
**Parking Facility- On-street surface parking
— requirements**

Foreword

This Ethiopian Standard has been prepared by the Technical Committee for Building structures and Elements of Building (TC 42) and published by the Institute of Ethiopian Standards (IES).

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Parking Facility- On-street surface parking- requirements

1. Scope

This Ethiopian standard provides requirements for location, design, accessibility, safety and management of on-street parking within road rights-of-way. It includes provisions for special classes of vehicles and for people with disabilities. traffic control together with guidelines for the control of parking.

2. Normative references

The following Ethiopian Standards contain provisions, which through reference in the text constitute provisions of this Ethiopian Standard. At the time of publication, the editions indicated were valid.

ES 3965, *Conformity to Design Occupational health and safety with*

ES 7020, *Electric vehicle charging infrastructure – requirements*

ES 3961, *Ethiopian Building Code Standard for electrical works,*

ES 6028, *Traffic sign and road marking typeface*

3. Terms and definitions

For the purpose of this Ethiopian standard the following terms and definition shall apply

3.1.

on- street surface parking

a portion of a roadway that is used for parking cars and other vehicles within the street right-of-way (ROW).

3.2.

parking box

a space (parking space) designated for the parking of one motor vehicle.

3.3.

parking area

an area set aside or designated for the parking of three or more motor vehicles.

3.4.

Clearway

a continuous length of roadway along which stopping is restricted part-time or full-time, and along which special enforcement provisions may apply.

3.5.

no parking

a requirement similar to 'No stopping' except that stops for short periods as specified in regulations, are permitted.

3.6.

no stopping

a requirement that a vehicle may not be stopped or allowed to remain stationary except when necessary to avoid conflict with other traffic or to comply with the directions of a member of the police force or a traffic control sign or signal.

4. General Requirements

4.1. On street parking shall be allowed in areas where

4.1.1. there are shortage of off street parking

4.1.2. for off peak hour use

4.1.3. Higher traffic count.

4.1.4. There is, but not limited to, congested business, school, health centers, shopping and public areas

4.2. On street Electric vehicle charging infrastructure requirements shall comply with ES 7020 if applicable

4.2.1. closest to the entrances of public buildings or hospitals

4.3. Maneuvering into and out of parking box shall not disturb the through traffic.

4.4. on-street parking shall be allowed/ established

4.4.1. On roads with medians having at least minimum of three lanes in one directional traffic flow.

4.4.2. On roads without medians having at least minimum of two lanes in one directional traffic flow.

4.5. On-street parking arrangement (layout) shall be parallel curb side, angle curb side or center-of- road parking.

4.6. On-street parking shall not be located at bus bays, bus stations and other loading and unloading areas.

4.7. On – Street parking shall not be allowed with BRT and LRT lines (routes).

4.8. On-street parking shall be designed for specific vehicles/ light duty vehicles,

4.9. On-street parking space shall be marked (painted) on the road lane.

4.10. On-street parking shall be designed with careful consideration for safety, maintainability of marked paint, aesthetic and service efficiency.

4.11. Parking box shall be accessible for persons with disability, considering the following

4.11.1. Proximity of any particular establishments towards which disabled users are likely to be heading

4.11.2. Ease of access from the parking spaces to the bordering developments.

4.11.3. There shall be a proper sign post with 'for disabilities'

4.12. On-street parking layouts shall consider safe passage of emergency situation.

4.13. On- street parking shall have fee collection system.

4.14. On-street parking fee collection and parking management equipment (if any) shall comply with ES 6352 for parking control equipment.

4.15. Clear and visible on- street parking signage and markings shall be installed in accordance with

ES 6028 for traffic sign and road marking typeface.

4.16. On – street parking shall not be placed in steep slope roads.

4.17. On-street parking space allocation shall not cause environmental impact to road side facilities.

4.18. On-street parking shall have appropriate management with effective monitoring and controlling mechanism.

5. Design consideration

5.1. During design of on- street parking the following shall be considered:

5.1.1. End clearance to intersections and drive way.

5.1.2. Preservation of safe and convenient pedestrian access.

5.1.3. Protection of parking areas from through traffic.

5.1.4. Identification of unsafe parking locations.

5.1.5. Pedestrian and children's school crossing

5.1.6. Bus and light rail stops

5.1.7. Railway level crossings.

5.1.8. Fire hydrants.

5.1.9. Road bridges, except where parking provisions have been made.

5.1.10. Slope of the road

5.2. On-street parking arrangement in relation to Pedestrians walkway;

5.2.1. On-street parking areas should be arranged so that obstruction of pedestrians and encroachment onto pedestrian paths is minimized. The following requirements shall be observed:

5.2.1.1. Front in Angle parking shall not be permitted adjacent to footpaths 2.0m in width or less unless wheel stops controlling front overhang encroachment onto the footpath are provided.

