TOD STANDARD

VERSION 2.0

ITDP

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INTRODUCTION

Janmarg BRT and adjacent development, Ahmedabad, India

Introduction

After decades of underinvestment in public transport, many national and local governments today are re-focusing their efforts on public transport to combat the social, economic and health impacts of congestion on their cities. This is a positive trend away from the form of urban development that many cities adopted from the late 20th century and continues in many cities today, in which ever longer and wider roads, separating buildings and blocks from one another, make way for more and more cars. In cities where public transit investment is taking place, Mexico City, Guangzhou, Rio de Janeiro and others, efforts are being made to make the most use of transit by building homes, jobs and other services adjacent to this transit infrastructure.

The TOD Standard, built on the rich experience of many organizations around the world including our own, addresses development that maximizes the benefits of public transit while firmly placing the emphasis back on the users — people. We call this form of design "transit-oriented development" (TOD), and it marks a key difference with transit-*adjacent* development, which is simply buildings located next to transit corridors and stations. TOD implies high quality, thoughtful planning and design of land use and built form characteristics to support, facilitate and prioritize not only the use of public transport, but the most basic modes of transport, walking and cycling.

Based on our research on sustainable communities and transport, undertaken during the development of the *Principles of Transport in Urban Life* and the *Our Cities Ourselves* exhibits, we outlined eight key principles for guiding the development of TODs. The TOD Standard elaborates on these principles with accessible performance objectives and metrics to a non-technical audience, giving everyone from developers to interested local residents a way to understand the essential components behind a successful TOD.

ITDP's Principles of Urban Development for Transport in Urban Life:

1. Develop neighborhoods that promote walking **[WALK]**
2. Prioritize non-motorized transport networks **[CYCLE]**
3. Create dense networks of streets and paths **[CONNECT]**
4. Locate development near high-quality public transport **[TRANSIT]**
5. Plan for mixed use **[MIX]**
6. Optimize density and transit capacity **[DENSIFY]**
7. Create regions with short commutes **[COMPACT]**
8. Increase mobility by regulating parking and road use **[SHIFT]**

What is the TOD Standard?

The Standard is an assessment, recognition and policy guidance tool uniquely focused on integrating sustainable transport and land use planning and design. It is aimed at a broad range of urban development stakeholders, including governments, developers and investors, planners and designers, sustainable development advocates and interested citizens.[1]

The principal uses include:

- Assessing the walkability, cycle friendliness, and transit orientation of completed urban development projects,
- Evaluating projects at the planning or design phases to identify gaps and opportunities for improvement,
- Evaluating existing station areas or station area plans, to identify opportunities for improvement and investment, and
- Guiding policy and regulations relevant to urban planning, transportation planning, land use, urban design and parking.

By creating a commonly applicable framework grounded in the key principles of transport in urban life, the Standard will be able to benchmark the performance of projects and plans against what is currently considered international best practice, such as Central Saint Giles in London, Massena District in Paris, Hammarby Sjöstad in Stockholm and Västra Hamnen in Malmö, Sweden.

New Development Projects And Station Areas

The TOD Standard has been primarily designed to evaluate new urban development. It can provide guidance for critical aspects of the planning and design of new projects, and celebrates successful, completed TOD projects by officially recognizing them.

The Standard has a complementary methodology and set of metrics for use in evaluating larger, existing areas surrounding high-capacity transit stations. These metrics have been developed to allow stakeholders to understand existing land use characteristics, or benchmark newly developed station area plans, in relation to best practice transit-oriented places. Citizens and civil advocacy organizations can also make use of the TOD Standard to advocate for higher quality, transit-oriented communities in the places where people live and work.

To this end, the Standard has been designed to be accessible to both technical and non-technical audiences. The Standard measures urban design and planning characteristics that can be easily, independently and objectively observed or verified, especially in places where good data is hard to come by.

1. The Standard is not a model for measuring a project's wider sustainability. Several recommendable options for either of these are already available, such as LEED ND and BREEAM Communities among others. Neither does the Standard assess the quality of the high-capacity transit system to which a project is oriented. In this regard, it is meant to be used to complement of other tools and models, such as ITDP's *BRT Standard*. Finally, although the metrics used are largely congruent with high-quality urban design, improved livability, social equity, attractiveness and economic vitality, the TOD Standard does not directly address all aspects of good urban planning and design.

Explanation of Scoring

The TOD Standard scoring system distributes 100 points across 21 metrics, and the allocation of these points approximately reflects the level of impact of each metric in creating a transit-oriented development.

The scoring system is designed to quantitatively measure the extent to which a given project leverages land use and design to reduce car use and increase the use of transit, cycling and walking. As such, it can be of use as a proxy for expected decreases in greenhouse gas emissions and other negative impacts of motorization.

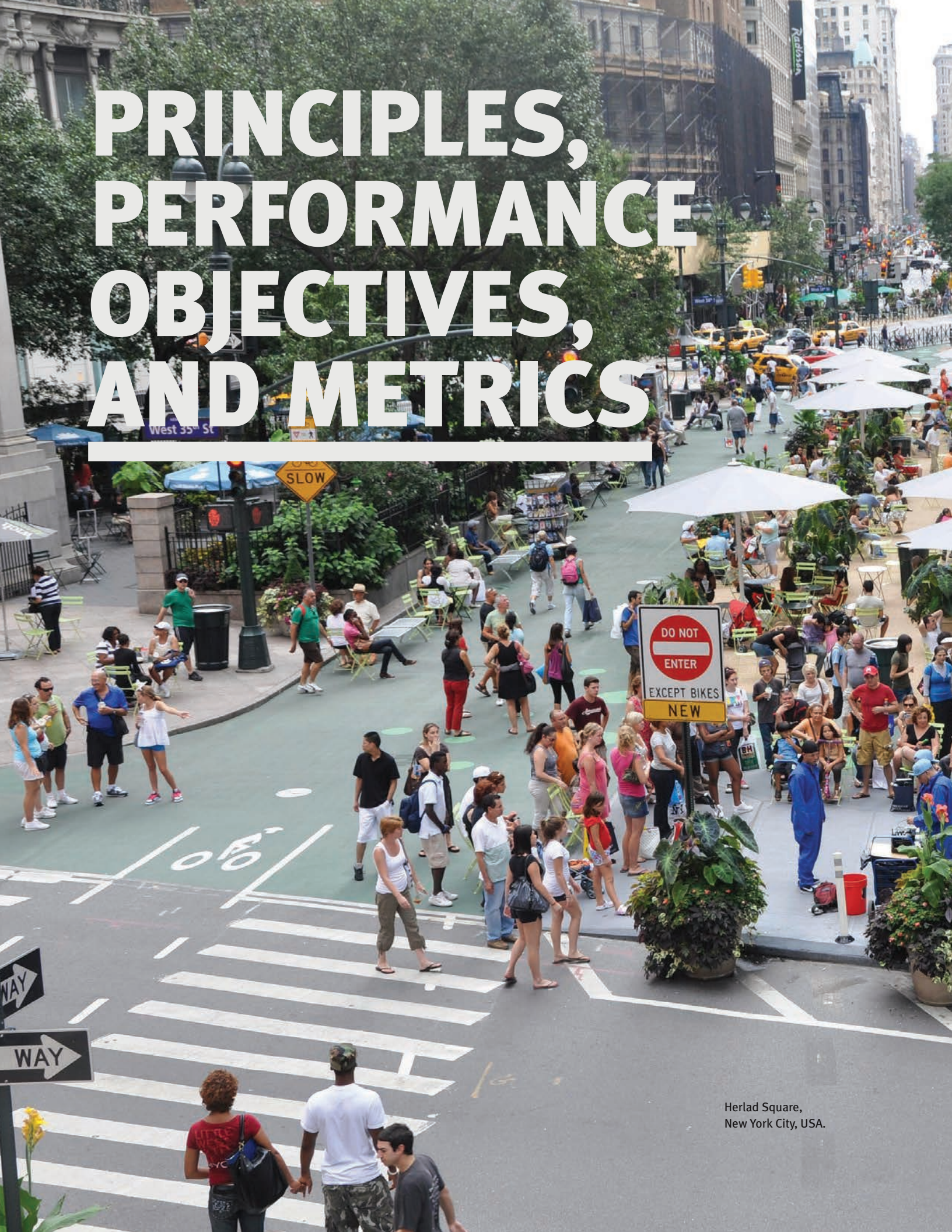
In general, the metrics and distribution of points aim to:

- Reflect a general consensus among academics and practitioners on the aspects of urban design, planning and policy that have the greatest impact on reducing motor vehicle use.
- Reward design decisions made by the project team to proactively design developments oriented toward transit infrastructure.
- Be relevant to a wide range of urban development projects in different international contexts.
- Be easily applicable by being based on information that is readily obtained, and which can also easily be independently verified.

The scoring system ultimately emphasizes the two most important aspects of a transit-oriented development beyond accessibility to, and support of, hgh quality public transport: walkability and reduced car presence.

The place that cars occupy in urban space and as a mode of urban transport, should be drastically reduced. This is reflected in *Principle 8 | Shift*, which awards 20 of a total 100 points with its emphasis on reducing space for cars. Moreover, urban space should be designed to encourage walking as the main form of mobility. The seven other principles elaborate on how to provide safe, active, continuous, and well-connected pedestrian spaces within a neighborhood with a dense, accessible mix of uses and activities.

PRINCIPLES, PERFORMANCE OBJECTIVES, AND METRICS



Herlad Square,
New York City, USA.

DAFFY'S
macy's
DAFFY'S
JCP
now open
32nd & 6th
JCPenney
MACY'S
DO NOT
ENTER
EXCEPT BIKES
NEW

The TOD Standard sums up the new priorities for contemporary urban development. They reflect a fundamental shift from the old, unsustainable paradigm of car-oriented urbanism toward a new paradigm where urban forms and land uses are closely integrated with efficient, low-impact, and people-oriented urban travel modes: walking, cycling, and transit.

Both push factors, away from car-centric city forms, and pull factors, towards an efficient walking, cycling and transit city, are critical to ensuring that the motorized populations of old industrial economies overcome car dependency and that the new urban middle-classes of developing and emerging economies leap-frog into the age of advanced car-free (or low-car) lifestyles. The push factor informs Principle 8 | Shift and concerns the reduction of the space given over to cars. This push factor is, however, practically and politically viable only when combined with the provision of a rewarding and attractive alternative — the result of the seven other principles together, which embody the positive aspects of the new paradigm.

The Standard identifies a number of performance objectives for each principle and a few measurable indicators, or metrics, for each objective. The metrics are based on ease of measurement, and the closest approximation of performance against the objectives.

CONNECT
Pharmacy
Books
COMPACT
TRANSIT
STATION
DENSIFY
SCHOOL
NO CARS
9am-6pm
SHIFT
TACOS TACOS
CITY HALL
OFFICE FOR RENT
BAKERY
TAKEAWAY
BOUTIQUE
MIX
CYCLE
FASHION EYEWEAR
DOCTOR'S OFFICE
FAIRY CAKES
CAFÉ
WALK

Walk

Principle 1

15 points

A. The pedestrian realm is safe and complete.

- **1.1 Walkways:** Percentage of block frontage with safe, wheelchair-accessible walkways. (3 points)
- **1.2 Crosswalks:** Percentage of intersections with safe, wheelchair-accessible crosswalks in all directions. (3 points)

B. The pedestrian realm is active and vibrant.

- **1.3 Visually Active Frontage:** Percentage of walkway segments with visual connection to interior building activity. (6 points)
- **1.4 Physically Permeable Frontage:** Average number of shops and pedestrian building entrances per 100 meters of block frontage. (2 points)

C. The pedestrian realm is temperate and comfortable.

- **1.5 Shade & Shelter:** Percentage of walkway segments that incorporate adequate shade or shelter element. (1 point)

Cycle

Principle 2

5 points

A. The cycling network is safe and complete.

- **2.1 Cycle Network:** Percentage of total street segments with safe cycling conditions. (2 points)

B. Cycle parking and storage is ample and secure.

- **2.2 Cycle Parking at Transit Stations:** Secure multi-space cycle parking facilities are provided at all high-capacity transit stations. (1 point))
- **2.3 Cycle Parking at Buildings:** Percentage of buildings that provide secure cycle parking. (1 point)
- **2.4 Cycle Access in Buildings:** Buildings allow interior access for cycles and cycle storage within tenant-controlled spaces. (1 point)

Connect

Principle 3

15 points

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

- **3.1 Small Blocks:** Length of the longest block (long side). (10 points)

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

- **3.2 Prioritized Connectivity:** Ratio of pedestrian and cycle intersections to motor vehicle intersections. (5 points)

Transit

Principle 4

TOD Requirement

A. High quality transit is accessible by foot.

- ***Required* 4.1 Walk Distance to Transit:** Walk distance (meters) to the nearest transit station.

Mix

Principle 5

15 points

A. Trip lengths are reduced by providing diverse and complementary uses.

- **5.1 Complementary Uses:** Residential and non-residential uses combined within same or adjacent blocks. (10 points)
- **5.2 Accessibility to Food:** Percentage of buildings that are within 500 meters radius of an existing, or planned, source of fresh food. (1 point)

B. Short commutes for lower income groups.

- **5.3 Affordable Housing:** Percentage of residential units provided as affordable housing. (4 points)

Densify

Principle 6

15 points

A. Residential and job densities support high quality transit and local services.

- **6.1 Land Use Density:** Average density in comparison to local conditions. (15 points)

Compact

Principle 7

15 points

A. The development is in an existing urban area.

- **7.1 Urban Site:** Number of sides of the development adjoining existing built-up sites. (10 points)

B. Travelling through the city is convenient

- **7.2 Transit Options:** Numbers of stations on different transit lines that are accessible within walking distance. (5 points)

Shift

Principle 8

20 points

A. The land occupied by motor vehicles is minimized.

- **8.1 Off-Street Parking:** Total off-street area dedicated to parking as a percentage of total land area. (10 points)
- **8.2 Driveway Density:** Average number of driveways per 100 meters of block frontage. (2 points)
- **8.3 Roadway Area:** Total road area used for motor vehicle travel and on-street parking as percentage of total land area. (8 points)

PRINCIPLES, OBJECTIVES & METRICS

TOD STANDARD

Reforma Avenue in Mexico City, Mexico, has vibrant and well designed pedestrian spaces located near transit.

