



PEDESTRIAN FACILITIES

C.1 General Design Guidance

C.2 Pedestrian Through Zone

C.3 Frontage, Furnishing, and Curbside Zones

C.4 Rural Pedestrian Design Considerations



Campbell Street, Tofino, B.C.

C.1

GENERAL DESIGN GUIDANCE

This chapter provides general design guidance for pedestrian facilities to create walkable environments in both urban and rural contexts. This chapter introduces the various pedestrian zones, outlines a number of pedestrian facility types, and provides guidance for facility selection based on the local context and adjacent road conditions.



CREATING WALKABLE ENVIRONMENTS

Walking is the most universal mode of transportation. Every trip, regardless of the primary mode used, begins and ends with walking or using a mobility device. Communities of all sizes should strive to provide pedestrian facilities and amenities that make walking or using a mobility device safe, convenient, pleasant, and universally accessible. Pedestrian facilities should not only accommodate, but also welcome people of all ages and abilities. There are a number of characteristics that can help to create comfortable and desirable walking environments, including:

- **Physical separation** from other road users;
- Adequate **clear width** to allow more than one person walking or using a mobility device to pass each other;
- **Firm, smooth, and even surfaces;**
- Sufficient **pedestrian crossing** opportunities;
- **Short distances** between destinations;
- **Continuous and direct routes** between destinations that reflect pedestrian desire lines;
- **Buildings** that are oriented towards the road, creating an engaging environment;
- **Diverse land uses** that create a varied and interesting walking experience;
- **Wayfinding** that makes it easy to navigate between destinations;
- **Street trees** and other vegetation;
- **Weather protection** elements to provide refuge from rain or snow;
- Adequate **lighting** for safety, security, and visibility;
- Sufficient **benches and rest areas;**
- Pedestrian **amenities** including landscaping, water fountains, washrooms, garbage and recycling receptacles, public art, and street furniture; and
- **Well-maintained** pedestrian facilities in all seasons.

Design professionals should aim to achieve as many of these characteristics as possible when designing pedestrian facilities. It should be noted, however, that pedestrian design considerations can differ significantly based on community size and layout, land use, topography, climate, and many other elements. For example, busy urban commercial districts, suburban residential roads, rural roadways, and everything in between each have unique characteristics, constraints, and design requirements.

PEDESTRIAN ZONES

When located within a road right-of-way in an urban context, the pedestrian environment can be divided into three functional zones (see **Figure C-17**):

- 1 **Frontage Zone**
- 2 **Pedestrian Through Zone**
- 3 **Furnishing Zone**

In addition, the adjacent 4 **Ancillary Zone** is a flexible on-street space that can sometimes include pedestrian amenities. The Pedestrian Through Zone should always be prioritized, as it enables pedestrian movement and accessibility. Design guidance for the Pedestrian Through Zone is provided in **Chapter C.2**. Design guidance for the Frontage Zone, Furnishing Zone, and Ancillary Zone is provided in **Chapter C.3**.

Providing all three pedestrian zones is especially important in areas of high pedestrian activity, such as in urban areas and developed rural cores, as this can enhance the safety, convenience, and enjoyment of the pedestrian environment.

When located within a road right-of-way in outer developed rural and basic rural contexts, the pedestrian environment can have very different cross-sections and may only require a **Pedestrian Through Zone** (**Figure C-18**). Depending on the context, there may also be a Clear Zone and/or a Shoulder Zone between the Pedestrian Through Zone and the Traffic Zone.

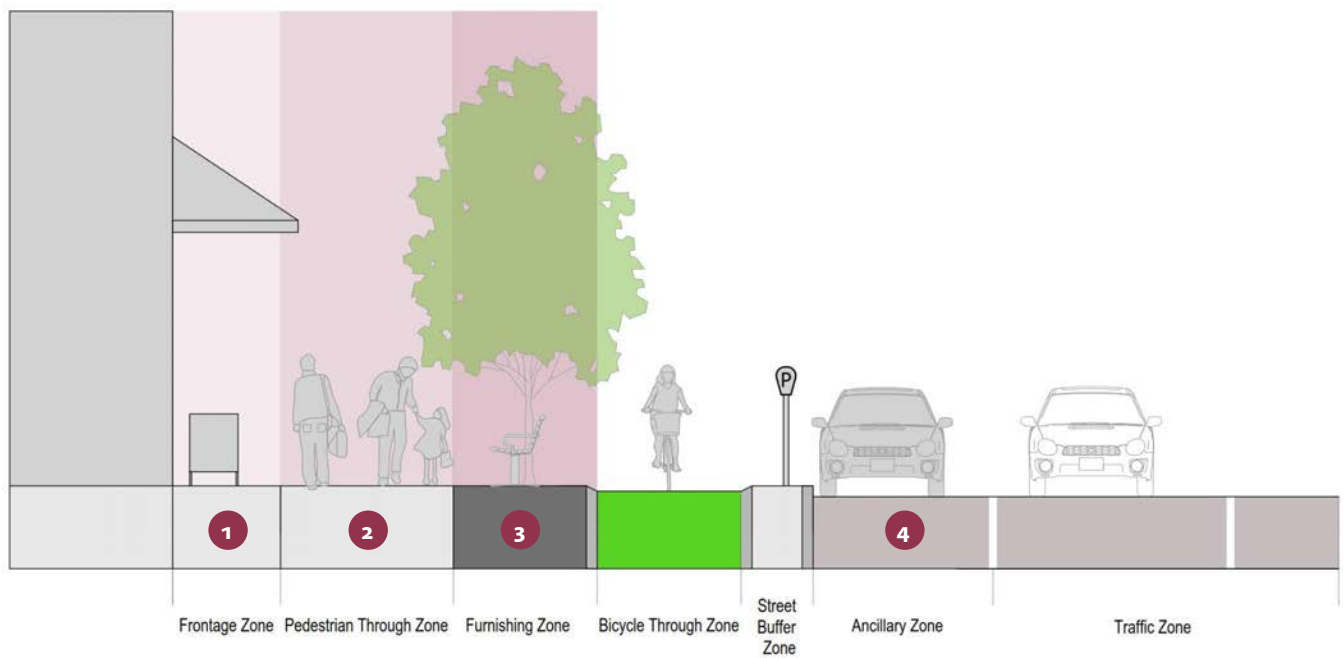


FIGURE C-17 // PEDESTRIAN ZONES IN URBAN CONTEXT

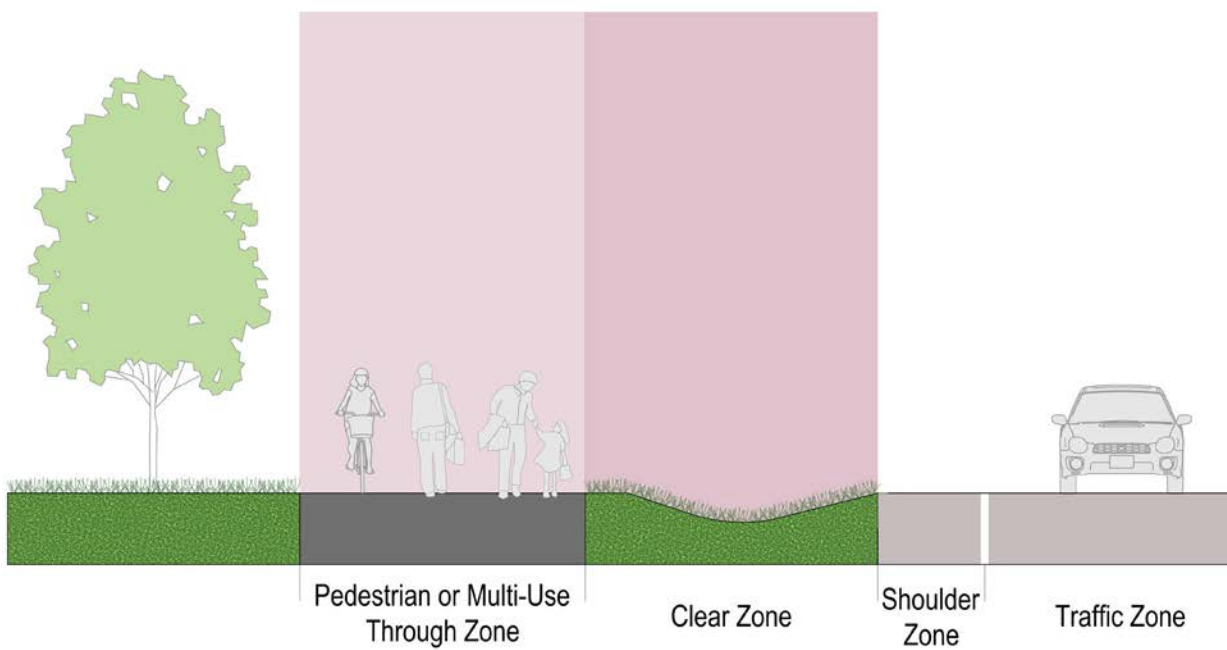


FIGURE C-18 // PEDESTRIAN ZONES IN RURAL CONTEXT

PEDESTRIAN FACILITY TYPES

Figure C-19 shows a spectrum of pedestrian facilities, which have been divided into supporting facilities and all ages and abilities facilities. Each type of facility may be appropriate in a different context, as described below:

- **Off-Street Pathway:** Pathways that are physically separated from the road, including multi-use pathways and separated bicycle and pedestrian pathways (see **Chapter E.2** and **Chapter E.3**).
- **Enhanced Separated Sidewalk:** Consists of a wide separated sidewalk with ample space for pedestrian movement, sidewalk utilities, and placemaking opportunities.
- **Separated Sidewalk:** A Furnishing Zone separates the Pedestrian Through Zone from the roadway. This buffer enhances pedestrian safety and comfort while providing space for sidewalk amenities and utilities (see **Chapter C.3**).
- **Non-Separated Sidewalk:** The Pedestrian Through Zone is located directly next to the roadway, but is physically separated from the roadway by a curb. Gutters are provided for drainage.
- **Walkable Shoulder:** If no formal sidewalk is provided, a shoulder may be provided. People walking may utilize the shoulder, with the Pedestrian Through Zone directly adjacent to the Traffic Zone. This type of facility is not considered appropriate for people of all ages and abilities. **Chapter C.4** outlines additional ways to accommodate people walking where sidewalks are not feasible or appropriate.



FIGURE C-19 // PEDESTRIAN FACILITY TYPE SPECTRUM

APPLICABILITY AND CONTEXT

Urban Context

Sidewalks are the foundation of the pedestrian network in urban contexts and where there is high walking activity in suburban and developed rural core contexts. Sidewalks provide a dedicated space within the right-of-way that facilitates movement, access, and connectivity while providing physical separation from motor vehicles. Sidewalks also serve as public spaces, playing a key role in activating communities both socially and economically. A well-designed sidewalk network that considers local context and universal accessibility can make walking and using mobility devices safer and more attractive, ultimately contributing to increased public health and helping to maximize social capital.

