TOD STANDARD

ITDP

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ITDP

INSTITUTE FOR TRANSPORTATION AND DEVELOPMENT POLICY
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WALK

Principle 1 | 15 points

OBJECTIVE A.
The pedestrian realm is safe, complete, and accessible to all.

Metric 1.A.1 Walkways
Percentage of walkway segments with safe, all-accessible walkways. 3 points

Metric 1.A.2 Crosswalks
Percentage of intersections with safe, all-accessible crosswalks in all directions. 3 points

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OBJECTIVE B.
The pedestrian realm is active and vibrant.

Metric 1.B.1 Visually Active Frontage
Percentage of walkway segments with visual connection to interior building activity. 6 points

Metric 1.B.2 Physically Permeable Frontage
Average number of shops, building entrances, and other pedestrian access per 100 meters of block frontage. 2 points

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OBJECTIVE C.
The pedestrian realm is temperate and comfortable.

Metric 1.C.1 Shade and Shelter
Percentage of walkway segments that incorporate adequate shade or shelter elements. 1 point

CYCLE

Principle 2 | 5 points

OBJECTIVE A.
The cycling network is safe and complete.

Metric 2.A.1 Cycle Network
Access to a safe cycling street and path network. 2 points

OBJECTIVE B.
Cycle parking and storage are ample and secure.

Metric 2.B.1 Cycle Parking at Transit Stations
Ample, secure, multi-space cycle parking facilities are provided at all transit stations. 1 point

Metric 2.B.2 Cycle Parking at Buildings
Percentage of buildings that provide ample, secure cycle parking. 1 point

Metric 2.B.3 Cycle Access in Buildings
Buildings allow interior access and storage within tenant-controlled spaces for cycles. 1 point

CONNECT

Principle 3 | 15 points

OBJECTIVE A.
Walking and cycling routes are short, direct and varied

Metric 3.A.1 Small Blocks
Length of longest pedestrian block. 10 points

OBJECTIVE B.
Walking and cycling routes are shorter than motor vehicle routes

Metric 3.B.1 Prioritized Connectivity
Ratio of pedestrian intersections to motor vehicle intersections. 5 points

TRANSIT

Principle 4 | TOD REQUIREMENT

OBJECTIVE A.
High quality transit is accessible by foot.

Metric 4.A.1 Walking Distance to Transit
Walking distance to the nearest transit station.

MIX

Principle 5 | 25 points

OBJECTIVE A.
Opportunities and services are within a short walking distance of where people live and work, and the public space is activated over extended hours.

Metric 5.A.1 Complementary Uses
Residential and nonresidential uses within same or adjacent blocks. 8 points

Metric 5.A.2 Access to Local Services
Percentage of buildings that are within walking distance of an elementary or primary school, a healthcare service or pharmacy, and a source of fresh food. 3 points

Metric 5.A.3 Access to Parks and Playgrounds
Percentage of buildings located within a 500-meter walking distance of a park or playground. 1 points

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OBJECTIVE B.
Diverse demographics and income ranges are included among local residents.

Metric 5.B.1 Affordable Housing
Percentage of total residential units provided as affordable housing. 8 points

Metric 5.B.2 Housing Preservation
Percentage of households living on site before the project that are maintained or relocated within walking distance. 3 points

Metric 5.B.3 Business and Services Preservation
Percentage of pre-existing local resident–serving businesses and services on the project site that are maintained on site or relocated within walking distance. 2 points

DENSIFY

Principle 6 | 15 points

OBJECTIVE A.
High residential and job densities support high-quality transit, local services, and public space activity.

Metric 6.A.1 Nonresidential Density
Nonresidential density in comparison with best practice in similar projects and station catchment areas. 7 points

Metric 6.A.2 Residential Density
Residential density in comparison with best practice in similar projects and station catchment areas. 8 points

COMPACT

Principle 7 | 10 points

OBJECTIVE A.
The development is in, or next to, an existing urban area.

Metric 7.A.1 Urban Site
Number of sides of the development that adjoin existing built-up sites. 8 points

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OBJECTIVE B.
Traveling through the city is convenient.

Metric 7.B.1 Transit Options
Number of different transit options that are accessible within walking distance. 2 points

SHIFT

Principle 8 | 15 points

OBJECTIVE A.
The land occupied by motor vehicles is minimized.

Metric 8.A.1 Off-Street Parking
Total off-street area dedicated to parking as a percentage of the development area. 8 points

Metric 8.A.2 Driveway Density
Average number of driveways per 100 meters of block frontage. 1 point

Metric 8.A.3 Roadway Area
Total road bed area used for motor vehicle travel and on-street parking as percentage of total development area. 6 points

FOREWORD

The TOD Standard stands for the rights of all to access the city: to walk and cycle safely, to easily and affordably reach the most distant destination through rapid and frequent transit, and to live a good life free of dependence on cars. It stands for access to opportunity, education, services, and all the resources available via no- or low-cost mobility options.

At the Ford Foundation, many decades of work on urban poverty reduction and a focus on social justice have taught us that the combined cost of housing and transport is by far the heaviest burden on poor urban households' finances and time budgets. These costs are too often the main barrier to a true share in human development and well-being in prosperous cities for low-income and marginalized communities. We know we will not make meaningful progress on urban poverty without tackling the spatial inequities built in to our land use, housing, and transport systems that are exacerbating inequality and deepening poverty for the most vulnerable.

This new version of the TOD Standard gives us a stepping stone to defining urban development that integrates not just land use and transport but people, activities, and opportunities. It raises the bar for buildings and infrastructure to proactively meet the needs of all, regardless of age, ability, demographics or income, at all scales of development. It promotes inclusionary housing, as well as the provision of safe streets, local parks, playgrounds, primary schools, and health facilities for all neighborhoods, not just the wealthiest. It specifically acknowledges informal and substandard housing upgrading as fully fledged TOD projects worthy of investment and attention. It addresses the displacement of people through redevelopment as contrary to a balanced and inclusive development policy and incompatible with the highest TOD recognition.

The TOD Standard can help governments devise their plans, policies, regulations, legislation, and investment priorities to promote access for all as a basic common good, a source of freedom and dignity, and an important pillar to create Just Cities. This standard is also an instrument of inclusive and equitable civic engagement, calling on governments to set high standards for engaging the public in planning, regulating, decision making, and allocating resources.

The core principles and objectives enshrined in this standard have seen increasing recognition and adoption since ITDP started up in this field in 2010 with the Principles of Transport in Urban Life and the Our Cities Ourselves campaign. International, multilateral, national, and municipal institutions have been embracing the concept of inclusive transit-oriented development. High-level decision makers and practitioners support the idea, though there is still a long road ahead to achieve a global shift away from inequitable sprawl to more equitable and inclusive forms of urbanization. Wide and rapid adoption of the TOD Standard as urban planning and policy principles and benchmarks will have direct and immense potential benefits over time and across the globe. As we expect implementation to scale up rapidly in the next few years, it is important that unfair forms of redevelopment do not magnify unequal opportunity and outcomes. Inclusionary objectives need to be embedded in policies and in planning and design processes to actively protect and bring along people and social groups who might otherwise be excluded, marginalized, or not afforded the same full privileges as others.

The Ford Foundation has been a supporter of ITDP's efforts to develop frameworks and metrics to measure access and inclusion in cities. The TOD Standard is the result, and this new version will help citizens in all capacities find the right tools for creating inclusive transit-oriented communities. Now we all collectively need to work to get there.

AMY KENYON
Program Officer, Equitable Development
FORD FOUNDATION

Amy Kenyon works on the Equitable Development team at the Ford Foundation. Her grant making has supported integrated approaches to equitable development through improving access to permanently affordable housing and transit choices and deepening community engagement in land use planning processes. Amy has been a program officer at the foundation since 2013. She has more than 15 years of experience in the nonprofit and public sector, with an emphasis on developing and implementing finance and community development solutions for low-income communities.

Friendly pedestrian and cyclist environment around the BRT and LRT San Juan de Dios station in Guadalajara City in México.

INTRODUCTION

INTRODUCTION

TOD, or *transit-oriented development*, means integrated urban places designed to bring people, activities, buildings, and public space together, with easy walking and cycling connection between them and near-excellent transit service to the rest of the city. It means inclusive access for all to local and citywide opportunities and resources by the most efficient and healthful combination of mobility modes, at the lowest financial and environmental cost, and with the highest resilience to disruptive events. Inclusive TOD is a necessary foundation for long-term sustainability, equity, shared prosperity, and civil peace in cities.

With few exceptions, inclusive TOD is, however, not the way cities are being built at fast pace around the world. Instead, roads and suburbs are expanding endlessly. Precious arable land is paved over, natural systems are compromised, and social segregation and isolation are exacerbated by drivable distances. Cities are choking in deadly traffic congestion, and tailpipe emissions turn the air into toxic smog and help climate change reach catastrophic levels. Day after day, a bankrupt, sprawling model of urban growth is locking the urbanizing masses into equally unsustainable and inequitable patterns of car dependency or access deprivation, at a time when cities are projected to grow by over two billion residents within the next three decades.[1]

A global shift from urban sprawl to inclusive TOD is a most urgent matter. It is, however, more easily conceptualized than executed. Multiple, complex and interdependent elements must be aligned and brought together. They range from infrastructure, street, and building planning and design, to codes, regulation reform, and finance. Diverse participants with disparate world views and interests are involved: decision and policy makers from many institutions, professional technicians of various disciplines, developers and investors, future tenants and residents, people attached to car-based suburban lifestyles, people in communities set to be transformed by redevelopment and densification, and grassroots and civic organizations. In this context, a large-scale shift to TOD must begin with the building of a common understanding and a conceptual framework for collaboration.

The purpose of the *TOD Standard* is to facilitate and expedite these processes. It provides an accessible reference, with clear definitions, simple standards, and a rapid assessment tool, to be shared by all parties as a basis for the implementation of inclusive TOD.

[1] United Nations, Department of Economic and Social Affairs, Population Division, *World Urbanization Prospects: The 2014 Revision* (New York: United Nations, 2015).

WHAT IS THE TOD STANDARD?

The *TOD Standard* is, first, a condensed policy brief. It lays out the core principles of inclusive TOD, based on ITDP's *Principles of Urban Development for Transport in Urban Life*,[2] and identifies the key concrete objectives that are essential to implementing these principles in urban development.

Second, the *TOD Standard* is a unique assessment tool available to score the plans and products of urban development according to their adherence to the TOD principles and implementation objectives. A simple scoring system distributes 100 points across 25 quantitative metrics that are designed to measure the implementation of the eight principles and their 14 specific objectives. This point distribution approximately reflects the level of impact of each element in creating an inclusive TOD, as approved by the TOD Standard's international technical committee of experts (see the *Governance* section). The metrics are quantitative and data based whenever possible. Some—such as *cycle access to buildings*—are based on applicable rules and regulations. The metrics are designed for simplicity of assessment and for usability in situations where data is scant or unavailable. Most of the metrics measure project characteristics that can be independently, objectively, and reasonably easily observed and verified. Research and interviews of knowledgeable parties will only be necessary in rare cases. Metric characteristics have been selected and defined to reflect the implementation objective as closely as possible. The *TOD Standard* strives to be inclusive of the widest variety of shapes, sizes, styles, and configurations that projects may take while performing well toward the TOD objectives. No particular design solutions are prescribed. Project designs should reflect the local climate and culture, as well as the creativity and innovation of their developers and designers in lowering costs, improving performance, and heightening the appeal of compact, car-independent urban development.

Finally, the *TOD Standard* includes a recognition system that awards bronze, silver, and gold status to built development projects that have strong performance toward the TOD objectives and embody the TOD principles.

WHO SHOULD USE THE TOD STANDARD?

As a reference that maps the most essential TOD principles, implementation objectives, and concrete attributes that a development should have, the *TOD Standard* is a resource for all actors engaged in, or affected by, the processes of urban development. These actors include civic leaders, decision makers, legislators, regulators, and policy makers; government agencies and technical staff; developers and investors; professional planners; engineers and designers; grassroots groups; equitable and sustainable development advocates; and interested citizens.

[2] Institute for Transportation and Development Policy, Our Cities Ourselves: *Principles of Transport in Urban Life* (New York: ITDP, 2010).

Developers and designers can use the *TOD Standard* scoring system on projects in the planning or design phases to identify gaps and opportunities for TOD improvement. Planners can use it to help identify priority areas for investment and densification or for corrective action. Citizens and civil society organizations can make use of the *TOD Standard* to rate existing conditions or redevelopment proposals and advocate for higher-standard transit-oriented communities in the places where people live and work.

VERSION 3.0 UPDATES IN BRIEF

This third version of the *TOD Standard* is structured by the same eight principles as the previous two versions, published in 2013 and 2014, and—except one revision—the same implementation objectives. Many metrics have received minor updates to clarify instructions, improve the experience of the assessors, and correct occasional gaps in proxy metric performance.

The most substantial revisions were made to the MIX Principle, which has been significantly reinforced from 15 to 25 points, and particularly to its second objective, which focuses on the mix in *demographics and income ranges* (Objective 5.B). The *affordable housing* metric under this implementation objective has doubled its maximum points, to a total of eight, and two new metrics were added to examine and score the protection of pre-existing households and small businesses and services on a redevelopment project site. The upgrading of slums and informal settlements is now explicitly mentioned as a legitimate TOD project. Finally, to be eligible for TOD Gold Standard status, TOD projects are now required to accrue full points under the new *housing preservation* metric and at least two points under the *affordable housing* metric.

Other adjustments include five points transferred from each of the COMPACT and SHIFT Principles to the MIX Principle, so as to maintain the 100-point total of the scoring scale. The COMPACT and SHIFT Principles now have 10 and 15 points, respectively. The DENSIFY Principle's metric is now divided into separate residential and non-residential density metrics, and its measurement method is more focused on people density (households, jobs, and visitors). Minor changes were made to the gold, silver, and bronze status thresholds: each now requires one additional point. This version also has a revised metric numbering system designed to clearly convey both the principle and the objective that a particular metric serves. For example, the *shade and shelter* metric, formerly numbered Metric 1.5, is now numbered Metric 1.C.1 (Principle 1, Objective C, Metric 1). This numbering system reinforces the primacy of implementation objectives over the proxy metrics, as the latter may, in some cases, fail to adequately reflect performance toward the objective, and TOD assessors would then be asked to assign points according to actual objective attainment.

Chapter 2 contains further discussion of the approach to each principle, objective, and metric, and Chapter 3 has the full details and calculation methods for the metrics.

KEY CHANGES FOR SOCIAL AND DEMOGRAPHIC INCLUSIVITY IN THE TOD STANDARD 3.0:

- strengthened requirements for all-accessible walkways and infrastructure.
- recognition of local public amenities and services important to vulnerable residents (parks, healthcare, elementary or primary schools);
- better recognition of inclusionary affordable housing,
- new acknowledgement of informal housing upgrading as legitimate TOD project, and of upgrades to substandard units in par with new affordable housing.
- recognition of projects that avoid displacing households and local businesses and services;
- no TOD Gold Standard recognition for projects that fail to score full points under the Housing Preservation metric and at least two points under the Affordable Housing metric.

SCORING NEW DEVELOPMENT PROJECTS AND EVALUATING STATION CATCHMENT AREAS

The *TOD Standard*'s assessment tool and its metrics were primarily established to measure development projects as the basic building blocks of urban expansion and the main objects of investment decisions, concerted plans, land use and design codes, and other processes and frameworks of urban development. A complementary method is nonetheless offered that allows the TOD Standard metrics to be used to evaluate the catchment areas of existing transit stations and enable planners and stakeholders to understand existing land use characteristics and see where opportunities and challenges exist.

ELIGIBILITY CRITERIA FOR PROJECT RECOGNITION

To be considered for **TOD Standard recognition**, a development project must:

Be built
Planners and designers are encouraged to use the TOD Standard for guidance and interim evaluation purposes, but a development will not be recognized until built.

Be a single project
i.e., the product of a concerted planning or design effort.
There is no upper limit to the size of eligible projects other than the 500 and 1,000 m transit access requirements (see light blue box below).

Have no block or area over 2.5 hectares off limit for public access
(as defined in purple box). Gated compounds publicly accessible to all every day for a minimum of 15 hours are eligible if they are no larger than 5 hectares.

