



Cycling and Older Buildings

Exploring the Impacts of Outdated
Building Design on Access to Cycling



bikehub.ca

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Why Study Cycling and Older Buildings?



Photo credit: Tim Welsh

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Why Study Cycling and Older Buildings?



HUB Cycling's mandate is to make cycling for transportation safe and enjoyable for all Metro Vancouver residents. Currently, *HUB Cycling* undertakes programs and initiatives to promote active transportation cycling. These programs include education, policy engagement, and advising new property developments.

While municipalities throughout Metro Vancouver are making improvements for safe and complete public cycling networks and requiring excellent cycling facilities in new buildings, **cycling uptake is greatly limited by cyclist-unfriendly infrastructure in older buildings due to historical building bylaws and policies.** Since municipal building bylaws regarding cycling facilities were either minimal or non-existent when older buildings were developed, it is likely that these buildings lack cyclist-friendly infrastructure. It is also likely that due to this lack of cyclist-friendly infrastructure, cycling uptake has been limited in these buildings. This is significant because an estimated 70% of buildings standing today will still be in use as of 2050.¹ Many people who live and work in recently completed developments are fortunate to have accessible cycling facilities, thanks to ever-improving municipal bylaw requirements. Yet most people in the region do not live and work in recently developed buildings.

The research conducted for this report was designed to learn more about the state of cycling-relevant infrastructure in these older buildings, the experiences of cyclists in these buildings, and the perceptions of other relevant stakeholders – with the broader aim of devising recommendations for improving access to cycling when infrastructure limitations exist.

At a time when public cycle routes and other infrastructure across the region are quickly improving, older buildings pose significant barriers to accessible cycling. HUB Cycling recognizes this as a major equity issue because people living and working in older buildings without robust cycling facilities are much less able to take advantage of increasing opportunities to enjoy cycling as a means of transportation and recreation.

In 2020, *QuadReal Property Group* indicated an interest in supporting research focused on better accommodating people who ride bicycles and who live or work in older buildings. Additional support came from *Concert Properties*, *HCMA Architects*, *Urban Racks*, *Bunt Engineering*, and the *Downtown Vancouver Business Improvement Association*, the *Real Estate Foundation of BC* and a federal grant from the *Mitacs Accelerate internship program*.

With the support of our partners and funders, *HUB Cycling* set out to explore the complex dynamics surrounding equitable cycling access and older buildings. The research team interviewed key stakeholders, including people who live and work in older buildings, building owners and managers, and other subject experts. The team analyzed related policies and data and have organized the findings into an accessible report with practical solutions and recommended actions.

How to Use This Report

This report is designed for relevance to a broad range of stakeholder audiences. We conducted our research in the context of Metro Vancouver's building stock, legal framework, bylaw history, stakeholder groups, housing market, and broader active transportation context. While our findings are directly relevant to Metro Vancouver, we are confident that they can be readily extrapolated to other urban regions.

Government Representatives and Staff:

- Understand the report findings and recommendations.
- Review relevant policies and practices in your respective levels of government to minimize barriers to, and provide support for, improvements for cycling in older buildings.
- Engage with the stakeholder groups identified in this research to further explore how to remove barriers and increase supports for improvements to older buildings.

Building Owners and Managers, Social and Affordable Housing Providers:

- Review the findings about owner, manager and resident perspectives and experiences regarding cycling.
- Review the best practices and practical solutions outlined in the report and consider how these might be incorporated, or adapted, to improve cycling accessibility in your building(s).
- Advocate to encourage improvements to policies and practices which impact your ability to improve cycling facilities in buildings you manage.

Strata Councils and Owners:

- Understand the important role of strata councils and members regarding cycling accessibility in buildings.
- Review strata bylaws and rules to minimize barriers to cycling. Include improvements to your building's cycling facilities as part of strata planning and financing, considering the best practices and practical solutions outlined in this report.
- Advocate to encourage improvements to requirements and practices regarding decision-making impacting cycling access.

Co-op Boards and Members:

- Review co-op bylaws and rules to minimize barriers to cycling.
- Include improvements to your building's cycling facilities as part of planning and financing, considering the best practices and practical solutions outlined in this report.
- Advocate to encourage improvements to requirements and practices regarding decision-making impacting cycling access.

Architects, Engineers, and Construction Contractors:

- Familiarise with report findings regarding the need for cycling facilities, and the design ideas developed by HCMA architects.
- Provide innovative solutions to building owners and managers regarding upgrades to cycling facilities.
- Advocate to encourage improvements to policies and practices relevant to your expertise.

Residential, Office and Retail Renters / Leasers:

- Based on our research findings, engage with your fellow building residents to better understand interest in cycling.
- Positively engage with your building manager / owner to communicate resident interest and consider practical options for improvements.
- Collectively advocate with your building manager / owner to encourage improvements to relevant governmental policies and practices.

Acknowledgements



Land Acknowledgement

HUB Cycling recognizes that this research project is focused on settler infrastructure developed on the unceded, ancestral, and current lands of the hə́nq̓əmílm̓ and Sḱw̓xw̓7mesh speaking peoples, the Sḱw̓xw̓7mesh (Squamish), Səl̓ílwətaʔ/Selilwitulh (Tsleil-Waututh), xʷməθkʷəy̓əm (Musqueam) and the kʷikʷəłəm (Kwikwetlem) First Nations. It is HUB Cycling's intent that active transportation cycling positively contributes to reconciliation in Metro Vancouver. We hope that this research will play a role in promoting equitable access to cycling for all.

Project Acknowledgments

HUB Cycling has many individuals and organizations to thank for this project. It was possible only because such a diverse group recognized its potential value, and agreed to contribute funding, time and expertise over many months to see the project through to completion.

Project Funders:

- Real Estate Foundation of BC
- QuadReal Property Group
- Mitacs Accelerate Internship Program
- Concert Properties
- Urban Racks
- Bunt Engineering
- The Downtown Vancouver Business Improvement Association



Collaborating Organizations: *Provided Expertise and Access to Research Informants*

- Atira Building Management
- BC Housing
- Concert Properties
- Landlord BC
- Metro Vancouver
- QuadReal Property Group
- The Building Owners and Managers Association of BC
- The City of Vancouver
- TransLink
- Vancouver Coastal Health

Research Team:

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- Jeanette Steinmann - *UBC Kinesiology*
- Tim Davidson - *HUB Cycling*
- Timothy Welsh - *HUB Cycling*

With support from:

- Dr. Brian Wilson - *UBC Kinesiology*

Project Advisory Committee:

- Laura Chow, Nadia Fourik, Elly Tseng & Brooklyn Rocco - *Vancouver Coastal Health*
- Gavin Duffus - *Downtown Vancouver Business Improvement Association*
- Paul Kreuger - *City of Vancouver*
- Mark Seinen - *Metro Vancouver*
- Damian Stathonikos - *Building Owners and Managers' Association of BC*
- Katie Ungard & Ryan Cohen - *QuadReal Property Group*
- Andrew Picard & Saki Aono - *TransLink*

Expert Advisors: *Responded to our questions about statistics, bylaws, and related matters*

- Brendon James - *District of North Vancouver*
- Paul Krueger - *City of Vancouver*
- Erica Tiffany - *City of New Westminster*
- Paul Hillsdon - *City of Surrey*
- Po Sun - *City of Burnaby*
- Christine Woolley, Rebecca Holt, Marni Robinson, Darin Harding and Fiona Jones - *HCMA Architects*
- Kyla Pascal - *Indigenous Equity Consultant*
- Jocelyn Maffin - *Adaptive Cycling Expert, Spinal Cord Injury BC*

Research Recruiters and Participants:

HUB is grateful to the staff of various housing industry organizations who assisted in informant recruitment and data collection, and to the 30+ individuals who took part in interviews or focus groups for this project.

About this Research

The Research Team formed through collaboration between *HUB Cycling* and the University of British Columbia's School of Kinesiology and Centre for Sport and Sustainability (CSS). The *HUB Cycling* staff team includes Leadership Team oversight, and the expertise of *HUB Cycling*'s Research and Bike Friendly Buildings active transportation planning specialists who completed quantitative and geographic research elements. *HUB Cycling* engaged UBC Sociocultural Kinesiology graduate students Jeanette Steinmann and Donna Cumming, and the support of their academic supervisor Dr. Brian Wilson, to undertake qualitative research for the project via a federal Mitacs Accelerate research internship. HCMA Architects volunteered their expertise regarding design for accessibility to provide practical solutions to issues identified through the research.

The Project Collaborators and Advisors include cycling champions from a diverse array of private and public sector organizations. They are listed in the Acknowledgements section. They helped to formulate the research plan, directly informed the research, provided access to building tenants and other key informants, and acted as a sounding board regarding research directions. HCMA Architects deserve particular praise for having donated hours of expertise to develop the design solutions highlighted in figures throughout the report.

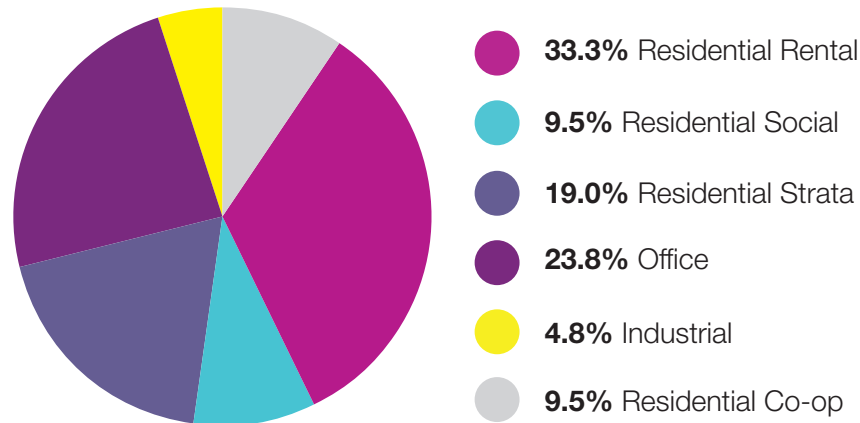
Methods

Interviews and focus groups were conducted with building representatives, building occupants, and experts, to answer the following research questions:

1. What are **core accessibility issues and impacts** related to older buildings and cycling?
2. What are **key equity issues** related to older buildings and cycling?

Twenty-nine building representatives and occupants were interviewed, representing a range of older residential, industrial, office, and mixed-use buildings in Vancouver, North Vancouver, Burnaby, and New Westminster. Nine interviews were conducted with building representatives, including building owners, building managers and staff. Three interviews were conducted with occupants living in social housing. Four focus groups took place with people who lived or worked in older buildings. Three to four people took part in each focus group. Additionally, four expert interviews took place with local leaders in urban planning in order to gather contextual information about cycling equity in Metro Vancouver. The chart below summarizes the type of buildings represented in this study.

Building Type Summary



Participants represented a diversity of gender, sexuality, racial and cultural identity, age, disability, and income level.

- 32% of building occupants identified as people of colour and one participant identified as Indigenous
- Participants ranged from 26 - 74 years of age
- 20% of building occupants were over 55
- Participants identified as straight, gay, lesbian, and queer
- Gender diversity was limited to men (58%) and women (42%)
- Participant incomes ranged from >30K - 150K

Individual interviews were based on pre-planned interview guides that asked open-ended questions about cycling facilities in older buildings and cycling equity issues. Focus groups were based on a set of guiding questions that were used to spark discussions about various topics relating to participants' experiences using building cycling facilities while living or working in older buildings, with the researchers acting as moderators facilitating the discussion. Focus groups were conducted online using Zoom. Some individual interviews took place online using Zoom, while others were conducted in-person. In-person interviews with building representatives were conducted on-site whenever possible, which allowed the researcher and building representative to tour the building together, take photos, and gather firsthand information about the cycling storage facilities and the accessibility of buildings to bikes.

Building occupant and building representative interview and focus group audio files were transcribed verbatim and data were analyzed using thematic analysis. The researchers analyzed data in order to identify themes related to the research questions. The findings were written up and compiled alongside the other sections of the report. The advisory committee provided strategic direction and reviewed a draft of the report. Ethical approval for the study was obtained through the UBC's Behavioural Research Ethics Board (BREB).²

Research Design: The team designed this research to focus on residential, commercial and industrial buildings developed during previous iterations of municipal building bylaws, from the decades before any bylaws addressed cycling facilities, through initial building bylaws, and incremental improvements leading up to current improved bylaw requirements. **Buildings included in the study represented a range of eras from pre-1950s through to the mid-2010s.** Single family and duplex / fourplex buildings are outside of the scope of the research, as their characteristics are quite different from medium- and high-density residential as well as commercial and industrial buildings.

² Informed consent was obtained from participants prior to interviewing. Building occupants were compensated \$50 following the interview or focus group.

Framing Equity for this Research Project

In this report, *HUB Cycling* and the research team define equity as:

“A strategy to promote fairness. Giving individuals the resources they need in order to be successful. Equity may include equal treatment or treatment that is different but is considered equivalent in terms of benefits, obligations and opportunities.”

As a central tenet to the research process, an equity framework informed the entire project. Attentiveness to the potential influence of systemic barriers through the interview process, selective spatial data collection and careful consideration of language in the report all aimed to ensure that visible and invisible barriers to cycling were considered in this research.

While equity was central to the research process, equity themes also emerged from interviews and focus groups. The main equity-related barriers to cycling that we identified are priorities to research participants were socio-economic status, physical ability, disability and age.

Additionally, while some broader issues such as sexism, discrimination, racism, and disparities in education levels did not directly emerge in the data collection process, other studies indicate that such barriers exist in relation to cycling.³ Privileged populations often benefit the most from cycling infrastructure, while people with low incomes, immigrants, Black, Indigenous, and people of colour, women, and seniors are less likely to have access to safe cycling infrastructure.^{4, 5} These factors influence the overall report recommendations and are reflected in the findings and illustrations throughout the report.

Key Terms

Here we explain the use of key terms throughout this report.

- **Cycling infrastructure:** Cycling infrastructure includes both on-street and off-street infrastructure, including bicycle lanes, bicycle racks, and bicycle storage.
- **Cycling facilities:** Cycling facilities are building specific and include long-term indoor bicycle parking and short-term visitor bicycle parking.
- **Cycling amenities:** Cycling amenities are characteristics or features that encourage cycling or that make the building easier, or more pleasant to use by people who ride bikes.⁶ These include end of trip facilities, such as showers, bike wash stations, bike stands for conducting repairs, etc.
- **Comfortable for Most bike routes:** These bikeways are either physically protected from motor vehicle traffic or are on shared roadways with low posted speed limits (i.e. 30 km/h or less) and low motor vehicle traffic volumes (i.e. less than 2,000 vehicles per day).⁷
- **Cycling mode share:** The percentage of total travellers using bicycles.

Metro Vancouver’s Cycling Context



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Metro Vancouver's Cycling Context



Key Points

- In Metro Vancouver, there is an increasing demand for cycling.
- While there has been significant improvements and strategic plans for cycling infrastructure and amenities, there has been little progress on addressing older buildings. Their lack of cycling amenities may prevent more people from cycling.
- An equity framework is essential to better understand the impacts of cycling barriers such as a lack of accessible bike storage, secure bike parking, and prohibitive building and government policies.
- Maps can help us to visualize the concentration of older buildings and equity deserving groups, proximity to Comfortable for Most bike routes and bike theft.
- Municipal and Provincial policies and retrofit processes require updates. There are opportunities for the region's leadership in cycling policies based on successful policy precedents in other North American municipalities.



There are more people cycling than ever in the Metro Vancouver region. Yet, many older buildings are not equipped with adequate bicycle facilities.

In this section we provide relevant data about older buildings in Metro Vancouver and the people who live and work in them. We also discuss the overall cycling context in Vancouver, the District of North Vancouver, Burnaby, New Westminster, and Coquitlam, five municipalities with varying cycling bylaws. This section provides context for the interpretation of data we collected directly from building users, managers, owners, and staff.

Globally, Metro Vancouver is a leader in cycling. The City of Vancouver is a leader in developing its cycle network, and, in 2022 it was named the sixth major cycling city in North America, ranking in the 97th percentile of all cities studied.⁸ Other municipalities in the Metro Vancouver region are accelerating the rates at which they expand and improve their cycling networks, moving in the direction of Vancouver's achievements. Given the region's mild climate, increasingly strong cycling infrastructure and active recreation culture, it is no surprise that people are taking advantage of the health, environmental, economic, and transportation benefits of cycling.

Metro Vancouver's cycling mode share at 2.3% is one of the highest regionally in North America. Between 2006-2016, there was a 65% increase region-wide in bicycle commuting. In the City of Vancouver alone there was a 41% increase in people cycling to work between

2011 and 2016 and 56% of residents are interested in cycling more often.⁹ Yet, despite the increasing number of cyclists, a 2009 report by The Vancouver Public Space Network¹⁰ highlighted that there is a lack of secure bike parking across the city to meet current demand, resulting in less people biking due to a fear of theft. Additionally the removal of 5,500 parking meters as ad hoc bike lockups by the end of 2023 and poor bike rack design are barriers to cycling.¹¹ According to two studies conducted by Metro Vancouver, apartment buildings in the region do not have sufficient bicycle storage.^{12,13} If secure bike storage and accessible cycling facilities are improved, even more people may ride bikes in the future.

While there is no reliable data on bike ownership in the Metro Vancouver region, the COVID-19 pandemic exponentially increased bike ridership. Although trips to work by bike initially decreased, the region's bike shops reported being overwhelmed by increased demand^{14,15} and new bike routes and programs emerged. Programs, for instance, included the Slow Streets program¹⁶ in Vancouver, Streets for People in New Westminster and Stanley Park Drive's newly designed cycling lane, to name a few.¹⁷ While COVID-19 prompted new local cycling initiatives, there are also regionally planned strategies for improving cycling facilities and infrastructure.

There are multiple long-term strategies in place to continue to improve cycling infrastructure for all.

As of 2021, Metro Vancouver has 4,668 kilometers (KMs) of bikeways where 44% are considered Comfortable for Most.¹⁸ Of new and upgraded routes, 54% of facilities constructed in the last two years are rated as Comfortable for Most.¹⁹ Planned regional improvements align with TransLink's Transport 2050: 10 Year Priorities that aim to add 450 KMs of traffic separated bikeways.²⁰

Increasing the number of people who cycle for transportation contributes to the City of Vancouver's Healthy City Strategy's goal of improved, safe and accessible ways of getting around by active transportation.²¹ Improved cycling infrastructure and an increase of cyclists will also contribute to Vancouver's high level, long term strategy Transportation 2040, including the Transportation Demand Management Action Plan 2021-2025), which aims to "promote walking and cycling as fun, practical, and healthy transportation choices".^{22,23}

Additionally, more cyclists commuting reduces carbon emissions from vehicles and moves people more efficiently, leading to healthier, more climate resilient communities as envisioned in Vancouver's Climate Action Emergency Action Plan.²⁴

A desire to improve cycling infrastructure extends beyond the city of Vancouver and includes

municipalities throughout the Region. For instance, cycling is integrated into the District of North Vancouver's Bicycle Master Plan which aims to establish strong bike networks and amenities between its adjacent municipality, the City of North Vancouver.²⁵ Similarly, a progressive vision for cycling route improvement is outlined in the Burnaby Transportation Plan 2021 (Section 4.6) and Coquitlam's Strategic Transportation Plan (Goal 3.2).^{26,27} The table in Appendix A outlines a summary of recent improvements to bike routes in each municipality examined as part of this study.

The City of Vancouver also led in requiring improved access for cyclists within new building developments. Other Metro Vancouver municipalities are following suit by adopting bylaws that, in some cases, surpass the City of Vancouver's requirements for new buildings. Despite the region's investment, planning and improvements for access to cycling amenities, the City of Vancouver and all other Metro Vancouver municipalities have given relatively little attention to improving access for cyclists within older buildings. This study works to fill this gap by illustrating that older buildings pose a broad range of barriers to cycling equity in the Metro Vancouver region, even where good public cycling infrastructure exists.

"I don't think that many people are talking about cycling and equity and what that really means...I think a lot of it comes down to actual access of a bike and equipment, and then to who is visible in the cycling community and how do we make it more inclusive for everyone."

- Brooklyn Rocco, Planner, Healthy Environments, Vancouver Coastal Health

There is a substantial desire to increase cycling within the Metro Vancouver region, but equitable access to the benefits of cycling is limited by intersecting barriers and inadequate infrastructure. This is a particular challenge in buildings of all types and ages which were developed before or during the early stages of municipal bylaws for cycling.

Older office buildings, multi-unit residential, industrial, and mixed-use buildings, especially those built prior to bike parking bylaws often have poor end of trip facilities and lack access to secure bike storage. Bicycle owners are frustrated by the lack of sufficient bicycle parking in their buildings.²⁸ People who work and live in older buildings deserve equitable access to safe cycling infrastructure and the opportunity to participate in active transportation which contributes to healthier, greener and more equitable communities.





Equity and Cycling Infrastructure in Metro Vancouver

People living in Metro Vancouver have a range of intersecting identities and social positions²⁹ that may impact their ability to access, and benefit from, the region's cycling infrastructure. People living in Metro Vancouver also have diverse experiences – and it is well known that negative experiences are commonly associated with systemic barriers related to colonialism, racism, sexism, ageism and classism. These barriers are also known to compound, and can disproportionately impact particular communities and individuals. Although individuals have agency and are often resilient in, and responsive to, conditions that may negatively impact them, identifying and attending to systemic barriers is key to understanding and addressing marginalization and inequitable access to many societal benefits, including access to the benefits of cycling. This report considers two types of equity: social equity and spatial equity.

Social Equity

After community engagement sessions in 2021, Metro Vancouver's proposed definition of social equity includes the following:

Social equity in Metro Vancouver is the incorporation of justice and fairness within the region's principles, practices and policies in order to support the development of equitable outcomes for all individuals. It is the promotion of access to context-appropriate opportunities and representation within systems of power for those that face systemic barriers and are the most negatively impacted by regional decisions, often due to intersecting and compounding factors such as race, ethnicity, Indigeneity, gender, sexuality, religion, age, socio-economic status, and mental or physical disability.³⁰

In the context of cycling equity related to building design and amenities, this report takes into account social equity indicators including age, race, Indigeneity, gender, sexuality, and income level.

Research on cycling and equity suggests that people with low incomes, immigrants, Black people, Indigenous people, people of colour, women, seniors and children experience the most barriers to accessing safe, convenient, and pleasant cycling facilities.^{31,32} Additionally, disability, which presents significant barriers to cycling, is rarely mentioned in cycling literature.³³

In the broader cycling literature, few studies focus particularly on cycling facilities inside of buildings. Studies on barriers to cycling, sometimes reference building cycling facilities in addition to on-street bicycle infrastructure.³⁴ One study on barriers to cycling around McGill University in Montreal found that, among other factors, bicycling facilities such as bike parking and showers impacted people's choice to cycle or not.³⁵ Metro Vancouver conducted two studies on apartment parking in 2012 and 2018 and found that vehicle parking is excessive in apartment buildings. These studies found bicycle parking to be a challenge that remained unchanged across the span of the two studies, and found that the "design and capacity of

current bicycle parking facilities in apartment buildings are discouraging their use."³⁶ Our research found that in some buildings there was excess vehicle parking and other space to accommodate bicycle storage and that in other buildings there was insufficient vehicle parking and no extra space.

Related to equity, research suggests that bicycle storage is complicated for low-income individuals living in small, single-room occupancy units that do not have dedicated bike storage facilities. Individuals in these units were forced to keep their bicycles in sight at all times or risk theft.^{37,38} Bicycle safety should account for equity issues, such as the risk of theft when people do not have safe storage for their bicycles.³⁹

This report builds upon cycling equity research and research on bicycle facilities by exploring contextual factors and barriers related to equity and cycling facilities in older buildings. As discussed throughout this report, age, socioeconomic status, physical health, and disability, affected people's use of cycling facilities. These axes of inequality, in addition to other factors such as gender, sexuality and racial/cultural identity, interplay to shape access to and usage of bicycle facilities.

Spatial Equity

Social equity is embedded within spatial equity. Spatial equity considers the history of place, and emphasizes the importance of contextual barriers in the built environment. In other words, the location of where social inequity takes place matters because the built environment may positively or negatively contribute to people's lived experiences. In this report, spatial analysis considers social equity indicators and their relationship to age of building types, access to safe bike networks, and prevalence of bike thefts in an area.

