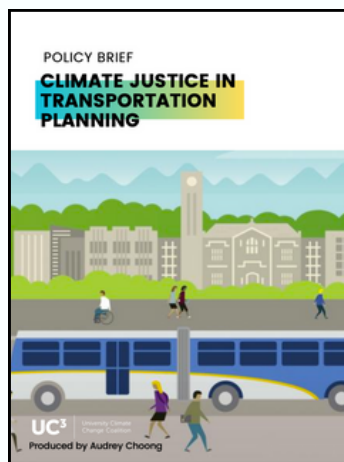
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Introduction

Transportation in the Metro Vancouver region is the single largest source of greenhouse gas emissions, and the second highest category of emissions at the University of British Columbia (UBC).

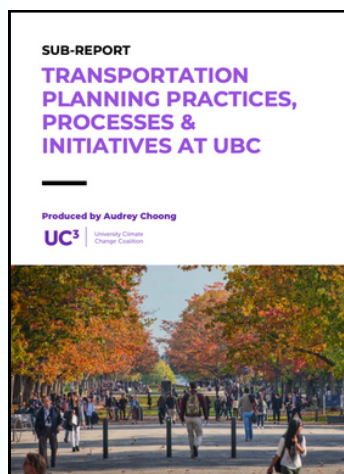
These are core issues for UBC, which has targeted a 45% reduction in commuting emissions over this decade in Climate Action Plan 2030 (CAP 2030). UBC is also in the midst of developing Campus Vision 2050 to guide campus land use planning for the next 3 decades. Additionally, the UBC Neighbourhood Climate Action Plan (NCAP) is in progress, to address both mitigation and adaptation strategies for reducing carbon emissions in residential neighbourhoods on the Point Grey campus. A growing campus community would hence benefit from the active and meaningful integration of climate justice considerations into planning work, particularly in the transportation sector.



Produced in combination with the Policy Brief on Climate Justice in Transportation Planning and the Sub-Report on Transportation Planning Practices, Processes and Initiatives at UBC,

The Final Report aims to strengthen relationships between research and campus policy, and draw explicit connections between various stakeholders, resources and initiatives. In the process, it seeks to recognise the disproportionate risk, impacts, and burdens of transportation planning and transportation-related initiatives on systemically marginalised groups within the UBC community. Finally, it aspires to identify critical opportunities for and limitations to achieving equity, accessibility and resilience in developing sustainable transportation systems, plans and planning processes at UBC. It will:

- Present a brief overview of the context for the author's approach to the project.
- Propose several hypothetical case study profiles to impact and explore the findings of the Sub-Report, with respect to equity-seeking transportation users.
- Provide an assessment of the extent of progress in addressing climate justice considerations via transportation planning.
- Surface key broad recommendations and identify areas for future study.



Author's Context

As discussed in the Policy Brief on Climate Justice in Transportation Planning and the Sub-Report on Transportation Planning Practices, Processes and Initiatives at UBC, a key thrust of pursuing climate justice is seeking accountability for injustice. In the context of this research taking place on unceded lands impacted by systems of colonialism and capitalist exploitation, it is critical to understand that the intersection of different identities (such as race, gender, sexuality, age, etc.) may fold together to create unique forms of vulnerability, oppression and marginalization. For example, because women generally possess fewer monetary and material assets and are typically deprioritized in the household consumption hierarchy, they are more vulnerable to food insecurity, financial instability and other disruptions caused by climate shocks and stressors. Gender-based violence as a result of natural resource depletion in particular disproportionately affects women of colour.

To this effect, I would like to reflexively confront the ways in which aspects of my identity have shaped my positionality, my scholarship and the worldviews or biases that might be represented in my work—and invite my readers to do the same. My name is Audrey Choong and I grew up in Singapore. I'm currently a Masters of Community and Regional Planning student at the School of Community and Regional Planning, at the University of British Columbia (Vancouver) in Canada. I recently completed my Bachelor of Arts in Economics, with a Minor in Urban and Regional Studies at the University of California, Los Angeles.

As a Singaporean Chinese woman from a wealthy, racially diverse country situated in Southeast Asia, my positionality has shifted from relatively dominant to more marginal when I moved to live and study in the globalised North American cities of Los Angeles and Vancouver.

