

CYCLING AND OLDER BUILDINGS

EXPLORING THE IMPACTS OF OUTDATED BUILDING DESIGN ON ACCESS TO CYCLING

REPORT HIGHLIGHTS



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Why study cycling and older buildings?

As Metro Vancouver becomes a top urban region for cycling as a healthy, environmentally-friendly form of transportation, *Cycling and Older Buildings: Exploring the Impacts of Outdated Building Design on Access to Cycling* is pioneering research that shines a light on the role of older buildings in limiting equitable access to cycling. HUB Cycling's goal is to inform all stakeholders and to encourage positive policies and best practice responses.

Acknowledgements & How to Use This Report



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
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- Concert Properties
- Urban Racks
- Bunt Engineering
- The Downtown Vancouver Business Improvement Association



How to Use This Report

This report is designed for relevance to a broad range of stakeholder audiences. Including:

- Government Representatives and Staff
- Building owners and managers, social and affordable housing providers
- Strata councils and owners
- Co-op boards and members
- Architects, engineers and construction contractors
- Residential Office and Retail Renters/ Leasers.

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.

Metro Vancouver's Cycling Context

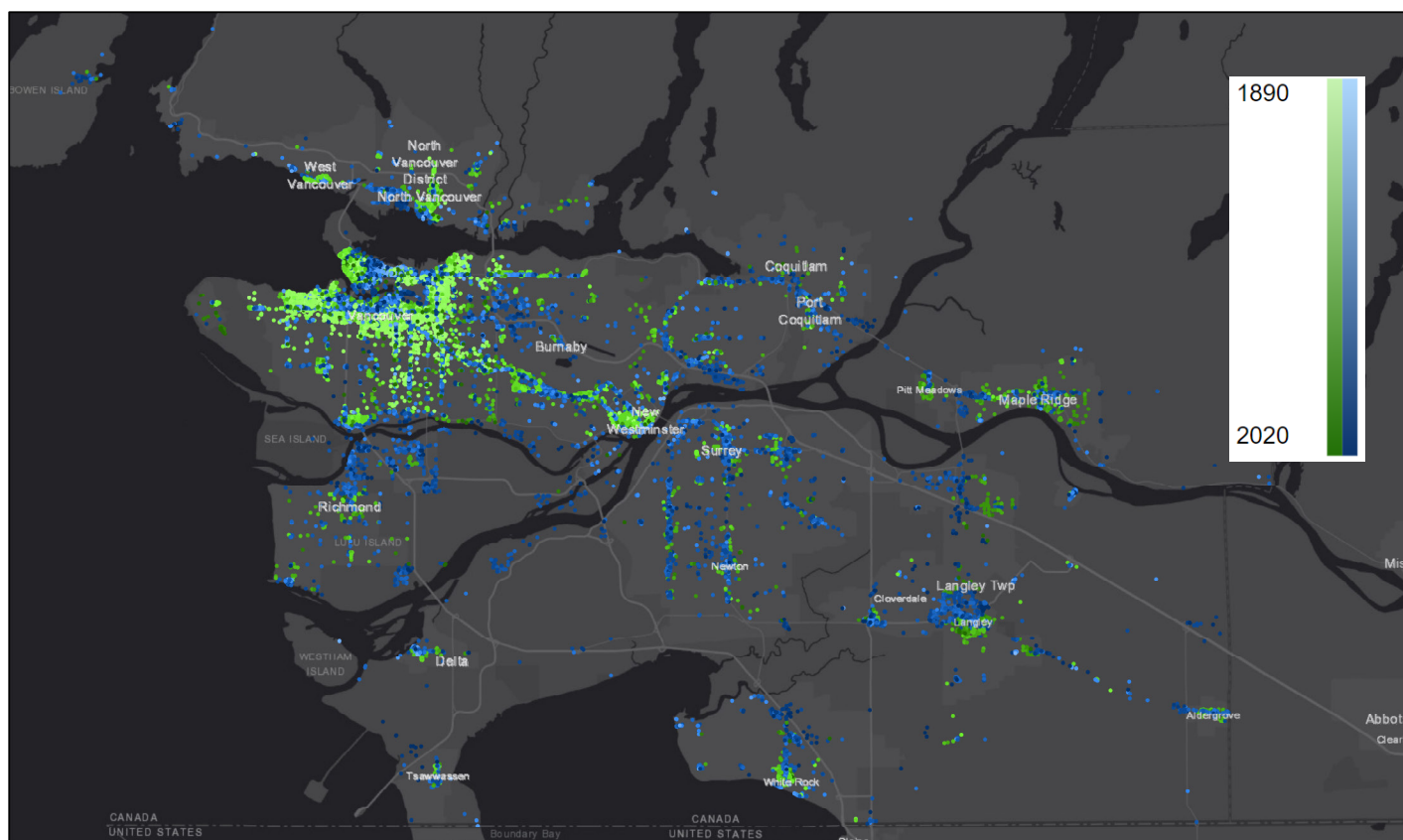


Key Points

- 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.