Sidewalks are recommended on all types of urban roads. Ideally, sidewalks should be provided on both sides of the road in order to enhance pedestrian network connectivity, provide full accessibility, and limit unnecessary road crossings. However, this may not be necessary if there are not pedestrian destinations present on one side of the road or if traffic volumes and speeds are sufficiently low. Where appropriate, an off-street pathway can take the place of a sidewalk (see **Chapter E.2** and **E.3**).

In general, separated sidewalks are preferred over non-separated sidewalks, as they provide the following benefits:

- Increase the safety and comfort for people walking due to the larger buffer from motor vehicles;
- Provide space in the Furnishing Zone for utilities and sidewalk amenities such as benches, bicycle racks, street trees, and landscaping, while maintaining an unobstructed Pedestrian Through Zone;
- Provide an adequate slope area for driveway ramps between the curb and sidewalk (see **Chapter C.2**);

- Provide space for snow storage; and
- Decrease the likelihood of people walking being splashed by motor vehicles during wet weather (due to the increased buffer space).

Separated sidewalks should be considered along all arterial roads and in areas with high pedestrian activity. They may also be used along local and collector roads, including near health care facilities and school zones. While they have a number of important benefits, separated sidewalks take up more right-of-way and can also be more expensive to construct and maintain due to the addition of a Furnishing Zone. While separated sidewalks are preferred, non-separated sidewalks may be acceptable where motor vehicle speeds and volumes are sufficiently low, where there are no key pedestrian destinations, or where the right-of-way is constrained.



Deep Cove, District of North Vancouver, B.C.

Enhanced separated sidewalks are recommended in downtown commercial centres, along main streets, near major transit hubs, and in other areas of high pedestrian activity. Greater sidewalk width is highly beneficial in these contexts to allow for increased pedestrian volumes, pedestrian passing movements, and enhanced pedestrian amenities. Where wider sidewalks are not possible due to right-of-way constraints, pedestrian flow can be aided by reducing the size of the Frontage and Furnishing Zones and ensuring that objects such as sandwich boards and planters are not obstructing the Pedestrian Through Zone.

Rural Context

In rural contexts, sidewalks are recommended in developed rural cores such as towns and villages with population densities of at least 400 people per square kilometre. In order to increase pedestrian safety, sidewalks are recommended along roads with more than 2,000 motor vehicles per day or motor vehicle speeds over 30 km/h. Sidewalks are also appropriate along short distances between built-up areas that connect pedestrian destinations such as neighbourhoods, schools, health-care facilities, and commercial areas.

In outer developed and basic rural areas, sidewalks may not always be feasible or necessary. Sidewalk

construction in these environments can be cost-prohibitive, and the curb and gutter construction of sidewalks may not support the existing rural character. Separated pedestrian walkways or off-street pathways separated from motor vehicle traffic by a landscaped ditch in the Clear Zone, may be more appropriate.

Special attention should be given to pedestrian facilities in school zones or near health-care facilities where a higher proportion of people may be children, people with mobility aids, and people with visual and/or mobility impairments. In these cases, as much separation as possible should be provided between motor vehicles and people walking. Traffic calming measures that reduce motor vehicle speeds and volumes may be appropriate near schools.

Flexible Strategies

Flexible and inexpensive strategies for accommodating people walking in rural contexts can be found in **Chapter C.4**.

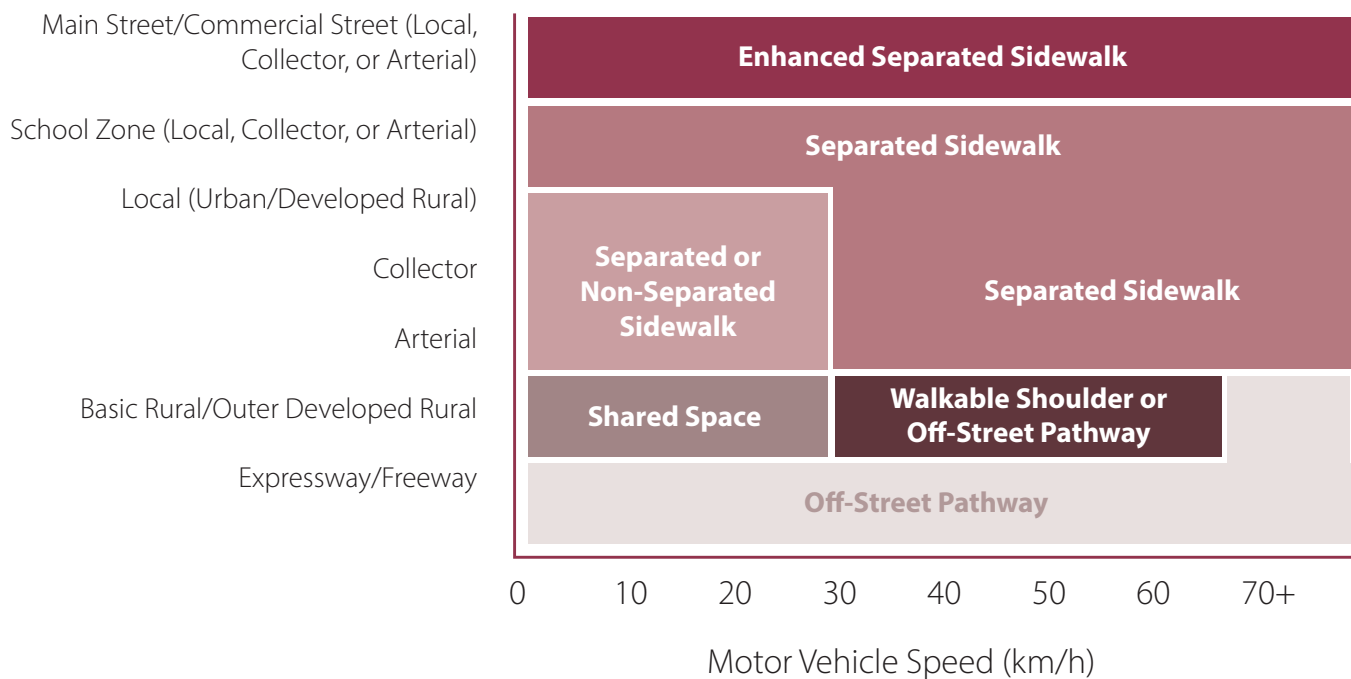


PEDESTRIAN FACILITY SELECTION

Figure C-20 shows the Pedestrian Facility Selection Decision Support Tool, which outlines when each type of pedestrian facility may be appropriate. This decision support tool is based on motor vehicle speeds and road service classes, with some additional context added based on land-use context. The Pedestrian Facility Selection Decision Support Tool is based on the selection criteria outlined in **Chapter B.2**.

The Pedestrian Facility Selection Decision Support Tool is provided to narrow the range of appropriate pedestrian facility types and support the decision-making process for design professionals. It does not replace the need for the decision on the appropriate pedestrian facility type to be made by a qualified, experienced professional exercising sound judgement. Design professionals should also consult **Chapter B.2** to understand the contextual and local conditions that may influence the preferred pedestrian facility type.

FIGURE C-20 // PEDESTRIAN FACILITY SELECTION DECISION SUPPORT TOOL





C.2

PEDESTRIAN THROUGH ZONE

The Pedestrian Through Zone is the area intended for pedestrian movement, where people travel, interact with each other, and access destinations along a street. Providing a Pedestrian Through Zone that is functional for people of all ages and abilities should be prioritized over other zones when designing the pedestrian environment. This area should remain clear of obstructions and provide sufficient width for the expected volume of people, including people using mobility aids.



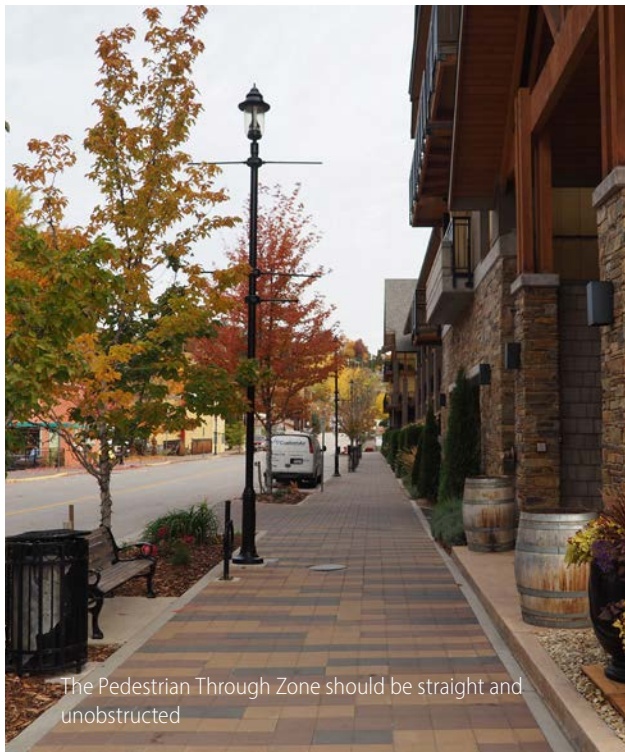
DESCRIPTION

The Pedestrian Through Zone may consist of a sidewalk (non-separated, separated, or enhanced), an off-road pathway, or a walkable shoulder depending on the context (see **Chapter C.1** for definitions). The Pedestrian Facility Selection Decision Support Tool in **Chapter C.1** outlines where each type of Pedestrian Through Zone treatment is typically applicable. In general, sidewalks are the preferred treatment in urban, suburban, and developed rural core contexts. In outer developed rural and basic rural contexts, off-street pathways, walkable shoulders, and shared spaces are more common.

The design guidance provided in this chapter is applicable to all types of facilities in the Pedestrian Through Zone, although some elements discussed may be more applicable to urban and developed rural core contexts. Additional tools for creating walkable environments in outer developed rural, basic rural, and some suburban areas are provided in **Chapter C.4**.

The Pedestrian Through Zone should be kept clear of obstructions at all times, with the minimum width maintained for the length of the corridor and through all crosswalks. When utilities, street furniture, advertising boards, vegetation, or other obstructions encroach on the Pedestrian Through Zone, access can be limited, especially for those using mobility devices. Different surface materials or detectable warning surfaces such as tactile walking surface indicators (TWSIs) may be used to define the Pedestrian Through Zone, differentiating it from other zones and ensuring that it is detectable for people who are visually impaired. The surface of the Pedestrian Through Zone should be firm, non-slip, and glare-free (see Surface Materials subsection of this chapter for more details).

The Pedestrian Through Zone should have a straight and consistent alignment, with continuity maintained across driveways, intersections, and other conflict zones. Generally, the Pedestrian Through Zone should be aligned parallel to the road centreline or the property line. This continuity helps to improve



navigation and wayfinding for people who are visually impaired. In constrained contexts, the Pedestrian Through Zone may need to occasionally meander around obstacles, but this should be avoided wherever possible. However, meandering or curvilinear sidewalks may be used to mitigate long sustained steep grades. Driveways across the Pedestrian Through Zone should be limited to minimize disruptions. Design guidance for driveway crossings is provided later in this chapter.