It is important to recognize the complexities and intersectional identities of individuals. These data proxies do not capture the full, lived experience of people facing unique, social inequities. We recognize that these groups are not a monolith, but it is important to address who may be left out of accessing the benefits of cycling due to the intersection of social and spatial barriers.

While better cycling infrastructure in buildings could benefit most people who ride bikes, this research indicates that certain populations, such as older people, children and families, people experiencing physical health issues, persons with disabilities, and people of lower socioeconomic status may experience more benefits related to upgraded building cycling infrastructure than others.

Co-Benefits of Improving Cycling Equity

Cycling can be a tool of empowerment, freedom, and an agent for social change.⁴⁰ *HUB Cycling*'s position is that everyone should have access to safe and efficient cycling amenities if they own or use a bike. Improving bike security, ease of access and comfort for people experiencing barriers will benefit all people in Metro Vancouver. More people biking means less traffic congestion, lower carbon emissions, and the potential for increased diversity in cycling culture. When older buildings are able to provide secure and safe amenities, the region can work towards a more resilient future by reaching the goals set out in regional and municipal policies.

By learning more about the experiences and needs of people related to cycling facilities in older buildings, public policy and city planning can be better oriented to make changes that might positively affect people's accessibility to cycling. A key point in promoting equity is relaying the perspectives and experiences of building-users to policy makers, development companies, and owners of buildings through this report, so that cycling facilities can be updated for the benefit of all those who use older buildings.



Spatial Context: Social Equity, Building Age, and Bike Theft

Using targeted datasets and employing GIS software, this report develops an understanding of the spatial context of cycling equity in the Metro Vancouver region using social equity data, age of buildings, reported bike theft and cycling infrastructure. The spatial context offers a pathway to understanding the current barriers that diverse groups may face and provides guidance on how to improve cycling opportunities in the future.

Equity-Deserving Populations: Identifies that equity is a human right and all populations deserve to have access to equitable outcomes.

Communities that identify barriers to equal access, opportunities, and resources due to disadvantage and discrimination. This marginalization could be created by attitudinal, historic, social, and environmental barriers based on characteristics that are not limited to sex, age, ethnicity, disability, economic status, gender, gender expression, nationality, race, sexual orientation, and creed. (**Canadian Kinesiology Alliance**, 2022)

Figure 1: Overview Map on Equity-Deserving Populations Across Metro Vancouver

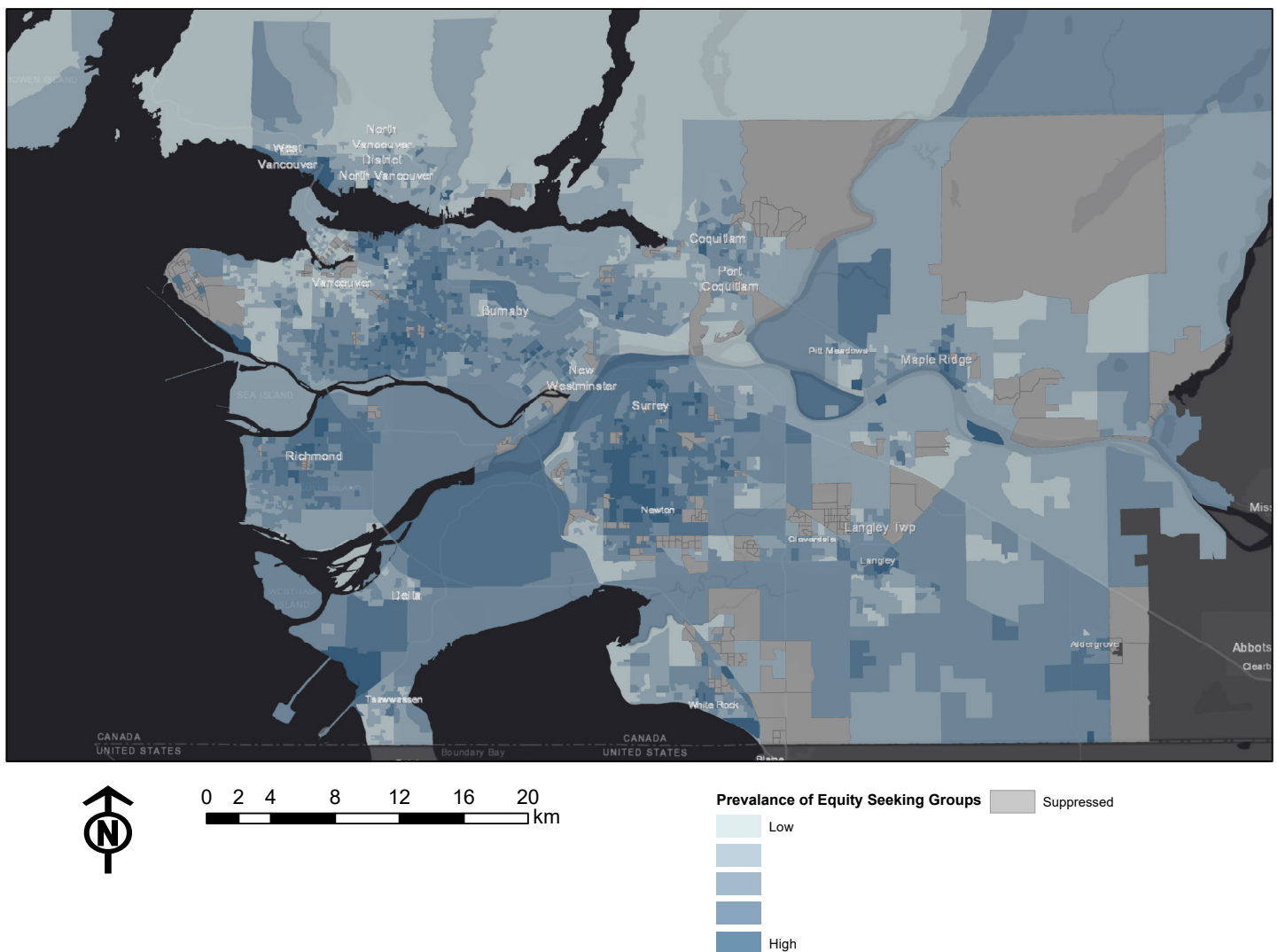


Figure 1 indicates the prevalence of equity deserving groups in Metro Vancouver. These groups include:

- Youth (Ages 0-14 years old)
- Seniors (Ages 65+)
- Indigenous (Aboriginal identity in 2016 Census)
- Racialized (Visible Minorities in 2016 Census)
- Low income families (Low Income Cut-Off %)
- Low education. (High School Grad or less)

We recognize that these demographic identities are intersectional and are neither monolithic nor static.

These groups as social equity indicators were selected because:

- They are in line with previously conducted equity research within the realm of transportation planning
- They have been considered relevant to creating a broad and encompassing approximation of equity within the context of Metro Vancouver⁴¹
- They are feasible within GIS software capabilities
- Data is accessible and able to be imported into the GIS software when not available through GIS

Social equity has notable effects on individual mobility choices within a region. For example, how much money someone makes directly impacts their ability to purchase a car. Age demographics are influential because people may not be able to access a car due to being too young for a licence or not being permitted a licence due to older age and health complications. These groups, and others, are more likely to be transit-dependent and more reliant on a bike to commute because cycling is a more affordable and accessible option.

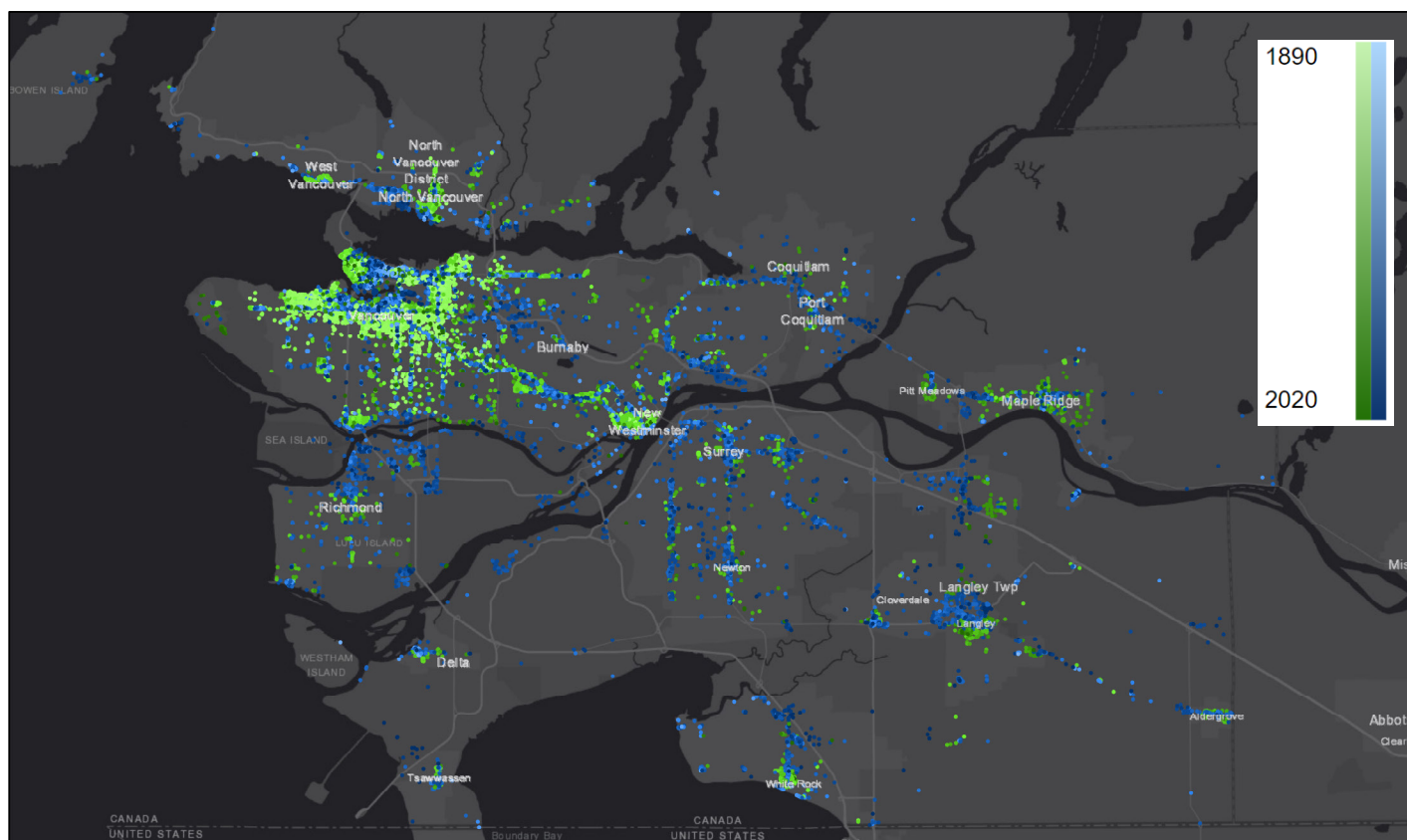
This map suggests that there is a correlation between equity deserving groups and multifamily residential units. This aligns with the intent of multifamily buildings which are often designed to serve lower income populations. There is a high prevalence of equity-deserving groups living in multi-family units in the region's town centres.



Photo credit: Tim Welsh

Figure 2: Older Building Context Maps by Decade in Metro Vancouver

Commercial vs. Residential

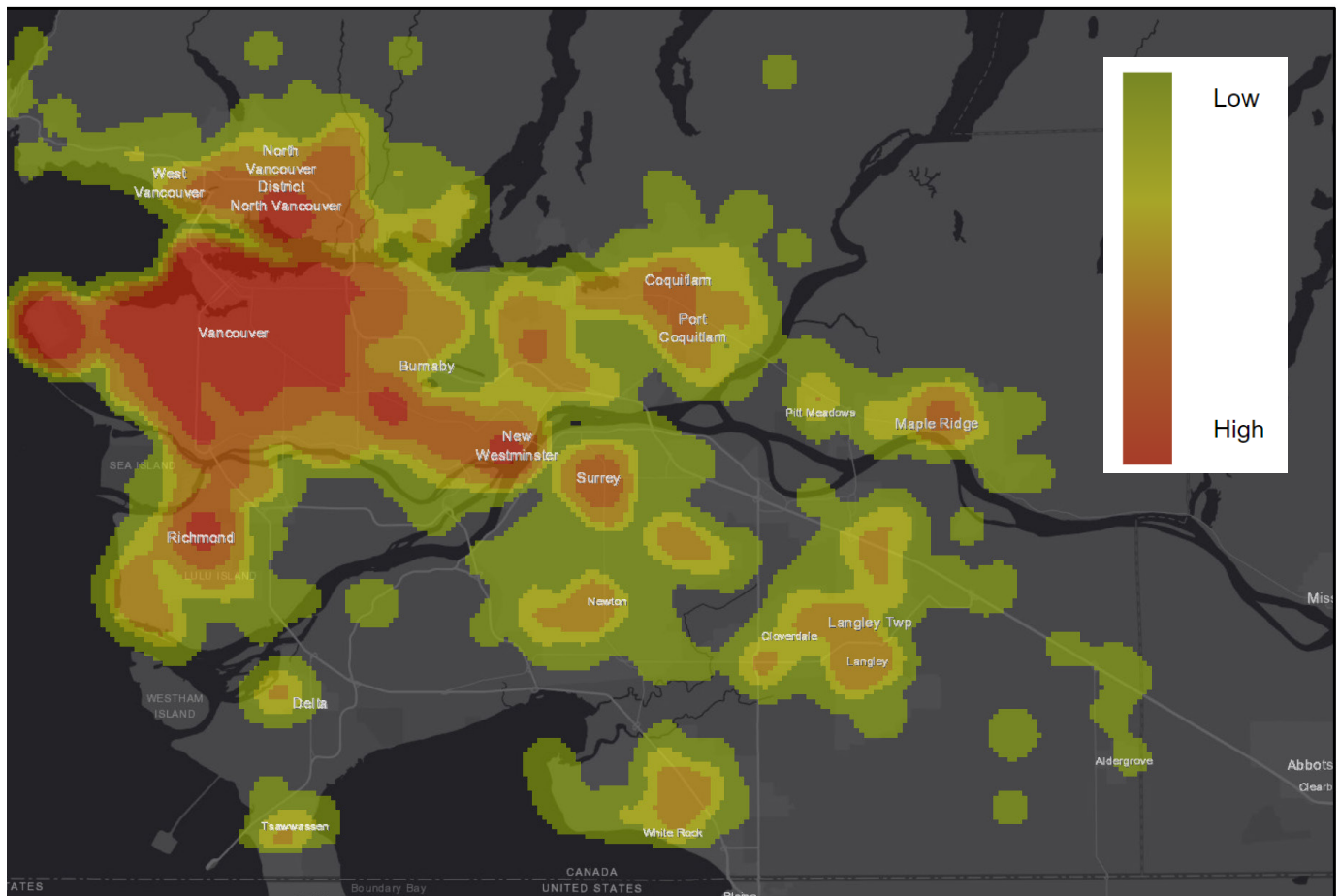


The age of a building, residential or commercial, often determines the likelihood of access to secure bike storage for residents or users. For people living in older buildings, secure bike storage facilities may not exist or are of very low quality and capacity. Those built in the auto era, generally between the 1950s - 1990s, are more likely to have more car parking and little or no bike parking. However, buildings constructed more recently show progressive improvements in bike parking infrastructure and siting. A lack of available bike amenities at home and at work reduce people's transportation options. A more comprehensive analysis of bike parking bylaws can be found in Section 2.

In this map, green shows multi-family residential and blue shows commercial buildings. The lighter the dot, the older the building. This map suggests that the majority of older commercial and multi-family residential buildings in Metro Vancouver are concentrated in the Metropolitan core and in Town Centres throughout the Region. New Westminster is an exception as older multi-family residential and commercial buildings are found throughout the City.

Future research could build upon these maps to highlight the potential for increased bicycle-to-transit trips by using TransLink data on the Regional Bikeway Network and Frequent Transit Network to show the number of older buildings within proximity to these networks. This work could align with section 1.1.4 in Transport 205042 which aims to complete a network of bikeways as the most direct, and the most convenient, travel option for most trips between 1 and 5 KMs.

Figure 3: Prevalence of Bike Theft (via Project 529 reporting data)



It is important to recognize that bikes have the potential to provide utilitarian transport for many, not just a recreational or optional vehicle. Even if older buildings are located close to *Comfortable for Most* bikeways, the threat of bike theft may be a barrier to cycling. The City of Vancouver has the most bike thefts per capita of any Canadian City. In 2020, 2,115 bicycles were stolen, although police say more thefts were never reported.⁴³ Further, the monetary value of a bicycle is not the only indicator of its worth to equity deserving groups. As a tool of social change, bikes are invaluable to the freedom they provide. Therefore, if bike theft is a concern, equity deserving cyclists may be deterred if their investment is not adequately protected.

Bicycles are attractive to thieves because they tend to be relatively easy to steal, and are easy to sell quickly. Using self-reported data from Project 529, this map examines the geographic distribution of bike theft reported through Project 529. The red areas report greater volume and density of stolen bicycles. The pattern of thefts shown generally matches the distribution of older multi-family and commercial buildings.

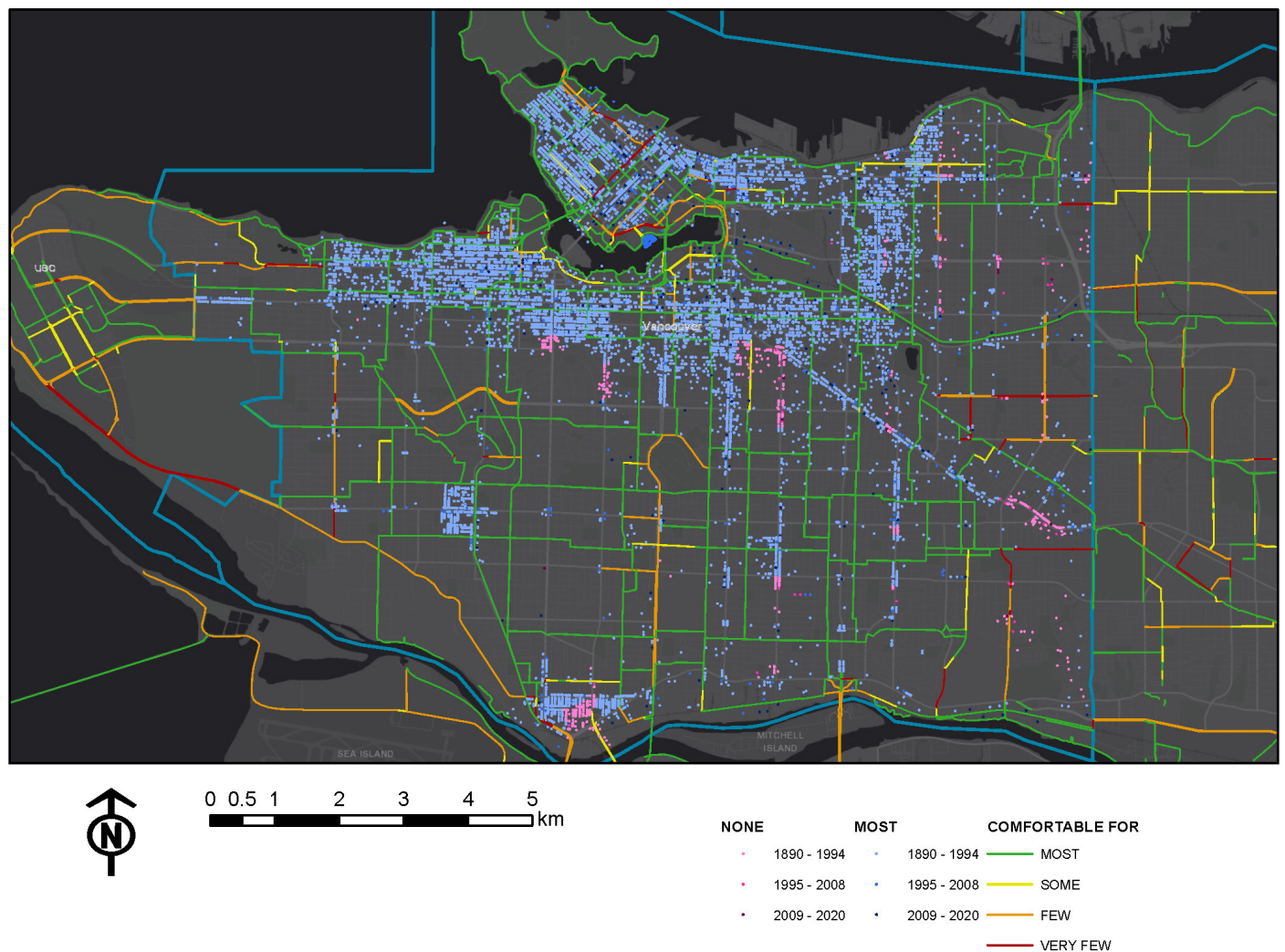
Comfortable Routes and Building Age

The Comfortable Routes and Building Age in Vancouver map (Figure 4), visualises 20,000 multi-unit commercial and residential buildings from 1890 to 2020. Municipal bike parking bylaws determined the break points of how to qualify older buildings.

Blue dots indicate buildings within 400 meters of bikeways categorized as *Comfortable for Most* people. Red indicates buildings beyond 400 meters of a *Comfortable for Most* bikeway. The lighter colours show the older age of buildings. This map suggests that most older buildings are within close proximity to Comfortable for Most bikeways. Improving bicycle parking in older buildings could also increase bicycle-to-transit trips, given many older buildings are in close proximity to the SkyTrain and Canada Line.



Figure 4: Comfortable Routes and Building Age in Vancouver



Vancouver - Sample Buildings by Bylaw Breakpoints and proximity to *Comfortable for Most* Bikeways Legend:

No Bikeway within 400m:

- 1890-1994
- 1995-2008
- 2009-2020

CfM Bikeway within 400m:

- 1890-1994
- 1995-2008
- 2009-2020

The map of Vancouver indicates that there is a strong impetus to make targeted improvements to older multi-family and commercial buildings in Vancouver because the vast majority are within close proximity to *Comfortable for Most* routes.



Photo credit: Kiera Vandeborne

Cycling Requirements for Metro Vancouver Over the Ages: Guidelines, Policies & Municipal Bylaws

It is important to consider historical bylaws to better understand the infrastructural barriers to cycling for people living in or using older buildings. Municipal bylaws and guidelines about bike parking requirements define the design of infrastructure at the time of its development. Bylaws are rules that are mandated for development, while guidelines are intended to support appropriate design practices. For example, the City of Coquitlam's bike uses guidelines to reinforce bylaws approved by Council.

Bylaws provide quantifiable requirements that developers and building owners and managers must follow. Guidelines are additional guidance that is recommended, but not mandatory. The location and duration of bike parking, security measures, bike storage volumes, accessibility, rack types and end of trip facilities are all largely determined by the municipality's latest bike parking bylaws. In other words, bylaws and regulations set the stage for whether new buildings have strong cycling amenities.

When considering the impact of older buildings on equitable access to cycling, the timeline of bylaw requirements gives a visual representation of significant changes in building types, and thus, supportive cycling infrastructure.

Each municipality's bylaw changes determine the cycling-related building development time frames.

A Timeline of Cycling Requirements in Metro Vancouver



1995 **VANCOUVER** - Introduces bike parking into the parking bylaw.⁴⁴



1996 **DISTRICT OF NORTH VANCOUVER** - Part 10 of the Zoning Bylaw that included requirements on **short term** bike parking was introduced



1998 **BURNABY** - Bike parking introduced (never adopted into Zoning Bylaw)⁴⁸



2001 **NEW WESTMINSTER** - Bike parking introduced ⁵³



2008 **VANCOUVER** - Increasing **long term parking** minimums. Chain link compound no longer acceptable. Require high-security locks. 1 electrical outlet per 2 long term parking spaces.⁴⁵

NEW WESTMINSTER - Add standards, regulations and definitions for bike parking, bike lockers, and bike storage.⁵⁴



2009 **BURNABY** - Additions of visitor parking to Multi-Family Residential. Added required school parking.⁴⁹



2011 **COQUITLAM** - Added definitions of short and long term bicycle parking ⁵¹ Set the minimum requirements for short and long term bicycle parking. Apartment/ Townhouse: **long term parking** 1.25 spaces per dwelling units; **short term parking** 6 spaces for each apartment/townhouse building. Set bicycle parking design standards [document](#).

