भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
BUREAU OF INDIAN STANDARDS
(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India

मानक भवन, 9, बहादुर शाह ज़फर मार्ग, नई दिल्ली – 110002
Manak Bhawan, 9, Bahadur Shah Zafar Marg, New Delhi – 110002
Phones: 23230131 / 2323375 / 23239402
Website: www.bis.org.in . www.bis.gov.in

व्यापक परिचालन मसौदा

हमारा संदर्भः सीईडी 59/टी-10 **11 जून 2025**

तकनीकी समिति : स्मार्ट सिटी विषय समिति, सीईडी 59

प्राप्तकर्ता :

क) सिविल इंजीनियरी विभाग परिषद्, सीईडीसी के सभी सदस्य
ख) सीईडी 59 व उसकी उपसमितियों, के सभी सदस्य
ग) रूचि रखने वाले अन्य निकाय

प्रिय महोदय/महोदया,

निम्नलिखित भारतीय मानक का मसौदा संलग्न हैं:

प्रलेख संख्या	शीर्षक
सीईडी 59 (28164)WC	**चलने योग्य शहर — सकेतक का भारतीय मानक मसौदा** ICS No. 91.020 13.020.20

कृपया इस मानक के मसौदे का अवलोकन करें और अपनी सम्मतियॉ यह बताते हुए भेजे कि यदि यह मानक के रूप में प्रकाशित हो तो इस पर अमल करने में आपके व्यवसाय अथवा कारोबार में क्या कठिनाइयाँ आ सकती हैं ।

सम्मतियाँ भेजने की अंतिम तिथि: **10 जुलाई 2025**

सम्मति यदि कोई हो तो कृपया अधोहस्ताक्षरी को उपरिलिखित पते पर संलग्न फोर्मेट में भेजें या **divya.s@bis.gov.in** पर ईमेल कर दें ।

यदि कोई सम्मति प्राप्त नही होती है अथवा सम्मति में केवल भाषा सम्बन्धी त्रुटि हुई तो उपरोक्त प्रलेख को यथावत अंतिम रूप दिया जाएगा। यदि सम्मित तकनीकी प्रकृति की हुई विषय समिति के अध्यक्ष के परामर्श से अथवा उनकी इच्छा पर आगे की कार्यवाही के लिए विषय समिति को भेजे जाने के बाद प्रलेख को अंतिम रूप दे दिया जाएगा ।

यह प्रलेख भारतीय मानक ब्यूरो की वैबसाइट www.bis.gov.in पर भी उपलब्ध हैं।

धन्यवाद।

भवदीय,
(**दिव्या एस.**)
सदस्य सचिव सीईडी 59
वैज्ञानिक 'डी'(सिविल इंजीनियरिंग)
ई-मेल: **divya.s@bis.gov.in**

संलग्न: उपरलिखित

भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
BUREAU OF INDIAN STANDARDS
(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India

मानक भवन, 9, बहादुर शाह ज़फर मार्ग, नई दिल्ली – 110002
Manak Bhawan, 9, Bahadur Shah Zafar Marg, New Delhi – 110002
Phones: 23230131 / 2323375 / 23239402
Website: www.bis.org.in . www.bis.gov.in

WIDE CIRCULATION DRAFT

11 June 2025

Our Ref: CED 59/T-10

TECHNICAL COMMITTEE: Smart Cities Sectional Committee, CED 59

ADDRESSED TO:

a) All Members of Civil Engineering Division Council, CEDC
b) All Members of CED 59 and its Subcommittees
c) All others interested

Dear Sir/Madam,

Please find enclosed the following document:

Doc No.	*Title*
CED 59 (28164) WC	**Draft Indian Standard** **Walkable City — Indicators** ICS No. 91.020 13.020.20

Kindly examine the draft standard and forward your views stating any difficulties which you are likely to experience in your business or profession, if this is finally adopted as National Standard.

Last Date for comments: **10 July 2025**

Comments if any, may please be made in the enclosed format and mailed to the undersigned at the above address or preferably through e-mail to **divya.s@bis.gov.in**.

In case no comments are received or comments received are of editorial nature, you will kindly permit us to presume your approval for the above document as finalized. However, in case of comments of technical in nature are received then it may be finalized either in consultation with the Chairman, Sectional Committee or referred to the Sectional Committee for further necessary action if so desired by the Chairman, Sectional Committee.

The document is also hosted on BIS website www.bis.gov.in.

