

**BC TRANSIT
MUNICIPAL SYSTEMS PROGRAM**

**DESIGN GUIDELINES
FOR
ACCESSIBLE BUS STOPS**



FORWARD -- MINIMUM REQUIREMENTS FOR DESIGNATION OF ACCESSIBLE BUS STOPS

The guidelines for an accessible stop are:

In areas where a sidewalk is the pedestrian right-of-way:

The preferable roadside condition for a transit stop is a concrete barrier curb 150 mm (6 in) high, without indentation for a catch basin.

The transit stop-waiting pad should be a clear minimum of 2.1 m (7 ft) x 1.98 m (6.5 ft). This is necessary in order to accommodate the wheelchair ramp deployment from the bus and to allow for wheelchair movement after clearing the ramp.

Provide one or two paved connections from waiting pad to the sidewalk for a width of 1.5 m (5 ft).

If street furniture or other such objects are provided (i.e. newspaper box, overhead signage), they must be located to provide a minimum clear width of 1.5 m (5 ft) and clear headroom of 2.0 m (6.5 ft) for the pedestrian path. They must be kept clear of the transit loading and unloading area.

If a bench for seating is installed within bus stop areas, it should not be placed on a sidewalk after having a width of less than 2 m (6.5 ft), or within 6 m (20 ft) of any fire hydrant.

In areas where no sidewalk exists, a concrete or asphalt pad on the shoulder of the road, as illustrated in Figure 6, is recommended. As illustrated, the pad must be elevated above road grade 150 mm. The curb cut between the pad and the road grade should follow the design guidelines listed under the “Curb Cuts” section of this document. With the exception of the curb cut and the location where the ramp is to be deployed onto the pad, a “barrier” should also be built on the perimeter of the pad as a safety measure to prevent wheelchair passengers from rolling off the pad, especially onto the roadway.

The absence of a sidewalk or pad does not mean that a passenger in a wheelchair or scooter cannot access the bus. The 4:1 slope ratio of the ramp when the bus is “kneeling” at street level is within acceptable guidelines. Caution is required, especially for passengers in scooters. Where no sidewalk or pad exists:

- The driver should advise the passenger in the wheelchair or scooter that caution is required in boarding the bus.
- The driver or attendant of the passenger should follow behind the passenger in the wheelchair or scooter and assist the passenger boarding the bus.
- These conditions should be communicated in advance to drivers and passengers.

On routes where bi-directional service is provided (as opposed to a loop route), an accessible inbound stop should correspond to nearby accessible outbound stop. A stop should not be deemed fully accessible until this can be achieved.

The responsibility of bus stops, under the terms of the Master Operating Agreement, lies with the municipality. BC Transit’s Marketing Department will provide signage, including the international wheelchair symbol decals, to the municipality for the bus stop

designation. The municipality should also enlist the assistance of the operating company (and the use of the accessible vehicle type(s) in question) to ensure that the requirements for the vehicles meets on-street operational needs.

It is imperative that these guidelines not be used as hard and fast rules but serve as general design guidelines to be interpreted and adapted to site specific situations in each jurisdiction. In particular, readers should take note of the Master Municipal Contract Documents and the specifications contained therein.

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1 Introduction

Since the early 1990's, the Municipal Systems Program has embarked on a program to make its conventional transit systems' fleet increasingly accessible (as a percentage of the total Municipal Systems conventional transit program). Within the program, system accessibility is being achieved using either New Flyer 40-foot low floor conventional buses, 30-foot Dennis-Plaxton Dart conventional buses and/or, shortly, 35-foot Dennis-Plaxton Darts, a different mix of these vehicles employed in various communities. All these low floor buses allow easier boarding for wheelchair users by employing a ramp rather than a wheelchair lift. The low floor bus also facilitates quicker boarding for ambulatory passengers by eliminating the need to climb stairs.

A major element in the accessibility program is the condition of the actual bus stop. For example, does the stop have an adequate sidewalk or boarding area? Is there sufficient clearance? Are there any obstructions? Will the bus block an intersection or driveway during deployment of the ramp?

Under the terms of the Master Operating Agreement, the responsibility for improving bus stops, including improvements to ensure accessibility, is with the local municipality. BC Transit will provide each municipality and the operating company these guidelines which will ensure consistency in the future design of accessible bus stops.

The first and foremost discussion deals with the bus stop itself, although a broader range of other municipal infrastructure is required for accessibility between the bus stop and one's "front door" (e.g. curb cuts throughout the city, etc.), all of which are discussed in this document. Although not covered in the terms of the Master Operating Agreement, this more widespread issue should be considered by the municipality over the long term - especially in newly developing areas of the municipality where these accessible features are built into the design -- to utilize the potential of these buses fully.

Because the bus stop itself is critical to the accessible bus program, the following bus stop guidelines have been adopted as part of the program. ****Minimum requirements for a bus stop to be deemed accessible are highlighted bold in this document.**** These minimums will be reiterated at the end of the report under section 10.1 as well as presented as the forward text.

Those stops that are deemed accessible will be marked with an international wheelchair symbol. The bus stop signs and identification materials are to be provided by BC Transit's Marketing Department.

2 GENERAL ACCESSIBILITY GUIDELINES

Designing accessible and comfortable environments requires creativity and attention to detail. All too often considerations for the persons with a disability are applied in an isolated manner. To be successful, these considerations must be viewed in a holistic setting taking into consideration user safety, comfort and accessibility.

The guidelines presented in this report were developed by a task force to investigate methods to improve accessibility to conventional transit services for the Ontario Ministry of Transportation. The task force conducted extensive examination of existing literature and identified key issues and design considerations imperative to improve the accessibility and usability of transit stops. The standards were modified in some instances to accommodate the above mentioned vehicle types and reviewed by BC Transit's Accessibility Committee.

The primary aim of these guidelines is to address the needs of seniors and persons with a disability and provide suggestions to create an improved, safe and accessible exterior environment. It should be noted that the implementation of these items would benefit not only people with various disabilities but also the larger able-bodied transit user group.

It is imperative that these guidelines not be used as hard and fast rules but serve as general design guidelines to be interpreted and adapted to site specific situations in each jurisdiction. In particular, readers should take note of the Master Municipal Contract Documents and the specifications contained therein.

2.1 Mobility

The basic principles of mobility are:

- Avoid level changes wherever possible.

- Provide non-slip finishes, good grip and sure footing to ensure surfaces are safe.

- Provide opportunities for seating adjacent to routes.

- Plan exterior elements to minimize obstacles and eliminate travel hazards such as support cables for utility poles and low signage protruding into the travel path.

- Newspaper boxes and other street furniture should be placed close to the edge of the travel path but out of the main flow of pedestrian traffic.

2.2 Orientation

The basic principles of orientation are:

- Provide consistency and uniformity of elements and layout.

- Simplify orientation by using right angles in designated spaces and elements.

- Provide visual and tactile cues and landmarks.

- Make use of colour contrast, light and shade, texture, detail and signage.

- Accentuate dangerous areas by use of contrasting texture, colour or physical guard.

- Walkways, hazards and waiting areas should be illuminated for orientation and security.

- Place and design signs to enable people to get physically close to the message without obstruction and incorporate raised or recessed lettering to enable reading by touch.

3 ELEMENTS OF THE ACCESSIBLE ENVIRONMENT

The exterior elements discussed below, transit stops, shelters, seating, curb cuts, walkways, circulation and ramps have been selected for their importance in contributing to the design quality of an accessible transit environment.

Each exterior element is discussed in three parts. The first section addresses design considerations to examine for each element, followed by specific design criteria for that element. The design criteria are intended to serve as a resource tool and should be supplemented with more specific criteria when the project requirements warrant detailed design. The last section, evaluation considerations, provides a brief discussion concerning the justification and financial implications of each element.

4 TRANSIT STOPS AND SHELTERS

Transit stops and sheltered areas encompass of a number of individual elements that must be planned in a holistic manner. There are a variety of road right-of-way conditions throughout a municipality. The appropriate design solution will be that which best meets the pedestrian's needs within that particular width of boulevard and has regard to the context of the neighbourhood. Figures 1 to 5 illustrate suggested transit stop and shelter arrangements in a variety of urban and suburban locations. It must be stressed that suggested guidelines are flexible and should be tailored to the boulevard conditions of the right-of-way at a particular stop.