While I navigate the domestic, professional and societal dilemmas embedded in my experience of womanhood, I also benefit from my upbringing in a financially stable household and the accessibility of higher education in Singapore. Additionally, I've been consistently exposed to Western ideologies of individualist achievement and consumerism owing to the historical and contemporary colonial influence over the education systems I've been a part of. As a result, challenging my ignorance and my cultural biases towards prioritising individual merit over collective equity and community resilience has been an active endeavour. I also recognise the need to sit with the ambiguity and discomfort that comes with the journey of educating myself on systems-level perspectives of justice: Instead of relying exclusively on prescriptions of traditional authorities and academia, I have come to champion the integration of active and meaningful engagement with those most impacted by the crises under study.

I believe in the urgent need for critical awareness of the inequities reproduced by and exacerbated during environmental crises, and to act to redress this across all domains of planning—and in particular within transportation, given its predominance in allowing people to connect with housing, healthcare, education, employment, green and recreational spaces and all other facets of society that impact quality of life.

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Case Study Profiles in the Community

**Disclaimer*

The hypothetical profiling of transportation users is intended to be an educational exercise, as opposed to a detailed and accurate account of specific members of the UBC community. It is far from exhaustive in highlighting the different types of identities represented in the community, and in the number of unique ways in which these identities may impact users' experiences. For the purpose of substantiating the profiles, several actual survey responses in UBC engagement exercises were added; However, beyond the use of survey responses, any resemblance to actual persons is coincidental and unintended.



Profile 1: Sam

Sam is a 35-year-old graduate student living in Acadia Park with their partner and two young children. While they would prefer to rely entirely on transportation via public transit and walking or cycling, they've become increasingly dependent on using their car to facilitate household responsibilities such as grocery shopping, picking up and dropping off their children at school and at weekly weekend swimming classes, and escorting their children to birthday parties and doctor appointments.

"The 2017 Transportation Survey asked the campus community why they drive alone... The primary response was the need to carry out other errands such as picking children up from daycare / school, indicating that flexibility is a requirement when exploring carpooling programs."

(As reported in the 2021 Transportation Survey)

Additionally, Sam enjoys taking daily evening walks with their family to unwind when they have downtime. However, they have found it difficult to navigate sidewalks and street networks around campus and the neighbourhoods with their stroller, given the lack of a smooth, continuous and well-maintained stretch of a sidewalk. They occasionally feel anxious crossing West 16th Avenue into Westbrook Village while wheeling their stroller, given the high-speed traffic and inconsistency in the willingness of drivers to come to a stop.

Profile 2: Melissa

Melissa is a 20-year-old undergraduate student living with her roommate in a basement studio in the Dunbar-Southlands neighborhood to save on rent. Ever since moving away from home in Rexdale, Ontario to Vancouver, she has been struggling to financially accommodate her escalated costs of living: These include her tuition fees, rent and utilities, groceries and transportation, in addition to having the bandwidth to spend on recreational activities on the weekends while accumulating some savings. To make ends meet, she took up a part-time job working as the counter staff at the sports facilities on campus.

Melissa's home is serviced primarily by the 25 bus route. However, on weekday mornings during term time she often finds it difficult to board the first bus that comes around because it's overly full. This requires her to wait for the next bus(es), which often arrive in 10 to 15-minute intervals. At the beginning of the fall semester, Melissa decided to try her hand at cycling to campus to reap some of the health benefits of being active; However, as an amateur cyclist she was quickly intimidated by the lack of safe, protected and traffic-separated bikeways between Dunbar and campus—an anxiety that is compounded by the strenuous nature of navigating the steeper hills along the route.

"Widespread concern about traffic issues and pedestrian safety for children and seniors [were heard], especially in areas around Wesbrook. Another safety consideration was heard around pedestrian safety at night within the context of insufficient lighting."

(As reported in the 30-Year
Vision Engagement
Summary Report:
September 2022 to February
2023)

64%

Of respondents agree or strongly agree that dedicated separated spaces for cycling are likely to make them bike more.

(As reported in the 2022
Transportation Survey)

Profile 2: Melissa

After securing her bicycle to an outdoor bicycle parking space close-by to her lecture hall, Melissa still can't stop worrying about the potential theft of her bicycle, which she had spent a considerable amount of money on. She is also unsure about the affordability and accessibility of secure bicycle parking, and balancing cage-rental costs with the costs of maintaining her bicycle. She is also anxious about being harassed and cat-called by drivers while cycling. This fear escalates in the winter evenings when cycling back home, particularly in combination with the lack of regular street lighting along her cycling route.

33%

Of respondents find lighting options for pedestrian pathways and roadways insufficient.