Be located within walkable distance of a high-quality transit station
that may be either:

- A station on a rapid transit line, defined as bus rapid transit, rail, or ferry.[3] *Walking distance* is preferably a distance of less than 500 meters, extended, in this case, to a maximum of 1,000 meters to the building entrance in the project farthest from the station.
- A station on a non-rapid transit service that connects directly to rapid transit within 5 kilometers. The maximum acceptable walking distance is then strictly limited to 500 meters.

Transit stations in either case must be accessible to all by design and have frequent service (defined as 15 minutes or less) between 7 a.m. and 10 p.m. at a minimum. (See Metric 4.A.1).

Affect a minimum of two adjacent pedestrian blocks, separated by one or more publicly accessible walking paths or streets.
The blocks may be either newly created, partially redeveloped, or upgraded in the case of substandard housing blocks. A project that breaks a single pre-existing block into two smaller blocks by adding a new through publicly accessible pedestrian passage is eligible. New streets and passages on private property are admissible but must be open daily to the public for a minimum of 15 hours and offer a safe and complete walkway in accordance with Metric 1.A.1.

Have a complete, all-accessible walkway network
i.e., all destinations connected to each other and to the stations by publicly accessible walkways protected from vehicular traffic. See Metric 1.A.1.

[3] Institute for Transportation and Development Policy, *BRT Standard* (New York: ITDP, 2017). Provides specifications of minimal BRT service.

GUIDELINES FOR STATION CATCHMENT AREA EVALUATION

The existing catchment area of a station can be scored by the *TOD Standard*, but is not eligible for recognition as such. Specific metric details for station areas are offered when project-oriented metrics would not apply. This tool may be of use in analyzing and evaluating the potential and the challenges in the existing built area around transit stations. It can help prioritize action to mend gaps or to focus investment on the areas promising shorter-term success at the transportation corridor, city, or metropolitan urban area level. The *TOD Standard* should only be used in conjunction with other tools for full analysis and planning at these levels, which are beyond its scope.

The useful walkable time or distance for the analysis of a station catchment area is at the discretion of users, as it may depend on context and purpose. We recommend 500 meters as optimum, and no more than 1 kilometer of actual walking distance, including all detours. A distance of 500 meters represents about a 10-minute walk, and a distance of 1,000 meters represents about a 20-minute walk at an average urban speed of approximately 3 kilometers per hour, including wait time at intersections.

TOD STANDARD 2017 RANKINGS

GOLD STANDARD
86 - 100 POINTS

Gold-standard TOD rewards urban development projects that are global leaders in all aspects of inclusive walking-, cycling-, and transit-oriented urban development.

Achieving the gold standard requires a minimum *affordable housing* score of two points, and full score for *housing preservation*.

SILVER STANDARD
71 - 85 POINTS

Silver-standard TOD marks projects that meet most of the objectives of best practice.

BRONZE STANDARD
56 - 70 POINTS

Bronze-standard TOD indicates projects that satisfy a majority of the objectives of best practice.

GOVERNANCE

The *TOD Standard* is governed by the Technical Committee, composed of globally renowned experts on the integration of land use, urban design, and sustainable transport planning and convened by the Institute for Transportation and Development Policy (ITDP).

The committee guides, reviews, and validates the technical elements of the *TOD Standard* and recommends revisions as needed.

Technical Committee members solely nominate built development projects and validate their scores and *TOD Standard* recognition status in accordance with the official metrics and scoring scale.

The *TOD Standard* Technical Committee members include:

B.R. Balachandran
Alchemy Urban Systems

Robert Cervero,
Professor Emeritus,
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Elizabeth Deakin,
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Michael King,
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For further information regarding the TOD Standard, the process of scoring, and the verification of projects, please contact: **todstandard@itdp.org**.

Vibrant street plaza at Broadway and Herald Square, New York City, USA.

PRINCIPLES, PERFORMANCE, OBJECTIVES AND METRICS

ITDP'S PRINCIPLES OF URBAN DEVELOPMENT FOR TRANSPORT IN URBAN LIFE

& TOD STANDARD KEY IMPLEMENTATION OBJECTIVES

WALK

DEVELOPING NEIGHBORHOODS THAT PROMOTE WALKING

OBJECTIVE A. The pedestrian realm is safe, complete, and accessible to all.
OBJECTIVE B. The pedestrian realm is active and vibrant.
OBJECTIVE C. The pedestrian realm is temperate and comfortable.

CYCLE

PRIORITIZE NONMOTORIZED TRANSPORT NETWORKS

OBJECTIVE A. The cycling network is safe and complete.
OBJECTIVE B. Cycle parking and storage is ample and secure.

CONNECT

CREATE DENSE NETWORKS OF STREETS AND PATHS

OBJECTIVE A. Walking and cycling routes are short, direct, and varied.
OBJECTIVE B. Walking and cycling routes are shorter than motor vehicle routes.

TRANSIT

LOCATE DEVELOPMENT NEAR HIGH-QUALITY PUBLIC TRANSPORT

OBJECTIVE A. High-quality transit is accessible by foot. (TOD Requirement)

MIX

PLAN FOR MIXED USES, INCOME, AND DEMOGRAPHICS

OBJECTIVE A. Opportunities and services are within a short walking distance of where people live and work, and the public space is activated over extended hours.
OBJECTIVE B. Diverse demographics and income ranges are included among local residents.

DENSIFY

OPTIMIZE DENSITY AND MATCH TRANSIT CAPACITY

OBJECTIVE A. High residential and job densities support high-quality transit, local services, and public space activity.

COMPACT

CREATE REGIONS WITH SHORT TRANSIT COMMUTES

OBJECTIVE A. The development is in, or next to, an existing urban area.
OBJECTIVE B. Traveling through the city is convenient.

SHIFT

INCREASE MOBILITY BY REGULATING PARKING AND ROAD USE

OBJECTIVE A. The land occupied by motor vehicle is minimized.

WALK

DEVELOPING NEIGHBORHOODS THAT PROMOTE WALKING

WALKING IS THE MOST NATURAL, HEALTHFUL, CLEAN, EFFICIENT, AFFORDABLE, AND INCLUSIVE MODE OF TRAVEL TO DESTINATIONS WITHIN SHORT DISTANCES, AND IT IS A NECESSARY COMPONENT OF VIRTUALLY EVERY TRANSIT TRIP. As such, walking is the foundation for sustainable and equitable access and mobility in a city. Restoring it or maintaining it as the primary mode of travel is fundamental to the success of inclusive TOD.

Walking is also potentially the most enjoyable, safe, and productive way of getting around, if paths and streets are attractive, populated, secure, uninterrupted, well protected from vehicular traffic, and if useful services and destinations are conveniently located along the way.

Walking requires moderate physical efforts that are beneficial for most people within reasonable distances but can be challenging or infeasible to some when body ability combines with obstacles, steps, or steep ramps to form barriers. In the *TOD Standard*, the terms "walking" and "walkability" should always be understood to be inclusive of users of walking or carrying aids, such as wheelchairs, white canes, baby strollers, and shopping carts. Complete walkways and crossings must fully support all users in compliance with locally applicable or international standards.

Making walking accessible and appealing motivates three key implementation objectives under this principle. (The related factors of shortness and directness are addressed under the separate CONNECT Principle.)

Improvements of the pedestrian infrastructure enabled safe and convenient walking in Chennai, India.

OBJECTIVE A. The pedestrian realm is safe, complete, and accessible to all.
The most basic feature of urban walkability and inclusivity is the existence of a complete, continuous, and safe walkway network including safe crossings at desire lines that links origins and destinations together and to the local public transit station. The network must be accessible to all persons, including older people and people with disabilities, and well protected from motor vehicles. A variety of configurations and designs of paths and streets are appropriate to the safety and completeness objective. Protected walkways separate from roadways are needed when vehicular speeds exceed 15 km/h (or 10mph). The completeness and safety of walkways and road-crossing systems are measured by Metrics 1.A.1 (*Walkways*) and 1.A.2 (*Crosswalks*).

OBJECTIVE B. The pedestrian realm is active and vibrant.
Activity feeds activity. Walking is attractive and secure and can be highly productive when sidewalks are populated, animated, and lined with useful ground-floor activities and services, such as storefront retail and restaurants. In turn, high foot traffic increases the exposure of local retail outlets and services and improves the vitality of the local economy. Visual interior–exterior interactions promote security in the pedestrian realm through passive and informal observation and surveillance. All types of land uses are relevant to street activation and informal observation—not only shops and restaurants but also informal vending, workplaces and residences. The provision of a wireless information technology connection is an increasingly important element of public space activation and security. Metric 1.B.1 (*Visually Active Frontage*) measures the visual connection between walkways and the interior of adjacent buildings. Metric 1.B.2 (*Physically Permeable Frontage*) measures active physical connections through the block's frontage via entrances and exits to and from storefronts, building lobbies, hallways, and passageways.

OBJECTIVE C. The pedestrian realm is temperate and comfortable.
The general willingness to walk, and the inclusion of people of all bodily abilities, can be significantly improved by the provision of shade and other forms of shelter from harsh climate conditions—such as street trees, arcades and awnings—or by street orientation that mitigates sun, wind, dust, rain, and snow exposure. Trees are the simplest, most effective, and most durable way of providing shade in most climates, and they have well-documented environmental and psychological co-benefits. This objective is measured by Metric 1.C.1 (*Shade and Shelter*). Highly recommended, but not measured in this standard, for the sake of simplicity, are amenities such as benches, public toilets, drinking fountains, pedestrian-oriented lighting design, wayfinding signage, landscaping, and other street furniture and streetscape-enhancing elements.

CYCLE

PRIORITIZE NONMOTORIZED TRANSPORT NETWORKS

CYCLING IS THE SECOND-MOST HEALTHFUL, AFFORDABLE, AND INCLUSIVE MODE OF URBAN MOBILITY. It combines walking door-to-door travel convenience and route and schedule flexibility with ranges and speeds similar to local transit services. Bicycles and other means of people-powered transport, such as pedicabs, also activate streets and greatly increase the ridership catchment area of transit stations. They are highly efficient and consume little space and few resources. Cycling friendliness is therefore a fundamental principle of TOD. Cyclists, however, are among the road users most vulnerable to crashes with vehicular traffic. Their bicycles are also vulnerable to theft and vandalism and require secure parking and storage. The key factors in promoting cycling are thus the provision of safe street conditions for cycling and the availability of secure cycle parking and storage at all trip origins and destinations and at transit stations. Electric-assist bicycles are considered in the *Standard* along with pedal-powered bicycles as long as maximum speed is similar.

OBJECTIVE A. The cycling network is safe and complete.

A safe cycling network connecting buildings and destinations by the shortest routes through developments and station catchment areas is a basic feature of TOD. This objective is measured by Metric 2.A.1 (*Cycle Network*). Various types of cycle-safe configurations can be part of the network, depending on vehicular speeds. Separated cycle paths are required when the vehicular speed is to exceed 30 km/h (20 mph). Shared roadway markings ("sharrows") are recommended when the allowed vehicular speed is between 15 and 30 km/h. (10 and 20 mph) Shared streets and plazas with allowed vehicular (including cycling) speeds under 15 km/h (10 mph) can remain unmarked.

OBJECTIVE B. Cycle parking and storage is ample and secure.

Cycling can be an attractive everyday travel option only to the extent that bicycles can be securely parked at all destinations and stored within private premises at night and for longer periods. These elements are addressed with the secure parking features of well-anchored cycle racks by Metrics 2.B.1 (*Cycle Parking at Transit Stations*), 2.B.2 (*Cycle Parking at Buildings*), and 2.B.3 (*Cycle Access in Buildings*).

This cycling and pedestrian street in Newport Beach, California, USA, prioritizes connectivity for non-motorized travel. Crossings of vehicular streets are made highly visible and beautiful.

CONNECT

CREATE DENSE NETWORKS OF STREETS AND PATHS

SHORT, DIRECT WALKING AND CYCLING REQUIRE DENSE, WELL-CONNECTED NETWORKS OF PATHS AND STREETS AROUND SHORT CITY BLOCKS. Walking in particular can be easily discouraged by detours and is particularly sensitive to network density. A tight network of paths and streets that offers multiple routes to many destinations, frequent street corners, narrower rights of way, and slow vehicular speed make walking and cycling trips varied and enjoyable and invigorate street activity and local commerce. An urban fabric that is more permeable to pedestrians and cyclists than to cars also encourages the use of nonmotorized and transit modes with all the associated benefits. The shorter the city blocks, the better—from a strict walkability perspective. However, a balance must be struck between public right of way efficiency (denser networks mean more land devoted to rights of way) and the capacity to accommodate larger development plots for land uses that require them. Both have ramifications for the economic viability and vitality of development and, eventually, for pedestrian activity. Research shows that blocks of about one hectare and block faces averaging about 100 meters (m) present the optimum trade-off. Such blocks are highly walkable, potentially land efficient (depending on the average street width), and offer plot size options adequate for most uses.

OBJECTIVE A. Walking and cycling routes are short, direct, and varied

The simplest proxy for the connectivity of the pedestrian walkway is the size of *city blocks*, defined as sets of contiguous properties that prevent public pedestrian passage. This block definition might be distinct from the blocks defined by mapped streets, since open pedestrian paths can exist through superblocks and buildings, regardless of public or private property status. The shortness and directness Metric 3.A.1 (*Small Blocks*) rewards development projects in which the longest block faces are between 110 and 150 m, keeping in mind that most city blocks are not square.

OBJECTIVE B. Walking and cycling routes are shorter than motor vehicle routes

High pedestrian and cycling connectivity is an important feature of TOD, but roadway connectivity that enhances motor vehicle travel is not. Metric 3.B.1 (*Prioritized Connectivity*) compares the two categories and rewards higher ratios of nonmotorized travel path connectivity to car-accessible roadway connectivity.

Short blocks and streets in the Center of Copenhagen, Denmark, provide direct and vibrant routes and an environment favorable to pedestrians and cyclists.

PRINCIPLE 4

TRANSIT

LOCATE DEVELOPMENT NEAR HIGH-QUALITY PUBLIC TRANSPORT

WALKABLE ACCESS TO *RAPID AND FREQUENT TRANSIT*, DEFINED AS RAIL TRANSIT OR BUS RAPID TRANSIT (BRT), IS INTEGRAL TO THE TOD CONCEPT AND A PREREQUISITE FOR *TOD STANDARD* RECOGNITION.[4] Rapid transit service connects and integrates pedestrians with the city beyond walkable and cycling ranges and is critical for people to access the largest pool of opportunities and resources. Highly efficient and equitable urban mobility and dense and compact development patterns mutually support and reinforce each other.

Transit comes in various modes, ranging from low- to high-capacity vehicles, from bicycle taxis and rickshaws, to bi-articulated buses and trains. Rapid public transit plays an important role not only in providing quick and efficient travel along its lines but also as a backbone for other transit options serving the entire spectrum of urban transport needs.

The single implementation objective for this principle is locating urban development within a short walking distance of high-quality transit: ideally, 500 meters (m) or less and no more than 1,000 m of actual walking distance (about a 20-minute walk), including all detours, from rapid, frequent, and well-connected BRT, rail, or ferry service.

OBJECTIVE A. High-quality transit is accessible by foot

For TOD Standard status, the maximum acceptable walking distance to the nearest rapid transit station is defined as 1,000 m and 500 m for a frequent local bus service that connects to a rapid transit network within less than 5 kilometers. The transfer station should be designed for short, convenient and all-accessible connections with the rapid transit service.

Metric 4.A.1 (Walking Distance to Transit) compliance is a requirement, and no scoring points are given.

San Juan de Dios Macrobus BRT and LRT Station connected with the Bike Shared System, MiBici in Guadalajara, Mexico.

[4] ITDP, *BRT Standard*.

PRINCIPLE 5

MIX

PLAN FOR MIXED USES, INCOME, AND DEMOGRAPHICS

WHEN THERE IS A BALANCED MIX OF COMPLEMENTARY USES AND ACTIVITIES WITHIN A LOCAL AREA (I.E., A MIX OF RESIDENCES, WORKPLACES, AND LOCAL RETAIL COMMERCE), MANY DAILY TRIPS CAN REMAIN SHORT AND WALKABLE. Diverse uses peak at different times and keep local streets animated and safe. They encourage walking and cycling activity, support extended hours of transit service, and foster a vibrant and complete human environment where people want to live. People of all ages, genders, income levels, and demographic characteristics can safely interact in public places. A mix of housing options makes it more feasible for workers of all income levels to live near their jobs and helps prevent lower-income residents dependent on lower-cost public transit from being systematically displaced to poorly-served outlying areas. Inbound and outbound commuting trips are more likely to be balanced during peak hours and throughout the day, resulting in more-efficient transit systems and operations. The two performance objectives for the MIX Principle therefore focus on the provision of a balance of complementary activities and land uses and on a diverse mix of resident income levels and demographic attributes.