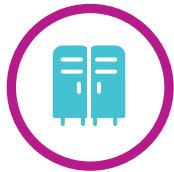


2012 **DISTRICT OF NORTH VANCOUVER** - Alternative Parking rates bylaw that included requirements for **long term bike parking** and transportation demand management was amended.



2017

VANCOUVER - Memo to Vancouver City Council which includes discussion on options for existing developments (no actual changes) ⁴⁶



2018

VANCOUVER - Increase requirements for bike parking rates and end of trip facilities. Increase long and short term parking minimums. Increase dimensions of long term parking space. ⁴⁷

BURNABY ⁵⁰ -

Multi family dwelling:

- **Long term parking:** 2 spaces per dwelling unit, plus 1 for every 20 employees. 100% long term spaces should be bike lockers or automated facility, 1 electrical outlet for every locker for multi-family residential
- **Short Term parking:** 1 for every 5 dwelling units.

Commercial/ Offices:

- **Long Term Parking:** 1 for each 500m² of gross floor area;
- **Short Term Parking:** 1 for each 1000m² of gross floor area.



2019

DISTRICT OF NORTH VANCOUVER - Bike parking staff policy that refined requirements for bike parking in all buildings for both short and long term was introduced.



2020

NEW WESTMINSTER - Added definitions for oversized bikes, updated short and long term bike parking requirement structure. ⁵⁵



2021

COQUITLAM - Clarification that short-term parking should be at pedestrian entrances at-grade

Changed minimum requirements for short term bicycle parking (changes include 'spaces per building' to spaces per building entrance')

Amended design requirements for long term bicycle parking (electrical outlets, access-routes, located no lower than one level below grade, etc.)

Amended design requirements for short term bicycle parking (be well lit, weather-protected, etc.)

Added end of trip facility requirements which need to include non-residential buildings that have a minimum two on-site amenity rooms are required and shall include as a minimum the following features: shower, changing room, water closet, wash basin, mirror, and electrical outlet. In addition to personal storage lockers that must be provided.

Added bicycle maintenance facility requirement which includes as a minimum the following: work space and desk, repair stand, wash station, and bicycle tire air pump for each building. ⁵²



Strata Bylaws & Retrofit Processes

Strata Bylaws

Metro Vancouver's Municipal Bylaws

Strata housing is a multi-suite building ownership model where people own individual units and together own the common property and common assets as a strata corporation.⁵⁶ Each strata has their own rules and regulations but must also follow the Province's standard strata laws and bylaws.⁵⁷

In Metro Vancouver, the standard strata laws and bylaws do not explicitly limit bicycles from being stored in units, or from being moved in elevators. However, these bylaws do not explicitly support or accommodate bicycles in any form and stratas can modify their bylaws to limit cycling accessibility.

Often individual strata bylaws impose limits on access to buildings for cyclists and bikes. For example, a Burnaby strata building's bylaws state:

“Bicycles are not to be taken through the lobby area. Bicycles must leave or enter the building through the underground or a

side door. Residents who store bicycles in their Strata Lot must be sure their bicycles are clean and must take care during the transport of their bicycles in or out of the building as they will be charged for damages made to fire doors, elevators”.⁵⁸

While it is legally possible to make changes to strata bylaws, the process is lengthy and there are regulations required to have a strata bylaw changed.⁵⁹ A tenant of a strata corporation with restrictive bike parking bylaws can organize and advocate a vote to the strata Council to permit improved access for bicycles within their older buildings. Cycling leaders can begin by gathering other supporters in the building, potentially joining the council and encouraging neighbour buy-in before presenting a case to the strata council. Cycling leadership is necessary on all levels, from building occupants to building managers.

British Columbia's Provincial Bylaws

The Province of British Columbia also has legislative power to permit secure bicycle storage through the Strata Property Act. The Provincial Strata Property Act, 1998, states “the strata corporation may make rules governing the use, safety and condition of the common property and common assets.” This language permits individual stratas to make bylaws regarding bicycles in elevators, hallways and other common property and assets. The Province could add language protecting and mandating the allowance of bikes in buildings.

The Province's crown corporation BC Housing, which provides province-wide subsidized housing, maintains language that does not promote cycling in their residential tenancy agreement. Section 30 of the Residential Tenancy Agreement states:

“Storage: The tenant agrees to store all property in designated areas only. The tenant agrees not to store unapproved items on balconies, patios or in hallways or common areas of the residential property, including but not limited to, any appliance, bicycle, wheelchair, baby carriage, scooter or power scooter. The

tenant agrees that use of the storage areas is at the sole risk of the tenant”.^{60, 61}

This language may limit people from accessing the benefits of cycling if they are unable to find a convenient and safe place to store a bicycle.

There is an opportunity to improve supportive regional and provincial policy. Supportive provincial strata policy could include requiring all stratas to allow bicycles to be stored in units in the absence of sufficient high quality secure bike parking. Policy precedents include examples from New York and San Francisco in Appendix B.

Municipalities in the Metro Vancouver region are well positioned to adopt, and lead, similar bylaws for both commercial and residential buildings. While these precedents only apply to commercial buildings, the region could lead policy that influences secure residential bike storage and bike access within buildings. The Recommendations section in this report outlines policy opportunities in more detail.

Retrofit Processes

Permit Processes

In Metro Vancouver, updating buildings to improve bike storage and accessibility to meet current best practices often requires navigating extensive city processes. While minor upgrades do not necessarily require permit applications, retrofitting spaces to be more bike friendly, such as building a bike parking enclosure in a motor vehicle garage, requires an extensive process which poses a range of barriers and costs.

As an example that is representative of the region, the

City of Vancouver requires a complex process to retrofit a space. To apply for a building permit in Vancouver, the applicant must:

- Research their property to understand the site's zoning allowances
- Ensure there are not any additional trade permits needed for electrical, fire safety, plumbing and gas
- Apply for a permit and pay fees
- Wait for a decision and hopefully begin construction.⁶²

⁶⁰ We are pleased to note that during this research project BC Housing approached our HUB Cycling to guide them on improving cycling accessibility to their buildings.

This is often required to make any changes to the existing development, such as converting motor vehicle parking to bike parking. Other retrofits require applying for a development permit with the city and require waiting 8 weeks to 8 months for approval. A more streamlined permitting process, as discussed in the Recommendations section, can improve access to cycling infrastructure.⁶³

Other cycling advocates echo the need for easier and incentivized retrofit processes for bike storage in Metro Vancouver's older buildings. In 2018, B.C. Cycling Coalition executive director Richard Campbell suggested that the province could make it easier for landlords to develop better bike storage by providing a provincial-sales-tax rebate on construction materials used in creating bike storage.⁶⁴

Impacts of Car Parking Minimums to Bike Parking Retrofits

A 2016 memo to the Mayor and Council in the City of Vancouver acknowledged that the challenging retrofit process for bicycle parking to older buildings could be preventing an increase in cyclists. In 2016, 20% of survey respondents living in multifamily developments described their bike security and storage options as inadequate and with insufficient supply.⁶⁵

Additionally, many developments are required to meet a minimum number of available car parking spaces for building users. This car-centric policy reduces the number of car parking spots that can be converted for bike parking, and increases the complexity of the retrofit process. The City of Edmonton has set an exemplary precedent by removing parking minimums to maximize land use possibilities.⁶⁶

As mentioned previously, Vancouver's Climate Emergency Action Plan aims to remedy this barrier by eliminating parking minimums with the co-benefit of "further enabling bike parking retrofits".⁶⁷ The Action Plan also states that an expected outcome of eliminating parking minimums and simplifying the permit process is that "older buildings [will] elect to modernize their parking structures to better support walking and cycling".⁶⁸ The City of Vancouver intends to simplify the change-of-use application process in phase 2 of their Action Plan which started in 2021.

HUB Cycling encourages other municipalities to mitigate barriers to cycling accessibility improvements posed by retrofit and related requirements.

Barriers to Cycling for Occupants of Older Buildings

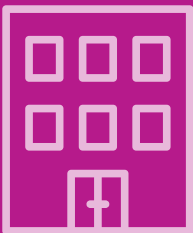


Photo credit: Tim Welsh

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Barriers to Cycling for Occupants of Older Buildings

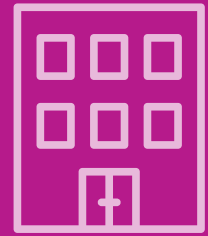


Photo credit: Peggy W.

Key Points

This section describes some of the most commonly identified barriers to cycling for occupants of older buildings in Vancouver, along with some opportunities and ideas to reduce these barriers. Our discussions with representatives⁶⁹ and occupants of older buildings highlighted many factors that affected occupants' ability to cycle, including:

Barriers related to building infrastructure and bike rooms:

- Insufficient space and size of cycling facilities in their building.
- Structural design that was not built to accommodate bikes or that is inaccessible to different bicycle types.
- A lack of cycling amenities such as tools and wash stations.

Barriers related to safety and security:

- Many participants have been affected by bike theft, often related to insecure cycling facilities.
- Many participants take additional measures to keep their bikes safe, such as bringing the bike into their unit or buying heavy-duty locks.

⁶⁹ Building representatives include building managers, owners, and other building staff. Building occupants include individuals who live or work in older buildings.

Barriers related to building policies and leadership:

- Many buildings adopted a “no bikes in the building” policy, which is barrier particularly for cyclists with insecure bike storage.
- Many building occupants felt that their building leadership was unresponsive to cycling-related issues.
- Barriers to cycling impact occupants of older buildings differently depending on a variety of factors, including but not limited to socio-economic status, disability, type of building occupant, and type of bicycle used.

The occupants of older buildings face many barriers to cycling and there is extensive demand to improve access to safe and secure bicycle infrastructure.



Building Infrastructure and Bike Rooms

It's no surprise that in a report focused on cycling and older buildings, building infrastructure is identified as a barrier to cycling access. The impact of this issue varied widely, as some older buildings have no cycling infrastructure at all (and limited capacity to add any), while others have completed extensive retrofits to accommodate bicycle infrastructure. With that said, the issues related to building infrastructure and bike rooms come down to a few key topics:

Space and Size

The most significant barrier identified in relation to space and size comes from participants whose home or office building simply do not have a bike room or adequate bicycle storage. In some cases, this lack of infrastructure results in participants cycling less, but more often the participants find other alternatives, such as storing their bicycle in their apartment or office. While this allows them to continue to cycle regularly, it can be quite inconvenient especially for those living in small apartments. An occupant of a social housing building with no bicycle storage describes the challenge of keeping his bike in his studio apartment:

“I would like to [have bike storage] ‘cause then I got some room. I have to bump into [my bike] every morning when I get up, when I go to the washroom. It’s kind of in my way because these are studio suites.” - Occupant Q, Burnaby

Similarly, an occupant of a Vancouver co-op explains the complexity of storing bicycles in a building with limited bicycle infrastructure, that does not allow bikes to be brought into the building:



“I live in co-op housing in an apartment building and we do not have space for biking, we don’t have a bike rack. Even though we have like more than 50 bikes in our parking, they are all doing like a domino. It will take me like 10 or 15 minutes to try to get my bike under the all the other bikes.” - Occupant D, Vancouver

Example from the Field: This image from the co-op described (left), shows where a bar was installed to lock up bikes, as they did not have space to accommodate a bike storage room.

This is an example of how barriers to cycling exist in situations where bicycle infrastructure is limited, which disproportionately affects individuals living in small apartment units. Beyond the most glaring issue where bicycle storage is simply not available, a common issue in buildings that do have bicycle storage is overcrowding or insufficient space. This often causes stress for bicycle commuters, as well as for occupants storing their bikes at home:

“The actual issue is capacity, like sometimes the [bike lockers at work] are so popular that you’re like ‘Oh my goodness, am I going to beat the rush and get to work early enough to get a spot?’ And at the building where I live, it’s just kind of a pain because you’re nervous about dinging people’s bikes. My bike is not that nice so I don’t worry about my own, but I can imagine folks who have more expensive bicycles would be nervous about having their bike staying in the shared parking.”

- Occupant B, Vancouver

These quotes highlight the ways that overcrowded bicycle storage often causes concern for building occupants, to the extent where they may choose not to use it. Many participants also noted that the quality of bicycle infrastructure generally decreases the further you get from Vancouver, which disproportionately impacts those who cannot afford to live in the city.

Structural Design and Accessibility

According to the occupants, many of the overcrowded bike room issues come as a result of poor structural design. Some participants discussed the challenges they experienced with trying to improve existing cycling facilities that are poorly laid out, such as this East Vancouver co-op building:

“It’s just a mishmash, there’s some hooks on the wall so people who have the physical ability to hang their bike a little higher and save some space can do so...So it’s been looking for creative solutions to, you know, both theft proofing and providing more space, not only for, as I mentioned, for cargo bikes, kids and adult bikes, even the possibility of scooters for the, for some of our mobility compromised people.”

- Occupant F, Vancouver

Once again, this alludes to the challenge of accommodating alternative bicycle types, which are increasingly common in the Lower Mainland.^{70,71} An occupant of an office building explains how his larger than average bike prevents him from cycling to work due to the structural design of the building:

“My office is located on West Hastings Street. It’s an old building and...it’s fourth floor without an elevator and quite narrow and steep stairway. So if you have a light bicycle, you can carry it with you, but my bike is a cargo bike, it’s longer than normal one. It’s also an electric bike...so yeah it’s just, I just don’t go there by bike because I know that, I’m not sure I’m able to get the bike up [without] scratching walls and things like that.”

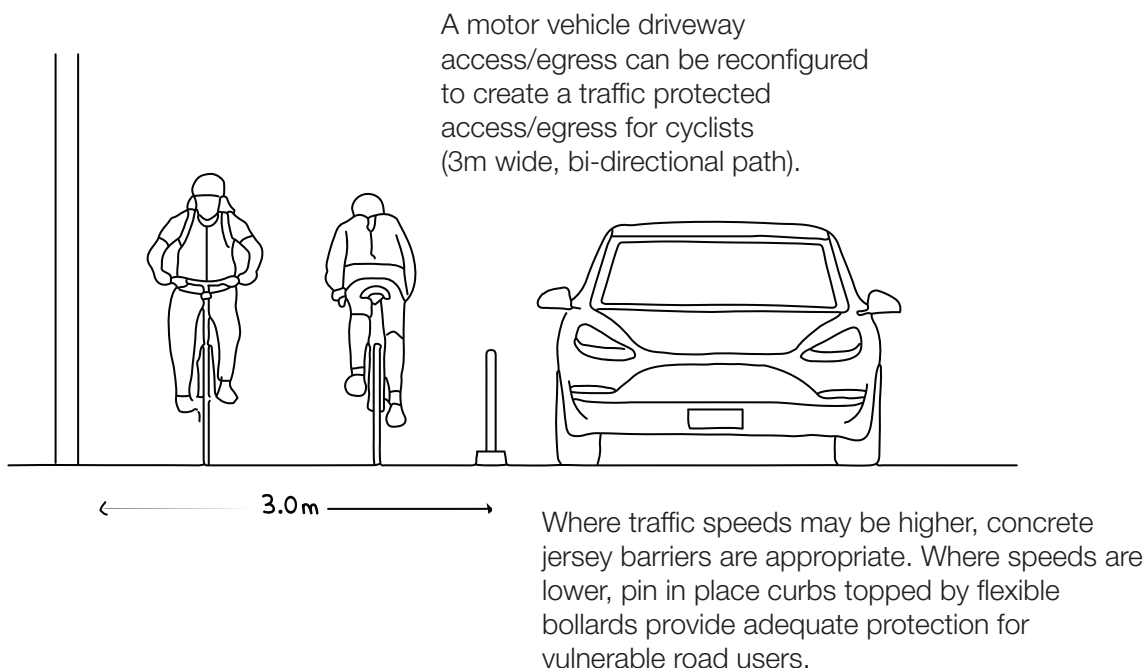
- Occupant A, Vancouver

Further to the structural design of bicycle infrastructure, such as bike racks and bike rooms, this quote illustrates how stairs with no elevator access can act as a barrier. The barrier is particularly challenging for bicycle users who have larger bikes or do not have the physical ability to navigate these tricky spaces. In addition to the challenge associated with stairs, participants had safety concerns about entering or exiting the building on their bicycle. Participants mentioned accidents that they had seen as a result of blind corners. Participants also expressed the importance of good lighting and bicycle infrastructure that is not tucked away. Visible bicycling infrastructure helps to promote the safety of the bicycle users. Another important design consideration is bicycle infrastructure that meets the needs of adaptive cyclists. Adaptive cycling expert, Jocelyn Maffin, explains how the structural layout of a building can create barriers for adaptive cyclists before they have even exited the building:

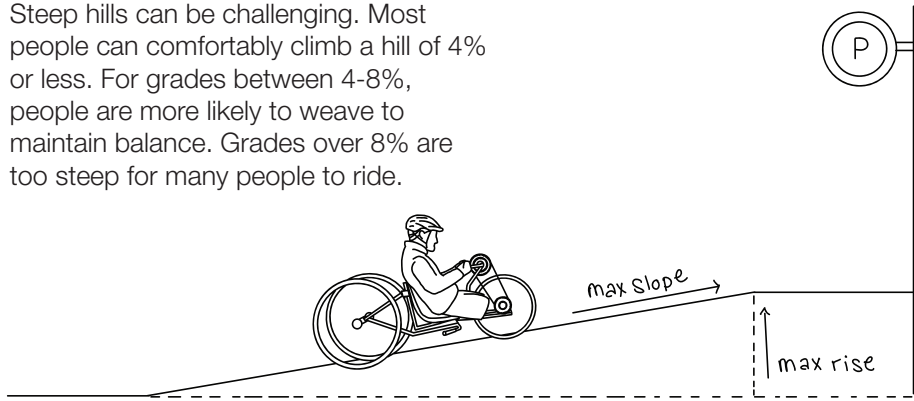
“For a lot of folks the biggest barrier to using an adaptive bike is the steep hill coming out of their parking garage...The only place that they can’t avoid and they can’t get up that hill, especially if they don’t have electric assist.”

- Jocelyn Maffin, Spinal Cord Injury BC

Best Practice Solutions to improve access into secure bike parking

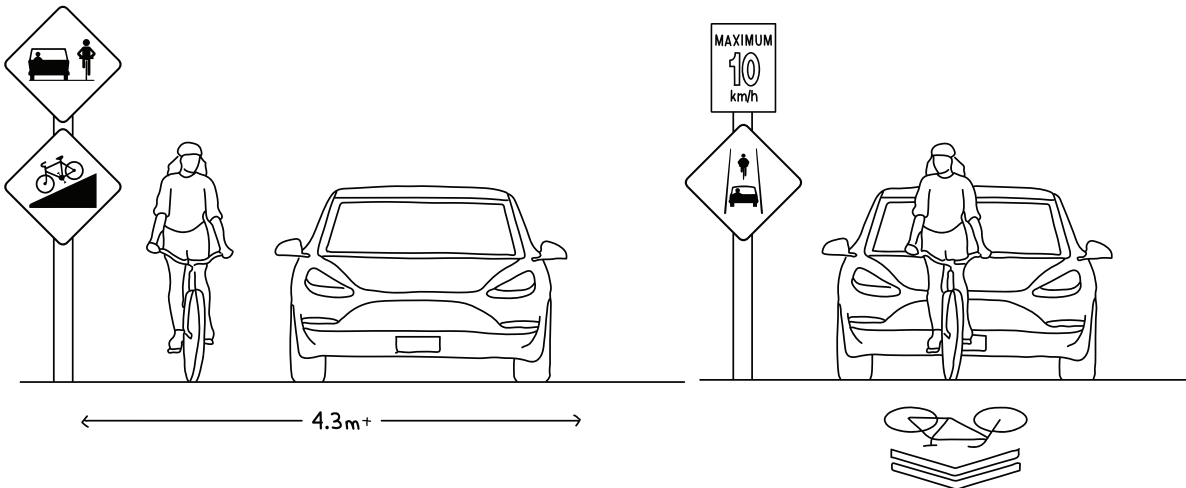


Steep hills can be challenging. Most people can comfortably climb a hill of 4% or less. For grades between 4-8%, people are more likely to weave to maintain balance. Grades over 8% are too steep for many people to ride.



Make sure cyclists don't have to cycle up steep parkade entrance ramp (this is a major barrier for adaptive cyclists).

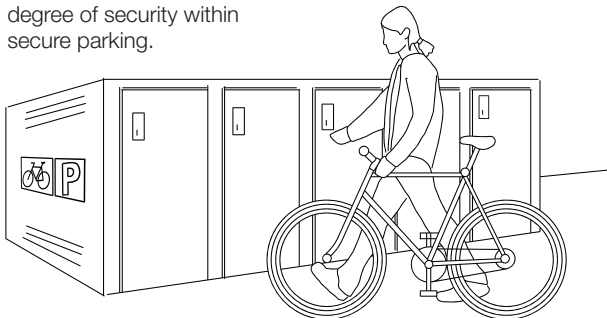
Where steep grades are required, intermittent landings of over 2 metres should be provided every 9 metres to maintain an effective grade of 8.3%.



On uphill ramps where cyclists and motor vehicles can not be physically separated (lanes of 4.3-4.8m) encourage bikes and motor vehicles to travel side by side.

In most circumstances within parking lots where cyclists can not be physically protected from motor vehicle traffic, encourage single file travel and slow travel speeds using signage and pavement markings to highlight the path that cyclists are likely to take.

Provide secure bike lockers for those who wish to have a higher degree of security within secure parking.



Minimize the number of doors that cyclists must go through to access secure parking, or automate each of the doors.

Where access to secure parking is unattractive to some or insufficient, supplement with secure lockers at the exterior of the building.

These quotes demonstrate how the structural layout of the bike room and building can present challenges for occupants of older buildings that were not originally designed to accommodate bicycles. Many participants agreed that even when bicycle infrastructure is added to an older building, it is not always done efficiently. A Vancouver resident suggests that additional resources or best practices to support the logistics of bicycle infrastructure upgrades could be beneficial to those looking to implement changes:

“The actual functionality of biking infrastructure is rarely well executed. It’s like the bike racks that get installed so you can only use half of it because they put it against the wall, instead of perpendicular to the wall so you can pull apart from both sides, like you just see that all over the biking infrastructure because there’s not good guidance...I feel like there could be a lot done on guidance to make it easy for people to do the right thing, as opposed to each having to figure it out for themselves.”

- Occupant L, Vancouver

Cycling Amenities

While a lack of cycling amenities rarely stopped study participants from cycling altogether, cycling amenities are appreciated. Participants often felt that good cycling amenities encouraged them to ride their bikes more often. An occupant of an East Vancouver office building describes some of the amenities offered to support bicycle users in the building:

“Adjacent to the bike parking are change rooms with a few showers and lockers and what-not and I believe they even have towel service so... there’s also a separate drying room, which has been kind of cordoned off, like a larger closet where if you ride in in the rain you can hang up your wet gear. I believe even every few months they hire Velo Fix to come in and they’ll provide free bike tuneups for the employees within the centre here. So actually, they really do promote a lot of cycling infrastructure within the building.”