DESIGN GUIDANCE

Width

The recommended desirable and constrained limit widths for the Pedestrian Through Zone are shown in **Table C-5**. These widths apply predominantly to sidewalks but can be used as a general guide for other Pedestrian Through Zone treatments. For more detail on off-street pathways, refer to **Section E**. The recommended widths differ based on land-use

context to ensure that in areas with higher pedestrian activity, window shopping, or large surges of activity, there is sufficient width to maintain pedestrian movement. The recommended widths also differ based on the adjacent road type, recognizing that higher motor vehicle speeds and volumes can negatively impact pedestrian safety and comfort. Design professionals should also consider a number of other factors when determining the Pedestrian Through Zone width, including the presence of parks, trails, transit stops, and other considerations.

The Pedestrian Through Zone should have a constrained limit width of at least 1.8 metres, which allows two people using mobility devices to pass one another. A width of 1.8 metres is also recommended for snow clearing operations, as this helps prevent plow damage to road amenities and utilities. Providing between 1.8 and 2.1 metres allows sufficient clearance for a pedestrian to pass someone with a service animal or another pedestrian holding a child's hand.

TABLE C-5 // PEDESTRIAN THROUGH ZONE RECOMMENDED WIDTHS

Land Use Context	Road Type	Separation	Desirable (m)	Constrained Limit (m)*
Single- Family Residential	Local	Non-Separated or Separated	1.8	1.8
	Collector/Arterial**	Separated	1.8	1.8
Multi- Family Residential	Local	Non-Separated or Separated	2.1	1.8
	Collector/Arterial**	Separated	2.4	1.8
Industrial	Any**	Separated	2.1	1.8
Commercial	Any**	Separated	2.4-3.0	2.1
Area of high pedestrian activity (including temporary, special event, or seasonal)***	Any	Separated	3.0-4.0	2.4

* The absolute minimum width of the Pedestrian Through Zone is 1.5 metres, which should only be used under constrained conditions for distances under 100 metres

** Non-separated sidewalks are not recommended on collector, arterial, or industrial roads with motor vehicle speeds greater than 30 km/h (see **Chapter C.1**). If non-separated sidewalks cannot be avoided due to site constraints, a minimum of 0.5 metres may be added to the Pedestrian Through Zone width to provide extra separation from motor vehicles.

*** Areas of high pedestrian activity have peak pedestrian volumes of 400 pedestrians/peak 15-minute period, as per Table 6.3.1. in the TAC *Geometric Design Guide for Canadian Roads*.

The absolute minimum width of the Pedestrian Through Zone is 1.5 metres, which should only be used under constrained conditions for distances under 100 metres. A Pedestrian Through Zone less than 1.5 metres wide cannot reasonably support two-way pedestrian movement. Wherever a Pedestrian Through Zone width is selected that is less than recommended based on pedestrian volumes and road type, a full width section should be provided every 30 to 60 metres to allow for passing.

Where higher pedestrian volumes are expected, such as along roads with multi-family or commercial land uses, wider Pedestrian Through Zones are recommended (see **Table C-5**). In areas of especially high pedestrian activity, including temporary, special event, and seasonal contexts, the Pedestrian Through Zone width should be further increased to allow for adequate maneuvering space. This applies to areas where pedestrian volumes are greater than 400 people in the peak 15 minutes. The constrained limit width under these conditions is 2.4 metres, and the desirable width is 3.0 to 4.0 metres, based on the volume of pedestrians and maneuvering space required. Locations that see very high pedestrian volumes may require even greater widths.

Wider Pedestrian Through Zones contribute to comfortable walking environments and can enable a number of desirable social interactions. Design professionals are encouraged to consider adding additional width where feasible and warranted. Further areas or conditions where additional Pedestrian Through Zone width should be considered include:

- Where there are connections to schools, community centres, transit hubs, and major pedestrian generators;
- Where pedestrian surges occur, such as transit stations, stadiums, and other large event areas;
- Where there is a large proportion of people using mobility devices, people pushing strollers, and visually impaired pedestrians, such as near health-care facilities and assisted living facilities;
- Where strolling, lingering, and window shopping is expected and encouraged;
- Where there are pinch points or where the Pedestrian Through Zone is directly adjacent to buildings with zero setback;
- Where driveway ramps are present; and
- Where the Pedestrian Through Zone is directly adjacent to the curb, providing additional space for road hardware, snow clearing and storage, opening doors from marked motor vehicles, and motor vehicle traffic.

Where the right-of-way is limited, design professionals should consider reducing or removing other road elements in order to maintain the desirable width for the Pedestrian Through Zone. To provide extra space, the following could be considered, in this order:

- Narrow the Frontage Zone;
- Narrow the Furnishing Zone; or
- Remove the Frontage Zone and/or Furnishing Zone.

A more expensive option for providing increased Pedestrian Through Zone width includes narrowing or removing general purpose motor vehicle travel lanes, turning bays, or on-street parking, and then moving the curb to widen the sidewalk. This option requires careful consideration of traffic volumes, parking supply, and the minimum widths required for the corridor's design vehicles, including trucks, transit, and emergency services. Moving the curb may be more cost effective if implemented alongside development or an existing road reconstruction project that already required the road or curb to be reconstructed. An overview of retrofit strategies is provided in **Chapter B.2**.

Separated sidewalks are desired in all contexts, as they create a safer and more pleasant walking experience. However, separated sidewalks may not always be necessary on local roads and may not be feasible in constrained contexts. Separated sidewalks are generally recommended along collector, arterial, or

industrial roads in new construction and rehabilitation projects, where feasible.

Where site constraints necessitate that a non-separated sidewalk be installed, additional buffer width of 0.5 metres or greater may be added to the Pedestrian Through Zone width where feasible to improve pedestrian safety and provide adequate width for snow clearing. Additional width on non-separated sidewalks is especially important in areas with high motor vehicle volumes (>4,000 vehicles per day, excluding industrial areas), heavy truck traffic (>10% of total volume), or roadway design speeds over 60 km/h.

Grade and Slope

Longitudinal Grade

Flat surfaces are ideal for those with mobility impairments. B.C.'s coastal and mountainous topography can often be a challenge for communities to provide accessible and connected pedestrian networks. As a result, steep grades should be considered during the design of pedestrian facilities.

Table C-6 shows the recommended longitudinal grades for pedestrian facilities. In order to be universally accessible, the Pedestrian Through Zone should have a maximum grade of 1:20 (5%). Grades as steep as 1:12 (8.3%) are acceptable as long as intermittent landings are provided at intervals of no more than 9.0 metres.

TABLE C-6 // LONGITUDINAL GRADE

Maximum Longitudinal Grade	Requirements
≤ 5.0%	None
> 5.0% to 8.3%	Landings should be provided every 9.0 metres
> 8.3%	Alternative accommodations recommended

Many communities have pedestrian facilities with grades steeper than 8.3%. Where this is the case, there

are a number of strategies that can be used to make the route accessible for pedestrians. Despite the strategies listed below, not all roads will be accessible for people of all ages and abilities. Wherever feasible, design professionals should ensure that where an inaccessible route exists, alternative routes or transportation modes are provided and made apparent through signage and wayfinding.

Strategies for mitigating the effects of steep topography include:

- **Maintenance:** Along steep grades, it is especially important to ensure that the Pedestrian Through Zone is clear of snow, ice, gravel, and wet leaves in the fall and winter, as these can create dangerous slipping hazards. Staircases should also be well maintained and inviting, including firm steps and solid railings.
- **Rest Areas:** Providing frequent flat landing areas with benches or other seating can allow people the opportunity to walk uphill in stages.
- **Railings:** Adding railings can help people who require extra support when navigating steep slopes.
- **Circulating Shuttle:** Providing a circulating shuttle that connects key destinations can help to lessen the impact of steep topography. For example, the City of White Rock offers a free seasonal trolley bus that connects the waterfront to the uptown area up the hill.
- **Adding Switchbacks:** While a direct pedestrian route is generally preferred, curves or switchbacks can be added to the pedestrian facility where space permits in order to minimize the grade.
- **Accessible Ramps:** If the grade is steeper than 8.3%, an accessible ramp may be provided, if space allows. The ramp should meet universal accessibility specifications, including the provision of level landing spots and railings. See **Chapter G.3** for design guidance.

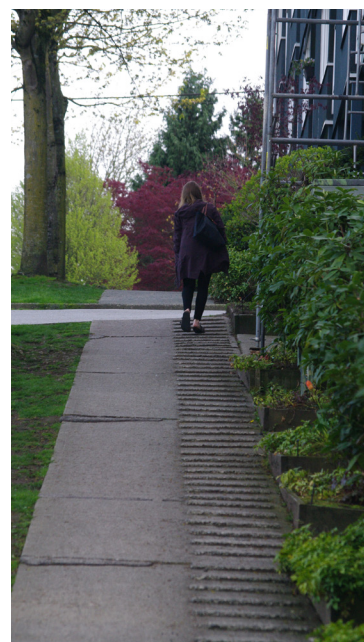
- **Ladder Sidewalks:** Some communities have installed concrete bars in the sidewalk on some of their steepest roads to provide additional traction for pedestrians. These 'ladder sidewalks' are helpful in wet and slippery conditions. If placed across the entire Pedestrian Through Zone, they render the sidewalk inaccessible for people using wheelchairs, although these sidewalks may already be too steep for most wheelchair users to comfortably use. Other strategies include placing the bars across only half the Pedestrian Through Zone, leaving space for wheelchair users to bypass the obstruction if the sidewalk grade is not too steep.
- **Stairways:** A range of communities, including White Rock, North Vancouver, Nelson, and Tofino, have incorporated stairways to maintain connectivity where standard sidewalks or accessible ramps are not feasible. While stairways are not accessible for people using mobility devices, they provide railings and intermittent landing areas that allow people to rest, aiding their ascent. If stairways are used, a parallel accessible pedestrian route should

be provided (if possible), with signage and wayfinding guiding people to the accessible route. In addition to enhancing connectivity, stairways present an opportunity for adding additional pedestrian amenities such as lighting, seating, landscaping, and public art. At locations where there are stairways, ramps can be installed to allow people cycling to easily push their bicycles up the stairways as opposed to having to carry their bicycles or find another route. See **Chapter G.6** for design guidance on staircase design.

The City of Trail has a unique system of 63 covered staircases that have become an iconic part of the community. They were installed in the 1930s and 1940s to provide access to the downtown core and were covered to help reduce winter maintenance, as Trail receives a significant amount of snowfall each winter. The staircases have become the focal point of local events, including a United Way fundraiser called 'Storm the Stairs' and a multi-sport race called the 'Red Roofs Duathlon.'



Staircase alongside a steep road in Tofino, B.C.