OBJECTIVE A. Opportunities and services are within a short walking distance of where people live and work, and the public space is activated over extended hours

To allow many daily trips to be short and walkable, inbound and outbound transit trips to be balanced, and neighborhoods to be active and secure day and night, Metric 5.A.1 (Complementary Uses) rewards developments that support a balance of mostly nocturnal residential household activities versus mostly diurnal work and visiting activities. A project's contribution to an adequately balanced area is most beneficial if it is internally balanced, in the form of mixed-use development. If an area has only one type of use, or a heavily dominant use such as office buildings in a business district, the best contribution is to bring new uses and activities that help counterbalance that dominance. Metric 5.A.2 (Access to Local Services) rewards development for locating in, or contributing to, complete neighborhoods. The metric focuses on availability for all to local sources of fresh food, primary schools, and healthcare facilities or pharmacies. Fresh food is not only a necessity of daily life, but—equally importantly—a reasonably simple-to-assess and reliable litmus test for the wider availability of basic supplies because it has more rigorous supply chain requirements than nonperishable necessities. Very different processes govern the provision of primary schools and local healthcare services, which are essential local services especially important to poor households. Being able to walk to school, of course, carries health and cost benefits for all.

Public parks and playgrounds have multiple benefits—from improved air quality, to reduced heat island effects, to the increased physical and mental health and comfort of residents. Access to parks and playgrounds is particularly important to the urban poor, who have little access to private facilities and few opportunities to break away temporarily from urban life. Metric 5.A.3 (Access to Parks and Playgrounds) rewards the project for providing a publicly accessible recreation area of at least 300 square meters or locating near to such an area.

OBJECTIVE B. Diverse demographics and income ranges are included among local residents

Social equity is no less important to long-term sustainability than reduced environmental footprints. Mix of incomes is as important to mix of activities and uses to achieve more

equitable and sustainable communities and cities . The *TOD Standard* promotes social equity not only through inclusive access and mobility but also through inclusionary housing and its equitable distribution over the different areas of the city. The *Standard* also promotes upgrading substandard informal housing in situ, where safe, and generally promotes the protection of residents and communities from involuntary displacement caused by redevelopment.

METRIC 5.B.1 (Affordable Housing) rewards developments that includes specific provisions to improve the local mix in household income. In the general case, the scoring method rewards housing projects that include affordable housing priced lower than market rates. Any level of inclusionary housing yields 1 point. Points increase as percentage grows, peaking at a 50% affordable units mix (8 points). Two variants to the general case address contexts of strong high-income and low-income predominance. The higher-income area variant is designed to promote counteract the social imbalance by rewarding infill projects with up to 100% affordable housing units. Conversely, to avoid reinforcing concentration in zones of poverty, the low-income area variant does not reward any addition of affordable units but only grants points for the upgrading or replacement of existing substandard housing units. In all scenarios, the upgrading of substandard housing units is counted as new affordable housing provision. Development projects must accrue at least two points on this metric to be eligible for *Gold TOD Standard* recognition.

METRIC 5.B.2 (Housing Preservation) discourages the displacement of families present on site before redevelopment, the disruption of their community ties, destruction of social capital and networks, and loss of access to familiar resources and local employment opportunities. The metric rewards the maintenance on site or rehousing within walking distance of these households. Development projects must accrue full points on this metric to be eligible for *Gold TOD Standard* recognition.

METRIC 5.B.3 (Business and Services Preservation) rewards development projects that protect pre-existing businesses and services on the development site as part of the social fabric of the pre-existing community.

Pedestrian street in Monterrey, Mexico is active even after sunset due to vibrant commercial uses.

PRINCIPLE 6

DENSIFY

OPTIMIZE DENSITY AND MATCH TRANSIT CAPACITY

A DENSE MODEL OF DEVELOPMENT IS ESSENTIAL TO SERVING FUTURE CITIES WITH TRANSIT THAT IS SUFFICIENTLY RAPID, FREQUENT, WELL CONNECTED, AND RELIABLE AT MOST HOURS TO ENSURE A SATISFACTORY LIFE FREE OF DEPENDENCE ON CARS AND MOTORCYCLES. Urban density is needed to both accommodate growth within the inherently limited areas that can be served by quality transit and to provide the ridership that supports and justifies the development of high-quality transit infrastructure. From this perspective, urban areas must be designed and equipped not only to accommodate more people and activities per hectare than is usually the case in this age of vehicle-oriented sprawl but also to support highly desirable lifestyles.

Transit-oriented density results in well-populated, lively, active, vibrant, and secure places, where people want to live. It delivers the customer base and the foot traffic that makes local commerce thrive and supports a wide choice of services and amenities. Densification should generally be encouraged to the full extent that it is compatible with daylighting and the circulation of fresh air, access to parks and recreational spaces, the preservation of natural systems, and the protection of historic and cultural resources. As many of the most well-loved neighborhoods in great cities around the world attest, high-density living can be highly attractive. The challenge is to generalize the best aspects of urban density at an affordable cost, mobilize the resources to make it happen with appropriate infrastructure and services, and reform the frequent bias of land use codes and other development policy frameworks toward low densities. The performance objective under this principle emphasizes a combination of residential and nonresidential density in support of high-quality transit, local services, and vibrant public spaces.

OBJECTIVE A. High residential and job densities support high-quality transit, local services, and public space activity

Metric 6.A.1 (Nonresidential Density) rewards projects for achieving equal or higher densities by comparing them contextually to local best practice of successful recent and similar projects in the same city. Depending on data availability, a choice of indicator is available: (1) jobs and daily visitors per hectare, which more closely reflects actual performance, or (2) the built floor to land area ratio (FAR), which is usually easier to obtain or to estimate from visual assessment. Increasing densities within a 500 m walking distance of a transit station is the preferred approach, and only projects located in that zone are now eligible for full points in this metric. Metric 6.A.2 (Residential Density) similarly rewards dwelling unit density as a proxy for residential density.

Mixed uses and prioritized connectivity for pedestrians are demonstrated in the high-profile development of Jianwai Soho in Beijing, China.

PRINCIPLE 7

COMPACT

CREATE REGIONS WITH SHORT TRANSIT COMMUTES

THE BASIC ORGANIZATIONAL PRINCIPLE OF TOD IS COMPACTNESS: HAVING ALL NECESSARY COMPONENTS AND FEATURES FITTED CLOSE TOGETHER, CONVENIENTLY AND SPACE-EFFICIENTLY. With shorter distances, compact cities require less time and energy to travel from one activity to another, need less extensive and costly infrastructure (though higher standards of planning and design are required), and preserve rural land from development by prioritizing the densification and redevelopment of previously developed land. The COMPACT Principle can be applied on a neighborhood scale, resulting in spatial integration by good walking and cycling connectivity and orientation toward transit stations. On the scale of a city, compact means the city is covered and integrated spatially by public transit systems. The two performance objectives for this principle focus on the proximity of a development to existing urban activity and short travel times to the major trip generators in the central and regional destinations.

OBJECTIVE A. The development is in, or next to, an existing urban area

To promote densification and the efficient use of previously developed vacant lots, such as brownfields, Metric 7.A.1 (Urban Site) rewards development on sites within or immediately adjacent to an urbanized area.

OBJECTIVE B. Traveling through the city is convenient

Metric 7.B.1 (Transit Options) encourages project locations in areas with multiple transport options, including different rapid and local transit services and para-transit options serving the diverse needs and destinations of residents and encouraging more people to use transit.

The BRT corridors spurred further development along the compact urban area of Zhongshan Road, Guangzhou, China.

PRINCIPLE 8

SHIFT

INCREASE MOBILITY BY REGULATING PARKING AND ROAD USE

IN CITIES SHAPED BY THE ABOVE SEVEN PRINCIPLES, THE USE OF PERSONAL MOTOR VEHICLES IN DAY-TO-DAY LIFE BECOMES UNNECESSARY FOR MOST PEOPLE, AND THE VARIOUS DETRIMENTAL SIDE EFFECTS OF SUCH VEHICLES CAN BE DRASTICALLY REDUCED. Walking, cycling, and the use of high-quality transit are easy, safe, and convenient, and car-free lifestyles can be supported by a variety of intermediary transit modes and hired vehicles as needed. Scarce and valuable urban space resources can be reclaimed from unnecessary roadways and parking and reallocated to more socially and economically productive uses. Conversely, a gradual but proactive reduction of roadways and parking space availability in urban space is needed to lead to a shift in transport mode shares from private motor vehicles to the more sustainable and equitable modes, if matched by sufficient walking, cycling, public transit, and occasional support vehicles. The implementation objective below focuses on the minimization of the space given over to motor vehicles, on which urban development practices and policies have specific leverage. However, a wide array of other policies, including fiscal and regulatory, need to be mobilized to deincentivize reliance on cars and motorcycles.

OBJECTIVE A. The land occupied by motor vehicles is minimized

Metric 8.A.1 (*Off-Street Parking*) rewards a low provision of parking space within development boundaries. Metric 8.A.2 (*Driveway Density*) measures the frequency of driveways breaching the protected status of walkways and rewards driveway minimization. Metric 8.A.3 (*Roadway Area*) measures the total area of street space occupied by private motor vehicles either in the form of road area or on-street parking. Transit-dedicated, lanes are not to be counted in the measurement.

The Central St. Giles mixed-use development in London, UK, only includes a few car parking spaces. This well-connected development is dense with small block footprints with active and permeable frontage, and provides easy access for pedestrians and cyclists.

SCORING IN DETAIL

Safe cycleways enhance the multimodal transportation options as well as enable a sustainable way of moving around Buenos Aires, Argentina.

15
POINTS

DEVELOP NEIGHBORHOODS THAT PROMOTE WALKING

PRINCIPLE **1**

WALK

Objective A:
The pedestrian realm is safe, complete, and accesible to all

Metric 1.A.1 Walkways
Percentage of walkway segments with safe, all-accessible walkways. **3 points**

Metric 1.A.2 Crosswalks
Percentage of intersections with safe, all-accessible crosswalks in all directions. **3 points**

Objective B:
The pedestrian realm is active and vibrant

Metric 1.B.1 Visually Active Frontage
Percentage of walkway segments with visual connection to interior building activity. **6 points**

Metric 1.B.2 Physically Permeable Frontage
Average number of shops, building entrances, and other pedestrian access per 100 meters of block frontage. **2 points**

Objective C:
The pedestrian realm is temperate and comfortable

Metric 1.C.1 Shade and Shelter
Percentage of walkway segments that incorporate adequate shade or shelter elements. **1 point**

OBJECTIVE 1.A. The pedestrian realm is safe, complete, and accessible to all.

3 POINTS

1.A.1 WALKWAYS

Percentage of walkway segments with complete, all-accessible walkways.

DETAILS

- A project has complete, *all-accessible walkways* when all blocks and all building and property entrances are served by safe, continuous walkways, connected in all possible directions to the adjacent pedestrian network. This is a core attribute of TOD and should be achieved by all new TOD projects.

- A block's *walkways* are measured as segments in the pedestrian network. *Segments* are stretches of walkways between two adjacent intersections in the network and can be of any of the following types:
  (a) dedicated sidewalks protected from vehicular traffic by a curb or other adequate device.
  (b) shared streets designed for safe sharing between pedestrians, cyclists, and vehicles (i.e., with speeds capped at 15 km/h [10 mph]).
  (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,[5] and
  (C) receive street lighting at night that is adequate for pedestrian safety and security.

- Temporary walkway obstructions caused by works or other situations should not be penalized if a safe, all-accessible detour of the shortest possible distance is available to all destinations.

MEASUREMENT METHOD

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; see Glossary).
2. Quantify the qualifying walkway segments (see details above).
3. Divide the second measure by the first to calculate the percentage of walkway network completeness.

Well-accessible pedestrian walkways with street furniture and elements of shade in Centro Histórico in Mexico City, Mexico.

[5] United Nations, *Accessibility for the Disabled*.

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

DATA SOURCES

Plans and designs; maps; up-to-date, high-definition aerial/satellite photography; site survey.

SCOPE

Within the development's boundaries and immediately adjacent within the public right of way.

WALKWAYS

Percentage of the walkway network that is complete:

100%	3 POINTS
Less than 100%	0 POINTS

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
Within the defined station catchment area (guidelines found in the eligibility criteria or in the How to Use the TOD Standard section).

WALKWAYS

Percentage of the walkway network that is complete:

100%	3 POINTS
90% or more	2 POINTS
80% or more	1 POINTS
Less than 80%	0 POINTS

3 POINTS

1.A.2 CROSSWALKS

► Percentage of intersections with safe, all-accessible crosswalks in all directions.

DETAILS

- Completeness of the all-accessible pedestrian access network is a core attribute of TOD.
- Safe, all-accessible crosswalks are required at intersections of roadways where vehicular speed exceeds 15 km/h (10 mph).
- In very dense street networks, a qualifying crosswalk through the larger roadway is only required at intervals of 200 meters (m) 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,[6]
  (b) measure 2 m or more in width and are demarcated,
  (c) feature all-accessible refuge islands if crossing more than two traffic lanes, and
  (d) receive adequate street lighting at night for safety and security.

MEASUREMENT METHOD

1. Quantify the number of intersections that require pedestrian crossing facilities.
2. Quantify the number of these intersections with qualifying crossing facilities (see details above).
3. Divide the second measure by the first to calculate the percentage of complete intersections.

DATA SOURCES

Plans and designs; maps; up-to-date aerial/satellite photography; site survey.

SCOPE

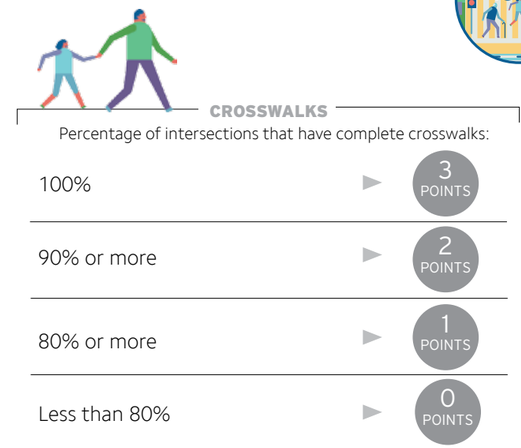
Within development boundaries.

[6] United Nations, *Accessibility for the Disabled*.

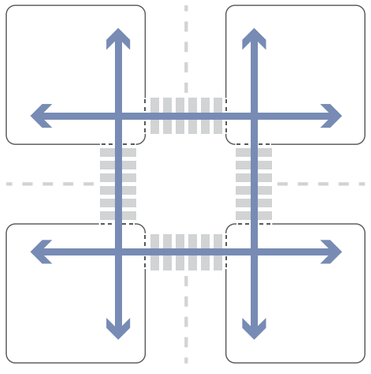
STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

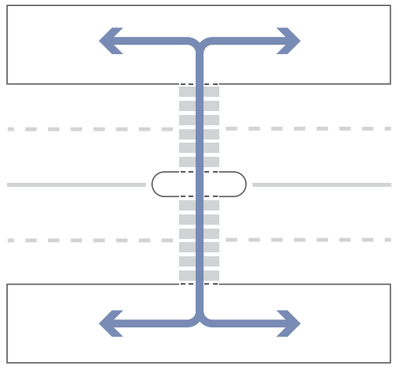
SCOPE:
Within the defined station catchment area.



This pedestrian intersection in Greenwich Village, New York City, USA, is marked for rebuilding with a sidewalk bulb out that shortens crossing distance for pedestrians



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.

6 POINTS

1.B.1 VISUALLY ACTIVE FRONTAGE

Percentage of walkway segments with visual connection to interior building activitiy.

DETAILS

- A *walkway* segment, defined as a length of frontage between two adjacent intersections in the pedestrian network, is considered *visually active* if 20% or more of the length of its abutting building frontage is visually active.
- *Visually active frontage* is defined as the length of ground-floor building frontage abutting public walkways that is visually penetrable.
- *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 (m) above ground. In this definition, residential building windows with ledges just above pedestrian eye level are acceptable.
- Accessible open space such as playgrounds, parks, porches, and patios is included, but landscaping not designed to be routinely used by people is not.
- Windows with operable interior or exterior curtains or shutters are included as visually active.
- Garage entrances and other vehicle-only access points are not included as visually active frontage and count as blank walls.
- Undeveloped plots (plots farmed, fallow, vacant, or used as park and gardens) are not included in the measurement.
- Alleyways that dead-end and have no main pedestrian entrance need not be counted as public walkway segments.