5.2.1.2. Reverse in angle parking shall not be permitted adjacent to footpaths 2.3m in width or less unless wheel stops controlling rear overhang encroachment onto the footpath by more than 300mm are provided.

Note: In this case, the effects of the parked vehicle exhaust fumes on pedestrian traffic should also be monitored and additional clearance to parked vehicles is provided (eg. By wheel stops, footpath widening, change parking style) if necessary.

6. On- street parking layout

6.1. General

6.1.1. On-street parking space shall be located on roads with slope between 2% and 5/6% in longitudinal direction.

6.2. Parallel parking arrangement

- 6.2.1.** On street parking space width in parallel parking arrangement along the street shall be at least 2.5m for normal use and 3.2m for disabilities from the curb for light duty vehicles.
- 6.2.2.** The length of parking space in parallel parking arrangement along the street shall be at least 5.5m for normal use and 6.5m for disabilities light duty vehicles.
- 6.2.3.** A continuous, accessible path of travel shall be provided for people with disability from the parking to the nearby facility
- 6.2.4.** Minimum of 1 m curb ramps shall be provided at dedicated parking space to the people with disabilities
- 6.2.5.** Maximum clearance between two consecutive parking spaces in parallel parking arrangement shall be 1m for light duty vehicles.

6.3. Angled parking arrangement

- 6.3.1.** curb side angled parking arrangement shall be allowed based on road width, traffic volume, type of traffic, traffic speed characteristics, road functional classification, type of vehicles and vehicle dimension, turnover expected, nature of the neighborhood or abutting land use on-street.
- 6.3.2.** Maximum length of dedicated parking space in Angled parking arrangement along the street shall be 5.5m for normal use and 6.7m for disable users.
- 6.3.3.** Minimum of 1 m curb ramps shall be provided at dedicated parking box in curb side angled parking arrangement for disable users.
- 6.3.4.** On street parking space width in angled parking arrangement transversal to the street shall be at least 2.5m for normal use and 3.2m for disabilities for light duty vehicles.
- 6.3.5.** Minimum of 1m ramps shall be provided at dedicated parking space in curb side angled parking arrangement for disable users.

6.4. Center of road parking

- 6.4.1.** Unprotected center of road parking shall be allowed only in streets with low through traffic volume and where all traffic moves slowly.
- 6.4.2.** Dedicated parking space in center of road parking arrangement along the street shall be located near zebra crossing for disable users.
- 6.4.3.** Maximum width of parking space in center of road with parallel parking arrangement along the street shall be 2.5m for normal use and 3.2m for disable users.
- 6.4.4.** Maximum width of parking space in center of road angled parking arrangement along the street shall be 2.5m for normal use and 3.2m for disable users.
- 6.4.5.** Maximum length of parking space in curb side center of road parking shall be 5.5m for normal use and for 6.7m for disable users light duty vehicles.
- 6.4.6.** Maximum clearance between two consecutive parking boxes in center of road parking in parallel parking arrangement along the street shall be 1m.

7. On-street parking location

7.1. Location from intersections

- 7.1.1.** On-street Parking should be designed so as not to interfere with sight distance or impede the flow of turning traffic at intersections
- 7.1.2.** On street parking shall be distance located from intersections in a distance as specified in Table 1

Table 1:- distance of on straight parking from intersections.

Type of parking	Distance
Un-signalized intersections	
Parallel parking	6 meters on the approach and departure sides.
Urban and other intersections	30 meters on the approach side and 15 meters on the departure side
Angle parking	12 meters on the approach side. 9 meters on the departure side
Signalized intersection	
Two major roads (high volume or arterials)	100 meters along each leg of the intersection
Un-signalized urban and other intersections	30 meters on the approach side 15 meters on the departure side

7.2. Restriction Location from special features

7.2.1. Mid-block Pedestrian Crossings

Where a marked pedestrian crossing (Zebra crossing) is located at mid-block or at an intersection, On street parking shall not allow for mutual sight distance between the pedestrians and approaching vehicles. The distance shall be as specified in table 2 and figure 1.