WALK

Principle 1

Walking is the most natural, affordable, healthy and clean mode of travel for short distances, and a necessary component of the vast majority of transit trips. As such, walking is a fundamental building block of sustainable transport. Walking is, or can be, the most enjoyable and productive way of getting around provided that paths and streets are populated and desired services and resources conveniently located. Walking also requires physical effort, and it is highly sensitive to environmental conditions. The key factors to making walking appealing form the basis for the three performance objectives under this principle: safety, activity and comfort. Shortness and directness, other important aspects of walkability, are discussed under *Principle 3 | Connect*.

- **Objective A: The pedestrian network is safe and complete**
  The most basic requirement of urban walkability is the existence of a safe walking network linking all buildings and destinations, accessible to all persons and protected from motor vehicles. This can be achieved using a variety of configurations of paths and streets. Completeness of walkways and road-crossing systems are measured by *Metrics 1.1 | Walkways* and *1.2 | Crosswalks*.

- **Objective B: The pedestrian realm is active and vibrant**
  Activity feeds activity. Walking is attractive and safe, and can be highly productive when sidewalks are populated, animated and lined with useful ground-floor activities and services such as storefronts and restaurants. In turn, being closer to passing pedestrians and bicyclists increases the exposure and vitality of local retail. *Metric 1.3 | Visually Active Frontage* measures the opportunities for visual connection between sidewalks and the interior ground floors of adjacent buildings. All types of premises are relevant, not only shops and restaurants but also workplaces and residences. Similarly, *Metric 1.4 | Physically Permeable Frontage* measures active physical connections through the block frontage via entrances and exits to and from storefronts, building lobbies, courtyard entrances, passageways, and so on.

- **Objective C: The pedestrian realm is temperate and comfortable**
  The willingness to walk can be significantly enhanced with the provision of simple elements that enhance the walking environment such as street trees. Provision of trees, the simplest and most effective way of providing shade in most climates, is measured by *Metric 1.5 | Shade and Shelter*. Trees also bring many environmental and psychological benefits. Various forms of shelter, such as arcades and awnings, can also improve walkability.

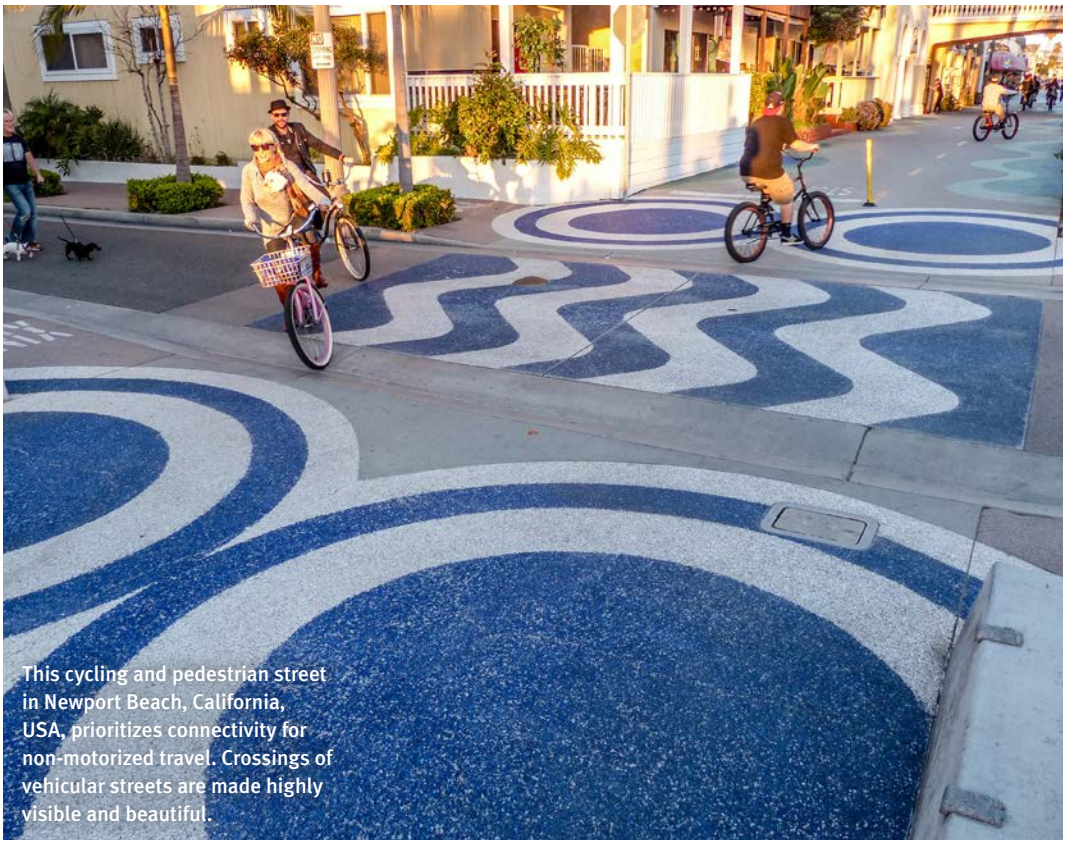
CYCLE

Principle 2

Cycling is an elegant, emission-free, healthy and affordable transport option that is highly efficient and consumes little space and few resources. It combines the convenience of door-to-door travel, the route and schedule flexibility of walking, and the range and speed of many local transit services. Bicycles and other means of people-powered transport, such as pedicabs, activate streets and greatly increase the area coverage of transit stations. Cyclists, however, are among the most vulnerable road users, and their bicycles are also vulnerable to theft and vandalism. The key factors encouraging cycling are the provision of safe street conditions, and secure cycle parking and storage.

- **Objective A: The cycling network is safe and complete**
  A safe cycling network connecting all buildings and destinations through the shortest routes available is a basic TOD requirement. *Metric 2.1 | Cycle Network* controls for this provision. Various types of cycleways, including cycle paths, cycle lanes on roads and cycle-friendly streets can be part of the network.

- **Objective B: Cycle parking and storage is ample and secure**
  Bicycles do not take up much space but still require secure parking and storage. Cycling can be an attractive travel option only to the extent that cycle racks is available at destinations, and that bicycles can be secured within private premises at night and for longer periods. These are addressed by *Metrics 2.2 | Cycle Parking at Transit Stations, 2.3 | Cycle Parking at Buildings, 2.4 | 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

Principle 3

Short and direct pedestrian and cycling routes require highly connected network of paths and streets around small, permeable blocks. This is primarily important for walking and for transit station accessibility, which can be easily discouraged by detours. A tight network of paths and streets offering multiple routes to many destinations can also make walking and cycling trips varied and enjoyable. Frequent street corners and narrower right of ways, with slow vehicular speed and many pedestrians encourage street activity and local commerce. An urban fabric that is more permeable to pedestrians and cyclists than to cars also prioritizes non-motorized and transit modes.

- **Objective A: Walking and cycling routes are short, direct and varied**
  The simplest proxy for the quality of path connectivity is the density of pedestrian intersections, which is dependant on small blocks. *Metric 3.1 / Small Blocks* rewards a development with a small average block size. This combined with the provision of a complete pedestrian network would represent a dense mesh of pedestrian and cycling routes which would offer a wide choice in routes to take to one's destination, and access to any number of possible activities along the way.

- **Objective B: Walking and cycling routes are shorter than motor vehicle routes**
  Although high pedestrian and cycling connectivity is an important feature of TOD, road connectivity enhancing motor vehicle travel is not. *Metric 3.2 / Prioritized Connectivity* compares the two categories and rewards higher ratios of non-motorized travel (NMT) path connectivity to car-accessible road connectivity.

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

TRANSIT

Principle 4

Transit connects and integrates distant parts of the city for pedestrians. Access and proximity to high-capacity public transit service, defined as bus rapid transit (BRT) or rail transit is a prerequisite for TOD Standard recognition. High-capacity public transit plays a critical role, as it allows for highly efficient and equitable urban mobility, and supports dense and compact development patterns. Transit also comes in various forms to support the entire spectrum of urban transport needs, including low- and high-capacity vehicles, taxis and motorized rickshaws, bi-articulated buses and trains.

- **Objective A: High-quality transit is accessible by foot**
  The maximum recommended distance to the nearest high-capacity transit station for a transit-oriented development is defined as 1 kilometers, a 15- to 20- minute walk. Moreover, by building at higher densities closer to the transit station, a development can maximize the number of people and services that can easily be reached by a short walking distance. *Metric 4.1 | Walk Distance* to Transit requires developments to be within this distance in order to qualify for recognition.

BRT Station in Guangzhou, China.

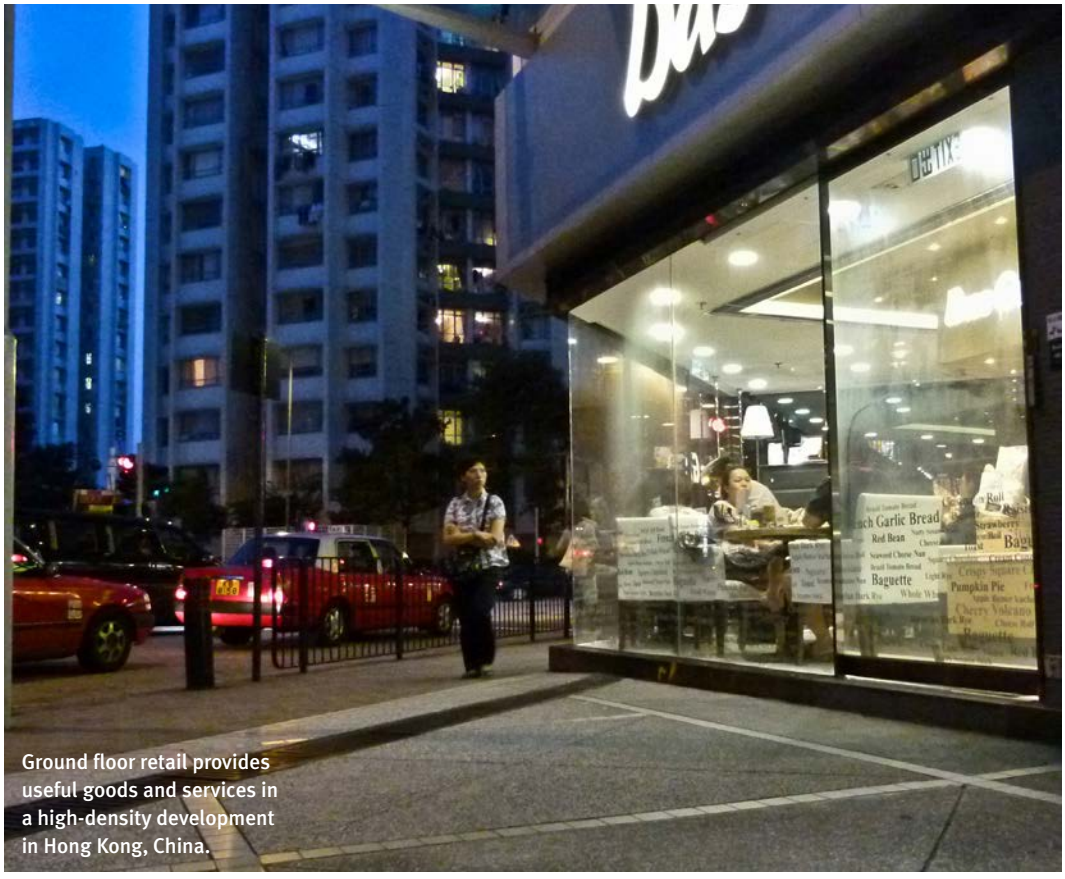
MIX

Principle 5

When there is a balanced mix of complementary uses and activities within a local area (e.g., a mix of residences, workplaces and local retail commerce), many daily trips can remain short and walkable. Diverse uses peaking at different times keep local streets animated and safe, encouraging walking and cycling activity, and fostering a vibrant human environment where people want to live. Inbound and outbound commuting trips are also more likely to be balanced, resulting in more efficient operations in the transit system. A mix of housing prices allows some workers to live near their jobs and prevents lower-income residents, who are also the most dependent on lower cost public transit, from being displaced to outlying areas and potentially encouraging this group to become dependant on motor vehicles. Therefore, the two performance objectives for this principle are the provision of a balanced mix of land uses and a balanced mix of resident income levels.

- **Objective A: Trip lengths are reduced by the provision of diverse and complementary uses**
  Developments that add to the mix of complementary uses allow for a wider range of daily trips to be walkable. *Metric 5.1 | Complementary Uses* rewards developments that mix residential and non-residential uses. *Metric 5.2 | Accessibility to Food* rewards the availability of fresh groceries as a "litmus test" indicating an area well served by locally oriented and regularly supplied goods and services. Food is also an essential part of daily life, and being able to walk to buy produce and meals contributes to a higher quality of life.

- **Objective B: Short commutes for lower-income groups**
  Metric 5.3 | Affordable Housing rewards mixed-income developments that include dedicated affordable housing.



