
PEDESTRIANS
FIRST
TOOLS FOR A WALKABLE CITY
ITDP

PEDESTRIANS FIRST

TOOLS FOR A WALKABLE CITY

ITDP

Institute for Transportation and Development Policy
Pedestrians First, Tools For a Walkable City. 1st ed. New York: ITDP, 2018.
WWW.ITDP.ORG

ACKNOWLEDGEMENTS: Iwona Alfred, Danielle Hoppe, Chris Kost, Luc Nadal, Daniel Paschall and ITDP staff in Africa, Brazil, China, India, Indonesia, Mexico and Global.

DESIGN: Igloo / Griselda Ojeda
ILLUSTRATIONS: Pamela Medina

PHOTO CREDITS:
Cover: ITDP India
Pages: 21, 47, 51: ITDP Global, 35, 43: Luc Nadal, 37: Jinglu Zhu, 39: Chris Kost, 33, 41, 45: ITDP Mexico, 49: Felipe Mendoza, 53: Sonia Medina

TABLE OF CONTENTS

INTRODUCTION

WALKABILITY IS A CRUCIAL FIRST STEP IN CREATING SUSTAINABLE TRANSPORTATION IN AN URBAN ENVIRONMENT.

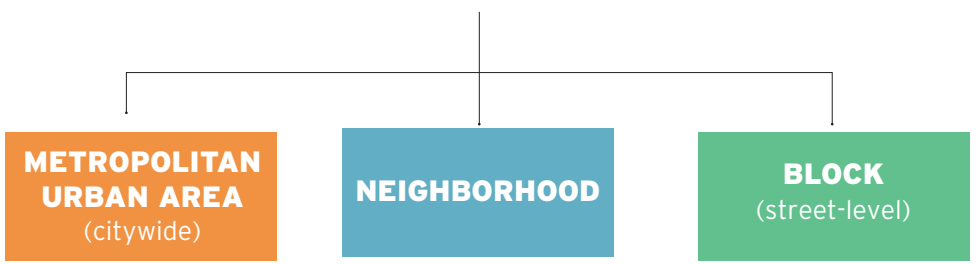
However, effectively understanding and measuring the complex ecology of walkability has proven challenging for many organizations and governments, given the various levels of policy-making and implementation involved. In the past, Western and Eurocentric standards have permeated measurement attempts and have included data collection practices that are too complicated to have utility in many parts of the world or at a level beyond that of the neighborhood. In order to expand the measurement of walkability to more places and to promote a better understanding of walkability, ITDP has developed Pedestrians First. This tool will facilitate the understanding and the measurement of the features that promote walkability in urban environments around the world at multiple levels. With a better global understanding of walkability, and more consistent and frequent measurement of the walkability of urban environments, decision-makers will be empowered to enact policies that create more walkable urban areas.

HOW TO USE THIS TOOL

ITDP'S PEDESTRIAN FIRST IS A MECHANISM FOR TRACKING, MEASURING, AND UNDERSTANDING THE FEATURES THAT PROMOTE WALKABILITY IN CITIES.

The tool is designed for worldwide use as it can be applied successfully in both lower- and higher-income cities. It uses easy-to-measure and understand metrics and can be used to compare cities, foster understanding of walkability, and track progress in creating a walkable environment.

The tool has indicators for three different levels:



The scope of these levels is defined more comprehensively below in each level's section. Each of the levels has a different core function, target audience, purpose, and type of intervention, which are summarized and in **TABLE 1** below.

TABLE 1: A summary of the functionality of Pedestrians First.

COMPONENT	DESCRIPTION	TARGET POPULATION	PURPOSE	TYPE OF INTERVENTION
CITYWIDE WALKABILITY COMPARISION	Database of high-level, easy-to-measure qualities of a metropolitan area that facilitate walkability.	• Decision-makers • Advocates • Planners and policymakers	• Facilitate comparisons • Foster understanding • Track progress • Disseminate data	• Urban planning • Zoning • Growth control policies • Subdivision planning
NEIGHBORHOOD WALKABILITY ASSESSMENT	Analysis and data collection tool for accurate and detailed measurement of neighborhood-level walkability.	• Technical practitioners • Technical advocates • Local advocates	• Foster understanding • Facilitate consistent measurement • Facilitate tracking • Facilitate comparisons	• Urban planning • Zoning • Building regulations • Street design
STREET-LEVEL WALKABILITY DESIGN CHECKLIST	Checklist of the detailed design solutions that facilitate walkability at the block level.	• Technical practitioners • Technical advocates • Local advocates	• Foster understanding • Give guidance for implementation and evaluation	• Street design • Urban design

To compare cities and metropolitan areas and/or to understand the foundation for walkability in a specific city, the **Citywide Walkability Comparison** on page 18 should be used. This component has one high-level, easy-to-measure indicator of design that facilitates walkability. ITDP maintains and updates a database that tracks this indicator. Since ITDP collects and analyzes this data for many cities around the world, using the database save users time. This indicator is most useful for decision-makers and advocates to help them foster understanding of the foundations of walkability, the potential for walkability in their city, and what is needed to improve walkability. It is also particularly useful for comparisons between cities, as it is easily understood and measured, and for tracking progress over time.

To perform a detailed analysis of walkability in a small area of a city, such as a neighborhood, or around a transit station, the **Neighborhood Walkability Assessment** on page 28 should be used. The neighborhood assessment component is has 11 walkability metrics that enable consistent measurement of the most important factors affecting walkability in cities worldwide, including safety, convenience, and accessibility. The metrics are intended to capture urban walkability at a more localized level, in a way that is reliable, objective, and easy to measure. Because these are more detailed metrics than the citywide metrics, they require more data, and take more time, and some technical skills, to calculate, and typically require field data collection. While gathering the data and applying the metrics may require significant work and technical skills, the use of the processed data should be accessible to anyone who is motivated and who has a middle school or high school education. This component is intended to be used by planners, technical advocates, and local community advocates. The metrics mirror those used in ITDP's TOD Standard, which examines aspects beyond walkability, allowing quick comparison to best practice transit-oriented developments worldwide.

To understand more detailed design features at the block level that facilitate walkability, the **Street-Level Walkability Design Checklist** on page 62 should be used. The Design Checklist is based on best-practice walkability documents from a variety of non-governmental organizations from around the world. The checklist

enables urban planners, decision-makers, and other practitioners to conduct an inventory of the factors specific to the block level that create an accessible, comfortable, and even enjoyable walking environment. The street-level metrics supplement the metropolitan- and district-level metrics, which measure the more basic features that support walking, and the combination of all three sets of metrics will give a comprehensive picture of walkability. The checklist metrics are intentionally subjective, enabling regional variability in their implementation. The results should facilitate more targeted, nuanced, and effective policy implementation.

Practitioners, consultants, government officials, and advocates at different levels can use these three components. With a concise set of core indicators that best support walking, the citywide and neighborhood components enable users to quickly and objectively compare walkability across all types of cities and neighborhoods, while the Design Checklist enables a more detailed but less objective review of comfort and enjoyability. While this tool does not measure walking itself, the metrics have been proven to support walking, especially as cities grow larger and wealthier and residents have more options for getting around.

THE PROBLEM

WALKABILITY IS THE FOUNDATION OF ANY TYPE OF TRANSPORTATION; ALL TRIPS REQUIRE WALKING AT SOME POINT.

However, there is no way to effectively measure walkability that allows for comparison between cities, neighborhoods, and blocks in both lower- and higher-income countries. Many attempts to measure walkability fail to capture all of its nuances in an urban context. Other attempts to measure walkability involve complicated indices that leave the user with a score, but with little understanding of how that score was calculated, or how to improve it, or how it relates to walkability. Further still, many walkability measurements provide tools only for the block or the neighborhood, instead of offering a holistic understanding. This tool seeks to account for the nuances of walkability while also avoiding problems that many existing walkability tools do not take into account.

This tool aims to improve on other walkability tools, using:

- Examples from around the world that make it easy to apply in nearly all contexts.
- Data inputs that are relatively quick and inexpensive to collect.
- Metrics that are easy to understand and are designed to avoid hidden biases.
- An understanding of walkability at multiple levels (the block, neighborhood, and citywide).

THE METRICS CHALLENGE

WALKABILITY SUFFERS FROM THE CLASSIC METRICS PROBLEM; THAT IS, THE SUBJECT TO BE MEASURED IS INFLUENCED BY A LARGE NUMBER OF FACTORS.