MEASUREMENT METHOD

❶ Quantify the total number of public walkway segments.
  (a) For narrow streets with a right of way from building line to building line of less than 20 m, both sidewalks can be counted as one public walkway segment.
  (b) For streets with a right of way from building line to building line of 20 m or more, each sidewalk must be counted as one walkway segment.

❷ Quantify the number of public walkway segments that qualify as visually active (see details above).

❸ Divide the second measure by the first to calculate an active frontage percentage.

DATA SOURCES

Plans and designs; maps; site survey.

SCOPE

Within the development and its periphery.

VISUALLY ACTIVE FRONTAGE

Percentage of walkway segments with visually active frontage:

90% or more	6 POINTS
80% or more	5 POINTS
70% or more	4 POINTS
60% or more	3 POINTS
50% or more	2 POINTS
Less than 50%	0 POINTS

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
Within the defined station catchment area.

Visually active frontage within residential district of Liuyun Xiaoqu in Guangzhou, China.

2 POINTS

1.B.2 PHYSICALLY PERMEABLE FRONTAGE

Average number of shops, building entrances, and other pedestrian access per 100 meters (m) of block frontage.

DETAILS

- Qualifying entrances include openings to storefronts, restaurants and cafés, building lobbies, active service entrances, pedestrian passageways, park gates, and corner plaza access.
- Nonqualifying entrances include emergency-only exits, storage, motor vehicle garages, and driveway entrances.
- Undeveloped plots (plots still farmed, fallow, vacant, or used as parks and gardens) are not included in the measurement.
- Alleyways that dead-end and do not lead to a main pedestrian entrance need not be counted as public walkway segments.

Average number of entrances per 100 m of block frontage:

5 or more	2 POINTS
3 or more	1 POINTS
Fewer than 3	0 POINTS

MEASUREMENT METHOD

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

DATA SOURCES

Plans and designs; maps; site survey.

SCOPE

Within the development.

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
Within the defined station catchment area.

Multiple shop and building entrances at the ground level create a highly permeable and welcoming street frontage in Pune, India.

1 POINT

1.C.1 SHADE AND SHELTER

Percentage of walkway segments that incorporate adequate shade of shelter amenities.

DETAILS

- *Walkway segments* are the parts of walkways that lie between two adjacent intersections in the pedestrian network, including nonmotorized network intersections.
- *Shade and shelter* can be provided through various amenities, as locally appropriate. Such amenities include trees, buildings (e.g., arcades, awnings, cast shadows), freestanding structures (e.g., shade shelters at intersections and public transport shelters), and vertical wind and solar screens (e.g., walls and lattices).
- *Shaded walkways* are walkways that provide appropriate shading over the clear pedestrian path in the hottest season.
- Streets with more than two traffic lanes must be adequately shaded on both sides to qualify as shaded walkway segments.
- In hot climates, walkway segments in narrow streets that are adequately shaded by buildings other than for a short time at peak sun qualify as shaded walkways.

In Dakar, Senegal, the natural foliage protects pedestrians from direct sun.

Percentage of all walkway segments that have adequate shade and shelter amenities:

75% or more	1 POINTS
Less than 75%	0 POINTS

MEASUREMENT METHOD

1. Quantify the number of walkway segments.
2. Quantify the number of segments that incorporate climate-adequate shade or shelter elements.
3. Divide the second measure by the first to calculate the percentage of adequately shaded and sheltered walkways.

DATA SOURCES

Plans and designs; maps; up-to-date aerial/satellite photography; site survey.

SCOPE

Within development boundaries.

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
Within the defined station catchment area.

5
POINTS

PRIORITIZE NONMOTORIZED TRANSPORT NETWORKS

PRINCIPLE 2

CYCLE

Objective A:
The cycling network is safe and complete.

Metric 2.A.1 Cycle Networks
Access to a safe cycling street and path network
2 points

Objective B:
Cycle parking and storage are ample and secure

Metric 2.B.1 Cycle Parking at Transit Stations
Ample, secure, multi-space cycle parking facilities are provided at all transit stations. **1 point**

Metric 2.B.2 Cycle Parking at Buildings
Percentage of buildings that provide ample, secure cycle parking. **1 point**

Metric 2.B.3 Cycle Access in Buildings
Buildings allow interior access and storage within tenant-controlled spaces for cycles. **1 point**

A safe cycling network promotes the use of bicycles for transportation in Santiago de Chile.

OBJECTIVE 2.A: The cycling network is safe and complete.

2 POINTS

2.A.1 CYCLE NETWORK

Access to a safe cycling street and path network.

DETAILS

- Complete cycling network segments with safe conditions are defined as:
  - (a) street segments with speeds above 30 km/h (20 mph) with exclusive or protected cycleways, spatially segregated from vehicles in both directions (e.g., painted or physically separated cycle lanes),
  - (b) slow street segments with a vehicular speed of 30 km/h (20 mph) or slower (exclusive or protected cycleways are not required, but sharrow stencils are recommended),
  - (c) pedestrian-priority street segments, or shared streets, with 15 km/h (10 mph) vehicular speed limit (no segregation of either pedestrians or cyclists is required), or
  - (d) paths restricted to pedestrians and cyclists.

MEASUREMENT METHOD

1. Identify any street and path network segment that does not qualify for safe cycling (see details above).
2. Identify any building entrance that opens onto an unsafe cycling segment and is farther than 200 meters (m) from the safe network.

DATA SOURCES

Plans and designs; maps; up-to-date aerial/satellite photography; local government transport data; site survey.

SCOPE

Within the development.

CYCLE NETWORK

100% of street and path segments are open and safe for cycling	2 POINTS
No building entrance is more than a 200 m walking distance from a safe cycling network segment	1 POINT
One or more building entrance are more than a 200 m walking distance from a safe cycling network segment	0 POINTS

A high capacity cycle way has physical protection, turning lanes and an advanced stop line for cyclists in Hangzhou, China.

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:

❶ Identify all street and path network segments in the area that qualify for safe cycling (see details above) and connect to a qualifying transit station.

❷ Identify the building the farthest (walking distance) from the safe cycling network. Exclude any extreme outliers. Measure the walking distance from the building to the safe cycling network.

SCOPE:
Within the defined station catchment area.

CYCLE NETWORK

Maximum bicycle walking distance to the safe cycling network is:

Less than 100 m	2 POINTS
Less than 200 m	1 POINT
200 m or more	0 POINTS

Traffic calmed, low speed streets are safe for cycling without segregated cycleways; Mexico City, Mexico

OBJECTIVE 2.B: Cycle parking and storage is ample and secure.

1 POINT

2.B.1 CYCLE PARKING AT TRANSIT STATIONS

► Ample, secure, multispace cycle parking facilities are provided at all transit stations.

DETAILS

- *Secure cycle parking* requires the provision of fixed facilities at which to lock bicycles and other nonmotorized vehicles. These facilities include multispace outdoor racks and weather-protected storage.
- Cycle parking facilities should be located clear of pedestrian or vehicle circulation paths and within 100 meters (m) of a transit station entrance.

MEASUREMENT METHOD

❶ Identify all transit stations within the scope defined below.

❷ Identify any station that does not provide multispace, secure cycle parking facilities (see details above).

DATA SOURCES

Plans and designs; maps; public transport map; local government transport data; site survey.

SCOPE

All transit stations within 1 kilometer of the development.

CYCLE PARKING AT TRANSIT STATIONS

Multispace cycle racks are provided within 100 m of all transit stations	1 POINT
Multispace cycle racks are not provided or are only provided at some transit stations	0 POINTS

A large parking facility at Pantitlán transit hub in México City, makes cycle storage secure and combining cycling and transit modes convenient.

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
All transit stations within the defined station catchment area.

1 POINTS

2.B.2 CYCLE PARKING AT BUILDINGS

Percentage of buildings that provide ample, secure cycle parking.

DETAILS

- Applies to buildings with a floor area larger than 500 square meters (m2) or six residential units.
- Qualifying cycle parking at buildings:
  (a) is located clear of pedestrian or vehicle circulation areas within 100 m of the entrance, and
  (b) provides ample racks or other fixed facilities to securely lock bicycles and other nonmotorized vehicles.
- Cycle parking facilities in public streets and public garages within 100 m qualify if ample and secure enough.

Bike storage station for local residents at Hammarby Sjöstad, Stockholm, Sweden.

MEASUREMENT METHOD

1. Quantify all applicable buildings.
2. Quantify all applicable buildings with qualifying cycle parking (see details above).
3. Divide the second measure by the first to calculate a percentage for cycle parking provision.

DATA SOURCES

Plans and designs; maps; public transport map; local government bicycle parking data; site survey.

SCOPE

All buildings within the development.

CYCLE PARKING AT BUILDINGS

Percentage of buildings that provide qualifying cycle parking:

95% or more	1 POINT
Less than 95%	0 POINTS

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
All buildings within the defined station catchment area.

CYCLE PARKING AT BUILDINGS

Percentage of buildings that qualifying cycle parking:

25% or more	1 POINT
Less than 25%	0 POINTS

1 POINT

2.B.3 CYCLE ACCESS IN BUILDINGS

Buildings allow interior access and storage within tenant-controlled spaces for cycles.

DETAILS

- Cycle access via common hallways and elevators into residential and nonresidential tenant-controlled spaces must be allowed by building code or bylaws or by long-term lease agreement.

MEASUREMENT METHOD

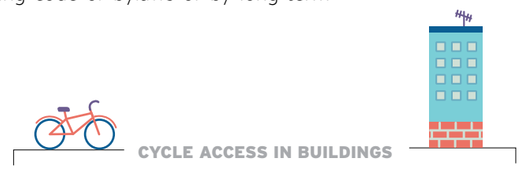
1. Review applicable codes and bylaws or a tenant handbook.

DATA SOURCES

Applicable codes or bylaws; available tenant information.

SCOPE

All buildings constructed as part of the development.



Cycle access is required by building codes or bylaws or long-term lease agreement	1 POINT
Cycle access is not required by building codes or bylaws or long-term lease agreement	0 POINTS

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
All buildings within the defined station catchment area.

A cycle parking area near the elevator of an office in New York City, USA.

15
POINTS

Objective A:
Walking and cycling routes are short, direct, and varied.

Metric 3.A.1 Small Blocks
Length of longest pedestrian block.
10 points

Objective B:
Walking and cycling routes are shorter than motor vehicle routes

Metric 3.B.1 Prioritized Connectivity
Ratio of pedestrian intersections to motor vehicle intersections.
5 points

CREATE DENSE NETWORKS OF STREETS AND PATHS

PRINCIPLE **3**

CONNECT

Revived old streets and alleyways of the Insadong district create a diverse network of interesting and convenient walking routes in Seoul, South Korea.

OBJECTIVE 3A: Walking and cycling routes are short, direct, and varied.

10 POINTS

1.C.1 SMALL BLOCKS

► Length of longest pedestrian block

DETAILS

- *Pedestrian blocks* are defined in this *Standard* 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.
- *Public accessibility* is defined as unrestricted passage for all for 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.

MEASUREMENT METHOD

1. Quantify the number of blocks that lie fully within the development.
2. Measure or estimate the length of each block.

DATA SOURCES

Plans and designs; maps; up-to-date aerial/satellite photography.

SCOPE

All pedestrian blocks within the development.

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
All blocks within the defined station catchment area.

SMALL BLOCKS

All blocks within the development are:

Shorter than 110 meters (m)	10 POINTS
Shorter than 130 m	6 POINTS
Shorter than 150 m	2 POINTS
Some blocks within the development are longer than 150 m	0 POINTS

SMALL BLOCKS

90% of blocks within the catchment area are:

Shorter than 110 m	10 POINTS
Shorter than 130 m	8 POINTS
Shorter than 150 m	6 POINTS
Shorter than 170 m	4 POINTS
Shorter than 190 m	2 POINTS
More than 10% of blocks within the catchment area are longer than 190 m	0 POINTS

OBJECTIVE 3.B: Walking and cycling routes are shorter than motor vehicle routes.

5 POINTS

3.B.1 PRIORITIZED CONNECTIVITY

Radio of pedestrian intersections to motor vehicle intersections.

DETAILS

- *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 in the vehicular roadway network, excluding pedestrian-priority (shared) streets.
- Intersections at plazas and open spaces permeable to pedestrians and cyclists, but without defined paths, are counted as four-way intersections.
- Cul-de-sacs and dead ends with no throughway or pedestrian exit connecting back to the pedestrian network do not count toward an intersection's connection count. Therefore, a four-way intersection for which one of the ways is a cul-de-sac is counted as a three-way intersection.

MEASUREMENT METHOD

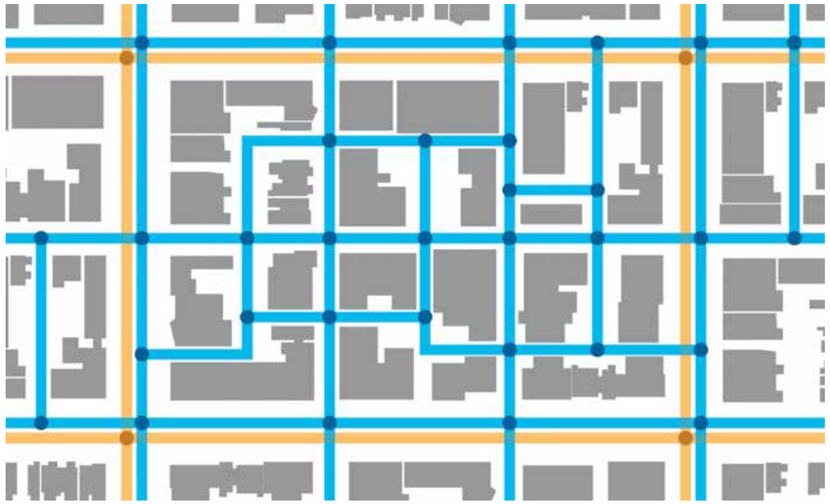
1. Map all motor vehicle intersections within the development and to the centerline of peripheral streets.
2. Map all pedestrian intersections within the development and to the centerline of peripheral streets. Count all motor vehicle intersections with appropriate walkways and crosswalks as pedestrian intersections in this step.
3. Quantify all intersections as follows:
   (a) A four-way intersection = 1 intersection
   (b) A three-way, or "T", intersection = 0.75 intersections
   (c) A five-way intersection = 1.25 intersections
4. Divide the second measure by the first to calculate a prioritized connectivity ratio.

DATA SOURCES

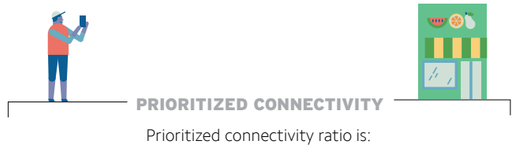
Plans and designs; maps; up-to-date aerial/satellite photography; site survey.

SCOPE

Within the development and to the centerline of peripheral streets.



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.



PRIORITIZED CONNECTIVITY

Prioritized connectivity ratio is:

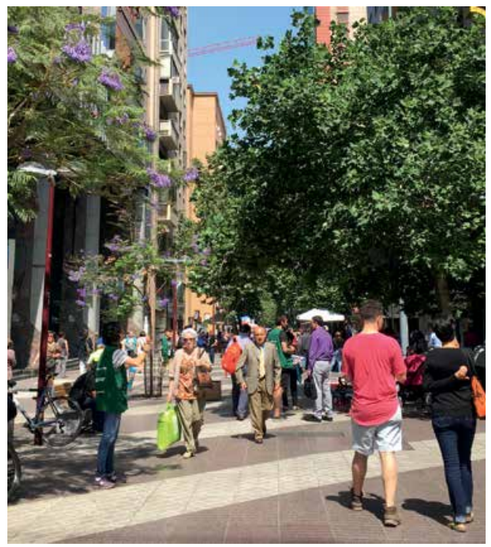
2 or higher	5 POINTS
1.5 or higher	3 POINT
Higher than 1	1 POINT
1 or lower	0 POINTS

Pedestrian streets with limited access for vehicles make walking attractive in downtown Santiago de Chile.