Thanking you,

Yours faithfully,
(**Divya S.**)
Member Secretary CED 59
Scientist 'D' (Civil Engineering)
E-mail: **divya.s@bis.gov.in**

Encl: As above

FORMAT FOR SENDING COMMENTS ON BIS DOCUMENTS

(Please use A-4 size sheet of paper only and type within fields indicated. Comments on each clause/sub-clause/table/fig etc. be started on a fresh box. Information in column 3 should include reasons for the comments and suggestions for modified working of the clauses when the existing text is found not acceptable. Adherence to this format facilitates Secretariat's work) {Please e-mail your comments to **divya.s@bis.gov.in**

Doc. No.: CED 59 (28164) WC

Title: *Draft Indian Standard Walkable City — Indicators*
ICS No. 91.020 13.020.20

LAST DATE OF COMMENT: **10 July 2025**

NAME OF THE COMMENTATOR/ ORGANIZATION:_____

Clause/ Para/ Table/ Figure No. commented	Comments/Modified Wordings	Justification of Proposed Change

NOTE - Kindly insert more rows as necessary for each clause/table, etc

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY
(*Not to be reproduced without the permission of BIS or used as an Indian Standard*)

Draft Indian Standard

WALKABLE CITY — INDICATORS

ICS No. 91.020, 13.020.20

Smart Cities Sectional Committee, CED 59 Last date of comments
10 July 2025

FOREWORD

Formal clauses will be added later.

Urbanisation is a continuing phenomenon for India and is accompanied by the growing densification of the cities, marked by rising vertical growth and mounting number of motorised vehicles. To accommodate the rising number of motorised vehicles, the cities widen the carriage way, often by absorbing the appurtenant walkways. The remnant walkways are usually marked by encroachments and/or poor maintenance. A fallout of this trend is the decline in the opportunity for walking down, even for shorter distances, in most cities. This, in turn, leads to enhanced dependence on motorised vehicles, leading to poorer air quality and rising risks of road accidents. Improvement in the walkability of the cities is widely acknowledged as a facilitator for improving the quality of life for the citizens, even while pursuing to make the cities smart. Walkability is also an integral part of Transit-oriented Development (TOD) planning for a city.

Walkable cities improve the physical, social and economic well-being of the residents and improve the overall quality if living in the city. The core components of a walkable city are the availability, convenience, safety and security of the walkers and attractiveness of walking as a preferred mode of commutation at least for shorter distances. This objective can be achieved by putting in place adequate arrangements for the walking related planning and infrastructure and policy support made available by the governments at various levels, along with the requisite technical, managerial and financial support. Each of these components would have further sub-components such as maintenance and cleanliness of the walking paths, accessibility for usage by the persons with disabilities, planned street vending zones, maintenance of the acceptable ambient air quality and noise levels, and so on.

Various organisation in the government and non-government sectors have developed standards and norms on issues that are related to planning and development of streets, including street furniture and usage practices. Efforts have been made to incorporate the relevant features of such documents, while preparing this document.

Assistance has been derived from the following publications in the drafting of this standard:

a) Motor Vehicles Act 1988
b) IRC 103:2012 'Guidelines for Pedestrian Facilities'
c) Book on Road Safety Signages and Signs, Ministry of Road Transport & Highways
d) The global walkability index: Talk the walk and walk the talk, by Holly Krambeck and Jitendra (Jitu) Shah
e) A metric of the difference between perception of security and victimisation rates Rafael Prieto Curiel & Steven Richard Bishop, *Crime Science* Volume 5, Article number: 12 (2016),
f) Access for All Series- Policies for Inclusive TOD: Access and Babies, Toddlers, and Their Caregivers, published by Institute for Transportation and Development Policy and the Bernard van Leer Foundation
g) IRC:SP:91-2010 'Guidelines for Road Tunnels'
h) MoRTH Book on Road Safety Signages & Signs, 2015 Rules of the Road Regulations, 1989, GOI (MoRTH)

This standard contributes to the Smart Community Infrastructures Goals, namely SDG 3: 'Ensure healthy lives and promote well-being for all at all ages', SDG 5: 'Achieve gender equality and empower all women and girls', SDG 8: 'Promote inclusive and sustainable economic growth, employment and decent work for all', SDG 10: 'Reduce inequality within and among countries', SDG 11: 'Make cities inclusive, safe, resilient and sustainable', SDG 13: 'Take urgent action to combat climate change and its impacts', and SDG 15: 'Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss'.