Figure 1: Older Building Context Maps by Decade in Metro Vancouver

Commercial vs. Residential

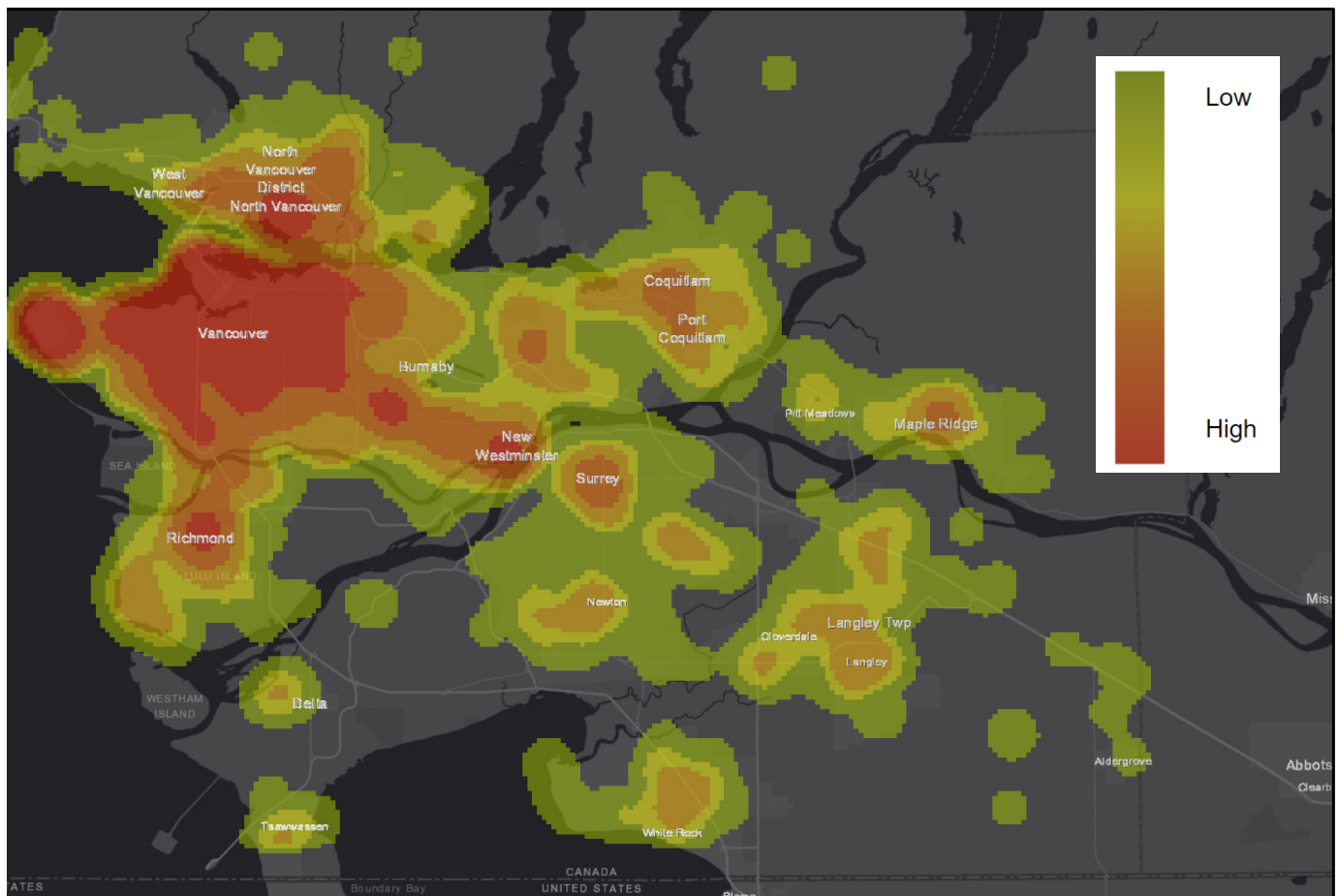


The age of a building, residential or commercial, often determines the likelihood of access to secure bike storage for residents or users. For people living in older buildings, secure bike storage facilities may not exist or are of very low quality and capacity. Those built in the auto era, generally 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 of the full report.