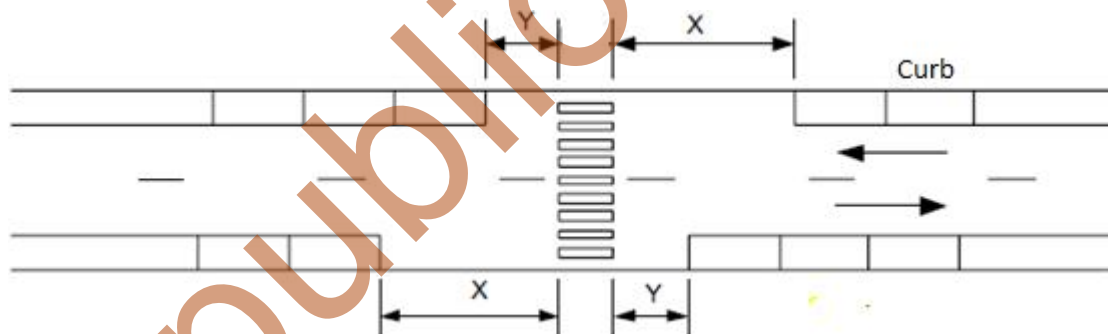


Fig. 1 location of on-street parking on marked zebra crossing

	Distance from the front end of the vehicle to marked zebra crossing(X)	Distance from the rear end of the vehicle to marked zebra crossing(Y)
Minimum	9m	3m
At school	18m	9m

Table 2 minimum dimensional requirement for marked zebra crossing on street parking restrictions

*X= Distance from the front end of the vehicle to marked zebra crossing

*Y= Distance from the rear end of the vehicle to marked zebra crossing

7.3. Fire hydrants

7.3.1. On street parking shall not be located around fire hydrant location.

7.3.2. On street parking shall be located at least 5m away from both sides (right and left) of neighborhood fire hydrant location (if any).

7.4. Bus and light rail stops

7.4.1. On street parking shall be located at least 12m away from bus stop and light rail stop.

7.4.2. On street parking shall be located at least 20 m away from railway level crossings.

7.5. Road bridges

7.5.1. On street parking shall be located at least 15m away from road bridges.

8. Traffic signs and markings

8.1. General

- 8.1.1. On-street surface parking’s foot paths, approach lanes, and maneuvering areas shall be clearly marked.
- 8.1.2. On-street parking box paint thickness shall be a maximum of 2mm.
- 8.1.3. On-street parking box marking width shall be assigned depending up on speed limits of road and approved by the recognized body.
- 8.1.4. On-street parking box marking width shall be a maximum of 10 cm.
- 8.1.5. Marking material shall be according to ES 6028 for traffic sign and road marking type face requirements.
- 8.1.6. On-street parking box for Persons with disability shall be marked either 'persons with disability' or with a wheelchair marking.
- 8.1.7. **Spot the Zone Signage:** Streets are colour-coded with clear green, yellow, and red signs indicating fees and restrictions - always check at your intended spot.

8.2. Parking box for persons with disabilities

Table 3: on- street parking box requirements for persons with disabilities

Total No. of Car Parking box on vehicular lane	Required No. of Accessible Car Parking box on vehicular lane
1-50	1
51-150	2
151-250	3
251-350	4
351-450	5
Above 450	6

Informative annex A

A.1 Long-term on –street curb side parking of trucks should be prohibited.

A.2 If forcing phenomenon happens only parallel on-street parking for trucks shall be used for a short period of time.

A.2 Protection of Through Traffic

A.3 There will be instances where the provision of parking zones on busy or high speed roads or in unexpected locations is likely to create a hazard. Typical locations which should be considered for protection include: For the protection of through traffic the following locations shall be protected

- a) Curb side parking part way around a right hand curve with limited sight distance across the curve.
- b) Parking just beyond a crest vertical curve.
- c) A parking area that starts just beyond a roadway narrowing or lane reduction.
- d) Parking on the left hand side of a one-way driveway.
- e) Any location where the parking area protrudes an un-expectedly large distance into the driveway or where parking maneuvers may encroach into a high speed traffic lane.

A.4 Unsafe Parking Locations

The following locations are generally considered to be unsafe for parking and should not be used:

- a) On the inside of sharp curbs, it is often difficult to protect such a parking zone from oncoming traffic, and the hazard will generally be greater if the parking zone is only partly occupied.
- b) Within a 'T'- junction opposite the terminating road, the hazard is greater if the terminating road has a high volume of traffic, is a high speed road or if the approach is on a steep down-grade. Hazards can include vehicles over-running the intersection or misjudging the turning path. People entering or leaving the vehicle on the driver's side are most vulnerable.
- c) On islands and reservations including the central island of a round about, the sources of possible hazard include obstruction of intersection sight distance for moving traffic.
- d) Movements into and out of parking spaces in unexpected locations, reductions in the effective width of moving traffic lanes.
- e) Areas where hazardous pedestrian movements are likely to occur.
- f) Any of the locations listed in Clause 5.5(through traffic protection clause) which cannot be properly protected.