Draft Indian Standard

WALKABLE CITY — INDICATORS

1 SCOPE

This document specifies the general technical requirements for development and maintenance of safe and convenient walkways in the cities. It is intended to guide the design and upkeep of the walking segment of the street systems in urban areas, including for the purposes of planning, development, and maintenance. It is also applicable for redesigning and redevelopment activities.

2 REFERENCES

The standards listed in Annex A contain provisions, which through references in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards.

3 TERMS AND DEFINITIONS

For the purposes of this document, the terms and definitions as given below shall apply.

3.1 Motor Vehicle Or Vehicle — any mechanically propelled vehicle adapted for use upon roads whether the power of propulsion is transmitted thereto from an external or internal source and includes a chassis to which a body has not been attached and a trailer; but does not include a vehicle running upon fixed rails or a vehicle of a special type adapted for use only in a factory or in any other enclosed premises or a vehicle having less than four wheels fitted with engine capacity of not exceeding1 [twenty-five cubic centimetres].

3.2 Owner — a person in whose name a motor vehicle stands registered, and where such person is a minor, the guardian of such minor, and in relation to a motor vehicle which is the subject of a hire-purchase, agreement, or an agreement of lease or an agreement of hypothecation, the person in possession of the vehicle under that agreement.

4 GENERAL PROVISIONS

4.1 Cities make a continuous endeavour towards achieving better quality of life for the citizens keeping also in view the emerging challenges from time to time. Walkability in a habitat provides one of the prominent means towards achieving the objective. Walkability in turn can be guided by a number of indicators directly or indirectly connected to sustainable development and better management of habitats.

4.2 The indicators covered in this standard pertain to four broad components, namely, availability of walkways, safety and security, convenience and attractiveness, and

policy support. Each of these is divided into various sub-components. However, all these indicators may not apply in equal measure for all cities and communities and local variations may need to be factored in suitably.

5. **AVAILABILITY OF WALKWAYS**

5.1 Percentage of Road Network with Usable Pedestrian Pathway/Footpath Network

5.1.1 *General*

Sustainable cities should have equitable streets with priority to pedestrian infrastructure. The city should have street network to ensure safe and efficient access for all users including pedestrians. A transportation system that is conducive to pedestrian movement can reap many benefits in terms of reduced road fatalities and improved quality of life. Economic rewards both to the individual and to society are also realized through reduced health care costs and reduced dependency on auto ownership and resulting in reduction in insurance, maintenance and fuel costs. Pedestrian pathway/footpaths also require relatively small infrastructure investments as compared to other types of transportation infrastructure and therefore, less environmental impact. The pedestrian pathway/footpath network system needs to be connected and continuous, just like roadways and railways.

5.1.2 *Indicator Requirements*

Percentage of road networks with safe usable pedestrian pathway/ footpath shall be calculated as length of usable footpath (numerator) per total road length (denominator). The result shall be expressed as the percentage by multiplying by 100.

> NOTE — Public walks shall be at least 1 200 mm wide and shall have a gradient not greater than 1 in 20, as prescribed in IS 4963.

5.1.3 *Data Source*

The data can be obtained from agencies engaged with planning and maintenance of roads in the city.

4 SAFETY AND SECURITY

4.1 Pedestrian signals and signages

4.1.1 *General*

Pedestrian signals and signages are safety devices for the road users that guide and regulate pedestrian traffic, indicating when and where it is safe to cross roads, and alerting drivers to the presence of pedestrians. These devices also help the pedestrians to use the roads and walkways comfortably.

Pedestrian signals are intended to indicate to the walkers that it is safe either to continue the walk or not. Pedestrian signals are generally dynamically operated through electricity, whereas signages are static displays. In some cases, pedestrians need to press a button to activate the walk signal.

Pedestrian signages and signs provide a permanent indication for pedestrians as well as other road users including motorists, about the discipline and privileges for usage of the road by the walkers. These signages are placed on poles for clear visibility and have standardised dimensions, design and colour scheme. The Motor Vehicles Act 1988 has, in Schedule I, lays down the standard shapes and designs for the road signages and classified them into three categories, namely:

Mandatory Road Signs — These sign are absolutely necessary for ensuring safety of all road users including the pedestrians. Examples are Speed Limit, Closed to Axle over xxx Tonnes, No Parking, No Honking, No Overtaking, No Right/Left Turn, Vehicle Load Limit, All Motor Vehicles Prohibited, etc. The Mandatory road signs are generally round in shape with red border, though some are in blue colour as well. Stop and Give Way signs are in octogen and inverted triangle shapes, respectively.