4.1 Transit Stops and Shelters Design Considerations

Lay out transit stops for maximum clarity using right angle solutions.

Provide a non-slip, solid, smooth, level and well-drained paved area around the shelter and connect to adjacent walkways.

Locate street furniture and signage to keep pedestrian access/circulation free of obstructions.

Avoid any level changes between the transit waiting area and the bus pick-up area.

Provide consistency in transit stops, materials and signage, thereby increasing recognizability.

Locate transit stops as near as possible to entrances to public buildings; this provides a sheltered waiting area.

Transit shelters should be designed with transparent sides for visibility and security.

Include transit route map and seating in shelters.

Provide consistency in design and location of doorways on bus shelters.

Doorways should be marked vertically with bold strips and oriented towards the sidewalk.

Glass panels should be marked with a horizontal contrasting stripe.

Orient shelters and benches to allow view to oncoming transit vehicles, pedestrians and adjacent development to provide for a high degree of informal surveillance.

Provide seating with armrests both inside and outside of shelters with adequate space to move around.

Armrests provide leverage points to assist individuals in lowering and raising themselves; therefore, they must be of sufficient strength to support a person's weight.

Use trees and shrubs to help control sun, wind, snow and direct circulation. Caution has to be applied in this application so that visibility restrictions and, hence, safety concerns do not arise.

Adequately illuminate transit stops for orientation and security.

Signage must be accessible in terms of location and mounting height.

4.2 Shelter Design Criteria

Transit shelters vary widely in materials and dimensions. The following dimensions are typical shelters used widely across Canada. These dimensions can be used as a guideline for designing transit stop areas:

1.28 m wide x 2.4 m to 3.525 m length (4.2 ft x 7.9 ft – 11.62 ft).

Transit shelter openings should be a minimum width of 800 mm (2.62 ft).

The safety striping applied to doorways and transparent surfaces should be a minimum width of 75 mm (3 in) wide. Use contrasting colour schemes considering that colour perception is at its maximum with orange, yellow and light green colours, and decreases towards red and violet. The stripe should be at the mid-point of the transparent shelter panel, approximately 140-160 cm (55-63 in) above ground level.

4.3 Shelters Evaluation Considerations

A variety of transit shelter types are readily available. As with any street-related furniture, the selection of the appropriate shelter type will depend on specific site situations and community character. Custom designed shelters may be a consideration in special commercial areas and/or neighbourhoods if ridership and budget warrant. In tight urban situations, shelters providing primarily overhead protection can be used to provide a certain degree of climatic protection. Shelters need not be freestanding structures and can be incorporated into buildings adjacent to a transit stop.

Many municipalities and transit systems have entered into agreements with advertising companies to obtain shelters at no cost in return for the right to display advertising on the shelters. In most instances observed, the use of shelters with advertising did not hinder design and development of the transit stop area. Municipalities should specify in their contracts with these companies the standards to be met so that good design and location criteria are not precluded by this private sector involvement.

Additional considerations in the selection of an appropriate transit shelter are its maintenance requirements and resistance to vandalism. Most production shelters have been designed to minimize both of these concerns and servicing costs should therefore be

minimal. In addition easy access standards have been incorporated into many production shelters.

4.4 Access/Circulation Design Criteria

The preferable roadside condition for a transit stop is a concrete barrier curb 150 mm (6 in) high, without indentation for a catch basin.

The transit stop-waiting pad should be a clear minimum of 2.1 m (7 ft) x 1.98 m (6.5 ft). This is necessary in order to accommodate the wheelchair ramp deployment from the bus and to allow for wheelchair movement after clearing the ramp.

Provide one or two paved connections from waiting pad to the sidewalk for a width of 1.5 m (5 ft).

Street furniture objects must be located to provide a minimum clear width of 1.5 m (5 ft) and clear headroom of 2.0 m (6.5 ft) for the pedestrian path. Keep clear of the transit loading and unloading area.

Benches for seating installed within bus stop areas should not be placed on a sidewalk after having a width of less than 2 m (6.5 ft), or within 6 m (20 ft) of any fire hydrant.

4.5 Access/Circulation Evaluation Consideration

A broom-finished concrete surface seems to be the most effective and most widely used surface for most conditions in BC. Concrete provides a consistent, even surface and is readily available, easy to install, maintenance-free and cost-effective.

The development of a fastening system for mailboxes, newspaper boxes and garbage containers could help control random placement of the items and prevent them from becoming circulation hazards.

This fastening system need only be a simple metal bar support or eyebolts set in concrete to enable these elements to be fastened in place with chains to discourage movement and theft.

The consideration of access and circulation is particularly vital in the early planning stages of shelter installation. With early consideration, these criteria will not add financial burden to the installation of a transit stop yet will greatly improve its accessibility.

4.6 Seating Design Criteria

Seating installed within transit stop areas should not be placed on a sidewalk having a width of less than 2 m (6.5 ft) or within 6 m (20 ft) of any fire hydrant.

Ideally, seating should:

- * be 450 mm – 550 mm (18-20 in) high from finished grade and at a uniform height.
- * have armrests 180 mm – 250 mm (7-10 in) above seat height.
- * have a seat depth of 400 mm – 500 mm (15-20 in) range.

- * have seats located a minimum of 600 mm (2 ft) from walkways so that legs do not protrude into pedestrian traffic.

4.7 Seating Evaluation Considerations

The provision of seating at transit stops is a high priority item for elderly and ambulatory persons with a disability. Standing for even a short period proves to be uncomfortable, even painful and greatly impedes accessibility to conventional transit.

Several types of seating options should be considered when planning transit stops. Seating both within the transit shelter and directly adjacent to the shelter provides two important seating options. Within the shelter small benches provide a resting place and protection from the elements. In this situation, it is important to keep the seating small and located out of the main circulation flow, minimizing the impact on total sheltered standing space (see Figures 9, 10 and 12).

Seating opportunities exterior to the transit shelter can be larger and provide longer term comfort with backs and armrests. Exterior seating allows people to sit outside and enjoy the weather while not taking up valuable room within the shelter.

All seating associated with transit stops should be of a durable material and fixed in place.

5 RURAL TRANSIT STOPS

In rural and deep suburban areas, it is not uncommon to have paved roads with open ditches along the sides to channel storm water. Some of these areas have sidewalks but most do not and pedestrians are required to walk on the shoulder of the road, the shoulder often with a steep slope and of loose material such as gravel and dirt.

Municipalities typically have capital works programs to replace the open ditches with storm sewers. At the same time roadways are upgraded to include curbs and sidewalks. Given the capital cost of such an upgrading, the elimination of ditches and the provision of sidewalks will be a long term objective in many instances. Transit riders in the interim have to board buses without the benefit of a curb to lift them closer to the first step of the bus. As well, transit passengers have to get on and off a bus on a gravel or dirt surface.

This boarding and unloading situation is very difficult for the elderly and, especially for those in wheelchairs, and should be addressed by municipalities in those areas where the replacement of ditches will be a long term project. **Figure 6 illustrates a concrete or asphalt pad on the shoulder of the road, as a possible solution to this problem. As illustrated, the pad must be elevated above road grade 150 mm for both safety and accessibility purposes. The curb cut between the pad and the road grade should follow the design guidelines listed under the “Curb Cuts” below. With the exception of the curb cut and the location where the ramp is to be deployed onto the pad, a “barrier” should also be built on the perimeter of the pad as a safety measure to prevent wheelchair passengers from rolling off the pad, especially onto the roadway.**

Although the elevated pad contravenes the principle of grade changes, it is a preferred scenario to differentiate between vehicle and pedestrian rights-of-way, increasing pedestrian safety.

6 CURB CUTS

Level changes are difficult for the elderly and persons with a disability to negotiate and the development of uniform curb cuts helps to ameliorate this condition. Figure 7 illustrates the principles discussed below.