- Occupant H, Vancouver

This quote highlights an example of a building that goes above and beyond to provide cycling amenities for the occupants. Unfortunately, buildings that go to this extent to provide cycling amenities were in the minority in this study, as many participants identify a lack of cycling amenities, particularly in residential buildings:

“One thing that we don’t have [in our bike room], which would be simple, would be a communal bike pump...A lot of new buildings I see, they have like these racks where you can pop your bike up and they have the necessary like, simple tools to do quick fixes on your bike, it’d be great to have something like that. I have a bike pump, I give it to my neighbours all the time, going to pump up their bikes for their kids and stuff right so that would be great to see...” - Occupant C, Vancouver

As the occupant above points out, some of these cycling amenities are relatively easy to provide and could go a long way toward not only making bicycle users feel supported, but also to improve their overall cycling experiences. For example, an occupant of a downtown Vancouver residential building explains the additional maintenance required on her bicycle due to a lack of available amenities:

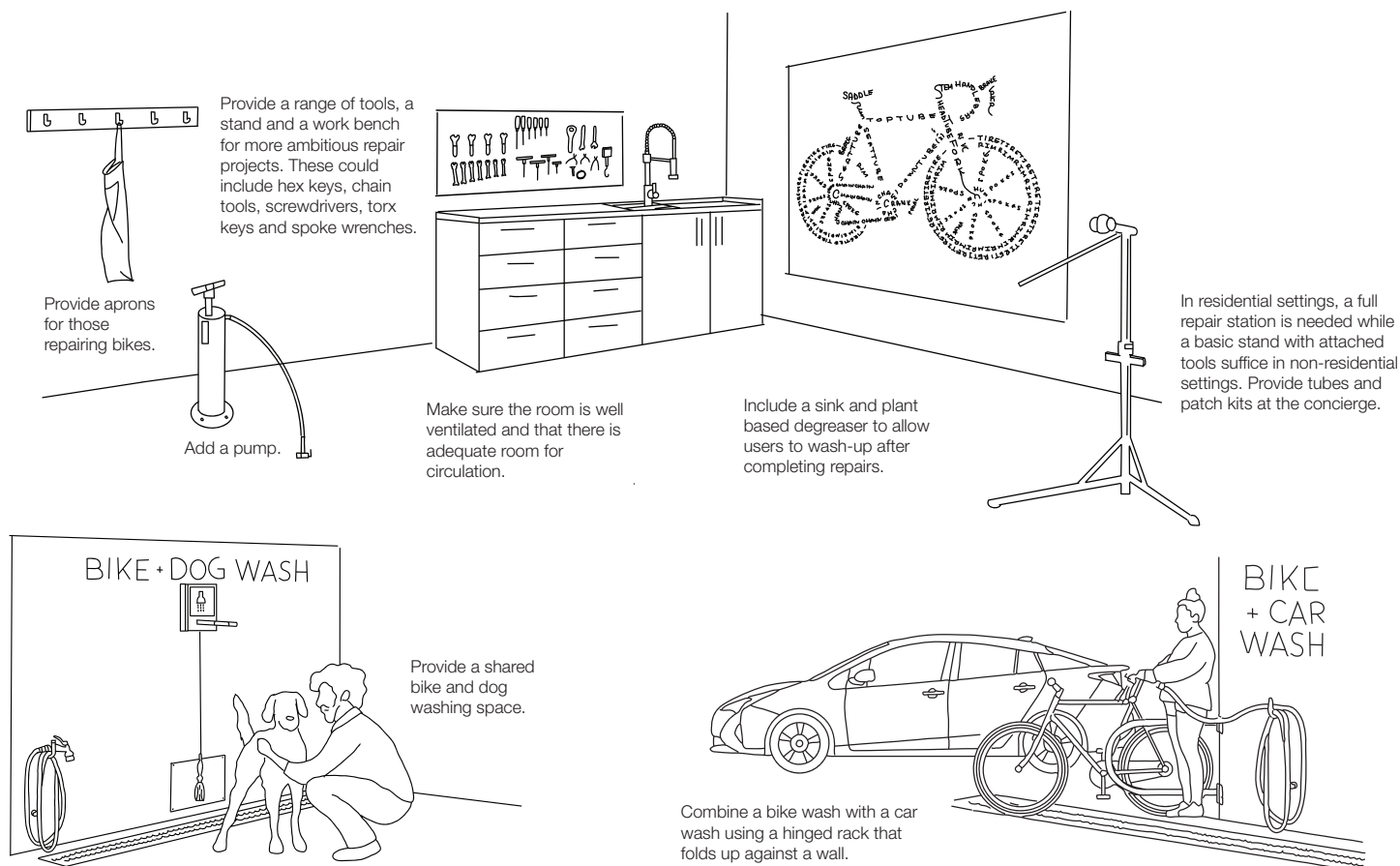
“I don’t have access to a hose [so] I can’t wash my bike. I rode it all winter and I basically replaced my entire drive train because the salt and everything just chewed it up. And so I started looking into like, how can I keep my bike clean and maintain it better...there’s no services in the city or anywhere that you can go and just like [use] a hose for my bike...so I’ve been doing it like, persevering by doing it with like water bottles and stuff but it’s it’s really far from ideal.” - Occupant J, Vancouver

The issue of weather damage is likely to affect most all-season bicycle users and it presents an even bigger challenge for those without secure, covered bike storage. For example, occupants who have to store their bicycle on their balcony due to lack of space.

The quotes above illustrate a range of cycling amenities that could be provided for bicycle users to improve their overall cycling experiences. The amenities identified by participants ranged in complexity. There were simple items, such as providing a hose and installing a bike pump, and slightly more sophisticated installations, such as providing charging outlets for e-bikes or upgrades to end of trip facilities. Regardless of each building's capacity to upgrade cycling amenities, occupants have made it clear that even minor updates to cycling amenities can have a positive impact on their cycling experience.



Best Practice Bicycle Maintenance and Washing Facilities





Safety and Security

Of the building occupants we spoke with throughout this project, all had some level of concern or personal experience with issues related to safety and security. As highlighted in this report, bicycle theft is a pervasive issue in the Metro Vancouver area. Bicycle theft disproportionately impacts bicycle users who do not have access to secure bike parking. This section will describe how occupants of older buildings are impacted by theft and inadequate security. This section also offers some ideas and strategies related to theft prevention.

Impact of Theft/Inadequate Security

In discussing the issue of safety and security, 47% of building occupants identified instances where either they had personally had their bike stolen, or they had heard of bike theft in their residential or office building. Out of nine building representatives that were interviewed, all but one had dealt with at least one instance of bike theft in their building. A number of building occupants described how their experiences with, or concerns about, bike theft affected their cycling habits:

“I lost the back tire of my bike locked to a rack right outside the security desk [at my office]. Like, it’s a posh building, there

are always two security people on duty. But that’s Vancouver...I personally haven’t upgraded my bike, also for the reason of if it gets stolen or when I occasionally lose, like the seat, or a wheel, or something like that because I forget to get everything into my U-lock and my cable lock. It’s a definite big factor in how I choose, and when I choose to cycle is, because it’s still, even if it’s a cheaper bike it’s still a giant pain to replace things that get stolen.” - Occupant L, Vancouver

“Just the other day I wanted to go watch a movie at Scotiabank theater. I walked, I thought about riding but I walked because I don’t want to leave my bike up there for two hours. And I was like, man, wouldn’t it be great if they had [bike storage] inside? Um, yeah it’s just like, anytime I’m doing something in the evening I’m not gonna take my bike. I just won’t, if it’s the middle of the day when I know it’s like oh, I’m just gonna go for lunch or something then maybe, but it’s still, I want to hopefully lock it somewhere that I can see it, so I can glance over at it. I mean that that speaks to just bike theft as a general issue...it’s such a rampant issue and it doesn’t matter how much lock you have, if they have enough time. And yeah, it’d be great if, like, commercial buildings or other places that you might want to go actually had more than visitor racks outside.” - Occupant J, Vancouver

These quotes demonstrate how bicycle theft and inadequate security impact participants’ thoughts, habits, and behaviours. This includes what type of bike they ride, where they ride, and how often they ride. While each building occupant had some level of concern over the safety and security of their bicycle, these concerns were amplified among certain equity-deserving groups, in particular those who were facing financial barriers. For example, an occupant of a social housing building in Downtown Vancouver explained the impact of bicycle theft and inadequate security on the residents of his building:

“I don’t want to lose any more bikes, the tenants there don’t want to lose any more bikes, you know? My main concern is just worrying about them. I want them to feel safe to be able to bring their bike downstairs, because we’ve got more than enough room in both storages, but security-wise, it’s not there... These people that live in this building spend their hard-earned money to get a bike. And, to have it get stolen and to have our managers not really care...And that’s the other thing, too, is um, locks aren’t cheap. The chains, the Kryptonite chains that I got, they were like, a hundred dollars a piece...there are some people in our building that are on disability or social assistance that can’t spare money to buy these expensive locks.” - Occupant S, Vancouver

Similarly, Jocelyn, of Spinal Cord Injury BC, explained that the minimum cost for an adaptive bicycle is \$2,000. This makes secure bicycle parking for adaptive cyclists an even greater concern given that there is no option to simply use a cheaper bike as some other participants discussed. Combining the cost of adaptive bikes with the increased amount of space required to store them securely presents a significant challenge for adaptive cyclists occupying older buildings.

Theft Prevention

As a result of the concerns related to bicycle safety and security outlined above, many interview participants take additional security measures to prevent theft, including both personal measures taken by building occupants and broader measures taken by building representatives. In terms of personal measures to avoid bicycle theft, if bicycle users are allowed to take their bikes into the building, many building occupants choose to keep their bikes in their apartment or in their office. An occupant who lives and works in older buildings in Vancouver describes her approach to bicycle theft prevention:

“I keep my commuter bike in my storage locker, I don’t lock it up to the bike racks just because I feel like that’s probably more secure, but my road bike I keep in my unit, because I definitely don’t want that getting stolen and I just don’t feel comfortable locking that up anywhere outside. Same at work...the odd days I’ve had to ride my road bike into work and I actually brought it into the office by my desk because I just felt more secure and I got in trouble for doing that because they didn’t want bikes in the building, even though, you know it’s a huge building, it wasn’t scraping anything up. And so I locked it downstairs but I didn’t feel good about locking my road bike down there.”
- Occupant K, Vancouver

While this occupant - along with many others - often keep their bicycles in their unit for safety reasons, some occupants of small apartment units point out the amount of space taken up by their bicycles as a downside of this strategy. This becomes a greater challenge for adaptive bicycle users who also have to navigate elevators and heavy building doors in order to safely store their expensive bikes in their unit.

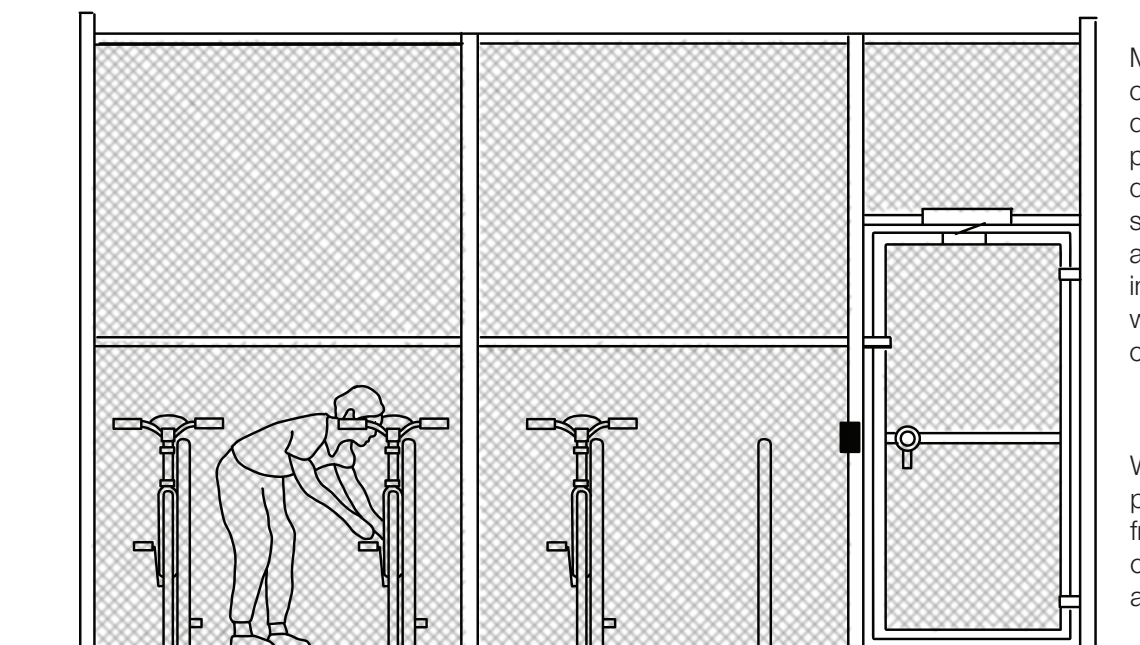
Another personal measure that several building occupants discuss is the use of heavy, durable locks that are more difficult to break into, such as kryptonite

chains or multiple U-locks. However, this comes with its own set of challenges as described by a resident of an older residential building in Mount Pleasant:

“I always lock [my bike] up with two U-locks to secure the frame in both wheels. And I generally feel fairly safe with the double U-locks...but it sucks carrying around two U-locks. I did manage to find one that’s fairly lightweight but the other one...I swear it’s like 20 pounds, it’s a bit of a beast, but it does leave me feeling pretty secure.” - Occupant M, Vancouver

In terms of security measures associated with the building, many building occupants and representatives stressed the importance of having two levels of security to access the bicycle storage, such as a gate and a keycard. Occupants generally feel more comfortable with fob or card-based entry to bicycle storage areas, as opposed to keypads or code-based entry:

“The keypad idea with the cage, it’s great but if they don’t change that code, the code’s around forever and people can eventually get into it. My last workplace, my friend had his bike stolen. It was definitely not through prying open the door with a bar, cutting the cage or anything like that, it was accessed with the keypad.”
- Occupant H, Vancouver



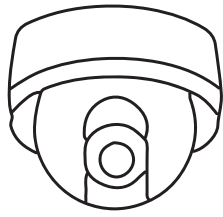
Make sure the hinges on gates and doorways are tamper proof and use heavy duty fencing with small apertures that allow people to see into an enclosure but which are difficult to cut.

Where possible, provide secure, hands free access involving a card or fob based key and automated doors.



Example from the Field: A retrofitted secure bike cage in a 1960s commercial building in Downtown Vancouver featuring floor to ceiling mesh and security bars, good lighting, hands free access, and properly spaced, horizontal racks

Building occupants and representatives identified security cameras as another possible security measure. Although this topic was discussed at length, there are mixed views on the effectiveness of this approach. Some participants feel that security cameras are vital to theft prevention, while others argue that security cameras do not deter theft and that little can be done to secure stolen bikes, even when footage of a break in is captured on camera. Some suggestions to enhance the effectiveness of security cameras include having security cameras that are actively monitored and installing an alarm that sounds if the bicycle storage is breached.



Include CCTV cameras and regular security patrols.



Best Practice Example from the Field: A retrofitted bike cage at a downtown Vancouver office building, where they added an alarm system to enhance security.

There was limited consensus among participants about the ‘best’ ways to avoid theft despite extensive conversations related to security and theft prevention. Equally, patterns related to theft were few and far between through our site visits. Many bicycle storage areas that appeared quite secure had experienced more issues with theft than others that appeared to be less secure. One noticeable pattern is that residential buildings seem to experience more bicycle theft than day-use buildings, such as offices or commercial space. This suggests that bicycles may be at higher risk of theft overnight or in areas where there is less passive observation. Considering the extent of concern and impact of theft on building occupants in the Metro Vancouver area, the specific patterns and best practices to prevent theft would be a valuable area for future research.



Photo credit: Chelsea Krahn

Building Policies and Leadership

An important consideration beyond the physical infrastructure of older buildings, is how building policies and leadership can act as a barrier (or facilitator) for occupants' cycling habits. In this section, we outline building policies that impact bicycle users, as well as the importance of occupant advocacy and communication between building representatives and building occupants.

Building Policies

The most common building policy that poses a barrier to bicycle users is the “no bikes in the building” policy. This policy is commonly used in both residential and office buildings to prevent damage to the walls, elevators, and doors from contact with bicycles. Generally, buildings with this policy prevent occupants from storing their bicycle in their unit, on their balcony, or in their workspace. The following discussion from one of the focus groups outlines the impact of the “no bikes in the building” policy, particularly for individuals with expensive bicycles:

Occupant A: I noticed in my previous building, it was prohibited to keep your bike in your apartment and using elevators for it. People with expensive bikes, they still have to take it home, they don't trust the storage room when it's several thousand dollars, I guess. Yeah I think people have to violate the rules, because they don't feel safe.

Occupant B: I think it's the same in my building. I think we're literally not allowed to keep them like on our balcony or in our unit, so that's why they provide the bike parking for free. But I know people with like, nice bikes and downhill bikes and stuff keep them in the storage locker, which I find interesting, like separate from the shared bike parking.

As alluded to in the previous section, occupants experience issues with this policy in their workplaces as well. One occupant in particular describes how the sudden implementation of the “no bikes in the building” policy in his Vancouver office building significantly impeded his ability to cycle commute:

“...somewhere like last September partially due to COVID, partially due to public transit, personal health all that stuff I decided to commute by bike all the time... and then you know about a month or two after I started doing that we got an edict by someone high up in the company that said ‘no more bikes in the building’. And I just bought an e-bike and there was no way I’m going to leave it to the vultures and so that was kind of crushing actually... there is no adequate [bicycle storage] facility, they have a dumb little bike rack and it doesn’t fit my tires...I approached the decision maker that said, no bikes in the building and I said, this is, you know a problem for me and he just said, ‘well that’s too bad that’s the policy now’ and that was that. So, that person left the company and now I’m bringing my bike again, but I have no recourse (pause) legally if they say the same thing again.”
- Occupant N, Vancouver

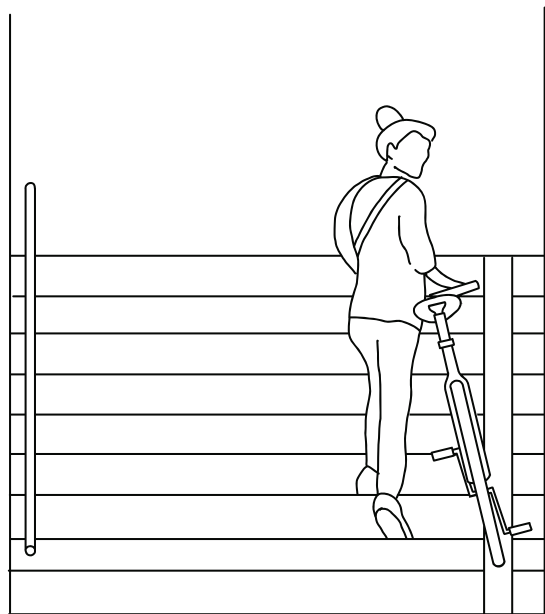
Some occupants impacted by this type of policy suggest that the Metro Vancouver area, or even the province of British Columbia, should implement a policy to protect bicycle users from these restrictive building policies, similar to the New York Bikes in Buildings Program.⁷² The rationale behind this type of policy is that it provides a level of agency to building occupants who generally have limited decision-making power in this type of situation. It is important to note that, depending on the ownership model of the building, bicycle-related building policies impact some building occupants more than others. For example, renters in residential buildings often feel that they have very little say over the decisions made about their building:

“Like our building right now...yeah it’s really up to the landlord and whatever he says is the law. So what can you do when you talk to him, he’s just like ‘yeah if you don’t like it move out’. And we’ve been living here for six years now, so our rent was locked in six years ago. So now, they will be so happy to see us move out so they can increase \$500 right away, so they are not addressing our needs at all it’s just a ‘yeah if you’re not happy, move’. So yeah there’s not, I don’t really see how it can pan out differently, without like you know, like by law or something like that.”
- Occupant P, Vancouver

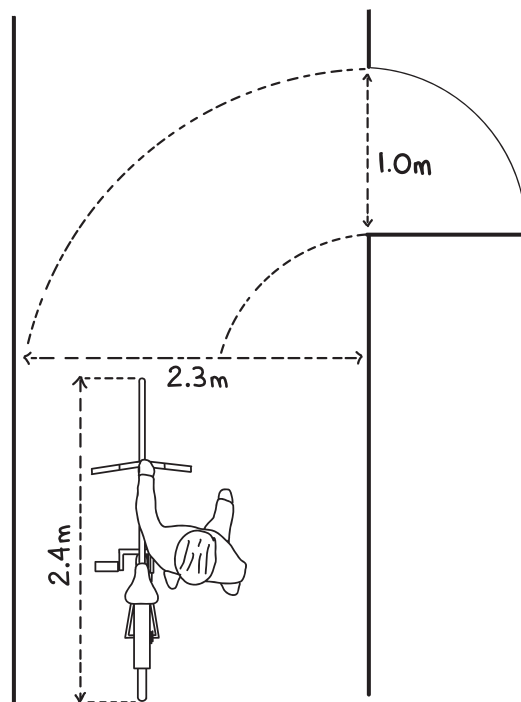
Other occupants spoke of similar experiences when renting a unit in a strata building. While homeowners in stratas have limited decision making power, due to democratic voting in strata councils, renters have even less decision making power because they are not able to vote in the strata council to influence decisions. This type of power imbalance is important to take into consideration when examining issues of equitable access to cycling, particularly with the steep rise in housing costs that the Metro Vancouver area has seen over the last several years.

⁷² The [New York Bikes in Buildings program](#) “requires commercial office buildings to allow cyclists to bring bicycles into their office by elevator, upon request”

Best Practice Design Work and Dwelling Spaces to Accommodate Bicycles

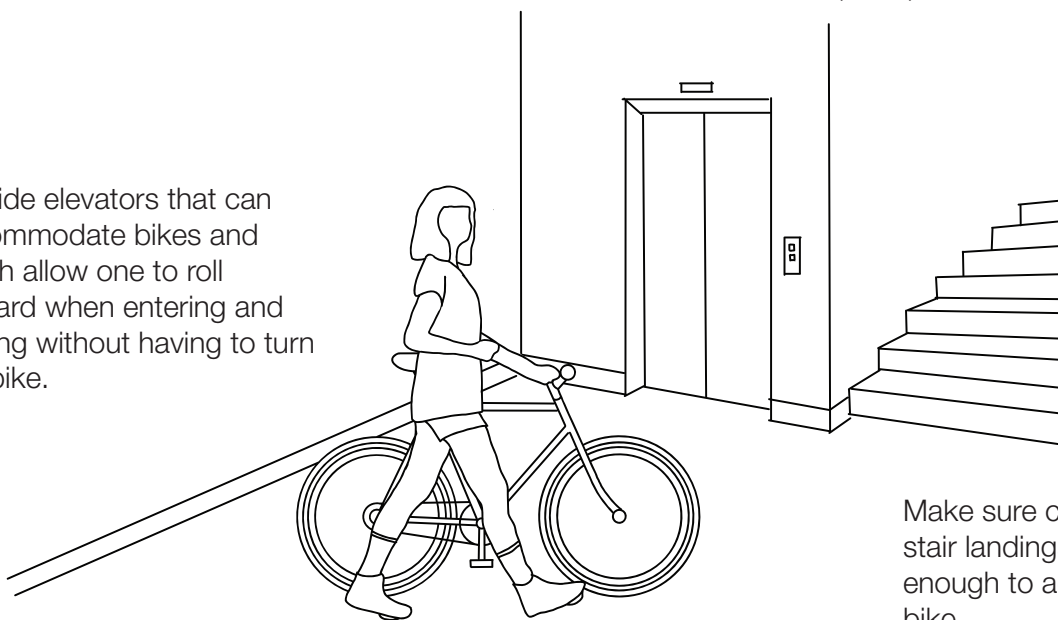


Provide runnels on stairs so you can roll bikes up and down.