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
Within the defined station catchment area.



TOD
REQUIREMENT

LOCATE DEVELOPMENT NEAR HIGH-QUALITY PUBLIC TRANSPORT

PRINCIPLE
4

TRANSIT

Objective A:
High-quality transit is accessible by foot.

Metric 4.A.1 Walking Distance to Transit
Walking distance to the nearest transit station

TOD REQUIREMENT

4.A.1 WALKING DISTANCE TO TRANSIT

Walking distance to the nearest transit station.

DETAILS

- Applicable transit stations are accessible to all by design, have a minimum 15-minute service frequency between 7 a.m. and 10 p.m., and may be:
  (a) a *rapid transit* station (defined as bus rapid transit, rail, or ferry), or
  (b) a station on a nonrapid transit service that connects to rapid transit within 5 kilometers.
- Buildings in the development must all be within a 1,000-meter (m) all-accessible walking distance of a rapid transit station or within a 500 m walking distance of a qualified nonrapid direct service.
- The actual walking distance between the entrance to the farthest building and a transit station is measured via all-accessible walkways and crosswalks in public areas (not a straight line).
- All-accessible stations and walkways are defined as barrier-free for people with disabilities, including wheelchair users and people with low vision, according to local regulations or international standards.[7]

Accessible pedestrian infrastructure around the Metrobús BRT Station in Buenos Aires, Argentina, provides safe and easy access to transit

MEASUREMENT METHOD

1. Identify the building entrances that are farthest from applicable transit stations.
2. Quantify the longest walking distance to the nearest station.

DATA SOURCES

Plans and designs; maps; up-to-date aerial/satellite photography; local government building data and zoning regulations; site survey.

SCOPE

All buildings within the development; nearby transit stations.

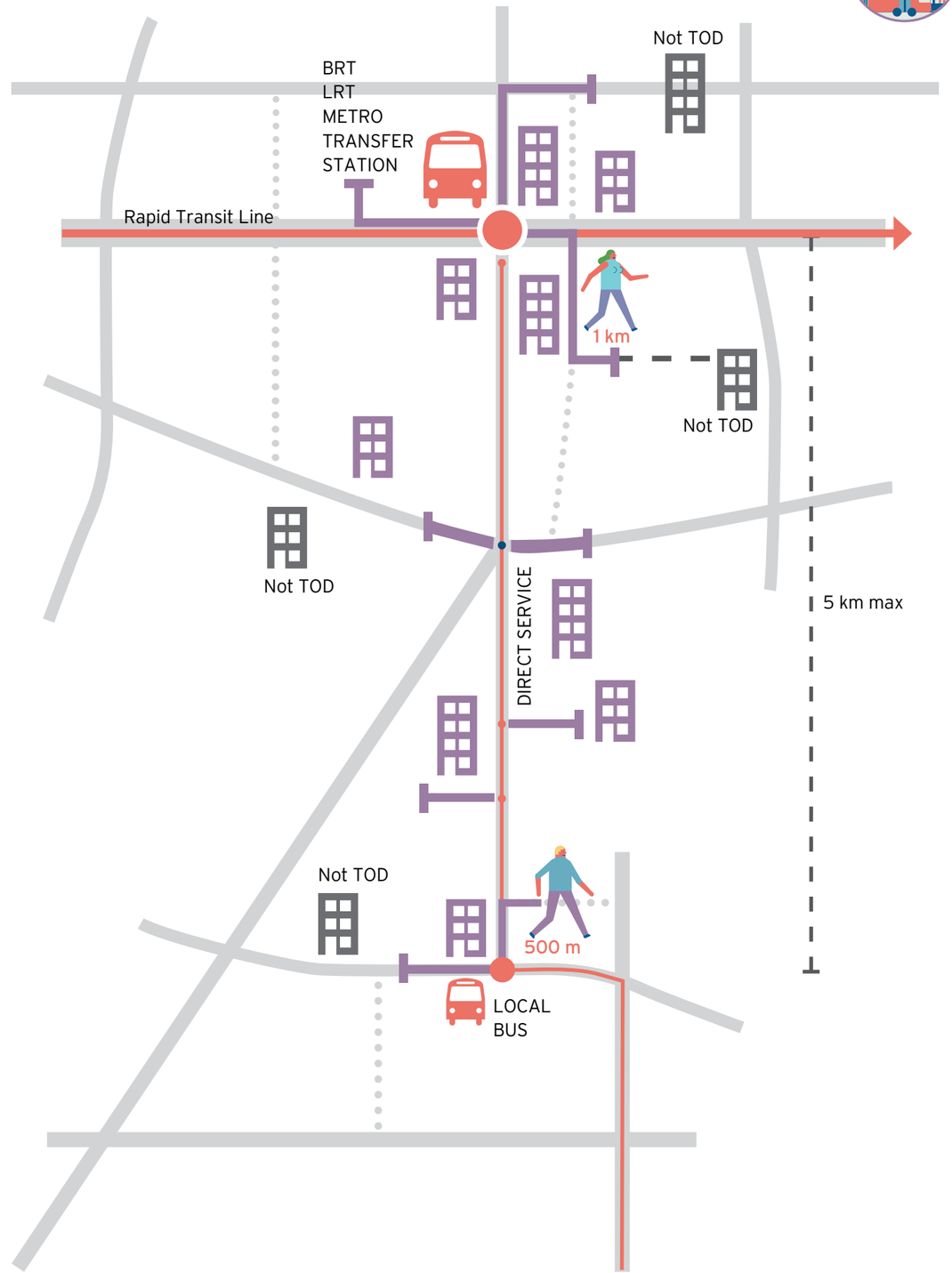
[7] United Nations, *Accessibility for the Disabled*.

MAXIMUM WALKING DISTANCE TO TRANSIT

The longest walking distance to a transit station is 1,000 m or less for rapid transit or 500 m or less for a direct service	MEETS TOD STANDARD REQUIREMENT
The longest walking distance is more than 1,000 m or 500 m, as applicable	DOES NOT MEETS TOD STANDARD REQUIREMENT

STATION CATCHMENT AREA EVALUATION

Use the above definition or any locally acceptable maximum walking distance to transit to define the station catchment area as needed.



25
POINTS

PLAN FOR MIXED USES, INCOME, AND DEMOGRAPHICS

PRINCIPLE 5

MIX

Objective A:
Opportunities and services are within a short walking distance of where people live and work, and the public space is activated over extended hours.

Metric 5.A.1 Complementary Uses
Residential and nonresidential uses within same or adjacent blocks. 8 points

Metric 5.A.2 Access to Local Services
Percentage of buildings that are within walking distance of an elementary or primary school, a healthcare service or pharmacy, and a source of fresh food. 3 points

Metric 5.A.3 Access to Parks and Playgrounds
Percentage of buildings located within a 500-meter walking distance of a park or playground. 1 point

Objective B:
Diverse demographics and income ranges are included among local residents.

Metric 5.B.1 Affordable Housing
Percentage of total residential units provided as affordable housing. 8 points

Metric 5.B.2 Housing Preservation
Percentage of households living on site before the project that are maintained or relocated within walking distance. 3 points

Metric 5.B.3 Business and Services Preservation
Percentage of pre-existing local resident–serving businesses and services on the project site that are maintained on site or relocated within walking distance. 2 points

Vibrant market located within a residential zone in Hong Kong.

OBJECTIVE 5.A: Opportunities and services are within a short walking distance of where people live and work, and the public space is activated over extended hours.

8 POINTS

5.A.1 COMPLEMENTARY USES

Residential and nonresidential uses combined within the same or adjacent blocks.

DETAILS

- Two types of land use mix are distinguished:
  (a) *internally complementary*: residential and nonresidential uses form a complementary mix within the development, and
  (b) *contextually complementary*: the project's predominant share of floor area is dedicated to uses complementary to the uses predominant in the surrounding station catchment area.

- A development is defined as *internally complementary* if residential uses account for no less than 15% and no more than 85% of the total developed floor area.

- A development is defined as contextually complementary if either:
  (a) more than half of its floor area is dedicated to uses that balance the category of uses predominant in the station catchment area, or
  (b) the development is internally complementary and located in a station area with a residential use balance between 40% and 60%.

- A station catchment area is defined as balanced when the residential to nonresidential uses ratio of floor area is between 50%/50% and 40%/60%. (See the station catchment area measurement method below.)

MEASUREMENT METHOD

1. Determine the complementary mix ratio (balance of residential and nonresidential uses) within the development. Do not include any floor area dedicated to car parking in the calculations.

2. Determine the complementary mix ratio of the surrounding station catchment area. (Follow the station catchment area measurement below.)

3. Determine if the proposed development would improve or support the balance of residential and nonresidential uses in the station catchment area.

DATA SOURCES

Plans and designs; local government building data and zoning regulations; site survey.

SCOPE

Within the development (internally complementary) and within the station catchment area (contextually complementary).

COMPLEMENTARY USES

Development provides an internally and contextually complementary mix	8 POINT
Development is internally complementary	5 POINTS
Development is contextually complementary (improves or supports balance of station catchment area)	3 POINTS
Development does not provide a mix of uses either internally or in relation to the area	0 POINT

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Identify the residential and nonresidential land uses and the proportion of each category within the station catchment area.

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.

SCOPE:
Within the defined station catchment area.

COMPLEMENTARY USES

The predominant use category in the station catchment area occupies:

50% to 60% of the total floor area	8 POINT
51% to 70% of the total floor area	6 POINTS
71% to 80% of the total floor area	4 POINTS
More than 80% of the floor area	0 POINT

Residential, commercial and working spaces are combined within the same or adjacent blocks in the Chelsea district, New York City, USA

Ground floor residential units in this formerly single use housing complex in the Liuyun Xiaoqu area of Guangzhou, China, were converted into shops, restaurants and cafes.

OBJECTIVE 5.A: Opportunities and services are within a short walking distance of where people live and work, and the public space is activated over extended hours.

3 POINTS

5.A.2 ACCESS TO LOCAL SERVICES

Percentage of buildings that are within walking distance of an elementary or primary school, a healthcare service or pharmacy, and a source of fresh food.

DETAILS

- *Fresh food* includes any of the following: fresh fruits and vegetables, dairy products, or meat and seafood.
- Eligible sources of fresh food include 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 in the development but are planned, they can be scored.
- Sources of fresh food outside the station catchment area but within a 500-meter (m) walking distance of all development buildings are also eligible.
- Eligible elementary or primary schools include public and private institutions located within a 1,000 m 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 m walking distance of the farthest building entrance in the development.

MEASUREMENT METHOD

1. Map all buildings and primary building entrances.
2. Map all sources of fresh food.
3. Map all qualifying elementary schools and healthcare services.
4. Mark all buildings with entrances within a 500 m walking distance of fresh food sources and a 1,000 m walking distance of primary or elementary schools and a healthcare service or a pharmacy.

This ground floor kindergarten facility at Shinanome, Tokyo, Japan, is conveniently accessible to the parents and children living above and around.

DATA SOURCES

Plans and designs; maps and listings; site survey.

SCOPE

Within the development, and a designated walking distance from the development.

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
Within the defined station catchment area.

Fresh food market in Pune, India.

OBJECTIVE 5.A: Opportunities and services are within a short walking distance of where people live and work, and the public space is activated over extended hours.

1 POINT

5.A.3 ACCESS TO PARKS AND PLAYGROUNDS

Percentage of buildings located within a 500-meter (m) walking distance of a park or playground.

DETAILS

- A *park* or *playground* must be at least 300 m2 in area and publicly accessible 15 hours or more per day. If the park or playground has shared use as school yard or physical education facility, school time can be deducted from the opening hours.
- Parks outside of the station catchment area but within a 500 m walking distance of the project are also eligible.

MEASUREMENT METHOD

1. Map all buildings and primary building entrances.
2. Map all eligible parks and playgrounds.
3. Mark all buildings with entrances within a 500 m walking distance of eligible parks and playgrounds.

DATA SOURCES

Plans and designs; maps and listings; site survey.

SCOPE

Within the development and within a 500 m walking distance of the main entrance of the farthest residential building.

ACCESS TO GREEN OR OPEN SPACES

Percentage of buildings within walking distance of a publicly accesible park or playground:

80% or more	1 POINT
Less than 80%	0 POINTS

The badmington courts at Whampoa Garden, Hong Kong, are accessible to the public.

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
Within the defined station catchment area.

OBJECTIVE 5.B: Diverse demographics and income ranges are included among local residents.

8 POINTS

5.B.1 AFFORDABLE HOUSING

Percentage of total residential units provided as affordable housing.

DETAILS

- Use affordable housing standards as defined by the relevant municipal, regional, or national government. If unavailable, use the following definition: *Affordable housing rent* is below 30% of the mean income in the relevant income category.
- Pre-existing substandard housing units on site that are upgraded to local housing standards as part of the project count as new affordable housing units.
- Use locally applicable standards to define community income level (low, high, middle). If inapplicable, define high household income as twice the national median or more after adjustment for household size, and define low household income as two-thirds or less of the national median after adjustment.
- No points are accrued for adding affordable housing units to already predominantly low-income residential areas.
- Affordable housing status and pricing must be guaranteed for at least 10 years or according to applicable regulations.
- *Infill projects* are no more than 1 hectare (ha) in land area or a full block, whichever is smaller. Projects larger than 1 ha or a full block, whichever is larger, are defined as *large projects*.

MEASUREMENT METHOD

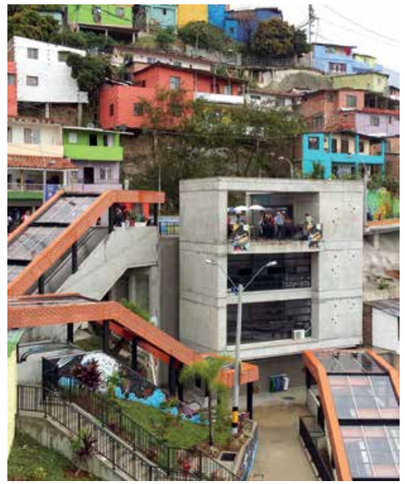
1. Quantify the number of residential units created. If there are no residential units in the development, then the score is 8, and no further measurement is needed.
2. Quantify the number of affordable residential units created (see details above).
3. Divide the second figure by the first to obtain the ratio.
4. Apply the general case or the variant that best fulfills Objective 5.B. If a variant is being applied, justify the decision in the notes.

DATA SOURCES

Plans and designs; local government housing data; third-party reports; field surveys.

SCOPE

Residential units within the development and pre-existing on site.



In Medellin, Colombia, the low income, informal settlements of Comuna 13 benefit from infrastructure improvements.

General Case: Applies to all projects in medium- and mixed- income communities and only to large projects in high-income communities.

AFFORDABLE HOUSING IN PROJECT

Percentage of housing that is affordable:

50% or more	8 POINTS
35% to 49%	6 POINTS
20% to 34%	4 POINTS
10% to 19%	2 POINTS
1% to 9%	1 POINT
Less than 10%	0 POINTS

This development in the Soma district of San Francisco, California, USA, includes affordable housing and commercial uses with active frontage.

Variant 1:
Infill projects in high-income communities.

AFFORDABLE HOUSING IN PROJECT

Percentage of new residential units that are affordable:

100%	8 POINTS
75% to 99%	6 POINTS
50% to 74%	4 POINTS
20% to 49%	2 POINTS
10% to 19%	1 POINT
Less than 1%	0 POINTS

Variant 2:
Applies to all projects in low-income communities, and only to projects to upgrade substandard housing in other communities.

SUBSTANDARD HOUSING UPGRADED

Percentage of substandard residential units on the project site that have been upgraded:

100%	8 POINTS
80 to 99%	6 POINTS
60% to 79%	5 POINTS
40% to 59%	3 POINTS
20% to 39%	2 POINTS
Less than 20%	0 POINTS

STATION CATCHMENT AREA EVALUATION

Ratio of housing units priced below 30% of the metropolitan median prices.

MEASUREMENT METHOD:

1. Obtain data for metropolitan area housing unit rent and sale prices.
2. Calculate the respective figures for 30% of the metropolitan median.
3. Obtain equivalent data or estimates for the station catchment area.
4. Calculate the ratio of housing units in the catchment area priced below 30% of the metropolitan median.

SCOPE:
Residential units within the defined station catchment area.