To be as accurate as possible, a highly complex tool is needed, but to be useful to practitioners, a simplified tool is preferable. Balancing these competing needs is a challenging endeavor, evidenced by the multitude of walkability measurement tools already developed by university researchers, development banks, and other non-governmental organizations. In order to be useful, metrics must not be overly resource- and time-consuming, but must also capture the elements of a city that are most important to the basic building blocks of walkability. Meanwhile, they have to be easy to measure with as reliable and objective as possible data.

GOALS AND APPROACH

THE PRIMARY GOAL OF THIS TOOL IS TO CREATE A SET OF METRICS THAT MEASURE WALKABILITY IN A WAY THAT IS NUANCED, EASILY UNDERSTOOD, AND CAN BE REPRODUCED.

The tool is intended to avoid the aforementioned pitfalls of many walkability measurement tools. To that end, **Pedestrians First** has metrics that:

- Are clear and easy to understand.
- Avoid biases and create clarity.
- Create clear data collection practices that can be easily replicated.
- Rely on readily available data.
- Are applicable globally.

In order to accomplish this, ITPD has created a tool that avoids indices, has a transparent methodology, and requires data inputs that are freely available worldwide. The metrics used are easily understood, applicable in a number of contexts, and represent a nuanced approach to understanding walkability in an urban environment.

FRAMEWORK FOR METRICS SELECTION

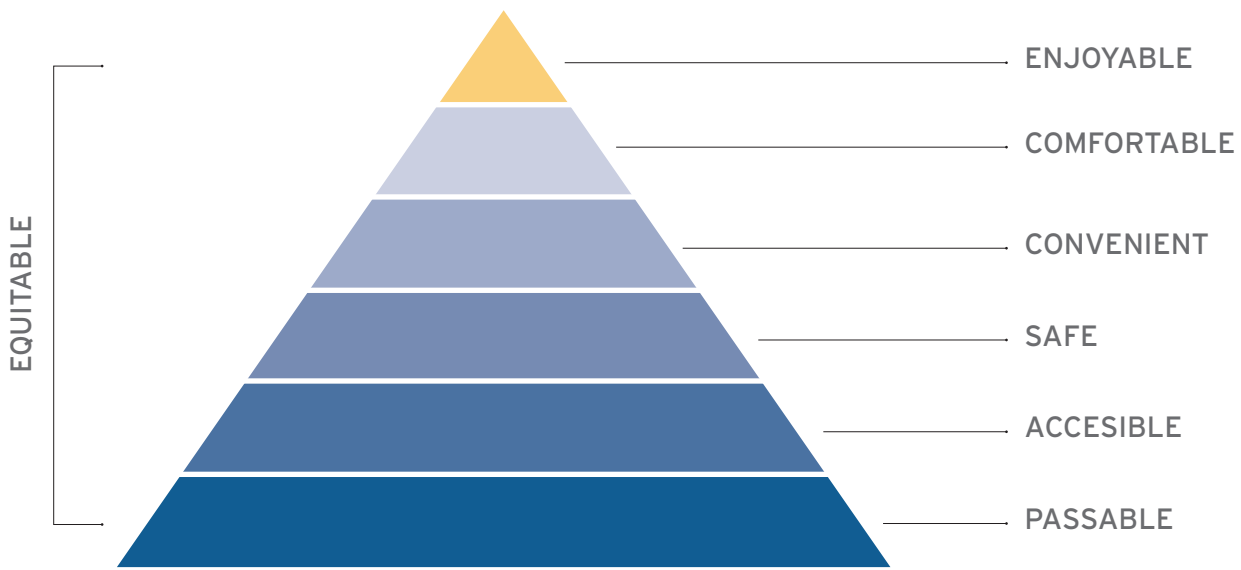
The process of selecting metrics for measuring walkability stems from ITDP's TOD Standard: **"Land uses and urban forms should be organized to support walking as the primary form of mobility, by providing safe, active, continuous, and well connected pedestrian spaces within dense, mixed and accessible neighborhoods interconnected by public transport."** This sets the stage for measuring the presence of core metrics, which are the prerequisites needed to support walking.

The tool has three different levels of measures: metropolitan, neighborhood, and street. The metropolitan-level metrics, block density and weighted residential density, can be measured and compared at the metropolitan level. More nuanced and detailed metrics (e.g., mixed-use development and safe, complete streets) are better assessed at the neighborhood level. Finally, the street-level checklist more closely examines what makes walking not only possible but attractive. While all of these metrics are important at all three levels, the indicators have been spread across the levels to enable the tool to be easily used with readily available data. For example, the length of blocks is measured to some degree in each of the levels, but in different ways so that the measurement uses the best data that is readily available.

Each of the tool's metrics can be measured and assessed independently, providing the user with specific areas that need improvement, which can guide policy intervention. The tool does not provide an overall walkability score, and it does not measure existing walking rates of cities, as these may reflect a lack of alternatives as much as people choosing to walk. However, by using the three levels of indicators together, it is possible to get a nuanced understanding not just of whether or not someone can walk in an area, but also of how convenient, accessible, and enjoyable that walk will be. The tool's strength lies in its ability to highlight features that are missing from a city's urban fabric that could help to facilitate walkability.

The framework for selecting metrics can be understood using the pyramid in **FIGURE 1** below, which builds from the most basic requirements for walking to be physically possible to an environment where walking is desirable.

FIGURE 1: Walkability Hierarchy of Needs Pyramid



Source: Graphic created by Michael Flynn, Sam Schwartz Engineering

The Walkability Hierarchy of Needs Pyramid provides the basis for developing and prioritizing walkability metrics at all three levels. Urban design features that meet the levels of the pyramid will vary depending on the person who is walking. For example, what is passable for an able-bodied person may not be passable for someone in a wheelchair. The pyramid details the key requirements for a walkable

environment and ranks them in order of importance. The levels of the pyramid will be used to indicate the goal of the indicators that are used in this tool. In order of importance, the needs can be described as follows:

1

PASSABLE

The urban environment makes it physically possible to walk from one place to another.

2

ACCESSIBLE

The urban environment includes destinations that are within a reasonable walking distance from trip origins. While many readers may understand "Accessible" in terms of enabling the movement of wheelchair users and others with different needs, this is covered under "Passable" and "Safe".

3

SAFE

The urban environment protects people walking from crime and traffic, both along and across streets

4

CONVENIENT

The urban environment prioritizes walking by minimizing the time required to walk to destinations, particularly in relation to other modes of transportation, such as motor vehicles.

5

COMFORTABLE

The urban environment minimizes physical discomfort from walking, from things such as crowding, fatigue, rain, sun, and darkness, through the provision of design elements that minimize that discomfort.

6

ENJOYABLE

The urban environment adds an element of joy to walking, through the presence of art, entertainment, and other amenities.

There are three main urban planning factors that influence walkability:

INFRASTRUCTURE, ACTIVITY, AND PRIORITY.

Infrastructure refers to the features of the transportation system in the public realm, such as sidewalks, crosswalks, traffic signals, and transit services that *facilitate movement* in the network. **Activity**, refers to the features of the urban form, typically in the private realm, that determine where people and destinations are located. Finally, **priority** refers to the aspects of the transportation system that give preference to sustainable modes over private cars use.

In addition, it is also helpful to measure the final impact of city level decisions, including aspects such as the prevalence of walking, safety, security, and car usage. However, since these impacts are influenced by many other, external factors, they are not always indicative of progress on sustainable urban transportation planning. For example, the highest levels of walking are found in the most impoverished countries, and are typically due not to a high quality walking environment, but rather to the unaffordability of any other transportation option. As people in poor countries gain wealth, they tend to stop walking, given the poor walking conditions. In another example, Portugal experienced a sharp decline in car use due to higher oil prices coupled with a severe economic recession. However, since the sudden traffic reduction was not coupled with any transportation design or planning measures, the remaining drivers were able to travel at much higher speeds, and the number of traffic crashes soared. Due to these complicating factors, while these impact indicators may be useful, they must be carefully interpreted. As such we are not recommending their use in this tool.

CITYWIDE
WALKABILITY COMPARISON

THE CITYWIDE WALKABILITY COMPARISON AIMS TO DESCRIBE THE URBAN PLANNING CHARACTERISTICS THAT SUPPORT HIGH LEVELS OF WALKING IN A METROPOLITAN AREA ACROSS A VARIETY OF DEMOGRAPHIC AND GEOGRAPHIC AREAS.

This enables comparisons between cities, and the tracking of progress in urban areas over time. This scale of the tool uses one metric, block density, that should be viewed within the context of the city. The metric is measured for the entire metropolitan area, giving an approximate idea of how well suited a city's framework is for walkability and how well it is performing.