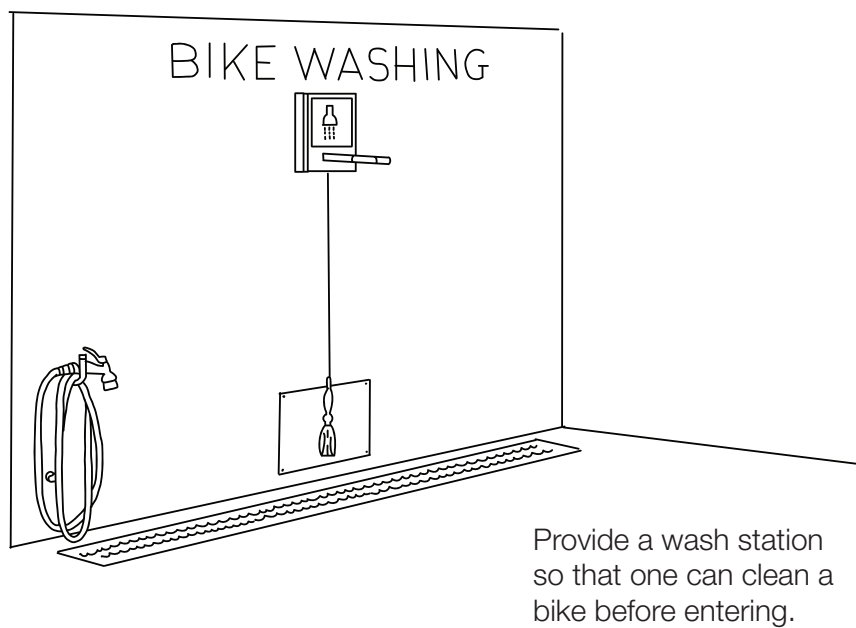
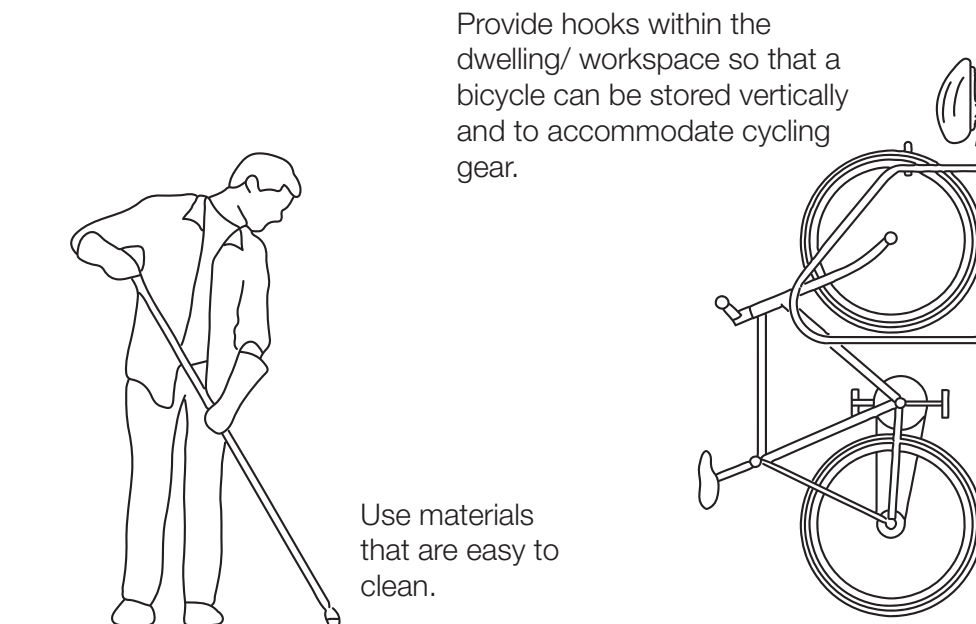


Make sure hallways are large enough to accommodate oversized bikes (2.4m).

Provide elevators that can accommodate bikes and which allow one to roll forward when entering and leaving without having to turn the bike.



Make sure corners and stair landings are large enough to accommodate a bike.



Communication and Bicycle Advocacy

Through our discussions with building representatives and building occupants, we often noticed a gap in communication between these groups. For example, building occupants often felt that building representatives were not responsive to cycling-related issues, while building representatives perceived that building occupants were not overly concerned with cycling-related issues. As the next section demonstrates, demand for cycling upgrades has a significant impact on decisions to improve cycling facilities. However, our perception is that this demand from building occupants is not always communicated to building managers or representatives.

With that said, there were instances where the impact of building managers' support (or lack thereof) for bicycle users was quite evident. In particular, occupants of office buildings appear to have more leverage in this area, as an occupant of a variety of Metro Vancouver area offices over the years describes:

"My previous building in Burnaby, it had an okay bike facility, there was a small room that you could enter through the parkade. It was relatively well maintained, but the building actually got sold and then the new building owners, they immediately shut down, like the shower facilities, it was clear that they just didn't want to spend the money to maintain it. Like they took away the lockers in the bike room, which was useful for storing stuff like towels for a few days or extra clothes or whatever you needed right so it's kind of like all the cycling community in that building was not so happy because it was decent infrastructure that they had basically kind of pulled back so...My company ended up moving into [a new building] as opposed to signing a new lease with the new managers so I can't say it was all because of the cycling infrastructure, but it was probably

**like something to consider, right, because we have a lot of cyclists at our workplace."
- Occupant H, Vancouver**

This quote demonstrates not only the importance of supporting cyclists, but equally, the importance of cyclists voicing their concerns related to bicycle infrastructure and amenities. We were encouraged by the proactive approach taken by a number of interview participants to address bike access deficiencies in residential and office buildings. For example, the occupant who was told he could no longer bring his bike into his office building has taken the initiative to advocate for cycle commuters in his building:

**"I've joined a sustainability committee at work, which is a new thing that we're all doing. And so [the New York Bikes in Buildings Program] is one angle I'm trying to push to allow bikes in the building...I've brought it up and we've just kind of started in the last month so it's, it's in the works and we're going to be bringing that to the head of the whole company and so we'll see where that goes, but I'm very hopeful."
- Occupant N, Vancouver**

These examples emphasize the importance of having leaders in older buildings who will advocate for bicycle users. Through discussions related to community, we noticed that buildings with cycling leaders, people who showed support for cyclists and bicycle infrastructure, often had a stronger cycling community than those who did not. For example, the newer mixed-use complex, referenced above, has extensive bicycle infrastructure. This infrastructure includes secure bicycle storage, end of trip facilities, and tools for basic maintenance. These cycling facilities and amenities seems to have an impact on the cycling community:

“The [building complex] as a whole, including my company, there’s quite a vibrant community of cyclists here. Each storage or bike cage would probably hold 15 to 20 bikes. Pretty much every day, all the cages that I pass by have at least a few bikes, some of them are full with up to maybe 20 bikes in a cage. I see all sorts of different types of bikes commuters, road bikes, cargo bikes, electric bikes. So I think the facilities are really well used here.” - Occupant H, Vancouver



Example from the Field: The newer mixed-use complex (referenced above) has spacious bike cages with high-quality racks and provides modest amenities such as a stand, tools and a bike pump for building users.

In contrast, occupants of buildings with comparatively limited cycling facilities often described minimal cycling communities within their building. Specifically, many residential building occupants noted that while their bike rooms are full, they rarely see these bicycles being used. Perhaps not surprisingly, this suggests that buildings with better cycling facilities may encourage bicycle users to ride more often and, by extension, lead to a more robust cycling community.

Barriers and Motivators to Updating Cycling Facilities in Older Buildings



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Barriers and Motivators to Updating Cycling Facilities in Older Buildings



Key Points

- **Some older buildings are better positioned to make cycling facility upgrades than others.**
- Older buildings with greater resources, more time, and extra space, are likely to have an easier time retrofitting their buildings with cycling facilities than older buildings with fewer resources.
- Residential buildings often need the most support in offering cycling facilities for occupants.
- There is a significant demand in older buildings for accessible and secure cycling facilities that cater to a range of bicycle types and mobility devices in older buildings.
- **Building managers and owners are motivated to provide cycling facilities when:**
- There is occupant demand. There is often an increase in demand during the summer months.
- They wish to ensure that buildings keep up with future demand for cycling facilities.

These factors impact whether upgrades take place and contribute to an inequitable distribution of cycling infrastructure in older buildings of different types and eras.

This section builds on contextual information from the previous section about retrofitting bicycle infrastructure in older buildings. This section explores barriers and motivators to updating cycling facilities that building representatives encounter. A variety of potential improvements to cycling infrastructure are available to building representatives. Some hope to add minimal bike facilities, like bike racks in an underground parkade. Other building representatives plan elaborate renovations and extensive end of trip facilities in their buildings. Within the broad range of situations we encountered, three main factors - cost, space, and time - impact whether cycling facility updates take place. In the following sections, we elaborate on these factors and discuss motivations for building representatives to upgrade cycling facilities.



Plans for Future Upgrades

Every building representative we interviewed is concerned with cycling facilities. While some building representatives were content with their building's current bike storage, most expressed a desire to either update or add cycling facilities. We heard about a variety of plans for future upgrades, including smaller upgrades, large retrofits, and upgrades to cycling amenities.



Photo credit: Megan Stenftenagel

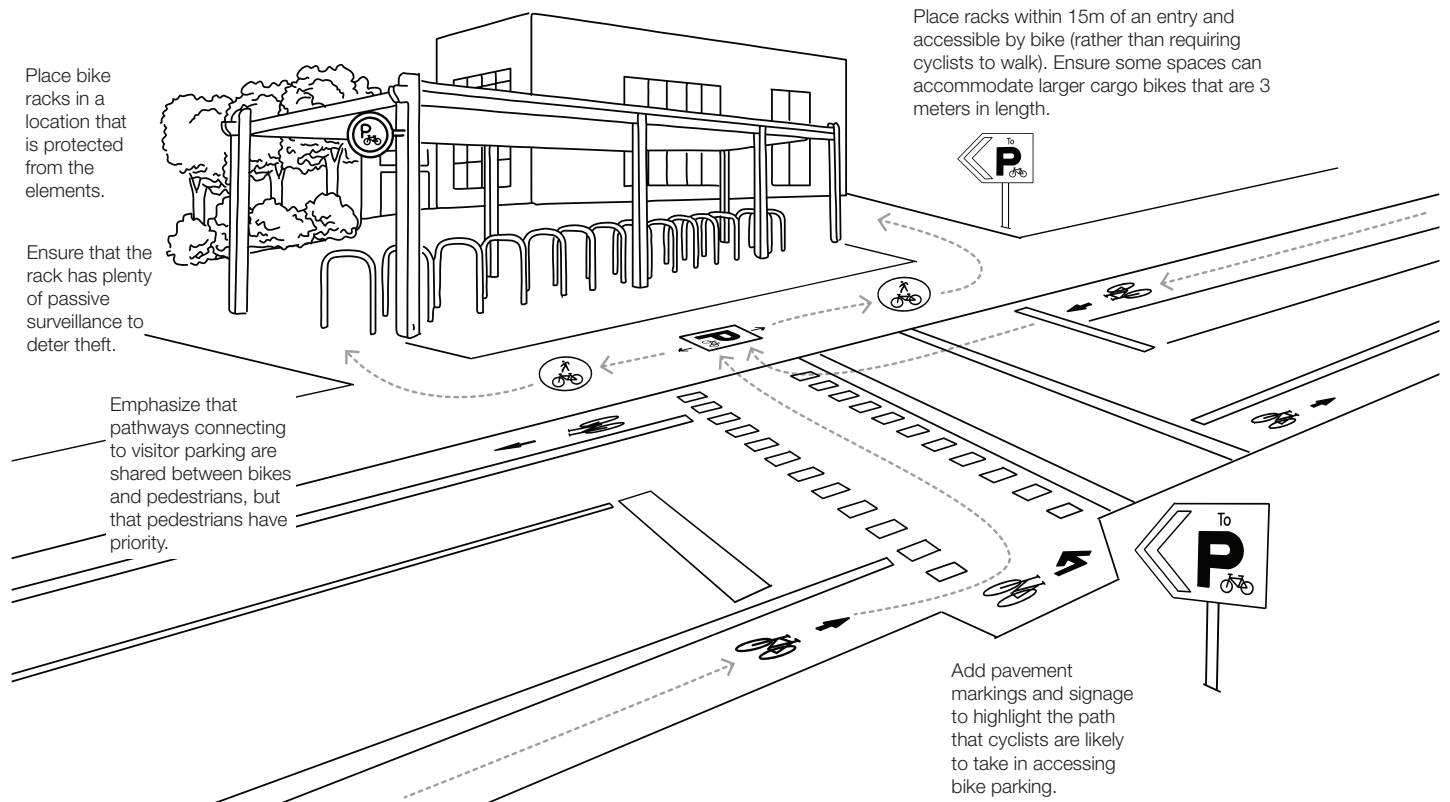
No Current Facility Upgrades

One building representative we spoke with manages an industrial property in East Vancouver with no cycling facilities. She spoke about options for the building's cycling facilities:

There's a back courtyard that's not covered but...a lot of tenants go there and... it would be so cool if we could have a little enclosed area ...where people could put their bikes, but I don't know if that's, you know, industrial properties don't always have the budget that offices do. - Building representative D, Vancouver

While this representative hoped to add cycling facilities to the courtyard of an industrial building, which can be a good alternative to indoor or underground parking where passive observation is available, she notes financial challenges, especially in comparison to office building budgets. In general, we found that office buildings, and especially larger office buildings, are more likely to have a budget to spend on cycling facilities compared to other building types, such as industrial and residential properties. We consider this one example of a cost-related barrier to equitable cycling facilities in certain buildings.

Best Practice Low Cost, Weather Protected Bike Parking





Upgrades to Current Facilities

Some buildings had cycling facilities that were overcrowded or disorganized. An occupant of a co-op in East Vancouver, who spoke about the bike room in his building being a “mishmash”, had some ideas for finding more space for bike facilities in his building. He would like to add additional bike storage to adequately fit the range of bicycles and mobility devices that crowd the current bike room:

So we thought of this notion of... alienating one or two parking stalls, and creating a large, secure enclosure. Secure being enclosed, because virtually anything can be busted into, but that would take care of those [bicycle] trailers I talked about, some of the other cargo bikes that are possible, and electric scooters, for some of our older residents, as well as mobility scooters for older residents. - Occupant F, Vancouver

While occupants of buildings like this co-op hope to find extra space, others aim to add cycling amenities to existing bike facilities. A maintenance manager at

a social housing building in downtown Vancouver explains:

I’ve had lofty ambitions of installing a work bench so that tenants could kind of maintain and work on their bikes, but there hasn’t really been, there just hasn’t been the time. - Building representative J, Vancouver

This quote alludes to the challenge of finding time to make bike-related upgrades. Many building representatives faced this challenge, as we will further explain.

While some upgrades to current facilities are minor, other upgrades are more extensive, as outlined in the following case study:

Case Study: Major Upgrades to Current Facilities

Location: West End, Vancouver

Building Type: Apartment

Building Age: 54 years

Scenario: A major bike room retrofit occurred as part of a concrete restoration project that led to code-related required upgrades.

Example from the Field: The West End rental building (referenced above) has created a makeshift bike room out of two empty parking stalls while they wait to upgrade their cycling facilities.

The building manager of this West End apartment explains how major bike upgrades came about unexpectedly in his building:

So the restoration project was generally to do the concrete, but then when you did that you pulled the permit. Then they recognized that the bike, the bike room that we had was maybe about 30 years [old and] it was made of wood, doesn't make code. So you gotta pull that apart. Then you have to put a certain type of bike stall...or bike racks, you have to use their particular bike racks. They have to be a certain distance. You get the idea, right? - Building representative I, Vancouver

While the extent of these upgrades were



beyond what this building representative originally pictured, he did have plans to upgrade the bike facilities before this issue arose. When asked if improving the bike room was on his list before it became mandated by code, he said:

Most definitely. Because [the old bike room] was just getting overwhelmed with bikes. People would leave them there. So I was already just beginning to... assign certain racks to certain people. -Building representative I, Vancouver

This bike room upgrade project was a long and involved process, but the building manager felt that was worthwhile for the sake of the tenants. When completed, there will be four bike rooms, a workbench and bike stands for completing repairs, and an area for washing bikes. The building manager explains, "I think it's going to be, when it's done it'll be very feasible, practical. I think people will be very happy with it. 'Cause it's a place that we all could use."

Barriers and Facilitators to Upgrading Cycling Infrastructure



Photo credit: Megan Stenftenagel

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Barriers and Facilitators to Upgrading Cycling Infrastructure



Photo credit: Tim Welsh

Building representatives, and sometimes occupants, described a range of ideas and hopes for improving or installing cycling facilities in their buildings. As alluded to in the previous section, some bike-related upgrades were feasible while others posed significant challenges. This section explores barriers and facilitators to upgrading cycling infrastructure.

Cost

Issues related to cost greatly impact the likelihood of bicycle facility upgrades. Allocating a budget for cycling facilities emerged many times in our discussions with building representatives and occupants. For those in social housing buildings and co-ops, cost was often a primary barrier. For example, a social housing tenant in Burnaby explains inadequate funding to implement a bike room, despite demand:

I'm sure a lot of people talk to [the building manager] all the time and there's been

discussions and all that. And he's put it on the back burner and (pause) 'cause it's limited funding, you know. [He's not] going to put a storage locker for bicycles so I don't think there's no, there's no money for that...Who's [the money] going to come from? Where's the money going to come from to build a locker? - Occupant Q, Burnaby

Similarly, the building manager of a South Vancouver co-op explains that there are many pressing issues that require money from the budget before bicycle facilities can be addressed in older co-ops, including one that she manages:

Older co-ops means that they've probably just ended um their mortgages with CMHC⁷³ and now because they're so old and a lot of them have building envelopes, that's where all their money is being focused on is major upgrades to plumbing, to building envelopes, suite upgrades that are probably 40 years old. That's where they're focusing, whether or not they're going to focus money, I mean [bike-related upgrades] might be in their plan, one of their wish-list things...At the end of the day, by the time they come down and do all the repairs there's no money left and it's just like 'well, just lock them up in the- on the railings in the garage' (laughs)...Here, they've got a lot of issues with building envelope so that's where all of their energy is focusing on just dealing with that, not bikes. - Building representative B, Vancouver

Older buildings that were slated for redevelopment were also unlikely to spend money upgrading bicycle facilities. A building representative of an industrial property in East Vancouver explains why it may not be a good idea to put money towards implementing bike facilities when the building will be redeveloped in the future:

[There are] barriers at industrial properties or smaller older buildings that are set to be re-developed. The mentality is that, you know, you're trying not to pour a bunch of money into something that's just going to be knocked down. And so that's why there's often not a lot of upgrades or amenities built in. Like you know, a covered

bike secure bike area. So the barrier, budget's always a consideration. - Building representative D, Vancouver

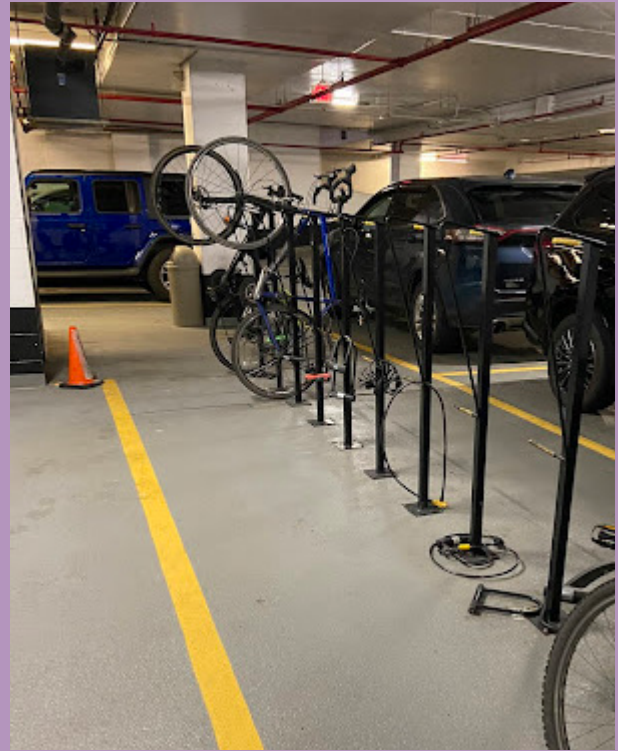
As outlined above, a number of cost-related barriers may prevent cycling facility upgrades, causing occupants of these buildings to search for alternative bike storage options. As the previous section states, when bike storage is not available, many residential occupants have no option but to store their bikes inside their suites, which do not always have adequate space. In other instances, occupants use other forms of transportation to avoid locking their bike in a place where theft might occur.

In contrast, some building representatives explained that they successfully improved bicycle facilities and kept costs reasonable. In two downtown Vancouver office buildings, building representatives explain that, for them, installing bicycle facilities in parkades was relatively cost-effective:

You can see we didn't spend much money, other than the racks. - Building representative F, Vancouver

They're, typically they're not very expensive to do. Unless you have to put in the end of- rip facility, like that was quite expensive, it was significant. But to build these bike rooms are not huge expenses...[the rooms] are old, they were originally designed to be storage rooms in the underground parkades, so they're concrete or cinder block...rooms with, you know, not great lighting...we try to improve the lighting. - Building representative K, Vancouver

⁷³ CMHC - Canada Mortgage Housing Corporation



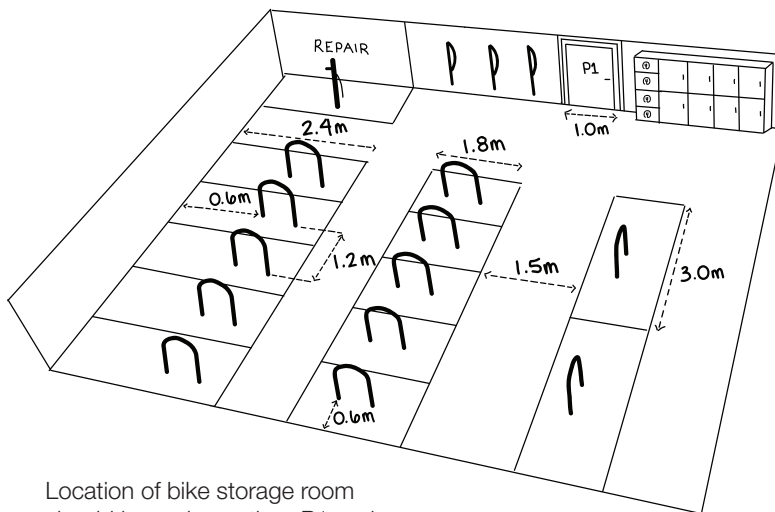
Example from the Field: These images are from a 1978 downtown Vancouver office building that has repurposed space in their underground to accommodate bicycle storage. This demonstrates how upgrades to bicycle storage can be done at a relatively low cost when space is available.

These building managers were fortunate to have extra space in the lower levels of their buildings. Storage rooms originally designed for files could be repurposed for bicycle facilities without much hassle. Bike racks and lighting were the key costs when repurposing these old storage rooms. Adding end of trip shower and locker facilities, which were common among downtown Vancouver office buildings included in this study, accrued higher costs.

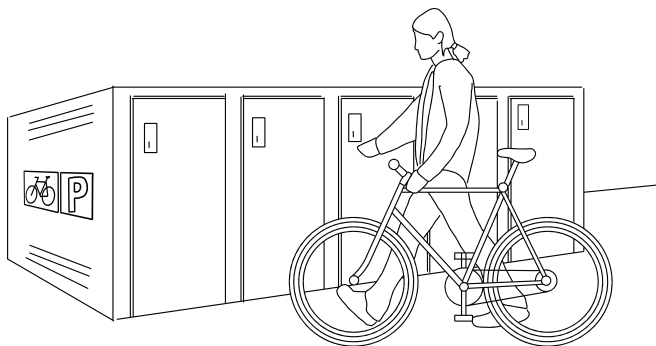
These examples highlight that installing cycling facilities was relatively easy in some buildings, and more challenging, or virtually impossible, for others. Varying budgets and a range of priorities account for these differences.

Best Practice Repurposing space to accommodate secure bike parking (motor vehicle parking spot, freestanding structure or repurposing a storage room)⁷⁴

Allow space for larger bikes and adaptive bikes to be parked near the entrance and include electrical outlets on walls.



Location of bike storage room should be no lower than P1 and ideally at ground level. Make sure the entire room can be seen from the entry or add mirrors to illuminate blind spots.

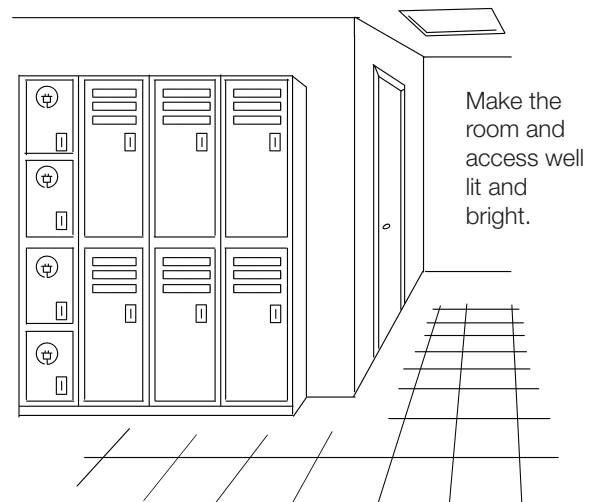


Provide secure bike lockers (minimum 10% of total bike parking volume) for those who wish to have a higher degree of security within secure parking.

Make sure that the room is configured to accommodate standard bikes and a range of larger bikes (cargo bikes 2.4m and bikes with trailers 3.0m).

Strive to provide racks that are easy to use, intuitive and designed to accommodate a variety of bicycles and people of varying abilities and strength.