Ground floor retail provides useful goods and services in a high-density development in Hong Kong, China.

DENSIFY

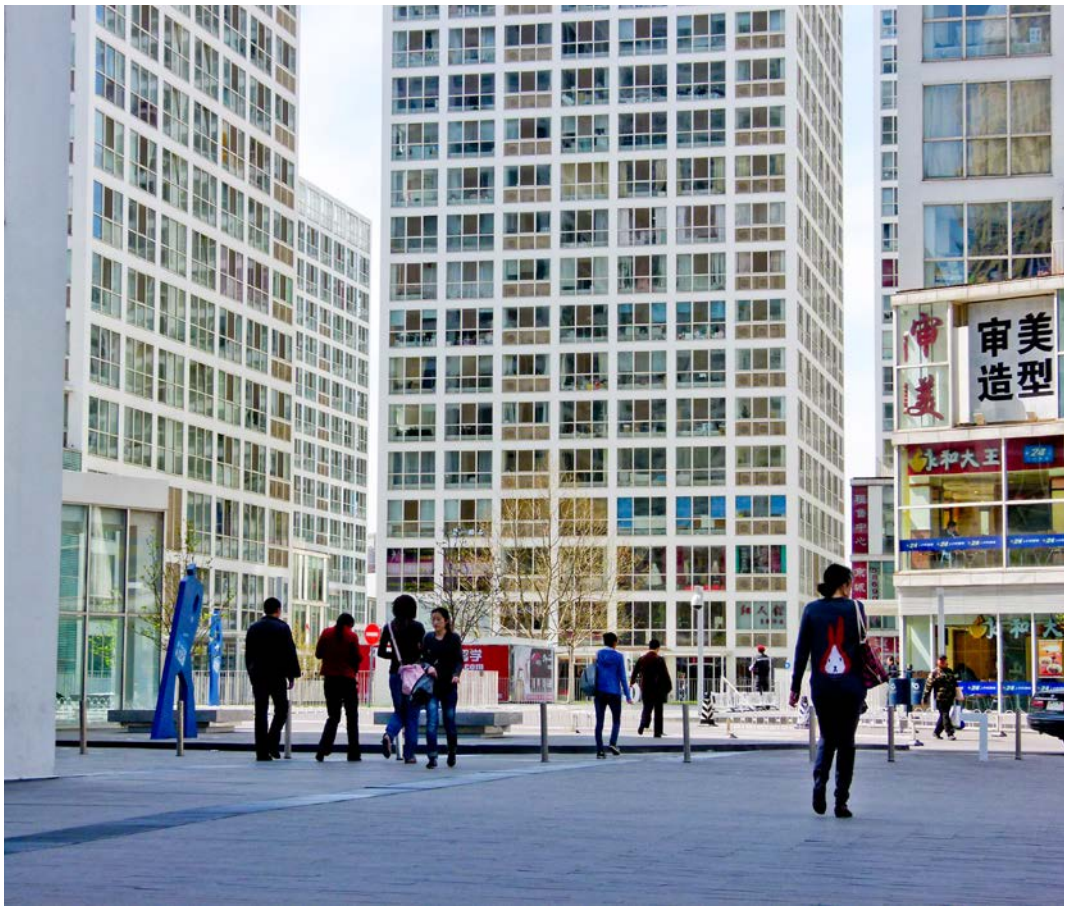
Principle 6

To absorb urban growth in compact and dense forms, urban areas must grow vertically (densification) instead of horizontally (sprawl). In turn, high urban densities oriented towards transit support a transit service of high-quality, frequency and connectivity, and help generate resources for investment in system improvements and expansions.

Transit-oriented density results in well-populated streets, ensuring that station areas are lively, active, vibrant and safe places where people want to live. Density delivers the customer base that supports a wide range of services and amenities and makes local commerce thrive. As many of the most famous and desirable neighborhoods in the world attest, high-density living can be highly attractive. The only limits to densification should result from requirements for access to daylight and circulation of fresh air, access to parks and open space, preservation of natural systems, and protection of historic and cultural resources.

The performance objective under this principle emphasizes residential and non-residential density to support high-quality transit and local services.

- **Objective A: Residential and job densities support high-quality transit and local services**
  Metric 6.1 | Land Use Density rewards projects that achieve equal or higher densities when compared to comparable projects. The public and private sector must work together to increase allowable residential and non-residential densities, while remaining sensitive to the local context.



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

COMPACT

Principle 7

The basic organizational principle of dense urban development is compact development. In a compact city, or a compact district, the various activities and uses are conveniently located close together, minimizing the time and energy required to reach them and maximizing the potential for interaction. With shorter distances, compact cities require less extensive and costly infrastructure (though higher standards of planning and design are required), and they preserve rural land from development by prioritizing densification and redevelopment of previously developed land. The *Principle 7 | Compact* can be applied to a neighborhood scale, resulting in spatial integration by good walking and cycling connectivity and orientation toward transit stations. At the scale of a city, being compact means being 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 time to the major trip generators, in the central and regional destinations.

- **Objective A: The development is in an existing urban area**
  To promote densification and the efficient use of previously developed vacant lots such as brownfields, *Metric 7.1 | Urban Site* rewards development on sites within or at the immediate edge of an urbanized area.

- **Objective B: Traveling through the city is convenient**
  Metric 7.2 | Transit Options encourages a site to provide multi-modal transport — including different high-capacity transit lines and para-transit options. Having a number of different transport options means the diverse needs of passengers and travelers can be fulfilled, encouraging more people to use transit in a virtuous cycle.

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

SHIFT

Principle 8

When cities are shaped by the above seven principles, personal motor vehicles become largely unnecessary in day-to-day life. Walking, cycling and the use of high-capacity transit are easy and convenient, and can be supplemented by a variety of intermediary transit modes and rented vehicles that are much less space-intensive. Scarce and valuable urban space resources can be reclaimed from unnecessary roads and parking, and can be reallocated to more socially and economically productive uses. The performance objective below focuses on these benefits.

- **Objective A: The land occupied by motor vehicles is minimized**
  Low provision of off-street space for motor vehicles parking is rewarded by *Metric 8.1 | Off-Street Parking*. *Metric 8.2 | Driveway Density* measures the frequency of driveways breaching the protected status of walkways, and rewards the minimization of interference of the pedestrian network. *Metric 8.3 | Roadway Area* rewards the reduction of street space occupied by motor vehicles either in the form of road area of on-street parking.

A MODEL TO SHIFT FROM

The Round Towers of Marina City in Chicago, USA, are an example of what not to do. Cars occupy about one third of the structure and contribute to creating a hostile walking environment.

A MODEL TO SHIFT TO

The Central Saint Giles mixed use development in London, UK, does not provide any car parking, except for disabled persons. This well-connected development is dense with small block footprints, active and permeable frontage, and provides easy access for pedestrians and cyclists.

Bike-share station
along BRT corridor
in Nantes, France

SCORING IN DETAIL

Project Eligibility Criteria

To qualify for official TOD Standard recognition a development must:

- Be located within a 1 kilometer maximum walking distance to a high-capacity transit station, or within 500 meters walking distance to a direct service to a high-capacity transit line. (*Metric 4.1 / Walk distance to transit*).
  - The direct service should be of 15 minutes maximum headway, and 5 kilometers or less to a high-capacity transit line.
- Have a complete, safe walkway network (*Metric 1.1 / Walkways*), i.e. all destinations should be connected to each other and the stations by protected walkways.
- Create at least one new, publicly accessible street, pedestrian path, or passageway connecting two different public right of ways. This new link can be on private property but must be open daily for a minimum of 15 hours, and offer a safe and complete walkway as per the details of *Metric 1.1 / Walkway*s.

A plan or design can use the TOD Standard for evaluation purposes, but is not eligible for recognition until built.

Station Area Evaluation

The Standard can be used to evaluate the transit-orientation characteristics of the catchment area of a station, and as guide in the preparation of plans, policies and regulations to improve walking and non-motorized transit conditions and to maximize access to transit infrastructure.

A station area is defined as the area within reasonable walkable distance of a transit station. We recommend using 1 kilometer walk distance to define the boundaries of the primary TOD zone, i.e. a walking time of 20 minutes to final destination at an average urban walking speed of approximately 3 km/h (wait at intersections included as such), but the useful walkable time/distance for analysis is at the discretion of the users.

Note that station areas are not eligible for recognition.

A pedestrian street in Rio de Janeiro, Brazil provides an attractive and stimulating walking environment.

Metric 1.1
Walkways

Percentage of block frontage with safe, wheelchair-accessible walkways.

Details

- **Completeness of the walkway network is a basic requirement. The network should meet local accessibility regulations or standards and receive adequate street lighting.**
- **Complete walkways are defined as either:**
  (a) dedicated and protected sidewalks, or
  (b) shared streets designed for safe sharing between pedestrians, cyclists and vehicles, with speeds capped at 15km/h or 10 mph[1] by design, or
  (c) pedestrian-only paths.
- **Wheelchair-accessible walkways are defined as barrier-free for wheelchair users, according to local regulations and standards.**
- **Walkway obstructions due to works or other temporary situations are not penalized as long as a safe detour is available.**

1. Use kilometers per hour or miles per hour as per local standards.

Measurement Method

1. **Quantify the total length of all block frontage. (Blocks are defined by pedestrian accessibility, see Glossary).**
2. **Quantify the length of all block frontages with qualifying walkways (see details above).**
3. **Divide the second measure by the first to calculate percentage of walkway coverage.**

Data Sources

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

Scope

Within development boundaries and at development boundaries with public right-of-way.

Walkways	POINTS
100% of the walkway network is complete	3
Less than 100% of the walkway network is complete	0

Station Area Evaluation

Within defined station area.

Walkways	POINTS
100% or more of the walkway network is complete	3
95% or more of the walkway network is complete	2
90% or more of the walkway network is complete	1
Less than 90% of the walkway network is complete	0

Metric 1.2

Crosswalks

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

Details

- **Completeness of the walkway network is a basic requirement, and the network should meet local accessibility regulations or standards and receive adequate street lighting.**
- **In the case of very dense street networks, where there are qualifying crosswalks at an interval of 150 meters or less, crosswalks through the larger road are not required at all intersections.**
- **Qualifying safe crosswalks are:**
  (a) two or more meters in width and demarcated, and
  (b) fully wheelchair accessible, and
  (c) if the crossing is longer than 2 traffic lanes, safe crosswalks also have a wheelchair accessible refuge island.

Measurement Method

1. **Quantify the number of intersections requiring 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 (and multiply by 100).**

Data Sources

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

Scope

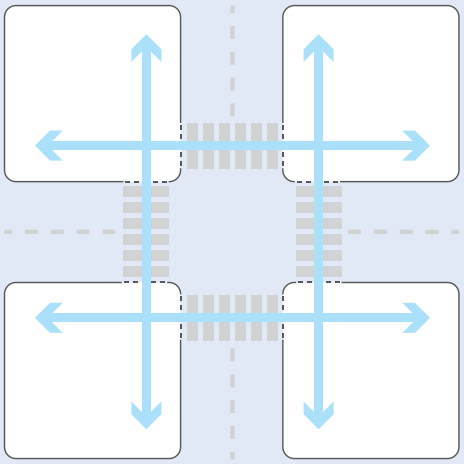
Within development boundaries.

Crosswalks	POINTS
100% of intersections have complete crosswalks	3
Less than 100% of intersections have complete crosswalks	0

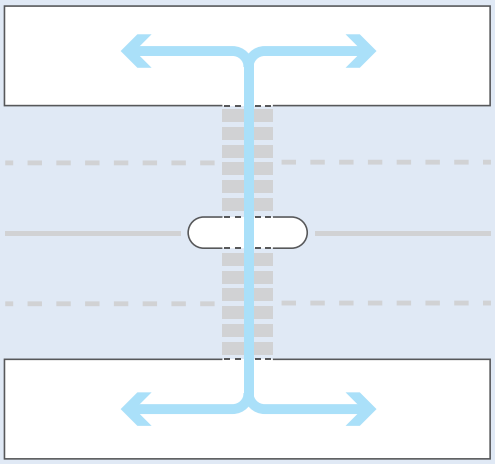
Station Area Evaluation

Within defined station area.

Crosswalks	POINTS
100% of intersections have complete crosswalks	3
95% of intersections or more have complete crosswalks	2
90% of intersections or more have complete crosswalks	1
Less than 90% of intersections have complete crosswalks	0



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



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

Reforma Avenue in Mexico City, Mexico, has raised crosswalks that force cars to slow down and give priority to pedestrians and cyclists.

Metric 1.3

Visually Active Frontage

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

Details

- **Visually active frontage is defined as a length building frontage that abuts public walkways and is visually penetrable.**
- **A walkway segment is defined as a length of frontage between 2 pedestrian network intersections. It is considered visually active if 20% or more of its abutting building frontage is visually active frontage.**
- **Visually active frontage is measured as windows and partially, or completely, transparent walls, and accessible open space (including playground and park, but not fenced-off landscaping, porches, or patios), located along the streetwall at any point between ground level and the first level above ground level.**
- **Vehicle entrances do not count as visually active frontage.**
- **Operable interior or exterior curtains or shutters are admissible.**
- **Alleyways that do not lead to a main pedestrian entrance of a building, and/or do not connect to the public right of way on two sides (i.e., is a dead end) should not be included as public walkways.**

Measurement Method

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

Data Sources

Plans and designs, maps, site survey.

Visually active frontage in the SOMA neighborhood of San Francisco, California, USA, .provides a pleasant and engaging walking and working environment.

Scope

Within development boundaries and at its periphery.