APPLIED INDICATOR: INFRASTRUCTURE

At the metropolitan scale, block density is an indicator that measures connectivity and high-quality urban infrastructure. With greater block density, the distance a person needs to travel on the transportation network to reach destinations goes down, making walking more feasible. "Blocks" are defined as developed pieces of land that are surrounded on all sides by a publicly accessible pedestrian passage. The data, from OpenStreetMaps, is crowd-sourced, and sometimes will not have all pedestrian walkways, though it is improving and is the best data that is freely available. When possible, we have defined the extent of the metropolitan area using the *Atlas of Urban Expansion*[1]. For cities where the *Atlas of Urban Expansion* does not have data, we have defined the metropolitan area using Columbia University's Socioeconomic Data and Application Center's Global Rural-Urban Mapping Program (GRUMP). GRUMP defines the extent of urban areas based on the United States' National Oceanic and Atmospheric Administration (NOAA)'s nighttime lights data set and buffered settlement centroids (where lights at night are not sufficiently bright)[2]. These definitions have been used instead of traditional boundaries, such as metropolitan statistical areas (MSAs), because they are more representative of the actual urbanized area of a city, whereas MSAs include areas that are more rural in nature.

[1] Angel et al., Atlas of Urban Expansion—2016 Edition, Volume 1: Areas and Densities, New York: New York University, Nairobi: UN-Habitat, and Cambridge, MA: Lincoln Institute of Land Policy, 2016.

[2] Center for International Earth Science Information Network – CIESIN – Columbia University, International Food Policy Research Institute – IFPRI, The World Bank, and Centro Internacional de Agricultura Tropical – CIAT. 2011. *Global Rural-Urban Mapping Project, Version 1 (GRUMPv1): Urban Extents*. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). http://sedac.ciesin.columbia.edu/data/set/grump-v1-urban-extents/maps. Accessed 29 November 2017

However, block density is not a perfect measure of walkability, as it does not take into account activity or priority for pedestrians. ITDP also recommends that block density be examined in conjunction with measurements of activity and priority at the metropolitan scale. These are described in more detail in the future indicators section below.

This applied component of the tool includes a database of indicators calculated using Geographical Information Systems (GIS) software. ITDP maintains and updates this database to maximize use of the tool and indicators by as many people as possible. ITDP has defined the terms used below, so that the indicators are as clear as possible. ITDP has calculated this indicator for a number of cities, and the results as of this publication, are shown in TABLE 2. More complete and regularly updated results will be available as part of the online version of the tool.

CITYWIDE INDICATOR DESCRIPTION

GOALS

- Passable
- Accesible
- Safe

METRIC

Block density

Number of blocks per square kilometer of urban area.

A higher block density value:

- Allows more direct walking routes;
- Decreases the need for mid-block crossings;
- Requires vehicles to stop more often, slowing their speeds and making walking safer;
- Increases amount of street frontage, allowing for more destinations per block, which shortens trip lengths.

A fine street grid, like this one in Sao Paulo, Brazil, creates smaller blocks that facilitate shorter walking distances for trips.

MEASUREMENT DETAILS

1. A block is defined as a developed piece of land, surrounded on all sides by publicly accessible streets.

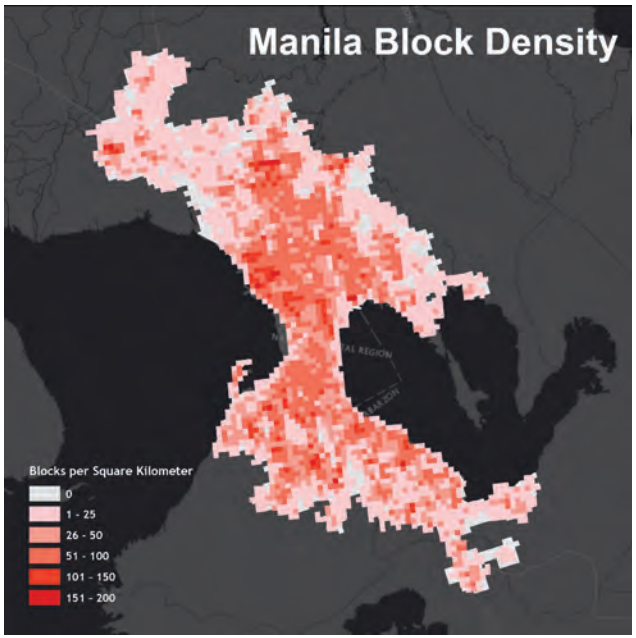
2. This is calculated by summing the number of blocks in the urban area and dividing it by the area of the urban area..

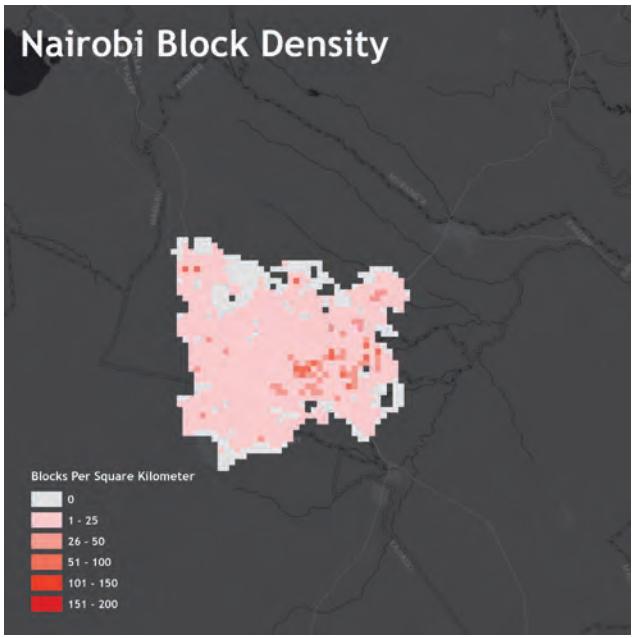
CITYWIDE INDICATOR DATA

TABLE 2: This table contains the block density of a number of cities

CITY	BLOCK DENSITY (blocks per km²)	CITY	BLOCK DENSITY (blocks per km²)
Beijing	7.0	Mexico City	24.9
Boston	10.7	Nairobi	5.0
Chennai	16.3	New Delhi	24.9
Dallas	18.0	New York	16.8
Dar es Salaam	21.8	Paris	25.7
Denver	25.3	Pune	12.1
Jakarta	21.6	Rio de Janeiro	16.3
Kuala Lumpur	17.7	Sao Paulo	24.0
London	21.4	Seoul	17.4
Los Angeles	19.2	Vancouver	19.5
Manila	37.0	Washington D.C.	7.1

CITYWIDE INDICATOR DATA





POLICY RECOMMENDATIONS

This section includes a number of policy recommendations for improving block density. This is not an exhaustive list of recommendations and is included so that advocates, practitioners, and city officials have a variety of policy interventions to use as guidance for increasing walkability at the metropolitan level.

TABLE 3: City-wide policy recommendations

INDICATOR	POLICY RECOMMENDATION
Block density	• Use subdivision or development plans to implement a dense grid of streets. • Purchase rights-of-way and construct a fine grid of city streets before development occurs. • Eliminate minimum parking requirements to reduce cost of denser development. • Eliminate building setback requirements and other policies that lead to a greater distance between buildings and thus larger blocks.

FUTURE INDICATORS

When creating this tool many other indicators were also considered. However, the tool does not include them as applied indicators because very little data is currently available and measurement methodologies are still being established. **However, ITDP wants to be sure that organizations and individuals that are trying to understand walkability are cognizant of the role of activity and priority in supporting walkability.** ITDP hopes that as activity and priority metrics become more firmly established, better data will be collected.

INFRASTRUCTURE

People near frequent transit:
This can be measured as the number of people that are within walking distance of frequent transit stops. Frequent transit helps to provide access within the city to pedestrians. A greater number of people near transit allows for more trips to be made in the city by walking

ACTIVITY

Weighted residential density:
This can be measured through the average population density that a person experiences in the city. A greater weighted residential density can serve as a proxy for activity. Further, a greater density can help pedestrians feel safe.

Mixed-use development:
This can be measured through the degree to which uses are spatially isolated within a city. Mixed use development creates an environment in which there are many short trips that can be completed through walking.

PRIORITY

Reduced car space: This can be measured or through the reduction of physical space that is provided for cars in the city streets. By prioritizing space for non-motorized forms of transportation, walking is both encouraged and more enjoyable.