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 2: 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.

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](#).

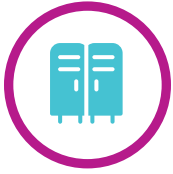


2012 **DISTRICT OF NORTH VANCOUVER** - Alternative Parking rates bylaw that included requirements for **long term bike parking** and transportation demand management was amended.



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

BURNABY⁵⁰ -

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

Barriers to Cycling for Occupants of Older Buildings

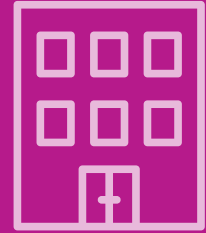


Photo credit: Peggy W.

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.

Quotes from Building Occupants:

“

“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

“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

”

“

“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

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.

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."

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. 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 in full report 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 in full report for illustration).
- Create seasonal secure bike parking to accommodate an influx of 'fair-weather' cyclists in the summer months (see page 76 in full report 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 in full report 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 in full report for illustration).
- Where possible, create a separate lane for cyclists to access bicycle storage where they are protected from motor vehicles (see page 37 in full report 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 in full report 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 in full report for illustration).
- Provide wash stations so that one can clean a bike before entering (see page 49 in full report 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 in full report 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 in full report 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:*

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.

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.

⁷⁸ For successful implementation of a similar program, see the [New York Bikes in Buildings Program](#)

- *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.
- *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.

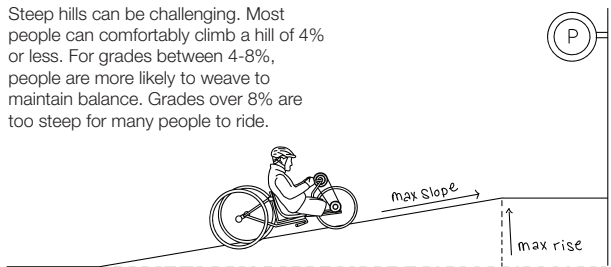
Future Directions for Research, Advocacy, and Non-Governmental Organizations

- *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.

Appendix: Bicycle Facility Design Best Practices

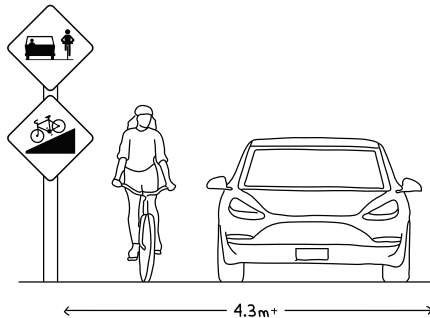
Best Practice Solutions to improve access into secure bike parking

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.

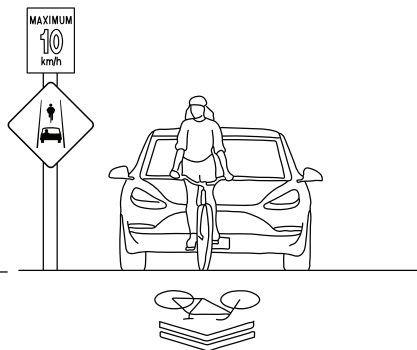


Make sure cyclists don't have to cycle up steep parkade entrance ramp (this is a major barrier for adaptive cyclists).

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%.

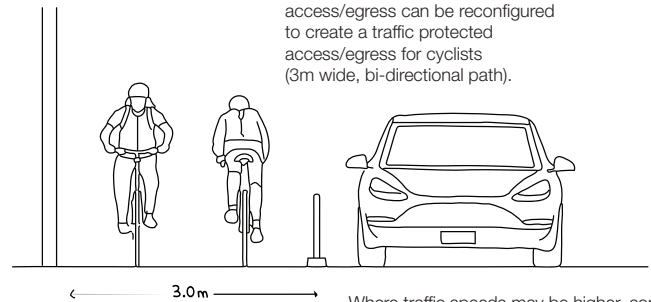


On uphill ramps where cyclists and motor vehicles can not be physically separated (lanes of 4.3-4.8m) encourage bikes and motor vehicles to travel side by side.



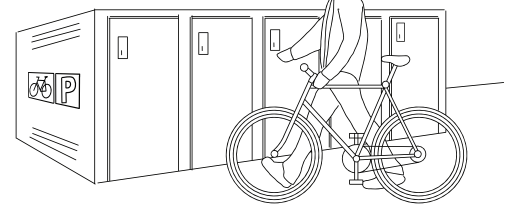
In most circumstances within parking lots where cyclists can not be physically protected from motor vehicle traffic, encourage single file travel and slow travel speeds using signage and pavement markings to highlight the path that cyclists are likely to take.