RATIO OF DWELLING UNITS BELOW THE METROPOLITAN MEDIAN

Ratio of dwelling units priced 30% below the metropolitan median to dwelling units priced above is:

Between 30% and 69%	8 POINTS
Between 20% and 29% or between 70% and 79%	5 POINTS
Between 10% and 19% or between 80% and 89%	2 POINTS
Under 10% or over 90%	0 POINTS

OBJECTIVE 5.B: Diverse demographics and income ranges are included among local residents.

3 POINT

5.B.2 HOUSING PRESERVATION

Percentage of households living on site before the project that are maintained or relocated within walking distance.

DETAILS

- *Eligible households* have lived on the development site before public announcement of the project.
- A household is *maintained* if it is kept in the initial housing unit, brought up to local building standards, and safe from exposure to major risk (flooding, landslides, contamination, etc.).
- A household is *relocated* if it is rehoused on site or within walking distance of the former unit in newly built units of the same or better quality, the same or greater floor area, and the same or lower cost as previous housing. Safe interim housing must be provided during construction at the same conditions.
- *Walking distance* for the purpose of preserving community ties is defined as preferably 250 meters (m) from the original address and no more than 500 m.
- Replacement housing units provided off site must be served by a public transport station as per Metric 4.A.1.
- Households that are offered an upgrade or relocation but choose to move away will be counted toward fulfillment of the metric if compensated on the basis of the post-project market value.

MEASUREMENT METHOD

1. Identify the number of eligible households on site before the project. If no pre-existing households were on site, the project accrues the full three points and no further measurement is needed.
2. Identify the number of eligible households maintained, rehoused on site, or that chose compensation.
3. Identify the number of eligible households rehoused within a 250 m walking distance of their previous address.
4. Identify the number of eligible households rehoused within a 500 m walking distance of their previous address.
5. Compare the figures obtained in Steps 2–4 to the figure obtained in Step 1.

DATA SOURCES

Census; local government data; field surveys.

SCOPE

Residential units within the development.

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
Relevant projects in station catchment area.

PRESERVATION OF EXISTING HOUSING

100% of households are mainteined, relocated on site or within a 250 m walking distance of previous address, or compensated according to their choice, or no households pre-existed on site	3 POINTS
100% of households that chose to have been relocated within a 500 m walking distance of the previous address	2 POINTS
Less than 100% of households have been maintained or relocated within walking distance	0 POINTS

Community workshop for the Basic Services for Urban Poor (BSUP)- In Situ Slum Rehabilitation for Urban Poor project under Jawaharlal Nehru National Urban Renewal Mission (JNNURM) at Yerawada, Pune, India.

OBJECTIVE 5.B: Diverse demographics and income ranges are included among local residents.

2 POINT

5.B.3 BUSINESS AND SERVICES PRESERVATION

Percentage of pre-existing local resident-serving businesses and services on the project site that are maintained on site or relocated within walking distance.

DETAILS

- Eligible businesses and services serve local residents and have been on site for at least one year before the announcement of the redevelopment project.
- The relocation or upgraded space must offer a similarly sized floor area of similar or better standard at the same or lower cost, including rent, mortgage, and monthly charges, as applicable. If rental, the relocation space must guarantee a long-term lease.
- Qualifying relocation on site must include interim relocation within 500 meters (m) during construction or compensation for loss of business.
- Qualifying relocation within walking distance must also take place in the TOD zone (i.e., within a 1,000 or 500 m walking distance of a qualifying public transport station, as detailed in Metric 4.A.1).

MEASUREMENT METHOD

1. Identify the number of eligible businesses and services on the project site before project construction starts. If no pre-existing businesses were on site, the project accrues the full two points and no further measurement is needed.
2. Identify the number of eligible businesses and services maintained or relocated on site after construction.
3. Identify the number of eligible businesses and services relocated within a 500 m walking distance of the previous location.
4. Compare the figures obtained in Steps 2–4 with the figure obtained in Step 1.

Informal settlement upgrading in the Dharavi settlement, Mumbai, India, preserves local businesses in situ.

DATA SOURCES

Government business registries; business directories; economic census; field surveys; interviews.

SCOPE

Local resident–serving businesses within the development.

All eligible businesses and services are maintained in situ or relocated within a 500m walking distance of previous address, or no businesses or services pre-existed on site ► 2 POINTS

Businesses and services not fully maintained or relocated within walking distance ► 0 POINTS

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
Relevant projects in station catchment area.

15
POINTS

OPTIMIZE DENSITY AND MATCH TRANSIT CAPACITY

PRINCIPLE **6**

DENSIFY

Objective A:
High residential and job densities support high-quality transit, local services, and public space activity.

Metric 6.A.1 Nonresidential Density
Nonresidential density in comparison with best practice in similar projects and station catchment areas. **7 points**

Metric 6.A.2 Residential Density
Residential density in comparison with best practice in similar projects and station catchment areas. **8 points**

Ground floor commercial activity and people-oriented urban design make a high density residential area vibrant and attractive in the Liuyun Xiaoqu area of Guangzhou, China

OBJECTIVE 6.A: High residential and job densities support high-quality transit, local services, and public space activity.

7 POINTS 6.A.1 NONRESIDENTIAL DENSITY

Nonresidential density in comparision with the best practice in similar projects or station catchment areas.

DETAILS

- Project or station catchment area nonresidential density is compared against a density best practice in a comparable case existing within the city which becomes the baseline.

- The baseline should be a recently completed project that is comparable in size, type of project and land use, and density regulations. It should be in an area of the city with real estate values above average as a proxy for desirability.

- The proxy indicators used in the comparison could be either:
  (a) the total number of jobs and daily visitors per hectare (this is a superior performance indicator if data is available or can be estimated with accuracy sufficient for comparison), or
  (b) the nonresidential floor area ratio (FAR), as an acceptable alternative.

- The *nonresidential FAR* is calculated by identifying and measuring the nonresidential gross floor area (GFA) of the buildings in the development and dividing this figure by the area of the land. The GFA is the cumulated area of floor inside the building envelope, including wall footprints and floor openings but excluding subsurface basements, unenclosed areas, and roof areas.

- The *gross land area* figures used in the *TOD Standard* include building plots and local streets but exclude any land occupied by
  (1) large public infrastructure on or traversing the development land (e.g., arterial roads, transport facilities, water supply, power, or telecommunication),
  (2) local public facilities (e.g., local schools, neighborhood libraries, public sport fields, and playgrounds), or
  (3) publicly accessible parks and natural constraints more than 1 hectare in area (e.g., bodies of water and wetlands, wooded land, or steep slopes).

- To obtain full points, developers are encouraged to seek variances and exemptions from regulations that limit density.

- If a project is at least 85% residential in a predominantly non-residential area, it gets the same points as obtained for Metric 6.A.2 (*residential density*) up to a maximum of 7 points.

MEASUREMENT METHOD

1. Calculate the development's nonresidential density by the number of jobs and average daily visitors or by the FAR.
2. Identify the best practice baseline project and calculate its nonresidential density.
3. Compare the development with the baseline.
4. Determine if the project is located within or outside a 500-meter (m) walking distance of the primary station considered for metric 4.A.1.

DATA SOURCES

Jobs and visitors: Survey or estimation of jobs and visitors based on activity type, open source data, or direct data from businesses and services.

Nonresidential FAR: Plans and programs of development; local area plans; regulations; policies; local and professional media; site survey.

SCOPE

All buildings within the development.

PRESERVATION OF PRE-EXISTING LOCAL BUSINESSES AND SERVICES

The nonresidential density is **higher** than the baseline, and it is located **within a 500 m** walking distance of the transit station	7 POINTS
The nonresidential density is **higher** than the baseline, and it is located **between a 500 and a 1,000 m** walking distance of the station	5 POINTS
The nonresidential density is **equal** to or within 5% below the baseline, and it is located **within a 500 m** walking distance of the station	3 POINTS
The nonresidential density is **equal** to or within 5% below the baseline, and it is **between a 500 and a 1,000 m** walking distance of the station	2 POINTS
The nonresidential density is more than 5% below the baseline	0 POINTS

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:

1. Calculate or estimate the nonresidential density for the total 1,000 m station catchment area and for the 500 m station catchment area.
2. Identify the densest district in the metropolitan area with land uses similar to the station catchment area being scored and a real estate value above the city average (as a proxy for desirability). Calculate or estimate the nonresidential density in the district.
3. Compare the average nonresidential density of the station catchment area with the baseline density.
4. Compare the 1,000 and 500 m station catchment areas.

SCOPE:
Within the defined station catchment area.

The redevelopment of a former industrial site in the Pearl District of Portland, Oregon, USA, combines high densities in work and residential uses integrated with great walkability and sustainable transportation options.

DATA SOURCES:
Activity type for visitors and employees, open source data, or direct data from businesses and services; census data for workers working in the same area code or commuting with shortest amount of time; main station ridership data for employees commuting from outside of the main station catchment area.

STATION CHATCHMENT AREA NONRESIDENTIAL DENSITY

The nonresidential density is **higher** than the baseline, and the 500 m catchment area is **denser** than the 1,000 m catchment area	7 POINTS
The nonresidential density is **higher** than the baseline, and the 500 m catchment area is **less dense** than the 1,000 m catchment area	5 POINTS
The nonresidential density is equal to or within 5% below the baseline, and the 500 m catchment area is **denser** than the 1,000 m catchment area	3 POINTS
The nonresidential density is equal to or within 5% below the baseline, and the 500 m catchment area is **less dense** than the 1,000 m catchment area	2 POINTS
The total density is more than 5% below the baseline	0 POINTS

OBJECTIVE 6.A: High residential and job densities support high-quality transit, local services, and public space activity.

8 POINT

6.A.2 RESIDENTIAL DENSITY

Residential density in comparison with best practice in similar projects or station catchment areas.

DETAILS

- Residential density for a project or station catchment area is compared with the density best practice baseline as used in Metric 6.A.1.
- The proxy for residential density is *gross household density*, or *dwelling unit density*, calculated by dividing the total number of dwellings units by the gross land area as defined in Metric 6.A.1 and measured in hectares.
- If a project is at least 85% non-residential in a predominantly residential area, it gets the same points as obtained for Metric 6.A.1 (*nonresidential density*).

MEASUREMENT METHOD

1. Calculate the gross dwelling unit density in the project area.
2. Calculate the gross dwelling unit density for the baseline project identified in Metric 6.A.1.
3. Compare the development with the baseline.
4. Determine if the project is located within or outside a 500-meter (m) walking distance of the transit station used for metric 4.A.1.

DATA SOURCES

Project plans; government (national, regional, municipal) data; field survey of housing unit (mailboxes, apartment doors, etc.).

This mixed use development in Gastown, Vancouver, Canada, adds infill density to neighborhood well served by transit and integrates market rate and affordable housing with commercial, offices, and education activities.

PROJECT HOUSEHOLD DENSITY		STATION CATCHMENT AREA HOUSEHOLD DENSITY	
The total number of dwelling units per hectare is higher than the baseline, and the project is located **within a 500 m** walking distance of the transit station	8 POINTS	The total number of dwelling units per hectare is higher than the baseline. The 500 m catchment area is **denser** than the 1,000 m catchment area	8 POINTS
The total number of dwelling units per hectare is higher than the baseline, and the project is located **between a 500 and a 1,000 m** walking distance of the station	6 POINTS	The total number of dwelling units per hectare is higher than the baseline. The 500 m catchment area is **less dense** than the 1,000 m catchment area	6 POINTS
The total number of dwelling units per hectare is equal to or within 5% below the baseline, and the project is located **within a 500 m** walking distance of the station	4 POINTS	The total number of dwelling units per hectare is equal to the baseline or no more than 5% below it. The 500 m catchment area is **denser** than the 1,000 m catchment area	4 POINTS
The total number of dwelling units per hectare is equal to or within 5% below the baseline, and the project is located **between a 500 and a 1,000 m** walking distance of the station	2 POINTS	The total number of dwelling units per hectare is equal to the baseline or no more than 5% below it. The 500 m catchment area is **less dense** than the 1,000 m catchment area	2 POINTS
The total number of dwelling units per hectare is more than 5% below the baseline	0 POINTS	The total number of dwelling units per hectare is more than 5% below the baseline	0 POINTS

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:

1. Calculate or estimate the dwelling unit density for the total 1,000 m station catchment area and for the 500 m station catchment area.
2. Identify the densest district in the metropolitan area with land uses similar to the station catchment area being scored and a real estate value above the city average (as a proxy for desirability). Calculate or estimate the dwelling unit density in the district.
3. Compare the average dwelling unit density of the station catchment area with the baseline density as well as the two catchment area zones, accordingly.

SCOPE:

Within the defined station catchment area.

10
POINTS

CREATE REGIONS WITH SHORT TRANSIT COMMUTES

PRINCIPLE 7

COMPACT

Objective A:
The development is in, or next to, an existing urban area.

Metric 7.A.1 Urban Site
Number of sides of the development that adjoin existing built-up sites.
8 points

Objective B:
Traveling through the city is convenient.

Metric 7.B.1 Transit Options
Number of different transit options that are accessible within walking distance
2 points

Compact center of Hong Kong.

OBJECTIVE 7.A: The development is in, or next to, an existing urban area.

8 POINTS

7.A.1 URBAN SITE

Number of sides of the development that adjoin existing built-up sites.

DETAILS

- Adjoining built-up sites or properties include sites actually built-up, previously developed sites that have been cleared, and land prepared for development as part of a larger masterplan.
- Transport infrastructure (railways and motorways), water bodies (lakes and rivers), or other natural topography or protected landscape that inhibits development should be counted as built-up sites for this metric.

MEASUREMENT METHOD

1. If not four-sided, divide the development site boundaries into four sections (each equal to approximately 25% of the total length of the development boundary).
2. Count the number of sides that adjoin existing built-up sites.

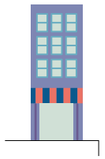
DATA SOURCES

Plans and designs; maps; up-to-date aerial/satellite photography;
site survey.

SCOPE

Edges of the development site.

This infill building development in Dakar, Senegal, densifies the existing urban footprint and is accessible by local transit.

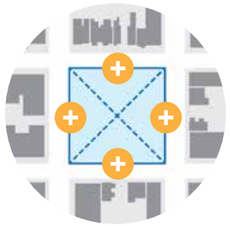


URBAN SITE

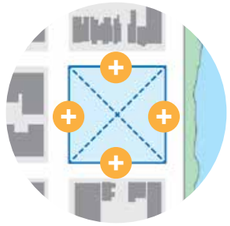
Number of sides that adjoin built-up sites:

4	8 POINTS
3	6 POINT
2	4 POINT
1	2 POINTS
0	0 POINTS

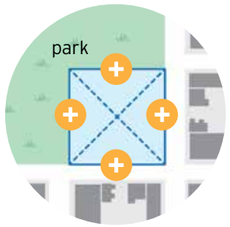
THESE PLANS EARN A FULL SCORE



4 sides adjoin built-up sites (10 points)



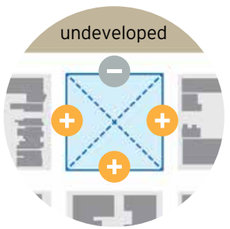
3 sides adjoin built-up sites and 1 side adjoins a water body (10 points)



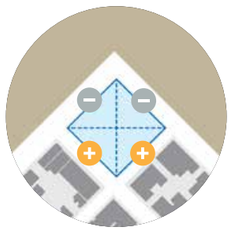
2 sides adjoin built-up sites and 2 sides adjoin a designated park (10 points)

An irregular development plot, where each 25% of the side of the development adjoins a built-up site (10 points)

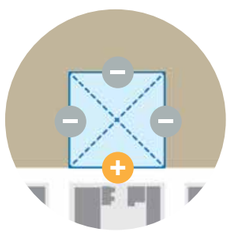
THESE PLANS EARN LOWER OR NEGATIVE SCORES



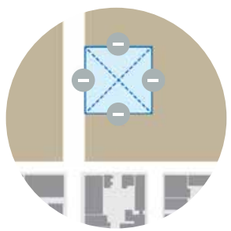
3 sides adjoin built-up sites (6 points)



2 sides adjoin built-up sites (3 points)



1 side adjoins built-up sites (1 point)



No sides adjoin built-up sites (0 points)

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:

1. Measure the total area of developable sites/properties within the defined station catchment area.
2. Measure the total area of developable sites/properties that are built-up.
3. Divide the second measure by the first to get the percentage (area) of developable sites that are built-up.

SCOPE:
Within the defined station catchment area.