Cautionary Road Signs: The signs of this Part shall be used in conjunction with a red triangular plate, the centre of which shall be either hollow or painted white. Examples are Rough Road Ahead, Zig-zag Road Ahead, Cross Road, Level Crossing Guarded/Unguarded, Compulsory Left Turn, Compulsory Right Turn, Dead-end Cross Road, School nearby, Steep Hill, Ferry Point, Hair-Pin Bend Left/Right and Narrow Bridge, etc.

Informative Road Signs: These are to provide to the road users such information that may not be related to road safety but would make the road usage more helpful and comfortable. Examples are indication of destinations, parking area, roadside facilities such as petrol pump, hospital, eateries, end of road etc. The informative road signs are generally blue in colour.

Violation of the mandatory road signs invites penal action including fine, under the MV Act. Violation of the cautionary road signs and informative road signs does not invite penal action or fine, under the MV Act. However, they deserve full attention by all road users, as any violation could have potential of causing major accidents.

4.1.2 *Indicator Requirements*

The design, dimensions, and colour scheme of the road signs is prescribed in Schedule I of the MV Act 1988, and the Central and State Governments are empowered to introduce additions to the transcript indicated in the Schedule I.

4.1.3 *Data Source*

The City Traffic Police has to prepare the Pedestrian Signages & Signs Plan, listing out the locations and requirements, in consultation with the road maintaining agencies. The traffic police are expected to maintain the information on the availability of the same.

4.2 Crossing safety

4.2.1 *General*

The pedestrians have the right-of-way over vehicles, vide Rule 11 of the Rules of the Road Regulations, 1989. This right of the pedestrians is heightened at marked crosswalks or when a pedestrian signal indicates that it is safe to cross.
Pedestrian safety is indicated by the availability of the pedestrian crossing signs, zebra crossings, pedestrian subways, pedestrian refuges and traffic islands, adequate street lighting, and continuity and consistency in the levels of the walkways.

NOTE — The design standards for the pedestrian safety facilities and infrastructure mentioned in **4.2.1** above are available in IRC 103:2012 'Guidelines for Pedestrian Facilities'.

4.2.2 *Data Source*

The City Planning Department of the Municipality has to prepare the City Mobility Plan, listing out the requirements of the pedestrian safety facilities and infrastructure and the traffic police are expected to maintain the information on the availability of the same.

4.3 Walking Path Modal Conflict

4.3.1 *General*

Walking path modal conflict refers to the extent of conflict between pedestrians and other modes of transport, such as bicycles, motorcycles, and cars, on shared roads or paths, impacting pedestrian safety and mobility.

4.3.2 *Indicator Requirements*

Walking path modal conflict should be measured as the time taken in excess of 5 minutes for the walkers to wait for crossing the road owing to the primacy given (or taken) by other modes of transport, such as bicycles, motorcycles, and cars, on shared roads or paths, impacting pedestrian safety and mobility.

4.3.3 *Data Source*

The information may be collected through local surveys. CCTV cameras, where available, may also be used to obtain the information for the survey.

4.4 Quality of motorist behaviour

4.4.1 *General*

As already mentioned in **4.2.1**, pedestrians have the right-of-way over the vehicles. Accordingly, in locations where pedestrians are not barred but have no traffic lights, all vehicles must yield to allow the pedestrian to move/cross over.

Quality of motorist behaviour can be assessed by observing (a) their willingness for yielding to the pedestrians, (b) following safe driving speed in heavily pedestrianized areas, and (c) yielding to red traffic lights and stop signs.

4.4.2 *Indicator Requirements*

Willingness of the motor vehicle drivers for yielding to the pedestrians, can be measured by recording the number of minutes a pedestrian has to wait for crossing over the road in the absence of traffic signals.

Observing safe driving speed by the motorists in heavily pedestrianized areas should be measured by computing the ratio of the number of instances of breaching of speed limits by all types of motor vehicles in the specified stretch of road, to the total number of motor vehicles passing through the same stretch. The ratio so computed shall be presented as a percentage.

