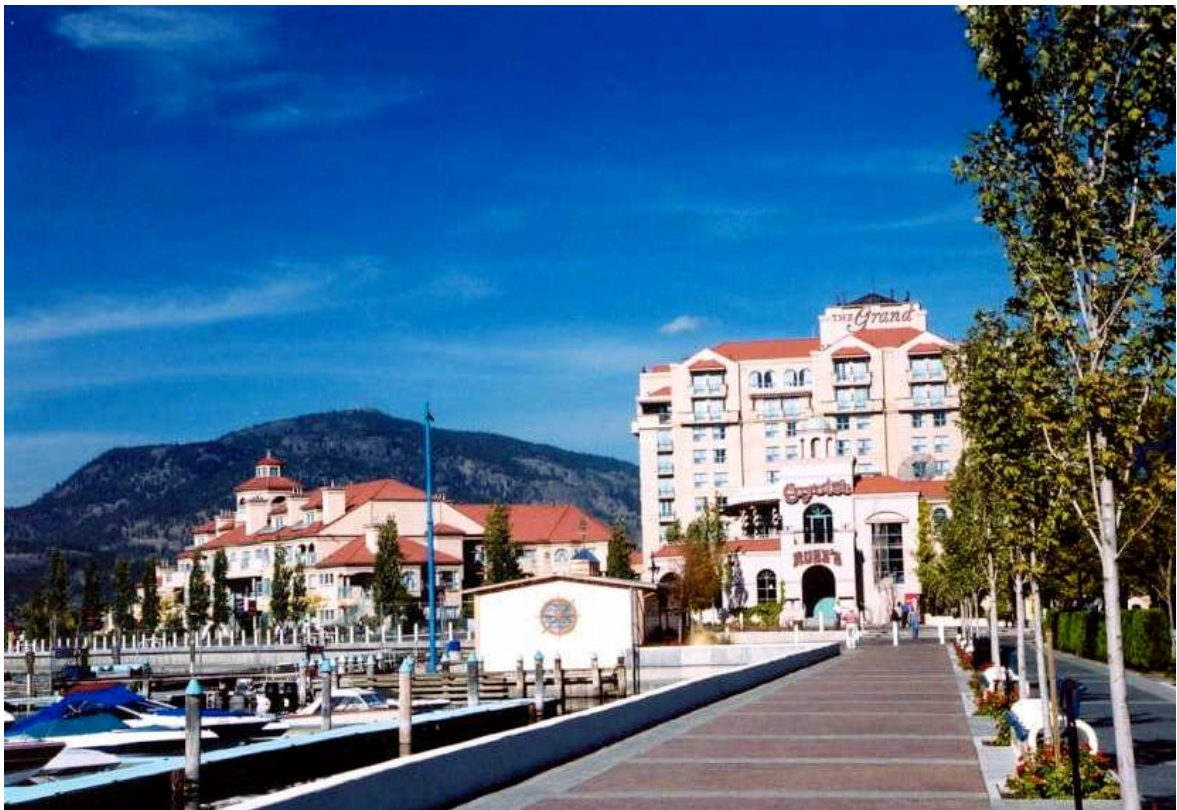


Guidelines for Accessibility in Outdoor Spaces



Endorsed by City Council for Public Use on April 7, 2003





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1. Introduction:

Communities need to be built to allow people to live as independently as possible. An accessible community provides both social and financial benefits for its residents. For pedestrians with visual impairments or for those who use mobility aids, pedestrian areas should be safe, easy to access, and clearly marked. The safety issue is emphasized by the use of the following quotation from the American Institute for the Blind publication "Pedestrian Safety Handbook":

"On a per-mile basis, walking is more dangerous than driving, flying, or riding a bus or train. In 1996, 5,157 pedestrians were killed on U.S. streets."

By implementing the following Access Guidelines, municipalities can create safer and more accessible communities for all pedestrians. The Guidelines are primarily for outdoor areas for pedestrians at all levels of ability. Requirements for buildings to address accessibility for people with disabilities are provided in the B.C. Building Code, which will prevail, wherever there is a perceived conflict.

These guidelines should be used by municipal staff to help identify corrective action for problem areas and to ensure that new development is fully accessible, wherever feasible. The City will work within budgetary constraints to implement the guidelines. It will not be feasible to immediately correct existing areas that do not comply with the guidelines; however they will be used as a guide to help identify annual projects for budget purposes, and to correct problems identified by stakeholder groups. They are also available to the broader community to assist with design of new areas, and to help address any deficiencies. City staff will review development proposals with the assistance of the guidelines to recommend measures to address accessibility. The development community will be provided with the guidelines to assist in the design of new development.

These Guidelines have been developed based on research of existing, similar documents for many different jurisdictions. Design concepts have been borrowed and amalgamated to create consistent requirements and cover the broadest possible circumstances. The United Nations has produced a comprehensive accessibility design manual that was used throughout this document. Consultation of this document is directly available from the web site: <http://www.un.org/esa/socdev/enable/designm>. Cities, including, but not limited to North Vancouver, Peterborough, Guelph, Toronto, and Calgary also have guidelines that were consulted and incorporated. The CNIB (Canadian National Institute for the Blind) has produced a design manual¹ for people with visual impairment and the content of this manual was integrated, wherever feasible. Other publications were available from provincial, state (U.S.) and national organizations. A complete bibliography is provided at the end of this document.

2 Definitions:

Some of the terminology in this document may not be familiar to all. The following definitions are provided for convenience:

Mobility Challenged: Generally means persons who cannot travel at the same pace as an able-bodied, adult pedestrian, & must make use of a walking aid. This can include a walker with wheels or without, a cane, a wheelchair or a scooter.

Hearing-Impaired: Includes partial and total hearing loss.

Visually Impaired: This term is used to be more inclusive. Not all visually impaired people are completely blind. Some other visual impairment problems include blurred vision (that can't be corrected with glasses or contact lenses); colour blindness; limited field of vision, including loss of central or

¹ Clearing Our Path, Accessibility Recommendations for the Built Environment, Recommendations on how to make public places accessible to people who are blind, visually impaired and deafblind, CNIB, Ontario Division, August 1998



peripheral vision; night blindness; or sensitivity to glare. Mobility aids for visually impaired people include a guide dog, a sighted escort or a long (“white”) cane used to identify obstructions or changes in the ground surface.

Tactile: A raised or depressed surface treatment that allows people with visual impairment to determine a change in surface. Grooves in pavement are an effective example for paths or sidewalks in order to identify changes in the space or direction of travel. Signs can have raised lettering and/or images, if Braille is not feasible, that will allow the sign to be “read”.

TTY: Public text telephone for use by those with hearing loss.

3 Intersections:

Intersections create some of the greatest challenges for people with mobility challenges or visual impairments. Crossing times are frequently inadequate to allow for a pedestrian with a slower gait than the average, physically able adult. Curb cuts, where they exist, are often located at the corner of the intersection, which can put the pedestrian in conflict with the path of traffic, instead of safely accessing the pedestrian crossing. Buttons to initiate the pedestrian light to cross an intersection are sometimes inaccessible, or may be designed such that a person with limited strength or dexterity cannot use them. Their location is not easy to find for those with visual impairment. Simply approaching a pedestrian crossing with the assumption that vehicular traffic is the higher priority creates problems for those who are already challenged in moving around their own community and who may not have the choice of driving a vehicle. Just envision, for a moment, the concept of a driver having to press a signal in order to get a green light. The assumption that the pedestrian’s trip is a lower priority is the first decision that limits the ease of movement for pedestrians. These guidelines are intended to demonstrate ways in which to accommodate the needs of pedestrians with disabilities at traffic intersections more effectively.

3.1 Curb Cuts:

3.1.1.1 Mobility Challenged:

- At intersections, curb ramps can be installed in any of the following ways:
 - Directly in the path of travel (fig. 1).
 - Diagonally across the corner ²(fig. 2).
 - Continuously wrapped around the corner (fig. 2).
- Illustrations in Figure 4 from the U.S. Access Board identify various curb cut options at intersections.

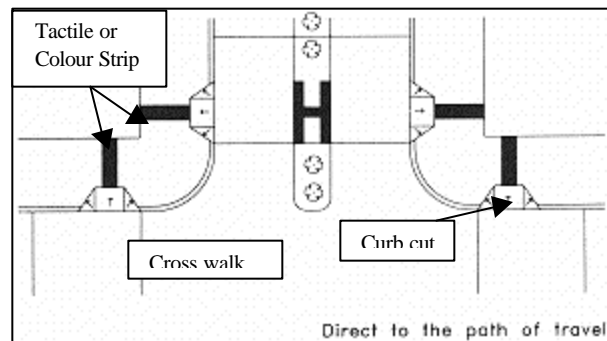


Figure 1 - Cross-Walks at Intersection with Curb Cuts

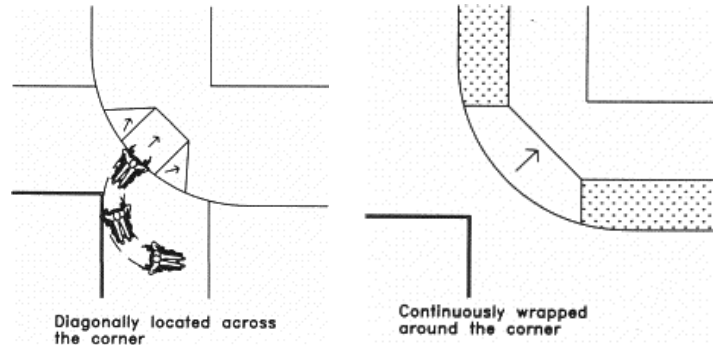
- Curb cuts described under (a) above and shown in Figure 1 should be provided in development permit areas for Urban Centres and Village Centres, as designated in the OCP, as a priority. Streets with boulevards between the sidewalk and the road should also feature curb cuts shown in Figure 1. Following this approach, a four-way intersection should have 8 curb cuts. Elsewhere, curb cuts will be provided in the form best suited to the road intersection.
- A level area should be provided behind the curb cut to maintain an even pedestrian surface.
- Maximum slope of 10% (1:10) on the curb cut ramp is recommended.

² Corner curb ramps could be dangerous to wheelchair users if the pedestrian crossing is not wide enough.



- Where the width of sidewalks provide adequate space, curb cuts should be offset from the main flow of pedestrian traffic, yet still within the crosswalk area (fig. 1).
- Edges should be curved rather than cut sharply (all 4 wheels of a wheel chair maintain ground contact).
- A raised texture or coloured surface is more perceptible.
- Minimum width, exclusive of flared sides should be 1.2 m..