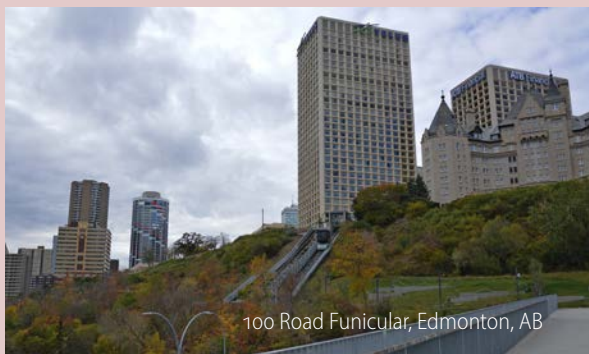
Ladder sidewalk across a portion (left) and the full (right) sidewalk, Oak Street, Vancouver, B.C.

Mechanized Solutions

Nationally and internationally, a number of communities have turned to mechanized solutions to mitigate topography. These include funiculars, cable car systems, and even outdoor escalators. These solutions are very much context-specific and require careful consideration, as they may require more space, greater initial costs, and ongoing maintenance. However, in the right contexts, they have shown potential to enhance community connectivity while also providing unique placemaking opportunities and attracting tourists. Two examples are listed below.

Funicular: The 100 Road Funicular in Edmonton, Alberta provides an all ages and abilities connection for pedestrians from downtown Edmonton to the North Saskatchewan River Valley, where well-used active transportation and recreation facilities are located. The funicular does not require an operator. Stairs are installed next to the funicular as part of a pedestrian promenade.

Escalators: The covered outdoor escalator network in Medellin, Colombia, which opened in 2011, has helped to connect the Comuna 13 neighbourhood to other areas of the city, vastly improving access to employment opportunities and community amenities for local residents. The escalator system and the associated public space improvements have helped to improve neighbourhood safety and have quickly become an international tourist destination.



Cross Slope

Cross slope is an important consideration for pedestrian comfort, universal accessibility, and drainage. A certain degree of cross slope is required to ensure proper drainage, but when a cross slope is too steep, it becomes very challenging to traverse for people using mobility aids.

The desired cross slope along a pedestrian facility is 1.0 to 2.0%, draining towards the gutter line or ditch. The lower end of this range is more comfortable for people using mobility devices, with 2.0% being the maximum slope recommended for universal accessibility. In constrained circumstances, a cross slope up to 5.0% is acceptable. Over short driveways, an absolute maximum of 8.0% may be used. The absolute minimum cross slope is 0.6%, but this may present drainage challenges.

Driveways and Alleys

Driveways

Where driveways cross the Pedestrian Through Zone, they create conflict points between motor vehicles and people walking. Additionally, driveway ramps that extend into the Pedestrian Through Zone can make it challenging for people using mobility devices to maneuver, as they require a flat surface to rest their supports. Therefore, driveways across the Pedestrian Through Zone should be limited as much as possible in order to maintain an unobstructed pedestrian

facility. In areas with numerous driveways, such as in commercial areas, access management should be considered to control the location, dimensions, and frequency of driveways.

Along separated sidewalks with a Furnishing Zone, driveway ramps should be confined to the Furnishing Zone, maintaining a continuous, level Pedestrian Through Zone (**Figure C-21**). In this context, the sidewalk cross-slope should be maintained through the driveway and cane-detectable directional score lines should be used in the ramp segment of the driveway.

Along non-separated sidewalks, there is no Furnishing Zone. As such the driveway ramp may have to be located in the Pedestrian Through Zone. If achievable, a flat segment of the Pedestrian Through Zone of at least 1.0 metre should be maintained, as shown in **Figure C-22**. The Pedestrian Through Zone may need to be widened to make room for this flat segment. Alternatively, the Pedestrian Through Zone could bend out to wrap around the driveway, as shown in **Figure C-23**. If the available right-of-way and the grade necessitate ramping down the entire Pedestrian Through Zone, score lines should be used across both the Pedestrian Through Zone and ramp segments to guide pedestrians with visual impairments through the conflict zone.

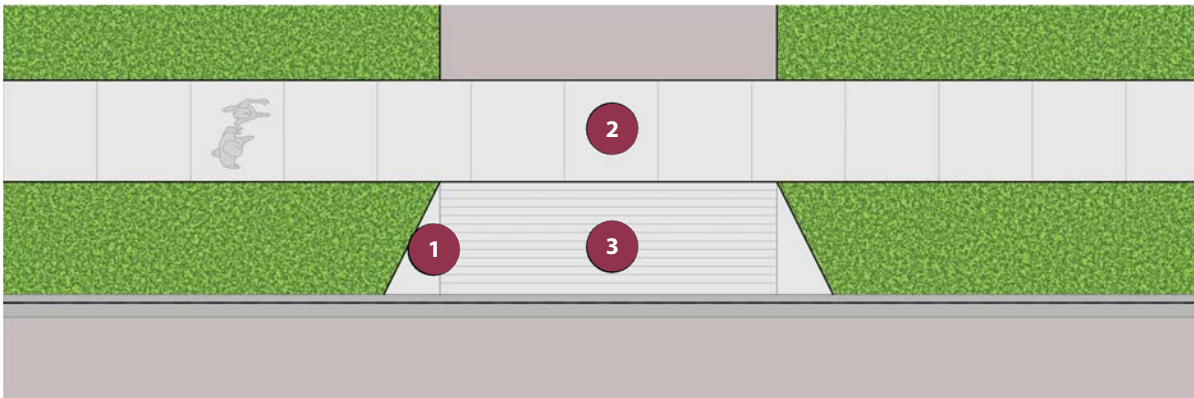


FIGURE C-21 // DRIVEWAY CROSSING OF SEPARATED SIDEWALK

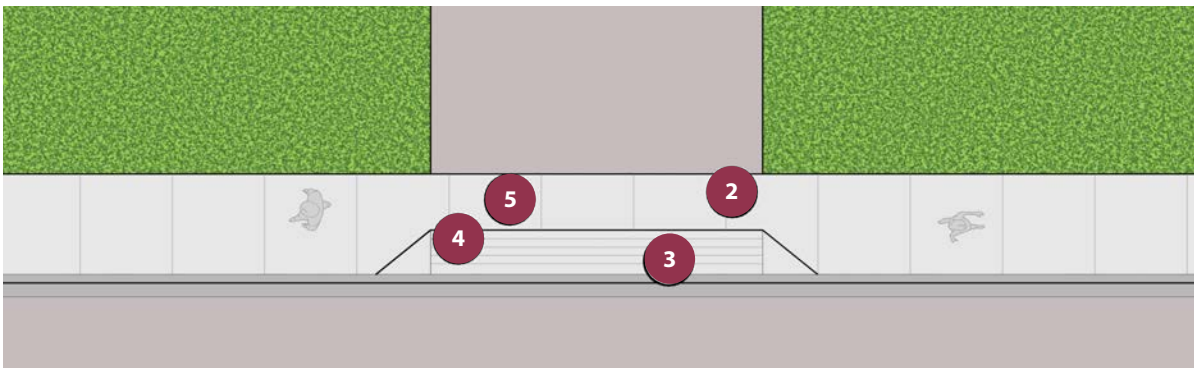


FIGURE C-22 // DRIVEWAY CROSSING OF NON-SEPARATED SIDEWALK

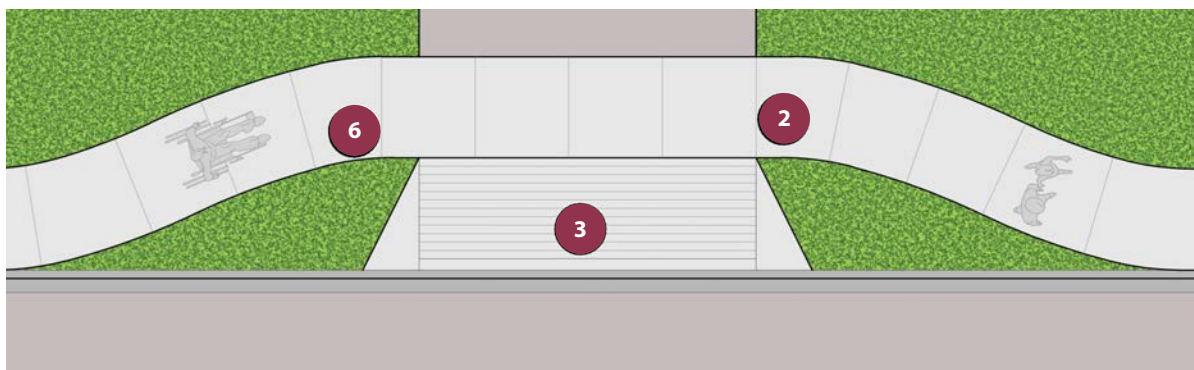


FIGURE C-23 // DRIVEWAY CROSSING OF NON-SEPARATED SIDEWALK (WRAPPED AROUND DRIVEWAY)

- | | |
|--|---|
| 1 Driveway confined to Furnishing Zone | 4 Driveway located in Pedestrian Through Zone |
| 2 Maintained sidewalk cross slope | 5 Maintained sidewalk cross slope for 1.0 metre width |
| 3 Longitudinal score lines | 6 Driveway confined to Furnishing Zone due to sidewalk bend-out |



Alleyways

Alleyways (also known as laneways) present the same conflict points between motor vehicles and people walking as driveways. Where achievable, the recommended practice is to provide a raised crosswalk across the alleyway so that the Pedestrian Through Zone is continuous (see **Chapter G.3** for further guidance on raised crosswalks). Alternatively, an accessible curb ramp should be installed to allow people walking to travel through the alleyway (see **Chapter G.3** for further guidance on curb ramps).

For high-use alleyways such as commercial or employment accesses, additional conflict zone markings can be applied through the crossing to increase visibility of the conflict zone. Alternatively, a different surface treatment may be used through the crossing, such as textured coloured concrete (as shown to the right). For example, the City of Vancouver uses a concrete Pedestrian Through Zone in alleyway crossings and applies score lines to aid with navigation, as shown in **Figure C-24**.