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



Where traffic speeds may be higher, concrete jersey barriers are appropriate. Where speeds are lower, pin in place curbs topped by flexible bollards provide adequate protection for vulnerable road users.

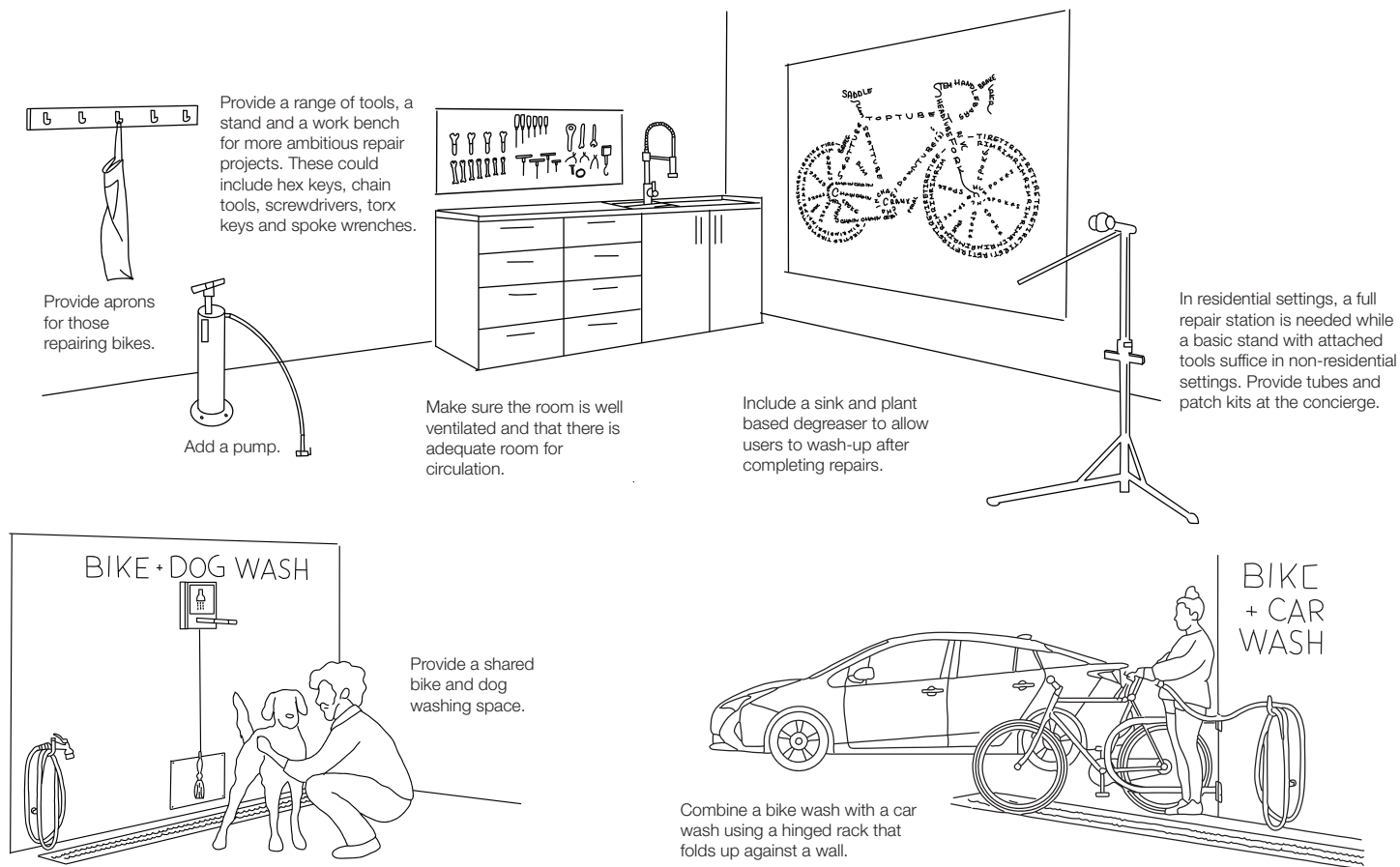
Provide secure bike lockers for those who wish to have a higher degree of security within secure parking.



