REFERENCE 3 ▪ ACCESS TO TRANSIT

Development Permit Guidelines

1. handyDART

RECOMMENDATIONS – Pick-up and Drop-off Zones

(a) The designated drop off area should be 12 m (39 ft).

(b) Line painting on the surface should be used to delineate the area reserved for handyDART.

(c) Zebra lines should be installed in the area designated for rear-loading.

(d) Signage should be provided to mark the zone, e.g. "handyDART Pick-up/Drop-off Zone - Do Not Block".

High activity areas may require extra staging

(e) The drop-off area should be located within the range of 5 m (16') to 16m (52 ft) of front door.

(f) A curb-cut should be installed adjacent and lined-up to the rear-loading area. *(See Figure 1.)*

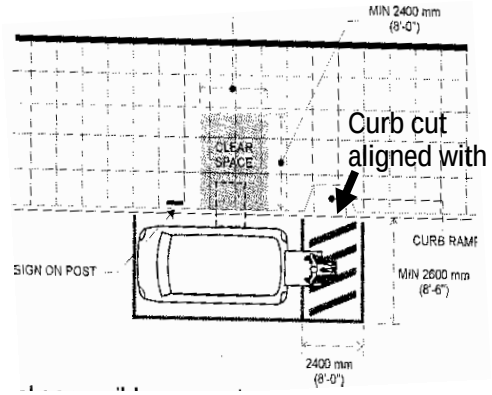
(g) Where heavy volumes of handyDART vehicles are expected, staging and manoeuvrability should be considered.

Covered walkways are preferred

(h) A covered walkway should be installed from the pick-up/drop off area to the front door. The height should be a minimum 2.95 metres (9½ ft).

(i) If the pick-up/drop-off point is located within an underground parking area, the height of the entrance should be a minimum 2.95 metres (9½ ft).

Figure 1 - Curb cut location



Drawings from Universal Design Institute, "Is Your Business Open to All?", Faculty of Architecture, University of Manitoba

RECOMMENDATIONS – handyDART Drop-off Location at Street

(a) Where the drop-off area utilizes the public street, the curb cut should be located at the rear-loading area.

(b) The locations should be of sufficient length to accommodate the bus/van.

(c) The location should be signed appropriately for use only by the handyDart vehicle.

(d) The travel path to the front door should be reviewed for continuous connectivity and accessibility.

This drop off area behind the museum is isolated, with no shelter or other amenities.

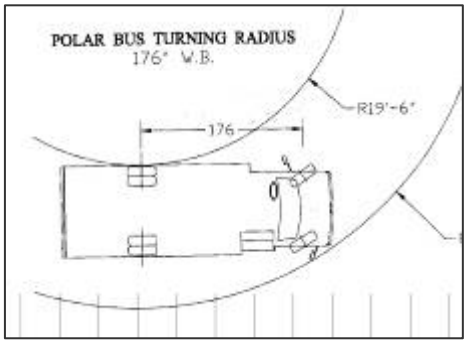
A better drop off zone is on the street, nearer the entrance. This design should take priority over on street parking stalls

RECOMMENDATIONS – Roadway for handyDART Vehicles

(a) The driveway should be wide enough to allow a 7.4 m (24¼ ft) vehicle (Polar vehicles) to turn without backing up. The radius required is 4.47m (14½ ft). (See Figure 2.)

(b) Speed-humps should be designed to minimize impact on passengers - speed tables are preferred or speed buttons spaced to allow the wheels of the handyDART vehicle to pass between the humps.

Figure 2 - Vehicle Radius



Drawing courtesy of FarWest/BC Transit

Islands and traffic circles must be designed with the turning radius of handyDART vehicles. Mountable curbs can be used to overcome space restrictions

RECOMMENDATIONS – handyDART Waiting Area

(a) An enclosed waiting area is preferred.

(b) The waiting area should be located to accommodate sightlines to the pick-up/drop-off area.

(c) The waiting area should be heated and provide comfortable seating.

(d) Enough space should be provided to accommodate and allow manoeuvrability for 2 or more (relative to the expected demand generated at the site) scooters.

(e) The turning diameter should be 1.5 m (5') per wheelchair. (See Figure 3.)

(f) A courtesy phone should be available – an easy and inexpensive way (for the user) is to provide a telephone inside an office, commercial or institutional building.

(g) As technology permits, considerations should be given to the installation of a touch screen, wired computer, linked to the handyDART website for real-time information and online bookings and updates.

(h) CPTED and Women's Safety Audit principles should be integrated (e.g. lighting and defensible space, natural surveillance, and activity areas).