DEVELOPABLE SITES

Percentage (area) of developable sites that are built-up:

More than 90%	8 POINTS
Up to 90%	6 POINT
Up to 80%	4 POINT
Up to 70%	2 POINTS
Less than 60%	0 POINTS

Infill development in central London, UK, makes efficient use of land and creates denser districts to support economic activity and transit capacity.

OBJECTIVE 7.B: Traveling through the city is convenient.

2 POINTS

7.B.1 TRANSIT OPTIONS

Number of different transit options that are accessible within walking distance.

DETAILS

- Regular transit lines or routes, including non–bus rapid transit and para-transit modes, can be considered a transit option if the transit line regularly operates from 7 a.m. to 10 p.m., with a service frequency of 20 minutes or less.
- Stations on different transit lines should be counted. Different stations on the same line only count as one transit option.
- A dense public bicycle sharing system is considered as a transit option.[8]

MEASUREMENT METHOD

1. Identify all applicable high-capacity regular transit services, as well as para-transit services and public bicycle station options, within walking distance, excluding the primary transit station used in scoring Metric 4.A.1.

DATA SOURCES

Plans and designs; maps; up-to-date aerial/satellite photography; local government transport data; site survey.

SCOPE

Within a 1-kilometer (km) radius around the development.

TRANSIT LINE OPTIONS

Each option that applies for a maximum of 5 points

Additional high-capacity transit line	2 POINTS
Applicable bike share system	2 POINTS
Additional regular transit routes	1 POINT

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
Within 1 km around the primary transit station.

[8] For information on public bicycle sharing systems, see the *Bike Share Planning Guide* (New York: ITDP, 2013).

A bus rapid transit in Curitiba, Brazil, takes passengers directly to the urban center.

BRT and public bicycle sharing system offer sustainable transport options in Mexico City, Mexico.

15
POINTS

INCREASE MOBILITY BY REGULATING PARKING AND ROAD USE

PRINCIPLE 8

SHIFT

Objective A:
The land occupied by motor vehicles is minimized.

Metric 8.A.1 Off-Street Parking
Total off-street area dedicated to parking as a percentage of the development area.
8 points

Metric 8.A.2 Driveway Density
Average number of driveways per 100 meters of block frontage.
1 point

Metric 8.A.3 Roadway Area
Total road bed area used for motor vehicle travel and on-street parking as percentage of total development area.
6 point

Downtown Buenos Aires, Argentina, pedestrian-prioritized streets network redistributes street space from vehicular roadway to people-centric activities and commerce.

OBJECTIVE 8.A: The land occupied by motor vehicles is minimized.

8 POINTS 8.A.1 OFF-STREET PARKING

Total off-street area dedicated to parking as a percentage of the development area.

DETAILS

- Add the area of all surface parking lots, the total floor area of structured parking facilities (underground parking floors included), and all related driveways starting from the access property line.
- Leave out the parking places and driveway reserved for car share service, people with disabilities, and *essential service vehicles*.

MEASUREMENT METHOD

1. Quantify the cumulative area of all nonexempt off-street parking areas and driveways.
2. Quantify the total land area.
3. Divide the first measure by the second to calculate the ratio of parking area to land area.

DATA SOURCES

Plans and designs; local government transport data or zoning regulations.

SCOPE

Within the development

STATION CATCHMENT AREA EVALUATION

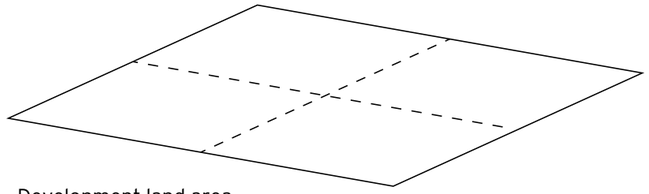
MEASUREMENT METHOD:
Same as above.

SCOPE:
Within the defined station catchment area.

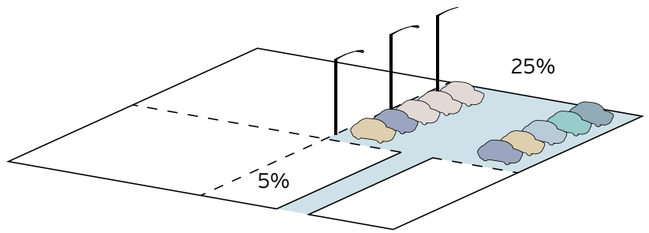
OFF-STREET PARKING AREA

Nonessential parking area is equivalent to:

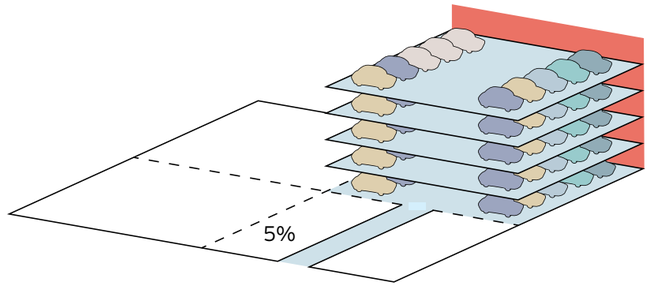
0% to 10% of site area	8 POINTS
11% to 15% of site area	7 POINTS
16% to 20% of site area	6 POINTS
21% to 25% of site area	5 POINTS
26% to 30% of site area	4 POINTS
31% to 40% of site area	2 POINTS
more than 40% of site area	0 POINTS



Development land area



Example 1:
Surface parking & driveway area is 30% of the development land area.



Example 2:
Parking & driveway area is 130% of the development land area.

OBJECTIVE 8.A: The land occupied by motor vehicles is minimized.

1 POINT 8.A.2 DRIVEWAY DENSITY

Average number of driveways per 100 meters (m) of block frontage.

DETAILS

- Driveways are paths for motor vehicles that cross pedestrian areas and walkways to connect to off-street parking, drop-off areas, 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.

MEASUREMENT METHOD

1. Quantify the total length of block frontage and divide by 100 m.
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.

DATA SOURCES

Plans and designs; maps; up-to-date aerial/satellite photography; site survey.

SCOPE

Within the development.

STATION CATCHMENT AREA EVALUATION

MEASUREMENT METHOD:
Same as above.

SCOPE:
Within the defined station catchment area.

A shared parking garage facility for a mixed use block in Santa Monica, California, USA, minimized driveways on the sidewalk.

DRIVEWAY DENSITY

Average driveway density is

2 or fewer driveways per 100 m of block frontage	1 POINT
More than 2 driveways per 100 m of block frontage	0 POINTS

OBJECTIVE 8.A: The land occupied by motor vehicles is minimized.

6 POINTS

8.A.3 ROADWAY AREA

Total road bed area used for motor vehicle travel and on-street parking as percentage of total development area.

DETAILS

- Exclude all street area not designated for private motor vehicle use: sidewalks, plazas and landscaped areas, and any portions of the road bed area exclusively dedicated to cycling and buses.
- Exclude pedestrian-priority shared streets (with speed under 15 km/h [10 mph]).

MEASUREMENT METHOD

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

DATA SOURCES

Plans and designs; up-to-date aerial/satellite photography; site survey.

SCOPE

Within the development and to the centerline of peripheral streets.

STATION CATCHMENT AREA EVALUATION

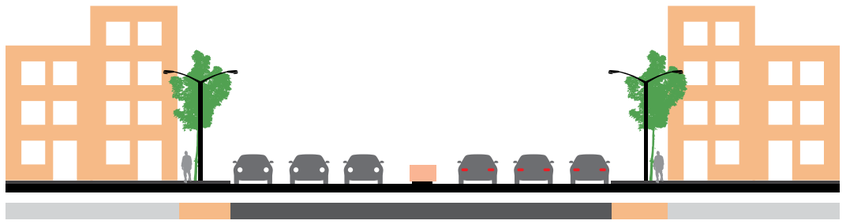
MEASUREMENT METHOD:
Same as above.

SCOPE:
Within the defined station catchment area.

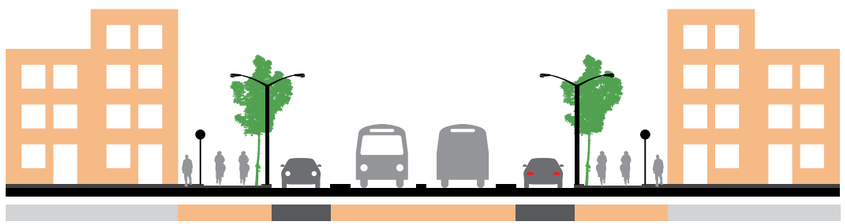
ON-STREET PARKING AND TRAFFIC AREA

Motor vehicle area is

15% or less of site area	6 POINTS
20% or less of site area	3 POINTS
More than 20% of site area	0 POINTS



More road area is given to less efficient motor vehicle travel



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

In this street in the center of Rio De Janeiro, Brazil, the roadway is minimized and restricted to local access while pedestrian public space is maximized.

GUIDE TO SCORING THE TOD STANDARD METRICS

Safe pedestrian and cycling infrastructure is included in this street design in Washington, DC, USA.

Inclusive design allows safe and easy access to Plaza de la República, Metrobús BRT Station in México City

USING THE TOD STANDARD

The *TOD Standard* supports the implementation of TOD principles and objectives in urban development projects and the evaluation of station catchment areas with a proxy metrics system based on quantitative data and the plans and policies applicable to the site. This chapter presents step-by-step guides to collecting and reporting data and information in each case.

SCORING DEVELOPMENT PROJECTS

Below are the steps to score a project regardless of if it is being submitted for recognition. For a project to be considered for recognition, a project report will need to be submitted that includes the scorecard with back-up of how the score was reached.

PRESCORING DATA AND INFORMATION PREPARATION

Collect as much information as available about the development from existing sources (e.g., reports, plans, designs, maps, satellite imagery) See Table 4.1 for potential source suggestions. Examples of useful data to collect:

a) Boundaries and total area of the development site
b) Total number and length of all blocks
c) Total number of street segments
d) Maximum vehicle speed on relevant streets
e) Number and location of transit stations near the development
f) Location of publicly accessible parks near the development
g) Sources of fresh food, elementary schools, and healthcare facilities or pharmacies near the development
h) Median income data relevant to the station catchment area
i) Number of dwelling units in the development and number of affordable dwelling units
j) Residential floor area
k) Nonresidential floor area
l) Area of off-street car parking and driveways
m) Location of comparable development to serve as a baseline for density calculations

DESKTOP RESEARCH

- Begin with using the scorecard. An electronic version of the scorecard can be found at www.todstandard.org. A scorecard is also included in the printed version of the TOD Standard. Keep track of how calculations were made and notes on the data or sources as needed.

- Score as many metrics as possible using the information collated. Some metrics require measurement and calculation, some require simple counts, and others require a binary yes or no check. Geographic Information Systems (GIS), if available, can be used to map and process data more quickly, or calculations can be made manually.

- List all metrics lacking data and information.

- Obtain the missing data and information through visits to the site itself and, in some cases, interviews with other people and organizations familiar with the project.

SITE SURVEYS & SCORING

- Ensure that all assessment team members going on site have a *TOD Standard* scoresheet indicating the metrics already scored and those to be completed through the site survey, a copy of the *TOD Standard* scoring details and method, a detailed map, a notepad, and a camera. If no sufficiently detailed maps and plans of the project are available for the accurate measurement of distances and areas, adequate measurement tools are also needed.

- On site, note all data, measurements, and other information collected and document each finding with photography. Full documentation of the surveyed indicators will need to be included in the report.

- Perform all metric calculations on site to confirm that all the necessary data is collected, and that the calculation results make sense and reflect apparent performance toward the TOD implementation objectives.

- If the scoring calculation results appear not to correspond with apparent performance toward the TOD objectives, find out if the lack of correspondence is due to calculation errors or if an exception to the metric method is needed in the particular case. If so:

    a) Note why the exception is needed.
    b) Estimate and note the apparent project performance score on the metric(s).
    c) Note what data, information or observation was used in assigning the apparent performance score.
    d) Document with photography.

- Before leaving the site at the end of the survey, compare notes and observations with team members and reconcile the points assigned to each metric.

CONTACTING OTHER SOURCES

- If gaps in information remain, contact relevant institutions and groups to fill them. Relevant contacts could include local planning authorities; nongovernmental organizations (NGOs) and other research organizations; the architects, designers, planners, or engineers who designed the project; and local residents and businesses.

- If the previous step is required, ensure that the information is traceable, and allows the TOD Technical Committee to verify that the record of what was said by the interviewees is accurate.

COMPILING AND SUBMITTING THE *TOD STANDARD* PROJECT SCORING REPORT

- Compile a concise but full delivery report that includes the data, data sources, and any alternative scoring reasoning to be considered at the discretion of the Technical Committee.

- Ensure that the report includes:

    a) Project site boundary map and/or digital KMZ file.

    b) Scored sample areas map and/or digital KMZ file, with subarea scorecards and calculation sheets for factoring areas and averaging, as applicable.

    c) Data and sources for each metric—for example, a map and images as well as a calculation demonstrating the "percentage of walkway segments with complete, all-accessible walkways" for Metric 1.A.1 (Walkways).

    d) Supporting appendices and attachments or digital links for supplemental files—for example, survey and/or interview details informing the "percentage of households living on site before the project that are maintained or relocated within walking distance" for Metric 5.B.2 (Housing Preservation).

STATION CATCHMENT AREA EVALUATION

The *TOD Standard* can be used to evaluate station areas with the goal of understanding where improvements can be made to strengthen an area to be more inclusive and sustainable. Below are the steps to evaluating a station area.

UNDERSTANDING AND SAMPLING THE STATION AREA

The applicable station catchment area boundaries are defined at the discretion of the station catchment area evaluation assessor. We generally recommend using a walking distance of 500 meters (m), with and a maximum walking distance of 1,000 m from the rapid transit station entrance to the entrance of the final destination (doorstep of building). The 1,000 m represents a walking time of approximately 20 minutes at the average urban speed of 3 km/h (including waits at intersections).

A single station catchment area can cover close to 3.14 km^2 (but usually somewhat less since walking distance, not radius, is considered). If the data and GIS processing technology is not available to apply TOD Standard details on such a large area, a sampling method is recommended.

SAMPLING METHOD:

If the city blocks in the station area are regular and homogeneous:

- Identify and score as many blocks as manageable that seem representative of the station area in all respects relevant to the metrics.

- Extrapolate the results to the entire relevant area.

If the blocks in the station catchment area appear too dissimilar for a single sample and extrapolation, the assessor may:

- Divide the station area into zones of sufficient homogeneity of urban form type,

- Score all the metrics for each zone on separate scoresheets,

- Calculate the percentage of the total station area that is contained in each zone, and

- Calculate the aggregate station area scores for each metric by factoring in the score and the area percentage of each zone.

Each zone scoresheet and the aggregate scoresheet and factoring calculations should be kept together. The information about each urban form type will be useful when planning for improvements in the station area.

PRESCORING PREPARATION

Collect as much detailed information about the station area as possible (e.g., reports, plans, designs, maps, satellite imagery; see Table 4.1 for potential source suggestions). For existing station catchment areas, the best sources of information are official local area plans and maps, officially collected local area statistics and data, and zoning regulations and other policies. Examples of useful data to collect include:

a) Boundary and total area of the station area being evaluated
b) Length of the blocks
c) Number and location of transit stations and lines within the primary transit station area
d) Relevant local area or existing station area plans
e) Land use plans, zoning regulations, and other citywide land use and transport plans
f) Number of dwelling units and number of affordable dwelling units
g) Nonresidential floor area figures (unless the jobs and visitors data is available)
h) Maximum vehicle speed on all streets
i) Total number of street segments within the station area
j) Car parking data
k) Location of publicly accessible parks
l) Sources of fresh food, elementary schools, and healthcare facilities or pharmacies
m) Median income data relevant to the station catchment area
n) Location of a comparable station area to serve as a baseline for density calculations

- Use GIS tools, if available, to map data and information in large areas. If scaled and up-to-date satellite imagery is available, it may also be a good source for maps and information.

- If some zones of similar land use and urban form can be identified within the station area, collect the relevant information by zone to prepare for the sampling method mentioned above.

DESKTOP RESEARCH

Same as development project scoring.

SITE SURVEYS & SCORING

Same as development project scoring.

CONTACTING OTHER SOURCES

Same as development project scoring.

SOURCES OF DATA

Visit www.todstandard.org for the suggested list of sources.