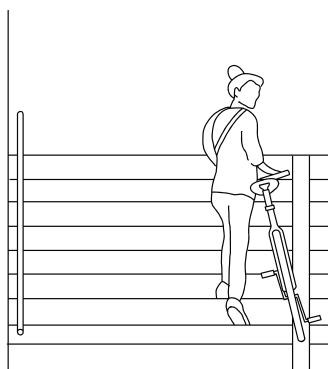
Minimize the number of doors that cyclists must go through to access secure parking, or automate each of the doors.

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

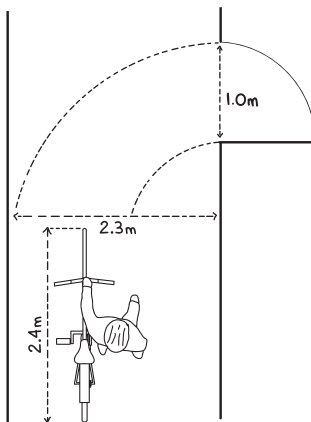
Best Practice Bicycle Maintenance and Washing Facilities



Best Practice Design Work and Dwelling Spaces to Accommodate Bicycles



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

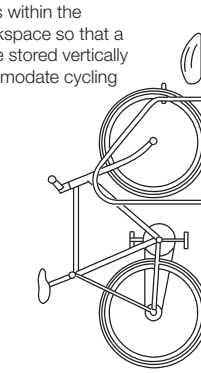


Make sure hallways are large enough to accommodate oversized bikes (2.4m).

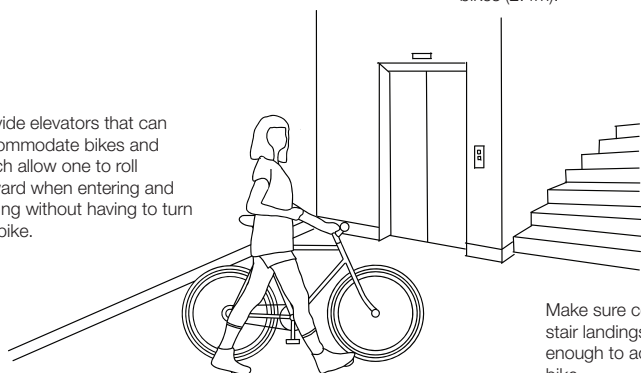


Use materials that are easy to clean.

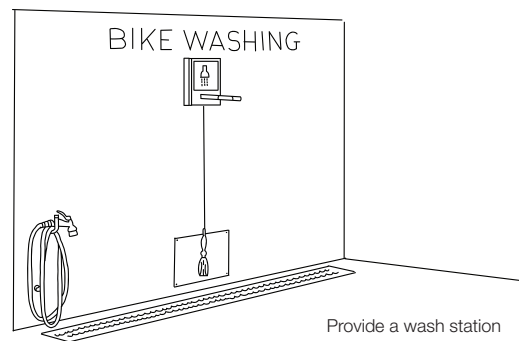
Provide hooks within the dwelling/ workspace so that a bicycle can be stored vertically and to accommodate cycling gear.