Observing the norm of yielding to red traffic lights and stop signs by the motorists should be measured by computing the ratio of the number of instances of breaching of red traffic lights and stop signs by all types of motor vehicles in the specified stretch of road, to the total number of motor vehicles passing through the same stretch. The ratio so computed should be presented in percentage term.

4.4.3 *Data Source*

The information may be collected through local surveys. CCTV cameras, where available, may also be used to obtain the information for the survey.

4.5 Perception of security from crime

4.5.1 *General*

The perception of security or insecurity from crime might cause people to change their behaviour towards walkability, as they might avoid walking on stretches perceived to be unsafe, or to adopt other stretches that they perceive as safe. The ‘perception’ may or may not be the same as the actual status, and hence may lead to unduly large public expenditure for deployment of extra police staff and the like. Hence it is necessary to keep a dynamic assessment of the perception of security from crime, and compare it with the actual reports, and to keep the citizens informed.

4.5.2 *Indicator Requirements*

Expressing the number of people who consider a region to be insecure as a ratio to the total number of people, produces a number between 0 and 1, where a value close to 0 means that the region is considered to be secure, and a value of close to 1 means that the region is considered to be insecure. This ratio may be presented in percentage terms as well.

4.5.3 *Data Source*

The information may be collected through local surveys. A typical question for the survey could be "*How safe do you feel walking alone in this area after dark?*. A review of the calls made to the Police Control Room or Police Helpline may also provide additional information.

4.6 Pedestrian fatalities

4.6.1 *General*

A pedestrian fatality is defined as one that occurs in a road accident within 30 days of the accident. A road accident is an unpremeditated event reported to police, or other relevant authority, that results in death, injury or property damage, and is attributable to the movement of a road vehicle on a public road.

Pedestrian fatalities are serious issues for the cities and adversely influence the popularity of walking as a means of mobility in the city.

NOTES

1 Road vehicles include, but are not limited to cars, trucks, light commercial vehicles, buses, three-wheelers, motorcycles and tri-rikshaws, and bicycles.

2 This definition of pedestrian fatality excludes accidents in driveways, car parks, roads that are closed to the public and off road areas such as farms.

4.6.2 *Indicator Requirements*

The number of pedestrian deaths (or fatalities) per 100 000 population shall be calculated as the total number of reported deaths of pedestrians (numerator) divided by 100 000th of the city's total population (denominator). The result shall be expressed as the number of deaths by suicide per 100 000 population.

NOTE — Death by suicide shall refer to acts deliberately initiated and performed by a person who fully acknowledges the fatal outcome of such acts.

4.6.3 *Data Source*

The National Crime Records Bureau compiles state-wise information on accidental deaths and suicides in India (ADSI) and publishes the same annually on its website. This data is generated by the police station houses and compiled at district and state levels. The ADSI also contains city-wise information in respect of cities having population of over 10 lakh. For other cities, police station-wise data can be consolidated to generate city level information.

5 CONVENIENCE AND AESTHETICS

5.1 Maintenance and cleanliness of walking paths

5.1.1 *General*

Maintenance of walking paths involves regular upkeep to ensure safety and usability, while cleanliness focuses on removing debris and litter to maintain a pleasant environment.

Maintenance would include repairing the road cracks, potholes, and other structural issues, ensuring even and unobstructed surfaces, removing overgrowth and ensuring clear pathways. It would also include drainage maintenance for ensuring proper water flow and preventing waterlogging.

Cleanliness includes regular collection of trash, leaves, and debris, removing unwanted paintings, graffiti, posters etc. and pressure washing the paved surfaces to remove dirt and grime.

5.1.2 *Indicator Requirements*

For assessing the road surface condition, measure the frequency and severity of cracks, potholes, and uneven surfaces using a standardized scale (like 1-5, with 1 being excellent and 5 being unacceptable).

The extent of unwanted paintings, graffiti, posters etc should be measured by counting the area of these in per square feet in aggregate and dividing it by the area of the road surface (length x width) and converting the result to percentage.

5.1.3 *Data Source*

The information may be collected through surveys.

5.2 Existence and quality of facilities for blind and disabled persons

5.2.1 *General*

Persons with any kind of mental or physical (including visual) disability deserve the availability of suitable provisions to make use of the walkways safely and conveniently. This would require properly laid tactile pavers and guide blocks for the visually impaired persons, and a series of ramps or slopes integrated into the level change to facilitate wheelchair users.