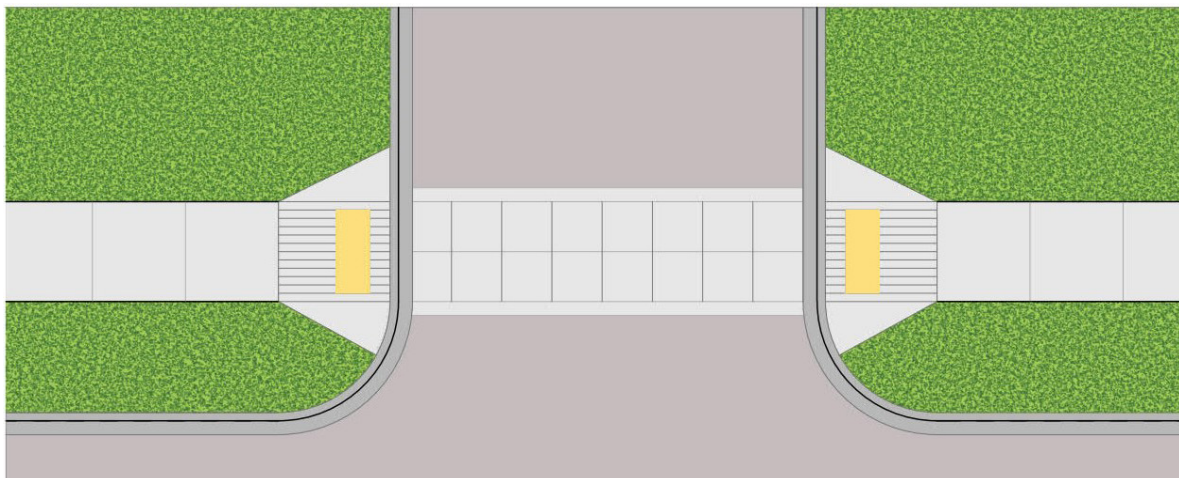


FIGURE C-24 // ALLEYWAY CROSSING OF SEPARATED SIDEWALK WITH DIFFERENT SURFACE TREATMENT

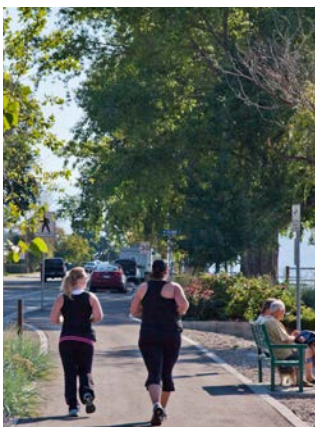
Surface Materials

The surface materials used for the Pedestrian Through Zone should be firm, even, and slip-resistant, providing good traction in all weather conditions. Surface materials should provide a smooth rolling surface for people using mobility devices. If differences between materials are intended to be detectable by people with visual impairments, they must be sufficiently detectable under foot and when using a cane, and should be tested before being applied (see **Chapter B.3** for more details).

Portland cement concrete is the standard material used on sidewalks, as it provides a durable surface that meets the above criteria. Concrete that is broom-finished with saw-cut control joints provides the best experience for people using mobility devices, as this application cuts down on vibrations caused by rolling over sidewalk joints. This approach is beneficial throughout the pedestrian network, but widespread implementation may be cost prohibitive. Key areas of high pedestrian activity such as main commercial areas, or where people with mobility impairments are concentrated such as around healthcare facilities, should be prioritized for this type of sidewalk treatment.

Other surface materials include:

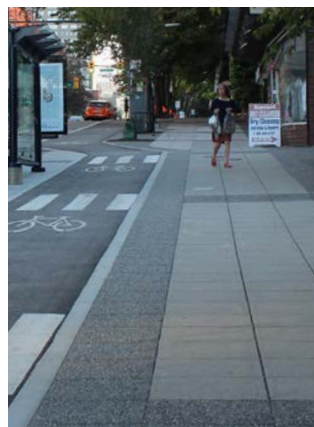
- **Asphalt:** Asphalt may be used as an alternative to concrete, although it has a shorter lifespan and may be affected by root heaving. Asphalt may be appropriate in more rural areas and in park settings. It may also be used as a less expensive interim option (see **Chapter C.4** for further details).
- **Brick:** Brick is often used in downtown areas with high pedestrian volumes. Brick accents may be installed in concrete sidewalks to enhance the look of the pedestrian facility. However, brick may not be a comfortable surface for people using mobility devices, and it requires significant maintenance.
- **Decorative paving materials (cobblestone, unit pavers, exposed aggregates, exposed glass):** Decorative paving materials may be used to enhance the visual aesthetic of the streetscape; however, these materials should not detract from the basic function of the Pedestrian Through Zone. Surfaces that are slippery, uneven, or that create glare should be avoided in the Pedestrian Through Zone. Decorative paving materials may be better suited to the Furnishing Zone to help delineate the Pedestrian Through Zone. Simply adding decorative scoring patterns or colour to a concrete sidewalk is a simple way to add visual interest to the Pedestrian Through Zone without compromising accessibility. Some decorative materials may not be ideal for people with mobility impairments, as the surface may be more slippery or bumpy than standard concrete. Additionally, unique maintenance considerations may be required.
- **Permeable pavement:** Permeable pavement can include permeable concrete or porous unit pavers. Permeable pavement allows water to infiltrate into an infiltration bed below the sidewalk, helping to manage stormwater.



Asphalt pathway,
Peachland, B.C.



Historic brick, Vancouver, B.C.
Source: Rod Preston



Exposed aggregate and unit
pavers, Vancouver, B.C.



Permeable pavement, West 10th
Avenue, Vancouver, B.C.



Goldstream Avenue, Langford, B.C.



C.3

FRONTAGE, FURNISHING, AND ANCILLARY ZONES

This chapter is divided into three sections, one for each of the Furnishing Zone, Frontage Zone, and Ancillary Zone. These zones contain many of the elements that make the road functional, accessible, and enjoyable for all users. This includes providing space for people to rest, socialize, shop, eat, get information, or transfer between transportation modes.

Not all of these zones are present or required in all contexts. It is most common to see all three in urban contexts as well as some suburban and developed rural core contexts. The road context and available right-of-way will determine the design, width, and type of amenities that are appropriate in each zone.

As discussed in **Chapter C.2**, providing a clear, unobstructed Pedestrian Through Zone that meets accessible width requirements is the most important priority in the pedestrian realm. Once that criterion is met, design professionals may then proceed to providing a Furnishing Zone, Frontage Zone, and/or Ancillary Zone that meets the needs of all pedestrians and other road users.



Furnishing Zone, Squamish, B.C.

FURNISHING ZONE

Description

The Furnishing Zone is located between the Pedestrian Through Zone and the curb or pavement edge (and the Ancillary Zone if one is provided). The Furnishing Zone provides space for utilities, street furniture, landscaping, street trees, and snow storage. It should be provided wherever sufficient right-of-way is available, as it provides a buffer between motor vehicles and people walking, and it can contribute significantly to a more functional and pleasant pedestrian environment. There is no Furnishing Zone on roads with no curb and gutter.

Snow storage is an important factor in when planning the Furnishing Zone width and the type and placement of elements. Local snowfall levels and maintenance practices should be considered – plowing will often result in snow accumulation along the roadside, in either the Ancillary Zone or the Furnishing Zone. It is necessary to provide adequate longitudinal space between elements such as benches, street trees, and bicycle parking to allow for snow storage and removal, while still ensuring that these amenities are functional all year round.

Width

As discussed above, the Furnishing Zone is not a required element and may not be present in all contexts. Where present, the width of the Furnishing Zone can vary depending on the available right-of-way, land-use context, adjacent motor vehicle speeds and volumes, the amount of snow storage required, and the types of utilities, street furniture, and/or landscaping that is desired. **Table C-3** contains the recommended desirable and constrained limit widths for the Furnishing Zone and has been broken down into two categories: basic and enhanced. Providing an accessible and contextually-appropriate Pedestrian Through Zone width takes precedence over enhancing the Furnishing Zone.

TABLE C-7 // FURNISHING ZONE RECOMMENDED WIDTHS

Furnishing Zone Type	Desirable Width (m)	Constrained Limit Width (m)
Basic	2.0	0.6
Enhanced	3.0 – 5.0	3.0

Additional width considerations for each category of Furnishing Zone are listed above in **Table C-7**. An Enhanced Furnishing Zone provides sufficient space for all of the Basic Furnishing Zone elements described below, and provides additional width to accommodate the additional considerations listed.

Basic Furnishing Zone

- The constrained width of 0.6 metres provides minimal functionality.
- 0.75 metres provides a buffer between people walking and the opening doors of parked motor vehicles.
- 0.9 metres is the absolute minimum required for streetlights and utility poles.
- The space required for street trees varies by species. 1.2 metres is the absolute minimum required for the tree pit for most small- to medium-sized street trees. However, larger street trees and trees that develop a wide root flare will require at least 1.5 metres or more. Root flare is an important consideration, as this can damage sidewalks and obstruct the Pedestrian Through Zone. Landscape design professionals should be consulted to ensure the correct tree species is chosen for each location.
- 2.0 metres is beneficial for creating universally accessible pedestrian environments. A 2.0-metre wide Furnishing Zone generally provides sufficient setback of the Pedestrian Through Zone to align the Pedestrian Through Zone with accessible curb ramps and crosswalks, maintaining a straight line of travel. This alignment is beneficial to people with mobility and visual impairments, aiding them

to navigate the pedestrian environment and shortening walking distances. This distance varies based on the width of the Pedestrian Through Zone and the corner radius. See **Chapter G.3** for design guidance on corner radii.

Enhanced Furnishing Zone

- Along commercial, mixed-use, or main streets, larger furnishing zones allow for enhanced landscaping and street furniture as well as overflow pedestrian traffic where there are high volumes of pedestrian traffic.
- Roads with transit stops require a desired width of 3.0 metres for passenger landing pads, benches, and bus shelters (see **Chapter H.1**).
- A larger buffer between people walking and motor vehicles is recommended along roads with motor vehicle speeds $\geq 50\text{km/h}$ and motor vehicle volumes $\geq 4,000$ vehicles per day.
- In locations with heavy snowfall, a wider Furnishing Zone provides greater snow storage and space for maneuvering snow clearing equipment.

Grade and Slope

The grade and slope of the Furnishing Zone should typically match that of the adjacent Pedestrian Through Zone (see **Chapter C.2**). Where grass is used as landscaping, a cross slope of 3.0-10.0% may be acceptable.

Surface Materials

The Furnishing Zone surface materials vary based on the context. Generally, Furnishing Zones in residential areas are made of absorbent topsoil and sod. In commercial areas, hard surfaces are recommended for the Furnishing Zone to accommodate pedestrian access to the road and the Ancillary Zone. In this context, the Furnishing Zone materials should be firm and slip-resistant (see **Chapter C.2**).

Where hard surfaces are used in the both the Pedestrian Through Zone and Furnishing Zone, different pavement materials may be used to help demarcate the zones. If the two materials are sufficiently different (visually and in feel), the demarcation can help people navigate the road, especially those with visual impairments. Hardscape materials can include unit pavers, bricks, and permeable pavement.

Decorative materials or imprints may be used in the Furnishing Zone to add to the streetscape, as long as these aesthetic elements do not impact accessibility.



Bioswale in the Furnishing Zone, Saanich, B.C.

Landscaping and Rainwater Management

Landscaping is key for creating an attractive, sustainable, and pleasant pedestrian environment. The Furnishing Zone is the ideal place to add vegetation to the streetscape. Landscaping in the Furnishing Zone typically consists of grass and street trees, but can also include a range of shrubs, bushes, flowers, and other plants. Landscaping in the Furnishing Zone should not obstruct sightlines, especially around crossings and intersections. Landscaping maintenance requirements will vary greatly by geographic and land-use context.

Street trees are an especially valuable and important streetscape element with myriad benefits, including:

- Creating a barrier between people walking and motor vehicles;
- Reducing the urban heat island effect;
- Capturing carbon dioxide and producing oxygen;
- Intercepting rainfall and helping to absorb stormwater;
- Supporting native wildlife systems;
- Providing shade and weather protection;
- Visually enhancing the streetscape; and
- Providing social and psychological benefits.