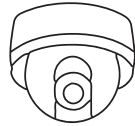
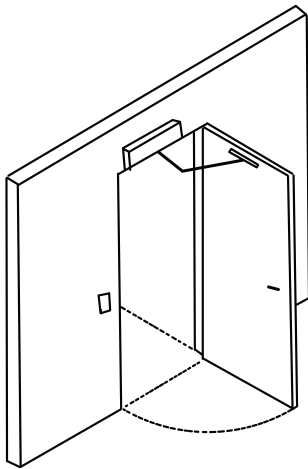
Minimize the use of vertical and stacked racks (combined max of 60% of total spaces) and maximize the use of horizontal racks.



Provide secure lockers to accommodate personal items and secure, fire proof and electrified lockers for charging batteries.

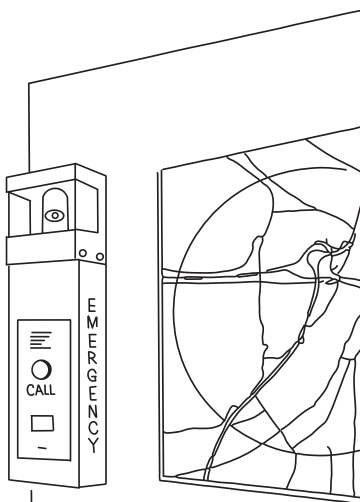
⁷⁴ We note that bike lockable storage units are not an accessible option for people who ride adaptive bicycles. Buildings that provide bicycle storage lockers should ensure that there is adequate bicycle storage for adaptive bicycles elsewhere.

Best Practice Repurposing space to accommodate secure bike parking (motor vehicle parking spot, freestanding structure or repurposing a storage room) (continued)



Include CCTV cameras and regular security patrols.

Automate doors to provide hands free access.



Include a call button so that users can alert security.

Include a notice board and maps of cycling routes (both paper copies and as a mural).



Space

Space is another key issue that came up many times throughout our research as a challenge for some buildings and a motivator for others. In older buildings, finding space, or adding to existing bike facilities, is often problematic. We identified key challenges, such as the availability of extra room and the issue of converting vehicle parking to bicycle storage. While space can be a barrier to the implementation of bicycle facilities, when adequate space is available in older buildings, it serves as a motivator to construct bike facilities. This office building manager suggests that the extra space is not taken for granted given the era of the building:

We're fortunate here that we have the space. Like, a lot of older buildings were built very tight, they don't have the space, right. Some buildings don't even have parking so where do you put the bike room if you don't even have a parkade? So it really comes down to each building and how you can make it work. - Building representative K, Vancouver

By contrast, a building manager of a co-op in South Vancouver explains that there is simply not enough space in the building for a bike room:

We don't have enough storage for our maintenance supplies and you know, we're all over the place in every corner we store stuff that we can find. So, I don't know. I don't know how [the bike storage problem] could be solved other than magically grow [the building]. - Building representative B, Vancouver

At this building, the bicycles are stacked haphazardly to railings in the parkade, as described by an occupant in the previous section. While the building manager hopes to provide a solution, the size of the building is a constraint.

Similarly, a building owner of a company that provides small-scale rental apartments explains the common space-related issue he encounters:

The challenge is when you have buildings like these old buildings, 60-year-old buildings that weren't really designed with a surplus of any kind of space or anything like that. You know you have 12 parking spaces or 18 to take away three, you know, it can be a bit of a challenge and stuff so we do what we can with the limited space that we have. - Building representative E, Vancouver

Converting vehicle parking to bicycle storage was common among buildings included in this study. However, vehicle parking stall bylaws cannot be easily adjusted, as this building manager explains:

...part of the challenge is we can't use any parking stalls for bikes here, because the building was developed- like this building has to have 28 parking spots, so you can't take [them] away. - Building representative F, Vancouver

Related to bylaws, a focus group participant elaborates on the challenge of trying to convert vehicle parking to bike parking in an apartment building that does not have extra space:

The way the bylaws are written, you're not allowed to use vehicle parking spaces for anything other than vehicles and bikes don't fit the description...you can apply to convert your vehicle parking stall into a bike stall, but that's a permanent thing that alters the value of your unit. So owners aren't going to do that...So it's been a real problem of running into city bylaws that don't seem to contemplate any flexibility, particularly for an older building that we have no more room to expand our bike parking anywhere so we want to try to facilitate owners at least using their stalls in a more efficient manner, and yet we're running into this bylaw issue. - Occupant L, Vancouver

In buildings that have extremely limited space, vehicle parking stalls are prime candidates for bike facilities. However, city policies and processes prevent retrofits from happening easily. This issue is especially frustrating when vehicle parking stalls sat empty, as this focus group participant notes:

It's frustrating that each unit has assigned a parking stall but many of them sit empty and there's no incentives, you know, kind of tagging on what what somebody else was saying about kind of temporarily converting parking spaces to bike storage, and that I'm sure there might be motivation for cyclists in the building to go together and like rent, one of the parking stalls. And have a rack installed...so that people don't feel like they're losing value on that parking space but also that it would only be kind of a temporary measure. And I think kind of echoing that, I wish people could be a little more flexible and creative with some of these solutions. And I think the frustration is just sometimes running into the folks in charge that don't seem interested in investigating some of that flexibility. - Occupant B, Vancouver

This occupant, along with many others in the study, calls for creative solutions to bike storage issues. The quotes above show that, especially in smaller residential buildings, finding the space to store bicycles is a common challenge. It is important to ensure that occupants of older residential buildings, particularly people living in co-ops, social housing, and rental housing, have secure and accessible space to store their bicycles. Yet, in the buildings included in this study, this extra space is not always available. When space is available issues related to building policies and retrofit processes present challenges when repurposing space for bicycle storage.



Photo credit: Megan Stenftenagel

Time

Time, or lack thereof, is the final key issue that impacted the likelihood of bicycle facility upgrades in older buildings. The process of implementing cycling facilities can be tedious and time-consuming which leads to delays in cycling facility updates. In some instances, bike-related issues were not a priority, as more pressing matters took up building representatives' time. In other instances, the retrofit process took more time than anticipated. We explore these issues in greater detail below.

In a 55+ age restricted social housing building complex in Burnaby, the health of building occupants trumped all other concerns. Although this complex consisted of three buildings, there were no cycling facilities in any of the buildings. One occupant noted that many of the people in his building, himself included, experienced health issues and were on disability assistance. Staff resources were taken up supporting tenants and managing the high tenant turnover rate. The occupant elaborates:

[The building managers] are concerned I guess with the health of the people that are

living there and whether they can take care of themselves. There are a lot of deaths in our building which is sad but it's just part of the you know, the nature of where we are. And so they're constantly re-doing apartments and things like that and trying to get them ready for new people to move in. So that takes up a lot of their focus. And of course repairs and things like that, yeah.
- Occupant R, Burnaby

This example shows that staff were unable to allot time to cycling facilities due to demands related to occupants' health. As well, we note in previous sections that limited funding was an additional barrier faced in social housing buildings.

In another social housing building, daily tasks prevented a maintenance manager from implementing a workbench for tenants to conduct mechanical repairs on their bicycles. When asked about barriers to installing the workbench, he replied:

Space and time [are the main barriers]... When I'm needing to respond to a bunch of other things in the meantime, the stack of repair requests on my desk, and that trumps the extra projects. But, you know, it wouldn't be that hard to do, it just takes enough time that it continually drops to the bottom of the barrel. - Building representative J, Vancouver

Buildings that were able to focus attention on bicycle facility upgrades or additions had to go through a complex retrofit process described further in the Context Section of this report. However, some individuals experienced barriers before initiating these retrofits. This focus group participant explains that it is difficult for the small number of volunteers on the strata Council to find the time to look into bike-related upgrades:

We currently have three people on our strata Council, and taking on any sort of additional work is really hard. - Occupant L, Vancouver

When building representatives and occupants were able to find the time to research and implement bicycle upgrades, city permits sometimes greatly delayed the process of installing cycling facilities in buildings.

A West End apartment building in Vancouver that unexpectedly needed to retrofit their cycling facilities is one example of a lengthy permitting process. This building needed to do some concrete restoration work, but when the owner submitted the permit request from the City of Vancouver for the concrete project, he was informed that a portion of the lower levels of the building, including the bike room, were not up to code, and that they needed to construct new bike facilities. The building manager elaborates on this long process which evolved since the development plans began:

Well the bike room has to have a certain number of stalls...considering how many suites are here... And now they're requiring [us] to have one particular room that also

needs [ebike] charge stations. That's new so when we first started this like five years ago now all of a sudden they're imposing this on us now to do an upgrade for this, even though we never even proposed to have that done on our first plan. So then they had to change the plans again. - Building representative I, Vancouver

Further, the City did now allow certain spaces that this building manager had identified to become cycling facilities:

But you have to find space for that and that can't be easy. We do have space, but we have to take away parking stalls. In the underground secured area. Then when you do that you violate a different code. About how many parking stalls are supposed to be for the suites as well for cars...And I'll show you today, we have a problem with one certain area so we can't do it there. 'Cause it's just too long for fire hazards and stuff like that. But the building is built in 1968, this is where we think we can put those bike rooms you wanted us to put but okay (laughs). - Building representative I, Vancouver

In this example, a potential bike storage space posed a fire hazard because the exit door was too far away from the proposed bike room. This building manager expressed frustration that the process had taken so long, especially when the building owner was willing to supply the needed funds:

[The building owner] sees that there's a need for it. And there seems to be a need to have a quicker decision process. Where the landlord's willing to spend this money to get upgrades done, what can we do to help them get those done? - Building representative I, Vancouver

The long permitting process prevented this type of cycling-related infrastructure upgrade from moving forward, which was frustrating to the building manager and owner, but also to the tenants, many of whom relied on their bicycles for transport in the West End. While the bike facilities were under construction, the building manager allowed tenants to bring their bikes into their apartments. The apartment suites were all studios ranging from 460 - 500 square feet, a small space for bicycle storage.

Given this example it is perhaps unsurprising that, at times, building representatives sidestep the permitting process. This building manager explains a common issue when asked if he had run into any challenges with permitting issues when doing cycling-related upgrades:

The biggest thing with parking is, obviously, if you impact the parking ratio for your development application, like from original development, technically, you're supposed to get City approval for that. Not many landlords do, they just go ahead and do it anyways. So that would be one potential concern. - Building representative F, Vancouver

Similarly, this building manager explains how he avoided making the bike room upgrade project into a larger project that required a variety of permits:

I mean, we had to be careful because we didn't want to get into...there isn't huge demand and so we didn't want to be in a situation where we had to get building permits and sprinkler permits and ..we didn't want to, to go down that road of here's three storage rooms why don't we knock down two walls and make it a really big room...because that then triggers sprinkler permits and then you maybe need to get an electrical permit because you need to put in, you know, more lighting and that. - Building representative F, Vancouver

It is evident that a number of issues impacted the bike upgrade process which sometimes made it a lengthy and challenging process. Yet, despite taking longer than originally planned, many of the building representatives we spoke with persevered with bike-related upgrades. In the case of smaller upgrades, factors related to day-to-day building operations sometimes acted as barriers to cycling-related upgrades. In all of these examples, time was a significant factor impacting how quickly bicycle-related upgrades took place, or whether they occurred at all. In the following section we expand on some of the factors that affected building representatives' motivation to upgrade or install cycling facilities.

Motivation and Demand to Upgrade Cycling Facilities



Photo credit: Rianna Fiorante

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Motivation and Demand to Upgrade Cycling Facilities



While cost, space, and time-related factors have practical implications that affect the likelihood of bike storage upgrades in older buildings, another vital consideration is building representatives' motivation to upgrade or implement cycling facilities. First and foremost, their motivation most often came from occupant demand. An increase in demand during the summer months is another common factor. The final key motivation we address is ensuring buildings keep up with future demand for cycling facilities.

Occupant Demand

This building manager of an office building downtown explains how bicycle facilities came to be constructed in his building as a result of multiple requests from potential tenants:

It was really driven by the tenants in the building or prospective tenants. As we got more and more questions from prospective tenants about, “well is there somewhere safe to put our bikes”, when the answer was no, after being asked that same

question a few times, you start to think, as a building owner, well I should start trying to find somewhere, because obviously this is an issue that matters to tenants.
- Building representative F, Vancouver

A building manager who manages multiple co-ops explains that demand for cycling facilities has increased over the 20+ years she has worked as a building manager, and especially in neighbourhoods where there is ample cycling infrastructure:

I think over the years in all the co-ops you know, they tried to improve [cycling facilities]... it's becoming more of an interest which is why [name of co-op] took over parking and built the cage to put their bikes in. 'Cause they're right in Kitsilano so there's prime cycling there.- Building representative B, Vancouver

These building representatives responded to increased demand from building occupants. However, in the previous section we noted that occupant demand is not always clearly communicated to building representatives. At times, the power imbalance between residential tenants and landlords prevented occupants from voicing their concerns. Many tenants felt it was unlikely that their concerns would be taken seriously. When buildings do not offer cycling facilities, potential occupants who use bikes may choose to live elsewhere. This focus group participant describes her frustration at finding an apartment in an outlying Metro Vancouver district that did not have bike facilities:

It's hard to find a bike room [in an apartment building] it's that "what, you have no bike room? We can't live here, noo". - Occupant P, Vancouver

Other occupants also stated that they would not live in buildings that did not have cycling facilities, suggesting that cycling facilities are an important feature for prospective tenants and, even in outlying areas of Metro Vancouver, building owners and developers should take this demand seriously. We also note that many people who ride bikes, including the social housing occupants we spoke with, do not always have the option to choose to live in a building that has cycling facilities.

In an office setting, a building representative explains how cycling amenities are part of staying competitive:

Yeah, it's typically tenant amenity driven. So we hear from the leasing brokers that are bringing tenants to the building, they want to know what amenities you have for tenants, and cycling was becoming more and more popular, and as commuting times for driving downtown was getting longer and longer, so, you know, it just becomes more of an awareness, and a need for it in the market, and if you want your building to be competitive for leasing for tenants, then you have to provide those amenities. So that evolves as the market demands, the service, you know. If you don't provide them then you're left behind and you don't get enough tenants in your building. - Building representative K, Vancouver

In this example, robust communication occurs between potential tenants and building representatives. This communication led to an extended contract and the installation of end of trip cycling facilities, as this building manager goes on to explain:

It was really driven by our largest tenants in the building, um, their lease was up for renewal and they were considering staying versus going to another building, and so as those negotiations unfolded, one of the things they brought up was the need for end of trip facilities in the building. So we committed as part of the renewal piece with them, to build an end of trip facility by a certain date.

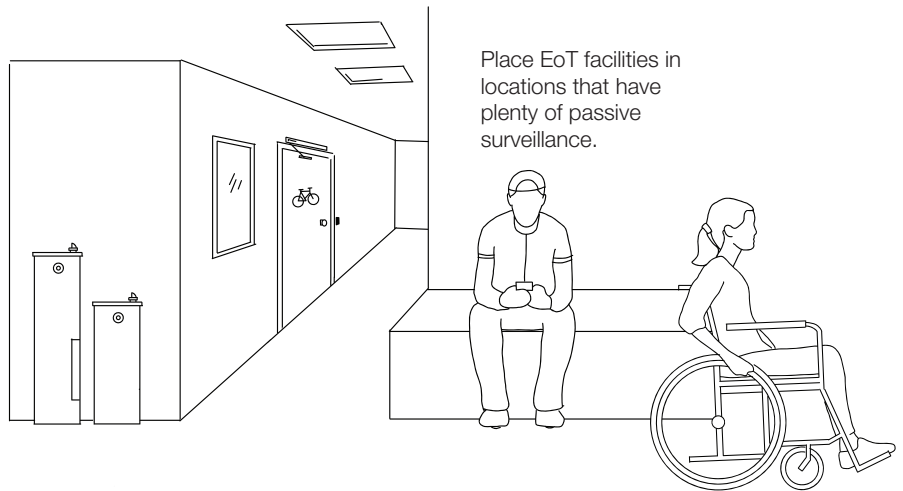
- Building representative K, Vancouver



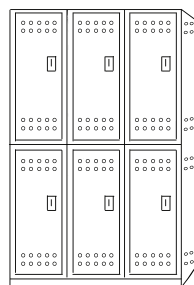
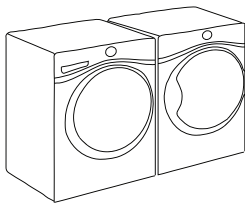
Example from the Field: These images are from the building managed by Building representative K, a 1991 Downtown Vancouver office building that recently upgraded their end of trip facilities to accommodate the needs of their tenants.

This quote shows that tenant demand can be very effective, although we note that this significant client likely had more negotiating power than smaller clients. Taken together, however, these examples show a significant demand for cycling facilities in older buildings.

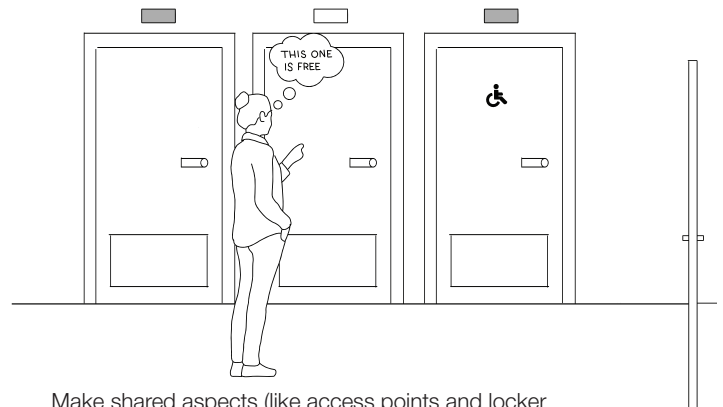
Best Practice In non-residential buildings, make washrooms, showers, and change facilities and lockers accessible to all



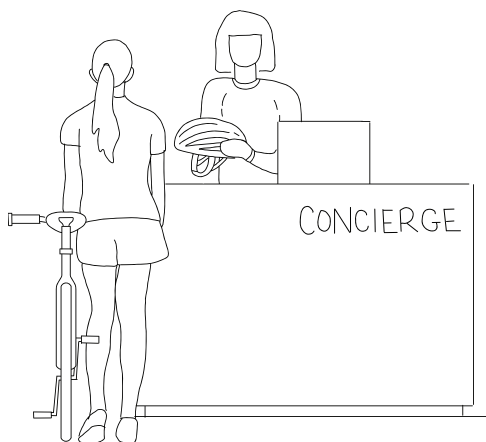
Where appropriate, provide laundry services so that people can wash and dry clothing.



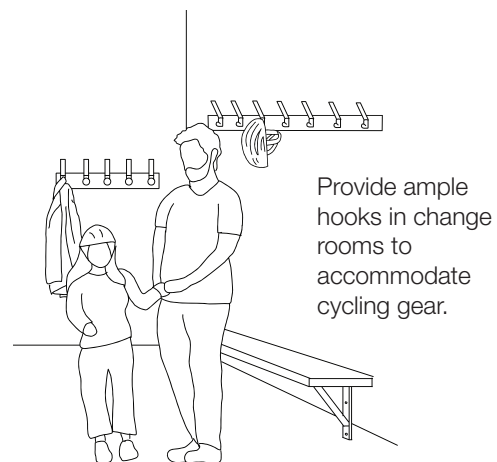
Make sure lockers have lots of air flow to allow wet gear to dry during the day. Co-locate hooks and lockers adjacent to hot air vents for better drying.



Make shared aspects (like access points and locker storage) more transparent and open and private spaces more secure using simple locks that clearly indicate when the space is in use.



Include concierge services enroute to change rooms. Empower concierge services to have loaner bike locks, helmets, lights and rain gear available.





Seasonal Demand

Related to demand, a number of participants spoke about variation in seasonal demand for cycling facilities. This occupant explains that an increase in demand during warmer weather is common, as bike rooms tend to get busier during spring and summer:

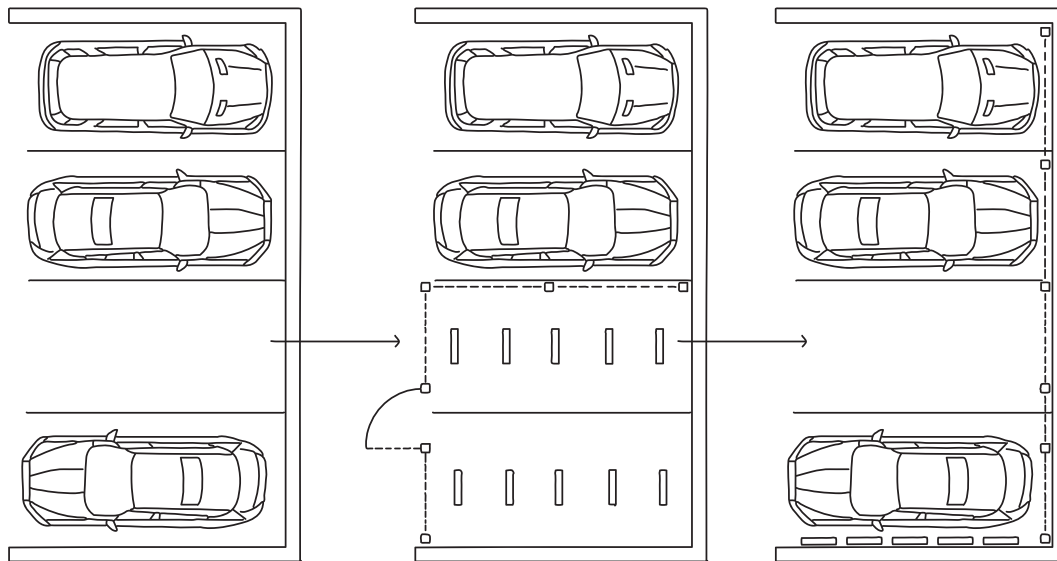
Now that the weather's getting good, it is getting very, very tight [in the bike room].
- Occupant L, Vancouver

Select building representatives responded to this increased demand, for example by adding extra racks in the summer, when the bike rooms are very busy:

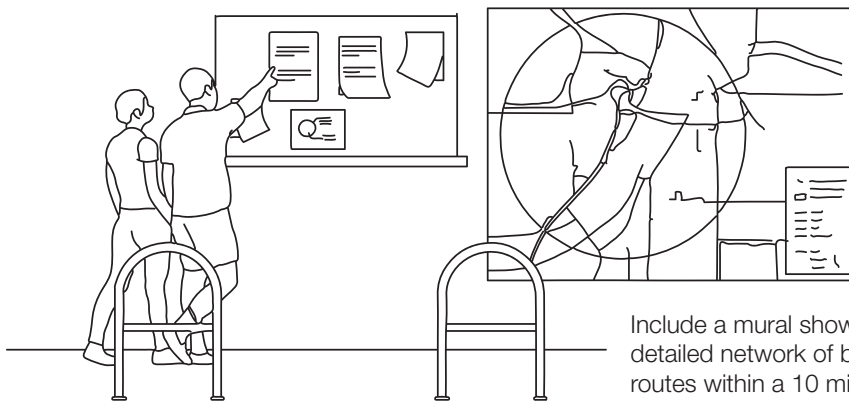
During the summer again this started to fill up quite a bit so we put some extra racks here, but these were originally outside the building, but...we moved them in here to accommodate [greater demand in the summer]. - Building representative F, Vancouver

This is one example of a creative solution to increased seasonal demand. As noted previously, there is a need for more creative solutions that use space effectively and allow people to access their bikes easily. Bike rooms must accommodate the range of bicycles and mobility devices that are becoming increasingly common. This includes, but is not limited to cargo bikes, e-bikes, adaptive bikes, folding bikes, and scooters. Many building representatives expressed the desire to have the capacity to accommodate this range of self-propelled transportation devices.

Best Practice Seasonal secure bike parking for offices and other non-residential buildings



Repurpose motor vehicle parking stalls to accommodate secure bike parking using gates that can be removed or hinged back against a wall when not needed.