5.2.2 *Indicator Requirements*

The ratio of the length of the pedestrian walkway that is covered with properly laid tactile pavers and guide blocks for the visually impaired persons, to the total length of the pedestrian walkway in the city/ward/neighbourhood, shall give measure for this indicator. It can be presented in percentage terms as well.

The ratio of the total number of level changes that are equipped with ramps or slopes integrated into the level change to facilitate wheelchair users, to the total number of the level change available in the city/ward/neighbourhood, shall give measure for this indicator.

The design of the pedestrian walkways shall conform IS 4963.

5.2.3 *Data Source*

The road maintenance agencies are expected to maintain the inventory of subject matter of this indicator. In the absence of such inventory, a fresh survey shall be conducted.

5.3 Amenities (like, street lights, water taps, benches, public toilets)

5.3.1 *General*

Street lighting permits users of the streets to move about with safety and comfort for self as well as for others, especially at night. It also enhances the feeling and availability of safety for the residents. It also makes post-sunset life more lively and interactive.

Similar benefits are provided to the pedestrians through the availability of water taps, benches, and public toilets along the walkways.

Caregivers carrying or accompanying babies and toddlers shall also need special amenities /place to feed a baby or soothe a temperamental toddler.

NOTE
1 IS 1944 provides the a series of standards for selection of street lights and its placement along the roads, which shall be referred to in planning for the street lights in walkways.
2 Access for All Series- Policies for Inclusive TOD: Access and Babies, Toddlers, and Their Caregivers, published by Institute for Transportation and Development Policy and the Bernard van Leer Foundation may be referred for details regarding special amenities for access and babies, toddlers, and their caregivers

5.3.2 *Indicator Requirements*

Percentage of walkways with street lights shall be calculated as ratio of the length of the walkways that is covered with street lights (numerator) to the total length of the walkways (denominator). The result shall be expressed as the percentage by multiplying by 100.

5.3.3 *Data Source*

The data can be obtained from agencies engaged with planning for and maintenance of roads in the city.

4.4 Permanent and temporary obstacles on walking paths

5.4.1 *General*

Permanent obstacles on walking paths, could be the ruts, roots, rocks, protruding objects, unauthorised kiosks, hawkers, encroachments by the adjoining shops and buildings, commercial signboards and potholes etc. Temporary obstacles on walking

paths would be construction materials, various kinds of waste including debris, parked vehicles, etc.

5.4.2 *Indicator Requirements*

The indicator for this purpose shall be computed by determining the ratio of the length of pedestrian walkway that is subject to permanent or temporary obstacles (numerator) to the total length of the pedestrian walkway (denominator). The result shall be expressed as the percentage by multiplying by 100.

5.4.3 *Data Source*

The data can be obtained from agencies engaged with planning and maintenance of roads in the city.

4.5 Avenue trees

5.5.1 *General*

Avenue trees provide protection against sharp sunlight, dust, noise, rain, vehicular emissions, besides making the surroundings more pleasant, being abode of many types of flora and fauna. However, the more desirable variety and spread of the avenue trees would be the ones that provide thick foliage and touch the canopy of each other.

5.5.2 *Indicator Requirements*

Percentage of walkways with avenue trees shall be calculated as ratio of the length of the road networks that is covered with avenue trees (numerator) to the total road length (denominator). The result shall be expressed as the percentage by multiplying by 100.

5.5.3 *Data Source*

The data can be obtained from agencies engaged with planning for and maintenance of roads in the city.

NOTE — At times, a specialised agency may be responsible for maintaining the avenue trees.

5.6 Ambient air quality

5.6.1 *General*

The concentration of particulate matter (PM) in the air is harmful to human health and deters the walkers. The range of health effects is broad but is predominantly to the respiratory and cardiovascular systems. The more concerning type is PM2.5, which comprises PM that are 2.5 micron or less in diameter. PM10 is also considered as harmful.

5.6.2 *Indicator Requirements*

PM2.5 concentration shall be calculated as the total mass of collected particles that are 2.5 micron or less in diameter (numerator) divided by the volume of air sampled (denominator). The result shall be expressed as the concentration of PM2.5 in micrograms per cubic meter (µg/m3). The method for measurement shall involve the use of an air sampler, which draws ambient air at a constant flow rate into a specially shaped inlet where the suspended particulate matter is initially separated into one or more size fractions within the PM2.5 size range. The 24 h (daily) measurements of PM2.5 concentrations are computed and the data is 24 h and annually compiled for each monitoring stations.

Measurement of PM10 levels follows similar protocol.