(As reported in the 2022 Transportation Survey)

"When women are cycling they feel that they attract a lot of attention from people in cars, and this makes them vulnerable to cat calling or harassment.. Additionally, some studies have also indicated that the presence of hills along the commute path impacted cycling behaviours. As the main commute paths to UBC involve a gradual incline, hills may contribute as a barrier to cycling as those who are new to biking may find the path intimidating, too physically exhausting, and/or time consuming. **This is noteworthy because when asked to select which barriers respondents would experience if they cycled to campus, the third most given response was 'Too lazy/unfit' (14%).**"

(As reported in UBC SEEDS Report: Perceptions and Experiences of Women When Choosing to Cycle as the Mode of Transportation (2020))

Profile 3: Rowan

Rowan is an 18-year-old student in their first year of undergraduate school at UBC. While they were excited to find housing in a Properties Trust-operated building along Wesbrook Mall, despite the relative proximity to campus they found it increasingly difficult to get to their classes as the year progressed. In the cooler fall and winter months they were able to comfortably walk or cycle to school at a leisurely pace; In the later summer months however, Rowan's chronic health condition and their resulting sensitivity to heat started to flare up. As a result, walking, cycling or even skateboarding to campus became extremely discomforting, and they found themselves increasingly reliant on public transit or car-use.

Additionally, the lack of continuous shelters or tree canopy made it occasionally difficult to wait in the hot sun for service via bus, a problem that was exacerbated when Rowan attempted to use the 68 bus route for intra-campus transit (which only came in 20-minute intervals and which was frequently filled given its smaller loading capacity). During a routine visit to the UBC Farm, Rowan found themselves stranded and waiting for the bus for a period of 40 minutes, having just missed the previous bus and being passed over by a fully-filled bus.

Engagement participants surfaced the desire to include a strategy around mitigating urban heat island effects through tree shading and green space cooling, and to better address air quality.

(As reported in the 30-Year Vision Engagement Summary Report: September 2022 to February 2023)

"I wouldn't underestimate the importance of the intra-campus transit. It's a campus that's too big to walk from end to end...and a frequent and reliable way of getting around is essential."

(As reported in the 30-Year Vision Engagement Summary Report: September 2022 to February 2023)

31%

Of respondents are unable to get on the first bus that arrives (compared to 28% in 2017).

(As reported in the 2022 Transportation Survey)

Profile 3: Rowan

As the intensity and frequency of heat wave conditions are expected to rise with the climate emergency, Rowan found themselves anxious and frustrated about the seeming lack of responsive cooling strategies and building retrofits to make managing the heat bearable. While Rowan was heartened to read about upcoming changes in the Neighbourhood Climate Action Plan and Draft 30-Year Vision to invest in connected and climate-adaptive infrastructure, the absence of a detailed timeline or measure of certainty compelled them to wonder: Will these improvements occur by the time that they need this support the most? Will they still be able to participate in community activities and events in the public spaces around campus and in the neighborhoods as the summer gets warmer?

Participants wished for a free and frequent inter-campus shuttle system, and the reduced cost of public transportation.

(As reported in the NCAP Community Workshop Summary Report: July 2023)

Participants reported a general support for and elevation of [the Climate Mitigation and Adaptation] Big Idea, most notably in relation to the urgent need for designing and retrofitting buildings to be more climate resilient (e.g., for extreme heat).

(As reported in the 30-Year Vision Engagement Summary Report: September 2022 to February 2023)

Profile 4: Jamie

Jamie is a 43-year-old staff member at UBC who commutes to/from campus four times a week from their home in the Renfrew-Collingwood neighbourhood. As they find themselves regularly working shifts in the early morning or late evening, Jamie finds it difficult to consistently rely on the availability of public transit options to transport them to their workplace and back home. They wonder if any implementation of rapid transit such as the Skytrain would be possible to reduce their need for driving on some days, while ensuring that they can save time on transportation.

Hearing discussions about potentially reducing the quantity of parking or price of parking permits on campus is concerning to them—will their necessary dependence on driving themselves to and from work be factored into these decisions? What parking capacity will remain to accommodate them?

Participants raised "concerns about parking capacity and affordability for frontline staff and shift workers who work off-peak hours or live far away and need to drive to campus", and presented a "strong call for reducing parking costs and increasing parking access for front-line staff, shift workers and people with disabilities".