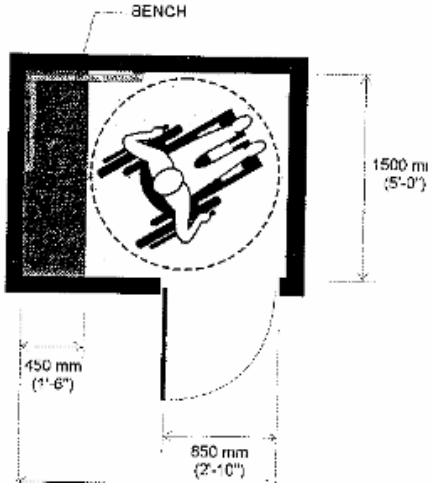
(i) Background noise (e.g. air conditioning units, etc.) should be minimized.

(j) Evacuation signage and maps should be provided. (See "Signage" section.)

(k) Plug-in areas for electrically charged vehicles should be provided.

(l) Washroom facilities and signage should be located near the waiting area.

Figure 3 - Turning Diameter



Drawings from Universal Design Institute, "Is Your Business Open to All?",
Faculty of Architecture, University of Manitoba

2. Conventional Bus Stops

RECOMMENDATIONS – Bus Stops and Shelters

(a) Bus stops should be located as close to seniors' homes, hospitals, institutions and other high transit usage locations, as practically as possible to reduce walking distances. Developers of seniors' homes and high-density developments should consider locating their facilities close to transit routes/stops.

3. Pathways to Buildings and Building Entranceways

Pathways to buildings are usually in the private realm, but like sidewalks, they serve as vital connections in the built environment. If a building is inaccessible (e.g. because it is hard to find, or there are stairs, or inappropriate doors), other improvements to the built environment may be negated. For businesses, institutions, and offices providing an accessible entrance should be a top priority – if potential users cannot get into your building, they will take their business elsewhere, or in some cases not be able to access needed services.

RECOMMENDATIONS – Pathway to Building

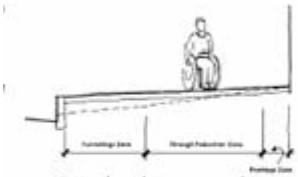
(a) The surface should be level, hard, stable and slip resistant.
- Smooth concrete is preferred; for aesthetic purposes, stamped concrete is preferred over unit pavers, however they are suitable in the street furniture zone and around trees.

(b) The optimal grade is 1:20.
- Under demonstrable constraints, 1:13 is acceptable.

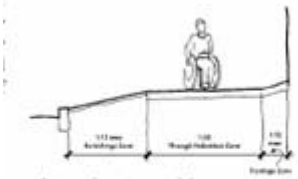
(c) All abrupt vertical changes in grade greater than .3 m (1 ft) should be retained by a modular or poured in place concrete retaining wall designed to resist the lateral pressure of the retained material. Vertical grade changes greater than .6 m (2 ft) should have a 1.07 m (3½ ft) high guardrail.

(d) The cross slope should be 1:50, however where topography creates constraints, the area <u>outside</u> the pedestrian through zone may have a greater slope - or have the curb sufficiently built up (see inset diagrams).

(e) The path should be 1.5m (5 ft) in width and be clear and unobstructed – pathway furniture (including benches, garbage cans, signage, newspaper boxes etc.) should be placed off the path of travel and be colour contrasted to the surroundings.



Raising the curb is one approach to maintaining the preferred cross-slope.



The Furnishings Zone and the Frontage Zone may be sloped more steeply, provided the preferred cross-slope is maintained in the Through Pedestrian Zone.

(f) Lighting should be evenly spaced and well lit with downlighting (to prevent glare).

(g) Landscaping should not encroach and should support orientation and wayfaring.

(h) Tactile and colour contrast markings should be installed.

(i) Ensure that the maintenance of walkways is on-going and problems are promptly attended to, e.g. weeds, puddles, ice, snow, and cracks.

(j) Ensure the pathway is a distinct route, separated from automobile travelways.

(k) If wayfinding is needed (i.e. the design of the building does not make it readily apparent where the entrance, handyDART area, or where the public transit stop is) signage should be installed directing riders to the drop-off zone and to the main entrance (see "Signage" section).

(l) CPTED and Women's Safety Audit principles should be integrated (e.g. movement predictors, sightlines, isolation).

This is an excellent example of integrating attractive landscaping features with practical transit oriented, accessible design considerations.

RECOMMENDATIONS – Landscaping

(a) Landscaping materials should either be low or create a canopy to ensure open views and sightlines and to remove “hiding areas".