5.6.3 *Data Source*

The Central Pollution Control Board (CPCB) is executing a nation-wide programme of ambient air quality monitoring known as National Air Quality Monitoring Programme (NAMP). The network consists of operating stations in numerous cities/towns in all the states and union territories and the coverage is expanding.

5.7 Ambient noise levels

5.7.1 *General*

Ambient noise deters the people from using the walkways, except for bare necessities. Much of the noise on the streets is caused by the motorised vehicles plying around. However, unregulated social and commercial activities in the surrounding areas also create noise.

Regarding the motorised vehicles, Rule 21 of the Rules of the Road Regulations, 1989 mandate that the driver of a vehicle shall not drive a vehicle creating undue noise when in motion or with a muffler causing alarming sound. As for the sound generated by the commercial activities, the provisions under the Noise Pollution (Regulation and Control) Rules, 2000 and the local Municipal Laws regulate the matter.

> NOTE — Another useful indicator of the noise levels in a city is the degree of annoyance as specified in ISO/TS 15666: 2021‘Acoustics – Assessment of noise annoyance by means of social and socio-acoustic surveys’.

5.7.2 *Indicator Requirements*

Noise pollution shall be calculated by mapping the noise level, L (day-evening-night) likely to cause annoyance and identifying the areas of the village where L is greater than 55 dB(A) and estimating the population of those areas as a percentage of the total village population. The result shall be expressed as the percentage of the population affected by noise pollution.

The Noise Pollution (Regulation and Control) Rules, 2000 defines the upper limits for noise pollution in the ambient air. The State Government, local bodies and other authorities are notified for enforcing these standards.

NOTES
1 The noise likely to cause annoyance may be estimated as per ISO 1996-2 : 2017 'Acoustics — Description and measurement of environmental noise — Part 2: Acquisition of data pertinent to land use'.
2 The noise pollution can also be recorded as L (night) and when exceeding 50 dB(A) is likely to cause sleep deprivation.

5.7.3 *Data Source*

Average concentrations are measured by monitoring equipment and reported to air quality monitoring authority (that is city environment office, national/ state environment office, etc), notified by the states under the *Noise Pollution (Regulation and Control) Rules*, 2000.

4.8 Planned Street Vending Zones

5.8.1 *General*

Street vending adds to the pleasure and convenience of many of the walkers. However, unplanned and unauthorised street vending leads to chaos and unhygienic conditions on the streets and walkways. It is desirable to have planned zones for street vending, which does not affect the designated pathway space. This is also a legal requirement under the provisions of the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act 2014.

5.8.2 *Indicator Requirements*

This indicator is to be determined in terms of the ratio of the number of street vendors operating in notified zones for street vending to the total number of street vendors operating in the city. The ratio should be expressed in percentage terms.

5.8.3 *Data Source*

The municipality is expected to issue licences for the street vendors within and outside the notified zones for street vending and maintain the database as well. In some states, the police department also regulates the street vending.

5.9 Proximity to Essential Services Like Grocery Stores, Parks, And Public Transport

5.9.1 *General*

Majority of the daily trips of a citizen, other than to office, business or school, are for visits to the grocery stores, pharmacy, parks, or playgrounds. If these services are located in convenient proximity of the walkways, the citizens shall normally feel encouraged to walk up. In case any such service is located beyond a walkable distance, then the walkway should provide a convenient mode to reach a public transport station/stop.

The Development Control Regulations of the city shall ensure the availability of walkable streets/paths from each neighbourhood to reach the essential services like grocery stores, parks, and public transport station/stop within around 20 minutes of walk (one way), which would translate to a maximum length of one km of comfortable walk.

It is also desirable to amend the city development plan to ensure walkable proximity to essential services, if an amendment is called for.

5.9.2 *Indicator Requirements*

This indicator should be computed in terms of assessment of the average distance that a resident is required to cover (in kms) so as to reach the essential services like grocery stores, pharmacy, parks, playgrounds and public transport in the respective neighbourhood. Availability within one km shall be considered satisfactory, whereas if any service is located beyond one km, then efforts shall be made to induce bringing such essential service within the desirable radius.

5.9.3 *Data Source*

The City Master Plan and Development Plan, maintained by the municipality and the town planning department should make available the required information.