Visually Active Frontage	POINTS
Visually active frontage segment percentage is 90% or more	6
Visually active frontage segment percentage is 80% or more	5
Visually active frontage segment percentage is 70% or more	4
Visually active frontage segment percentage is 60% or more	3
Visually active frontage segment percentage is 50% or more	2
Visually active frontage segment percentage is less than 50%	1

Station Area Evaluation

Within defined station area. For station area evaluation, do not include undeveloped lots in the measurement.

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

Metric 1.4
Physically Permeable Frontage

Average number of shops and building entrances per 100 meters of block frontage.

Details

- **Qualifying entrances include openings to storefronts, restaurants and cafés, building lobbies, cycle and pedestrian passageways and entrances, park and corner plaza entrances, and active service entrances.**
- **Non-qualifying entrances include emergency exits, access to storage, motor vehicle garages or driveway entrances.**
- **Alleyways that do not lead to a main pedestrian entrance of a building, and/or do not connect to the local pedestrian network at both ends should not be included as "public walkways".**

Measurement Method

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

Data Sources

Plans and designs, maps, site survey.

Scope

Within the development.

Physically Permeable Frontage	POINTS
Average number of entrances per 100m of block frontage is 5 or more	2
Average number of entrances per 100m of block frontage is 3 or more	1
Average number of entrances per 100m of block frontage is less than 3	0

Station Area Evaluation

Within the defined station area. Do not include any empty lots in the measurement.

Metric 1.5
Shade and Shelter

Percentage of walkway segments that incorporate adequate shade or shelter element.

Details

- **Shaded walkways are defined as having a clear pedestrian path that is appropriately shaded during the hottest seasons.**
- **Both sidewalks should be shaded on streets with more than two traffic lanes.**
- **Shade can be provided through various means including: trees, buildings (arcades, awnings), free-standing structures (shade shelters at intersections, public transport shelters) and vertical screens (walls, lattices).**
- **If buildings provide shade to the walkways at most hours of the day, this can be considered an appropriately shaded walkway.**
- **Walkway segments are defined as the part of a walkway that lies between adjacent pedestrian network intersections, including non-motorized intersections.**

Measurement Method

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

Data Sources

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

Scope

Within development boundaries.

Shade and Shelter	POINTS
75% or more of all walkway segments have adequate shade/shelter amenities	1
Less than 75% of all walkways segments have adequate shade/shelter amenities	0

Station Area Evaluation

Within defined station area.

Trees provide shade and pleasant conditions for walking in Ward V of Budapest, Hungary, in the summer.

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

Metric 2.1
Cycle Network

Percentage of total street segments with safe cycling conditions.

Details

- **Requirements for safe and complete cycling conditions are:**
  (a) Streets with speeds above 30km/h or 20 mph must have exclusive or protected cycleways in both directions. Exclusive cycleways are spatially segregated from vehicles (e.g., painted cycle lanes or physically separated cycle lanes).
  (b) Slow streets (with a speed of 30km/h or 20 mph or less) are considered safe for cycling and do not require exclusive or protected cycleways, but sharrow stencils are recommended.
  (c) Pedestrian priority streets, or shared streets, (with a speed of 15km/h or 10 mph or less) are considered safe for cycling.

Measurement Method

1. **Quantify the number of street segments.**
2. **Quantify the number of street segments with safe cycling conditions (see details above).**
3. **Divide the second measure by the first to calculate the percentage of street segments safe for cycling.**

Data Sources

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

Scope

Within the development.

Safe and Complete Cycle Network	POINTS
100% of street segments are safe for cycling	2
90% or more of street segments are safe for cycling	1
Less than 90% of street segments are safe for cycling	0

Station Area Evaluation

Within the defined station area.

1. **Identify streets that are safe for cycling and give access to at least one qualifying transit station (refer to Scope A project eligibility criteria).**
2. **Identify the building that is the furthest walking distance from safe cycling streets, excluding any extreme outliers. Measure the walking distance from the building to the safe cycling street.**

Safe and Complete Cycle Network	POINTS
Maximum walk distance to safe cycling streets is less than 100m	2
Maximum walk distance to safe cycling streets is less than 200m	1
Maximum walk distance to safe cycling streets is more than 200m	0

Metric 2.2

Cycle Parking at Transit Stations

Secure multi-space cycle parking facilities are provided at all high-capacity transit stations.

Details

- **Secure cycle parking is defined as fixed facilities available to lock bicycles and other non-motorized vehicles. These include multi-space outdoor racks and/or weather-protected storage.**
- **Cycle parking facilities should be located outside pedestrian or vehicle circulation paths and within 100 meters of a transit station entrance.**

Measurement Method

1. **Identify all high-capacity transit stations, within the scope defined below.**
2. **Identify the stations that provide multi-space, secure cycle parking facilities (see details above).**

Data Sources

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

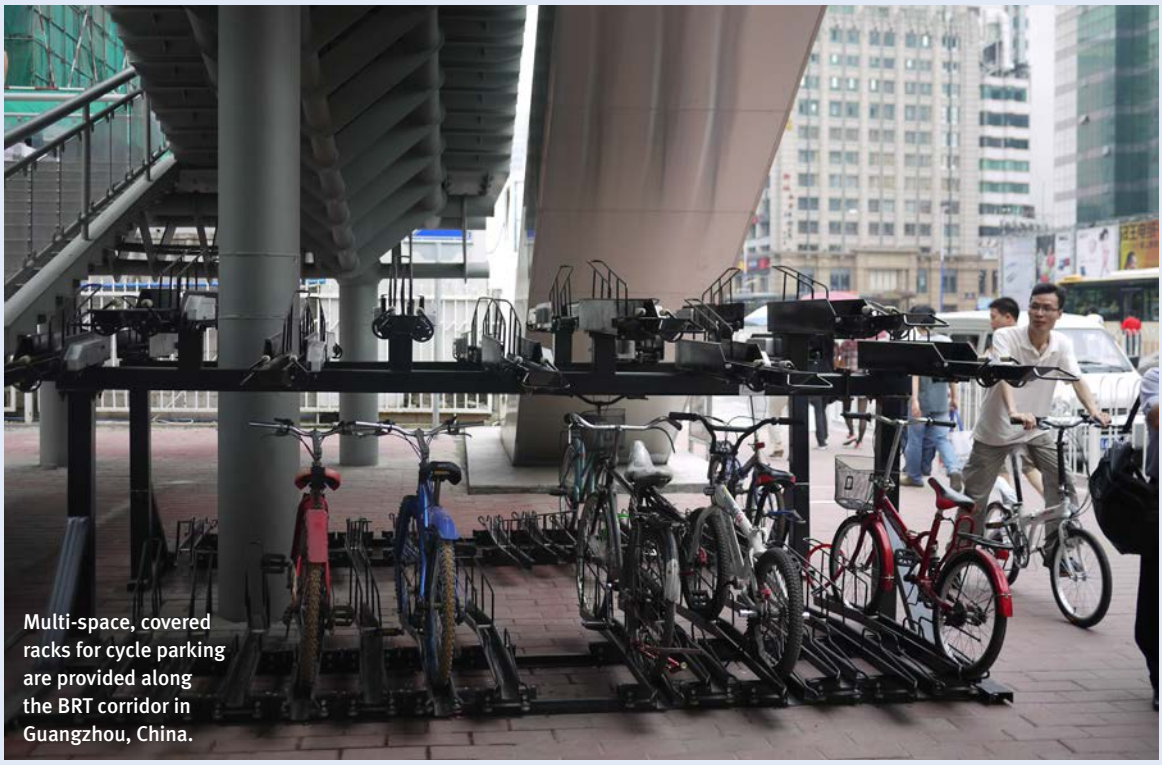
Scope

All transit stations within 1 kilometer of the development.

Cycle Parking at Transit Stations	POINTS
Multi-space cycle racks are provided within 100 meters of all transit stations	1
Multi-space racks are not provided, or are provided at only some transit stations.	0

Station Area Evaluation

All transit stations within the defined station area.



Multi-space, covered racks for cycle parking are provided along the BRT corridor in Guangzhou, China.

Ample and visible cycle parking is located on the ground floor of an affordable housing building in the LandStrasse area of Vienna, Austria.

Metric 2.3
Cycle Parking at Buildings

Percentage of buildings that provide secure cycle parking.

Details

- **Applies to buildings greater than 500 square meters of floor area, or six residential units.**
- **Cycle parking at buildings should be:**
  (a) located within 100 meters of the entrance, and
  (b) located outside pedestrian or vehicle circulation areas
- **Publicly provided cycle parking facilities and those provided in garages are included.**

Measurement Method

1. **Quantify all applicable buildings.**
2. **Quantify all applicable buildings with acceptable 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	POINTS
95% or more of buildings provide ample secure cycle parking	1
Less than 95% of buildings provide ample secure cycle parking	0

Station Area Evaluation

All buildings within the defined station area.

Cycle Parking at Buildings	POINTS
25% or more of buildings have ample secure cycle parking	1
Less than 25% of new buildings provide ample secure cycle parking	0

Metric 2.4

Cycle Access in Buildings

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

Details

- **Cycle access into tenant-controlled spaces must be required by building code or bylaws.**

Measurement Method

1. **Review applicable codes and/or bylaws.**

Data Sources

Applicable codes or bylaws.

Scope

All buildings constructed as part of the development.

Cycle Access in Buildings	POINTS
Cycle access is required by building codes or bylaws	1
Cycle access is not required by building codes or bylaws	0

Station Area Evaluation

All buildings within the defined station area.

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

A mixed use development in the Västra Hamnen area of Malmö, Sweden, is pedestrian-friendly, permeable, and connected.

Metric 3.1
Small Blocks

Length of longest block (long side).

Details

- **Blocks are enclosed properties defined by the publicly accessible pedestrian network. A publicly accessible passageway through a building divides the building into two blocks.**
- **Publicly accessible is defined as indiscriminately open to all at least 15 hours a day.**
- **Blocks are measured by the length of block faces between adjacent intersections of the pedestrian network.**
- **Do not include blocks located along hard edges and impermeable to pedestrians, such as railroads or motorways.**

Measurement Method

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

Data Sources

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

Scope

All blocks within the development.

Small Blocks	POINTS
All blocks within the development are less than 110m in length	10
All blocks within the development are less than 130m in length	6
All blocks within the development are less than 150m in length	2
Some blocks within the development are over 150m in length	0

Station Area Evaluation

All blocks within the defined station area.

Small Blocks	POINTS
90% of blocks within the station area are less than 110m in length	10
90% of blocks within the station area are less than 130m in length	8
90% of blocks within the station area are less than 150m in length	6
90% of blocks within the station area are less than 170m in length	4
90% of blocks within the station area are less than 190m in length	2
More than 10% of blocks within the station area are over 190m in length	0

Metric 3.2

Prioritized Connectivity

Ratio of pedestrian intersections to motor vehicle intersections.

Details

- **Pedestrian intersections are defined as all intersections in the pedestrian network, including pedestrian paths and passages as well as pedestrian priority streets, and vehicular streets with appropriate crosswalks.**
- **Motor vehical intersections are defined as intersections of vehicular streets, fast and slow, excluding pedestrian priority (shared) streets.**
- **Intersections at plazas and open spaces permeable to pedestrians and cyclists, but without defined walkways or cycleways, are counted as four-way intersections.**
- **Cul-de-sacs with no pedestrian exit or throughway to the pedestrian network do not count towards the intersection. A four-way intersection, where one street is a cul-de-sac would be 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. This includes motor vehicle intersections with appropriate walkways and crosswalks.**
3. **Quantify all intersections as follows:**
   · A four-way intersection = 1 intersection
   · A three-way, or "T", intersection = 0.75
   · A five-way intersection = 1.25
4. **Divide the 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.

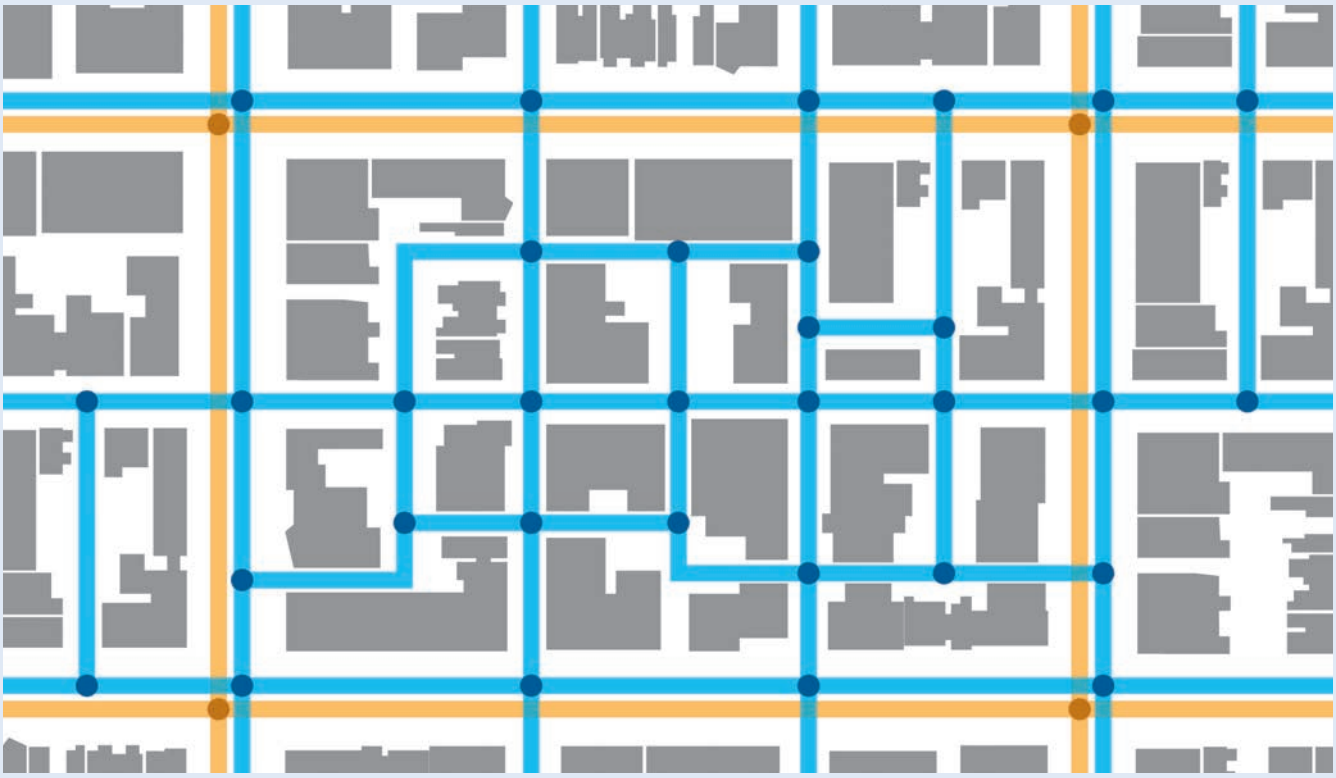
Scope

Within the development and to the centerline of peripheral streets.