ICE CREAM
BUS STOP
RESTAURANT
COFFEE
COFFEE
MARKET

NEIGHBORHOOD
WALKABILITY ASSESSMENT

THE NEIGHBORHOOD WALKABILITY ASSESSMENT COMPONENT OF THE TOOL ENABLES THE MEASUREMENT OF THE MOST IMPORTANT INDICATORS OF WALKABILITY THAT CAN BE GAINED FROM A STREET-LEVEL AUDIT OF A GIVEN AREA OF A CITY.

The metrics used are directly derived from ITDP's TOD Standard, a tool for assessing transit-oriented developments (TOD), which focuses heavily on walkability. Specifically, the metrics use the TOD Standard's station catchment area evaluation metrics. The metrics used in the neighborhood walkability assessment are more detailed than those in the citywide assessment. Because they mirror TOD Standard score, the metrics can be compared to best practice areas scored with the TOD Standard, and the metrics can also contribute to completion of full TOD Standard scores. A sample of data from TOD Standard scores is provided for reference below, in the Neighborhood Indicator Best Practices and Policy Recommendations section.

To use this component of the tool, a neighborhood area must be selected. The user can determine the size of a neighborhood, but **ITDP suggests that a district is no larger than one square kilometer**, to avoid a resource- and time-intensive data collection process. For each metric, a goal has been included to show what a good result would be. There are also best practices and policy recommendations included to provide context and ways to improve indicator results.

INDICATOR RELATIONSHIP TO WALKABILITY

The following is a list of the indicators for measuring walkability at the neighborhood level, with a brief explanation of how they contribute to walkability. The indicators and their measurement methods are discussed in more detail in the next section.

WALKWAYS

TOD STANDARD WALK **1.A.1**

The most basic feature of urban walkability is complete, continuous, and safe walkway networks that provide clear protection from motor vehicles and are accessible to all people, including those with disabilities.

CROSSWALKS

TOD STANDARD WALK **1.A.1**

Crosswalks are necessary for safely connecting the walkway network across vehicle traffic and are a critical part of making walkable areas accessible to all people, including those with disabilities.

VISUALLY ACTIVE FRONTAGE

TOD STANDARD WALK **1.B.1**

Visually active frontages promote safety from crime in walkable areas through informal observation and surveillance by people inside buildings. This is often described as "eyes on the street."

PHYSICALLY PERMEABLE FRONTAGE

TOD STANDARD WALK **1.B.2**

Sidewalks that are lined with continuous ground-floor activity and services have fewer zones of inactivity, thereby creating a more attractive walking environment that is safer from crime.

SHADE AND SHELTER

TOD STANDARD WALK **1.C.1**

Shade and shelter help to make the walkable environment more comfortable and more accessible by protecting pedestrians from heat, rain, and other elements.

SMALL BLOCKS

TOD STANDARD CONNECT **3.A.1**

Small blocks reduce trip distances, making walking more convenient for trips.

PRIORITIZED CONNECTIVITY

TOD STANDARD CONNECT **3.B.1**

Connectivity that prioritizes walking over motorized forms of transportation improves walkability by making walking more convenient relative to other modes of transportation.

COMPLEMENTARY USES

TOD STANDARD MIX **5.A.1**

A mix of uses reduces the distance between homes and services, thereby improving access. Shorter trips are more likely to be done by walking.

ACCESS TO LOCAL SERVICES

TOD STANDARD MIX **5.A.2**

Having basic services within easy walking distance enables more of these trips to be undertaken on foot.

DRIVEWAY DENSITY

TOD STANDARD SHIFT **8.A.2**

An urban walking environment that minimizes the locations where pedestrian must cross the path of cars leads to a safer and more comfortable walking experience.

ROADWAY AREA

TOD STANDARD SHIFT **8.A.3**

Minimizing the space given to motorized forms of transportation provides more space for walking infrastructure, such as sidewalks, and minimizes car speeds and volumes, leading to a safer, more convenient walking environment.


BAKERY
LAUNDRY
COFFE
HEALTH CLINIC
SCHOOL

NEIGHBORHOOD INDICATOR DESCRIPTION

METRIC

WALKWAYS

TOD STANDARD WALK **1.A.1**

GOALS

- Accesible
- Safe

Complete when

all-accessible walkways when all blocks and all buildings and property entrances are served by safe, continuous walkways, connected in all possible directions to the adjacent pedestrian network.

A block's walkway are measured as segments in the pedestrian network.

Segments are stretches of walkways between two adjacent intersections in the network and can be any of the following types:

A. dedicated sidewalks protected from vehicular traffic by a curb or other adequate device, or

B. shared streets designed for safe, shared use by pedestrians, cyclists, and vehicles (i.e., with speeds capped at 15km/h or 10mph), or

C. pedestrian paths or pedestrian cyclist shared paths.

Acceptable complete walkway segments must meet all the following criteria:

A. Be designed for easy pedestrian access to all abutting buildings and properties on the block frontage segment.

B. Be unobstructed and barrier-free for people with disabilities, including wheelchair users and people with low vision, according to local regulations or international standards.

C. Receive street lighting at night that is adequate for pedestrian safety and security.

Walkway obstructions due to works or other temporary situations are not penalized as long as a safe detour is available.

Sidewalks and crossings should be all-accessible in the pedestrian network like here in Guadalajara, Mexico.

PERCENTAGE OF BLOCK FRONTAGE WITH SAFE, ALL ACCESSIBLE WALKWAYS

GOAL: 100%

1. Quantify the total walkway segments abutting the block. (Blocks are areas impermeable to public pedestrian traffic and circumscribed by public-accessible pedestrian walkways, including through-building passages.)
2. Quantify the qualifying walkway segments.
3. Divide the second measure by the first to calculate percentage of walkway coverage.

NEIGHBORHOOD INDICATOR DESCRIPTION

METRIC

CROSSWALKS

TOD STANDARD WALK **1.A.2**

GOALS

- Accesible
- Safe

Completeness of the all-accessible pedestrian access network is a basic requirement.

Safe, all-accessible crosswalks are required at intersections of road-ways where vehicular speed exceeds 15km/h.

In a very dense street networks, a qualifying crosswalk through the larger road-way is only required at intervals of 200 meters or less.

To qualify as safe and all-accessible, crosswalks must be compliant with all of the below:

A. Are barrier-free for people with disabilities, including wheelchair users and people with low vision, according to local regulations or international standards.

B. Measure 2 meters or more in width and are demarcated.

C. Feature all-accessible refuge islands if crossing more than two traffic lanes.

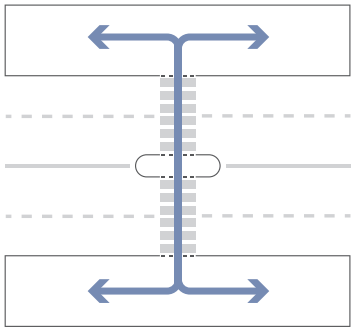
D. Receive adequate street lighting at night for safety and security.

PERCENTAGE OF INTERSECTIONS WITH SAFE, WHEELCHAIR-ACCESSIBLE CROSSWALKS IN ALL DIRECTIONS

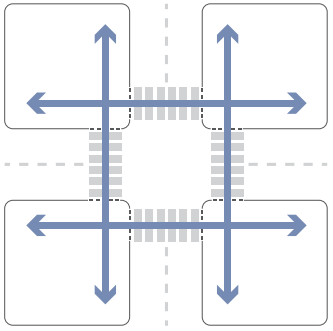
GOAL: 100%

1. Quantify the number of intersections requiring pedestrian crossing facilities.
2. Quantify the number of these intersections with qualifying crossing facilities (see description of metric).
3. Divide the second measure by the first to calculate the percentage of complete intersections.

This crosswalk in New York City, USA, was rebuilt with a sidewalk bulb out that shortens crossing distance making it safer and more accesible for people of all ages.



Crosswalks should be provided in all directions to create a complete pedestrian network



Crosswalks that cross two or more traffic lanes have a wheelchair-accesible pedestrian refuge.

NEIGHBORHOOD INDICATOR DESCRIPTION

METRIC

VISUALLY ACTIVE FRONTAGE

TOD STANDARD WALK **1.B.1**

GOALS

- Safe
- Comfortable
- Enjoyable

Visually active frontage is defined as a length of building frontage that abuts public walkways and is visually penetrable.

A walkway segment is defined as a length of frontage between two pedestrian network intersections.

It is considered visually active if 20 percent or more of its abutting building frontage is visually active frontage.

Visually penetrable frontage comprises partially or completely transparent windows and materials along the length of frontage at any point between ground level and 2.5 meters above ground. In this definition, residential building windows with ledges just above pedestrian eye level are acceptable.

Accessible open spaces, such as playgrounds, parks, porches, and patios, are included, but landscaping that is not designed to be routinely used by people is not.