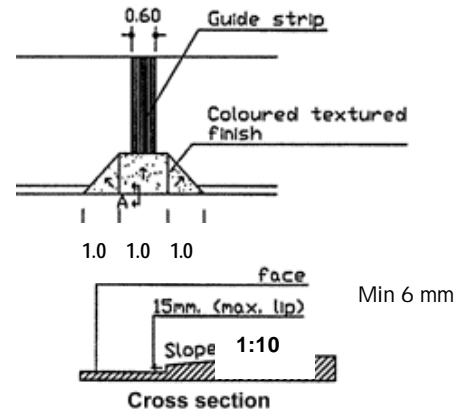
Figure 2 - Corner Curb Cuts



- The lower part of the curb cuts (abutting the road) should be located entirely within the crosswalk area, to prevent conflict with vehicular traffic.
- Where there is a drop at the edge of the curb cut; it is recommended that it be no greater than 15 mm., otherwise it affects the safe operation of a wheelchair (e.g. when there is a final lift of asphalt that has not yet been laid).
- Surfaces, including painted surfaces, should be slip resistant.
- Drainage should be designed to prevent water and snow accumulating at the bottom of the curb cut; however, the catch basin should not be located in front of the curb cut.

- Curb cuts and walkways should be kept clear of snow, ice and other obstructions, which could affect safe use.
- Street crossings should be direct from one side to the other.

Figure 3 - Curb Cut Specs.



3.1.1.2 Visually Impaired:

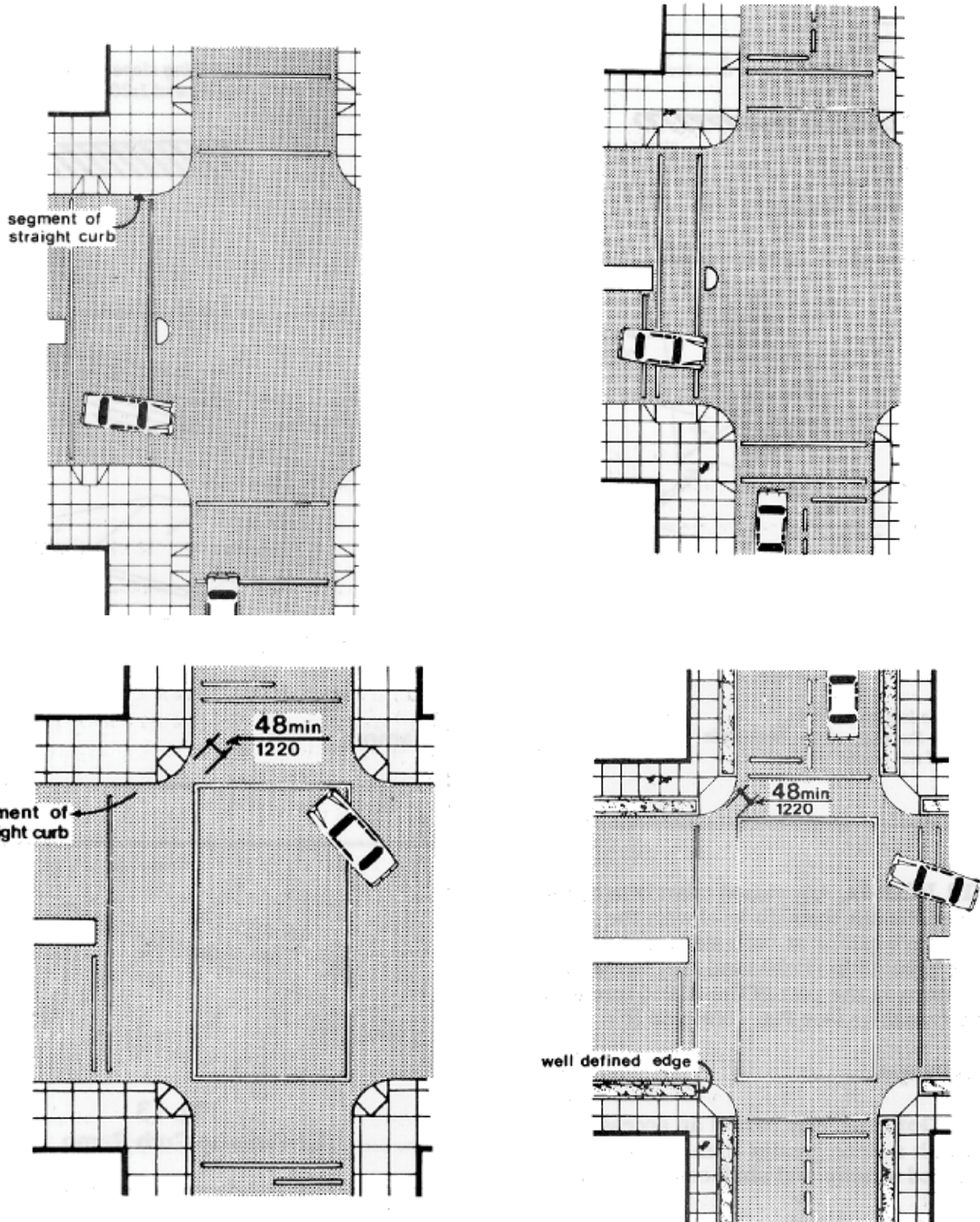
- Where the width of sidewalks provide adequate space, curb cuts should be offset from the main flow of pedestrian traffic, yet still within the crosswalk area (fig. 1). The corner curb should be maintained as a clearly defined edge and should be cane detectable.
- It is recommended that a tactile warning surface of the presence of a curb ramp be provided.
- A series of parallel grooves, 610 mm long, trowelled into the concrete walkway perpendicular to the road are suggested as a means of tactile warning (fig. 3). Grooves should be spaced 15 cm. from centre to centre, with a radius of 1 cm.. The depths of the grooves should be 2 cm. from the walking surface to the lowest point of the groove.³
- The entire surface of the curb cut should be marked with tactile grooves parallel to the road.
- Tactile grooves can be ineffective after a snow fall. A rough aggregate surface can also work.
- Wrap-around curb cuts (fig.2) are not recommended as they may lead a person who is visually impaired into the centre of the intersection instead of safely across it.⁴ However, if this cannot be avoided, it should be installed so that the slope of the ramp and the line of travel across the intersection go in the same direction. The wrap-around curb ramp should have two slopes, divided by a 45° angle established at the centre point of the radius for the ramp. Directional difference can then be detectable by cane & underfoot.
- A drop-off from the curb cut of less than 6 mm. is a hazard to the visually impaired.
- The edge of a curb cut closest to the road should be marked with a colour/brightness-contrasted (yellow or white preferred) strip 1.5 cm. wide.

³ Clearing Our Path, CNIB, page 45

⁴ Clearing Our Path, CNIB, page 45



Figure 4 - Illustrations of Curb Cut Options from U.S. Access Board





3.2 Crosswalks:

- Should be wide enough for two wheelchairs to pass (see width of sidewalks, section 4).
- Continuity at intersections: sidewalks should be located directly across the street from each other, so that people with visual impairments can find the other sidewalk .
- Crosswalks should be clearly identified by both visual and tactile cues.
- They should be marked by solid white lines between 10 cm. and 22.5 cm wide that extend entirely across the pavement.
- Cues should be provided to mark either side of the crosswalk in order to provide easily identifiable limits for pedestrians and drivers⁵.
- Cues can take the form of raised painted strips, rubberized bricks, paving stones, cat's eyes, etc..
- Crossing time used for Kelowna is 1.2 m. / sec.. However the time should be linked to the needs of the neighbourhood, both in terms of pedestrian needs and traffic capacity. Slower pedestrians may travel at 1.0 m. / sec. or less. Crossing times should be increased in situations where a stakeholder group has identified the need to increase the time.
- Pedestrians in wheelchairs typically travel faster than this while those who use other mobility aids or have gait or stamina impairments may travel at 0.46 m. per second or less.

3.2.1 Raised Crosswalk

- The road surface at pedestrian crossings can be raised to the same level as the pathway so that wheelchair users do not have to overcome differences in height ⁽⁶⁾ (see diagram (from United Nations)).
- The minimum width of such a crosswalk should be 1.5 m.
- Raised sidewalks should be designed with edges that are well-defined for the benefit of visually impaired pedestrians.

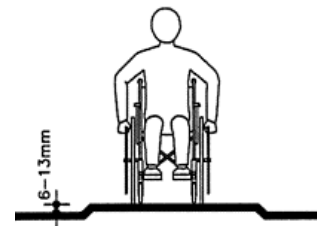


Figure 5 – Raised Crosswalk

3.2.2 Cross Walk Signals:

3.2.2.1 Visually Impaired:

- Push buttons should be free of obstacles and mounted on a centre-line height of 0.8 m. and should be a contrasting colour
- Tactile direction arrows should be provided.
- The button should be within a few steps of the curb enabling pedestrians who are blind to push the button and return to the curb to orient themselves.

3.2.2.1.1 Audible Signals⁷:

- Should be considered at locations where:
 - A local advocacy group representing the visually impaired (CNIB) has been consulted;
 - High crossing demand by pedestrians with visual impairments or which have conditions that cause pedestrians with visual impairments significant difficulty; or

⁵ Pedestrians with visual impairment may venture outside the crosswalk area, if cues are inadequate.

⁶ Raised sidewalks are also helpful in reducing the speed of traffic approaching the intersection. However, they can present difficulties for those with visual impairment.

⁷ Experience shows that acoustical signals encourage safer crossing behavior among children as well.



- The information provided by the audible signals would be unambiguous (e.g. traffic noise does not make audible signal inaudible).
- Should be 10-15 decibels above background noise of crosswalk area;
- Should emit from both sides of the crosswalk in an alternating pattern and be activated by pushing a button.

3.2.2.2 Mobility Challenges:

- Pedestrian push buttons should:
 - a) Require no more than 22.2N (5lbs) of force to activate.
 - b) Be the largest size available, 50mm is recommended.
 - c) Be raised above the surface and should be within allowable reach ranges for pedestrians in wheelchairs (side reach is preferred).
- There should be a (0.76 m. × 1.22m.) level ground surface centred at each control for a forward or side approach.
- Pedestrians in wheelchairs should be able to operate the button from a level plane rather than a sloped surface (e.g. curb cut).

3.3 Islands

- Constructing traffic islands to reduce the length of the crossing is recommended for the safety of all road users. A suggested requirement would be to provide an island where there are 2 or more lanes of traffic travelling in each direction.
- Raised islands should be cut through, level with the street (a slight curving of no more than 1:20 (5%) is permissible if necessary for positive drainage). Curb ramps off raised islands can put wheelchair users in danger of rolling into the traffic.
- The width of a traffic island should not be less than 1.50 m..
- A coloured tactile marking strip at least 0.60 m wide (or the width of the walkway), should mark the beginning and the end of a traffic island, to guide pedestrians with impaired vision to its location.