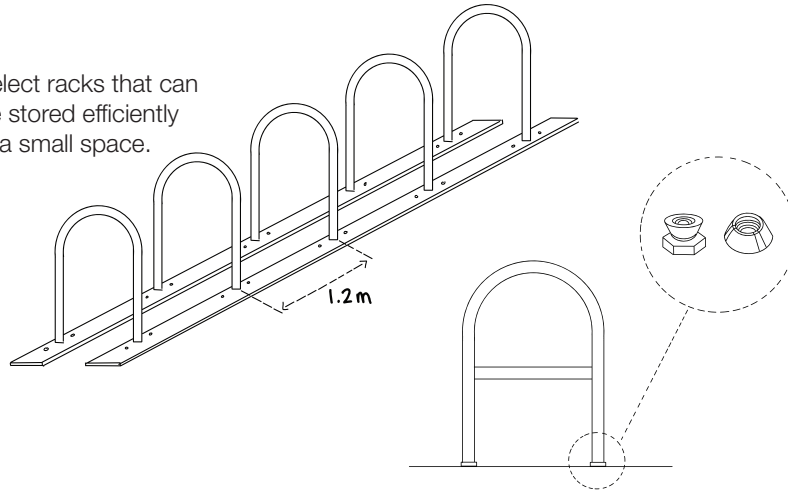


Include a notice board to facilitate communication and information sharing. You can also do this digitally!

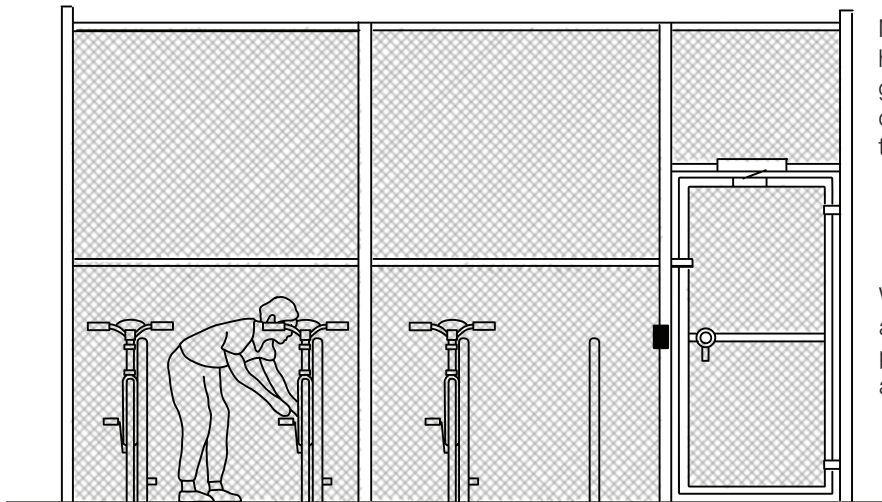
Include a mural showing a detailed network of bike routes within a 10 minute ride and a larger city or region wide map showing key regional routes and their links to the local area.

Best Practice Seasonal secure bike parking for offices and other non-residential buildings (continued)

Select racks that can be stored efficiently in a small space.

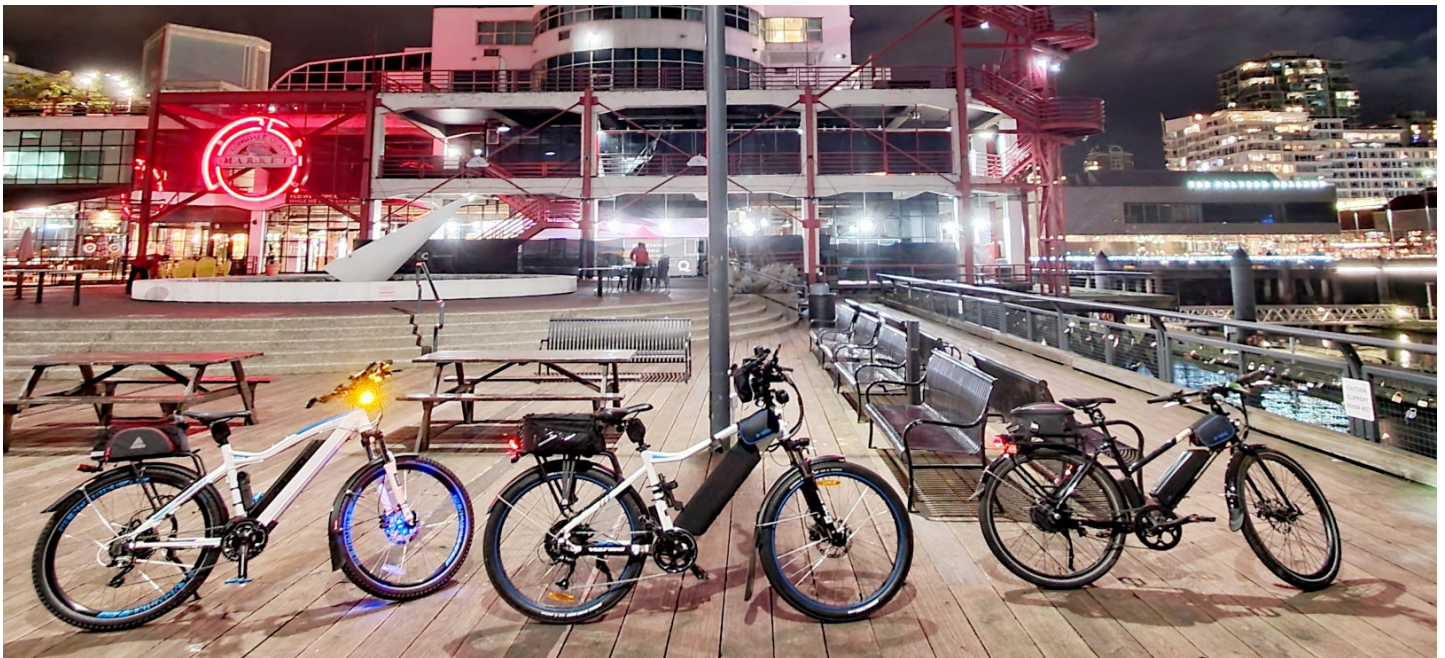


Use tamper free bolts to discourage theft.



Make sure the hinges on the gates and doorway are tamper proof.

Where possible automate doors to provide hands free access.



Future Considerations

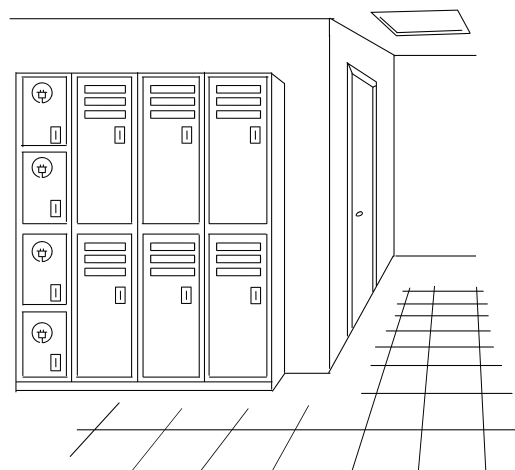
When asked about her future goals for bike-related upgrades, a building manager of multiple buildings in Vancouver and New Westminster said that her main goal is to, **“make sure that we stay current with the e-biking capabilities”**. - Building representative D, Vancouver

These focus group participants also saw the need for e-bike charging stations to be commonplace in bike rooms:

Occupant B: I’m wondering if e-bikes, as e-bikes become more popular would it be useful to require e-bike charging stations or do people just charge them in their home or their office or whatever, because... there’s electric vehicle charging in the underground parking in my building and I feel like that’s going to be required more and more, and I wonder if it makes sense to require similar facilities to be offered for [electric] bicycles.

Occupant C: I work in construction, I see a lot of new facilities in buildings, a lot of them cater to [electric] vehicles but I haven’t seen a whole lot that is catering, to e-bikes, yes, and that infrastructure wise, that is a smart move.

Best Practice



Provide secure lockers to accommodate personal items and secure, fire proof and electrified lockers for charging batteries.

Despite the range of challenges identified in previous sections, many study participants spoke about the broader societal benefits to upgrading cycling infrastructure. This focus group participant expressed joy that he is able to bike when he chooses to:

I always say [cycling is] kind of a like a triple, triple whammy benefit like it, it's cheaper, it's better for the environment and you get some exercise so I've been very...glad that the infrastructure in the city is good and also in my, my workplace....[If] there are enough people who demand these, these facilities, then I think the developers and landlords will want to build them in, for you know to attract tenants. - Occupant O, Burnaby

More broadly, adaptive cycling expert Jocelyn Maffin suggests that the City of Vancouver should take a lead with providing bicycle storage and support in buildings.

I do think the City of Vancouver for all of its cycling infrastructure and focus on active transportation does need to take a lead here. I think there's a lot of crossover with accessibility...I think there's a whole crowd of cyclists that...could make use of that, but need support...[and] storage!

As this section has shown, there is a desire for cycling facilities in older buildings. Regardless of the level of bicycle facilities in any given building, the building representatives we spoke to were looking to the future, and recognized that the number of people cycling in Metro Vancouver will only increase. We suggest that it is important for occupants to continue to demand safe and accessible cycling facilities, and we encourage governments, through policy, to take action to ensure that upgrades to cycling facilities are viable and straightforward options for older buildings .

Recommendations



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Recommendations



This report demonstrates a variety of reasons that occupants and representatives of older buildings are at a disadvantage when it comes to accessing or adding cycling infrastructure. *We recognize that older buildings have a wide range of capacities depending on a variety of circumstances. The types of solutions provided are intended to provide strategies to meet as many of these different contexts as possible, especially in supporting those with the least access to cycling.* Although the challenges are extensive, we believe that bicycle infrastructure improvements in older buildings can be made more attainable with the support and commitment of key stakeholders. In this section, we identify a number of practical solutions and policy recommendations to support equitable cycling access for occupants and representatives of older buildings in the Metro Vancouver area.

Practical Solutions

We begin by outlining practical solutions to some of the barriers identified throughout this report. In this section, we consider how building representatives can improve their bicycle infrastructure in the current Metro Vancouver context, and in buildings with a range of resources. These solutions are meant to complement the recommended strategies illustrated throughout the previous sections. For a complete list of bicycle facility design ideas, see Appendix C. This section also identifies strategies for older building users to support

the improvement of bicycle infrastructure.

For Building Owners and Managers

Building owners and managers who wish to upgrade their cycling facilities or make improvements to existing cycling facilities should consider the following strategies:

To add or extend bike storage:

- Repurpose existing space that is not being used, such as a motor vehicle parking spot or repurpose an old storage room into a secure bike facility (see page 63 for illustration).
- For short-term bicycle parking, install visitor racks in locations that are covered from the elements and are within 15m of the building entrance (see page 56 for illustration).
- Create seasonal secure bike parking to accommodate an influx of 'fair-weather' cyclists in the summer months (see page 76 for illustration).
- When adding or extending bike storage, consider the additional space and access needs of alternative bicycle types, such as cargo bikes, adaptive bikes, kids' bikes, trailers, and e-bikes.

To improve existing facilities:

- Add shared bicycle amenities to an existing bike storage area (minor additions such as a shared bike pump to larger additions such as a bike wash station, work stand and work bench - see page 40 for illustration).
- Manage overcrowded bike rooms by implementing a tagging system to keep track of bikes and identify discarded bikes for donation or removal.
- Make sure bike storage areas are well lit for the safety and comfort of all bicycle users.

To improve ease of access for bicycle users:

- Provide signage and infrastructure to protect people riding bicycles from motor vehicle traffic when accessing secure parking. Where physical separation is not possible, encourage slow travel speeds and provide signage and pavement markings to alert motorists to the path that cyclists are likely to take when accessing and leaving bike parking (see page 36 for illustration).
- Where possible, create a separate lane for cyclists to access bicycle storage where they are protected from motor vehicles (see page 37 for illustration).

To improve communication and engagement with occupants:

- Include a notice board to facilitate communication, share information, and foster community among cyclists (see page 64 for illustration).
- Ask about occupants' needs and involve them in the retrofit process. When planning cycling facility upgrades, engage with occupants at the earliest stage possible and include their expertise as building users throughout the upgrade process.

To invest in cycling facility upgrades:

- Lobby for government funding from municipalities for cycling facility upgrades.
- Work with building occupants to advocate for the importance of funding for building facility upgrades.
- Reach out to bicycle advocacy or education groups if you are experiencing barriers to upgrade your building's cycling facilities.

For Building Users

While we heard that building users often feel limited in their capacity to create change related to bicycle infrastructure, we recommend that building users consider the following strategies:

- *Make your cycling-related needs known to the decision-makers in your building or your community.* We heard from many building representatives that they were unaware of any cycling-related concerns that the building's users had and equally, some of the tenants we spoke with reflected that they had not shared their cycling-related concerns with building representatives. Based on the importance of demand to motivate building representatives to upgrade cycling facilities, we feel that building users have a significant part to play in advocating for better cycling facilities. Building users can make their cycling-related needs known by speaking directly to their building representative(s), or by reaching out to influential community members such as local councillors and advocacy groups.

- *Join an advocacy group.* Further to communicating your cycling-related needs at an individual level, advocacy groups are a great avenue to initiate change related to cycling infrastructure. Whether it's a cycling advocacy group like HUB Cycling, or a committee in your workplace or residential building, find a group that best suits your needs and time capacity and start advocating for bicycle infrastructure!

For Designers and General Contractors

Building owners looking to hire designers and general contractors that wish to implement or upgrade cycling infrastructure at buildings in their portfolio can consider the following strategies:

To design the interior of buildings for bicycle access:

- Make doors and hallways wide enough to accommodate bikes (see page 48 for illustration).
- Provide wash stations so that one can clean a bike before entering (see page 49 for illustration).

To improve access into secure bike parking:

- Make sure cyclists don't have to cycle up steep parkade entrance ramp (this is a major barrier for adaptive cyclists) (see page 37 for illustration).
- Where there is insufficient space in the interior of a building to accommodate secure bike parking, supplement with secure lockers at the exterior of the building (see page 37 for illustration).

Policy Recommendations

The ideas and strategies outlined above provide practical solutions for building representatives, occupants, and developers to make cycling more accessible for users of older buildings. However, in order to facilitate some of these strategies and provide a more equitable environment for occupants of older buildings, there is a need for increased support at the policy level. We recommend the following policy considerations:

For Municipal Governments

- *Streamline the permitting process for cycling upgrades.* We heard from building representatives that the lengthy, time-consuming process to obtain a city permit for bicycle infrastructure upgrades is a significant barrier to updating cycling facilities in older buildings. We recommend that governments take note of this concern and prioritize permitting processes related to cycling facilities.⁷⁵ We encourage the City of Vancouver to focus resources towards older buildings in order to set a precedent for adjacent municipalities. Further, we recommend that municipal governments consider other incentives for building owners and managers to upgrade their cycling facilities, such as reduced permitting costs.
- *Enact bylaws that allow building owners to reduce motor vehicle parking beyond established minimums in order to accommodate an adequate supply of secure bike parking.* As indicated through this report, at times vehicle parking minimums create barriers to increasing secure bike parking access. We recommend a bylaw that allows building owners to reduce motor vehicle parking in order to accommodate secure bike parking, where necessary.⁷⁶

⁷⁵ A similar example is the [heat pumps](#) permitting process storage for adaptive bicycles elsewhere.

⁷⁶ For successful implementation of similar bylaws, see Portland, Oregon's [parking bylaws](#)

- *Review and consider a Bicycle Parking Retrofit Program as outlined in “Coming To A Stop: All Ages and Abilities Bicycle Parking in New and Existing Development” (2015).*⁷⁷
 1. Establish a website for residents, owners and managers that includes information about retrofit program processes, educational opportunities, Bicycle Parking Facility Manuals, and templates for advocacy groups in stratas and to facilitate submission of proposed retrofit plans to the appropriate City department(s).
 2. Building managers and owners can distribute templated survey to tenants to gain an understanding of demand for bicycle parking and associated amenities.
 3. Building managers and owners can develop Bicycle Access Retrofit Plans or Motor Vehicle Parking Exemption Plans based on tenant feedback.
- *Mandate that bikes must be allowed in buildings when secure bicycle facilities are not provided.* As this report demonstrates, bike theft is a significant issue and concerns about bicycle security can act as a barrier for bicycle users in older buildings. Occupants of older buildings express frustration with the ‘no bikes in the building’ policies implemented by their building owners or managers. In order to mitigate this challenge, we recommend a policy that allows occupants of office and residential buildings to bring their bicycle into the building when adequate secure bicycle parking facilities are not provided or where theft continues after secure parking is provided.⁷⁸ In other words, we suggest that banning bicycles from buildings and elevators is discriminatory to bicycle users and should be prevented by policy.
- *Improve bike facilities for diverse bicycle types.* This report highlights how users of different bicycle types such as cargo bikes, adaptive bikes, and e-bikes are disproportionately impacted by some of the barriers to cycling. We suggest the following policy considerations:
 1. *Mandate that bike facilities must include electrical outlets for e-bikes.* As noted by the participants in this research, e-bikes are becoming increasingly common in Metro Vancouver and as a result, charging capacity is a valued commodity. We recommend charging stations be provided in bike rooms. Where possible, electrical outlets should be provided inside of storage lockers so that users can securely charge batteries (see page 63 for illustration). While installing electrical outlets into older buildings may require a longer permitting process and cost, the advent and future of e-bikes is important to consider for improved cycling access, and should be supported through policy.
 2. *Mandate that bike facilities must include parking for diverse bicycle types.* We recommend that bicycle facilities include parking for a range of bicycle types. Bike rooms must be configured to accommodate standard bikes and a range of larger bikes (see page 63 for illustration).
- *Provide government funding for equity-deserving groups:*
 1. *Funding for bike safety for people with low incomes.* This report highlights not only that inequities exist for occupants of older buildings, but that certain demographics experience these inequities to a greater extent than others. For example, occupants of social housing buildings experienced barriers related to inadequate bicycle infrastructure and heightened safety

concerns due to financial constraints. As a result, we recommend that the government consider providing subsidies for people with low incomes in order to take appropriate measures to keep their bicycles safe, such as the purchase of high quality locks.

2. *Government funding for adaptive bicycle equipment.* Persons with disabilities who wish to take up adaptive cycling experience barriers related to cost and cycling infrastructure. Governments should consider providing subsidies for persons with disabilities to purchase an adaptive bicycle and/or appropriate secure storage.
- *Provide space for communal cycling amenities.* We heard from occupants of older buildings that a lack of certain cycling amenities, such as a space to wash or repair their bicycles, can act as a barrier to cycling. While it would be ideal for these facilities to be available in each occupant's building, it is not always feasible to provide these amenities. As a result, we recommend the allotment of public space for communal bicycle amenities, such as public bike lockers, bike wash stations and theft resistant repair stands as well as regular staffing by skilled mechanics who could help people to maintain their bikes. Governments should initiate these amenities and services in high-traffic cycling locations and areas where there are high populations of equity-deserving groups, or incentivize local bicycle non-profits to provide these amenities.

Future Directions for Research, Advocacy, and Non-Governmental Organizations

- *Educational resources on cycling-related upgrades:* Bicycle advocates and researchers could collaborate to develop and disseminate educational materials on cycling-related upgrades, including retrofitting and theft-proofing. Ensure building owners, managers, and development companies are equipped with resources in order to increase their understanding of and commitment to cycling facility upgrades.
- *Advocate for cycling facilities in older buildings:* Safe, secure, and accessible cycling facilities should be available in older buildings. We view cycling facilities as an integral element of cycling infrastructure. Cycling advocates should consider cycling infrastructure holistically, with attention to bike rooms, cycling amenities, building policies, and visitor bike racks in addition to bike lanes and other on-street cycling infrastructure. Bicycle facility issues and related policies and practice should be fully incorporated into research, advocacy, and planning. We encourage cycling advocates to recognize this important issue and demand that people who ride bikes have access to secure bicycle facilities in buildings.
- *Short stops:* This research focuses primarily on buildings where people live or work, however we heard from participants that they experienced barriers related to other building locations, such as restaurants, movie theatres, and grocery stores. Future research should investigate cyclists' experiences at locations where they make temporary stops. Research is needed on the experiences of people who ride bikes for short trips and utilize visitor bike parking. Researchers should look beyond commuter cyclists and engage with delivery couriers, parents with children who do errands by bike, seniors who shop by bike, and other populations, in order to learn more about the needs of these groups.

- *Future research on bicycle safety and theft:* Bicycle theft and theft prevention are identified as major concerns for people who ride bikes and live in older buildings. In particular, people who experience financial barriers are more negatively affected by theft and acutely concerned about preventing theft. Bicycle scholars call for an increased definition of bike safety that accounts not only for collisions but for more subtle forms of safety such as theft (as well as harassment, discriminatory policing practises, and race or gender-based violence)⁷⁹. We recommend that researchers and advocates investigate patterns of theft and sociocultural issues underlying theft in order to learn more about and work to prevent this widespread safety issue.
- *Engage specific equity-deserving groups:* This report identifies that access to safe and secure bicycle facilities is inequitable, particularly for people with low incomes, persons with disabilities, people with physical health issues, and older people and children. Other research suggests that immigrants, people of marginalized genders, and racialized people are also at a disadvantage in terms of cycling infrastructure. Future research on the experiences and needs of each of these groups in relation to bicycling is warranted.



Photo credit: Ivan Chan

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bicycles into their office by elevator, upon request”

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74 We note that bike lockable storage units are not an accessible option for people who ride adaptive bicycles. Buildings that provide bicycle storage lockers should ensure that there is adequate bicycle storage for adaptive bicycles elsewhere.

75 A similar example is the [heat pumps](#) permitting process.

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Appendix A: Metro Vancouver Municipalities and Bike Route Statistics

	Extent		Comfortable for Most	
Municipality	Total Lane KMs Bikeways 2021	New and Upgraded Routes 2020-2021 (Lane KMs)	New and Upgraded Routes in 2021 (Lane KMs and %)	% of total network 2021
Vancouver	626.9	28.7	15.2 (53%)	78%
District of North Vancouver	129.0	7.5	3.6 (48%)	45%
Burnaby	348.2	11.2	9.6 (86%)	50%
Coquitlam	191.2	15.2	13.5 (89%)	49%
New Westminster	106.8	17.4	4.5 (26%)	64%

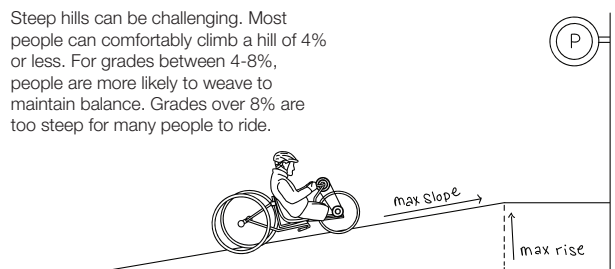
Appendix B: Precedent Policies for Bikes in Buildings

City Policy	Description
New York City: New York Bikes in Buildings Program	Requires building owners to allow bicycle storage in office spaces. Tenants can request to store their bicycle in their office and make use of the passenger elevators, building owners must either accept the request or provide a plan to provide alternative bicycle parking.
San Francisco: The Tenant Bicycle Parking in Existing Commercial Buildings Ordinance	Requires allowing commercial tenants to bring their bicycles to their leased space, or provide secure bicycle parking on-site, or provide no-cost off-site bike parking access for tenants within 750 feet of the building.

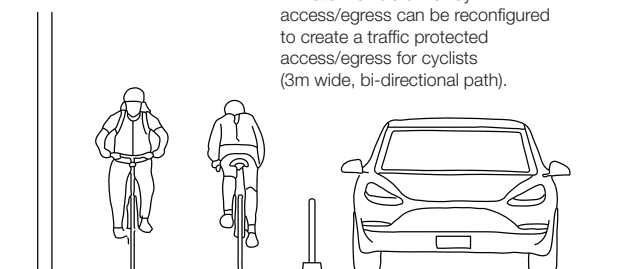
Appendix C: Bicycle Facility Design Best Practices

Best Practice Solutions to improve access into secure bike parking

Steep hills can be challenging. Most people can comfortably climb a hill of 4% or less. For grades between 4-8%, people are more likely to weave to maintain balance. Grades over 8% are too steep for many people to ride.

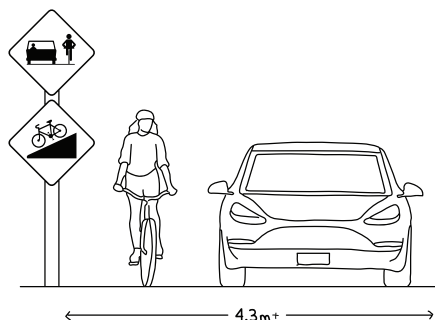


A motor vehicle driveway access/egress can be reconfigured to create a traffic protected access/egress for cyclists (3m wide, bi-directional path).