(As reported in the 30-Year Vision Engagement Summary Report: September 2022 to February 2023)

Profile 5: Natalie

Natalie is a 70-year-old faculty member at UBC that has increasingly experienced difficulties while moving around campus. As a wheelchair-using community member, they find it challenging to efficiently navigate from building to building in a timely manner, especially since it is not always immediately obvious where the building's accessible entrances and parking is available. On days with a full schedule, this becomes an immense inconvenience when it takes additional time to source these entrances. Cobblestone paving treatments on some sidewalks, in addition to the buckling and cracking of pavement over time due to tree roots, have made for a bumpy and uncomfortable navigational experience—particularly during the summer where construction projects further impact thoroughfares around campus.

With the advent of digital platforms to ease everyday activities, Natalie wonders if it's possible for greater guidance to be provided in identifying accessible pedestrian routes to and around campus, and in accessing information on the availability and occupancy status of buses and other community vehicles. During busier periods in fall, for instance, she finds that the Accessibility Shuttle occasionally operates too slowly because of busier streets. And occasionally when Natalie attempts to use the bus during peak hours, she even finds that there is a lack of availability to wheelchair spaces when they may be utilized by other stroller-wielding or wheelchair-using commuters.

Participants shared the following views:

- Curb and street design should support accessibility;
- Existing sidewalks in poor condition;
- Cobblestone streets are an accessibility and noise issue;
- Accessibility shuttle is too slow due to high pedestrian traffic;
- Building design, wayfinding needs to be accessible – including lab space, recreational spaces.

(As reported in the Needs and Aspirations Engagement Summary Report Appendices: Spring 2022)

Case Study Profiles

As of present, the following services and programming are or will be made available to the hypothetical community members. These services and programming have been assembled by looking at various websites, initiatives, and emerging plans that are awaiting approval.

PROFILE	APPLICABLE SUPPORT	REMAINING GAPS
Sam	<ul style="list-style-type: none"> • Car-share, carpooling network • Centre for Accessibility Wayfinding platform 	<ul style="list-style-type: none"> • Safer street designs • Further expansion of pedestrian priority zones • Regular maintenance of sidewalk and other infrastructure
Melissa	<ul style="list-style-type: none"> • Financial subsidy of U-Pass BC and Mobi Community Pass • 13 free bike cages + rentable secure bicycle parking spaces • Community bike clinics • Emerging e-bicycle availability 	<ul style="list-style-type: none"> • Lack of awareness of community cycling initiatives and programming • Safer and more accessible bikeway designs
Rowan	<ul style="list-style-type: none"> • Draft 30-Year Vision, REAP 3.3 and NCAP: Plans for extensive cooling measures in future developments and expanded intra-campus transit • UBC Housing Action Plan 	<ul style="list-style-type: none"> • Present day cooling strategies & initiatives • Lack of awareness of timeline for implementation of CAP 2030 and other initiatives
Jamie	<ul style="list-style-type: none"> • Skytrain expansion as envisioned in Draft 30-Year Vision • Representation in the Campus Vision 2050: Engagement process • Additional future subsidies for renting close to UBC, current parking permit subsidies 	<ul style="list-style-type: none"> • Sustainable Transportation Levy: Long-term implications of modified parking permit fee structure on staff • Representation within engagement process of transportation planning surveys and reports
Natalie	<ul style="list-style-type: none"> • Centre for Accessibility Wayfinding platform • Accessibility Shuttle • Draft 30-Year Vision proposal to expand pedestrian priority zone 	<ul style="list-style-type: none"> • Leveraging digital tools to further improve commute experiences • Lack of awareness of current accessibility interventions

Summary Evaluation of Progress on Climate Justice

With respect to each key issue of climate justice, the progress of UBC was assessed and designated a qualitative rating of **Limited Progress**, **Good Progress**, or **Strong Progress**.

Ratings were evaluated given factors such as:

- Prevailing best practices as discussed in the Policy Brief
- Publicly available information and internal reports on the current status or expected progress to be made on various transportation practices and initiatives
- Extent of jurisdictional control and resource constraints that UBC may face in implementation
- Progress on external policy domains that affect transportation planning directly or indirectly, such as housing and community engagement strategies



CLIMATE ADAPTATION

LIMITED PROGRESS

Current proposed interventions appear to primarily target cooling and decarbonisation improvements in the design of future buildings. Though a detailed asset management program is being developed, it is unclear if climate resilience performance measures have been identified as part of the asset-tracking.