4 Sidewalks and Pathways:

4.1 New Sidewalks:

- New sidewalks should have a regular, even surface that is as level as possible. Brushed concrete offers a slip-resistant, smooth surface.
- Interlocking paving stones, or similar surface treatments, are poor choices for people with disabilities. The uneven surface can aggravate pain and conditions that generate spasms for people in wheelchairs. It is also more difficult for people with other walking aids, and creates a tripping hazard when paving stones are uneven, especially for those with gait impairments or visual impairments.
- To ensure continuity, a straight, clear pedestrian pathway is preferred. Unexpected turns should be avoided.
- Transitions and tie-ins with older sidewalks should be smooth, no lips or dips
- Walkways that are used at night should have an illumination of not less than 10 lux. at grade level.
- New sidewalks should be continuous through driveways and maintain the same elevation and slope as the rest of the sidewalk.
- Where the sidewalk is not continuous (e.g. ends within the same block), the following options should be pursued:
 - A ramp should be provided where the sidewalk ends to access a crosswalk;
 - Tactile measures should be used to notify visually impaired pedestrians that the sidewalk ends;
 - A ramp provided where the sidewalk ends should direct the pedestrian to an alternative route; or



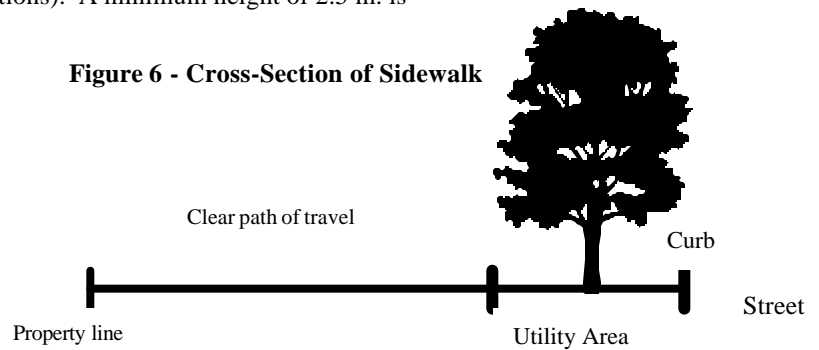
- A barrier and high visibility sign should warn users and an alternate pedestrian route should be provided. This measure would be most appropriate during periods of construction, when the sidewalk interruption is temporary.

4.2 Obstructions:

4.2.1 Physical Mobility⁸:

- Mailboxes, newspaper vending machines, trashcans and bike racks should be placed at the outer edge of central pedestrian travel zone, and away from bus wheelchair lift pads.
- Shop goods (e.g. merchandise or clothing racks), or temporary placements of signs (e.g. sandwich boards) should not intrude into the main pedestrian travel zone.
- Items for waste collection (bags, garbage containers, recycling, etc.) should not be placed in the pedestrian travel zone.
- Formal outdoor dining (served by waiters or waitresses) should be allowed only within fenced areas.
- Informal tables for coffee or snack shops should only be located in the utility area, outside the main pedestrian line of travel.
- A minimum 1.22 m. (4') wide line of pedestrian travel should be maintained, free and clear of any obstacles, wherever possible.
- Within commercial town centre areas (e.g. in C4 – Town Centre Commercial & C7 – Central Business Commercial in the City's Zoning By-law 8000) a minimum 2 m. wide clear width for pedestrian travel should be maintained.
- Hanging trash cans should be placed out of main pedestrian flow, should not obstruct access to crosswalk buttons, and should be low enough so that everyone can access them.
- Hanging baskets, planters, etc. should be well out of the pedestrian travel way (e.g. do not obstruct access to pedestrian signals at intersections). A minimum height of 2.5 m. is recommended.

Figure 6 - Cross-Section of Sidewalk



4.2.2 Visual Impairment⁹:

General:

- Obstructions include street furniture, traffic signs, direction signs, street plans, bollards, plants, trees, shop awnings and advertising signs, etc. .
- Obstructions should be placed outside the path of travel wherever possible.
- Obstructions in the pathway should be easy to detect, and if possible, should be placed along one continuous line.
- Protruding elements should be avoided.
- The minimum width of a clear unobstructed path should be 1.22 m. to accommodate visual impairment and mobility challenges. Utilities, including, but not limited to parking metres, bicycle racks, signal posts, mailboxes, tree grates, benches & furniture, garbage bins should be located outside this pedestrian path, but within the sidewalk area.
- Utilities should be a contrasting colour to the surrounding environment.

⁸ City of North Vancouver

⁹ From the United Nations Accessibility Design Manual



4.2.2.1 Obstructions on the pathway surface

- Obstructions on the pathway surface, within the 1.22 m. clear path of travel, are sometimes unavoidable. Where this is the case, obstructions should have one of the following design features in order to be detected by the cane of a sightless person:
 - a) A straight shape rising from the pathway surface;
 - b) A 0.10 m raised platform; or
 - c) Tactile warning markings on the ground around the obstruction. The warning markings should extend over a width of at least 0.60 m. outside the projected area at the base of the obstacle.
 - i) Tactile warnings should take the form of grooves or indentations in the sidewalk surface, as opposed to raised markings. The latter cause discomfort for wheelchair users.

4.2.2.2 Overhanging obstructions

- Overhanging signs in accessible pathways should be mounted at a minimum clear height of 2.5 m. to allow all pedestrians to pass safely.
- Overhanging vegetation should be clipped to a minimum clear height of 2.5 m.
- Undetectable obstacles mounted lower than 2.5 m. may project a maximum distance of 0.10m into the pathway. Otherwise they should be recessed or covered.

4.2.2.3 Fixed poles

- Fixed poles should have contrasting durable colour marking strips of at least 0.30 m in length, placed with the centre line at a height between 1.40 m and 1.60 m, to warn pedestrians with limited vision.

4.2.2.4 Garbage bins

- Garbage bins attached to lampposts should not face the line of pedestrian flow so as to minimize collisions and should be painted in a contrasting colour so that people with limited vision may easily identify them.
- The bins should also not require the pedestrian to venture onto the roadway area to access them.

4.2.2.5 Spaces below ramps and stairs

- Spaces below ramps and stairs should be blocked out completely by protective rails or raised curbs or marked with a tactile surface.

4.2.2.6 Bicycle Racks.

- Bicycle racks should be located outside the pedestrian traffic flow area, within the utility area.

4.2.2.7 Wires

- Stabilizing wires and wire netting should be blocked out of the pedestrian right-of-way.

4.2.2.8 Bollards ¹⁰

- Bollards should be painted in a contrasting colour (e.g. white or yellow or fluorescent colour) or in coloured stripes.
- The distance between bollards should be a minimum of 1.20 m..

4.2.2.9 Roadworks

- Excavations and road works form temporary obstructions within the route of travel. They should be protected by easily detected continuous barriers, scaffolding, and fences for safety reasons.

¹⁰ Bollards or guard posts are placed to keep out undesired motor traffic from pedestrian areas or to indicate a non-parking area.



- Disruptions to normal pedestrian travel routes should be minimized. Sidewalks should not be closed unless absolutely necessary (e.g. if any hazard is likely to result from the construction for people with disabilities). Alternative routes must be clearly signed and marked.
- Barriers should be identified by striped colour markings and should be lit at night, to guide people with limited vision.
- The barrier height should be between 0.75 m and 0.95 m. The distance between the bottom of the barrier and the pathway surface should not exceed 0.10 m..

4.2.3 Projections (Mobility or Visually Challenged):

- Walkways should be constructed so that nothing projects into and over the walkway unless at least 2.5 m. high, or more, from the ground or less than 10 cm. (0.1 m.) from the wall.
- Cane users have no means of protecting themselves from the waist up.
- Any furnishings which project into the walkway, that are more than 0.68 m. above the walkway, should be extended down to cane detection height of 0.68 m. and more preferably, to the floor.

4.2.4 Existing Constructions

Existing obstructions within the path of travel should be redesigned to conform to all the above requirements.

4.3 Maintenance of Sidewalks¹¹

- Rough areas, cracks and depressions, in excess of 2.5 cm. different from the path surface, should be repaired on a priority basis.
- Prompt leaf removal by the landowner abutting the sidewalk is required (autumn).
- Prompt snow removal by the landowner abutting the sidewalk is also required (winter).
 - a) Stairs and ramps should have their full width cleared of ice and snow; walkways and entrances should have at least 1.2 m cleared.
- Vegetation should be cut back, so that it doesn't intrude onto walkway or bus-lift pads
- Focus should be placed on access and egress to bus stops.
- Focus is also recommended on routes used by seniors, children and people with disabilities (e.g. between seniors' centres, seniors' residences, churches, shopping centres, health care facilities and tourist facilities).
- A telephone number (862-5500, Option 1) should be published (e.g. in telephone blue pages, on web page) for pedestrians to notify the municipal staff of hazards.
- Quick response to maintenance requests should be achieved.

4.4 Illustrations of Pathway & Sidewalk Treatment for Obstacles Within Path of Travel¹²

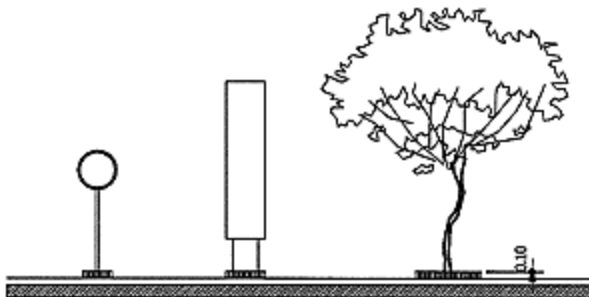


Figure 7 – Raised platform around tree (alternatively tactile grooves can be used see section 4.2.2.2)