Vehicle entrances do not count as visually active frontage.

Undeveloped plots are not included in the measurement.

Operable interior or exterior curtains or shutters are admissible.

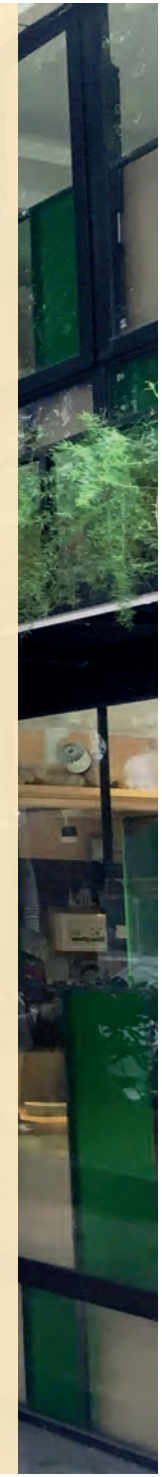
Alleyways that do not lead to a main pedestrian entrance of a building, and/or do not connect to the public right of way on two sides (i.e., is a dead end) should not be included as public walkways.

The shops along this street in Liuyun Xiaoqu in Guangzhou, China, feature large transparent windows that facilitate a visually active frontage.

PERCENTAGE OF WALKWAY SEGMENTS WITH VISUAL CONNECTION TO INTERIOR BUILDING ACTIVITY

GOAL: 90% OR MORE

1. Quantify the total number of public walkway segments.
   - **A.** For streets where the right of way from building line to building line is less than 20 meters, public walkways on both sides can be counted as one public walkway segment.
   - **B.** For streets where the right of way from building line to building line is more than 20 meters, each public walkway along a building must be counted as a separate walkway segment.
2. Quantify the number of public walkway segments that qualify as visually active (20 percent or more of the walkway segment; for more details, see metric description).
3. Divide the second measure by the first to calculate an active frontage percentage.



NEIGHBORHOOD INDICATOR DESCRIPTION

METRIC

PHYSICALLY PERMEABLE FRONTAGE

TOD STANDARD WALK **1.B.2**

GOALS

- Accessible
- Safe

Qualifying entrances include openings to storefronts, restaurants and cafés, building lobbies, cycle and pedestrian passageways and entrances, park and corner plaza entrances, and active service entrances.

Non-qualifying entrances include emergency exits, access to storage, motor vehicle garages, and driveway entrances.

Undeveloped plots are not included in the measurement.

Alleyways that do not lead to a main pedestrian entrance of a building, and/or do not connect to the local pedestrian network at both ends should not be included as public walkways.

This sidewalk in Nairobi, Kenya, has a number of businesses along it, creating a physically permeable frontage that facilitates an active walking environment.

AVERAGE NUMBER OF SHOPS AND BUILDING ENTRANCES PER 100 METERS OF BLOCK FRONTAGE

GOAL: 5% OR MORE

1. Quantify the total length of block frontage that abuts public walkways and divide by 100 meters.
2. Quantify the number of entrances along public walkways.
3. Divide the second measure by the first to calculate average number of entrances per 100 meters of block frontage.

NEIGHBORHOOD INDICATOR DESCRIPTION

METRIC

SHADE AND SHELTER

TOD STANDARD WALK **1.C.1**

GOALS

- Comfortable

Shaded walk-ways are defined as having a clear pedestrian path that is appropriately shaded during the hottest seasons.

Both sidewalks should be shaded on streets with more than two traffic lanes.

Shade can be provided through various means including: trees, arcades, awnings, freestanding structures (shade shelters at intersections, public transport shelters), and vertical screens (walls, lattices).

If the shadow from the buildings provide shade to the walkways at most hours of the day, this can be considered an appropriately shaded walkway.

Walkway segments are defined as the part of a walkway that lies between adjacent pedestrian network intersections, including non-motorized intersections.

PERCENTAGE OF WALKWAY SEGMENTS THAT INCORPORATE ADEQUATE SHADE OR SHELTER ELEMENT

GOAL: 75% OR MORE

1. Quantify the number of walkway segments.
2. Quantify the number of segments that incorporate a qualifying shade or shelter element.
3. Divide the second measure by the first to calculate a percentage of shaded and sheltered walkways.

This pedestrian street in Mexico City, Mexico, is well shaded, both by trees and awnings from businesses. Well shaded streets are particularly important in warmer climates.

NEIGHBORHOOD INDICATOR DESCRIPTION

METRIC

SMALL BLOCKS

TOD STANDARD CONNECT **3.A.1**

GOALS

- Passable
- Accessible
- Convenient

Pedestrian blocks are defined by pedestrian connectivity, as opposed to vehicular connectivity. A block is a continuous set of adjoining enclosed properties impermeable to pedestrian public passage. A block is demarcated by the block line separating these adjoining properties from the publicly accessible pedestrian passages and the right of way around it. For instance, a building or property with a through passage open to the public counts as two pedestrian blocks.

Publicly accessible is defined as indiscriminately open to all at least 15 hours a day.

Blocks are measured by the length of the longest block face or block frontage. The block line is measured corner to corner between two adjacent intersections in the pedestrian network.

Blocks located along pre-existing linear infrastructures that are permanently impermeable to pedestrians, such as at grade railroads and motorways, need not be counted.

Short blocks, like these ones in Seoul, South Korea, facilitate easier walking trips by creating more direct routes to destinations.

LENGTH OF LONGEST BLOCK (LONG SIDE)

GOAL: 90% OF BLOCKS ARE SHORTER THAN 110 METERS

1. Quantify the number of blocks that lie fully within the district.
2. Estimate the length of each block.

NEIGHBORHOOD INDICATOR DESCRIPTION

METRIC

PRIORITIZED CONNECTIVITY

TOD STANDARD CONNECT **3.B.1**

GOALS

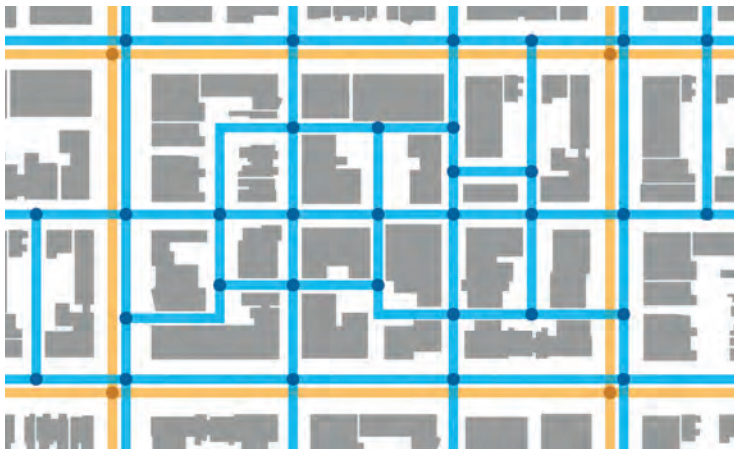
- Passable
- Convenient

Pedestrian intersections are intersections in the all-accessible and publicly accessible pedestrian network, as defined in metrics 1.A.1 (Walkways) and 1.A.2 (Crosswalks). The network includes streets with appropriate sidewalks and crosswalks, pedestrian-priority (shared) streets, and pedestrian paths and passages.

Motor vehicle intersections are defined as intersections of vehicular streets, excluding pedestrian-priority (shared) streets.

Intersections at plazas and open spaces permeable to pedestrians and cyclists, but without defined walkways or cycleways, are counted as four-way intersections.

Cul-de-sacs with no pedestrian exit or throughway to the pedestrian network do not count toward the intersection. Therefore, a four-way intersection, where one street is a cul-de-sac, would be counted as a three-way intersection.



Blue lines indicate the pedestrian and cycling network with multiple intersections and direct access to the core. Orange lines indicate streets with separate vehicular roadway, keeping cars just outside the core.

RATIO OF PEDERESTRIAN INTERSECTIONS TO MOTOR VEHICLE INTERSECTIONS

GOAL: 2 OR HIGHER

1. Map all motor vehicle intersections within the district and to the centerline of peripheral streets.

2. Map all pedestrian intersections within the district and to the centerline of peripheral streets. This includes motor vehicle intersections with appropriate walkways and crosswalks.

3. Quantify all intersections for motor vehicles and then for pedestrians as follows:
   - A four-way intersection = 1 intersection
   - A three-way, or "T", intersection = 0.75
   - A five-way intersection = 1.25

4. Divide the number of pedestrian intersections by the number of vehicle intersections to calculate a prioritized connectivity ratio.