6.1 Design Considerations

The placement of curb cuts should be consistent in location.

Consistent design criteria for the curb cuts should be adopted throughout the municipality.

Curb cuts incorporated into intersections should always cross at right angles to the street and wraparound cuts should be avoided.

Curb cuts must be flush at the top and bottom of slope.

The surface of curb cuts should be joint-free, slip-resistant and free draining in all weather conditions.

Curb cuts should contrast in colour and or texture to the surrounding walk surfaces.

6.2 Curb Cuts Design Criteria

Maximum slope of 8% (1:12).

Do not cross slope.

Maximum 12.5% (1:8) slope on flared sides.

Minimum width of the curb cut should be 800 mm (2.62 ft).

6.3 Curb Cuts Evaluation Considerations

This one item is singularly the most important aspect of accessibility throughout the streetscape. Curb cuts provide a continuous barrier-free path that eases the trip of anyone with difficulties negotiating grade changes.

The financial costs of including curb cuts in new road construction would only be marginal; however, retrofitting existing situations could prove to be a time-consuming and costly project. A phased retrofitting program possibly combined with a sidewalk rehabilitation project could ease the capital cost. Once in place, the curb cuts would have a long operational life with maintenance requirements no different than a typical sidewalk.

7 WALKWAYS

Walkways are found throughout the region and their proper design is paramount to promoting ease of access for all persons. Figures 7 to 11 illustrate the principles discussed below.

Design for maximum clarity using right angle solutions.

Provide non-slip surfaces that are solid, smooth, level and well drained in all weather conditions.

Provide a direct as possible route between transit stops and pedestrian destinations.

Minimize grade changes.

Ensure path junctions are well defined and clear of obstructions.

If obstacles do exist, distinguish them with tactile warning strips of safety rails.

Define the edge of walkways clearly, especially adjacent to vehicular routes to aid visually impaired persons in following the walkway. Options include curbs, low railings, tactile strips, etc.

Avoid service elements such as manholes and gratings on walkways. If necessary, orient gratings perpendicular and flush with path direction and surface.

Ensure adequate widths and overhead clearance to enable unobstructed travel.

Illuminate for orientation and security.

7.1 Walkways Design Criteria

Walkway slope must be a gradient of less than 5%. Any gradient exceeding this must be considered a ramp.

Maximum cross slope of 2%.

Minimum clear width 1.1 m (3.6ft) for secondary paths; Minimum clear width 1.8 m (6.0 ft) for primary paths.

Minimum clear width at transit stops 3.0 m (9.8 ft).

Minimum overhead clearance from grade 2.0 m (6.5 ft).

Maximum width of expansion joints 15 mm (0.6 in).

Slip-resistant concrete surfaces should be brushed finish or have an integral abrasive grain.

Maximum clear opening of 13 mm (0.5 in) for flush gratings.

Avoid level changes under 10 mm (0.4 in).

Tactile warning strips should be provided at all new transit stop areas and along major pedestrian routes adjacent to roadways where there is no separation such as a grassed border and between the walkway and road.

Tactile warning strips should be recessed rather than raised and have a minimum width of 600 mm (2.0 ft). For major hazards, such as vehicular situations, a minimum

width of 1 m (3.2 ft) is required. The tactile warning strip should be placed a minimum of 1 m (3.2 ft) before the hazard, if possible.

Use minimum 75 mm (3 in) high warning curb when path elevation exceeds 75 mm (3 in) above adjacent grade.

7.2 Walkways Evaluation Considerations

Walkways provide that essential link between the origin of the trip and the transit stop. The inclusion of walkways through a subdivision or associated with a commercial area must be considered in the early planning stages of the development. These walkway connections should be encouraged and monitored through the development review process to ensure compatibility with the location of transit stops. The costs associated with these walkway linkages could then be borne by the developer through the subdivision and site plan process and pose little financial burden on the municipality.

Tactile warning strips are relatively inexpensive to create in new construction. The municipality can inexpensively design and build a template, which can be used to make imprints in the setting concrete as new walkways and stops are created. Retrofitting existing stops and walkways is more costly as they will require multiple saw cuts along the edge to create the warning strip. Due to the cost of sawcutting, retrofitting will likely be limited to high traffic pedestrian areas.

8 RAMPS AND STAIRS

There are occasions where grade changes at a transit stop or adjacent development will necessitate the use of ramps or stairs to provide appropriate pedestrian accessibility. Figure 12 illustrates the principles discussed below.

8.1 Ramps and Stairs Design Considerations

Give ample warning and clearly define changes in level.

Tactile warning strips should be placed at the top and bottom of each ramp.

Grooved warning strips are preferred over studs or ridges.

The approach should be clear and level.

Avoid isolated steps.

Handrails should be provided, preferably on both sides and be smooth and continuous.

Handrails should be a distinctive colour or contrast with the background.

Return handrail to wall or provide distinctive end.

Adequate illumination should be provided over all steps and the entire ramp.

Provide a consistent slip-resistant surface such as brushed or ribbed concrete.

Do not use open risers.

Standardize all step and ramp dimensions on-site.

Tactile warning should be two-way: on the floor, and on the handrail.

Locate vertical access, as much as possible, in one area.

Design to eliminate all grade changes less than three steps.

Provide stairs as an addition and not as alternatives to ramps.

8.2 Ramps Design Criteria

Ramp width to be 870 mm (2.85 ft) minimum with 920 mm (3.0 ft) recommended.

Have a maximum gradient of 8% (1:12).

Have a level area of at least 1.5 m x 1.5 m (4.9 ft x 4.9 ft) at the top and bottom.

Have a level area at least 1.5 m (4.9 ft) long and at least the same width as at:

- * Intervals of not more than 9 m (29.5 ft) along its length, and
- * Where there is an abrupt change in the direction of the ramp

Provide a minimum 50 mm (2 in) high curb on any side of ramp without a solid enclosure or guard.

Provide railings on both sides of ramp at height of 800 mm – 920 mm (2.6 ft – 3 ft).

Extend handrails a minimum of 300 mm (1.0 ft) beyond top and bottom of ramp and return into wall.

Railing diameter should be 45-50 mm (1.7 in – 1.9 in) with a minimum clearance between rail and wall of 40 mm (1.5in).

8.3 Stairs Design Criteria

A minimum width for two-way traffic is 1.52 m (60 in).

Minimum tread depth of 275 mm (10.75 in).

Riser height range between 170-190 mm (6.75-7.5 in).

Stair nosings to be a maximum of 20 mm (.75 in).

Stairs should have a landing at every 3.6 m (11.8 ft) minimum with 2.0 m (6.5 ft) preferred, measured vertically.

Texture warning surface at top and bottom of stairs to be 1 m (3.2 ft) in width.

Provide handrail on both sides of stairs at height of 800 – 920 mm (2.6 ft – 3.0 ft).

Extend handrails a minimum of 300 mm (1.0 ft) beyond top and bottom of staircase and return into wall.

9 MISCELLANEOUS ITEMS – INBOUND AND OUTBOUND STOPS

Beyond the specific discussions of stops and their design, an important basic element of the accessible transit environment is access both on inbound and outbound trips. **Thus on routes where bi-directional service is provided (as opposed to a loop route), an accessible inbound stop should correspond to a nearby accessible outbound stop. A stop should not be deemed fully accessible until this can be achieved.**

10 INITIAL IMPLEMENTATION OF ACCESSIBLE BUS STOPS

The above list of criterion is the guideline for which the system should ultimately strive. However achieving this in many communities is a long term proposition. In the meantime, the buses are on the road and thus to use the accessibility features, some level of accessible infrastructure must be identified/put in place and communicated specifically to those people that require its use to access the bus, but also to the public as general information.

The following provides the *minimum* municipal infrastructure standards required before accessible service can be implemented. This section also details supporting items that need to be accomplished to implement this service as well as identifies responsibilities.

10.1 Identification of What is Considered an Accessible Stop

The necessary requirements for an accessible stop are:

In areas where a sidewalk is the pedestrian right-of-way:

The preferable roadside condition for a transit stop is a concrete barrier curb 150 mm (6 in) high, without indentation for a catch basin.

