Kerb Heights for Footpaths and Medians
A Kerb has the following functions:

1. **Protection of Pedestrians** from higher speed vehicles.
2. Guiding of traffic along the edge
3. **Control/ regulation of Drainage**

**Design Precautions:**

- Prevention of overturning of vehicles on faster roads
- Prevention of jaywalking on thoroughfare roads
- Prevention of Parking on footpaths
Photographic References:
Existing – High kerb Conditions
Arterial Road : ~ 200 mm kerb
Neighbourhood Road : ~ 250 mm kerb
Neighbourhood Road : ~ 250 mm kerb
Neighbourhood Road: ~ 250 mm kerb with parking!
Neighbourhood Road: ~ 200 mm kerb at Median
Arterial Road : ~ 900 mm kerb
Arterial Road: ~ 200 - 250 mm kerb
Collector Road: ~ 350 mm kerb
Arterial Road : ~ 390 mm kerb
Arterial Road: ~ 300 mm kerb
Arterial – Service Road : ~ 300 mm kerb with Parking!
Arterial – Service Road: ~ 300 mm kerb with parking!
Photographic References:
Existing – 150 mm (6”) Kerb height Conditions
Arterial Road: 150 mm kerb; MUZ-planting along edges
Arterial Road: 150 mm kerb; Fencing along edges
Arterial Road: 150 mm kerb; Railings at junctions
Arterial Road: 150 mm kerb; MUZ-utilities along edges
Arterial Road: 150 mm kerb; Easy to mount back on...
Arterial Road: 150 mm kerb; Easy to mount back on...
Arterial Road: 150 mm kerb; Safe even without planting
Technical References for Kerb Height
Maximum Height of Riser (in a non-residential building i.e. public building or public space) = 150 mm
Built up areas adjacent to footpaths with considerable pedestrian traffic

On the periphery of the roadway where pedestrian traffic is light and a barrier-type would tend to reduce traffic capacity.

Within the roadway at channelization schemes, medians, outer separators and raised medians on bridges.

Lower traffic volume, higher pedestrian volume

High traffic volume roads

High traffic volume & high traffic speed roads
3. TYPE OF KERBING

The two basic classes of kerbs are barrier and mountable kerbs. Each class has different types including semi-mountable and semi-barrier kerbs with a variety of designs (Figure 1). Dimensions of the most common types of kerbing used on Western Australian roads are detailed in Drawing No 9331-0376.

Figure 1 - Type of Kerbs

**Barrier Kerb**

**Barrier kerbs are steep-faced and are designed to prevent vehicle encroachment on the roadside.** Their main functions are:
- to discourage vehicles from using areas outside the travelled way, not intended for vehicular travel;
- to control drainage;
- to control parking of vehicles;
- to reduce the risk to pedestrians.

**The typical barrier kerb is 150 mm high.** This height is effective to prevent vehicle encroachment into the roadside at low to moderate speeds.

Barrier and semi-barrier kerbing should generally be **avoided on freeways or highways** with design speeds of over 70 km/h because impact with kerbing on high-speed roads may overturn a vehicle or result in a vehicle becoming airborne.

Barrier-type kerbs may be used (as medians) on sections of road where separation of opposing traffic is essential due to the high safety risks associated with traffic volumes, percentage of heavy vehicles, speed, crash history etc.

It is recommended to avoid this type of kerbing on roads with restricted lane width and high percentage of heavy vehicles.

Barrier kerbs reduce the risk to pedestrians, not only as a physical but psychological barrier as well, because drivers generally tend to shy away from the kerb line. For this reason, barrier kerbing is recommended in built-up areas adjacent to footpaths with considerable pedestrian traffic, shared use paths and also at bus bays.

Some of the above text was adopted from AASHTO’s Policy on Geometric Design of Highways and Streets (2004).


*AASHTO = American Association of State Highway and Transportation Officials*
Semi-barrier

This type of kerbing is recommended where pedestrian traffic is light and a barrier type could tend to reduce traffic capacity due to the impression of restriction.

Semi-mountable

Semi-mountable kerbing should be used at all intersections, junctions and island treatments and is often used on outer separators and raised medians on bridges.

Semi-mountable kerb may also be used along pedestrian and cycle paths.

Mountable

Mountable kerbs (Type A and M) are generally used in the following situations:

- At the outer mountable island area of intersections, small corner islands and roundabouts to outline standard vehicle travelled paths.
- To define the left edge of a through carriageway where the crossfall of the adjacent shoulder or parking strip is opposite to that of the through carriageway.
- Where crossing or encroachment by vehicles larger than the design vehicles is permitted (e.g. at roundabouts) or expected under emergency conditions (fire truck turnings, etc).
- On pedestrian and cycle paths along the grassed edge of asphalt paths to reduce damage to the path from the grass growing into the asphalt path. Kerbing along paths also provides visual contrast to the path edge and prevents the verge material erosion onto the path.

Flush type kerb (refer to Type M in Figure 1) are generally used in the following situations:

- On lightly travelled residential streets because it does not require modification at driveway entrances. The design of mountable kerbs should not result in loss of vehicle control or undercarriage damage when struck.


*AASHTO = American Association of State Highway and Transportation Officials*
410B CURB & GUTTER

NOTES:
1. "H" SHALL BE 6" FROM FINISHED ROADWAY GRADE UNLESS OTHERWISE SHOWN ON DRAWINGS.
2. GUTTER SHALL BE SLOPED THE SAME AS ADJACENT PAVEMENT OR 2% MIN, WHICHEVER IS GREATER.
3. SEE STD PLAN NO 411 FOR CURB DOWELS.