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

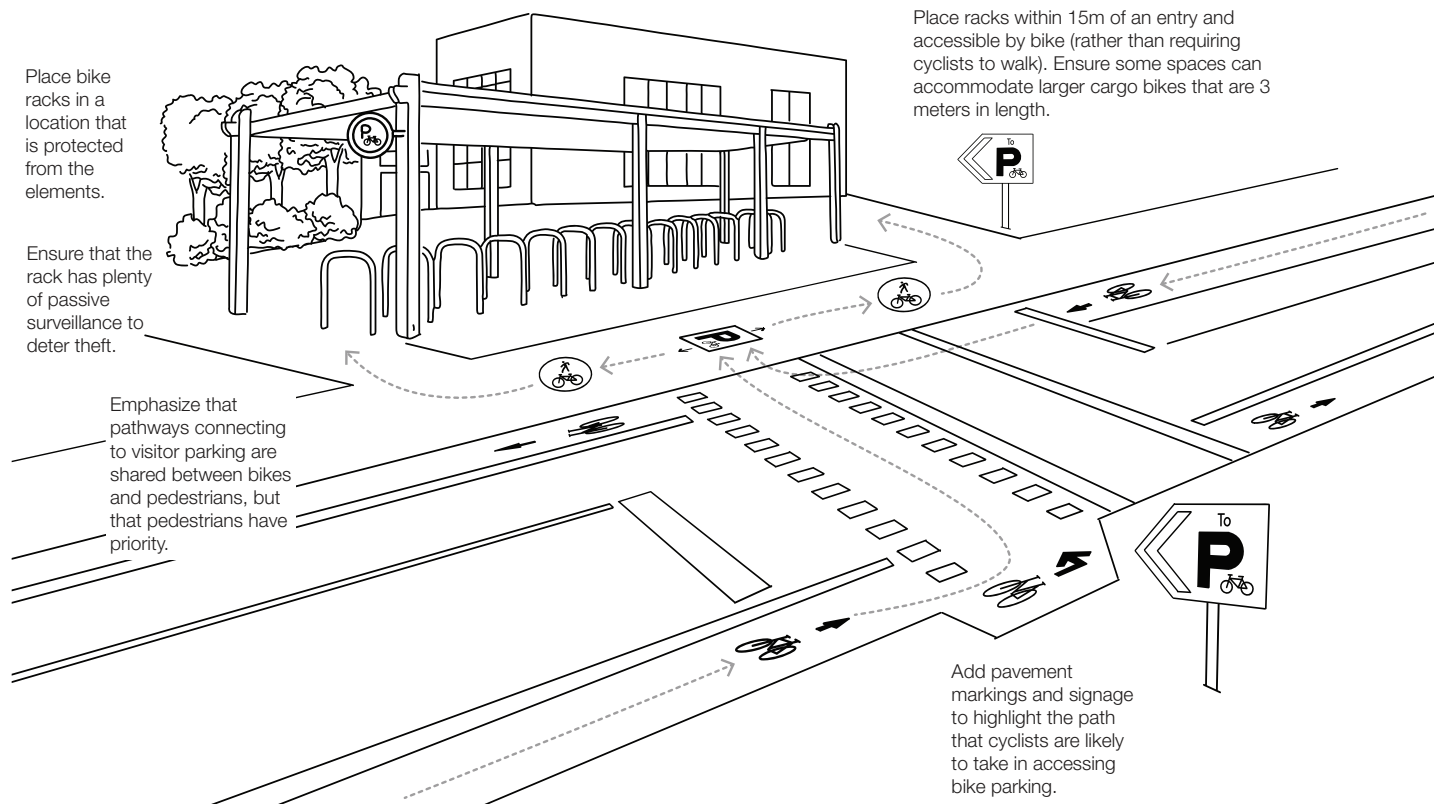


Make sure corners and stair landings are large enough to accommodate a bike.



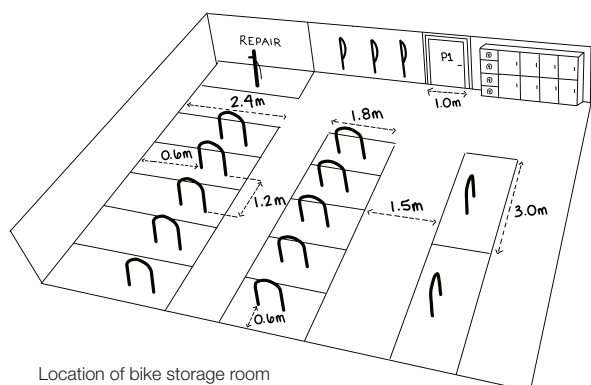
Provide a wash station so that one can clean a bike before entering.

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.

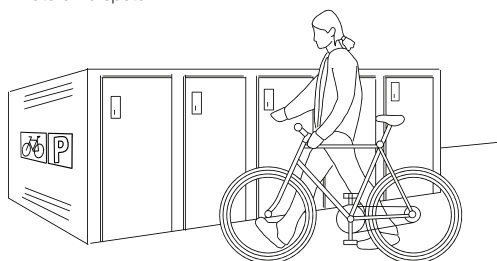


Make sure that the room is configured to accommodate standard bikes and a range of larger bikes (cargo bikes 2.4m and bikes with trailers 3.0m).

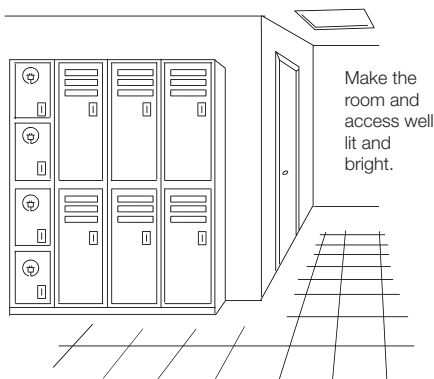
Strive to provide racks that are easy to use, intuitive and designed to accommodate a variety of bicycles and people of varying abilities and strength.

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.