The transit stop-waiting pad should be a clear minimum of 2.1 m (7 ft) x 1.98 m (6.5 ft). This is necessary in order to accommodate the wheelchair ramp deployment from the bus and to allow for wheelchair movement after clearing the ramp.

Provide one or two paved connections from waiting pad to the sidewalk for a width of 1.5 m (5 ft).

If street furniture or other such objects are provided (i.e. newspaper box, overhead signage), they must be located to provide a minimum clear width of 1.5 m (5 ft) and clear headroom of 2.0 m (6.5 ft) for the pedestrian path. They must be kept clear of the transit loading and unloading area.

If a bench for seating is installed within bus stop areas, it should not be placed on a sidewalk after having a width of less than 2 m (6.5 ft), or within 6 m (20 ft) of any fire hydrant.

In areas where no sidewalk exists, a concrete or asphalt pad on the shoulder of the road, as illustrated in Figure 6, is recommended. The curb cut between the pad and the road grade should follow the design guidelines listed under the “Curb Cuts” section of this document. With the exception of the curb cut and the location where the ramp is to be deployed onto the pad, a “barrier” should also be built on the perimeter of the pad as a safety measure to prevent wheelchair passengers from rolling off the pad, especially onto the roadway.

The absence of a sidewalk or pad does not mean that a passenger in a wheelchair or scooter cannot access the bus. The 4:1 slope ratio of the ramp when the bus is “kneeling” at street level is within acceptable guidelines. Caution is required, especially for passengers in scooters. Where no sidewalk or pad exists:

- The driver should advise the passenger in the wheelchair or scooter that caution is required in boarding the bus.
- The driver or attendant of the passenger should follow behind the passenger in the wheelchair or scooter and assist the passenger boarding the bus.
- These conditions should be communicated in advance to drivers and passengers.

On routes where bi-directional service is provided (as opposed to a loop route), an accessible inbound stop should correspond to nearby accessible outbound stop. A stop should not be deemed fully accessible until this can be achieved.

The responsibility of bus stops, under the terms of the Master Operating Agreement, lies with the municipality.

10.2 The Identification of Stop Accessibility

Stops should be identified as falling into one of three categories: fully accessible, accessible with caution, or non-accessible. Fully accessible stops meet all the criteria listed in bold in this document. Non-accessible stops are those that breach major components of the accessibility criteria, especially with regard to the roadside condition or the waiting pad. Accessible with caution stops are those that have minor breach(es) to the criteria. Usual examples of reasons why stops are deemed accessible with caution are when:

- there is not enough maneuvering room for the mobility device if the bus comes too close to the curb and deploys the ramp and thus the driver must “bridge” the stop.
- an elevated pad has no curb cut to grade level.
- there is no barrier around an elevated pad.
- there is no corresponding “accessible” stop in the opposite direction along bi-directional routes.

There are no hard and fast rules to what is considered a major or minor breach and thus the stop classification is somewhat of a subjective process.

At the stops themselves, those deemed accessible will be identified by the international wheelchair symbol. Fully accessible stops are colour coded “blue”, while accessible stops with caution are colour coded “yellow”. BC Transit’s Marketing Department will provide the colour-coded decals for the international wheelchair symbol. Stops with no international wheelchair symbol markings are non-accessible.

Although the responsibility for the actual determination, identification and on street labeling of the accessible stops belongs with the municipality, municipal staff should seek assistance from the conventional operating company staff, especially with the use of the vehicles in question, to ensure that operational concerns are taken into consideration.

10.3 Bus Stop Inventory/Plan

In conjunction with the identification of stops, the municipality should have a formalized inventory of existing bus stops within the system. This allows a stop to be identified and

marked as to its accessibility status and allows municipal decision-makers to plan transit accessibility in a more comprehensive manner.

In communities without a fully accessible fleet, the plan will identify deficiencies in bus stop accessibility along what will be considered accessible routes. The stops along these routes may be deemed first priorities for upgrading to accessible standards. In general, the priorities for routes and thus accessible stops should be where the disability population travels. Choosing routes that are priorities for accessibility (where applicable) and priority stops along these routes should be chosen with the input of this specific user group. Community outreach programs with this group can be planned with the assistance of the local handyDART operator (where applicable).

The stop inventory, as a minimum, should have the location of the stop, routes using the stop and its accessibility status. For ease of communication, it is also a good idea to number stops, both within the inventory as well as on street, so that there can be greater ease in communication between keepers of the data and the public in general (see Communication Plan). For municipalities currently without an inventory, this would also be a good opportunity to record other information dependent upon the specific needs of the municipality, operating company or BC Transit. Such information can include stop maintenance issues, site conditions and GPS location for automatic passenger counters (where applicable).

An up to date bus stop inventory is to be provided by the municipality to the operating company for communication to transit passengers. It should also be provided to BC Transit to incorporate into marketing/communication materials produced by BC Transit.

10.4 Communication Plan

Beyond the on-street identification of stops with the international wheelchair symbol, the location and identification of accessible bus stops needs to be communicated to the public in general, with specific emphasis to the local disability market who will be using transit's accessibility features.