Prioritized Connectivity	POINTS
Prioritized connectivity ratio is 2 or higher	5
Prioritized connectivity ratio is 1 or higher	3
Prioritized connectivity ratio is 0.5 or higher	1
Prioritized connectivity ratio is lower than 0.5	0

Station Area Evaluation

All blocks within the defined station area.



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.

This dual transport mode corridor in the Hammarby Sjöstad district of Stockholm, Sweden, features dedicated right of way for buses and trams.

Metric 4.1
Walk Distance to Transit

Walk distance (meters) to the nearest transit station.

Details

- **Applicable transit stations include:**
  · a high-capacity transit station (defined as BRT, rail or ferry), or
  · a station on a direct transit service which connects to high-capacity transit within 5 kilometers.
- **Measure actual walk distance through permanently public areas and walkways (not a straight line) between a building entrance and a transit station.**

Measurement Method

1. **Identify building entrances that are farthest away from these transit stations.**
2. **Quantify the walking distance.**

Data Sources

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

Scope

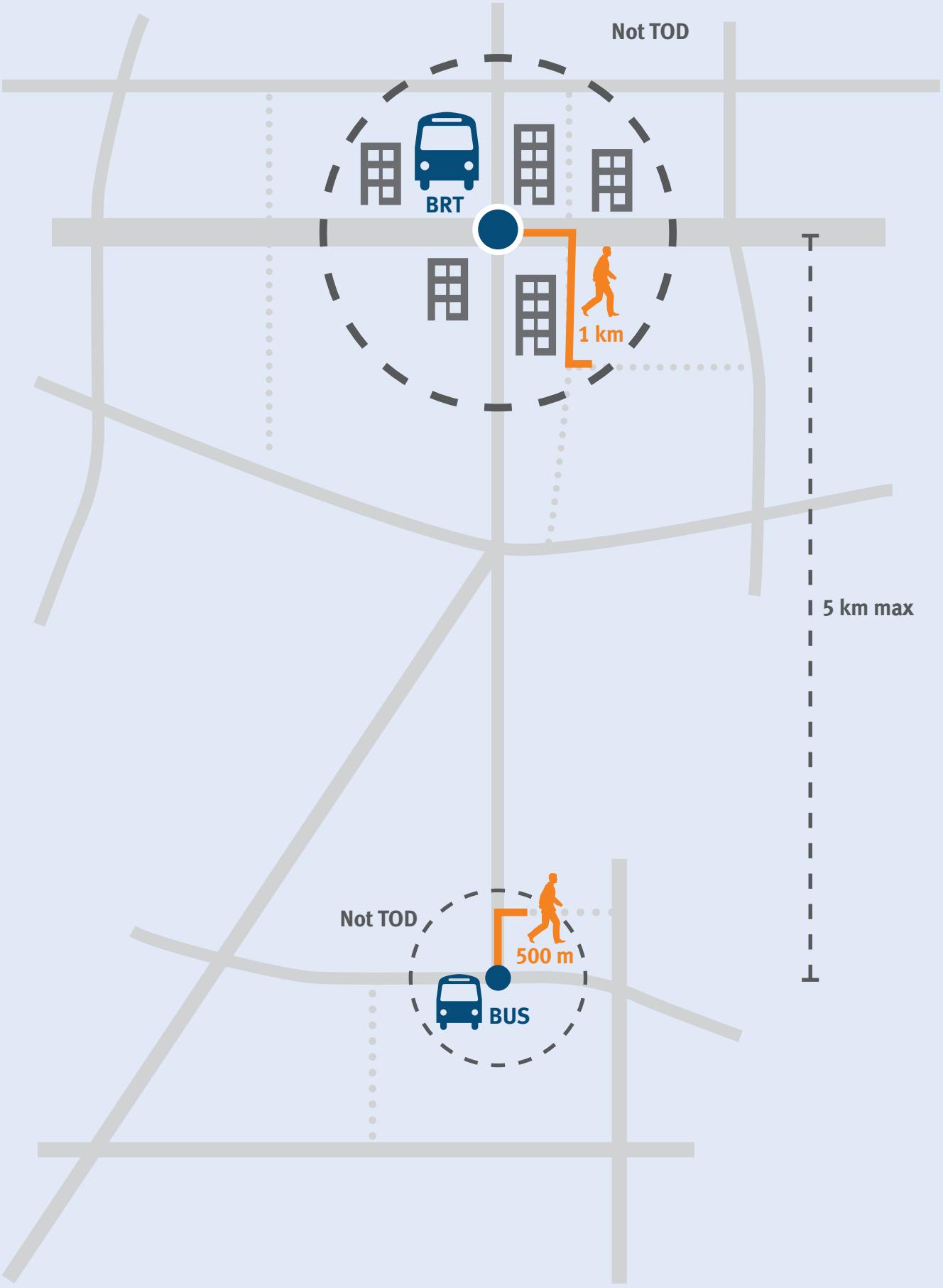
All buildings within the development; nearby transit stations.

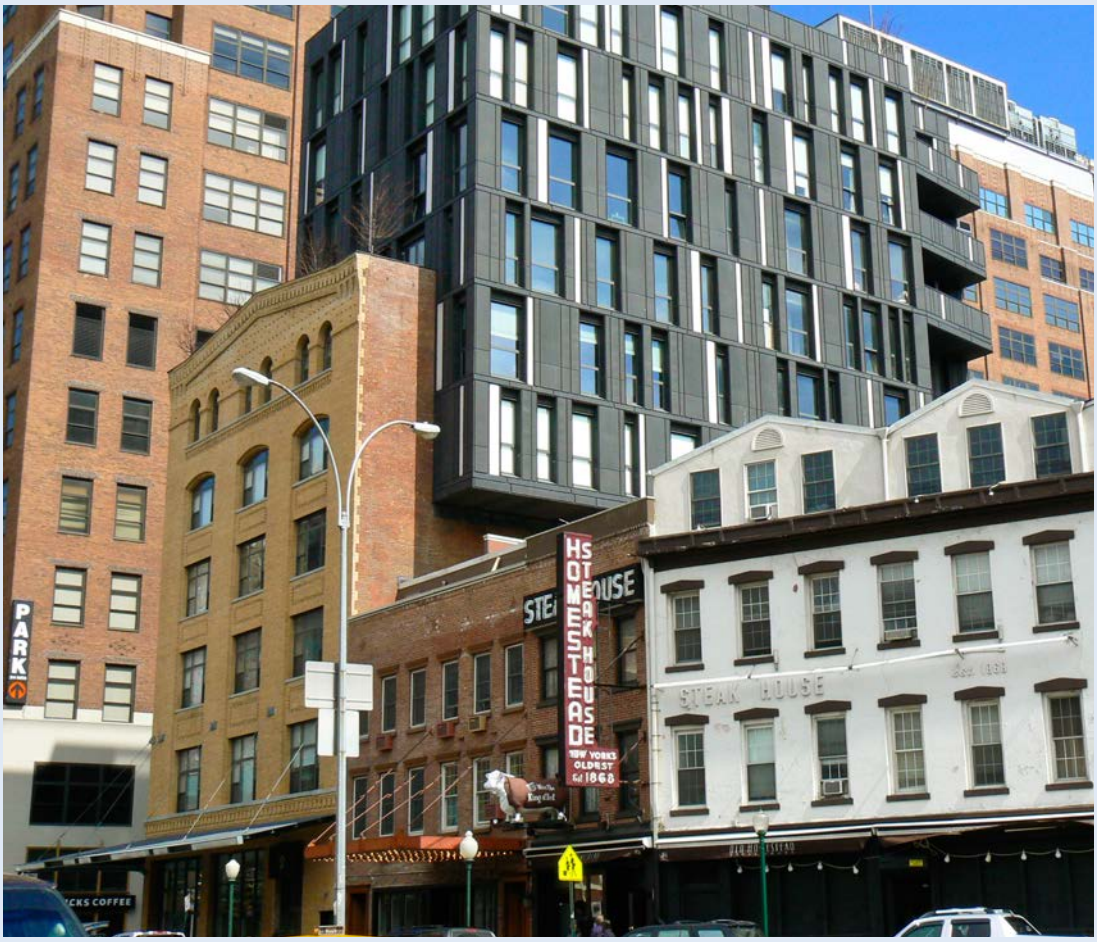
Walk Distance to Transit	POINTS
Maximum walk distance is less than 1 kilometer to a high-capacity transit station, or less than 500 meters to a direct service station	TOD Standard requirement
Maximum walk distance is more than 1 kilometer to a high-capacity transit station, or more than 500 meter to a direct service station	Does not meet TOD Standard requirement

Station Area Evaluation

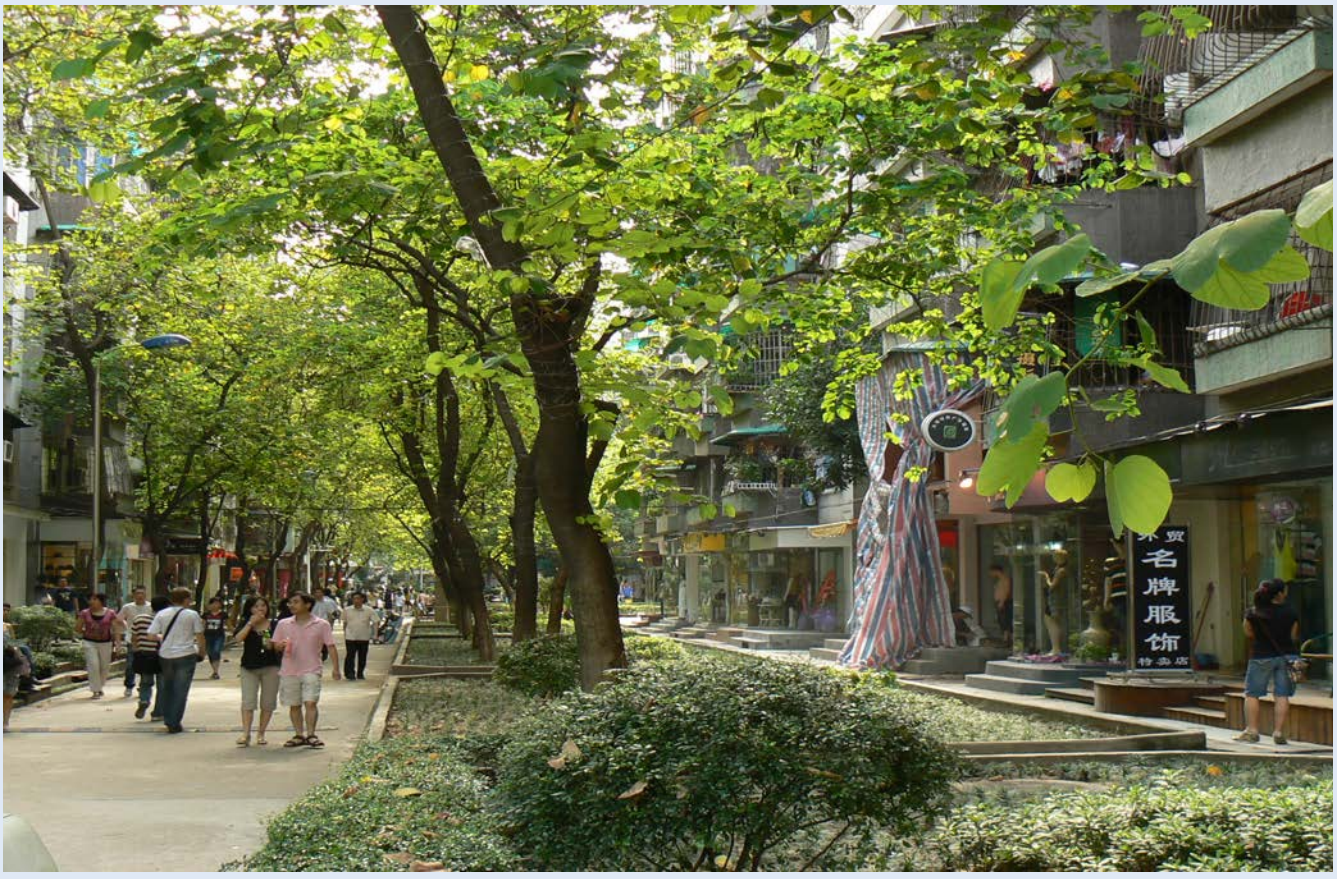
Use above definition or locally acceptable maximum walk distance to transit to define the station area.