¹¹ City of North Vancouver

¹² United Nations

Figure 8 – Tactile & contrast colours strips around post

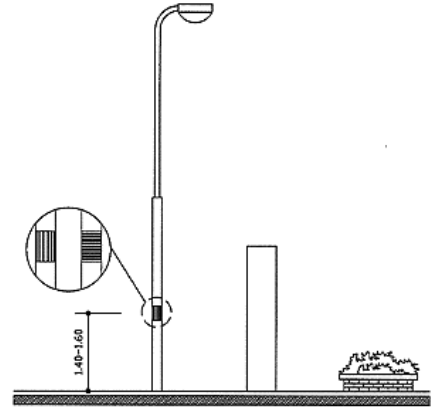


Figure 9 - Height for Clearance under Projections

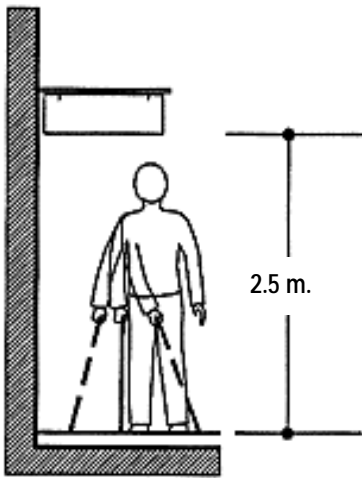


Figure 10 - Location of Tactile Strips Around Obstacles

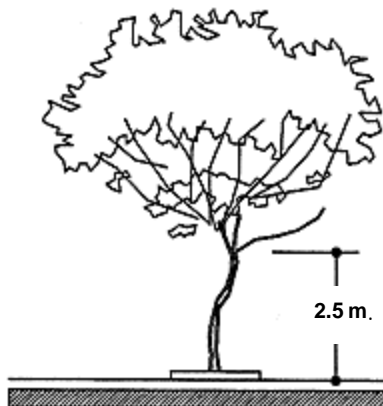
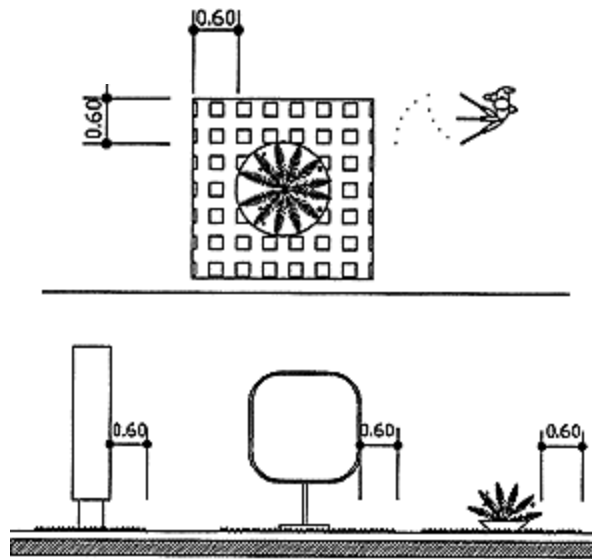


Figure 11 - Minimum Clearance for Tree Branches

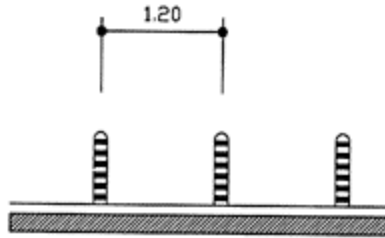


Figure 12 - Contrast Markings for Bollards

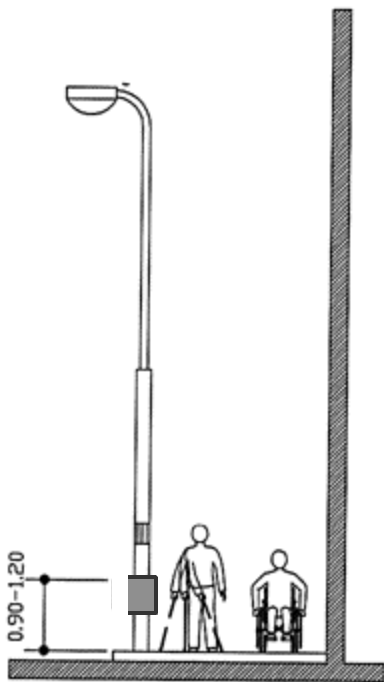


Figure 13 - Waste Container Located on Post – should not impede path of travel nor require pedestrian to step into traffic lane.

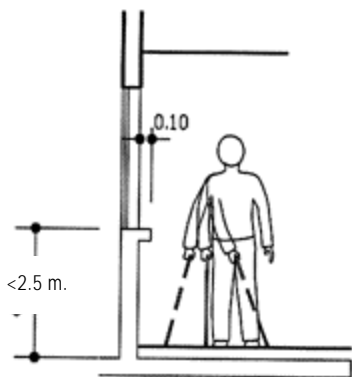


Figure 14 – Wall Projections – no more than 0.10 m.

4.5 Width:

- Clear width means be free of all obstructions including light poles, fire hydrants, traffic signals and signs, mailboxes and other street hardware.
- Minimum clear width is 1.5 m. to allow two wheelchairs to pass in opposite directions, although 2.4 m. is recommended as an optimum width. .
- Minimum clear width of 1.2 m. is recommended in order to be barrier-free (i.e. allow a pedestrian to pass a wheelchair, or obstacle, without stepping off the walkway).

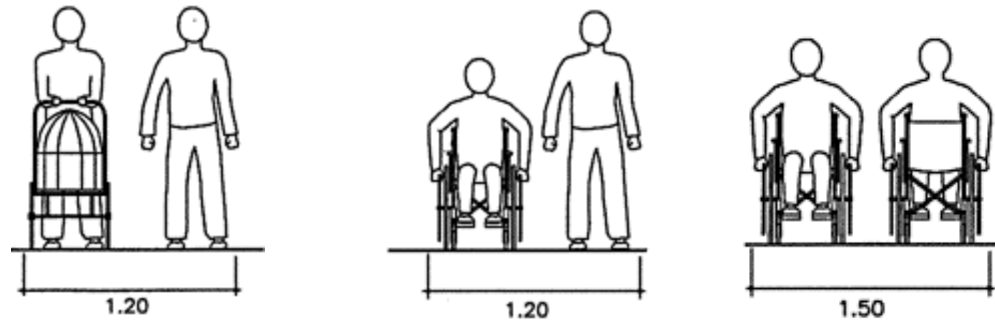


Figure 15 - Illustrations of widths in metres needed for various types of pedestrian traffic.

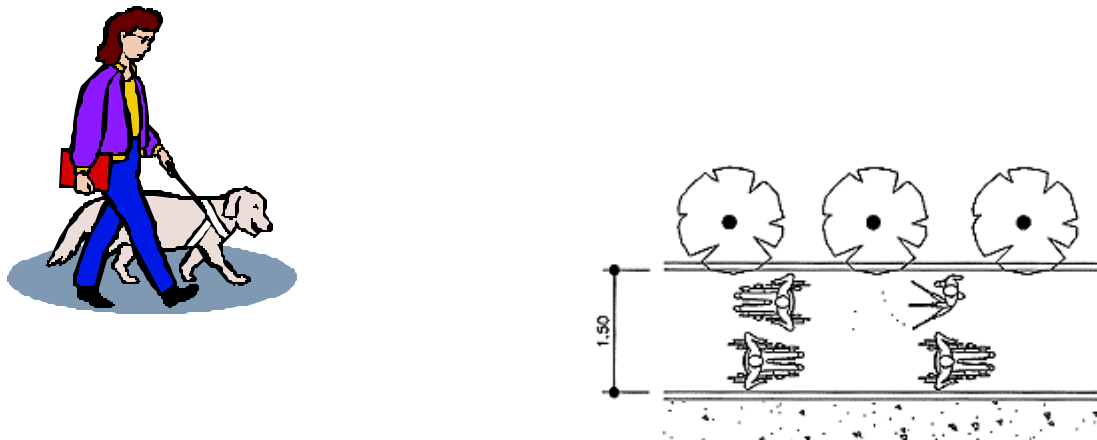


Figure 16 - This shows the minimum width in metres for pedestrian traffic to allow 2-way traffic.

- Where walks cross parking lots, driveways or streets, the sidewalk should be maintained at the same level as sidewalk on either side of the driveway.
- Walkways linking utility entrances with the main walkway system most often are not used by the general public and, therefore do not form part of the barrier-free path of travel.



4.6 Visual Impairments:

- Cane detectable delineation on either side of an entrance make it easier to locate.
- Thorny plants, plants with large seed pods or fruit-bearing trees that can litter the pathway should be avoided.
- A grassy area for guide dogs to rest is recommended. People requiring the services of a guide dog follow the same rules as other dog owners by picking up and properly disposing any waste from the animal.
- Low landscaping should be used to act as a buffer between pedestrians and amenities such as fire hydrants, gas meters and fire hose standpipes
- Tactile markings in the sidewalk, parallel to the road, should be provided along the entire width of a driveway or lane intersection to alert people with visual impairment of possible vehicular traffic.

4.7 Surface Materials¹³:

4.7.1 Mobility Challenges:

- Walkway surfaces should be constructed of a continuous hard, smooth, stable, non-slip material.
- Materials that are not suitable include exposed earth, coarse gravel, sand and bark chips. Tile is bad because it is slippery when wet.
- Interlocking paving stones, or similar surface treatments, are not recommended for people with disabilities. The uneven surface can aggravate pain and conditions that generate spasms for people in wheelchairs. It is also more difficult for walkers.
- Suitable materials include finely ground stone, concrete, and asphalt. Brushed concrete is preferred.