Figure 1 **Transit Stop - Suburban Wide Boulevard**

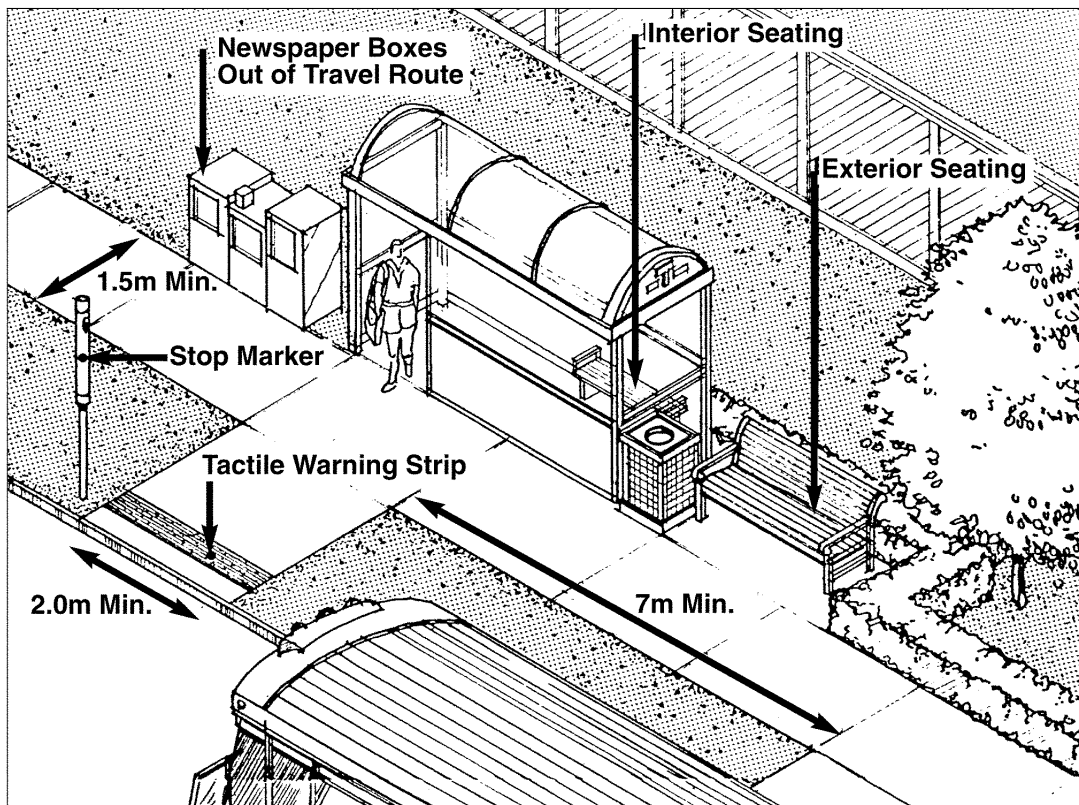


Figure 2 **Transit Stop - Urban Location No. 1**

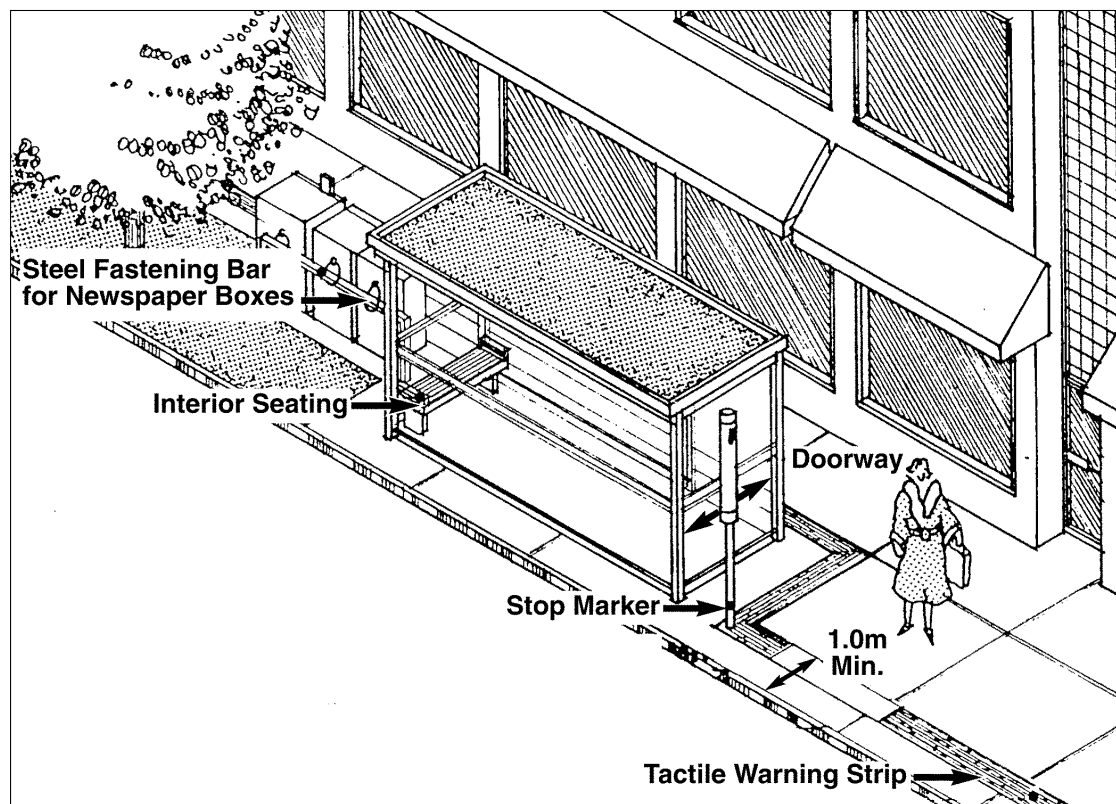


Figure 3

Transit Stop - Urban Location No. 2