Transit: Locate development near high-quality transit
Objective 4A: High quality transit is accessible by foot


Not TOD
BRT
1 km
5 km max
Not TOD
500 m
BUS



Residential, commercial, and work spaces are combined within the same or adjacent blocks in the Chelsea district of New York City, USA (above) and the Tianhe district of Guangzhou, China (below).



Metric 5.1

Complementary Uses

Residential and non-residential uses combined within same or adjacent blocks

Details

- **For a development project, 'use mix' refers to two types of mix:**
  - Internally complementary, i.e., mixed uses within the development, or
  - Contextually complementary, i.e., uses complementary to dominant uses in the surrounding neighborhood.
- **To be "internally complementary", residential uses must account for no less than 15% and no more than 85% of the total developed floor area.**
- **To be "contextually complementary", more than half of the floor area of a development in a predominantly residential area must consist of non-residential uses, or more than half of the floor area of a development in a predominantly non-residential area must consist of dwelling units.**

Measurement Method

1. **Identify the balance of residential and non-residential uses included within the development. Do not include floor area dedicated to car parking in the calculations.**
2. **Determine if the proposed development would improve the residential/non-residential balance of the surrounding area.**

Data Sources

Plans and designs, local government buildings data and zoning regulations, site survey.

Scope

Within the development (internally complementary) and within the same and adjacent blocks (externally complementary).

Complementary Uses	POINTS
Development provides an internally and contextually complementary mix	10
Development is internally complementary	6
Development is contextually complementary	4
Development does not provide a mix of uses	0

Station Area Evaluation

Within the defined station area, determine whether the existing mix of uses is adequately diverse.

Complementary Uses	POINTS
The predominant use in the station area occupies 50% or less of the total floor area	10
The predominant use in the station area occupies 70% or less of the total floor area	5
The predominant use in the station area occupies 80% or less of the total floor area	2
The predominant use in the station area occupies 90% or less of the total floor area	1
The predominant use in the station area occupies more than 90% of the total floor area	0

Metric 5.2

Accessibility to Food

Percentage of buildings that are within 500 meters radius of a source of fresh food.

Details

- **Fresh food includes any of the following: fresh fruits and vegetables, dairy products, meat and seafood.**
- **Sources of fresh food include any and all small and large commercial grocery stores, public markets and street vendors, or any documentable weekly or more frequent local source of fresh food.**
- **If these sources do not currently exist on the development but are planned, they can be scored.**
- **Sources of fresh food outside the development or station area and within 500 meters radius are also eligible sources.**

Measurement Method

1. **Map all buildings and primary building entrances.**
2. **Map all sources of fresh food.**
3. **Mark all buildings with entrances within 500 meters radius from these fresh food sources.**

Data Sources

Plans and designs, maps and listings, site survey.

Scope

Within the development, and a 500 meters radius from the development.

Accessibility to Food	POINTS
80% or more of buildings are within walking distance to a source of fresh food	1
79% or less of buildings are within walking distance to a source of fresh food	0

Station Area Evaluation

Within the defined station area.

A neighborhood supermarket in Bordeaux, France, provides fresh produce.

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

Metric 5.3
Affordable Housing

Percentage of residential units provided as affordable housing.

Details

- **Use affordable housing standards as defined by the relevant municipal, regional or national government.**
- **Affordable housing status must be guaranteed for at least 10 years.**

Measurement Method

1. **Quantify the number of residential units.**
2. **Quantify the number of affordable residential units (see details above).**

Data Sources

Plans and designs, local government housing data, third party reports.

Scope

Residential units within the development.

Affordable Housing	POINTS
20% or more of all residential units are affordable / Not applicable (no residential units)	4
15% or more of all residential units are affordable	3
10% or more of all residential units are affordable	2
5% or more of all residential units are affordable	1
Less than 5% of all residential units are affordable	0

Station Area Evaluation

Residential units within the defined station area.

Affordable Housing	POINTS
30% or more of all residential units are affordable	4
25% or more of all residential units are affordable	3
20% or more of all residential units are affordable	2
15% or more of all residential units are affordable	1
Less than 15% of all residential units are affordable	0

Metric 6.1

Land Use Density

Average density in comparison to local conditions.

Details

- **Use Floor Area Ratio (FAR) to represent land use density. To calculate the FAR, the gross floor area of a building is divided by the area of the plot on which it is built.**
- **Land use intensity is measured by adding the total number of residents and jobs.**
- **Developers are encouraged to seek variances from regulations mandating lower floor area ratio caps, or dwelling unit density caps, to obtain full points.**

Measurement Method

1. **Identify two of the densest recently completed projects that fit the following criteria:**
   (a) built in comparable areas within the same city
   (b) similar in terms of land use regulation
   (c) similar in terms of market strength
   (d) similar in size and type of project
2. **Calculate a baseline density by averaging the FAR of the projects identified above.**
3. **Compare the development density to the above baseline.**

Data Sources

Plans and program of development, local area plans, regulations, policies, local and professional media, site survey.

Scope

All buildings within the development.

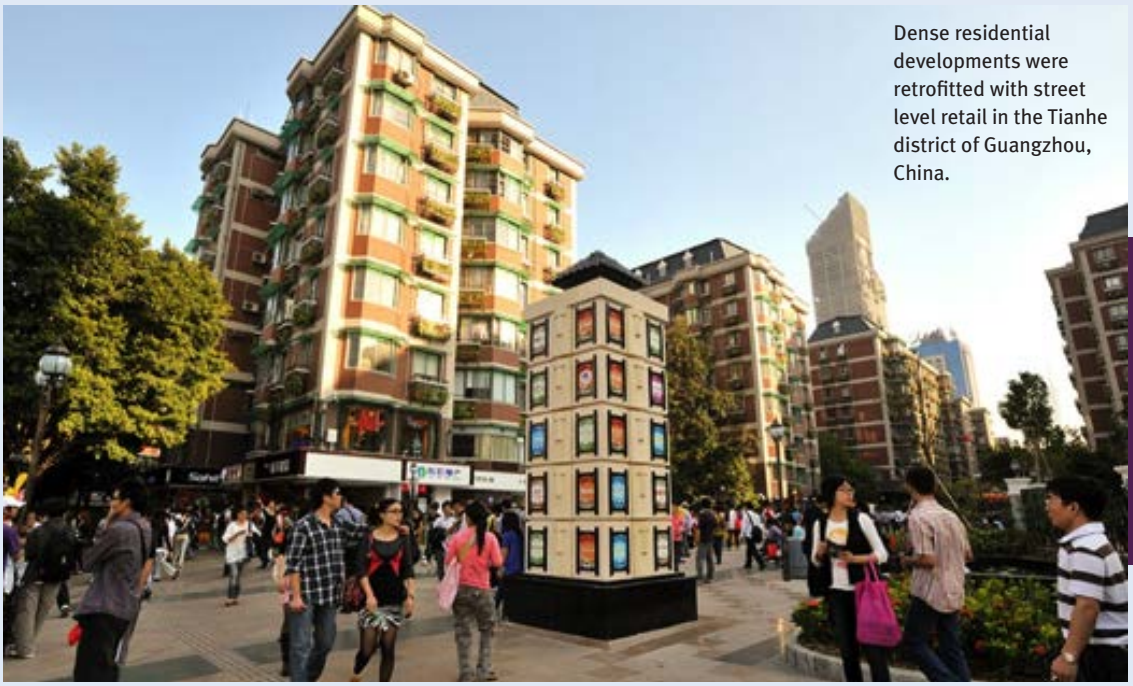
Land Use Density	POINTS
Land use density is higher than the comparable baseline density	15
Land use density is the same as, or within 5% below, the comparable baseline density	7
Land use density is lower than the comparable baseline density by more than 5%	0

Station Area Evaluation

Within the defined station area, local authorities are encouraged to formulate regulations and policies to promote developments that optimize population and workforce density in the station area.

1. **Identify districts with similar land uses to the station area and above city average real estate values as a proxy for desirability.**
2. **Identify the densest of the above districts, and estimate total residential population, number of jobs in, and visitors to the district. Use this number as the baseline.**
3. **Estimate the residential population, number of jobs in, and visitors to the station area.**

Population, Job, and Visitor Density	POINTS
Total residential population, jobs and visitors is higher than the baseline density	15
Total residential population, jobs and visitors is the same as, or within 5% below, the baseline density	7
Total residential population, jobs and visitors is lower than the baseline density	0



Dense residential developments were retrofitted with street level retail in the Tianhe district of Guangzhou, China.

A dense mix of office and residential buildings in the Chelsea district of New York City.

Metric 7.1
Urban Site

Number of sides of the development adjoining existing built-up sites.

Details

- **"Built-up" adjoining sites/property includes previously developed sites that have been cleared.**
- **Adjoining properties that include transport infrastructure, such as railways and motorways, protected landscape, water bodies (lake, rivers) or other natural topography that inhibits development should be considered "built-up".**

Measurement Method

1. **Divide the development site boundaries into four sections (each equaling approximately 25% of the total length of the development boundary).**
2. **Count 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.

Urban Site	POINTS
4 sides adjoin built-up sites	10
3 sides adjoin built-up sites	6
2 sides adjoin built-up sites	3
1 side adjoins built-up sites	1
No sides adjoin built-up sites	0

Station Area Evaluation

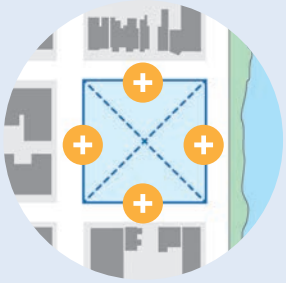
Within the defined station area.

1. **Measure the total area of developable sites/properties within the defined station 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**

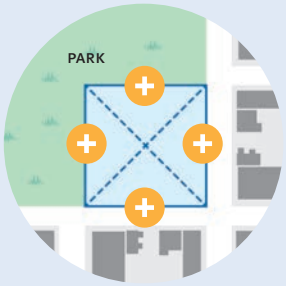
Percentage (area) of developable sites that are built-up	POINTS
More than 90%	10
Up to 90%	6
Up to 80%	3
Up to 70%	1
Less than 60%	0

THESE PLANS EARN A FULL SCORE

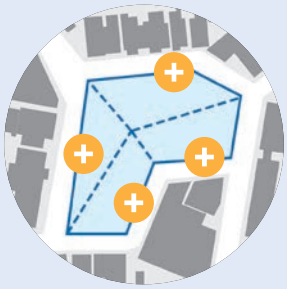
4 sides adjoin built-up sites (10 points)



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

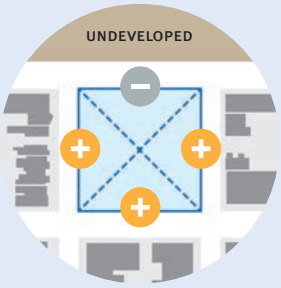


2 sides adjoin built-up sites and 2 sides adjoin a designated park (10 points)

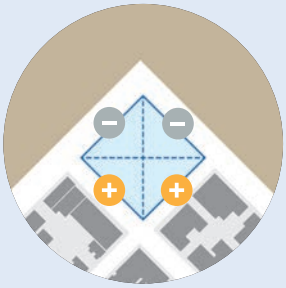


an irregular development plot, where each 25% of the side of the development adjoins a built-up site (10 points)

THESE PLANS EARN LOWER OR NEGATIVE SCORES

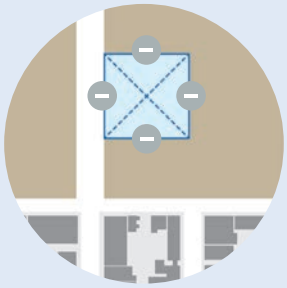


3 sides adjoin built-up sites (6 points)



2 sides adjoin built-up sites (3 points)

1 side adjoins built-up sites (1 point)