410C CURB
4.10.2 Design Criteria

**Curb type:** The curb type used depends on the type of pavement being installed and shall be in accordance with Seattle Standard Plans 401 and 402. In general, a Seattle Standard Plan 410B curb and gutter is used with flexible pavement and a Seattle Standard Plan 410C dowelled curb is used with rigid pavements.

**Curb height:** Seattle’s standard curb height is 6 inches. Unless otherwise directed by SDOT, a new curb to replace an existing curb in the existing location shall be 6 inches high with a transition, if needed, to existing curb height at each end.

**Permanent curb location:** When an existing curb and sidewalk are removed in conjunction with demolition and construction, the new curb shall be placed in the permanent location. The permanent curb location is the edge of the design roadway width in Chapter 3.1 Overview of Requirements from the Land Use Code. An existing curb less than 4 inches in height shall be reconstructed in conjunction with other construction activity in the right-of-way but need not be moved to the permanent location.

**Curb setbacks and pedestrian bulbs:** Curb setbacks and pedestrian bulbs have been established to ensure the public’s safety and allowing for street sweepers to negotiate curb line variations. The installation of a parking curb setback in conjunction with a development proposal requires the approval of both the SDOT and DPD Directors. The curb radii used for an 8 feet parking curb setback is 20 feet while the curb radii used for a 6 feet pedestrian bulb is 10 feet for the radius nearest to the travel lane and 20 feet for the radius closest to the right-of-way margin.

Section A–A — Detail B
Scale 1:25

Construction profile where base course depths in Detail A cannot be achieved. Refer Note 1.
5.6.4 Curb Height

- Curbs shall be designed to discourage motor vehicles from encroaching onto the pedestrian realm while still making it easy for pedestrians to step up and down from the pedestrian realm to the travelled way.

- Typical preferred height: **150 mm**.

- **Where parking on curbs in the pedestrian realm is an issue**, employ pedestrian protective techniques such as bollards and planters instead of higher curbs.

- **Provide for positive drainage** via swales, cross-slopes, longitudinal grades, and other grading techniques - not higher curbs.

Shape of obstacles

Area of application
+ on footpaths and in pedestrianized areas, with a view to allowing unobstructed passage

Construction
- obstacles on routes used by the visually impaired should be easily detectable and present no hindrance to traffic
- height of obstacles should be such that these are easily detectable (this particularly goes for block shaped plant pots, benches and advertising display cases)
- it is preferable to have obstacles which are continuous in form down to the level of the footpath (3); if this is not the case, then apply warning marking, see 12.3/121
- trim overhanging branches which might present an obstruction
- do not have any protruding parts on marker posts

Dimensioning
- $c = 0.75 \ (0.60) \ m$
- $d \leq 0.60 \ m$ (including dense planting) as children may play hide and seek here
- $e = 0.10 \ to \ 0.15 \ m$ (raised kerbing)
- $f \leq 2.20 \ m$
- fences, hedges and walls a maximum height of 0.60 m

Combination options
- positioning of obstacles, see 9.5/22
- obstacle marking, see 12.3/121
- guidance lines, see 12.3/81
- guidelines, see 9.5/21

Positive aspects
- helps disabled people to improve their mobility and participate in traffic
Conclusions & Decision/ Recommendation made by Working Group 1A
For high speed ($\geq 70$km/hr), high-volume roads, i.e. Highways:

On roads with high traffic speeds ($\geq 70$km/hr), **Medians should be replaced by crash barriers.**

**Left-side kerbs should be Mountable type (100 mm high or less)** to prevent overturning of vehicles on impact and also to maximize the efficiency of the kerb-side traffic lane.

For protection of Pedestrians and NMV, **crash barriers or fences** may be installed.

![Kerbless pavement on NH-8 with crash barriers (NHAI)](image)

*Graphics Source: IRC*
For moderate-to-low speed urban roads (< 50km/hr) i.e. all Urban Roads:

On roads with moderate to low traffic speeds (< 50km/hr), a semi-barrier type kerb should be used for Medians at 150 mm height.

Left-side kerbs should be the following:

- **Semi-mountable (150 mm high)** where traffic volumes are high and efficiency of kerb-side lane is to be maximized. NOTE: In areas where the MUZ is present, the kerb height applies to the edge of MUZ. Footpath height in such cases could range from 0-150mm.

- **Barrier type (150 mm high)** where pedestrian volumes are high and traffic volumes and speeds are less (<25 km/hr) – so as to discourage vehicles from encroaching upon footpath space. The barrier kerb will decrease the efficiency of the left-most traffic lane.

On roads of design speeds 25-50 km/hr - protection of Pedestrians and NMV, can be ensured by treating the MUZ with fences, hedge-planting or bollards, wherever required. This also helps prevent jay-walking.

On roads of design speeds < 25 km/hr, jay-walking is acceptable so no physical barriers should be installed. **Kerbless streets** are recommended in heavy pedestrian areas.

![Mathura Road](image)

* Graphics Source: IRC (modified)

* MUZ = Multi Utility Zone
Recommendation of Working Group 1A:

1. Maximum Kerb heights on all roads to be Maximum 150 mm.

2. In case of arterial roads where safety of pedestrians and cyclists is high-priority, the MUZ can be treated with hedge-planting or fencing or bollards, wherever required, to prevent jay-walking. Such barriers would also prevent motorized vehicles from encroaching upon footpaths and cycle tracks.

The above recommendations were approved by the Governing Body of UTTIPEC on the meeting dated 04.03.2011. Minutes are available on the UTTIPEC Website.