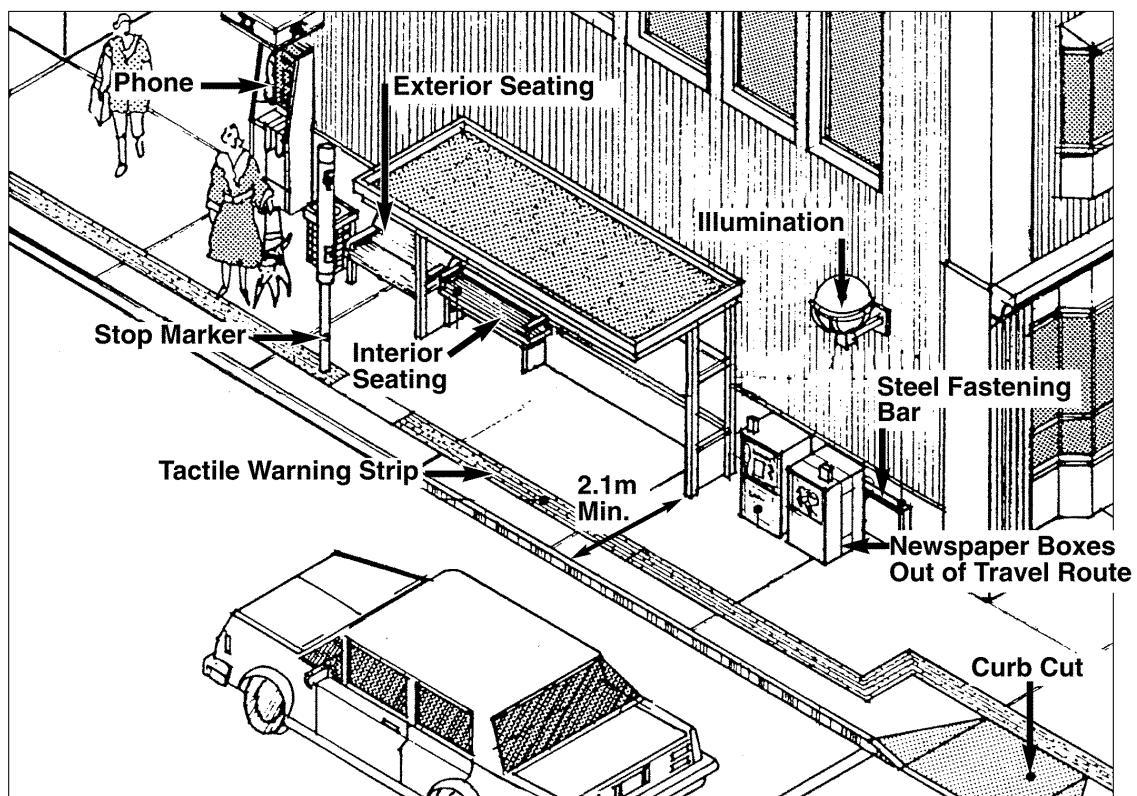


Figure 4

Transit Stop - Suburban Pad

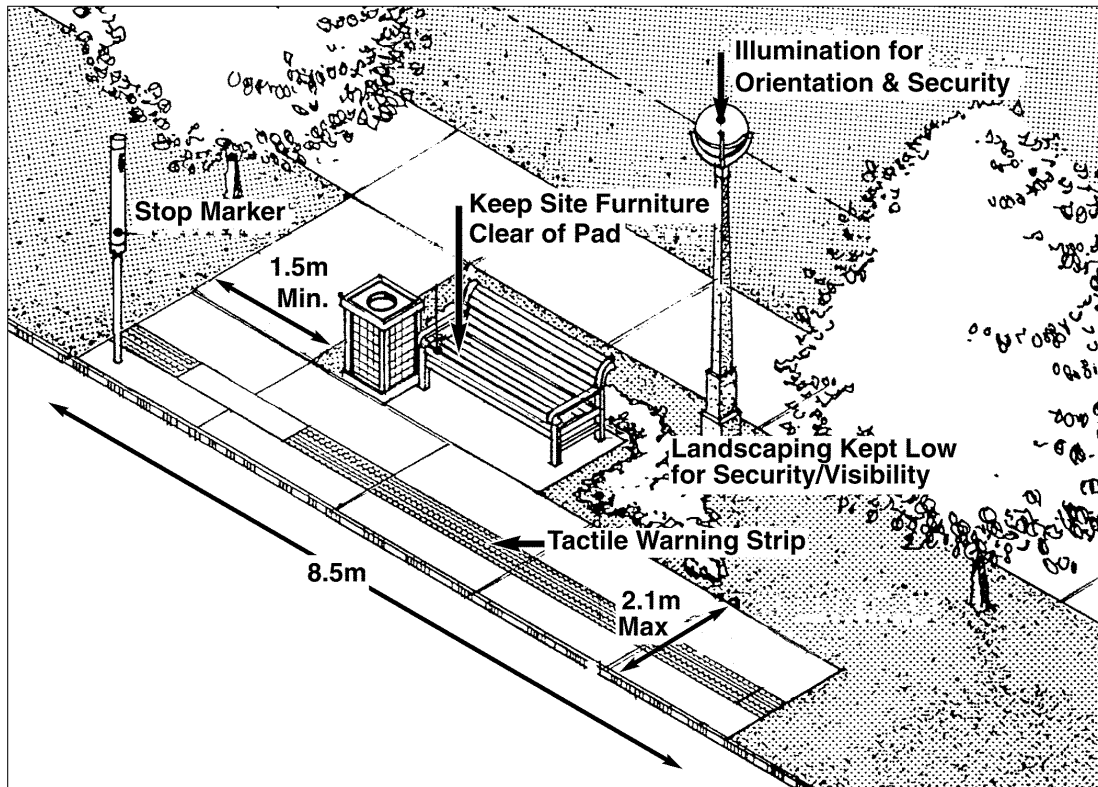


Figure 5 Minimum Requirements for Bus Stops Accessible to Wheelchair Users

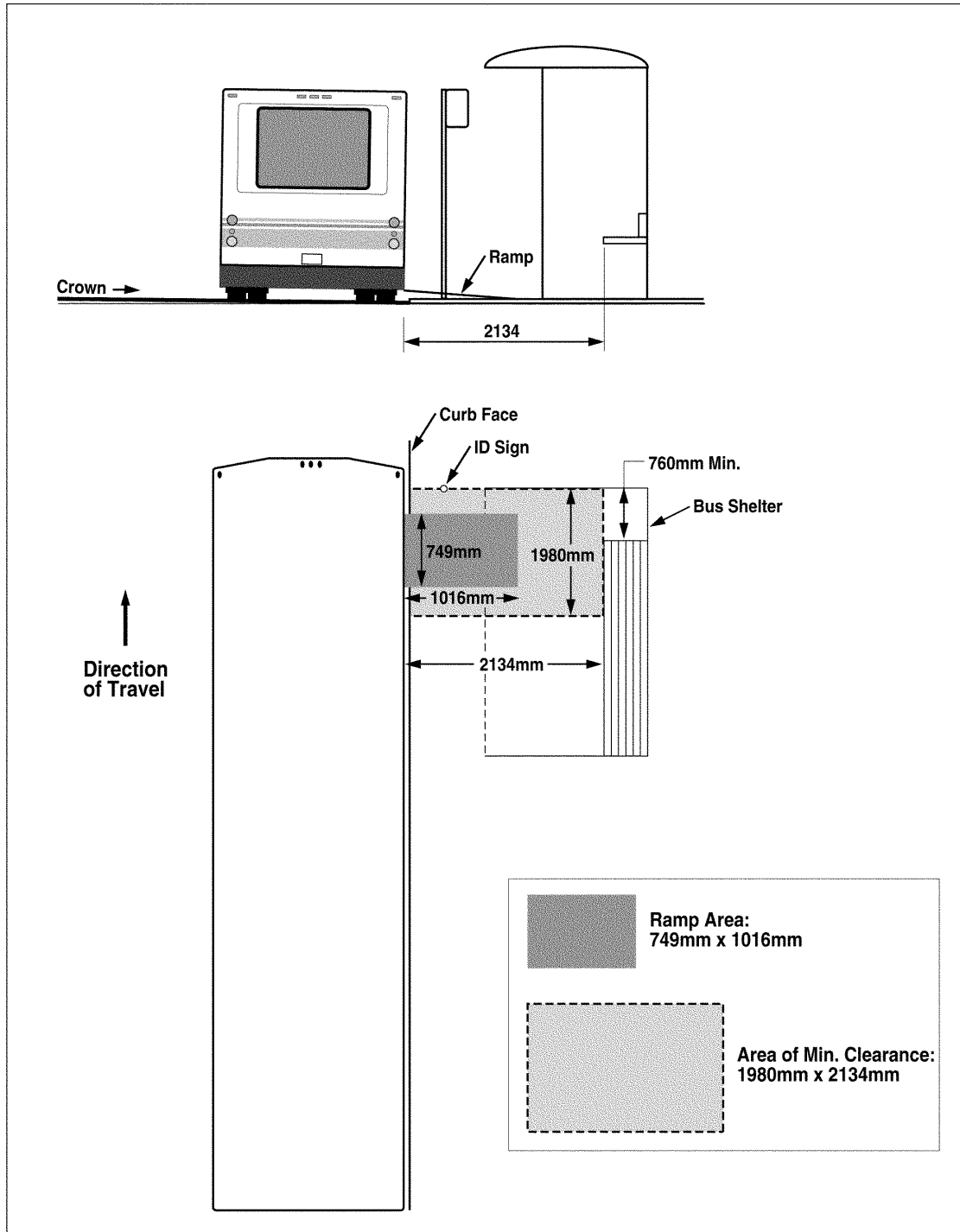