Ensuring that street trees grow and remain healthy in the urban environment can be a challenge, as trees are competing for space with the roadway, bicycle facilities, sidewalk, utilities (both at grade and below the road), and other street furniture. Selecting the appropriate tree species, providing sufficient clearance from obstructions, providing sufficient soil volumes, and utilizing tools such as structural soil cells and continuous tree trenches can help ensure a tree's survival. Careful consideration is needed to ensure that tree roots will not develop a wide root flare that will damage sidewalks and obstruct the Pedestrian Through Zone.

In urban environments, tree grates are often provided. Tree grates allow proper exposure to the air for tree soil while maximizing the available space for people walking. The trunk of the tree should be set back at least 0.75 metres from the curb to allow space for motor vehicle doors and for people to enter and exit vehicles. This clearance also minimizes the intrusion of tree roots into the substrate and reduces the frequency of salt and other harmful minerals being splashed onto the tree.

Vegetation in the Furnishing Zone can also provide rainwater management and phytoremediation services – the cleaning, removal, and stabilization of contaminants in the air and soil. This is especially important along industrial roads and on brownfield sites and any other locations where contaminants may be located. Bioswales, rain gardens, tree grates, pervious surface, and street trees can absorb, store, and filter stormwater, easing the burden on municipal sewer systems. Permeable pavement can also be used to allow water to infiltrate and be stored in the soil below.

Road Hardware

Road hardware includes elements that are required for the regular function of the road and surrounding buildings. These items are typically located in the Furnishing Zone. Common items include:

- Road lighting;
- Traffic signals;
- Pedestrian and cycling push buttons;
- Traffic signage;
- Utilities;
- Fire hydrants;
- Parking metres; and/or
- Bollards, fences, or other barriers.



Pedestrian Amenities

In addition to road hardware and landscaping, the Furnishing Zone is often where pedestrian amenities such as benches, mail boxes, and waste receptacles are located. A toolkit of potential pedestrian amenities is provided in **Table C-8**. Pedestrian amenities enhance the pedestrian environment, adding convenience, comfort, security, and coherence to the streetscape.

TABLE C-8 // PEDESTRIAN AMENITIES TOOLKIT – FURNISHING ZONE

Pedestrian Amenity	Design and Placement Considerations
Benches, tables and chairs, other seating	<ul style="list-style-type: none"> Desirable at transit stops, mid-block areas, places where queuing is likely to occur, along steeper grades, and along parks and greenways. Installation should consider legroom and weather protection. Additional clear space should be left on all sides of the seating for people with strollers, mobility aids, and wheelchairs to be able to stop on an accessible surface.
Waste receptacles	<ul style="list-style-type: none"> Garbage and recycling bins should be located together to encourage recycling. In communities with municipal compost collection, compost bins should be considered where organic waste is expected, such as near food vendors.
Mailboxes and newspaper corrals	<ul style="list-style-type: none"> May be wrapped with artistic patterns to improve aesthetics and discourage graffiti.
Drinking fountains	<ul style="list-style-type: none"> Design should allow children to reach the fountain. Fountains may also have a spout at the bottom that allows dogs to drink or a bog bowl to be filled up.
Bicycle parking	<ul style="list-style-type: none"> See Chapter H.2
Transit stops and shelters	<ul style="list-style-type: none"> See Chapter H.1
Wayfinding signage	<ul style="list-style-type: none"> See Chapter H.3
Public art (sculptures, murals, fountains, clocks, and other decorative features)	<ul style="list-style-type: none"> Important for beautification, culture, and community identity. See Urban Design considerations on next page.
Road banners, flags, and other graphics	<ul style="list-style-type: none"> Valuable for community identity and branding. Can be used to advertise upcoming events.
Public washrooms	<ul style="list-style-type: none"> Accessible public washrooms enable and encourage more people to walk and explore their community.

Pedestrian amenities and road hardware should be visually and physically integrated in a way that reduces clutter and maximizes the space available for pedestrian movement. Individual pieces of street furniture can be grouped together to save space, and they can serve more than one purpose simultaneously; for example, a planter or sculpture may also serve as seating. The placement of these elements should be consistent in order to make navigation more predictable for people with visual impairments.

Pedestrian amenities should be durable, weather-resistant, vandalism-resistant, cost-effective, easy to maintain, and have modular parts that are simple to repair or replace. The design and installation of pedestrian amenities must also consider long-term maintenance implications, including snow clearing and snow storage in winter climates.

Pedestrian amenities must also be placed in a way that does not obstruct other modes. The Pedestrian Through Zone must remain clear at all times, and if adjacent to motor vehicle parking, pedestrian amenities should not interfere with the opening of motor vehicle doors.

Urban Design Considerations

The Furnishing Zone provides the opportunity to add visual interest and community identity to the pedestrian environment. The choice of surface materials and the design of streetscape elements such as road hardware and pedestrian amenities should be co-ordinated to provide a consistent look and feel throughout the community. The Furnishing Zone also provides an opportunity to highlight unique portions of a community, signalling to people that they are in a special area. This can apply to historic areas, cultural areas, or different neighbourhoods.

Co-ordinating the elements in the Furnishing Zone (and the Frontage and Pedestrian Through Zones, if applicable) with other design elements in the neighbourhood, such as banners on street lights and architectural features, can create a unique and memorable environment that draws in pedestrians. The case study on Victoria's Public Realm Plan provides an excellent example of this co-ordination.



Water fountain with dog fountain attachment.



Public art adjacent to Pedestrian Through Zone in Tofino, B.C.

Case Study

Victoria's Public Realm Plan

Victoria is known for having a vibrant and walkable downtown, with evident history and distinct character zones. This unique character is thanks in part to the design of the city's buildings and public realm, including roads, sidewalks, and plazas. In 2017, the City of Victoria approved the Downtown Victoria Public Realm Plan and Streetscape Standards, a design document that lays the framework and standards for public realm design in five unique character areas, including Canada's oldest Chinatown.

The Downtown Victoria Public Realm Plan and Streetscape Standards provides direction for paving materials and application, planting details, recommended tree species, colour palette, and custom road hardware and pedestrian amenities. All of these items are co-ordinated to reflect each character area's unique heritage. This co-ordination, in addition to the Chinatown gate and lion statues of Fisgard Road, signals to pedestrians when they have entered Chinatown and help to mark its importance to the city.



Chinatown streetscape elements, Victoria, B.C.

Public Washrooms

Providing access to washroom facilities helps make active transportation inclusive and accessible. However, providing public washrooms can be a challenge. Private businesses may offer washrooms, but these are not always accessible, and they may require people to make a purchase in order to access the washroom. Programs such as the GoHere Washroom Access Program, supported by Crohn's and Colitis Canada, encourage businesses to open their washrooms to the public. The program includes a washroom finder app and a decal that businesses can put up to advertise their open washroom. More information about the GoHere Washroom Access Program can be found on-line at <http://www.crohnsandcolitis.ca/Support-for-You/GoHere-Washroom-access>

Public toilets have also been installed by municipalities across Canada, including the installation of 11 free, self-cleaning toilets in Vancouver. This type of automated facility can provide increased access to washrooms but also faces challenges including the accumulation of garbage and the occurrence of illicit activity.



Source: Crohn's and Colitis Canada



Public Washroom in Vancouver, B.C.



Commercial display in the Frontage Zone outside of a business in Summerland, B.C.

FRONTAGE ZONE

Description

The Frontage Zone is located between the Pedestrian Through Zone and the property line. It provides clearance from adjacent building fronts, architectural features, and entrances. In some contexts, the Frontage Zone may also contain utilities, street furniture, and street trees. Utilities and street furniture are described in more depth in the Furnishing Zone section of this chapter.

The Frontage Zone can also act as an extension of the land uses along a road, containing outdoor patios, landscaping, retail displays, and signage. It may contain open space that supports the adjacent land use, including space for queuing, lingering, and window shopping. The Frontage Zone's functional area may extend from the public realm into private space beyond the property line.

Width

The width of the Frontage Zone is highly variable, changing significantly based on the adjacent land use, available right-of-way, and the location of property lines and building fronts. However, some general width considerations are listed below. Frontage Zones upwards of 3.0 metres wide may be appropriate in urban areas with active commercial land uses, such as where patio seating is desired or where large groups of people are likely to congregate. In residential areas, Frontage Zones between 1.2 and 1.5 metres provide ample space for softscape landscaping and can provide enhanced privacy, preserve street trees, and maintain space for future road widening if necessary. In both commercial and residential contexts, a minimum Frontage Zone width of 0.3 metres is recommended to provide an offset between pedestrians and fences or buildings, and to accommodate construction, and prevent people from being hit by building doors that open outward. Adjacent to lawns, parks, or other open space, the Frontage Zone may not be necessary.

Providing a Pedestrian Through Zone that meets the desired width described in **Chapter C.2** should always be the priority. Providing a Furnishing Zone is the next priority, as this creates a buffer between pedestrians and motor vehicles. Where additional space remains, it may be added to the Frontage Zone. Where the right-of-way is constrained, providing a Frontage Zone may not be possible.

Surface Materials

The Frontage Zone surface materials vary based on the context. Generally, Frontage Zones in residential areas are made of absorbent topsoil and sod, although hard surfaces are recommended where the width of the Frontage Zone is less than 0.6 metres wide. In commercial areas, hard surfaces are recommended for the Frontage Zone to accommodate greater pedestrian volumes and movement in and out of buildings. In this context, the Frontage Zone materials should be firm and slip-resistant.

Private Space Considerations

The Frontage Zone can help to activate the streetscape, creating a vibrant and interesting space that attracts people. However, many of these uses require the direct involvement of private businesses and land owners. The Frontage Zone can extend beyond the property line and up to a building front, and land owners may utilize that space to connect to the public realm through advertising boards, retail displays, and seating. Building awnings that extend over the Frontage Zone and at least a portion of the Pedestrian Through Zone can also provide valuable weather protection for pedestrians. The awning or overhang should drain back towards the building to prevent water from dripping onto the Pedestrian Through Zone.

While much of the Frontage Zone activation is reliant on private businesses and land owners, local and regional governments can enact policies and provide incentives to encourage these groups to engage with the pedestrian realm. Local and regional governments can also work with developers to ensure that building frontages provide weather protection and are

animated and interesting to people from the sidewalk, as a way to make the streetscape more inviting. To encourage year-round outdoor use, even in winter climates, businesses should be encouraged to provide heated patios, blankets, and wind-blocking elements. Buildings should be pedestrian facing, providing two-way interaction and eyes on the street.



Commercial seating and retail displays in the Frontage Zone in Gibsons, B.C.

ANCILLARY ZONE

Description

The Ancillary Zone is a flexible space located on-street within the roadway that is not designated for motor vehicle through traffic. Instead, it is designed to support the primary functions of either the roadway or the sidewalk. The Ancillary Zone can contain on-street motor vehicle or bicycle parking, bicycle facilities, docked bike share stands, loading zones, transit stops, taxi or ride hailing zones, curb extensions, parklets, or patios. Depending on context and local maintenance practices, the Ancillary Zone may also be used for snow storage. The Ancillary Zone use can vary along a road corridor or block face – for example, along a single block, there could be motor vehicle parking, a bicycle corral, and curb extensions at corners and/or mid-block locations.