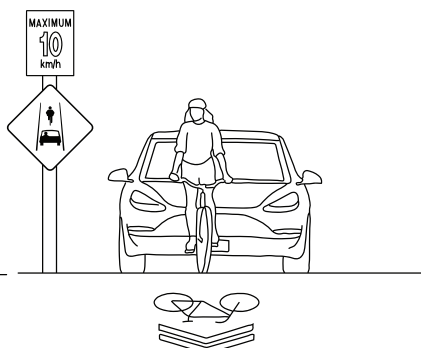


Make sure cyclists don't have to cycle up steep parkade entrance ramp (this is a major barrier for adaptive cyclists).

Where steep grades are required, intermittent landings of over 2 metres should be provided every 9 metres to maintain an effective grade of 8.3%.

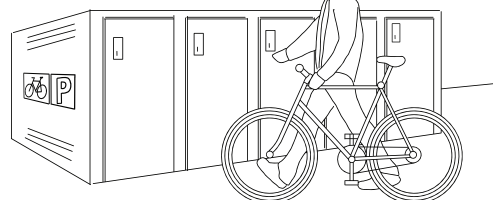


On uphill ramps where cyclists and motor vehicles can not be physically separated (lanes of 4.3-4.8m) encourage bikes and motor vehicles to travel side by side.



In most circumstances within parking lots where cyclists can not be physically protected from motor vehicle traffic, encourage single file travel and slow travel speeds using signage and pavement markings to highlight the path that cyclists are likely to take.

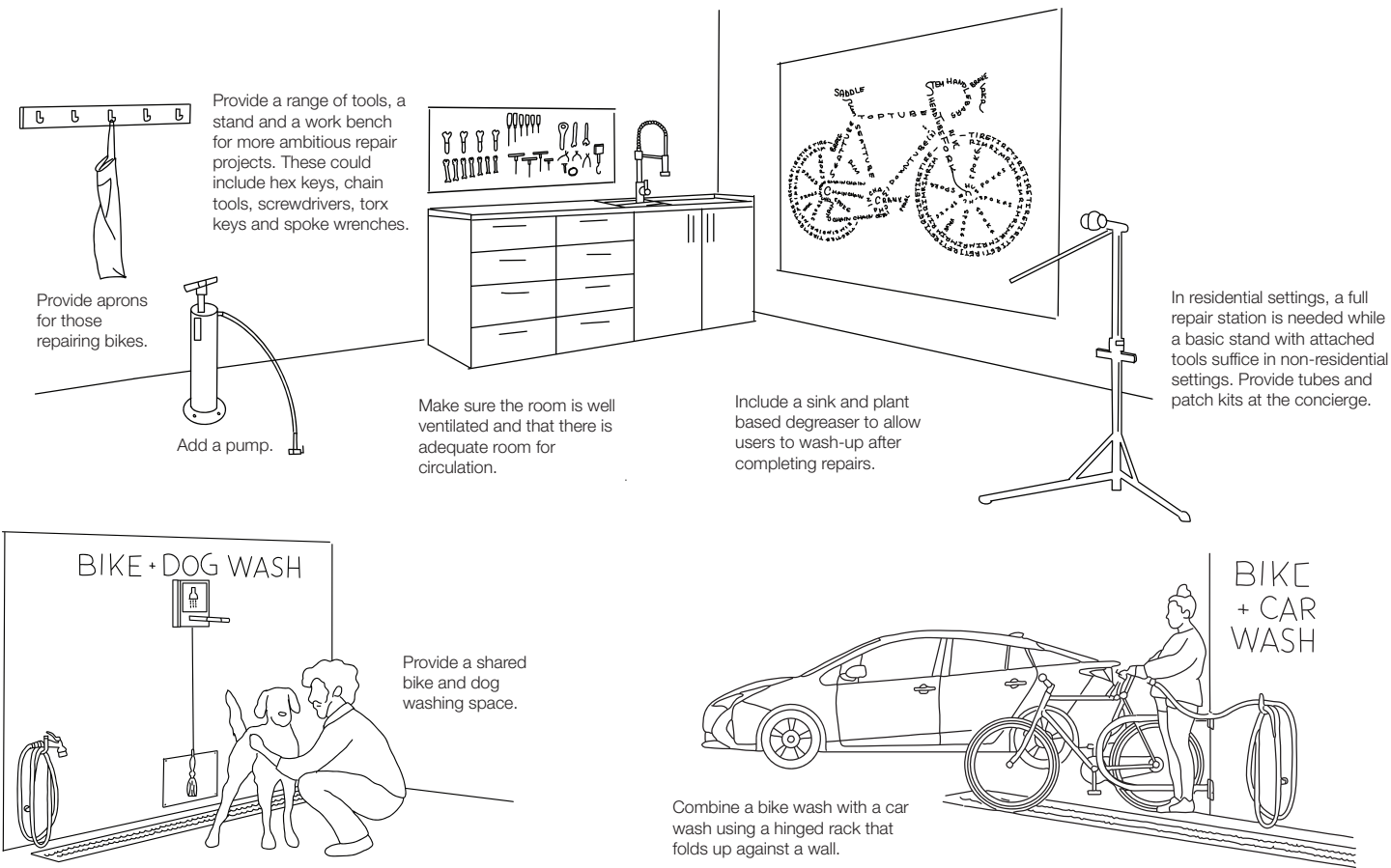
Provide secure bike lockers for those who wish to have a higher degree of security within secure parking.



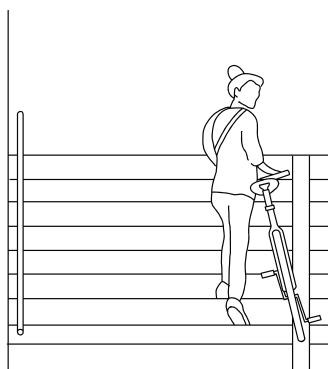
Minimize the number of doors that cyclists must go through to access secure parking, or automate each of the doors.

Where access to secure parking is unattractive to some or insufficient, supplement with secure lockers at the exterior of the building.

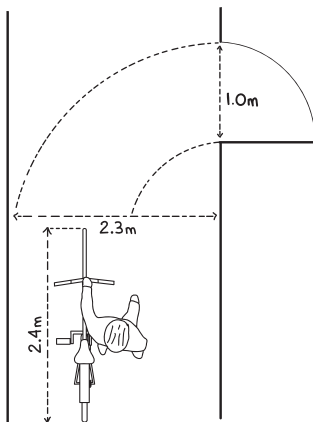
Best Practice Bicycle Maintenance and Washing Facilities



Best Practice Design Work and Dwelling Spaces to Accommodate Bicycles



Provide runnels on stairs so you can roll bikes up and down.

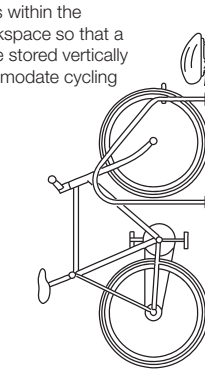


Make sure hallways are large enough to accommodate oversized bikes (2.4m).

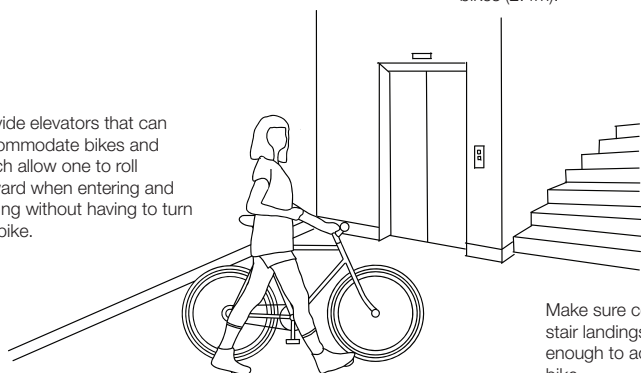


Use materials that are easy to clean.

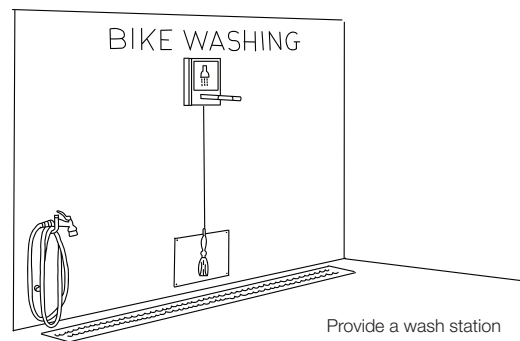
Provide hooks within the dwelling/ workspace so that a bicycle can be stored vertically and to accommodate cycling gear.



Provide elevators that can accommodate bikes and which allow one to roll forward when entering and leaving without having to turn the bike.

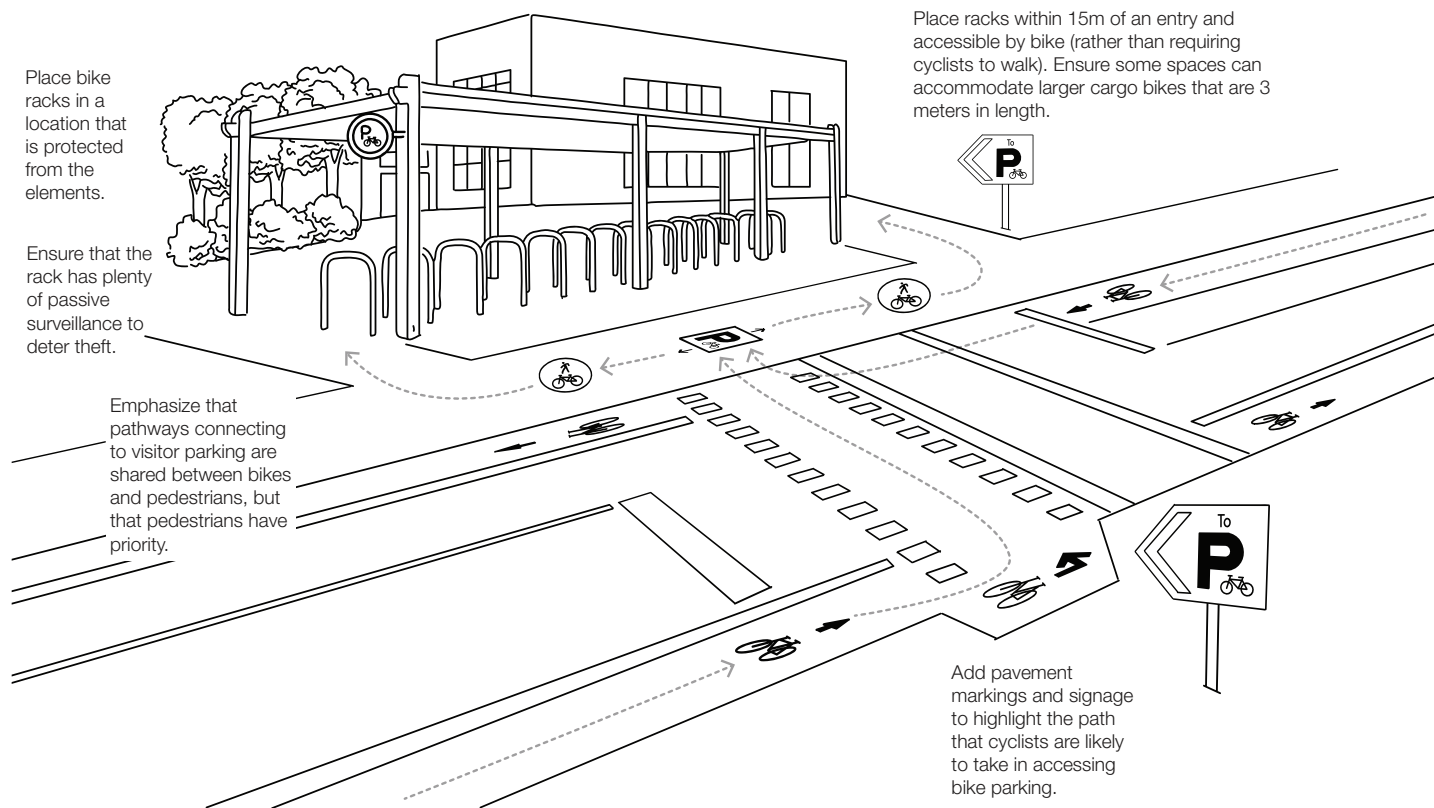


Make sure corners and stair landings are large enough to accommodate a bike.



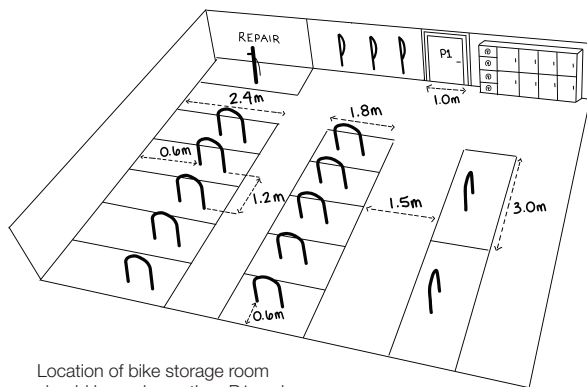
Provide a wash station so that one can clean a bike before entering.

Best Practice Low Cost, Weather Protected Bike Parking



Best Practice Repurposing space to accommodate secure bike parking (motor vehicle parking spot, freestanding structure or repurposing a storage room)⁷⁴

Allow space for larger bikes and adaptive bikes to be parked near the entrance and include electrical outlets on walls.

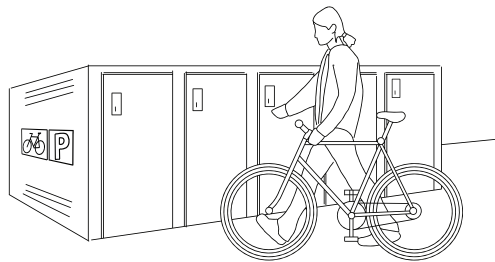


Make sure that the room is configured to accommodate standard bikes and a range of larger bikes (cargo bikes 2.4m and bikes with trailers 3.0m).

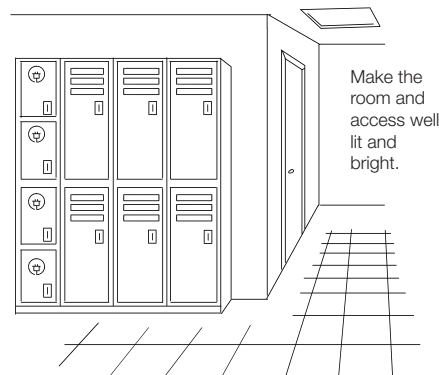
Strive to provide racks that are easy to use, intuitive and designed to accommodate a variety of bicycles and people of varying abilities and strength.

Minimize the use of vertical and stacked racks (combined max of 60% of total spaces) and maximize the use of horizontal racks.

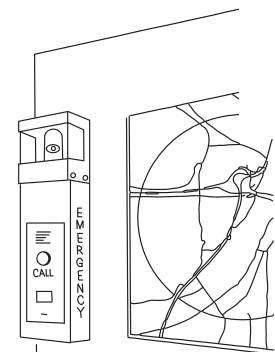
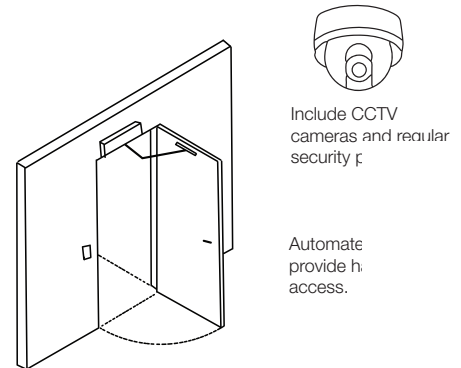
Location of bike storage room should be no lower than P1 and ideally at ground level. Make sure the entire room can be seen from the entry or add mirrors to illuminate blind spots.



Provide secure bike lockers (minimum 10% of total bike parking volume) for those who wish to have a higher degree of security within secure parking.

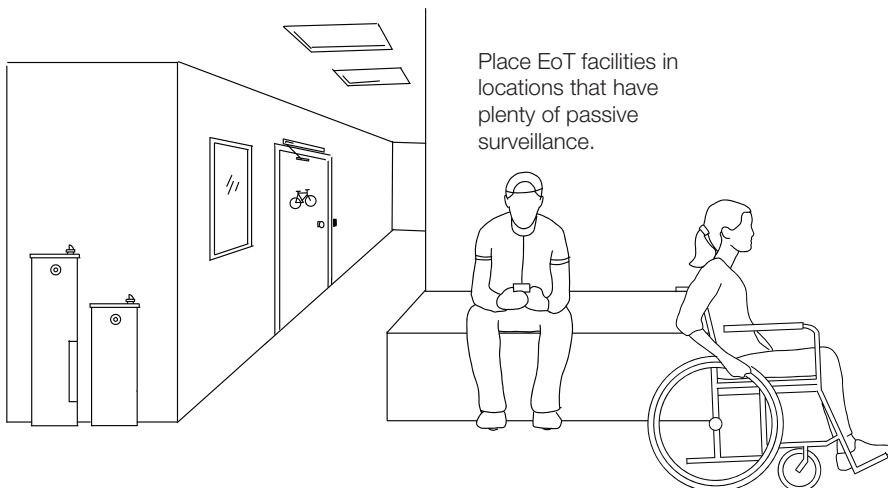


Provide secure lockers to accommodate personal items and secure, fire proof and electrified lockers for charging batteries.

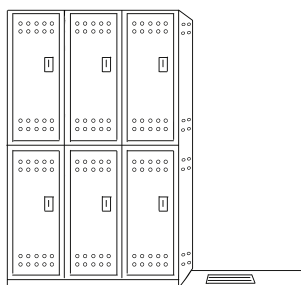
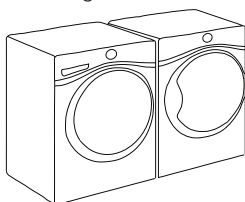


Include a call button so that users can alert security.

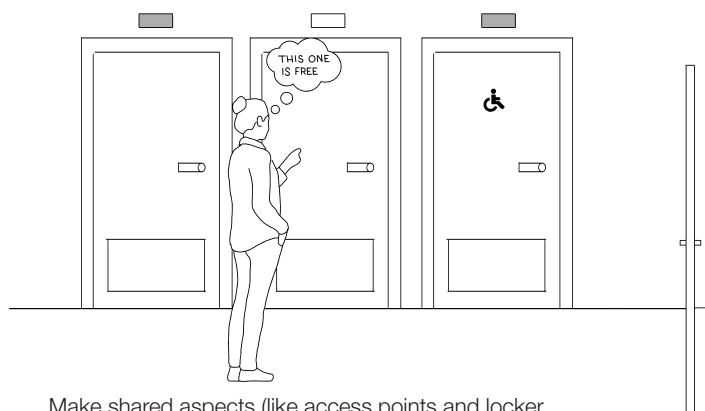
Best Practice In non-residential buildings, make washrooms, showers, and change facilities and lockers accessible to all



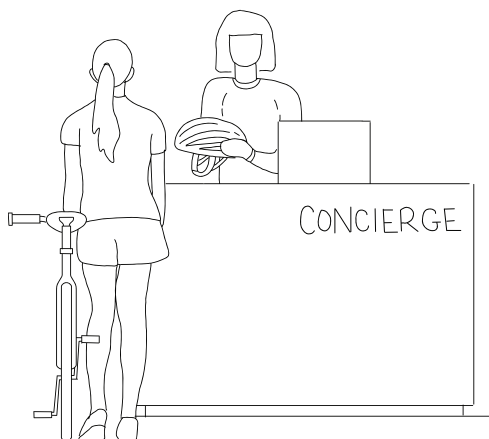
Where appropriate, provide laundry services so that people can wash and dry clothing.



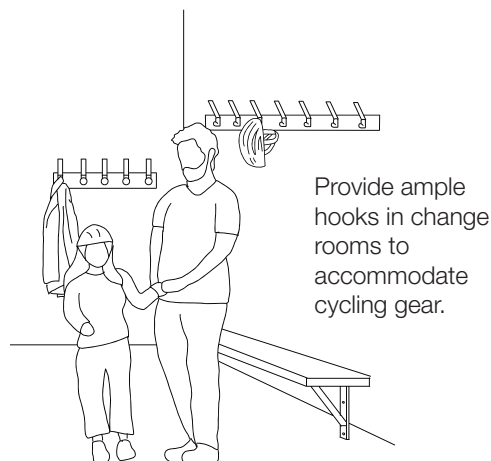
Make sure lockers have lots of air flow to allow wet gear to dry during the day. Co-locate hooks and lockers adjacent to hot air vents for better drying.



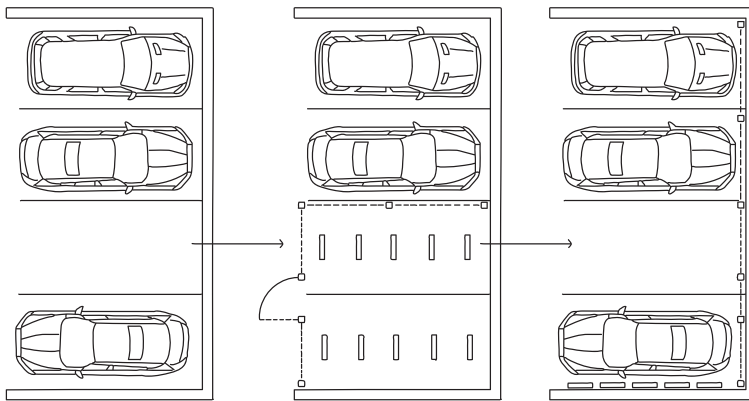
Make shared aspects (like access points and locker storage) more transparent and open and private spaces more secure using simple locks that clearly indicate when the space is in use.



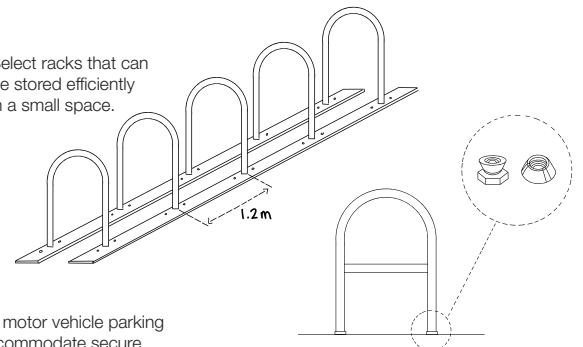
Include concierge services enroute to change rooms. Empower concierge services to have loaner bike locks, helmets, lights and rain gear available.



Best Practice Seasonal secure bike parking for offices and other non-residential buildings

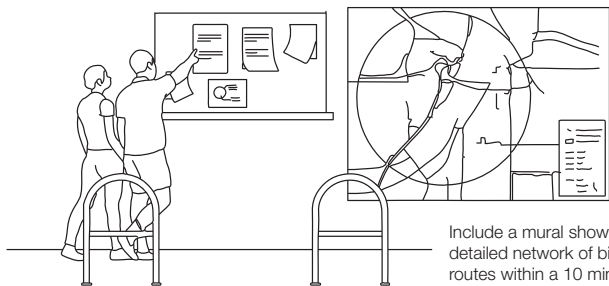


Select racks that can be stored efficiently in a small space.



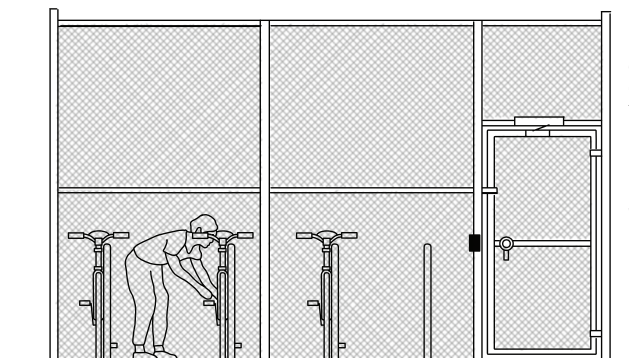
Repurpose motor vehicle parking stalls to accommodate secure bike parking using gates that can be removed or hinged back against a wall when not needed.

Use tamper free bolts to discourage theft.



Include a notice board to facilitate communication and information sharing. You can also do this digitally!

Include a mural showing a detailed network of bike routes within a 10 minute ride and a larger city or region wide map showing key regional routes and their links to the local area.



Make sure the hinges on the gates and doorway are tamper proof.

Where possible automate doors to provide hands free access.