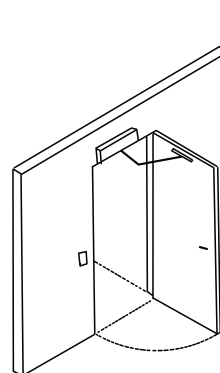


Provide secure bike lockers (minimum 10% of total bike parking volume) for those who wish to have a higher degree of security within secure parking.



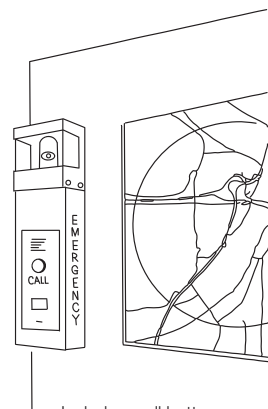
Make the room and access well lit and bright.

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



Include CCTV cameras and regular security patrols.

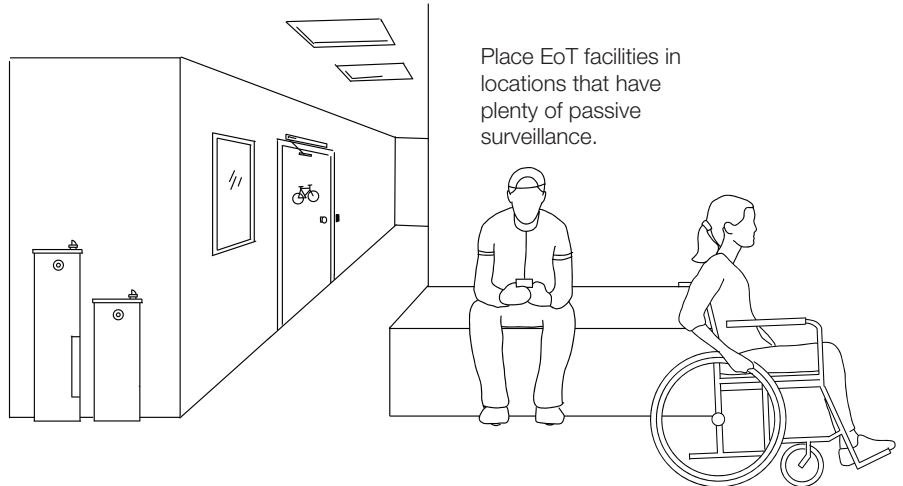
Automate doors to provide hands free access.



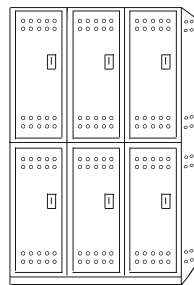
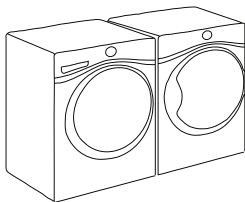
Include a notice board and maps of cycling routes (both paper copies and as a mural).

Include a call button so that users can alert security.

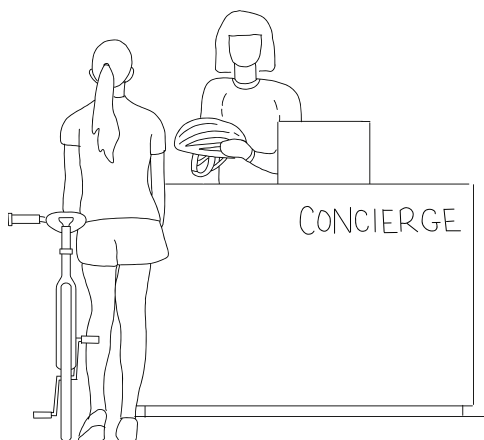
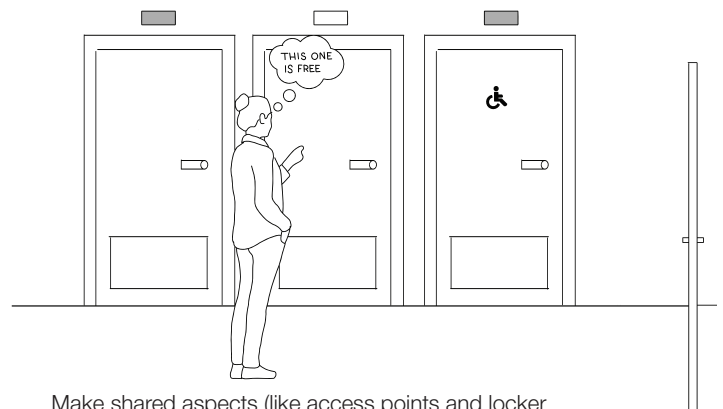
Best Practice In non-residential buildings, make washrooms, showers, and change facilities and lockers accessible to all