Pedestrian only streets, like this one in Mexico City, Mexico, are important for shifting space in the city from cars to people, prioritizing walking as a mode of transport.

NEIGHBORHOOD INDICATOR DESCRIPTION

GOALS

- Accessible
- Convenient

METRIC

COMPLEMENTARY USES

TOD STANDARD MIX **5.A.1**

For a neighborhood to be balanced, the residential to non-residential uses ratio to floor area should be between 50%/50% and 40%/60%.

This street in Istanbul, Turkey features mixed-use development with ground floor restaurants, shops and upper level housing options.

RESIDENTIAL AND NO-RESIDENTIAL USES COMBINED WITHIN SAME OR ADJACENT BLOCKS

GOAL: HAVE A RATIO BETWEEN

40:60

BETWEEN TYPES OF USES –RESIDENTIAL AND NO-RESIDENTIAL.

Identify the residential and non-residential land uses and the proportion of each category within the district.

1. Identify zones with distinct typologies in the catchment area of the station (if any).
2. Select a typical block sample from each of the zones.
3. Calculate the percentage of predominant uses in each sample.
4. Calculate the weighted average of the predominant use in the area by factoring the results by the area of each zone.

NEIGHBORHOOD INDICATOR DESCRIPTION

METRIC

ACCESS TO LOCAL SERVICES

TOD STANDARD MIX **5.A.2**

GOALS

- Accessible
- Convenient

Fresh food includes any of the following: fresh fruits and vegetables, dairy products, meat and seafood.

Sources of fresh food include any and all small and large commercial grocery stores, public markets and street vendors, or any documentable weekly or more frequent local source of fresh food.

If these sources do not currently exist on the development but are planned, they can be scored.

Sources of fresh food outside the development or station area and within a 500-meter walking distance are also eligible sources.

Eligible elementary or primary schools include public and private institutions located within a 1,000-meter walking distance of the farthest building entrance in the development and open to all local children, regardless of gender, religion, ethnicity, or capacity to pay fees according to their income level.

Eligible healthcare facilities or pharmacies are open to all and located within a 1,000-meter walking distance of the farthest building entrance in the development.

››

PERCENTAGE OF BUILDINGS THAT ARE WITHIN 500-METERS WALKING DISTANCE OF A SOURCE OF FRESH FOOD, AN ELEMENTARY OR PRIMARY SCHOOL, AND A HEALTHCARE SERVICE OR PHARMACY

GOAL: 80% OR MORE BUILDINGS HAVE ACCESS TO ALL THREE

1. Map all buildings and buildings' primary entrances.
2. Map all sources of fresh food.
3. Mark all buildings with entrances within 500-meters walking distance from these fresh food sources.
4. Repeat steps 1 to 3 for healthcare facilities and for elementary or primary schools, using a 1,000-meter walking distance.

Access to local services, like this market in New Delhi, India, is an important facilitator for walkability.

NEIGHBORHOOD INDICATOR DESCRIPTION

METRIC

DRIVEWAY DENSITY

TOD STANDARD SHIFT **8.A.2**

GOALS

- Safe
- Comfortable

Driveways are here defined as paths for motor vehicles that cross pedestrian areas and walkways to connect to off-street parking or loading facilities.

Vehicle connections to off-street parking and loading facilities that do not intersect a walkway or reduce the completeness of the walkway network are not counted as driveways for this metric.

These streets in Havana, Cuba prioritize walking over vehicle traffic by providing sidewalks that are uninterrupted by driveways.

AVERAGE NUMBER OF DRIVEWAYS PER 100 METERS OF BLOCK FRONTAGE

GOAL: 2 OR FEWER DRIVEWAYS PER 100 METERS OF BLOCK FRONTAGE

1. Quantify the total length of block frontage and divide by 100 meters.
2. Quantify the total number of driveways that intersect a walkway.
3. Divide the second measure by the first to calculate a driveway density average.

NEIGHBORHOOD INDICATOR DESCRIPTION

GOALS

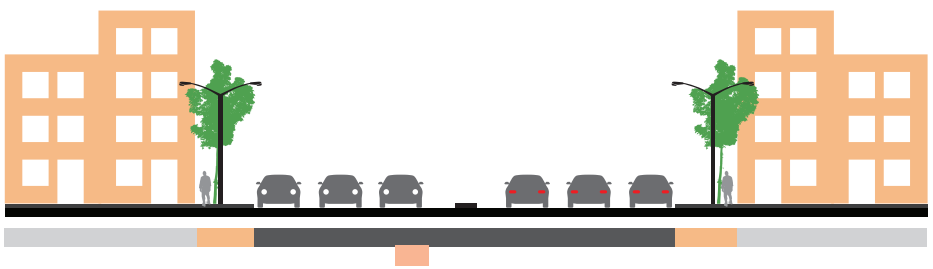
- Safe
- Accesible
- Comfortable

METRIC

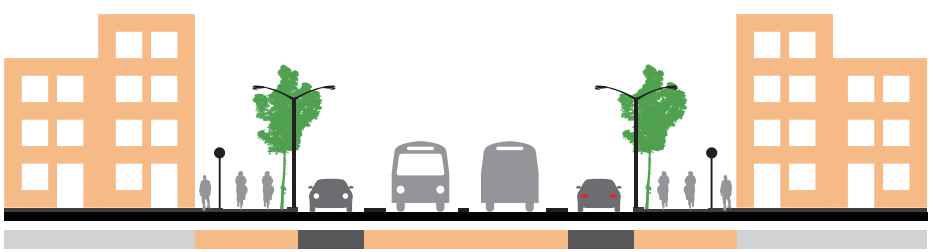
ROADWAY AREA

TOD STANDARD SHIFT **8.A.3**

Excludes right-of-ways dedicated to cycling, buses, pedestrians, and pedestrian priority streets.



More road area is given to less efficient motor vehicle travel



More road area is given to more efficient modes of non-motorized transport

TOTAL ROAD AREA USED FOR MOTOR VEHICLE TRAVEL AND ON-STREET PARKING AS PERCENTAGE OF TOTAL LAND AREA

GOAL: 15% OR LESS DEVOTED TO MOTOR VEHICLE TRAVEL

1. Quantify the total area of traffic lanes, including, but not double-counting, intersection space.
2. Quantify the total area of parking lanes.
3. Sum both measures.
4. Quantify the total land area of the development site, extended to the centerline of peripheral streets.
5. Divide the third measure by the fourth to calculate a percentage of land paved for on-street parking and traffic.

Pedestrian streets, like this one in Bucharest, Romania, prioritize pedestrians over automobiles. Streets that cater to pedestrian needs can help to facilitate walkability.

NEIGHBORHOOD INDICATOR BEST PRACTICES AND POLICY RECOMMENDATIONS

This section features a best practice example and policy recommendations for each of the indicators in the Neighborhood Walkability Assessment. These examples are included so that there is a reference point for the indicators. They also serve to provide examples that can be used to better understand walkability in specific contexts. The examples here have been scored with the TOD Standard and are primarily individual development projects; however, they are large enough that the metrics can still be applied effectively. The policy recommendations are not an exhaustive list and have been included so that there are examples for interventions to improve walkability at the neighborhood level.

TABLE 3: City-wide policy recommendations

WALKWAYS

TOD STANDARD WALK **1.A.1**

BEST PRACTICE EXAMPLE

LIUYUN XIAOQU
Guangzhou, China

- 125 total walkway segments
- 125 qualifying walkway segments

100% QUALIFYING

POLICY RECOMMENDATIONS

Adopt policy requiring all new streets to be built with sufficiently wide footpaths—a minimum of 1.8 meters in unobstructed width in residential areas, and 2.5 meters in commercial areas.

Dedicate funding to reconstructing all existing streets to add or improve footpaths.

Prioritize ground-level footpaths over flyovers or "skywalks" unless functioning elevators enable wheelchair access.

CROSSWALKS

TOD STANDARD
WALK **1.A.2**

BEST PRACTICE EXAMPLE

REFORMA 222
Mexico City, Mexico

- 5 of 5 (**100%**) intersections requiring pedestrian crossing facilities have qualifying facilities

POLICY RECOMMENDATIONS

Implement safe, all-accessible crosswalks at intersections of all roadways where vehicular speeds exceed 15km/h. (See metric for detail on qualifying crosswalks.)

Adopt street design standards that promote the safety of pedestrians, including requirements for features such as ramps to raise the intersection to the level of the footpath, and bulb outs to reduce crossing distance. Other examples can be found in the ITDP India Street Design Guide, Global Designing Cities Initiative's Street Design Guide, and C.R.O.W manual.