(b) Regular maintenance is imperative to ensure landscaping does not encroach on the pathway.

(c) Sprinklers should not create puddles or slippery surfaces.

(d) Vertical grade changes greater than .6 m (2 ft) should be required to have a .85 m (2¾ ft) to .95 m (3 ft) high railing.

(e) Landscape design and fences should be used to effectively direct and orient the visually impaired:

- Plantings on either side of the entranceway and the pathway help to establish parameters.
- Thorny or berry plants and fruit-bearing trees should be avoided.

(f) Trees should be located to reduce maintenance as a result of falling leaves.

(g) The selection of plant material and planting location should be made to avoid future encroachment of public sidewalks or pathways:
- Set back vegetation a minimum of .3 m (1 ft)
- Ensure minimum clearance height of 2 m (6½ ft).

RECOMMENDATIONS – Building Entrances

(a) The space in front of the door should be a least 1.5m x 1.5m (5 ft x 5 ft) to manoeuvre wheelchairs and carriages, 2.25 m (7½ ft) is required for power chairs, and 3.15 m (10½ ft) for scooters.

(b) Steps should be avoided, or at least provided with handrails/ banisters or an alternative accessible means of access.

(c) Space should be provided beside the latch side of the door for wheelchair accessibility; push side .6 m (2 ft) and pull side .3 m (1 ft).

Automatic sliding doors are the preferred entrance

(d) The entranceway should be free of obstacles (e.g. advertising boards that might block a person in a mobility device or cause a person with a vision disability to fall over them).

(e) The entranceway should be clearly marked (e.g. painted in a color that contrasts with the surroundings). Entry for persons with disabilities should be at primary entrances, not service areas.

(f) The entranceway should be well lit.

(g) The entranceway should provide protection from the weather (i.e. be covered).

(h) Space for parking scooters should be provided, particularly if scooters cannot enter the building.

RECOMMENDATIONS – Ramps

(a) Width for a ramp will vary according to use, configuration and slope.

(b) The minimum width of a ramp should be .9m (3 ft).

(c) The ramp slope should not exceed 1:16, and is optimally 1:20.

(d) Handrails should be 850mm to 950 mm (38") from the ground.

(e) Diameter of handrails should be 31-38 mm (1.25 - 1.5").

(f) Flat, level staging areas should be provided at the entrance and at locations where there are hairpin turns, 1.5m x 1.5 m (5 ft x 5 ft).

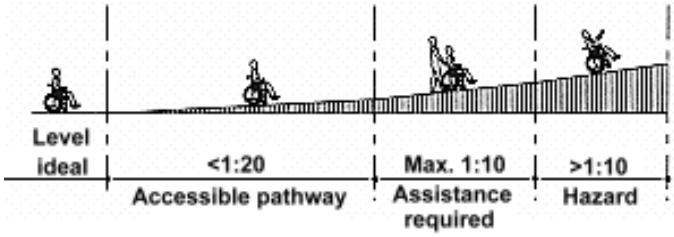
This ramp directs the user into the active parking lot

(g) The surface area should provide traction.

(h) Curbs should be provided for edge protection – minimum .75 m (3 ft).

(i) Clearance at the bottom of the ramp should be 1.5 m (5 ft).

Maximum slope	Maximum length	Maximum rise
1:20 i.e., 5%	---	---
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
1:08 i.e., 12%	0.5 m	0.06 m



The ramps located next to the museum were identified as a good example.

RECOMMENDATIONS – Doors

(a) Power-assisted doors should be provided.

- Where there are two sets of doors, both should be power-assisted.
- A minimum of 1.5 m (5 ft) clearance plus the width of the open doors should be provided.
- Sliding doors are preferred.
- The minimum clear opening width should be .85 m (2¾ ft).
- Glass doors should have a horizontal contrasting warning strip .1 m - .125 m (.3 - .4 ft) wide at 1.35 m (4½ ft) above the floor.

- The door frame should be a contrasting colour to the walls.
- Secured entrances should consider card-reader lock systems, rather than keyed entrances.

(b) The preferred opening control is an electronic eye to avoid the need for manual controls.
- Manual controls should be the wide, flat button design.
- Controls should be located a two levels - one at .9 m (3 ft) and the other at .225 mm (¾ ft) from the floor.
- The location of the control should be 1.5m (5 ft) from the entranceway.

(c) Manual opening door hardware should be located between .9 m to 1.225 m (3 ft – 4 ft) from the floor.
- Any door handles should be of the lever design.

Excerpted from the Access to Transit Study 2007, Urban Aspects Consulting