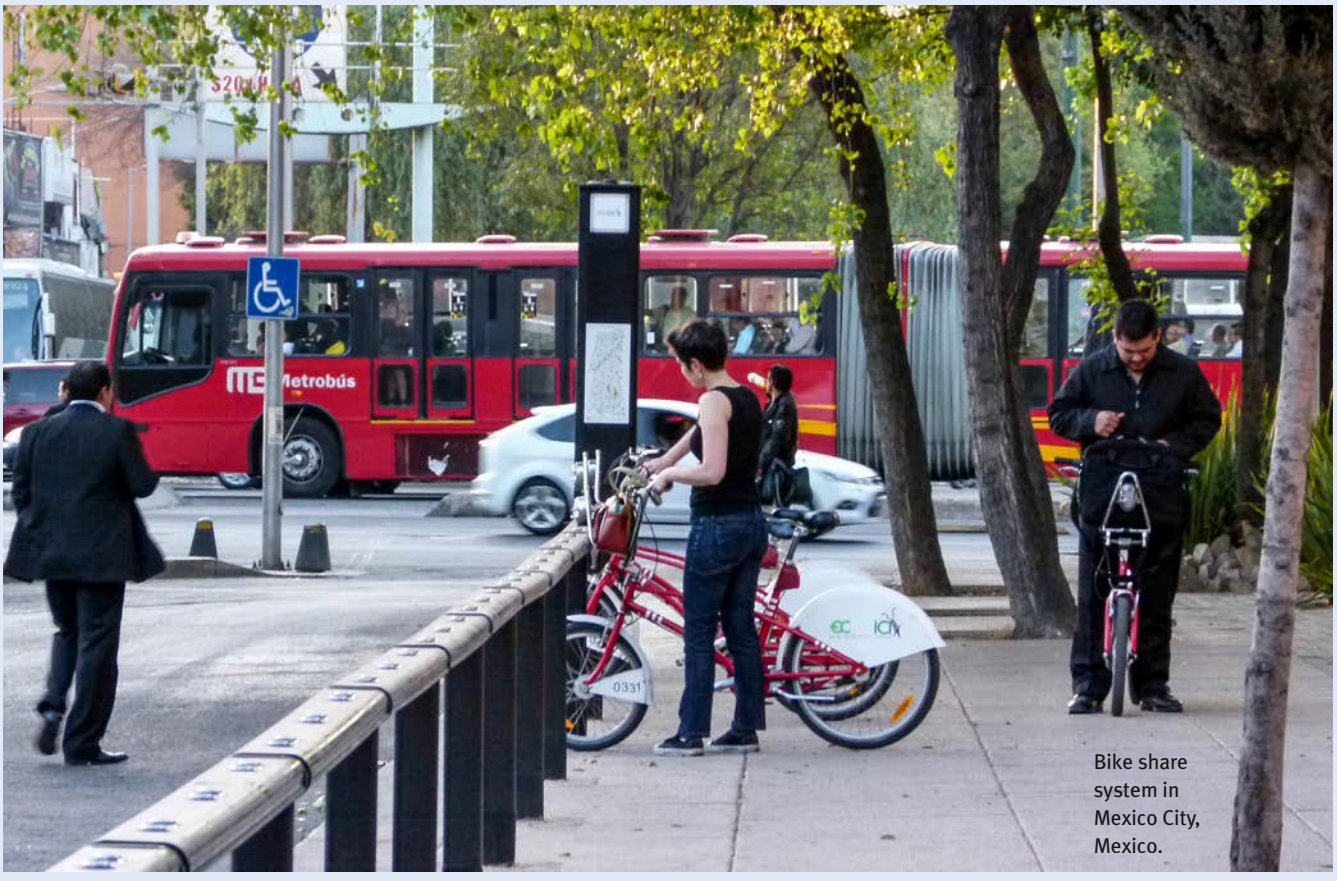


no sides adjoin built-up sites (0 points)

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

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

High demand on Shanghai's system necessitated building many large stations with over a hundred spaces.



Bike share system in Mexico City, Mexico.

Metric 7.2
Transit Options

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

Details

- **Regular transit lines or routes, including non-BRT buses and para-transit modes, can be considered a transit option if the transit line is regularly serviced from 7am to 10pm, with headways of 20 minutes or less.**
- **Stations on different transit lines should be counted. Different stations which are on the same line only count as one transit option.**
- **A dense bike share system can be considered one transit option.[2]**

Measurement Method

1. **Identify all applicable high-capacity, regular, para-transit, and public bicycle station options within walking distance.**

Data Sources

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

Scope

Within 1 kilometer radius around the development.

Transit Options Add all applicable points up to a maximum of 5 points	POINTS
Each additional high-capacity transit line (Rail, BRT, etc)	2
Applicable bike share system	2
Each regular transit line/route	1

Station Area Evaluation

Within 1 kilometer around the primary transit station.

2. For further information and guidance on bike share refer to ITDP's Bike Share Planning Guide.

Metric 8.1
Off-Street Parking

Total off-street area dedicated to parking as a percentage of total land area.

Details

- **Include total parking land area (surface parking lots) and floor area (structured parking facilities) and related internal driveways (from the street line).**
- **Do not include parking reserved for people with disabilities and essential service vehicles, such as ambulance and fire truck access, emergency parking for medical staff, parking for construction and maintenance services and loading docks, and parking for car share schemes.**

Measurement Method

1. **Quantify the cumulative area of all off-street parking areas (excluding essential parking noted above), including all related driveways, starting at the street line.**
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.

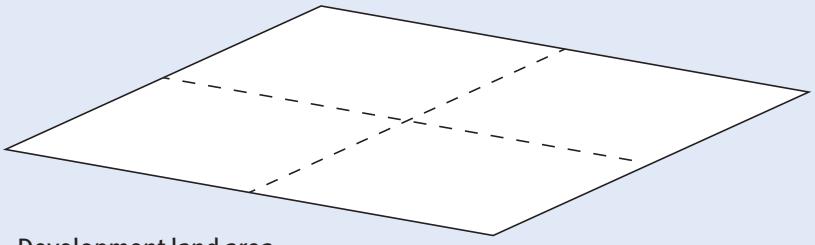
Scope

Within the development.

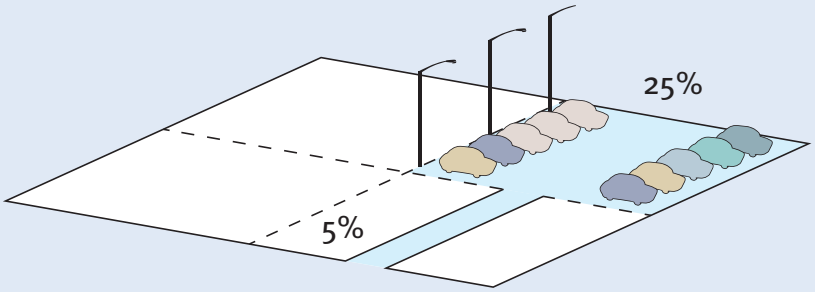
Off-Street Parking	POINTS
100% of parking area is dedicated to essential service vehicles and citizens with disabilities	10
Non-essential parking area is 15% or less of site area	5
Non-essential parking area is 20% or less of site area	4
Non-essential parking area is 25% or less of site area	3
Non-essential parking area is 30% or less of site area	2
Non-essential parking area is 35% or less of site area	1
Non-essential parking area is more than 35% of site area	0

Station Area Evaluation

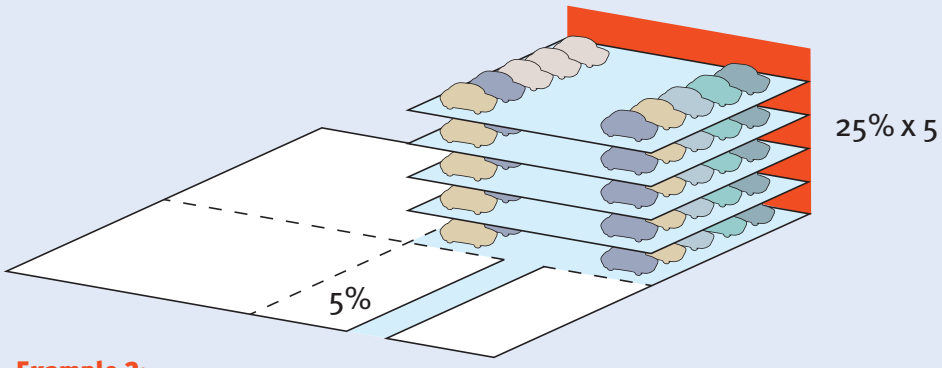
Within the defined station area.



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.

Metric 8.2
Driveway Density

Average number of driveways per 100 meters of block frontage.

Details

- **Driveways are here defined as paths for motor vehicles that cross pedestrian areas and walkways to connect to off-street parking or loading facilities.**
- **Vehicle connections to off-street parking and loading facilities that do not intersect a walkway or reduce the completeness of the walkway network are not counted as driveways for this metric.**

Measurement Method

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

Data Sources

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

Scope

Within the development.

Driveway Density	POINTS
Average driveway density is 2 or less driveways per 100m of block frontage	2
Average driveway density is more than 2 driveways per 100m of block frontage	0

Station Area Evaluation

Within the defined station area.

The poor practice of parking cars on sidewalks, in this case in the Taojin area of Guangzhou, China, forces pedestrians ontothe roadway.

Shift: Increase mobility by regulating parking and road use

Objective 8A: The land occupied by motor vehicles is minimized

Metric 8.3
Roadway Area

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

Details

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

Measurement Method

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

Data Sources

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

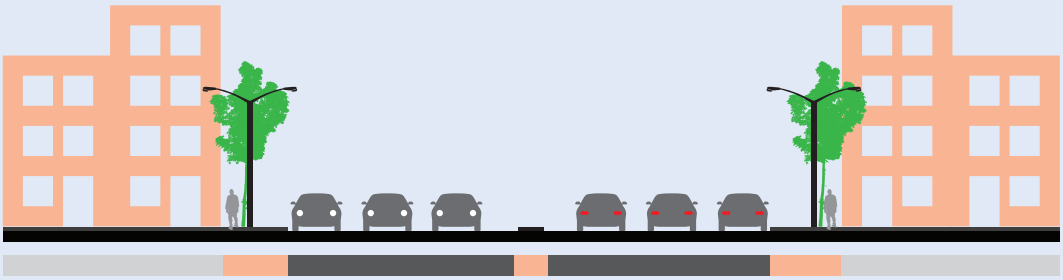
Scope

Within the development and to the centerline of peripheral streets.

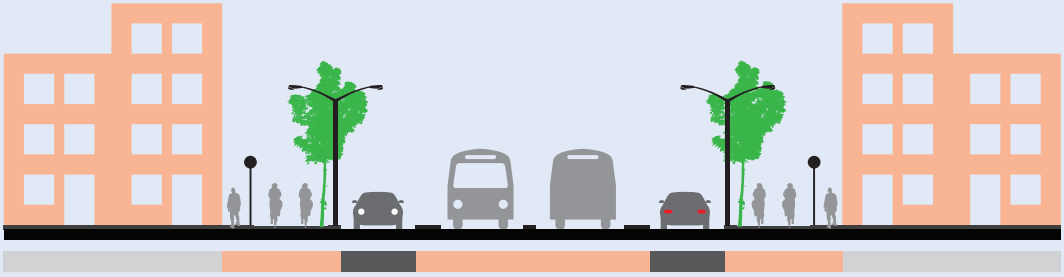
Rodway Area	POINTS
Motor vehicle area is 15% or less of site area	8
Motor vehicle area is 20% or less of site area	5
Motor vehicle area is more than 20% of site area	0

Station Area Evaluation

Within the defined station area.



More road area is given to less efficient motor vehicle travel



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

USING THE TOD STANDARD

快速公交
东圃镇站

Using the TOD Standard

The TOD Standard is a scoring system based on quantitative data, plans and policies available about an urban development or station area. Scoring a project requires collecting a range of data from the lengths of streets and blocks, to information about local policy and site characteristics. The following chapter sets out a suggested step-by-step guide to scoring a development, or station area, in detail.

Development Projects

Pre-scoring preparation

The initial step is to collect as much detailed information about the development as possible. We have created a list of the recommended sources of information below (Table 1). Basic data to collect includes:

- Total area of the development site
- Total number and length of all blocks
- Total length of all streets within the development and number of street segments
- The maximum vehicle speed on all streets
- Number and location of transit stations nearby the development
- Number of residential units (and affordable housing units)
- Amount of non-residential floor area
- Provision of car parking

Collate the sources of information for documentation.

Desktop research

In the first instance, we recommend using the information collated in the form of plans, designs, maps and reports to score as many metrics of the TOD Standard as possible. Some metrics require measurement and calculation, others require simple counts. In some cases, it will not be possible to score the metric with the information available in documents and these will require visits to the site itself, or interviews with other people and organizations who are familiar with the project.

Site surveys & scoring

All team members going on site should have a TOD Standard Scoresheet, a copy of the TOD Standard, a detailed map and a camera. If maps are not available for the project, you may want to take tools for measuring distances as several metrics provide points based on distances and areas. We recommend taking notes with as much information as possible (e.g., actual distances, observational notes), and photos of the elements of the site which are being scored. Following a site survey, team members can compare notes and collectively decide what points can be awarded to the project based on their observations.

Other sources

Collecting information in the form of reports and observations on the site visit should provide all the data needed to score the project. However, there may still be gaps in information and it may be necessary to contact relevant groups such as: local planning authorities, NGOs and other research organizations, architects/designers/planners and engineers who designed the project, and local residents and businesses. If this is required, the information should be collected in a way that allows the TOD Technical Committee to verify that a record of what was said by the interviewees is accurate.

Station Area Evaluation

Understanding and sampling the station area

We recommend defining the applicable station area boundaries using a walking distance of 1 kilometer from the high capacity transit station entrance to the entrance of the final destination (door step of building). The 1 kilometer distance represents a walking time of approximately 20 minutes at the average urban speed of 3 km/h (including wait at intersections).

Station areas by this definition can cover up to 3.14 squre kilometers. In case the TOD Standard cannot be applied in detail to such a large area, we recommend the use of a sampling method to score those metrics requiring measurements.

The sampling method:

1. Identify and score as many blocks as manageable that seem representative of the station area in all respects relevant to the metrics, and
2. Extrapolate the results to the entire relevant area.

In case the blocks in the station area appear too dissimilar for a single sample and extrapolation, the evaluator should:

1. Divide the station area into zones of sufficient similarity of urban form type,
2. Use the sampling method to score each metric for each zone on separate scoresheets,
3. Calculate the percentage of total station area that is contained in each zone,
4. Calculate the aggregate station area scores for each metric by factoring in the area percentage of each zone.

Each zone scoresheets should be kept together with the aggregate scoresheet. The information about each urban form type will be helpful when planning for improvements in the station area.

Pre-scoring preparation

The initial step is to collect as much detailed information about the station area as possible. If you have identified zones of similar use and form within the station area, as mentioned above, you may want to collect some of this information by zones. We have created a list of the recommended sources of information below (Table 1, page 67).