ROADWAY AREA

TOD STANDARD
SHIFT **8.A.3**

BEST PRACTICE EXAMPLE

QUARTIER MASSENA
Paris, France

- 2,205 square meters of roadway and on-street parking
- 25,046 square meters is total of entire development
- 9% of total area is for motor vehicles

POLICY RECOMMENDATIONS

Require master plans to incorporate street design plans that create complete streets that cater first to walking and cycling.

Promote pedestrian-only streets and shared streets with only slow moving vehicles.

Adopt regulations that reduce on-street parking and reallocate public space to pedestrians, cyclists, and public transit.

VISUALLY ACTIVE FRONTAGE

TOD STANDARD
WALK
1.B.1

BEST PRACTICE EXAMPLE

CENTRAL ST. GILES
London, UK

- 15 of 15 (**100%**) public walkways with block frontage have visually active frontage

POLICY RECOMMENDATIONS

Adopt building regulations and corresponding processes for permits that require buildings to have a significant amount of transparency in boundary walls.

Update zoning code to require off-street parking to be located behind or in the basement of buildings.

Update zoning code to require parking garages to have active uses on the ground level, or be located on secondary streets.

PHYSICALLY PERMEABLE FRONTAGE

TOD STANDARD
WALK
1.B.2

BEST PRACTICE EXAMPLE

PEARL DISTRICT
Portland, USA

- 81 entrances along public walkways along 1,548 meters of block frontage
- Average of 5.23 entrances per 100 meters of block frontage

POLICY RECOMMENDATIONS

Adopt building regulations and corresponding processes for permits to eliminate minimum setbacks for commercial developments and to require regular entrances and exits along a blockface.

SHADE AND SHELTER

TOD STANDARD
WALK **1.C.1**

BEST PRACTICE EXAMPLE

PUERTO MADERO
Buenos Aires, Argentina

- 29 total public walkways with block frontage
- 29 total walkway segments that incorporate a qualifying shade or shelter element

POLICY RECOMMENDATIONS

Use monies collected from parking in the area to fund the creation of shade and shelter.

Adopt building regulations and corresponding processes for permits that require the provision of shade elements, such as awnings along a blockface, especially in mixed-use and commercial districts.

Adopt a building code requiring the development of protective arcades and covered areas in high foot-traffic areas.

DRIVEWAY DENSITY

TOD STANDARD
SHIFT **8.A.2**

BEST PRACTICE EXAMPLE

CONJUNTO NACIONAL
Sao Paulo, Brazil

- 1 driveway that intersect a walkway of 810 meters of total block frontage
- 0.12 driveways per 100 meters of block frontage.

POLICY RECOMMENDATIONS

Remove parking minimums, particularly for smaller buildings, historic buildings, and buildings near transit.

Enact parking maximums.

Adopt building regulations that require vehicle entrances to be located on secondary streets and consolidated into as few driveways as possible.

SMALL BLOCKS

TOD STANDARD
CONNECT **3.A.1**

BEST PRACTICE EXAMPLE

JIANWAI SOHO
China

- Length of longest block: 60 meters

POLICY RECOMMENDATIONS

Layout networks of streets that limit pedestrian block lengths to 100 meters or less on average, and 150 meters at most where needed. Blocks that abut linear infrastructure, such as railroad corridors, do not need to comply.

Update land use codes and subdivision regulations to the same pedestrian block size standards.

Create street and publicly accessible passageway network plans for areas of the city where public streets are developed. These plans should have a block every hectare or less. Blocks should not exceed 150 meters.

PRIORITIZED CONNECTIVITY

TOD STANDARD
CONNECT **3.B.2**

BEST PRACTICE EXAMPLE

VASTRA HAMMEN
Malmo, Sweden

- 4 motorized vehicle intersection points
- 35 pedestrian and cycle intersection points
- 8.75 prioritized connectivity ratio

POLICY RECOMMENDATIONS

Convert existing streets to pedestrian-only traffic, allowing direct continuous pedestrian connectivity.

Adopt building regulations that require or incentivize public passage through the ground floor of buildings that are for commercial purposes.

COMPLEMENTARY USES

TOD STANDARD MIX **5.A.1**

BEST PRACTICE EXAMPLE

WOODWARD BUILDING
Vancouver, Canada

- 57% of the total developed area of the project is residential

POLICY RECOMMENDATIONS

Modify zoning code to permit mixed land-uses, with pedestrian-oriented uses on ground floors.

Discourage low-density development through land value tax system.

On walkway segments with low foot-traffic, promote ground floor frontage living and working spaces and other active uses that are not dependent upon foot traffic.

ACCESS TO LOCAL SERVICES

TOD STANDARD MIX **5.A.2**

BEST PRACTICE EXAMPLE

WAMPOA GARDENS
Hong Kong, China

- 100% of buildings are within 500 meters of a source of fresh food
- 100% of buildings are within 1 kilometer of a healthcare facility
- 100% of buildings are within 1 kilometer of a elementary school

POLICY RECOMMENDATIONS

Use zoning to permit mixed land-uses, including basic services.

For high-density development, require impact analysis on the provision and access to local services.

Proactively encourage developers who specialize in mixed-use development and encourage suitable institutional or commercial investors as anchor tenants/landowners.

STREET-LEVEL
WALKABILITY DESIGN CHECKLIST

WHEREAS THE CITY AND NEIGHBORHOOD LEVELS OF PEDESTRIANS FIRST FOCUS ON THE FOUNDATIONS FOR WALKABILITY AND THE FEATURES THAT MAKE WALKING SAFE AND ACCESSIBLE, THE DESIGN CHECKLIST BUILDS ON THE OTHER TWO LEVELS OF PEDESTRIANS FIRST TO PRIMARILY MEASURE THOSE FEATURES OF WALKABILITY THAT MAKE WALKING COMFORTABLE AND ENJOYABLE.

These features represent the pinnacle of good urban design, creating an environment that people not only use, but also enjoy using. This checklist serves as a way to help individuals think about a block's design features that can help to create the best walkable environment.

The Street-Level Walkability Design Checklist should be used as a checklist at the individual block level. It is best used in the field as an audit tool, but many features can be assessed remotely using sources such as Google Streetview.

The Street-Level Walkability Design Checklist was created from an amalgamation of sources, including the various measures used by the ITDP field offices, the World Bank, Center for Disease Control (CDC), Natural Resources Defense Council (NRDC), the Global Designing Cities Initiative, and Walk Score. These organizations' measures, as well as how they were used the creation of this checklist, can be found in the **Resources section** of this document under Walkability Design Checklist References.


COFFEE
FLOWER SHOP
BUS STOP
30
45

STREET-LEVEL CHECKLIST

GOAL	ITEM	GUIDELINES FROM EXISTING ITDP DOCUMENTS AND OTHER SOURCES
▸ Accessible ▸ Comfortable	Footpaths in good condition and sufficiently wide	**Sidewalks are:** ☐ Dedicated, paved, and protected. ☐ Adequately wide for volume of people walking (e.g., >2.5m). ☐ Unobstructed, clear of anything that would prevent a wheelchair user from moving from one end of the sidewalk to the other, including encroachment by parked vehicles, debris, signs, and street vendors. UN guidelines suggest an unobstructed width of 1.8 meters for wheelchair users. ☐ Integration of design guidelines allow for footpath use by people with physical challenges.
▸ Comfortable ▸ Enjoyable	Cleanliness and good user-experience	**User perceptions:** ☐ The footpath is clear of dirt and dust. ☐ The footpath is quiet enough to have a conversation. ☐ There is room to comfortably walk on the footpath without feeling crowded. ☐ There are no encroachments by vehicles that inconvenience walking. ☐ The pavements/streets are clean and free of trash. ☐ There are no temporary obstructions in the footpath (e.g., garbage, construction materials, vending stands).

STREET-LEVEL CHECKLIST

GOAL	ITEM	GUIDELINES FROM EXISTING ITDP DOCUMENTS AND OTHER SOURCES
▶ Safety	Safety from crime	**Safety** ☐ The surveyor feels safe and comfortable. ☐ The area is lively and active. ☐ Most shops and buildings remain open in the evening. ☐ The area is well lit, including at night.
▶ Safety	Pedestrian friendly crosswalk design	**Crosswalk feature the following:** ☐ Tabletop crossings or speed bumps to slow down traffic when approaching unsignalized crosswalks where pedestrians continue at the same level. ☐ At-grade pedestrian crossings where pedestrians cross a maximum of two lanes of traffic before reaching a pedestrian refuge (sidewalk, median). Pedestrian footbridges do not count, as they often increase the distance traveled and physical effort exerted by pedestrians.