4.7.2 Grates¹⁴:

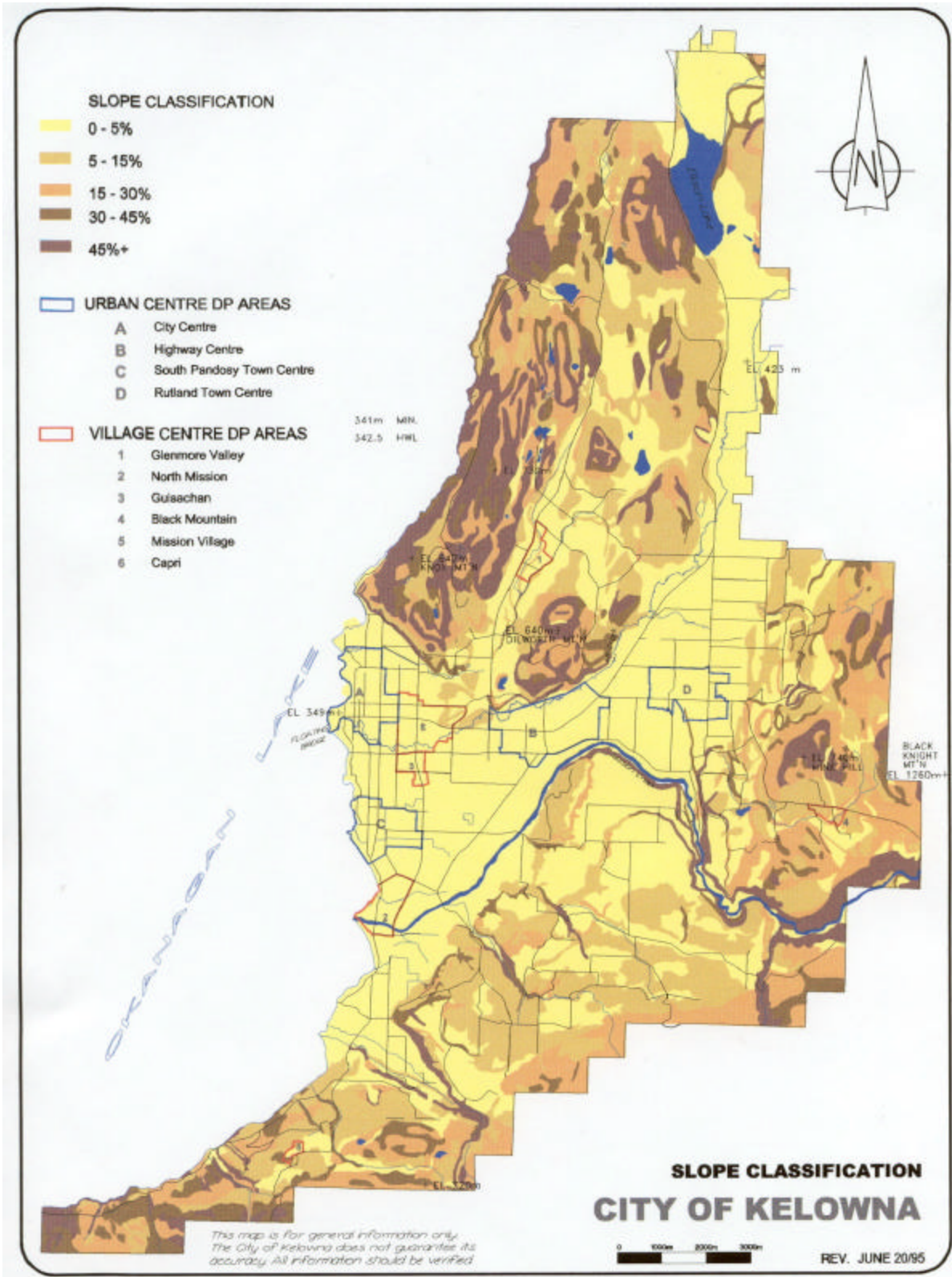
- Grates (e.g. for storm drains or the base of trees) can be hazardous to wheelchair users, cane and crutch users, parents with children in strollers or carriages, and people wearing shoes with narrow heels.
- Manholes, drains, grates and utility vaults should be placed outside the pedestrian pathway.
- Grates should be flush with the pathway surface and should have narrow patterns of not more than 13 mm..
- Elongated grate openings should be perpendicular to the pedestrian travel path.

4.7.3 Tree grates:

- Should be of consistent design (predictable).
- Should be level with the sidewalk.
- Grate holes should be filled with drain-able material, or small enough that they won't catch canes, shoe heels, etc..
- Spaces between grates and trees should be filled with plants, sand or other material so they don't pose a tripping hazard.

¹³ City of North Vancouver

¹⁴ United Nations



Map 1 - Slopes and Urban and Village Centres in Kelowna



4.8 Slopes:

Kelowna has hillside areas where it is not always possible to adhere to maximum slopes as identified in these guidelines. Map 1 illustrates the City in terms of its slopes and indicates that large areas feature slopes exceeding 5%, which represent significant access limitations for people with mobility challenges. Pedestrians should be aware that hillside areas will not be accessible to all populations, particularly those with mobility challenges. However, the intention is to make slopes as gradual as possible and make transitions smooth and predictable.

4.8.1 Equivalentents

1:50 = 2%

1:20 = 5%

1:33 = 3:100 = 3%

1:10 = 10%

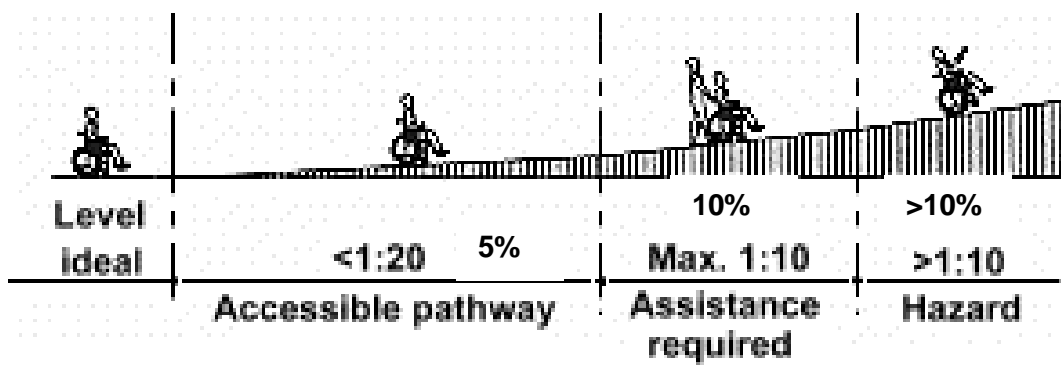


Figure 17 - Pictorial representation of slopes for wheelchair access

4.8.2 Mobility Challenges:

As stated above, areas of Kelowna which feature topography consisting of slopes and hillsides will present significant challenges in terms of being able to accommodate the needs of people with mobility challenges. Where ideal standards are not feasible, the guidelines will indicate areas that present significant challenges to pedestrians. The guidelines therefore are separated, as follows:

4.8.2.1 All Areas of the City:

- Cross slopes should be at an optimum 2%, (1:50). Cross slopes of less than 2% (1:50) induce surface icing, while slopes greater than 2% (1:50) are difficult for wheelchair users to maintain a straight direction of travel.

4.8.2.1.1 Driveway Crossing Slopes

- Sidewalks should stay as close as possible to the standard 2% cross slope rather than sloping with driveways.

4.8.2.1.2 Driveways and Building Access:

- In areas where driveways to access buildings are sloped, there should be level loading areas provided for vehicles so that passengers can safely transfer from the vehicle to building entrances.



4.8.2.2 Slope Guidelines for Urban Centres and Village Centres

4.8.2.2.1 Mobility Challenges:

The following pedestrian guidelines to address slopes for those with mobility challenges are recommended within the designated development permit areas for Urban Centres and Village Centres in the Official Community Plan. They should be applied to new projects or developments and can be used to improve existing, built facilities. It is not intended that existing pedestrian facilities or developments be required to be retrofitted to adhere to these guidelines, but should improvements be budgeted by the City, or proposed by a private landowner, these guidelines are recommended. If a stakeholder group identifies a problem, the guidelines would also be used to address this problem:

- The suggested slope for walkways, including sidewalks, is 0% to 3%, (0 to 1:33). This slope is easily traversed without manoeuvrability problems or causing fatigue.
- The maximum slope of a walkway, including sidewalks should be 5% (1:20).
- Where there is a slope of between 3% and 5%, benches and wheelchair resting areas should be provided every 30 metres.
 - Wheelchair resting areas should be level, located adjacent to the right-of-way and be a minimum size of 1.5 m. wide by 2 m. long.
 - Benches are preferred if there is adequate space within the level resting areas.
- Walkways of greater than 5% (1:20) are considered to be ramps and, as such, should have handrails.
- For ramps to buildings, the standards set out in the BC Building Code must be followed.

Ramps:

The BC Building Code should be applied when determining ramp requirements. The following table gives an indication of the maximum length for various slopes:

Table 1 - Slopes with Maximum Length & Rise

Maximum slope	Maximum length	Maximum rise
1:16 i.e., 6%	8 m.	0.50 m.
1:14 i.e., 7%	5 m.	0.35 m.
1:12 i.e., 8%	2 m.	0.15 m.
1:10 i.e., 10%	1.25 m.	0.12 m.
1:8 i.e., 12%	0.5 m.	0.06 m.

5 Passenger Loading Zones¹⁵

- Provides persons with a safe location to exit from a vehicle without stepping into the traffic flow or directly onto a sidewalk.
- Passenger loading areas are beneficial for picking up and dropping off people with physical limitations, parents with children, people carrying loads, etc..
- Signs should be installed to identify a passenger-loading zone and prevent its misuse as a parking space.

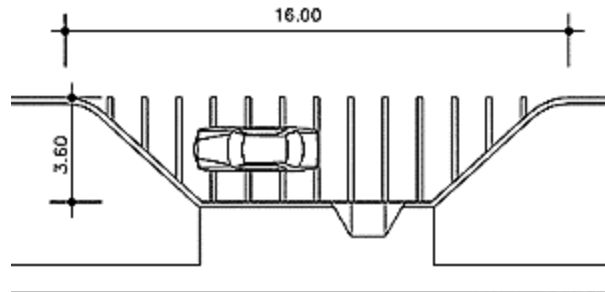


Figure 18 - Passenger loading zone

¹⁵ Combined from requirements from the City of Peterborough, Ontario & United Nations Accessibility Design



Guidelines for Accessibility

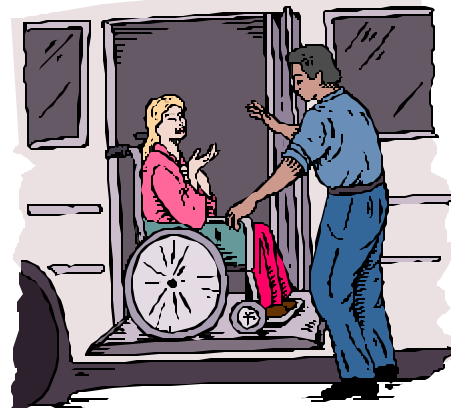
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- Passenger loading zones should be provided at public transit stations.
- Where there are public buildings, passenger-loading zones should be provided within 30 m. of the main, accessible building entrance.
- Passenger loading zones should be visible from the main entranceway so that persons can see and be seen while waiting to be picked up or dropped off. The recommended distance between the front entrance and the passenger-loading zone should not exceed 30 m..
- The passenger loading area should be at least be 3.60 m wide and incorporate an aisle at least 1.20 m, preferably 1.5 m., wide, to allow for manoeuvring, and at least 7 m., preferably 16 m. (about 2 cars) in length.
 - Alternatively, where the right-of way and sidewalk dimensions do not provide room to accommodate the above standards, curb-side loading zones (based on normal road and removal of parallel parking) can be provided.
- If there are curbs between the walkway and the passenger loading zone, then a curb cut should be provided, conforming to City of Kelowna standards.
- Where no curb exists to mark the separation between pedestrian and vehicle zones, the installation of a tactile warning cue is necessary to guide pedestrians with visual impairments. Use of white or yellow paint at the sidewalk edge is helpful to those with visual impairment other than complete blindness.
- Bollards may be used or a tactile marking strip at least 0.60 m wide can be constructed at the edge of the pathway to warn of the transition to a vehicular area.
- A protected shelter or canopy with seating facilities is a recommended design feature at passenger loading zones. A minimum vertical clearance of 2.75 m. should be provided for canopies.
- The surface should be firm and level with slope not exceeding 1:50 (2%).