Curb extensions are one ancillary use of the roadway that can benefit pedestrians in a number of ways. Curb extensions are a form of traffic calming that helps to reduce motor vehicle speeds by narrowing the road. They also reduce crossing distances for pedestrians and make them more visible to motor vehicles, especially where on-street motor vehicle parking is present. Additionally, curb extensions provide space for landscaping, rainwater management (including rain gardens and bioswales), and street furniture, and can provide a protective envelope around parking spaces.

Parklets and patios are two other Ancillary Zone uses that can significantly enhance the pedestrian realm by re-purposing one or more on-street motor vehicle parking stalls. Parklets are open public spaces that can contain seating, tables, landscaping, and bicycle parking. Patios are typically private spaces that are extensions of the adjacent business, with seating, tables, and table service. Parklets and patios create spaces to socialize and relax within the pedestrian realm without obstructing the Pedestrian Through Zone.

Width

The width of the Ancillary Zone is dependent on the road context but is typically the width of a standard motor vehicle parking stall (refer to local land-use bylaws). Similar to the Furnishing Zone, the Ancillary Zone provides a buffer between people walking and motor vehicle through traffic. In order to increase pedestrian safety and comfort, the TAC *Geometric Design Guide for Canadian Roads* recommends including an Ancillary Zone and/or Furnishing Zone on all commercial roads and where motor vehicle speeds are 50 km/h or higher. Rural roadways typically do not include an Ancillary Zone, but often have a shoulder between the motor vehicle travel lane and the roadside.

Curb Design

In urban and developed rural core contexts, the curb is located between the Ancillary Zone and the Furnishing Zone or Pedestrian Through Zone. There is typically no curb along rural roadways or on shared streets. Curbs prevent water on the road from entering pedestrian space and discourage motor vehicle incursion into the Pedestrian Through Zone. Rolled or mountable curbs should be avoided as these allow motor vehicle access to the sidewalk.

The curb can also help define the pedestrian environment and is an important navigational tactile element for people with visual impairments, as described in **Chapter B.3. Section D** provides more detail on curb design, specifically in relation to protected bicycle lanes.



Public parklet in the Ancillary Zone, Fort Street, Victoria, B.C.



Multi-use pathway, Fort St. John, B.C.



C.4

RURAL PEDESTRIAN DESIGN CONSIDERATIONS

Sidewalks may not always be feasible, appropriate, or desirable in many basic rural, outer developed rural, or suburban contexts. It is therefore important to find flexible, alternative designs that still provide adequate pedestrian comfort, accessibility, and safety. Rural (and some suburban) roadways can present a different set of risks than urban roads, including high motor vehicle speeds, run-off road collisions, and a lack of night-time lighting. These risks must be factored in when designing rural pedestrian facilities.

This chapter provides a brief overview of rural and suburban pedestrian facility types and design guidance. It then provides a toolkit for flexible, alternative pedestrian facilities. For a full overview of pedestrian facilities on roadways under provincial jurisdiction, including active transportation facility selection guidance for provincial roadways that run between communities and through rural environments, refer to

Chapter F.1.

RURAL AND SUBURBAN FACILITY SELECTION PRINCIPLES

There are a range of facility types that can be found in basic rural, outer developed rural, and suburban contexts. The Pedestrian Facility Selection Decision Support Tool in **Chapter C.1** provides a high-level overview of when each facility is appropriate, based on motor vehicle speeds and road classification. The principles below add to this discussion by laying out considerations for design professionals working in rural and suburban areas.

Principle 1: Dedicated Space over Mixed Conditions

Providing dedicated pedestrian facilities is recommended over mixed conditions, where people walking and cycling all share the same space (see **Figure C-25**). This mixed condition is the default in many rural and suburban areas, and it may be acceptable when motor vehicle speeds and volumes are low. As outlined in **Chapter C.1**, shared spaces are generally only recommended up to motor vehicle volumes of 30 km/h. Providing a dedicated space for see people walking or cycling, such as a shoulder, creates a more predictable environment for all road users. Note that shared spaces are not the same as shared streets, which are a distinct road design treatment (see **Chapter E.4**).

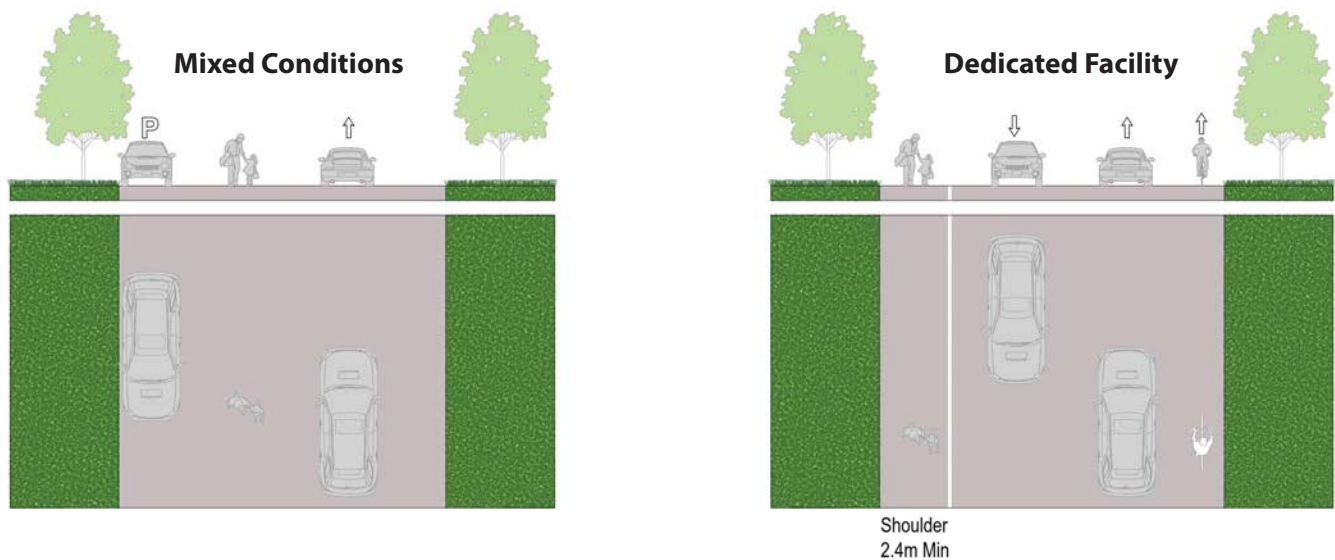


FIGURE C-25 // DEDICATED FACILITY VS. MIXED CONDITIONS

Principle 2: Physical Separation over Pavement Marking

Physical separation provided by curbs or other means of physical separation is preferred over walkable shoulders (**Figure C-26**). Providing physical protection can raise both the perceived and actual safety for people walking, creating a more comfortable environment that is more appropriate for people of all ages and abilities. Where a sidewalk with curb and gutter is not appropriate, other means of physical protection, such as wheel stops and bollards, may be considered. Refer to the Toolkit section on page C41 for examples.

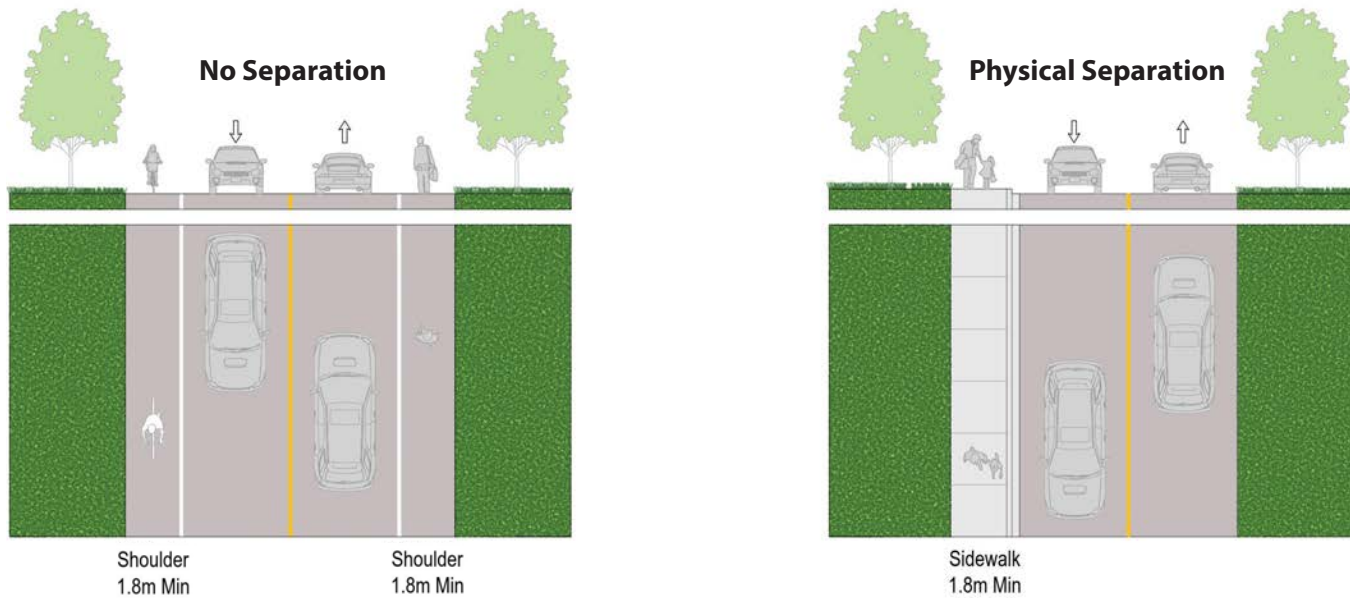


FIGURE C-26 // PHYSICAL SEPARATION VS. NO SEPARATION

Principle 3: Off-Street Pathways over Walkable Shoulders

Off-street pathways are preferred on roads with high motor vehicle speeds or volumes (see **Figure C-27**). Removing pedestrians from the roadway and providing a buffer between them and motor vehicle traffic creates a comfortable space for people of all ages and abilities. Refer to **Section E** for design guidance for off-street facilities and **Chapter F.1** for guidance pertaining to off-street pathways on roadways under provincial jurisdiction.