STREET-LEVEL CHECKLIST

GOAL	ITEM	GUIDELINES FROM EXISTING ITDP DOCUMENTS AND OTHER SOURCES
▶ Comfortable	Safe pedestrian design and enforcement at crossings	**Crosswalks signals have the following features:** ☐ Signals timed so that pedestrian waiting time is not excessive (i.e., generally less than 30 to 45 seconds). ☐ Signalized crosswalks where pedestrians must cross more than two lanes at once feature a pedestrian refuge, or pedestrians never cross more than two lanes at once. ☐ Signals have a leading pedestrian interval. ☐ There are safe crossings provided approximately every 150 meters in areas where there is continuous activity on both sides of the corridor
▶ Comfortable	Small street widths	**Street width** ☐ The street is not too wide to easily cross. ☐ The street has no more than one or two lanes in each direction.

STREET-LEVEL CHECKLIST

GOAL	ITEM	GUIDELINES FROM EXISTING ITDP DOCUMENTS AND OTHER SOURCES
▸ Comfortable ▸ Enjoyable	Low traffic speed and volume	**The street has the following:** ☐ Posted speed limits set to prioritize safety (e.g., below 30 kilometers per hour in dense urban centers). ☐ Design that matches posted speed limits to prevent speeding and help with enforcement. ☐ Speed bumps, raised crossings, or other physical features that reduce the speed of motor vehicles. **Volume:** ☐ Traffic is not excessive on the street.
▸ Enjoyable	Minimal parking	**Parking:** ☐ On-street parking is well managed and regulated. ☐ There is little off-street parking (including underground parking and parking facilities). ☐ Parking has a cost high enough to prevent illegal parking.

STREET-LEVEL CHECKLIST

GOAL	ITEM	GUIDELINES FROM EXISTING ITDP DOCUMENTS AND OTHER SOURCES
▸ Enjoyable ▸ Comfortable	Presence of sidewalk amenities	**There are adequate amounts of the following in the public right-of-way, but only including those that are provided for the public:** ☐ Seating facilities. Do not count informal seating such as ledges or curbs not specifically designed for sitting. UN guidelines suggest that a facility be provided at intervals of between 100 and 200 meters and that seating is especially needed in popular locations where people gather. ☐ Public toilets (only functioning ones). ☐ Garbage bins. ☐ Presence of street vendors. Vendors include any non-permanent salesperson with wares on the sidewalk who contributes to the active nature of the area without obstructing the walkable path of the sidewalk.
▸ Enjoyable ▸ Convenient	Presence of transit	**Distance to transit:** ☐ The nearest transit station (rapid transit, bus stop, etc.) is within walking distance (less than 1km) ☐ There are many different transit options that are within walking distance (1km).

POLICY RECOMMENDATIONS

This section contains policy recommendations based upon the items in the Walkability Street-Level Design Checklist. While this is not an exhaustive list of recommendations, it does provide a number of suggestions that will positively impact walkability. These recommendations should be used as the basis for block-level policy intervention for walkability. These recommendations are primarily from ITDP's Footpath Design Guide and ITDP's Better Streets Better Cities publications.

TABLE 5: Street-level policy recommendations.

ITEM	POLICY RECOMMENDATION
Footpaths in good condition and sufficiently wide	• Adopt policy requiring all new streets to be built with sufficiently wide footpaths—at a minimum, 1.8 meters of unobstructed width in residential areas, and 2.5 meters in commercial areas. • Create a plan and source of funding for updating footpaths that do not meet the above standard. • Require new development to construct walkways to the above standard within the development and along the abutting right of way.
Presence of side-walk seating, public restrooms, and garbage cans	• Use monies collected from area parking to provide and maintain sidewalk seating and garbage cans. • In commercial areas, give tax incentives for businesses that provide public sidewalk seating and garbage cans.

ITEM	POLICY RECOMMENDATION
Cleanliness of footpath	• Use funds from street parking to provide sidewalk cleaning. Provide garbage cans on sidewalks at regular intervals. • Promote the establishment of business improvement districts in commercial areas that are responsible for cleaning services.
Safety from crime	• Provide street lighting at regular intervals on all streets. • Adopt a plan with dedicated funding for regular upkeep in the form of bulb replacement, electrical maintenance, and cleaning to ensure long-term effectiveness. • Modify zoning code to permit mixed land-uses, with pedestrian-oriented uses on ground floors. • Establish or encourage local organizations dedicated to the upkeep and beautifying of the public space.
Pedestrian-friendly crosswalk design	• Adopt pedestrian-centric intersection design standards. Examples include: raised intersections, signalized intersections, and pedestrian refuges.

ITEM	POLICY RECOMMENDATION
Pedestrian safety design and enforcement	• Require pedestrian refuges where pedestrians cross more than two lanes of traffic. • Require signalized crosswalks be timed to prevent wait times of more than one minute for pedestrians.
Pedestrian safety at intersection and mid-block crossings	• For blocks that are longer than 150 meters, provide formal mid-block crossings every 150 meters.
Small street widths	• Adopt width standards for new street design. • For existing streets, dedicate funding to add infrastructure, such as bike lanes, that reduce the width of the road that vehicles use. • Reduce on-street parking to lessen roadway width. • For local streets, a 3-meter width is appropriate for one-way traffic.

ITEM	POLICY RECOMMENDATION
Low traffic speed and volume	• Adopt street design standards that require traffic-calming measures. Typical forms of traffic calming include speed humps, raised pedestrian crossings, bulb outs, narrow lanes for vehicles, and reduced sightlines for drivers by using trees, etc. • Adopt street design standards that reduce turning radiuses for cars. • Create short blocks in residential and mixed-use districts to discourage fast vehicular traffic.
Minimized parking	• Remove parking minimums. • Adopt parking maximums. • Provide and manage on-street parking and price it sufficiently high that it prevents long-duration parking.
Presence of transit	• Expand transit options to areas that are heavily used by pedestrians and cyclists. • Concentrate walkability improvements along high-demand transit routes.

RESOURCES

This section contains additional resources helpful for understanding the measures that went into this tool. These resources were used in forming the policy recommendations sections of the tool. These resources are intended to better inform advocates, city practitioners, elected officials, and others interested in walkability.

ITDP WALKABILITY INDICES

1. **ITDP Brazil**: "Índice de Caminhabilidade – Ferramenta 2.0" [Walkability Index – Tool] http://itdpbrasil.org.br/icam2

2. **ITDP Mexico**: "Movilidad Peatonal: de la Investigación a la Politica Publica" http://mexico.itdp.org/documentos/movilidad-peatonal-de-la-investigacion-a-la-politica-publica-2/

OTHER NON-ITDP WALKABILITY INDICES

1. **Centers for Disease Control (CDC)**: "Healthier Worksite Initiative: "Walkability Audit Tool" https://www.cdc.gov/physicalactivity/worksite-pa/pdf/walkability_audit_tool.pdf

2. **Global Designing Cities Initiative**: "Global Street Design Guide." https://globaldesigningcities.org/publication/global-street-design-guide/

3. **Natural Resources Defense Council (NRDC)**:"Chinese City Walkability Evaluation" https://go.itdp.org/display/nmt/Walkability+Tools+-+Files?preview=/49415069/50464185/NRDC%20Walkability%20PPT%20English.pdf

4 **Walk Score**: "Validation of Walk Score® for Estimating Neighborhood Walkability: An Analysis of Four US Metropolitan Areas" http://www.cdph.ca.gov/programs/NEOPB/Documents/25a.%20Duncan-%20Validation%20of%20Walk%20Score%20for%20Estimating%20Neighborhood%20Walkability.pdf

5 **World Bank**: "Global Walkability Index" https://dspace.mit.edu/handle/1721.1/34409#files-area

OTHER ITDP REPORTS, DESIGN GUIDELINES, AND CHECKLISTS RELATED TO WALKABILITY

6 **ITDP India**: "Footpath Design: A guide to creating footpaths that are safe, comfortable, and easy to use" https://www.itdp.org/footpath-design-a-guide-to-creating-footpaths/

7 **ITDP India**: "Better streets, better cities - A guide to street design in urban India" https://www.itdp.org/better-streets-better-cities/

8 **ITDP Mexico**: "Caminar la Ciudad - Políticas de Seguridad Peatonal en la Ciudad de México" [Pedestrians and Politics – Public Action and Pedestrian Safety in Mexico City] http://mexico.itdp.org/wp-content/uploads/CAMINAR-LA-CIUDAD-ingles-FINAL.pdf


ITDP