Some basic data or policies to collect includes:

- Boundary and total area of the station area being evaluated
- Number and location of transit stations nearby the development (including the primary transit station)
- Relevant local area or existing station area plans
- General land use plans, zoning regulations and other city-wide land use and transport plans
- Number of residential units (and affordable housing units)
- Amount of non-residential floor area
- The maximum vehicle speed on all streets
- Total length of all streets within the station area
- Car parking data

Desktop research

In the case of existing areas, the best sources of information are official local area plans and maps, officially collected local area statistics and data, zoning regulations and other policies.
If possible, we also recommend the use of geographic information system (GIS) tools to map data and information in a large area. If scaled and up-to-date satellite imagery is available, it may also be a good source for maps and information.

In some cases, it will not be possible to score the metric with the information available in policies, plans, and maps. These metrics will require visits to the site itself or interviews with other people and organizations who are familiar with the project.

Site surveys & scoring

All team members going on site should have a TOD Standard Scoresheet, a copy of the TOD Standard, a local area map, and a camera. If maps are not available for the station area, you may want to take tools for estimating distances as several metrics provide points based on distances and areas.

We recommend taking notes with as much information as possible (e.g., actual distances, observational notes), and photos of the elements of the site which are being scored. Following a site survey, team members can compare notes and collectively decide what points can be awarded to the project based on their observations.

Other sources

Collecting information in the form of reports and observations on the site visit should provide all the data needed to score the project. However, there may still be gaps in information and it may be necessary to contact relevant groups such as: the local planning authorities, NGOs and other research organizations, local residents and businesses, and perhaps architects/designers who have worked in this area before.

Table 1. Sources of Data

The sources of information are listed in order of preference in terms of the quality of information provided — the most preferred source of information is listed first.

Sources of Information	Relevant Metrics	Other Comments
Maps, plans and/or design reports of the development	All Walk metrics 2.1 Cycle Network 2.2 Cycle Parking at Transit Stations 2.3 Cycle Parking at Buildings All Connect metrics All Transit metrics All Densify metrics All Shift metrics	These are detailed plans/ drawings of the buildings, open spaces and other infrastructure in the context of the local site/area. This would provide a high level of accurate detail about the project.
Local policy/codes/bylaws	2.4 Cycle Access in Buildings 5.3 Affordable Housing All Densify metrics All Shift metrics	Local policies/codes/bylaws or other requirements/ guidelines produced by local government will have detailed information that may be relevant to the development.
Local map of the area	2.1 Cycle Network 2.2 Cycle Parking at Transit Stations 2.3 Cycle Parking at Buildings All Transit metrics All Mix metrics 7.1 Urban Site	A map showing the streets, blocks and local transport stations and lines can provide good information. Maps can be dated, so the information may need to be checked for accuracy.
Tenant information (provided by developer/management company)	All Mix metrics All Densify metrics	A list of tenants and the uses of their spaces is a reliable source of information.
Local transport maps	2.1 Cycle Network 2.2 Cycle Parking at Transit Stations 2.3 Cycle Parking at Buildings All Transit metrics 7.2 Transit Options	Some transport maps include detailed routes for cycle lanes and parking, as well as local bus, light and heavy rail lines. Maps can be dated, so the information may need to be checked for accuracy.
Regional/Local cycling maps	2.1 Cycle Network 2.2 Cycle Parking at Transit Stations 2.3 Cycle Parking at Buildings	Some areas provide cycle maps that provide detailed routes for the local and regional cycle network, lanes and parking. Maps can be dated, so the information may need to be checked for accuracy.
Third-party sources (e.g., reports by NGOs/interest groups, media)	All metrics	Reports or case studies produced by groups who have an interest in these principles can be detailed and provide a good source of information. However, the information may be dated and require updating.
Latest aerial/satellite images (eg. Google Earth, Google Map and Google Street View)	1.1 Walkways 1.2 Crosswalks 1.4 Visually Active Frontage 1.5 Shade & Shelter 3.1 Pedestrian Intersection Density 3.2 Small Blocks All Transit metrics All Compact metrics 8.3 Roadway Area	Satellite imagery can be very helpful and is a very accessible source of information, but images can be dated and the low resolution can mean that project details are not visible.

Glossary

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

Active Frontage
See *Frontage*.

Alleyways
See *Street*.

Block
An area of enclosed land surrounded by publicly accessible *walkways* (regardless of vehicular access).

Block Frontage
See *Frontage*.

Crossing
A point at which pedestrians cross paths with vehicles.

> **Crosswalk**
> A marked and protected crossing point designated for pedestrians (and cyclists) across a road with vehicular speeds above 15 km/h. Crosswalks are basic elements of complete streets. Crosswalks should be designed for safe and easy crossing and implemented to maintain pedestrian connectivity across slow and fast vehicular roads.

Curb Ramp
An incline designed to accommodate pedestrian transition between a road and a sidewalk or walkway. Curb ramps are key to universal accessibility and pedestrian comfort. They should be designed to be in line with the walkways they connect while restricting motor vehicle access to pedestrian areas.

Cycleway
A right of way, or portion of a right of way, designated to accommodate bicycle traffic; includes but is not limited to 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 (safely shared between cycles and motor vehicles at speeds under 30km/h) and pedestrian-priority streets (safely shared by pedestrians, cycles and motor vehicles at speeds under 15km/h).

> **Segregated Cycleways**
> Cycleways restricted to cyclists; typically created through striping (road painting) or physical barriers.

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 in all street types for parking and travel. These vehicles include emergency vehicles, authorized security vehicles, local access freight vehicles and authorized disabled person vehicles.

Frontage
The physical edge of a building or block facing a peripheral walkway or street at, or close to, the property line. Ground-level frontage is of primary interest because it defines the building edges and determines the character of public space for walking. Building and block frontage should be designed for active uses and interesting design details that improve the walking experience and stimulate pedestrian activity.

> **Active Frontage**
> Building or block frontage that provides direct visual connection to interior building space through windows, doorways or other similar open or transparent façade elements. For TOD Standard scoring purposes, a block that is a park or plaza, with no buildings, is counted as having active frontage.

> **Block Frontage**
> The physical edge of a block facing a peripheral walkway or street at, or close to, the property line.

> **Permeable Frontage**
> Building frontage that incorporates points of passage between walkways and active, interior building spaces; typically takes the form of main building entrances and entrances to retail establishments and other ground floor level goods and services. A block that is a public park or plaza, with no buildings or other physical barriers, is considered to have permeable frontage.

Gross Floor Area (GFA)
The cumulative measure of the area of each floor within the external walls of a building, including sub-surface levels, but not including the roof.

Floor Area Ratio (FAR)
The floor area of a building or development,* divided by the net developable land area of the site or property on which it is located. **Not including subsurface levels.*

High-Capacity Transit
See *Transit*.

Intersection
A point at which two or more rights of way intersect each other.

Pedestrian intersection
Intersection of walkways, including pedestrian paths, pedestrian priority streets and street sidewalks. Streets with two or more sidewalks count as one for the purpose of counting pedestrian intersections.

Intersection Density
The number of intersections within a given area; typically used to assess connectivity and route-diversity within a street or path network.

Mode Share
The percentage of total trips completed via a particular travel mode (walk, cycle, drive, ride, etc.).

Net Developable Land
A measure of the total land area available for development within a site or property. It excludes rights of way, other public spaces and protected land.

Non-Motorized Transport (NMT)
Transport independent of motorized power, typically used to refer to walking, cycling and pedicab.

Pedestrian
A person walking, or moving with walking aids or substitutes, such as a wheelchair or a baby stroller.

Pedestrian Crossing Refuge
A protected median or island within a road, designed to allow pedestrians to stop safely mid-crossing.

Pedestrian Priority (or Shared) Street
See *Street*.

Pedestrian Street Crossing
An area within a street where pedestrians cross from one side to the other; including 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 includes, but is not limited to, sidewalks, shared streets and off-street paths.

Wheelchair-accessibility
Not all people who experience mobility disabilities are wheelchair users, however, this terminology is utilized to represent pedestrian facilities that have been designed to accommodate a broad range of mobility devices. Public infrastructure should be designed and built to local disability access standards, or, where locally ratified, international agreements for providing access to people with disabilities, such as the United Nations Convention on the Rights for Persons with Disability. In cases where local access standards or recognition of international conventions is not present, proposals or projects should be informed by international best practices and vetted by groups of local disability access auditors, including users, to ensure that they are able to use the built environment that is provided.

Peripheral Streets
See *Street*.

Permeable Frontage
See *Frontage*.

Public Transit
See *Transit*.

Public Transport
Referred to as public transit in this document. See *Transit*.

Residential Density
The number of residents, or dwelling units, within a specific measure of land area (typically hectare or square kilometer)

Right of way
Public right of passage of any morphological type such as path, alley, street or road, although this right may be restricted to specific transport modes.

Road
See *Street*.

Segregated Cycleway
See *Cycleway*.

Sidewalk
See *Pedestrian*.

Slow Street
See *Street*.

Street
A right of way through developed or developable urban land. A street normally accommodates all travel modes and should be designed to prioritize direct, safe and comfortable sustainable transport modes (walk, cycle and transit). Accommodation of personal motor vehicles is optional (see Pedestrian Streets) but streets must accommodate local freight and essential vehicle access. A street fulfills functions beyond mobility (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 street, typically aligned through the middle of a block, to provide service access, such as loading and parking, to buildings. Alleyways can be publicly accessible, or privately owned.

Pedestrian-Priority (or Shared) Street
A street or space designed to allow free and safe integration of all transport modes within a single right of way, at a pedestrian-compatible speed of 15 km/h or less.

Pedestrian Street
A street restricted to pedestrians, with the exception of slow-moving cyclists and essential vehicles yielding to pedestrians.

Peripheral Streets
The streets adjacent to, or 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 motor vehicle travel. 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 Street
A street designed to allow free and safe integration of motorized and non-motorized vehicles within a single roadway, intended to maintain motorized travel below 30 km/h.

Fast Vehicular Street
A street with a roadway that allows vehicular speeds over 30 km/h. It includes separate cycleways.

Street Centerline
The mid-point of a street's width, marking the center of the street. This is a conceptual line that is not necessarily physically marked.

Street Segment (Street Link)
The segment or portion of a street located between adjacent intersections.

Transit
The transport of passengers on any and all vehicles that are designed for multiple passengers and are not personal vehicles. This includes all shared vehicles, public or otherwise, chauffeured or self-driven.

Public transit
Transit designed for use by all members of the general public, regardless of public or private ownership, management and operation responsibilities.

High-Capacity Transit
Large-scale transport systems designed to carry many passengers. This includes light or heavy rail passenger services, or rapid bus transit services (BRT). The definition of BRT is available in the BRT Standard (also produced by ITDP).

Vehicle Kilometers Traveled (VKT)
The number of kilometers traveled by vehicles originating within a specified area and during a specified period of time. VKT refers to motor vehicle kilometers traveled unless specified otherwise.

Walkway
See *Pedestrian*.

Wheelchair-accessibility
See *Pedestrian*.

SITE/PROJECT NAME

CITY/COUNTRY

CATEGORY		POSSIBLE POINTS LOWEST	HIGHEST	DATA	SCORE	NOTES
WALK						
1.1 Walkways	Percentage of block frontage with safe, wheelchair-accessible walkways.	0	3			
1.2 Crosswalks	Percentage of intersections with safe, wheelchair-accessible crosswalks in all directions.	0	3			
1.3 Visually Active Frontage	Percentage of walkway segments with visual connection to interior building activity.	0	6			
1.4 Physically Permeable Frontage	Percentage of block frontage with visual connection to interior building activity.	0	2			
1.5 Shade & Shelter	Percentage of walkway segments that incorporate adequate shade or shelter element.	0	1			
		0	15	**Walk Score:**		
CYCLE						
2.1 Cycle Network	Percentage of total street segments with safe cycling conditions.	0	2			
2.2 Cycle Parking at Transit Stations	Secure multi-space parking facilities are providd at all high-capacity transit stations.	0	1			
2.3 Cycle Parking at Buildings	Percentage of buildings that provide secure cycle parking.	0	1			
2.4 Cycle Access in Buildings	Buildings allow interior access for cycles and cycle storage within tenant-controlled spaces.	0	1			
		0	5	**Cycle Score:**		
CONNECT						
3.1 Small Blocks	Length of the longest block (long side).	0	10			
3.2 Prioritized Connectivity	Ratio of pedestrian intersections to motor vehicle intersections.	0	5			
		0	15	**Connect Score:**		
TRANSIT						
REQUIRED 4.1 Walk Distance to Transit	Walk distance (meters) to the nearest transit station.					
				Transit Score:		

BRIEF DESCRIPTION OF THE PROJECT SITE

CATEGORY		POSSIBLE POINTS LOWEST	HIGHEST	DATA	SCORE	NOTES
5.1 Complementary Uses	Residential and non-residential uses combined within same or adjacent blocks.	0	10			
5.2 Fresh Food	Percentage of buildings that are within 500 meters radius of an existing, or planned, source of fresh food.	0	1			
5.3 Affordable Housing	Percentage of residential units provided as affordable housing.	0	4			
		0	15	**Mix Score:**		
6.1 Land Use Density	Average density in comparison to local conditions.	0	15			
		0	15	**Densify Score:**		
7.1 Urban Site	Number of sides of the development adjoining existing built-up sites.	0	10			
7.2 Transit Options	Numbers of stations on different transit lines that are accessible within walking distance.	0	5			
		0	15	**Compact Score:**		
8.1 Off-Street Parking	Total off-street area dedicated to parking as a percentage of total land area.	0	10			
8.2 Driveway Density	Average number of driveways per 100 meters of block frontage.	0	2			
8.3 Roadway Area	Total road area used for motor vehicle travel and on-street parking as percentage of total land area.	0	8			
		0	20	**Shift Score:**		
		0	100	**Total Points:**		

MIX

DENSIFY

COMPACT

SHIFT

Scorecard TOD STANDARD