6 Transit:

6.1 Bus Stops / Shelters:

- Size should be 96" (2440 mm) long x 60" (1525 mm) wide minimum.
- Slope should be the same as the roadway.
- Should provide an accessible route to and into shelter.
- Unobstructed access should be available to the pad on wheelchair accessible routes; pad should not be located inside shelter.
- Should have a clear floor space 30" x 48" (760 x 1220 mm) fully within shelter.
- Should have clear, legible signage.
- Shelters should be set back from sidewalk to give good sight-line for bus drivers to see person signaling for a pick-up.
- Glass panels should have stripes or some other features (e.g. posters) to increase visibility.
 - Bus stop benches should be a contrasting colour from the surrounding environment.
 - A tactile change in the area surrounding the bench is helpful to long-cane users.
- Minimize landscape features near bus stops; don't create hiding places for muggers.
- Should be well-lit.





7 Parking:

Required parking spaces for people with disabilities are provided in the B.C. Building Code and in the City's Zoning By-law 8000. These requirements must be met. The following guidelines are also suggested:

- For outdoor parking, accessible parking spaces should be located not more than 50 m from accessible building entrances.
- Curbside parking is generally dangerous for people with mobility limitations unless it is designed as an accessible passenger loading area.
- In spite of the above statement, in some situations, street parking should also be made wheelchair accessible, since in some areas of the city this is the only type of parking available. However, some city policies do not allow for mid-block ramps, therefore, accessible parking should be located at either end of a street.
- Municipal parking metres should be no higher than 1.4 m. and clear of pedestrian walkways (see sidewalks and pathways).
- Overhead structures, such as canopies, that provide protection over parking and passenger loading zones providing access to a main building entrance should have a vertical clearance of not less than 2.75 m..
- Wheel-stops (e.g. curb stones), landscaping other design features should be placed to prevent vehicles from protruding over walkways. Wheel-stops should, if possible, be painted yellow to help visually impaired persons and to prevent the general tripping hazard.
- A barrier-free path of travel should be provided from building entrances to:
 - An exterior parking area, where exterior parking is provided
 - At least one parking level, where parking is provided in a parking structure, where it is served by a passenger elevator
- For parkades or underground parking, accessible parking spaces should be located right next to accessible elevators, or as close as possible to exits.
- Handicapped parking spaces should be located so that it is not necessary for the passengers to cross vehicular traffic lanes or driveways to access building entrances, wherever feasible.
- Wheel bumpers or other obstructions in the route between the parking spaces and building entrance should be clearly identified.
- The ends of rows are preferable for vans with lifts for wheelchair users
- For indoor parking, the minimum height clearance for vans with hydraulic lifts is 2.40 m.
- The surface of a parking facility should be uniform and smooth.
- The slope of a parking ramp should not exceed 1:20 (5%).
- Handicapped parking spaces should not be metered due, not only to the higher percent of people with disabilities who are also on limited income, but because disabilities sometimes make the use of a metre impossible, and more time is required to accomplish tasks.
- Accessible parking areas should be marked by the international symbol of accessibility (see 7.2). Signs on posts and on the ground are recommended. Painting the entire parking space is not recommended as it creates a slippery surface.
- Wider spaces to accommodate side-lift entry vans should be provided.

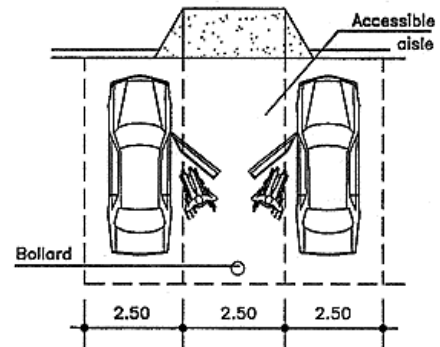


Figure 19 - Creation of Handicapped Parking Space within Existing Row of Parking



7.1 Existing Constructions

- If the parking area is more than 50 m. from the building entrance, a passenger loading area within 30 m. of the entrance should be built, or an accessible parking space close to the entrance should be constructed.
- If no accessible parking space is available, one of the following measures should be implemented:
 - (a) Block a peripheral regular stall with bollards to get one accessible parking space.
 - (b) Block a central regular stall with bollards to get two accessible parking spaces.
 - (c) Two accessible parking aisles.
- For indoor parking spaces with clear height of less than 2.40 m, alternative outdoor provisions for vans carrying disabled people should be provided.

8 Signs¹⁶

8.1 General

- Signage includes direction signs, signs of locality, street names and numbering, information signs, etc.
- All types of signs should be visible, clear, simple, easy to read and understand, and properly lit at night.
- In general, signs should not be placed behind glass because of possible reflection.
- Signs placed on the pedestrian path of travel are considered obstructions; thus, they should be detectable & address guidelines under “Obstructions”.

8.2 International symbols of accessibility

- Accessible spaces and facilities should be identified by the international symbol of accessibility.
- The symbol is composed of a wheelchair figure with either a square background or a square border (figure 18).
- Contrasting colours should be used to differentiate the figure from the background. The commonly employed colours are white for the figure and blue for the background.
- The wheelchair figure should always be drawn facing right.
- For completely accessible buildings, it is enough to have one explanatory sign at the entrance.
- Other signs have more specific meaning, including the international symbol for hearing loss and the TTY symbol. TTY indicates the location of public text telephones for use by those with hearing loss (figures 19 and 20).



Figure 20 - International symbol of accessibility. The symbol contrast shall be light on dark, or dark on light.

Figure 21 - International Symbol for Hearing Loss



Figure 22 - International TTY Symbol.



¹⁶ United Nations: Accessibility Design Manual



8.3 Direction signs

- Graphic or written directions should be used to indicate clearly the type and location of the available facility.
- Directional signs need not be excessive in number, but they should be placed at main entrances and doors and in places where changes in direction or level occur

8.4 Street names

- Fixed signs indicating street names should be placed at a maximum height of 2.50 m..
- If the street name is placed above a required traffic sign, this will not be feasible, as the stop sign must be placed such that the bottom of the sign is 2.5 m. from the ground to meet traffic regulations.

8.5 House numbers

Fixed signs indicating house numbers should be placed at a maximum height of 2.00 m .

8.6 Maps and information panels

Maps and information panels at building entrances, along roads, and on public buildings should be placed at a height between 0.90 m and 1.80 m..

8.7 Installation

Signs can be wall-mounted, suspended or pole-mounted.

8.7.1 Wall-Mounted signs:

Wall-mounted signs, such as those indicating room numbers, should be placed with the centre line at a height between 1.40 m and 1.60m from the finished floor level.

8.7.2 Overhanging signs:

Overhanging signs should allow a minimum clearance of 2.00 m..

8.7.3 Pole-Mounted signs:

Should conform to criteria under Obstructions.

8.8 Shape of signboards

- Information signboards should be rectangular.
- Warning signboards should be diamond-shaped.
- Signs banning certain activities (e.g. No Smoking) signboards should be circular.

8.9 Colour

- The colour of signs should contrast with the surrounding surface so as to be clearly distinguishable.
- The commonly used colours are white, black, yellow, red, blue and green.
- The colour combinations red/green and yellow/blue should not be used in order to avoid confusing colour- blind persons. Black on white is preferred.

**Table 2 - Colour Contrasts on Signs¹⁷**

Background Surface	Sign Background	Colour of Lettering
Light brick or light stone	Dark (black preferred)	White or Yellow
Whitewashed wall	Dark (black preferred)	White/Yellow
Red brick or dark stone	White	Black, dark green, or dark blue.
Green vegetation	White	Black, dark green, or dark blue.

8.10 Surface

- The sign surface should be processed to prevent glare.
- Engraved texts should be avoided unless they are coloured. Relief prints are advisable. Raised print is easier to read, but engraved text is preferred to a flat surface.
- Key plans, orientation signs and push buttons in lifts should have a text in Braille or in relief.

8.11 Lettering

- The size of letters should be in proportion to the reading distance.
- Character width-to-height ratio should be between 3:5 and 1:1 and the character stroke width-to-height ratio should be between 1:5 and 1:10.
- The letters and signs should preferably be raised at least 1 mm from the background, to enable sightless people to read the information using the tips of their fingers.
- Clear, legible fonts should be used.
- The smallest letter type should not be less than 15 mm.
- Normal spacing between words and letters should be used.

8.12 Tactile Signs

- Where feasible, the use of tactile signs is recommended;
- Tactile signs have raised lettering and are useful to those who have visual impairment that prevents them from reading, but allows them to locate a sign.
- Tactile signs should be mounted between 1.35 and 1.5 metres above the walking surface.
- Characters on the sign should be raised at least 1 mm..
- Character edges should be gently rounded;
- Raised borders around raised characters should be avoided, unless the border is set far from the lettering.
- Tactile signs should identify doors and entrances that lead to a public place.
- The recommended location for a tactile sign is on the latch side of the door, with the exception of washrooms, where the signs should be placed on the door.
- Signage for doors should be mounted no more than 15 cm. from the doorjamb and between 1.35 and 1.5 metres from the finished floor. Where there are double doors, signs should be placed on both sides of the doors.
- Tactile signs should be located such that they can be used without obstructing the path of travel.
- Tactile signs should be well lit and located in safe areas (see the City of Kelowna Crime Prevention Through Environmental Design Guidelines).

8.13 Braille Signs

- Consult a Canadian National Institute for the Blind (CNIB) office for details on the use of Braille.
- Use of Braille signs wherever tactile signs are recommended is appropriate.

¹⁷ Clearing Our Path, page 27



- Grade 1 Braille should be used for signs of 10 words or less and Grade 2 Braille should be used for signs of more than 10 words.
- Braille type should be in the same place in relation to other type on all signs. For example Braille should be found below the tactile sign, but not so low as to require the reader to bend over to touch the sign.

8.14 Symbols

- Signs using symbols are an effective way to address the needs of many disability issues including illiteracy, as well as language barriers.
- Services including (but not limited to) washrooms, exits and telephones can be identified with the use of symbols.



8.15 Existing Constructions

- The international symbol of accessibility should be added to mark accessible spaces and facilities.
- Directional signs should be added to indicate clearly the location and function of accessible spaces and facilities.
- Signs that do not comply with the above design requirements should be modified or replaced.