ACCESSIBILITY STANDARDS

STRONG PROGRESS

Transportation subsidies in combination with expected investments in housing densification have contributed to transportation affordability. Users with mobility challenges benefit from investments in accessible infrastructure. However, comprehensive action on accessibility could be implemented at greater and more systemic levels.



REDUCING CARBON EMISSIONS

STRONG PROGRESS

CAP 2030, NCAP and REAP 3.3 allow for coordinated strategic action towards establishing low emission zones and transitioning towards electrification of automobiles. Service improvements have been proposed to expand inter- and intra-campus transit. However, transparency regarding the detailed timeline for implementation actions is limited and no public review of progress exists.

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ACTIVE TRANSPORTATION

GOOD PROGRESS

Sufficient pedestrian priority zones, bikeway options and related community programming exists across and around campus. However, pedestrian and bicycle infrastructure around and within campus are not maintained to sufficient quality or consistently designed for all ages and abilities. With an intensification of extreme weather events, including potential heat waves, there is an intensifying need to address sensory and physical barriers to active transportation to comprehensively address equity concerns.



FUTURE OF TRANSPORTATION EQUITY

LIMITED PROGRESS

Current and future partnerships with micromobility and on-demand transit providers (e.g. expansion of Mobi bike-sharing to UBC) adds considerable breadth to the availability of transportation options. However, to preserve the modal hierarchy of prioritising active transportation, it is imperative to uplift and improve awareness of community programming. For example, a SEEDS Research Report (2020) indicated a general lack of knowledge about the cycling facilities offered on campus, with 44% of respondents being completely unaware.




Recommendations



Invest in Climate-Resilient Transportation Infrastructure & Processes

As a leader in sourcing innovative solutions to address and mitigate the climate emergency, bold action should be taken by UBC to fortify the climate robustness and resilience of its transportation systems. By drawing from the climate resilience performance measure frameworks established by the Departments of Transportation of other cities, UBC could **(1) Conduct risk assessments and vulnerability studies** to anticipate key hazards and assess community capacity to withstand and recover from climate events, **(2) Subsequently develop improved landscaping and infrastructure** to better withstand climate shocks and stressors, and **(3) Implement workflows for identifying and monitoring climate resilience performance measures** such as identifying weather-related damage to infrastructure.

Estimated Implementation Metrics

-  Duration: 12–18 months
-  Complexity: High
-  Costs: Relatively high

FEASIBILITY CONSIDERATIONS




Investing in climate resilient transportation planning requires substantial budgetary support and coordinated action across multiple internal and external institutions and organisations (such as UBC Safety & Risk Services, TransLink, the City of Vancouver, health authorities, Musqueam First Nation, etc.) to cover all jurisdictions relevant to the UBC community and its commuting routes. However, such an undertaking would allow for transportation planning at UBC to be comprehensive, mitigatory and responsive to future climate trends, potentially saving on emergency resources and maintenance costs in the long-term.



Improve Transparency and Engagement in Transportation Planning Practices

To build community capacity and spur collective action, it is integral to build a strong relationship with the community and strengthen pathways of communication with equity-seeking groups. It is hence important to **exercise greater transparency in reviewing and evaluating the university's progress** on identified immediate and long-term actions, to provide clarity on the timeline for progress as well as to set expectations accurately and achieve better buy-in from the community. Strong foundations have already been laid for the rigorous application of a multitude of thorough and effective engagement strategies in visioning-type planning activities, and **follow-through on other regular aspects of planning in transportation** could further boost meaningful engagement. For example, establishing focus groups through community groups and administering the Transportation Survey in multiple languages would allow C+CP to capture broader and more nuanced accounts of transportation experiences.

Estimated Implementation Metrics

-  Duration: 2–4 months
-  Complexity: Low
-  Costs: Relatively low

FEASIBILITY CONSIDERATIONS

Leveraging existing relationships with the community and tools or resources for informed and meaningful participation, as developed as part of visioning exercises for Campus Vision 2050 and the NCAP, could allow for a gradual but steady transition towards incorporating greater equity-oriented practices in engagement. A simple format could also be used for reporting on progress on strategic plans, such as the one utilised by the City of Vancouver in its Climate Emergency Annual Report: 2022 Indicator and Financial Dashboard.