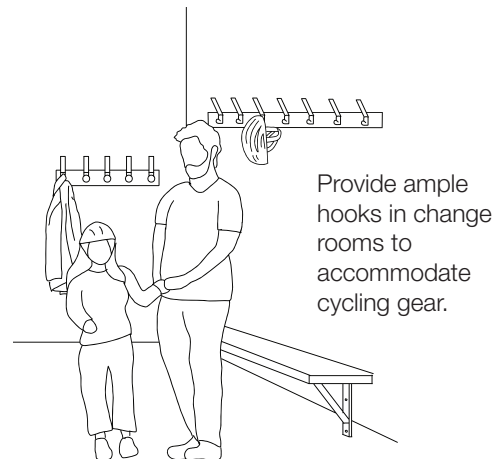
Where appropriate, provide laundry services so that people can wash and dry clothing.



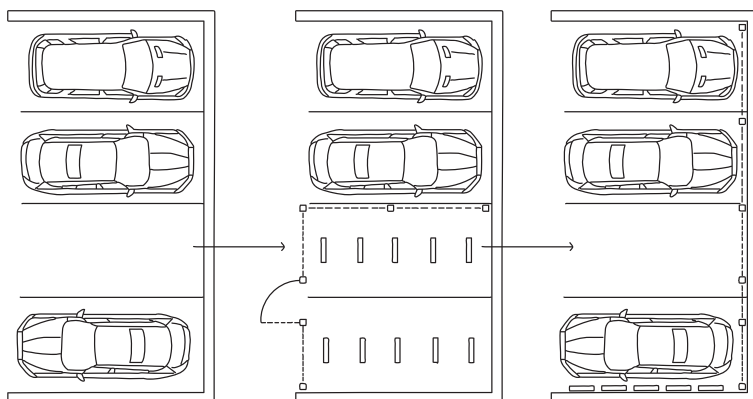
Make sure lockers have lots of air flow to allow wet gear to dry during the day. Co-locate hooks and lockers adjacent to hot air vents for better drying.



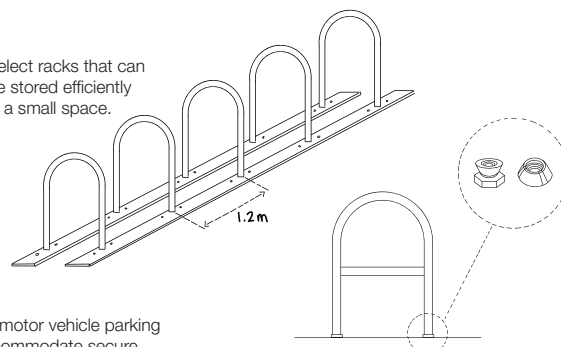
Include concierge services enroute to change rooms. Empower concierge services to have loaner bike locks, helmets, lights and rain gear available.



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

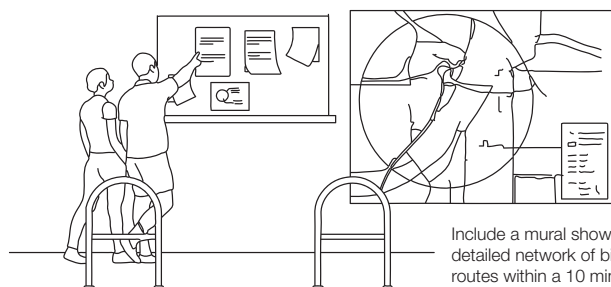


Select racks that can be stored efficiently in a small space.



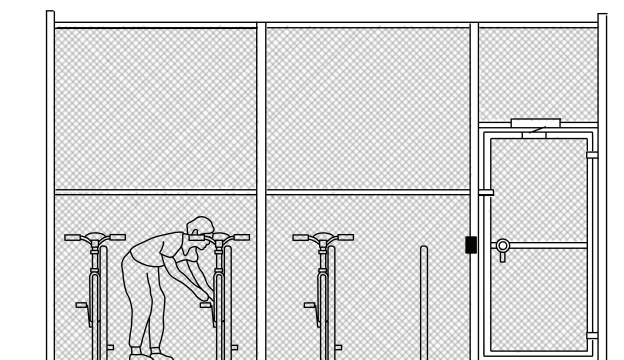
Repurpose motor vehicle parking stalls to accommodate secure bike parking using gates that can be removed or hinged back against a wall when not needed.

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.