Figure 6

Transit Stop - Rural Situation

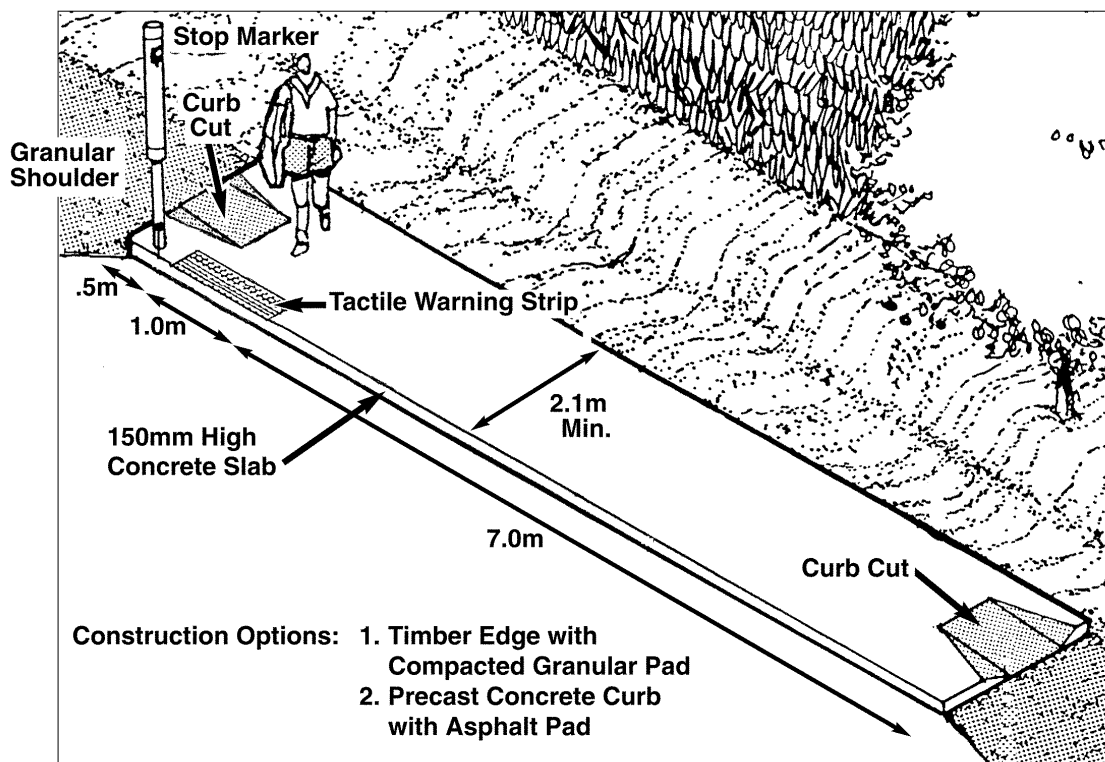


Figure 7 Curb Cuts - Intersection Alignment

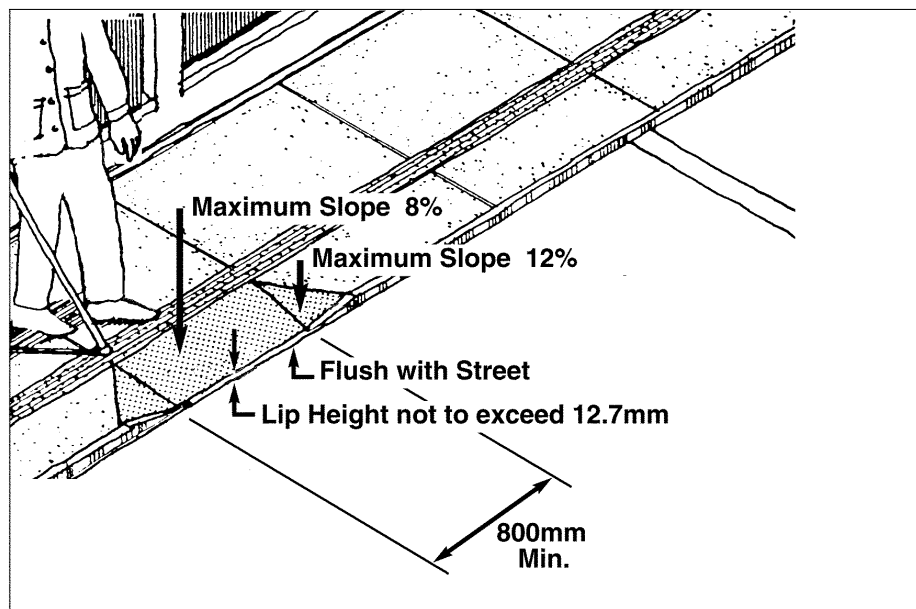
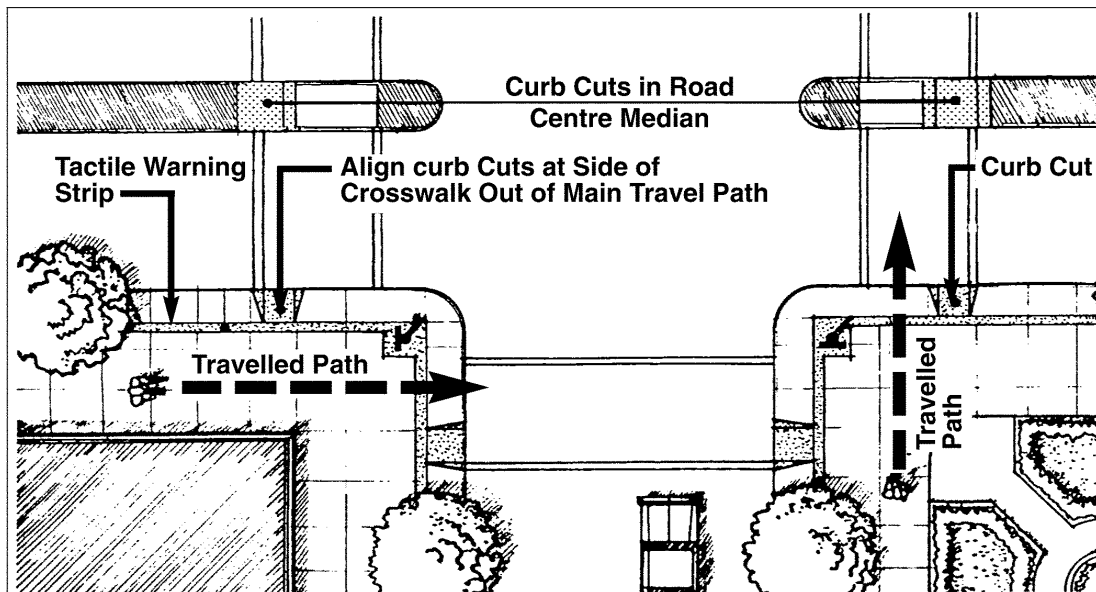