Recommendations



Implement Accessible & Climate Adaptive Land-Use and Street Designs

While the Draft 30-Year Vision envisions significant progress towards building compact, connected and complete communities that should enable most transportation users to comfortably navigate campus, **a suite of actions could be taken within a narrower timeframe** to support those with mobility challenges as well as heat-sensitive and other vulnerable community members. These include **(1) Improving shelter coverage** by equipping transit facilities like bus stops appropriately, adding denser tree coverage along walking and cycling pathways, and ensuring the provision of canopies or other shading at community spaces and outdoor events; **(2) Improving awareness for and expanding maintenance of existing accessibility measures** following a mapping exercise of existing gaps. Accessibility retrofits could include adding street lighting and resilience-oriented street furniture (e.g. misting stations in public spaces), and fixing cracked paving.

Estimated Implementation Metrics

- Duration: 6–9 months
- Complexity: Moderate
- Costs: Relatively high

FEASIBILITY CONSIDERATIONS

With urban densification, there may be constraints on the amount of physical space available to retrofit with plants, trees and other shelter structures. Additionally, the financial costs of repaving hardscaped areas may be higher. However, ensuring the greatest benefits to equity-seeking groups require greater investment in infrastructural design that accommodates all ages and abilities (and would allow for universalised benefits to anyone requiring temporary mobility assistance, e.g. while wheeling a stroller or shopping cart).



Expand Equity-Oriented Programming for Improved Access to Active Transportation

Current subsidies for bike-sharing and other micromobility partnerships are almost 'universal' in that they are granted based on the relationship of the transportation user to the university (including staff, students, neighbourhood residents and faculty). **Piloting equity-oriented funding or programming** could enable expansion of micromobility options (e-bikes, cargo bikes, etc.) while keeping costs low, through improving the sensitivity of subsidy programs and ensuring that the most vulnerable users receive the most support possible. For example, the TACES E-Bike incentive program piloted in Saanich, B.C., allowed for incentive-allocation based on income, and reduced barriers to cycling by providing subsidised skills courses. This improved the accessibility of e-bikes to lower-income households that were previously more reliant on their cars to commute to work or school and to run errands.

Estimated Implementation Metrics

- Duration: 6–9 months
- Complexity: Moderate
- Costs: Relatively low

FEASIBILITY CONSIDERATIONS

Establishing equity-oriented subsidy programs within the partnership with for-profit micromobility and on-demand transit enterprises, which may already be operating at a financial loss particularly in earlier years, would require extensive coordination and greater financial contributions on the part of the university. Additional bureaucratic labour would be necessary to process applications to allow for streaming based on income or other equity factors.

Areas for Future Study

1

Engaging in Equity Mapping Exercises in the UBC Campus and its Neighbourhoods

In 2023, Metro Vancouver produced its final report on its Social Equity Spatial Analysis Case Study, where it applied an equity lens to planning by mapping tree canopy gaps, park gaps and other indicators of inequity. A similar application of spatial mapping tools to UBC's transportation planning context, in co-development with community members, could provide an opportunity to re-examine gaps in transportation facilities and infrastructure access. The use of community mapping tools in the UBC Needs and Aspirations Engagement Summary Report could act as a template for engagement.

2

Investigating Best Practices for Developing Equity-based Funding for Micromobility

When attempting to implement funding programs to meet the need of specific equity-seeking groups, overly rigorous means-testing may be viewed as overly intrusive or discouraging to potential applicants, particularly those that lie at the threshold of 'test' limits. However, utilising a universal access criteria might lead to inefficient allocation of resources away from those that need funding support. As such, undertaking an investigation into the best practices for developing equity-oriented funding, particularly for micromobility access, could improve the suitability of any program designs.

3

Assessing Needs of Frontline and Shift Workers at UBC

Several SEEDS Research Reports have been produced on designing parking policies that are sustainable and accessible, yielding generally consistent recommendations to reduce minimum parking requirements and gradually increase parking permit fees. To balance the need for reduced automobile dependency against the need to reduce potential disproportionate impacts on frontline and shift workers, further research could be undertaken to identify the transportation needs of UBC staff (including parking access) and spotlight potential mitigatory measures.

4

Inviting Dialogue on Historical Injustice in Transportation

Drawing inspiration from the UBC Indigenous Strategic Plan, a key step to redressing climate injustice could be to establish a forum for open dialogue regarding the historical injustices and inequities of transportation planning. This could culminate in a public report that identifies the participation of UBC, the City of Vancouver and other institutions in creating disparities in the distribution of benefits and burdens across communities. This closely aligns with the UBC Climate Emergency Task Force-identified priority of operationalising its commitment to climate justice by examining and transforming institutional practices and policies that reproduce inequalities for IBPOC communities at UBC.