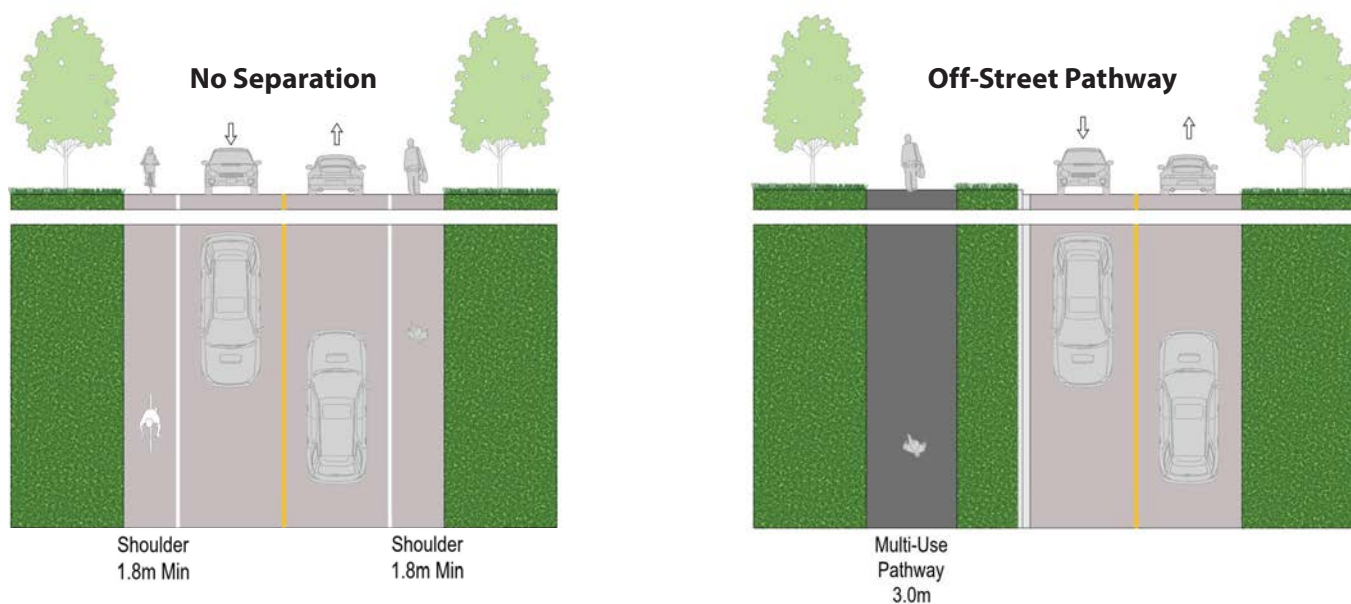


FIGURE C-27 // OFF-ROAD PATHWAY VS. NO SEPARATION

Design Guidance

The following design guidance is applicable when designing pedestrian facilities in basic rural, outer developed rural, and suburban contexts. Refer to **Chapter F.1** for more guidance on active transportation facilities on roadways under provincial jurisdiction.

The design guidance below is particularly relevant in areas with relatively high pedestrian activity and where a higher proportion of children or people using mobility devices are expected, such as near schools and health-care facilities.

- Ensure that rural pedestrian facilities meet the accessible width, longitudinal grade, and cross slope specifications described in **Chapter C.2**. Additionally, design professionals should consider the universal design strategies discussed in **Chapter B.3**.
- Where feasible, provide lighting that effectively illuminates the entire roadway, including shoulder areas and pedestrian facilities. Provide additional pedestrian lighting wherever needed, such as at crossings and intersections. Lighting installation may be staged in order to improve facilities as budget becomes available. Refer to **Chapter H.4** for more detail on lighting.
- Provide signage and pavement markings to alert motor vehicles of the presence of pedestrians on the roadway. Wayfinding is also important, especially when connecting between communities.
- Consider drainage and maintenance when designing rural pedestrian facilities, especially where physical barriers or curbs are installed. In rural contexts, overland drainage into ditches is a common approach. Design professionals must consider how to manage, store, or divert water. See **Chapter I.3** for more details on maintenance.

Rural Pedestrian Facility Toolkit

The options presented below are intended to provide design professionals with flexible alternatives to the standard concrete sidewalk that is prevalent in urban environments. When considering these facility options, pedestrian safety must always be prioritized, and all facilities should meet the universal accessibility criteria discussed throughout **Section C**.

Cost-effective Materials

Asphalt Paving

In some cases, sidewalks may be desirable but standard construction methods may be infeasible due to cost. In this case, design professionals may opt to use less expensive materials as a way of providing a pedestrian facility for less cost. One example of this is to construct sidewalks using asphalt instead of concrete.

For example, the City of Maple Ridge has used asphalt sidewalks to fill in gaps in the pedestrian network. Asphalt sidewalks enable the City to provide pedestrian facilities where they would otherwise be unable to do so due to construction costs. Maple Ridge requires concrete sidewalks in pedestrian areas, along bus routes, and on all urban arterial and collector roads, but allows asphalt sidewalks on urban local roads and rural arterial and collector roads, as necessary.

Unpaved Pathways

Paved pathways should be provided wherever feasible. Unpaved pathways are inaccessible for certain user groups, including skateboarders and in-line skaters. They may also be more difficult to navigate for people cycling and people using mobility devices. Unpaved pathways can also be difficult to maintain during the winter. However, paved pathways are more costly to construct than unpaved pathways. Where paving cost is a barrier to providing an active transportation facility, an unpaved pathway may be considered.

Unpaved pathways should be formed using firm materials that offer adequate stability. Crushed aggregate and stabilized earth are two materials that may be considered. Additionally, in some circumstances, wood chip trails may be appropriate, although these are appropriate mostly for people walking and jogging.

Proper subsoil preparation when constructing an unpaved pathway can help reduce the future maintenance needs. If it is anticipated that the unpaved

pathway may be paved in the future, the subsoil should be prepared as per an asphalt trail. This can facilitate a less disruptive upgrade in the future.

When an unpaved pathway crosses a paved roadway, it is recommended that the unpaved trail approach be paved for 4 metres from the edge of road on either side. Paving this segment of the pathway helps to prevent loose trail surface materials from accumulating on the roadway.



Unpaved portion of the Lochside Trail, B.C.



Buffered pedestrian lanes in Tofino, B.C., delineated with coloured pavement markings.



Buffered pedestrian lanes in Tofino, B.C., delineated with wooden bollards.



Buffered pedestrian lanes in Tofino, B.C., delineated with concrete wheel stops.

Buffered Pedestrian Lanes

Buffered pedestrian lanes are a flexible, low-cost facility that can be used on an interim basis where a sidewalk will eventually be constructed or where a sidewalk is not feasible due to cost or other constraints. Buffered pedestrian lanes provide designated space for pedestrians at-grade on the roadway and are intended to function like a sidewalk. They can be used on one or both sides of the roadway and are useful for filling gaps between pedestrian destinations.

The Pedestrian Through Zone width of a buffered pedestrian lane should be a minimum of 1.8 metres wide, although 2.0 metres of width is recommended where no vertical separation is provided. At minimum, buffered pedestrian lanes should include double longitudinal pavement markings that separate the pedestrian lane from motor vehicle traffic. Decorative pavement markings can also be used to identify the pavement as a pedestrian space while adding the aesthetics of streetscape.

Along roads with speeds below 60 km/h, vertical separation may be provided between the buffered pedestrian lane and motor vehicle traffic. Flexible bollards, rigid bollards, concrete wheel stops, and other forms of vertical separation may be used to discourage motor vehicle incursion. Design professionals should carefully consider the context, motor vehicle speeds, and the type and installation method of the vertical separation. Where physical barriers are used, drainage and maintenance are important considerations to ensure that the Pedestrian Through Zone remains free of gravel and does not collect ponding water that could turn into ice.

White concrete wheel stops have been used in Saanich to delineate pedestrian spaces. Tofino has also used concrete wheel stops, wooden bollards, and contrasting surface materials to create at-grade pedestrian lanes, with curb extensions and motor vehicle parking providing additional physical separation from motor vehicles.

Walkable Shoulders

Walkable shoulders are paved spaces on the side of a roadway, delineated from motor vehicle traffic by a white longitudinal pavement marking. They are not a dedicated pedestrian facility as they may be used by people cycling and motor vehicles that need to pull off the roadway. Walkable shoulders may be considered as a pedestrian facility on basic and outer developed rural roadways with posted speed limits of 60 km/h or less and low pedestrian volumes, but they are not suitable for people of all ages and abilities. When posted speed limits are 70 km/h or above, off-road pathways that provide increased separation from motor vehicle traffic are preferred over walkable shoulders. Providing off-road pathways will not always be feasible due to cost and right-of-way constraints. See off-street pathway subsection below for further details.

Wherever feasible, walkable shoulders should provide a Pedestrian Through Zone that is a minimum of 1.5 metres wide. In locations where a higher volume of pedestrians is expected, such as in resort villages, a Pedestrian Through Zone of 1.8 metres is recommended. Additional shoulder width is required as motor vehicle speeds and volumes increase and as the road class changes. See **Chapter F.1** for shoulder width requirements on roadways under provincial jurisdiction.



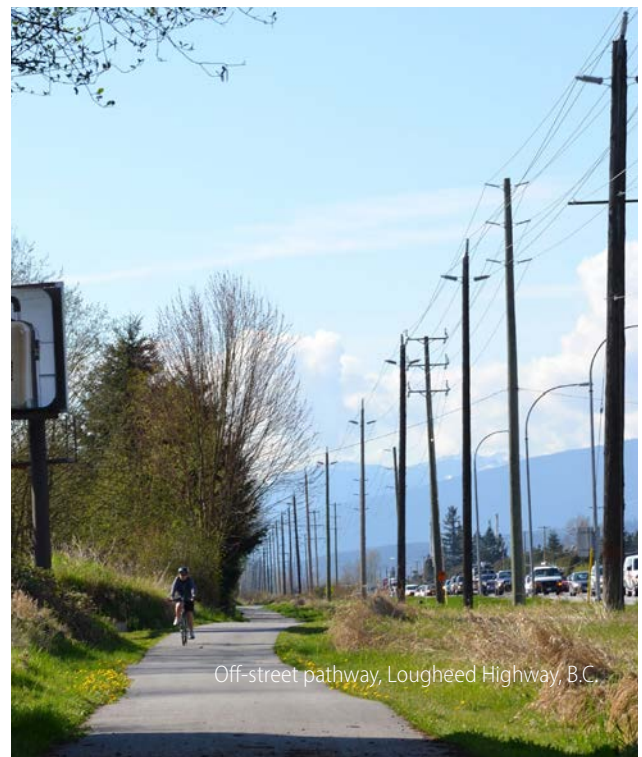
Walkable shoulder in Mission, B.C.

Walkable shoulders should be provided on both sides of the roadway. They should be delineated from the motor vehicle travel lane with longitudinal pavement markings. A painted buffer zone may be used to provide further separation between users and discourage motor vehicle encroachment. If rumble strips are used, they should not reduce usable pedestrian space. See **Chapter F.1** for design guidance regarding rumble strips on roadways on provincial rights-of-way.

Off-Street Pathways and Trails

Off-street pathways and trails provide the most pleasant experience for active transportation users, as they have a dedicated space separated from motor vehicle traffic. Off-street pathways must be placed outside of the roadway clear zone. A barrier or fencing may also be required, depending on motor vehicle speeds and volumes.

Off-street pathways are generally paved with a hard surface such as asphalt, although cost-effective materials such as gravel and chip may be considered, as described above. Off-road pathways and trails are typically shared between pedestrians and other active transportation users. Design guidance for off-road pathways is provided in **Section E**.



Off-street pathway, Lougheed Highway, B.C.