GLOSSARY

Terms in the *TOD Standard* may be employed with more restrictive definitions than in common usage.

ACCESSIBILITY (FOR ALL)
The ability to access local transit, services, and open spaces via safe, complete, vibrant, and comfortable pedestrian networks designed for all without distinction: inclusive access for people with disabilities, older people, and other groups that may have limited or constrained mobility.

ACTIVE FRONTAGE
See *Frontage*.

ALLEYWAYS
See *Street*.

BLOCK (PEDESTRIAN BLOCK)
An area of enclosed land impermeable to the pedestrian public. Blocks in the *TOD Standard* are defined not only by streets but also by pedestrian paths and passageways that are public and publicly accessible. A building with a publicly accessible pedestrian through-passageway that links two public rights of way becomes two blocks.

BLOCK FRONTAGE
See *Frontage*.

CROSSING
A point at which pedestrians cross paths with vehicles on roadway areas.

CROSSWALK
A marked crossing point designated for pedestrians (and cyclists). Crosswalks are basic elements of complete streets, required for the safe crossing of roads with vehicular speeds above 15 km/h.

CURB RAMP
An incline designed to accommodate pedestrians, including wheelchair users and other users of walking and carrying aids, transition between a road and a sidewalk or walkway. Curb ramps are key to universal accessibility and pedestrian comfort, and they must be designed according to local or international standards. Curb ramps should be located in line with the walkways they connect to, while also restricting motor vehicle access to and parking in pedestrian areas.

CYCLEWAY
A right of way, or portion of a right of way designated to accommodate bicycle traffic. Cycleways include physically separated cycle lanes, striped cycle lanes, lanes marked for shared traffic, and off-street paths and trails. Cycleways should be designed for safe and comfortable cycling.

CYCLING NETWORK
Network of safe cycling facilities including designated cycleways, slow streets (that can safely be shared between cycles and motor vehicles, because vehicle speeds are under 30 km/h [20 mph]) and pedestrian-priority streets (that can be safely shared by pedestrians, cycles, and motor vehicles, because vehicle speeds are under 15 km/h).

DENSITY
Describes an amount or count per unit of area (usually per hectare in the *TOD Standard*).

BUILDING DENSITY
Building density is expressed as a floor area ratio (FAR) value. See *Floor area ratio* and *Gross floor area*.

HOUSEHOLD DENSITY
The average number of households, or dwelling units, per hectare of gross land area.

RESIDENTIAL DENSITY
The average number of residents per hectare of gross land area. The *TOD Standard* uses household density as a proxy for residential density.

LAND USE DENSITY (NONRESIDENTIAL)
Expressed as either, the ratio (FAR) of the total (nonresidential) building floor area, excluding subsurface levels, to the total site area of the development, or jobs and daily visitors per hectare (sometimes referred to as nonresidential land use intensity).

DRIVEWAY
A motor vehicle access point across public pedestrian areas or between a roadway and off-street motor vehicle parking, loading, and service areas. Driveways should be designed for pedestrian priority and safety and compatible vehicle speed.

DRIVEWAY DENSITY
The number of driveways on a specified block frontage; typically used to assess the impact of off-street motor vehicle facilities on the continuity of walkways and cycleways.

ESSENTIAL SERVICE MOTOR VEHICLES
Motor vehicles required for essential maintenance, safety, or health reasons that should be accommodated on all street types for travel and parking. These vehicles include emergency vehicles, authorized security vehicles, local access freight vehicles, and disabled person vehicles.

FRONTAGE
The physical edge of a building or block facing a publicly accessible walkway or street at, or close to, the property line. Ground-level frontage is of primary interest because it determines the character of the building edge at pedestrian eye level. Building and block frontage should be designed for maximum active uses over extended hours and have interesting design details that improve the walking experience and stimulate pedestrian activity.

ACTIVE FRONTAGE
Building or block frontage that provides direct connection to interior building space, visually through windows, or physically through doorways (see permeable frontage), or other similar transparent or open façade elements. For *TOD Standard* scoring purposes, a public park or plaza, with no buildings, is counted as having active frontage.

BLOCK FRONTAGE
The physical edge of a block facing a publicly accessible walkway or street at, or close to, the property line.

BLOCK FACE OR BLOCK FRONTAGE SEGMENT
A stretch of block frontage from corner to corner between two intersections of streets and pedestrians walkways. Most blocks have four corners, but some may have three, five, or more. Corners without intersections (e.g., in a bend street), midblock crosswalks, and T-intersections that do not interrupt the frontage should not be counted in defining block frontage segments.

PERMEABLE FRONTAGE
Building frontage that incorporates points of passage between walkways and active interior building spaces: main building entrances and access to retail establishments and other ground floor–level activities. A public park or plaza, with no buildings or other physical barriers, is considered to have permeable frontage.

FLOOR AREA RATIO (FAR)
The gross floor area of a building or development, not including subsurface levels, divided by the semigross developable land area of the site or property on which it is located, as defined under *Gross land area*.

GROSS FLOOR AREA (GFA)
The total floor area contained within the building envelope, measured to the external face of the external walls, excluding the roof, balconies, subsurface levels, or covered plazas or walkways. GFA is used in FAR calculations.

GROSS LAND AREA
The gross land area (or semigross used in the *TOD Standard*) cumulative measure of the development land area, or station area, including building plots and local streets but excluding land occupied by **(1)** any large public infrastructure on or traversing the development land (e.g., arterial roads, transport facilities, water supply, power, or telecommunication), **(2)** local public facilities (e.g., local schools, neighborhood libraries, public sport fields, or playgrounds), **(3)** publicly accessible parks and natural constraints larger than 1 hectare (e.g., bodies of water and wetlands, wooded land, or steep slopes).
See *Density*.

INTERSECTION
A junction of three or more road, street, path, or walkway segments.

PEDESTRIAN INTERSECTION
Intersection of walkways, including pedestrian paths, pedestrian-priority streets, and street sidewalks. Streets with more than one sidewalk and median walkway count as one for the purpose of defining pedestrian intersections.

MODE SHARE
The percentage of total trips for a defined area completed using a particular travel mode (walking, cycling, transit [broken into various transit modes], driving, etc.).

NET DEVELOPABLE LAND
A measure of the total land area of property plots designated for development, regardless of any mandatory setbacks or land coverage limitations imposed by the land use code. Net developable land excludes public rights of way and protected land.

NONMOTORIZED TRANSPORT (NMT)
Transport independent of motorized power, typically used to refer to walking and cycling, including three- and four-wheeled pedicabs. Light electric motorization is acceptable if the maximum speed is similar to nonelectric cycles.

PEDESTRIAN
A person walking or otherwise moving with walking and carrying aids or substitutes, such as wheelchairs, white canes, crutches, baby strollers, shopping carts, and so on.

PEDESTRIAN CROSSING REFUGE
A protected island or median within a roadway area, designed for pedestrians to stop safely midcrossing. The median should also reflect design for people with disabilities, including wheelchair users, as well as for strollers.

PEDESTRIAN-PRIORITY (OR SHARED) STREET
See *Street*.

PEDESTRIAN REALM
Public or publicly accessible areas dedicated to, or prioritized for, pedestrian activity. The pedestrian realm includes walkways, safe crossings, shared streets and spaces, plazas, and parks. It should be safe and as active and secure as possible by design, and accessible to all—including older people, and people with disabilities.

PEDESTRIAN CROSSING
An area within a street where pedestrians cross from one side to the other, including designated crosswalks and all areas designed as pedestrian-priority (or shared) streets.

WALKWAY
A right of way, or portion of a right of way, specifically designated to accommodate pedestrians. It could include dedicated sidewalks, pedestrian medians, shared streets, passageways, and off-street paths.

WALKWAY SEGMENT
Stretch of walkway between two adjacent intersections in the pedestrian network. Walkway segments are generally equal to block frontage segments, with the exception of T-intersections at which the top branch of the T forms two walkway segments along a single-block frontage segment.

PERIPHERAL STREETS
See *Street*.

PERMEABLE FRONTAGE
See *Frontage*.

PUBLIC TRANSIT
See *Transit*.

PUBLIC TRANSPORT
See *Transit*.

RAPID TRANSIT
See *Transit*.

RESIDENTIAL DENSITY
See *Density*.

RIGHT OF WAY (PUBLIC RIGHT OF WAY)
A public right of passage of on either public or private land and of any morphological type, such as a path, an alley, a street, or a road. Urban rights of way should always include safe and connected pedestrian and cycling facilities but may have other mode restrictions.

ROAD
See *Street*.

SEGREGATED CYCLEWAY
See *Cycleway*.

SIDEWALK
See *Pedestrian*.

SLOW STREET
See *Street*.

STREET
A public right of way through developed or developable urban land that typically accommodates all travel modes but may have restrictions. Urban streets should prioritize direct, safe, and connected sustainable transport (walking, cycling, or transit). The accommodation of personal motor vehicles and the through-passage of trucks is optional (see *Pedestrian streets*), but streets must accommodate local freight and essential vehicle access. A street fulfills functions beyond mobility (as public, community, cultural, and commercial space) that are crucial to the attractiveness and productivity of walking as a travel mode and to the long-term viability of pedestrian-friendly environments.

ALLEYWAY (ALLEY)
A narrow, publicly accessible passage between buildings that is either a dead end or a throughway.

PEDESTRIAN-PRIORITY STREET OR SHARED STREET
A street or space designed to allow the free and safe integration of all transport modes within a single right of way where vehicles travel at a pedestrian-safe speed of 15 km/h (10 mph) or less.

PEDESTRIAN STREET
A street restricted to pedestrians; except for slow-moving cyclists and essential vehicles that yield to pedestrians.

PERIPHERAL STREETS
The adjacent streets surrounding a particular block, building, development, property, or site.

ROAD
A right of way with a paved area for the use of motor vehicles. The term "road" is typically associated with fast travel speed and should be of limited use in urban areas. The term "street" puts emphasis on pedestrian access and activity.

ROADWAY
The part of a right of way intended primarily for the use of motor vehicles, in contrast to walkways, cycleways, and pedestrian-priority spaces.

SLOW VEHICULAR STREET
A street with vehicular speed limited to 30 km/h (or 20 mph), designed to allow the free and safe integration of motorized and nonmotorized vehicles within a single roadway. It should include protected walkways and safe, demarcated crosswalks.

FAST VEHICULAR STREET
A street with vehicular speeds over 30 km/h (or 20 mph). It should include separate cycleways, walkways, and protected crosswalks.

STREET CENTERLINE
Conceptual line, not necessarily physically marked, along a street midway between the street lines on both sides.

STREET SEGMENT (STREET LINK)
A stretch of street between two adjacent intersections.

TRANSIT
The transport of passengers on any and all vehicles designed for multiple passengers and not personal vehicles. Includes all shared vehicles, public or otherwise, chauffeured, self-driven, or automatic.

PUBLIC TRANSIT
Transit designed for use by all members of the general public, regardless of public or private ownership, management, and operation responsibilities. This can also be referred to as public transport.

RAPID TRANSIT
Public transit operating on a dedicated right of way unobstructed by private vehicular traffic. Includes light or heavy rail passenger services and bus rapid transit (BRT) services. The definition of BRT is available in the *BRT Standard*.

VEHICLE KILOMETERS TRAVELED (VKT)
The number of kilometers traveled by vehicles that originate in a specified area during a specified period of time. VKT only refers to kilometers traveled by motor vehicles unless specified otherwise.

WALKWAY
See *Pedestrian*.

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NOTES

SITE/PROJECT NAME

CITY/COUNTRY

SCORECARD

WALK

CATEGORY		MAXIMUM POINTS	SCORE	NOTES / DATA
OBJECTIVE A. The pedestrian realm is safe, complete, and accessible to all.				
1.A.1 Walkways	Percentage of walkway segments with safe, all-accessible walkways.	3		
1.A.2 Crosswalks	Percentage of intersections with safe, all-accessible crosswalks in all directions.	3		
1.B.1 Visually Active Frontage	Percentage of walkway segments with visual connection to interior building activity.	6		
OBJECTIVE B. The pedestrian realm is active and vibrant.				
1.B.2 Physically Permeable Frontage	Average number of shops, building entrances, and other pedestrian access per 100 meters of block frontage.	2		
OBJECTIVE C. The pedestrian realm is temperate and comfortable.				
1.C.1 Shade & Shelter	Percentage of walkway segments that incorporate adequate shade or shelter elements.	1		
		15	WALK SCORE:	

CYCLE

CATEGORY		MAXIMUM POINTS	SCORE	NOTES / DATA
OBJECTIVE A. The cycling network is safe and complete.				
2.A.1 Cycle Network	Access to a safe cycling street and path network.	2		
OBJECTIVE B. Cycle parking and storage is ample and secure.				
2.B.1 Cycle Parking at Transit Stations	Ample, secure, multi-space cycle parking facilities are provided at all transit stations.	1		
2.B.2 Cycle Parking at Buildings	Percentage of buildings that provide ample, secure cycle parking.	1		
2.B.3 Cycle Access in Buildings	Buildings allow interior access and storage within tenant-controlled spaces for cycles.	1		
		5	CYCLE SCORE:	

CONNECT

CATEGORY		MAXIMUM POINTS	SCORE	NOTES / DATA
OBJECTIVE A. Walking and cycling routes are short, direct, and varied.				
3.A.1 Small Blocks	Length of longest pedestrian block.	10		
OBJECTIVE B. Walking and cycling routes are shorter than motor vehicle routes.				
3.B.1 Prioritized Connectivity	Ratio of pedestrian intersections to motor vehicle intersections.	5		
		15	CONNECT SCORE:	

TRANSIT

OBJECTIVE A. High-quality transit is accessible by foot. (TOD Requirement)

CATEGORY		MAXIMUM POINTS	SCORE	NOTES / DATA
REQUIRED 4.A.1 Walking Distance to Transit	Walking distance to the nearest transit station.			
			TRANSIT SCORE:	

BRIEF DESCRIPTION OF THE PROJECT SITE

MIX

CATEGORY		MAXIMUM POINTS	SCORE	NOTES / DATA
OBJECTIVE A. Opportunities and services are within a short walking distance of where people live and work, and the public space is activated over extended hours.				
5.A.1 Complementary Uses	Residential and nonresidential uses within same or adjacent blocks.	8		
5.A.2 Access to Local Services	Percentage of buildings that are within walking distance of an elementary or primary school, a healthcare service or pharmacy, and a source of fresh food.	3		
5.A.3 Access to Parks and Playgrounds	Percentage of buildings located within a 500-meter walking distance of a park or playground.	1		
OBJECTIVE B. Diverse demographics and income ranges are included among local residents.				
5.B.1 Affordable Housing	Percentage of total residential units provided as affordable housing.	8		
5.B.2 Housing Preservation	Percentage of households living on site before the project that are maintained or relocated within walking distance.	3		
5.B.3 Business and Services Preservation	Percentage of pre-existing local resident–serving businesses and services on the project site that are maintained on site or relocated within walking distance.	2		
		25	MIX SCORE:	

DENSIFY

CATEGORY		MAXIMUM POINTS	SCORE	NOTES / DATA
OBJECTIVE A. High residential and job densities support high-quality transit, local services, and public space activity.				
6.A.1 Nonredisential Density	Nonresidential density in comparison with best practice in similar projects and station catchment areas.	7		
6.A.2 Residential Density	Residential density in comparison with best practice in similar projects and station catchment areas.	8		
		15	DENSIFY SCORE:	

COMPACT

CATEGORY		MAXIMUM POINTS	SCORE	NOTES / DATA
OBJECTIVE A. The development is in, or next to, an existing urban area.				
7.A.1 Urban Site	Number of sides of the development that adjoin existing built-up sites.	8		
OBJECTIVE B. Traveling through the city is convenient.				
7.B.1 Transit Options	Number of different transit options that are accessible within walking distance.	2		
		10	COMPACT SCORE:	

SHIFT

CATEGORY		MAXIMUM POINTS	SCORE	NOTES / DATA
OBJECTIVE A. The land occupied by motor vehicle is minimized.				
8.A.1 Off-Street Parking	Total off-street area dedicated to parking as a percentage of the development area.	8		
8.A.2 Driveway Density	Average number of driveways per 100 meters of block frontage.	1		
8.A.3 Roadway Area	Total road bed area used for motor vehicle travel and on-street parking as percentage of total development area.	6		
		15	SHIFT SCORE:	
		100	TOTAL POINTS:	

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