9 Building Access:

For access to and within buildings, the B.C. Building Code takes precedence, in particular where any inconsistency in requirements is detected. Other suggestions for building design with respect to accessibility are provided below:

9.1 Public Building Entrances:

9.1.1 General

- For new accessible constructions, all main public entrances should fully accessible to people with disabilities.
- Door mats should not make it difficult to push wheel chair and open the door.
- Pedestrian access should be provided directly from the sidewalk in the road right-of-way, to the building entrance, without the need to cross or conflict with vehicular driveways.
- The effect of seasonal weather conditions, such as strong winds and drifting snow, should be considered in the design of building entrances.
- The accessible entry should connect directly to the main lobby or main corridor and other accessible internal circulation routes.
- An exterior location is frequently chosen for ramps due to the space requirements. Exterior ramps should be covered to prevent build-up of snow or ice.



This doorway has good colour contrast that would help people with visual impairment.

- Ideally, the entrance to a ramp should be immediately adjacent to the stairs.



- At least one entrance per facility should be accessible to a wheelchair user. In new buildings, the accessible entrance(s) should be the main entrance(s) intended for use by the general public.
- At least 1.5 m. prior to the doorway should be level.
- Door opening should allow adequate time to get through the doorway with a walking aid or wheelchair.
- Steps, stairs and ramps should be avoided; grade level access and egress is preferred
- Each accessible entrance should be connected by accessible pathways to accessible indoor or outdoor parking areas, local public transit stops and/or passenger loading areas.
- In multi-storey buildings, the accessible entrance should permit access to a conveniently located accessible elevator or lift.
- In entryways, any sudden drop in illumination level and sharp contrast in light and shadow should be avoided by the use of appropriate lighting. This applies in outdoor and indoor situations.
- Door closures need to be on least possible amount of tension.
- Automatic door opener buttons need to be on the wall, not on the door frame (so the door doesn't bang into the wheel-chair).

9.1.2 Signs

- Accessible entrances should be clearly identified using the international symbol of accessibility, including alternate locations of accessible entrances.
- No accessibility signs are needed if the whole building is accessible.
- See sign clauses in Section 8.

9.1.3 Entrance landing

- The surface of the landing should have a slope of 2% for drainage.
- The finish material should be non-slippery.
- Jute doormats should be avoided. When used however, the upper surface of the mat should be level with the floor finish.
- Sheltered landings are preferable.

9.1.4 Threshold

- Thresholds should be omitted wherever possible. Weather-stripping at the door bottom is preferred to thresholds.
 - Where necessary, a threshold should not be more than 20 mm higher than the finished floor level.
 - Thresholds higher than 6 mm should be beveled or have sloped edges to facilitate the passage of a wheelchair.

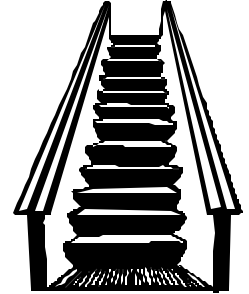
9.1.5 Visual Impairment

- The colour and brightness of the entrance door should contrast with the surrounding surface so as to be distinguishable by people with visual impairment.
- Entrances that are flush with the building façade can be identified if the door surface or frame is a different texture from the wall. A tactile warning on the entrance path should also be provided.
- Architectural elements and/or landscaping elements symmetrically applied to an entrance make the entrance easier to identify.
- Large expanses of clear and unmarked glass should be avoided. Expanses of glass should have stripes or other treatments or markings so they are visible or detectable to people with visual impairments. The identification treatment chosen for glass doorways, or expansive glassed areas, should be sympathetic to the overall building design.



9.1.6 Stairs:

- Although stairs are obviously not suited to those who manage mobility limitations, people with visual impairment can manage stairs with the following provisions:
- Stairs or elevation changes should:
 - a. Be clearly identified with the use of colour contrasts and/or tactile treatments.
 - b. Be of a uniform, manageable riser height and tread length
 - c. Have a non-slip surface
 - d. Have a tread edge of contrasting colour and texture.
 - e. Tread edges should be roughened to prevent slipping and provide a detectable edge.
 - f. Have handrails at all stairs
 - g. Be equipped with handrail extensions at beginning and end of stairs, textured to indicate top and bottom stairs.
 - h. Have clearly defined edges. When steps or stairs disappear into the slope of the sidewalk, it presents a hazard due to its unpredictability



9.1.7 Existing Buildings¹⁸

- Public buildings should have at least one accessible entrance. Wherever possible, this should be the main entrance intended for use by the general public.
- The accessible entry should connect directly to the main lobby or main corridor and other accessible internal circulation routes.
- The accessible entrance should not be locked during business hours.
- If, for architectural or technical reasons, the main entrance cannot be made accessible, an alternative accessible entrance should be provided. The location of the alternative entrance should be clearly indicated by signs.
- To allow for an accessible entrance, one of the following solutions can be adapted:
 - Ramps, bridges or mechanical lifts may be used;
 - The entrance level might be modified earth-fill, or by changing the grade or the landscaping of the surrounding site;
 - A window or another door at ground might be converted into an accessible entrance.
 - A new sidewalk or path can be installed to connect the building entrance to the street sidewalk.
- Notes:
 - For existing buildings, a service entrance can be used temporarily as an accessible entrance, but it should not be the only accessible entrance.
 - Mechanical lifts are recommended for buildings where modifications are impossible or unacceptable.

10 Street / Outdoor Furniture and Amenities

- Street furniture includes, benches, mail boxes, lampposts, signboards, telephone booths, public toilets, newspaper kiosks, planting tubs, garbage bins, etc.. These amenities can also become obstructions on sidewalks or pathways. Therefore, cross-reference to the section that deals with these issues (Section 4.2).
- Street furniture should be located so as to allow for the free passage of all people without creating hazards (see section 4.2 on obstructions).
- Textural changes in the footpath surface help sightless people to identify the location of public amenities.

¹⁸ Building exists since prior to existing access Building Code requirements.



10.1 Resting facilities

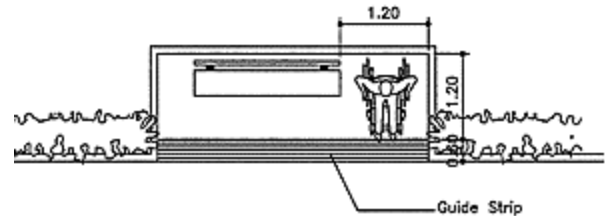
- Level rest areas with seats are helpful for all pedestrians, especially for those with mobility problems.
- Resting facilities should be placed outside the main circulation path in public parks, recreational places, pathway crossings, in front of accessible entrances and exits and wherever necessary.
- Resting facilities should be provided at regular intervals between 100 m. and 200 m. along a pedestrian path of travel, and every 30 m. where there are slopes of between 3% and 5%. On sloped routes, it may not be feasible to provide a seat within the level resting area. (see section on 4.8 slopes).
- Some seating accommodations should be placed close to public toilets, telephones, etc.

Figure 23 - U.N. illustration of bench adjacent to walkway

10.1.1 Benches

10.1.1.1 Visual Impairment

- Should be at the same level as the walkway but set back from it
- A tactile change in the area surrounding the bench is helpful to long-cane users
- A space between benches (at least 920mm × 1200mm) provides space for guide dogs or wheelchairs
- Benches should also be a contrasting colour from the surrounding environment



10.1.1.2 Mobility Challenges

- Benches should include the following features:
 - a) About 0.48 m. (19") seat height
 - b) shallow front to back dimensions, 610mm recommended
 - c) Supportive back approximately 0.7 m. above floor level.
 - d) arm rest (for ease in sitting/standing)
 - e) level base

10.1.2 Existing Constructions

- Resting facilities should be rearranged where possible to allow an adjoining space for a wheelchair.
- Outdoor eating areas should include accessible eating areas.

10.2 Tables:

The height of a table should be between 0.75 m and 0.90 m and the minimum depth under the table should be 0.70 m, in order to fit a wheelchair under all sides.

10.3 Drinking Fountains:

- Drinking fountains should be placed outside the path of travel
- Drinking fountains should:
 - a) have two spouts located at different heights, one convenient to wheelchair users and children at approximately 0.85 m, and one at approximately 0.95 m for ambulatory people
 - b) have lever or push bar controls operable by a force no more than 22N, located either on the front or on both sides
- The spout should be set close to the front of the fountain and the direction of flow of water should be parallel to the front of the fountain

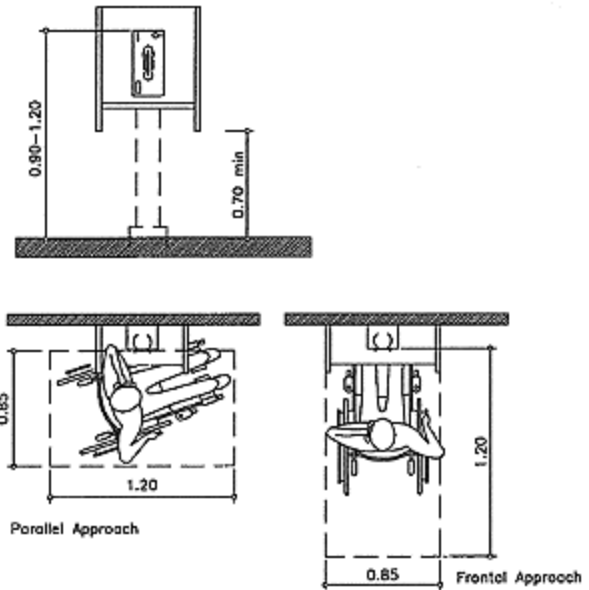


- If the fountain is located in an alcove:
 - a) The alcove should not be less than 800mm wide, and
 - b) The fountain should be of the surface-mounted type

Figure 24 - Wheelchair telephone access

10.4 Accessible Public Telephones:

- Locate where people wait (e.g. at bus stops)
- At public telephone booths, one telephone should be accessible to a wheelchair user and another to a person with a hearing impairment.
- Telephone Device for the Deaf in major locations (e.g. bus interchanges)
- Should have TTY capability for non-voiced communications
- Should be volume control/hearing-aid compatible.
- A push-button telephone numbering system, with raised letters, which can also be read by touch, should be used for the convenience of sightless users and other people with disabilities.
- A folding seat should be provided in accessible telephone booths for the convenience of people with mobility challenges.
- The minimum unobstructed area in front of the telephone counter should be 1.20 m x 0.85 m, allowing either a parallel or a frontal approach.
- The coin slot should be mounted at an accessible comfortable height between 0.90 m and 1.20 m.
- The telephone cord length should be at least 0.75m.
- Accessible public telephones should be marked by appropriate signs
- The highest operable part should be within reach range
- Approach to telephone safe, unobstructed, level and paved.
- A side reach is preferred.
- Hearing aid coupler coil & wheelchair & deaf signage
- Where more than one telephone is installed, at least one should have unobstructed access to an 800mm wide x 815 mm deep space which allows the user to be max 300 mm from front of telephone
- Minimum clearance below telephone (or shelf) should be 0.715 m. .
- Adjacent shelf should be min 250mm wide x 350mm deep with clearance above min 250mm



10.5 Automatic Tellers and Retail Automatic Customer Payment Devices

- It is recommended that banks and other businesses incorporate accessible automatic teller and payment devices as soon as feasible.