IMAGE CREDITS & REFERENCES

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Appendix A

Full Evaluation of Progress on Climate Justice

Evaluation of Progress on Climate Justice

With respect to each key issue of climate justice, the progress of UBC was assessed and designated a qualitative rating of **Limited Progress**, **Good Progress**, or **Strong Progress**.

Ratings were evaluated given factors such as,

- Prevailing best practices as discussed in the Policy Brief;
- Publicly available information and internal reports on the current status or expected progress to be made on various transportation practices and initiatives;
- Extent of jurisdictional control and resource constraints that UBC may face in implementation;
- Progress on external policy domains that affect transportation planning directly or indirectly, such as housing and community engagement strategies.



CLIMATE ADAPTATION

LIMITED PROGRESS

While climate adaptation in response to climate shocks and stressors have been spotlighted as a key issue in the NCAP, Draft 30-Year Vision and other impending plans, proposed interventions are primarily targeted at improving the design of future buildings and developments (with respect to cooling, decarbonising and ventilation). Though work is being completed on a detailed asset management program, it is unclear if climate resilience performance measures have been identified as part of the asset-tracking. These measures would ideally assess damage to road and street infrastructure caused specifically by climate change-driven phenomena, including flooding, rising temperatures and extreme precipitation events, which would then allow for budgeting or other planning workflows to be implemented to address design, construction and maintenance costs. The scope of performance could further extend to assess the vulnerability of programming to extreme weather events.



ACCESSIBILITY STANDARDS

STRONG PROGRESS

Lived experiences and the state of accessibility of transportation users are impacted by personal factors (fitness, financial resources, etc.), the social environment and physical design of transportation systems with respect to land-use patterns, and the quality of service of transportation programming. U-Pass BC and the Sustainable Transportation Levy program, in combination with expected investments in renting and home-owning subsidies, have made significant headway on improving transportation affordability. Additionally, users with mobility challenges benefit from improved accessible transportation options (parking, building entrances, wayfinding). Historically marginalised and equity-seeking transportation users are better represented in the successful and meaningful design of equitable engagement strategies, as demonstrated in recent engagement summary reports. Regular and annual transportation planning practices—such as the Transportation Survey and methods of assessment used in Transportation Status Reports—have also benefited from a greater focus on inclusive participatory design. However, comprehensive action on accessibility could be implemented at greater levels, e.g. educating leadership, building institutional capacity.



REDUCING CARBON EMISSIONS

STRONG PROGRESS

Significant efforts have been made to minimise carbon emissions by moving towards the development of low emission zones and investing in supporting the electrification of automobile vehicles. Future plans have been made to enhance car-free thoroughfares via street redesigns and establishing complete streets with vibrant retail and other features in the Draft 30-Year Vision. Additionally, service improvements have been proposed to expand intra-campus transit, better integration between intra- and inter-campus transit options, and land use reforms were pursued via modifying densification and development standards for future residential and academic buildings. In particular, REAP 3.3 and CAP 2030 make strong progress in tandem, in undertaking transition toward accommodating electrified vehicles (in new developments) and secure bicycle storage. Establishing clear and bold targets for net-zero emissions by 2035, and a 45% collective reduction in commuting emissions by 2030 allow for coordinated action at a strategic level. However, transparency regarding the detailed timeline for implementation of these actions is limited and no public review of the success of implementation exists as of present.

Evaluation of Progress on Climate Justice

With respect to each key issue of climate justice, the progress of UBC was assessed and designated a qualitative rating of **Limited Progress**, **Good Progress**, or **Strong Progress**.

Ratings were evaluated given factors such as,

- Prevailing best practices as discussed in the Policy Brief;
- Publicly available information and internal reports on the current status or expected progress to be made on various transportation practices and initiatives;
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ACTIVE TRANSPORTATION

GOOD PROGRESS

Existing pedestrian priority zones and painted bikeways and/or shoulders of sufficient width exist across campus and along the four primary boulevards leading up to the UBC campus (West 16th Ave, NW and SW Marine Dr, University Blvd). An assortment of larger policy moves for community programming have also been implemented to encourage active transportation use, e.g. community bicycle clinics and the HOPR bike-share program. However, pedestrian and bicycle infrastructure around and within campus are not maintained to a sufficient quality and/or consistently designed for all ages and abilities: Notably, pedestrians have reported feeling unsafe because of insufficient lighting, which becomes particularly significant given Vancouver's longer fall and winter seasons, and poorly-maintained sidewalks are difficult for older and other pedestrian with mobility challenges to navigate. Visual observations of crossings also indicate an inconsistency in application and maintenance of tactile walking surface indicator treatments at crossings. Moreover, high-speed vehicle traffic along the major boulevards have led to both pedestrians and cyclists (particularly those of limited experience and physical abilities) concerns over safety. With an intensification of extreme weather events, including potential heat waves, there is a similar intensifying need to address sensory and physical barriers to active transportation, by way of implementing cooling and shading features along major thoroughfares—and as an extension, in public and community event and gathering spaces to comprehensively address equity concerns.