Figure 8

Ergometrics

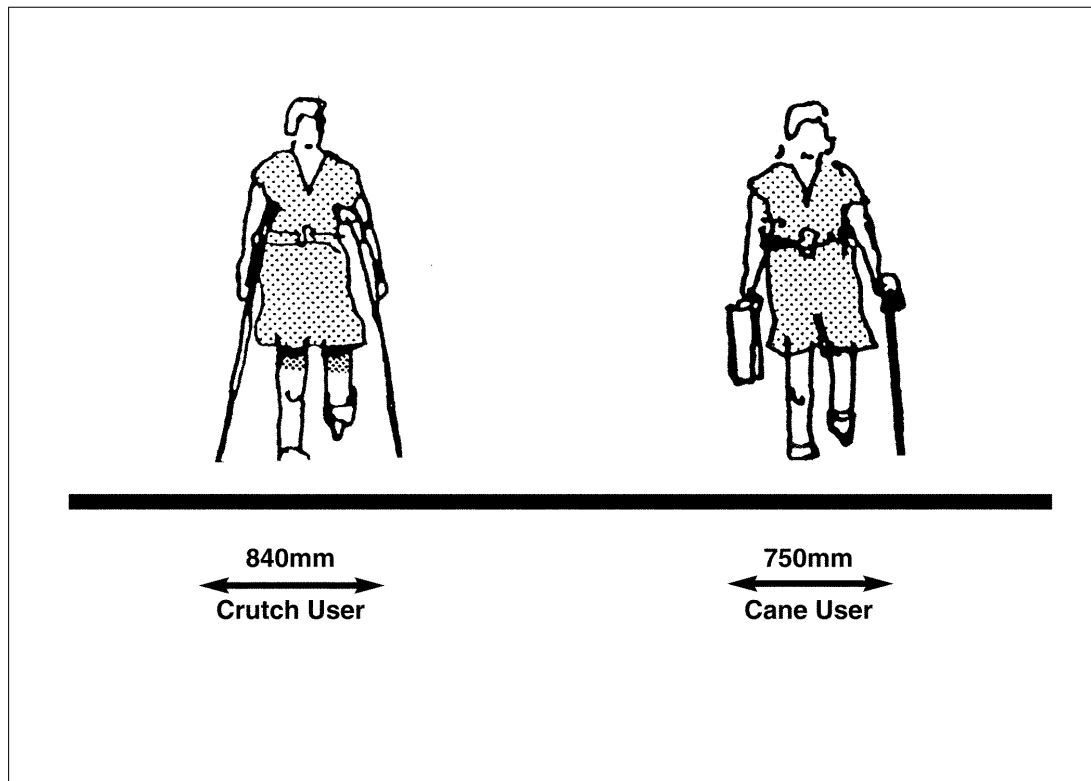


Figure 9

Walkways - Street Clearance

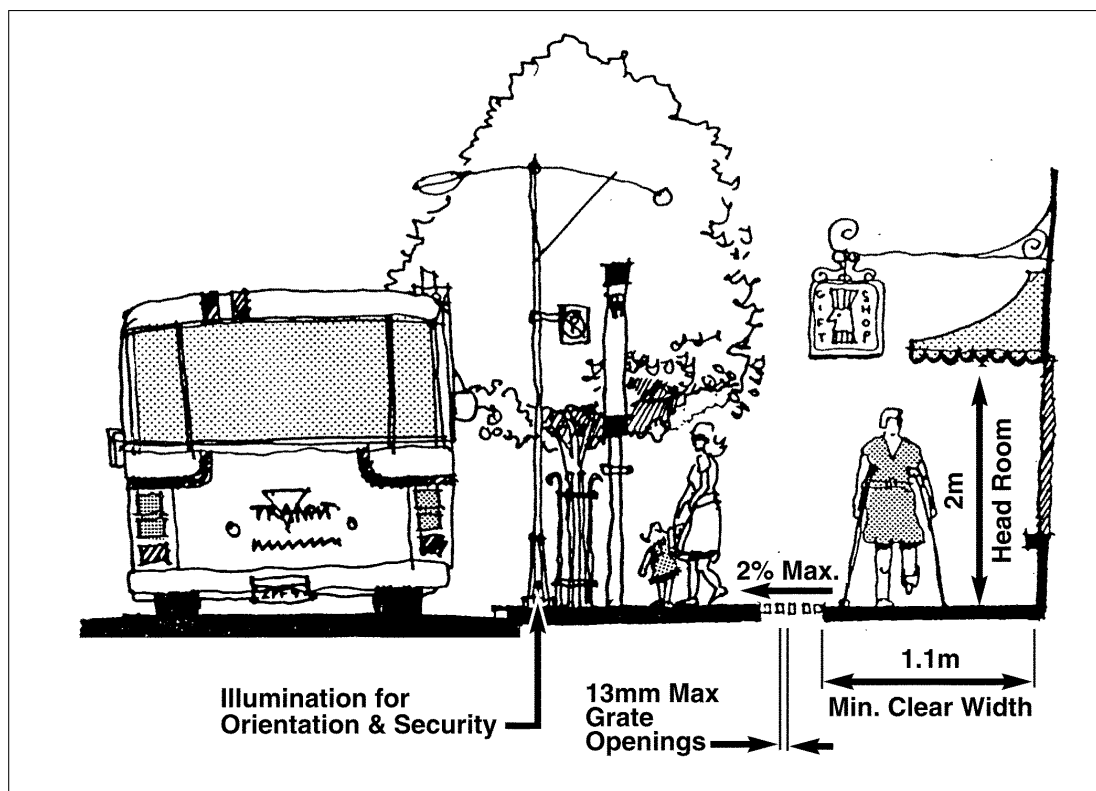


Figure 10

Walkways

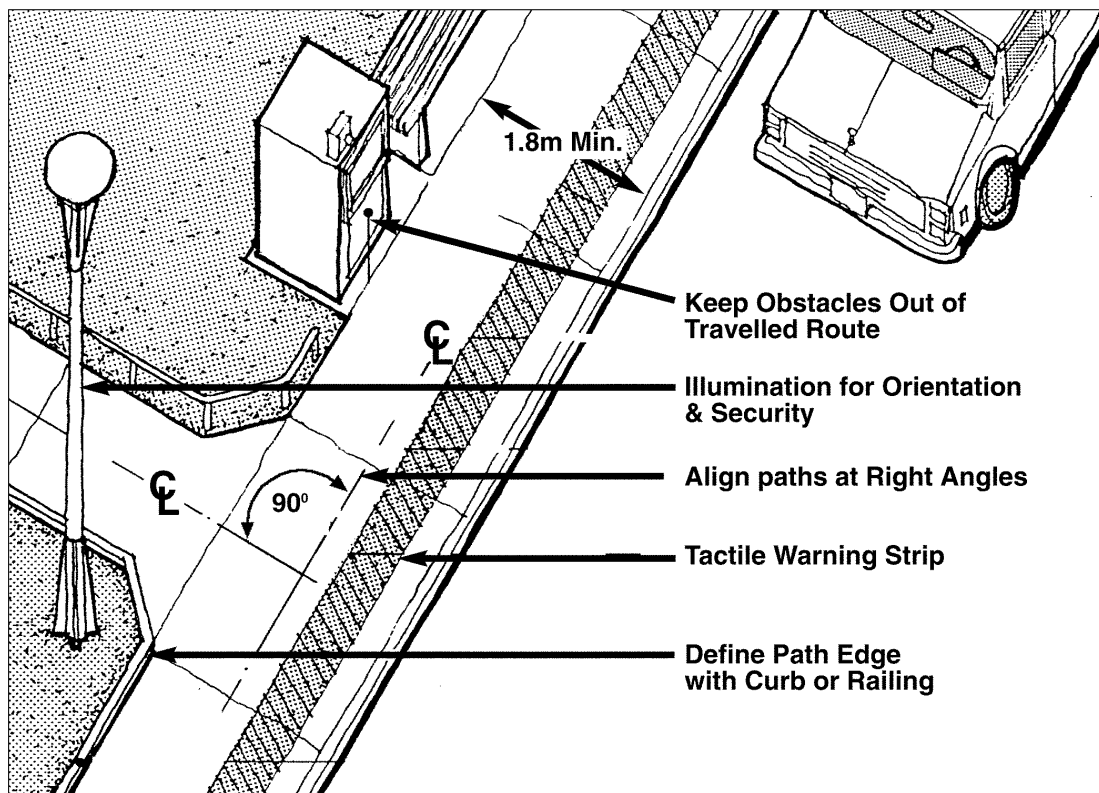


Figure 11

Tactile Warning Strip - Details

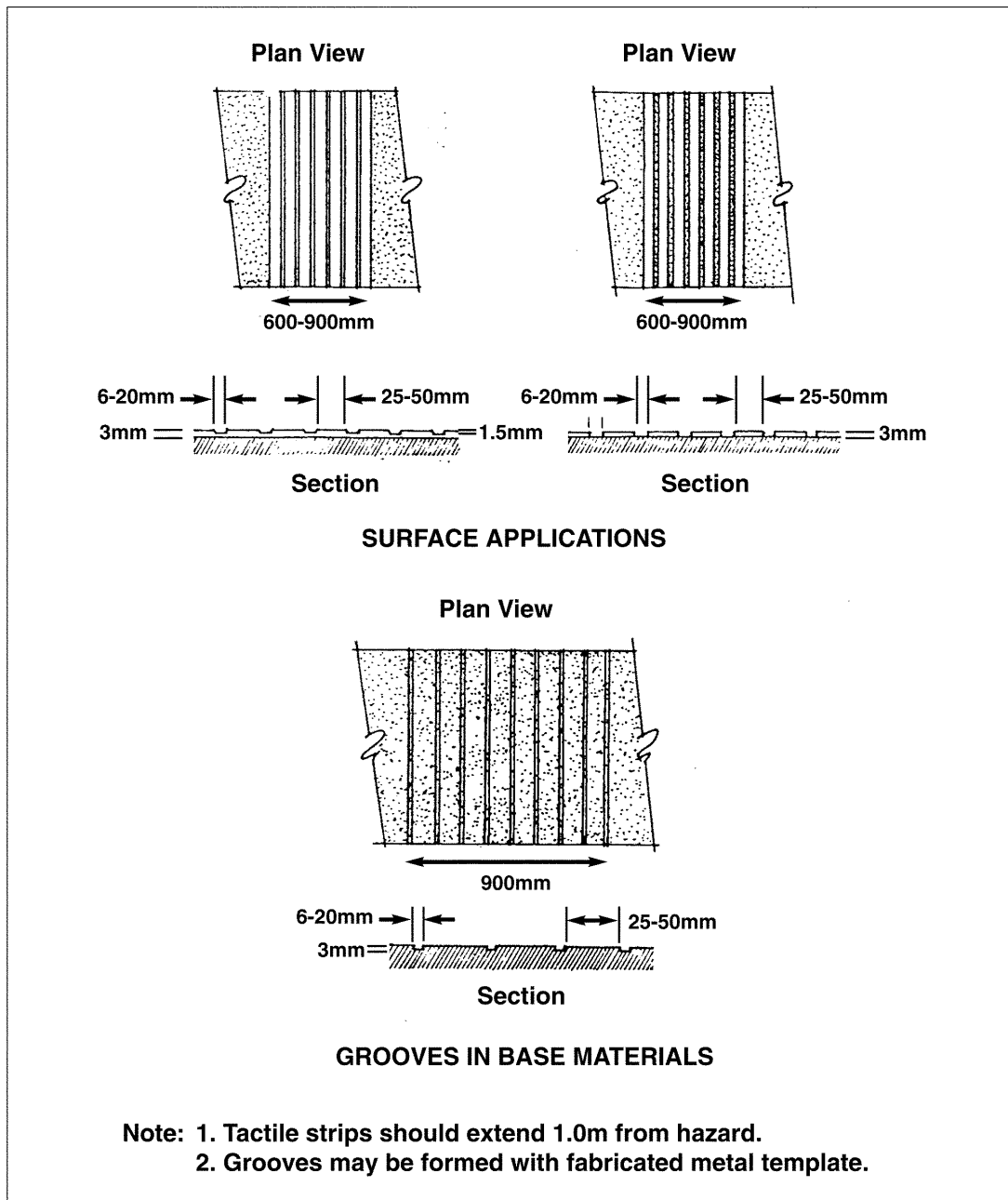


Figure 12

Ramps and Stairs