A.5 Parking Control Measures

- a) In many areas of intense residential, business or industrial activity demand for on-street parking space exceeds supply. Space available for parking must therefore be allocated on a priority basis. In such cases the responsible authority will need to estimate the total demand and allocate priorities among the competing interests. This will need to be done over a sufficiently large area so as to ensure that a parking problem is not just transferred to an adjacent area or street.

b) In residential areas, the residents demands for long term parking near their homes is usually paramount

For public comment

- c) This can be achieved by imposing parking time limits for general use with exceptions for vehicles displaying a resident parking permit or banning non-permit vehicles from parking. In such areas consideration should be given to the allocation of parking spaces for visitors.
- d) In business areas, parking associated with the conduct of business usually takes priority. This includes short term parking for clients or customers, bus stops and taxi ranks for clients customers and workers who do not drive and loading zones for the delivery and pickup of goods. The exact priorities for parking can only be decided by study and consultation with the interested parties and businesses. Parking of increasing duration will generally be located the greatest distance from the main activity area thus providing a higher parking space occupancy turnover, providing the greatest convenience to the greatest number of people wishing to access the area. Long term parking is often provided in off-street parking facilities.

4.1.21. In industrial areas, it is desirable to ensure that business related parking; particularly long term parking does not spill into adjacent non-industrial areas. Off-street parking should be provided for long term parking with on-street parking being available for short term parking to be access by customers. Loading facilities are generally located off street.

4.1.22. In all the above areas consideration must be given to the design of parking spaces for disabled driver or passengers. This can include the provision of spaces for disabled drivers or passengers as well as other concessions such as the allocation of special time limits.

A.6 Parking Control

A.6.1 Parking control is usually enforced by use of parking control signs placed along the street, edge pavement marking or a combination of both. The requirement for the use of these control measures is usually specified by local standards.

A.6.2 Parking control can be used to limit parking duration, control types of vehicles or users allowed to access the space, provide a clearway allowing the parking lane to be used as a through lane where peak hour traffic volumes exceed the available lane capacity. Where clearway parking control is implemented the clearway should be a continuous non-stopping control for as long a length as possible. The clearway duration should be at least one hour and adjusted to suit local traffic volumes and times. The traffic volume at which a clearway lane should start to operate and hence make an extra lane available for moving traffic is shown in Table 4

Table 4 Guidelines for the Provision of Clearways

Flow rates available in one direction before clearway installed	One way flow rate at which stopping is banned(vehicles per hour)	Flow rates available in one direction after clearway stopping is installed
Street with mixed light rail and motor traffic		
1	600	2
2	1200	3*
Street with no light rail or segregated light rail tracks		
1	800	2

2	1600	3
3	2400	4

*For the safety of alighting and boarding passengers, refuge islands should be provided beside the tracks for light rail stops on streets where there are two or more flow lanes to the right of the light rail tracks.

A.7 Fee Payment Parking

- a) For on-street parking the two general types of parking fee collection are meter parking and coupon parking.

For public comment

- b) The benefits of a properly designed fee payment parking scheme include:
- c) Increased turnover in parking space occupancy, this can reduce the traffic volume by eliminating vehicles circulating in search of a parking space.
- d) Provides an accurate time check on parking duration, thereby simplifying enforcement.
- e) Will discourage long term users from parking in zones allocated to short term parking.

A.8 Controlling and monitoring of on- street parking shall

A.8.1 On-street parking shall be controlled by.

A.8.2 There shall be a monitoring system of on-street parking that is operated and centrally managed.

A.8.3 on-street parking payment system can be in the form of credit card, prepaid card, contactless card, coin/note, ticketing or other appropriate technology.

Organization and Objectives

The Institute of Ethiopian Standards (IES) is the national standards body of Ethiopia. IES is re-named by the proclamation number 1263/2021, from Ethiopian Standards Agency (ESA) to Institute of Ethiopian standards, with the mandate given by the regulation Number, 193/2010 and proclamation number, 1263/2021.

IES's objectives are:

- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and service are in compliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.
- ❖ Conduct standards related research and provide training and technical support.

Ethiopian Standards

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