11 Park Designs

11.1 Nature Trails

11.1.1 Slope and Width

- Refer to standards for sidewalks and pathways provided elsewhere in these guidelines.

11.1.2 Visual Impairments

- Audible information, Braille and tactile elements on signs can provide information about the trail layout and points of interest.
- A bright yellow rope 920 mm from grade that runs the entire length of the trail can be knotted at specific points to indicate points of interest to those who are visually impaired.
- All trails should begin with an information sign and map using contrast in colour, tactile symbols, and Braille.
- Signs should indicate degree of difficulty of the trail, its length, and distinguishing features, including hazards.
- Signs should also include a legend to explain the meaning of symbols and cues along the trail.

11.1.3 Accessible Toilet Facilities

- Public toilets located in highway wayside rest areas, campgrounds, picnic grounds, parks, trailer parks and mobile home parks should provide:
 - a) Access from a roadway to at least one toilet building by means of a path of travel and
 - b) Within one toilet building, toilet facilities (all pertinent equipment).
 - c) Baby change areas are needed but should be separate from accessible toilet facility.

11.1.4 Example:

- The Francis/King Regional Park Pilot Project in Saanich¹⁹ is a good example of a nature trail that “accommodates people with disabilities and preserves the quality of the experience for users”(p 2).
- The trail will be one half compacted gravel screenings, and one half wooden boardwalk.
- Other proposed features include:
 - An electrical outlet for scooter recharge
 - An expanded toilet building with change table/bench
 - Interpretative display that include textural and visual experiences
 - A path wide enough for two wheelchairs, or a wheelchair and a person walking side by side
 - Trail edging to guide white cane users
 - Safety railings at the bottom of slopes
 - Opportunities for off-trail access to picnic locations within the forest

11.2 Playgrounds

11.2.1 Visual Impairment²⁰

- Playground components should be grouped together by age group of their users;
- Contrasting colours can be used to attract children to specific play structures;
- Pathways should link appropriate play elements;



¹⁹ Accessible BC Accessible Communities for Everyone, Spring 1998

²⁰ Clearing Our Path, CNIB



- Place swings away from other play equipment and do not put paths in front of or behind swings;
- Ramps and climbing walls should have a material such as plastic to protect against splinters or hot metal;
- All playground equipment should be inspected regularly and well-maintained
- Suggested provision of enhanced features (e.g., changes in surface texture to indicate breaks in activity areas, the use of sounds such as falling water, bells, and drums);

11.2.2 Mobility Challenges:

11.2.2.1 General²¹:

- Play area guidelines apply to play areas designed for children ages two and over. Where separate play areas are provided within a site for specified age groups (e.g., preschool (ages 2 to 5) and school age (age 5 to 12)), each play area should comply with the following guidelines.
 - There should be a diversity and variety of play experiences for children with disabilities. Experiences will vary between different types of play components provided including rocking, spinning, climbing, swinging, and sliding.
 - Where elevated play components are provided there should also be ground level play components. These play components should be located on an accessible route and there numbers should be equal to at least 1/3 of the total number of elevated play components
 - 50% of elevated play components should be connected by a ramp
 - Transfer systems may also be used in order to connect elevated play components although ramps are generally preferred
 - Consideration should be given to the general layout of the play area, and specifically integrating elements and spaces that can be accessed by children with disabilities
 - Accessible routes should be located within the boundary of the play area and should connect ground level play components and elevated play components, including their entry and exit points
 - Children with disabilities should be provided with a circulation path to a variety of play components without affecting the challenge incorporated with play areas
 - Objects should not protrude into accessible routes at or below 2 m. above the surface. This rule should only apply to ground level accessible routes in order to permit roofs on elevated play structures lower than 2 m. above the deck or platform
 - The dimensions for the clear width for accessible routes within play areas is 1.5 m., which is the minimum clear width necessary for turning
 - The clear width of transfer systems connecting elevated play components is 0.6 m. minimum as children using transfer systems leave their mobility devices and therefore do not need the same amount of clear width that a ramp requires

11.2.2.2 Ramp Slope and Rise:

- Provisions should be made for landings, handrails, and edge protection
- Transitions at the boundary of play area accessible routes and site accessible routes where the changes in level are greater than ½ inch should also have a maximum slope of 1:12
- The length of ramp runs can be limited to 12 ft. rather than limiting the rise of ramps to 12 inches
 - Handrails are not required at ramps located within ground level use zones or at the top and bottom of ramps to avoid any potential protrusion into circulation paths, especially on elevated decks or platforms
 - Transfer platforms should be located where transfer is intended to be from a wheelchair or other mobility device, and that transfer steps should be located where movement is intended from a

²¹ U.S. Access Guidelines



transfer platform to a level with elevated play components required to be located on an accessible route.

- Reach ranges should be taken into consideration when designing interactive features of play components. The International Playground Equipment Manufacturers Association recommends a reach range between 9 and 48 inches for a side reach and 20 to 36 inches for a forward reach.

11.2.2.3 Ground Surface:

- Ground surfaces should be inspected and maintained regularly and frequently to ensure safety.
- Engineered wood fibre surfaces require frequent maintenance because of surface displacement due to user activity or looseness due to moisture.
- Settling of engineered wood fibre may also affect the distance between the ground surface and transfer platforms.
- The type of material selected will affect the frequency and cost of maintenance.
- There should be an accessible route to serve entry points of soft contained play structures. Where three or fewer entry points are provided, at least one should be located on an accessible route. Where four or more entry points are provided, at least two should be located on an accessible route.

11.3 Picnic Areas:

- Should be adjacent to the path of travel and indicated with appropriate signs
- Picnic tables should have no protruding nails, screws or large splinters.
- Tables should have cut-out seating or end seating for wheelchairs.
- Garbage cans should have open tops if possible or spring-loaded hinges and should have a strip of contrasting tone 100mm wide around the top of the receptacle
- Barbecues should be placed on a contrasting surface





12 Contacts:

Canadian National Institute for the Blind
247 Lawrence Ave.
Kelowna, B.C., V1Y 6L2
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BC Paraplegic Association
4, 2525 Dobbin Rd.
Westbank, B.C., V4T 2G1
Phone: 768-5345

Canadian Hard of Hearing Association
(Kelowna Branch)
505 Hollywood Rd.
Kelowna, B.C., V1X 3T2
Phone: 860-5438

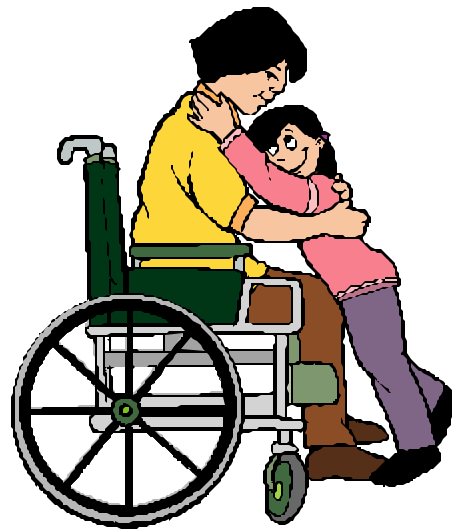
People in Motion
#204 – 591 Bernard Ave.
Kelowna, B.C.
V1Y 6N9
Phone: 861-3302 Fax: 868-8616

Central Okanagan Access Awareness Team
C/o Ralph Wardell
Kelowna, B.C.
Phone: 762-6590
Email: rewardell@telus.net

Kelowna Handibus Ltd.
112 – 2303 Leckie Rd.
Kelowna, B.C., V1X 6Y5
Phone: 762-3278 Fax: 861-7872
Dial a Ride: Mon-Fri: 8:30 am to 4:30 p.m.
Sat: 8am – 1pm
Cancel by dialing 762-3274

Kelowna Transit / Taxi Saver
1435 Water St., City Hall
Kelowna, B.C. V1Y 1J4
773-6011
<http://www.kelownatransit.com/>

Handicapped Parking Passes
2nd Floor, 1435 Water St.
City Hall, Kelowna, B.C., V1Y 1J4
Phone: 763-6011





13 Bibliography:

Accessible BC Accessible Communities for Everyone, Spring 1998

Access design guidelines. , 1991, City of Calgary, Access Review Committee. 1991

Accessibility Design Guidelines: City of Toronto, 1993

Access guidelines: City of Peterborough Sept, 1992

Accessibility of Intersections and Crosswalks for Persons with Disabilities and Frail Elderly Persons
(February 1994, Ontario)

Building Access Handbook, Illustrated Commentary on Access Requirements in the 1998 BC Building Code, Ministry of Municipal Affairs (B.C.), Crown Publications, 1999 (update of the 1995 edition)
<http://www.mcaws.gov.bc.ca/building/handbook>

City of Guelph, Ontario: 2001, Accessibility Guidelines,
<http://www.city.guelph.on.ca/document.cfm?documentid=2305&category=167>

City of North Vancouver; Pedestrian Access Guidelines
<http://www.cnv.org/SocialPlanning/seniors/PedestrianAccess.htm>

Clearing Our Path, Accessibility Recommendations for the Built Environment, Recommendations on how to make public places accessible to people who are blind, visually impaired and deafblind, CNIB, Ontario Division, August 1998

CSA Standard, CANCSA-B651-M90, Barrier-Free Design, 1990.

United Nations; Accessibility for the Disabled, A Design Manual For A Barrier Free Environment, updated, October, 1999,
<http://www.un.org/esa/socdev/enable/designm>

U. S. Access Guidelines, <http://www.access-board.gov/indexes/accessindex.htm>

<http://www.marh.gov.bc.ca/ACCESS/index.htm> (Provincial Accessibility Program) (*may no longer exist with the Liberal Government*)

The Saskatchewan Human Rights Commission, Accessibility Standards Guidelines, 1988

Mace, R., and Laslett, B., An Illustrated Handbook of the Handicapped section of the North Carolina State Building Code

Integrated Play Environments for Children ; <http://www.lin.ca/lin/resource/html/jk54.htm> ;1982,
Ontario Ministry of Tourism & Recreation

Pedestrian Safety Handbook - Handbook for Advocates Dedicated to Improving the Pedestrian Environment Guaranteeing People Who Are Blind or Visually Impaired Access to Intersection Identification and Traffic Control Information Second Edition: April 2000 Edited By Debbie Grubb, The American Council of the Blind, 1155 15th St., NW, Suite 1004, Washington, DC 20005, (202) 467-5081, (800) 424-8666, <http://www.acb.org>