6 POLICY SUPPORT

6.1 Funding and resources devoted to pedestrian planning

6.1.1 *General*

Planned mobility drives planned urbanisation. Pedestrians have the primary right of way over the other modes of transport, subject, however, to appropriate planning. Accordingly, City Planning should have a necessary component of pedestrian planning and the city authorities need to provide the required funding and manpower.

It should be noted that the pedestrian planning for a city would need constant monitoring, to bring in changes as required from time to time.

6.1.2 *Indicator Requirements*

The City Planning Department needs to have adequate financial, technological, material and manpower resources to undertake pedestrian planning and monitoring its implementation from time to time. The effectiveness of the pedestrian planning and construction methodology shall also be reviewed periodically. The financial provisions for this purpose should be reflected in the Expenditure Budget as well as the Outcome Budget.

6.1.3 *Data Source*

The Expenditure Budget and the Outcome Budget of City Planning Department shall provide the required information.

6.2 Presence of relevant urban design guidelines with street connectivity

6.2.1 *General*

The primary source of urban design guidelines is the Urban and Regional Development Plan Formulation and Implementation (URDPFI) Guidelines 2015, issued by the MoHUA. In addition, the State Town & Country Planning Laws also provide valuable directions for the purpose. However, the day-to-day approvals of development plans for the city are contained in the City Master Plan (CMP), zonal plans (ZP), local area plans (LAP), and the development control regulations (DCR). Still, may cities do not have the updated CMPs, ZPs, LAPs and DCRs with focus on the pedestrians' requirements, leading to decimation of the walking infrastructure.

6.2.2 *Indicator Requirements*

It is necessary to ensure that CMP, ZP, LAP and the DCR contain the relevant urban design guidelines with street connectivity.

6.2.3 *Data Source*

The city municipality and the State Town & Country Planning Department are required to maintain the required information in the form of maps and supporting database.

6.3 Existence and enforcement of relevant pedestrian safety laws and regulations

6.3.1 *General*

A series of rules and regulations relating to pedestrian safety are available under the provisions of the Motor Vehicles Act 1988, which is a Central legislation. The critical requirement is two-fold: that is (a) availability of the legal provisions for pedestrian safety in a consolidated form, and (b) availability of the effective arrangements for enforcement of the pedestrian safety laws and regulations, as enforcement is to be carried out by the agencies of the state governments and the local authorities, such as the police, the RTO, the municipality etc.

6.3.2 *Indicator Requirements*

The State Governments are required to issue the various regulations and notifications relating to pedestrian safety, by way of gazette notifications. It is also important to give wide publicity such notifications and the status of enforcement through signages, social media and other possible means.

6.3.3 *Data Source*

The web portal of the Road Transport Department should display all the relevant pedestrian safety laws and regulations and the status of enforcement.

6.4 Degree of public outreach for pedestrian and driving safety and etiquette

6.4.1 *General*

Enactment and promulgation of the relevant laws and regulations relating to pedestrian safety needs to be given wide publicity such through signages, social media and other possible means. Cities should observe the Road Safety Month (18 Jan to 17 Feb) and similar other event, to bring home the various aspects of pedestrian and driving safety and etiquette among all the citizens and others concerned.

6.4.2 *Indicator Requirements*

The degree of public outreach for pedestrian and driving safety and etiquette can be measured in a number of ways, few of which are:

a. The web portal of the Road Transport Department should display all the relevant pedestrian safety laws and regulations and the status of enforcement.

b. The city should declare Road Safety Month with a detailed and exhaustive calendar of events to create awareness and ownership about the pedestrian and driving safety and etiquette and related matters.

6.4.3 *Data Source*

The web portal of the Road Transport Department should display all the relevant information relating to public outreach for pedestrian and driving safety and etiquette.

ANNEX A
(*Clause* 2)

LIST OF REFERRED STANDARDS

IS No.	*Title*
IS 4963: 2025	Accessibility in built environment for older adults and persons with disabilities — Requirements (*second revision*)
IS 1944	Code of practice for lighting of public thoroughfares
(Part 1 & 2) : 1970	Code of practice for lighting of public thoroughfares (First Revision)
(Part 5) : 1981	Code of practice for lighting of public thoroughfares: Part 5 lighting for grade separated junctions, bridges and elevated road (Group D)
(Part 6) : 1981	Code of practice for lighting of public thoroughfares: Part 6 lighting for town and city centres and areas of civic importance (Group E)
(Part 7) : 1981	Code of practice for lighting of public thoroughfares: Part 7 lighting for roads with special requirements (Group F)