FUTURE OF TRANSPORTATION EQUITY

LIMITED PROGRESS

As spotlighted in the Policy Brief, emerging trends in transportation that could impact its equity include the increased use of big data in transportation planning (and via digital platforms for monitoring and improving commuting efficiency, etc.) and the increased investment in micromobility and on-demand services. The BC Provincial Government contribution to expanding Mobi bike-sharing to UBC, including 10 e-bike sharing stations, to supplement the existing HOPR bike-sharing program, is laudable. This move adds considerable breadth to the availability of on-demand micromobility and transit services given UBC's additional partnerships with Modo, Evo and Liftango. However, it is imperative to preserve the modal hierarchy of prioritising active transportation and public transit use, and particularly in uplifting and improving awareness of community programming and initiatives to support bicycle use, ownership and maintenance. For example, respondents in the SEEDS Research Report on Perceptions and Experiences of Women When Choosing to Cycle as the Mode of Transportation reflected a general lack of knowledge about the cycling facilities offered on campus (44% were completely unaware, with just 27% aware of the Bike Kitchen). It appears that greater signposting and promotion of other bicycle facilities (e.g. the free bike cages, secure bicycle parking spaces, Project 529 etc.) could be necessary to reshape community behaviours and perceptions.

Appendix B

Areas for Future Study: Supplementary Resources

Supplementary Resources for Follow-Up

1

Engaging in Equity Mapping Exercises in the UBC Campus and its Neighbourhoods

- Metro Vancouver (2023). Social Equity Spatial Analysis Case Study – Final Report. https://metrovancover.org/boards/RegionalPlanning/RPL_2023-Mar-10_AGE.pdf
- City of Vancouver & Gaspar, A. (2023). Benefits and Risks of Mapping Equity-Denied Groups to Inform Municipal Climate Policy. *SEEDS Sustainability Library*. <https://sustain.ubc.ca/about/resources/benefits-and-risks-mapping-equity-denied-groups-inform-municipal-climate-policy>

2

Investigating Best Practices for Developing Equity-based Funding for Micromobility

- District of Saanich (2023). Programs and Rebates: TACES E-Bike Incentives. <https://www.saanich.ca/EN/main/community/sustainable-saanich/climate-change/programs-rebates/e-bike-incentives.html>
- Mobi by Shaw Go (2018). Community Pass. <https://www.mobibikes.ca/en/community-pass>
- City of Philadelphia (2023). Better Bike Share Partnership. <https://betterbikeshare.org/>
- MoGo Bike Share (Detroit) (2023). \$5 Access Pass. <https://mogodetroit.org/pricing/>

3

Assessing Needs of Frontline and Shift Workers at UBC

- UBC C+CP (2023). 30-Year Vision Engagement Summary Report: September 2022 to February 2023). <https://campusvision2050.ubc.ca/33823/widgets/138635/documents/100698>
- Boutron, C., Chicoine-McKenzie, R., Tarvydas, M. & Hinojosa, R. (2020). Student Research Report: Policy Report on UBC Transportation and Parking. *SEEDS Sustainability Library*. https://sustain.ubc.ca/sites/default/files/seedslibrary/POLI_533_UBC%20Parking%20and%20Transportation_Final%20Report.pdf

4

Inviting Dialogue on Historical Injustice in Transportation

- (Upcoming) Sustainability Scholar (2023). Research and Analysis of Exclusionary Zoning and Environmental Racism in Vancouver. *SEEDS Sustainability Library*.
- City of Vancouver (2019). Resilient Vancouver Strategy: Reconciliation Guiding Principle. <https://vancouver.ca/people-programs/59623.aspx>
- UBC (2021). CETF Final Report and Recommendations, Appendix E: Indigenous Engagement Working Group Themes and Recommendations. https://bm-climate-emergency-2021-sandbox.sites.olt.ubc.ca/files/2022/08/CETF_Report.pdf